

BOARD ATTRIBUTES, ESG PRACTICES, AND FIRM PERFORMANCE AND SUSTAINABILITY: A MEDIATION APPROACH

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Abstract

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The study examines the moderating role of selected NIFTY 50 index companies' board characteristics, which comprises board strength, board meetings, number of independent directors, and the board's gender diversity, in relation to the inclusion of female directors on the board, to analyze the relationship between firm financial performance and environmental, social, governance (ESG) performance rating. A total of 50 companies listed in the NIFTY 50 index covering eight years from 2015 to 2022 constitute the panel data sample. The board's characteristics, along with its composition plays an integral role in ESG leadership to ensure sustainable business practices. The present study may produce contributing factors that can fill the gap in the lack of literature available in terms of factors that can moderate the relationship between ESG and the financial performance of firms. The study has been applied to analyse the data and perform a robustness check. Return on equity (ROE) is used as a proxy variable for the firm's financial performance and is considered a dependent variable. ESG is denoted as an independent variable, while the number of directors, the number of meetings, the number of independent directors, and gender diversity in terms of including female directors on the board are proxies as moderators. As a result, an unfavourable and marginally significant relationship was found between ESG and ROE in the base model (Model 1). In Model 2 marginally significant interaction between board size and ESG was found; neither board independence (Model 4) nor board meetings (Model 3) shows any moderating effects. Lastly, in Model 5, gender diversity as a moderator shows positive but marginally significant results and indicates, as a major moderator among all, that the result of the study may contribute to the existing literature and value addition, suggesting the scope of the selected firms of the NIFTY 50 index companies of India to improve their financial payoff of ESG.

Keywords: ESG Performance, Financial Performance, NIFTY 50, Independency, Board Diversity, Board Independency

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1. INTRODUCTION

There is plethora of studies are going on environmental, social, governance (ESG) related field comprises of its on financial performances of the firms but we have found lack of evidences that much study has been observed and much focused on moderating role of board attributes with the inclusion of board strength, board meetings, number of independent directors and board's gender diversity that derived the research question for the present study. Based on three main criteria to assess a firm's dedication toward sustainability and ethical business consideration, which comprises ESG (Friede et al., 2015). As stakeholders — from investors and regulators to customers and communities — demand more responsibility and transparency from organizations, ESG frameworks have become increasingly well-known worldwide (Kotsantonis et al., 2016). A company's attitude to climate change, resource consumption, waste management, and emissions reduction are all evaluated by the environmental component (Awate & Kasar, 2024) With an emphasis on topics like diversity and inclusion, labor rights, and corporate social responsibility (CSR), social parameter pushed to look after about how a business handles connections with their customers, suppliers, workers, and communities (Ioannou & Serafeim, 2015). Last but not least, the governance component assesses internal business procedures and guidelines (García-Sánchez et al., 2019). Businesses actively participating in ESG practices are seen as better positioned for long-term growth, effectively managing risks while enhancing corporate reputation and winning stakeholders' confidence (Eccles et al., 2014). Several research indicates positively correlated relationship between stronger ESG and improved financial performance, highlighting that firms having a good ESG framework may attract investment, mitigate risks, and achieve efficiencies (Clark et al., 2015; Khan et al., 2016). ESG considerations have become an essential part of business strategy and investment decisions in recent years (Amel-Zadeh & Serafeim, 2018). Now, the business responsibility and sustainability report (BRSR) is mandated for over top 1000 listed companies by the Securities and Exchange Board of India (SEBI), which highlighted the significance of ESG in India. This change is a reflection of India's increasing dedication to ethical governance and sustainable development (Klynveld Peat Marwick Goerdeler [KPMG], 2022). In order to comply with regulations, meet global sustainability standards, and draw in socially conscious investors, Indian companies are increasingly incorporating ESG considerations into their basic operations (Ernst & Young [EY] India, 2023). However, there are particular difficulties in implementing ESG practices in India, specifically for small businesses, in bringing a balance between social and environmental obligations and profitability (ETBFSI, 2022). Notwithstanding these obstacles, the future of ESG in India appears promising, as companies are becoming more conscious and taking proactive measures (PricewaterhouseCoopers [PwC] India, n.d.).

Exploration through research on the complex synchronization among corporate governance, ESG

practices, and firms has become crucial, particularly since companies are under increasing pressure to implement sustainable and ethical practices (Velte, 2017). A company's strategic direction and commitment to ESG activities are greatly influenced by the characteristics of its board, including its size, independence, gender diversity, and existence of specialized committees (Post et al., 2011). For example, gender-diverse boards and independent audit committees with pertinent experience have a good impact on ESG results (Harjoto et al., 2015).

Concentrated ownership structures can further improve ESG performance by encouraging long-term investment in sustainable operations, while independent directors offer objective monitoring, which is essential for promoting sustainable practices. Better financial results have been linked with the incorporation of ESG practices with business plans; companies that score higher on ESG metrics have higher profit margins and return on assets (ROA) (Jung, 2024). Gmati et al. (2024) pointed out that financial success mediates the association between ESG activities and the company; ESG practices also act as a mediating element between firm performance and board characteristics. These correlations, however, may also be moderated by other variables like ownership and market competition. For instance, while concentrated ownership has been demonstrated to improve ESG performance and business results, fierce market rivalry may reduce beneficial effects of ESG measures to achieve financial success. Present research investigates the mediating role of ESG practices between board characteristics and company performance. This study advances our knowledge regarding how corporate governance practices can be utilized to improve ESG practices and their impact on business performance by taking a mediation approach.

As business discourse shifts toward sustainable and responsible operations, the incorporation of ESG practices into corporate strategies has emerged as a key topic. Companies all over the world are realizing that strong ESG performance may lead to improved stakeholders' connections, operational effectiveness, and goodwill — all of which may contribute to better financial performance. The relevance of sustainability in attaining long-term corporate success is highlighted by the positive correlation that has been observed across multiple markets between ESG initiatives and business performance.

The study comprised 49 listed companies in the Bombay Stock Exchange (BSE) ESG 100 index during 2015–2022 observed a positive correlation between firm performance and ESG rating. A study analyzing 222 Indian firms found that companies tend to focus largely on social and governance pillars rather than environmental, which showed that the social aspect of ESG had a favorable influence on ROA, but the overall effect of sustainable factors on profitability was found to be insignificant. In particular, there was a rise in ROA for every unit improvement in a company's social score, indicating that financial gains can be obtained from investments in social programs like employee welfare and community involvement. While a significantly negative relation between profitability and governance was found, suggesting that the costs

of complicated governance structures or compliance may be more than the advantages. Furthermore, it was discovered that larger businesses had lower returns on equity and assets, possibly as a result of the higher financial risks that come with scale. Sustainability practices had a beneficial impact on business performance, according to an additional study conducted between 2017 and 2021 on 65 listed Indian companies. Interestingly, environmental initiatives exhibited a negative but negligible correlation with company performance, whereas social and governance activities had a considerable beneficial effect. These results demonstrate the intricate relationship between Indian firm performance and ESG factors. They contend that although governance and social measures can improve financial results, environmental initiatives cannot yet result in direct financial gain. This emphasizes how important it is for Indian businesses to strategically match their ESG initiatives with their operational objectives, taking into account the particular possibilities and constraints present in the Indian market. In conclusion, ESG practices are becoming more widely acknowledged both internationally and in India as being essential to business strategy and having a variety of effects on firm performance. A targeted strategy that navigates the intricacies of environmental initiatives and prioritizes social and governance factors may provide Indian businesses with a route to long-term growth and profitability.

The rest of the research is structured as follows. Section 2 explains the literature review and develops a research hypothesis. Section 3 presents the methodology, data collection, and analysis of data. Section 4 analyzes the results. Section 5 discusses the results. Section 6 concludes the paper.

2. LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

2.1. Firm performance and environmental, social, governance disclosure

Since it affects stakeholder views and company performance, ESG has emerged as a critical component of corporate reporting. The association between firm performance from different dimension like functional, operational, or reputational, and ESG disclosure is the subject of discussion, and already so much research done related to ESG disclosure and firm performance. Due to increased investor trust and risk minimization, companies with strong ESG disclosure typically perform better than their competitors financially (Friede et al., 2015). In a similar vein, clear ESG reporting lowers information asymmetry and raises firm valuation, according to Fatemi et al. (2018). Empirical results are still conflicting; nevertheless, some research indicates that the expense of implementing ESG may have a transient effect on short-term profitability (Chipimo et al., 2025).

Businesses with greater ESG disclosure levels have superior reputational capital, which boosts customer trust and brand loyalty, according to research by Eccles et al. (2014). Furthermore, businesses that use proactive ESG communication techniques typically see a decrease in unfavorable stakeholder responses during emergencies (Wang &

Sarkis, 2017). According to studies, investors are using ESG considerations more and more when making decisions. El Ghoul et al. (2011) state that businesses with more ESG disclosure have easier access to funding and less stock price volatility. Similarly, ESG openness lowers firm-specific risk and increases long-term shareholder value (Albuquerque et al., 2019). ESG disclosures are now more comparable and reliable due to the implementation of standardized ESG frameworks like the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) (Hussain et al., 2018). The promotion of ESG openness has also been greatly aided by regulatory forces, since mandated disclosure requirements have increased corporate accountability (Tamasiga et al., 2024). New research shows that ESG disclosure and corporate innovation are positively correlated. According to Kramer et al. (2025), companies that incorporate the ESG concept into their business strategies tend to invest more in sustainable technologies and creative solutions. Additionally, companies that prioritize ESG attract top talent, which promotes a culture of innovation and continuous improvement. Shalhoob and Hussainey (2022) and Gillan et al. (2021) found that companies with independent boards and ESG-focused committees exhibit greater transparency and accountability. Furthermore, robust governance mechanisms reduce the risk of greenwashing and increase stakeholder trust (Zaman et al., 2022).

Environmental disclosures have been associated with better sustainability performance (Busch et al., 2016) found that companies with comprehensive environmental disclosures typically have lower carbon footprints and higher resource efficiency; these disclosures also help firms comply with regulations and align with global sustainability goals. However, despite these advantages, companies face obstacles in ESG disclosure, such as inconsistent data, reporting costs, and concerns about greenwashing; KPMG (2023) reports that many companies have difficulty quantifying ESG impacts because there are no standardized measurement tools; stakeholders also want more transparent and verifiable ESG data to avoid false sustainability claims.

According to the literature, ESG disclosure significantly affects a company's performance, affecting its reputation, financial success, innovation, and market stability. Despite obstacles, it is anticipated that enhanced reporting guidelines and legislative developments would increase ESG transparency. There is scope in the future to study and examine how developing technologies affect ESG reporting, as well as the effects of ESG on certain industries.

H1: ESG disclosure is positively significant with firm performance.

2.2. Environmental, social, and governance, firm performance, and the moderating role of board independence

There is a plethora of research based on the relationship between ESG and companies' performance, which focuses on financial performance, such as accounting-based metrics like return on equity (ROE) and return on assets (ROA), while also highlighting the moderating effect of board independence. For example, Buallay (2022) looked into the food industry and observed that ESG

performance and financial performance, specifically roe found to be positively significant. However, there is no significant correlation observed with either market performance (Tobin's Q) or operational performance (ROA) (Buallay, 2022). Likewise, a study conducted on manufacturing companies in Bangladesh discovered that environmental reporting (ER) had a favorable and noteworthy effect (Tobin's Q) and (ROA, ROE), with board independence strengthening this association.

ESG disclosures and performance metrics of ROA, ROE, and earnings per share (EPS) were found to positively correlate in selected companies listed on the Saudi Stock Exchange. Notably, social disclosures had a beneficial impact on ROE, environmental disclosures were especially successful in increasing ROA, and governance disclosures greatly increased EPS. Daszyńska-Żygadło et al. (2021) revealed that corporate outcomes were positively impacted by governance performance, but negatively by environmental and social parameters (Daszyńska-Żygadło et al., 2021). Board independence considerably reduced the relationship between ESG disclosure and the financial success of Egyptian non-financial companies, especially improving ROE results. Furthermore, studies conducted on Saudi-listed businesses showed that, although board ownership had a favorable moderating effect, board independence and board size's impact differ based on particular financial criteria. While Indian companies discovered that board meetings have a positive impact on market performance metrics like Tobin's Q, board independence, and ROA, along with ROE, were found to be positively correlated. This suggests that different governance mechanisms may have different effects on different performance metrics. Together, these results show that whereas ESG policies typically improve company performance, the extent and character of this effect frequently depend on regional governance frameworks, industry-specific variables, and the particular makeup of the board. A common moderating element that strengthens the favourable benefits of ESG activities on financial results is board independence. Its efficacy, however, can differ depending on contextual details, underscoring the necessity of more detailed, industry-specific assessments in subsequent studies.

H2: Board independence positively moderates the relationship between ESG disclosure and firm performance.

2.3. Gender diversity and its moderating role

Numerous scholarly articles have explored the intricate and context-dependent linkages that exist between ESG practices and company performance due to the moderating role of gender diversity. Gender diversity, especially on boards, improves ESG performance through decision-making procedures. In support of critical mass theory, Yadav and Prashar (2023) discovered that board gender diversity is positively correlated with companies' ESG performance in India, particularly when boards have at least three female directors. In a similar vein, gender diversity improves ESG disclosure standards across Indian companies, according to Laskar et al. (2024).

A number of studies have produced mixed findings in relation to gender diversity on firm financial performance. Nigam et al. (2022) found that companies with female participation as

directors observed lower risk and lower returns but achieved higher risk-adjusted returns, which indicates a positive effect on firm performance. Similarly, Duppati et al. (2020) revealed that gender diversity positively impacts financial performance in India and Singapore, though the impact varies across quantiles. Biswas (2021) highlighted that Indian firms with greater gender diversity in leadership roles experienced increased firm value and operational efficiency. Kabir et al. (2023) observed that due to masculinity cultural dimensions, the positive impact of board gender diversity on firm performance is compensated in European firms, indicating that cultural contexts play a role, given results are corroborated by other international investigations. Gender diversity and business performance among United Kingdom (UK) Financial Times Stock Exchange Index (FTSE) 100 companies were found to be positively significant and correlated with Brahma et al. (2021), especially when boards had at least three female directors. According to Post and Byron (2015), corporate performance may be improved by including gender diversity on boards, caused by better decision-making and innovation. Terjesen et al. (2016) indicated that gender diversity on boards enhances ethical governance and stakeholder engagement.

While women now make up 43.4% of FTSE 350 board roles, the number of female chief executives is still low, indicating that more work is needed to ensure women attain top leadership positions (Reuters, 2025). Recent developments have highlighted both progress and challenges in promoting gender diversity within corporate leadership. Despite initiatives like the "Fearless Girl" statue symbolizing the push for gender diversity, some organizations have recently retreated from specific diversity targets, reflecting a broader corporate trend of scaling back diversity efforts amidst legal and political pressures (Reuters, 2025). Companies' performance is positively correlated with ESG performance due to the moderating role of gender diversity of the board (Alodat & Hao, 2025; diversity in board age, however, does not seem to have a major moderating influence (Adnindya & Restuti, 2025). According to these results, businesses can improve their performance by combining ESG practices with sound governance principles, especially by diversifying the gender representation on their boards and creating sustainability-focused committees.

H3: Gender diversity on the board positively moderates the association between ESG and firm performance.

2.4. Board meetings and their moderating role

The rising concern related to the function of corporate governance procedures, including board meetings, recent literature emphasizes the crucial role of ESG practices in influencing business outcomes. The results of the studies related to the firm performance and ESG are conflicting. Some studies raise concerns about the short-term costs of ESG implementation lowering profitability (Brammer & Millington, 2008), while others support a positive relationship, arguing that responsible ESG practices improve reputation, stakeholder trust, and long-term profitability (Friede et al., 2015; Khan et al., 2016).

Agency theory, along with resource dependence theory, indicates that board meetings play an important moderating role in this context.

Studies have shown that more frequent meetings improve monitoring and alignment with stakeholder interests, which may aid in the successful integration of ESG strategies into firm operations (Ntim & Soobaroyen, 2013). Frequent board meetings reflect stronger oversight and strategic engagement, which can either strengthen or weaken the ESG-performance relationship depending on board effectiveness (Vafeas, 1999; Brick & Chidambaran, 2010). Ineffective or excessive meetings may result in symbolic compliance or diminishing returns instead of meaningful oversight. The frequency of board meetings either increases or decreases the impact of ESG on firm value, depending on the caliber of discussions, industry context, and firm-specific governance structures, according to recent panel data studies that have started examining these interactive effects.

H4: Numbers of board meetings positively moderates the association between ESG and firms' performance.

2.5. Board size and its moderating role

In the present scenario ESG standard has emerged as an essential factor to assess the performance and sustainability of corporations. By strengthening stakeholder interactions, lowering operational risks, boosting long-term strategic resilience, and improving brand reputation, relationship is not consistent, though, and may depend on internal governance frameworks, especially board composition. In this setting, board size — a crucial governance variable — plays a complicated and frequently contested function. According to agency theory, larger boards might provide more diversity of opinion, a wider range of experience, and improved monitoring capabilities, all of which could

improve firm value by bolstering the efficacy and implementation of ESG strategies (Jensen, 1993).

Conversely, communication and resource coordination issues on larger boards may impede strategy alignment and decision-making effectiveness, thus lessening the benefits of ESG programs (Yermack, 1996). Smaller boards may better support dynamic ESG decision-making and accountability, according to some research, while other studies suggest that larger boards improve ESG-performance links by giving access to vital resources and enhancing legitimacy (Bear et al., 2010). Because of this, board size is being studied more and more as a moderating factor that affects how ESG practices result in operational and financial outcomes, illustrating the association between sustainability-oriented initiatives and governance frameworks. Recent research examined the association between corporate performance and ESG practices, with a focus on the moderating influence of board composition. Business success is significantly impacted by ESG disclosure (Alodat & Hao, 2025). The number of directors on the board and chief executive officer (CEO) duality mitigate the benefits of ESG on firm performance; smaller boards and non-dual CEO roles increase the positive effects of ESG performance (Meepprom et al., 2024).

There is plethora of studies already being done on ESG related field comprises of its on financial performances of the firms but we have found lack of evidences that much study has been observed and much focused on moderating role of board attributes with the inclusion of board strength, board meetings, number of independent directors and board's gender diversity that derived the research question for the present study.

H5: Board size positively moderates the relationship between ESG and firm performance.

Table 1. Variable selection

<i>Previous study</i>	<i>Variables used</i>	<i>Type of variable</i>	<i>Calculation</i>
Eccles et al. (2014)	ROA, ROE, ESG, SIZE, LEV	ROA/ROE (dependent), ESG (independent), SIZE, and LEV (control)	ROA = Net income / total assets ROE = Net income / equity SIZE = Log(total assets) LEV = Total debt / equity ESG from ESG databases
Wang and Choi (2013)	ROA, ESG	ROA (dependent), ESG (independent)	ROA = Net income / total assets ESG from ratings (Morgan Stanley Capital International (MSCI), Refinitiv, etc.)
Friede et al. (2015)	ROA, ROE, ESG	ROA/ROE (dependent), ESG (independent)	ROA = Net income / total assets ROE = Net income / equity ESG from ESG databases
Fatemi et al. (2018)	ROA, ESG	ROA (dependent), ESG (independent)	ROA = Net income / total assets ESG from ESG databases
Rajakumar (2018)	ROA, SIZE, LEV	ROA (dependent), SIZE, and LEV (control)	ROA = Net income / total assets SIZE = Log(total assets) LEV = Debt / equity
Dimitropoulos and Asteriou (2010)	ROA, SIZE, LEV, BRDIND	ROA (dependent), BRDIND (independent), SIZE, and LEV (control)	ROA = Net income / total assets SIZE = Log(total assets) LEV = Debt / equity BRDIND = Independent directors / total directors
Cek and Eyupoglu (2020)	ESG, BETA	BETA (dependent), ESG (independent)	BETA = Cov(Stock, market) / Var(market) ESG from databases
Adams and Ferreira (2009)	ROA, GENDIV, BRDIND	ROA (dependent), GENDIV and BRDIND (independent)	ROA = Net income / total assets GENDIV = Female directors / total directors BRDIND = Independent / total directors
Knyazeva et al. (2013)	ROA, BRDIND	ROA (dependent), BRDIND (independent)	ROA = Net income / total assets BRDIND = Independent directors / total board
Bear et al. (2010)	ESG, GENDIV	ESG (dependent), GENDIV (independent)	ESG from databases GENDIV = Female directors / board size
Objedallah and Abdelaziz(2024)	ROA, SIZE, LEV, INF	ROA (dependent), INF, SIZE, LEV (control)	ROA = Net income / total assets SIZE = Log(total assets) LEV = Debt / equity
Chang (2024)	ROA, INF	ROA (dependent), INF (independent)	ROA = Net income / total assets

3. RESEARCH METHODOLOGY

3.1. Data collection

Required data collected on the subject of research based on secondary data sources, including the Refinitiv database and annual reports. ESG data has been collected from the Refinitiv database and financial data, including *ROE*, along with variables of corporate governance like board independency (*BRDIND*), denoted by the number of independent directors and board diversity (*GENDIV*), denoted by the number of female members on the board has been sourced from annual reports. Proxy variable, *ROE*, is used for a firm's financial performance, *ESG* is denoted as an independent variable along with size of the firms (*SIZE*), leverage (*LEV*), inflation (*INF*), and beta (*BETA*) as control variables, while

Model 1

$$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 ESG_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 INF_t + \beta_6 BETA_{it} + \varepsilon \quad (1)$$

Model 2

$$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 ESG_{it} + \beta_3 BRDS_{it} + \beta_4 ESG * BRDS_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 INF_t + \beta_8 BETA_{it} + \varepsilon \quad (2)$$

Model 3

$$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 ESG_{it} + \beta_3 BRDM_{it} + \beta_4 ESG * BRDM_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 INF_t + \beta_8 BETA_{it} + \varepsilon \quad (3)$$

Model 4

$$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 ESG_{it} + \beta_3 BRDIND_{it} + \beta_4 ESG * BRDIND_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 INF_t + \beta_8 BETA_{it} + \varepsilon \quad (4)$$

Model 5

$$ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 ESG_{it} + \beta_3 BRDGEN_{it} + \beta_4 ESG * BRDGEN_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 INF_t + \beta_8 BETA_{it} + \varepsilon \quad (5)$$

where:

Dependent variable: ROE_{it} = Return on equity with the firm and time.

Independent variable: ESG_{it} = Environment, social, and governance with firm and time.

Control variable:

- LEV_{it} = Ratio of debt-equity with firm and time;
- $SIZE_{it}$ = Size of the firm used (log total assets) with firms and time;

- INF_t = Inflation with time only;

- $BETA_{it}$ = Proxy of market risk with firm and time.

Lagged variable: ROE_{it-1} .

Moderating variable:

- $BRDS_{it}$ = Board size as the number of directors with the firm and time;

- $BRDM_{it}$ = Board meetings in a year with firm and time;

- $BRDIND_{it}$ = Board independence as the number of independent directors in board of the firm and time;

- $BRDGEN_{it}$ = Gender diversity on the board as the number of women directors in board over time.

4. RESEARCH RESULTS

Table A.1 (Appendix) is based on descriptive analysis, where *ROE* is 19.80 with S.D. = 16.65, indicating underperformed as well as highly profitable

BRDIND and *GENDIV* are used as moderating variables.

The present study is empirical and panel data based that explore the association between independent and dependent variables, along with the moderating role of selected variables.

3.2. Regression models

The following models refer to understanding the effect of combining *ESG* factors into a single construct rather than separately, followed by the moderating effect of the size of the board (*BRDS*), number of board meetings (*BRDM*), board independency (*BRDIND*), and gender diversity (*GENDIV*) on the board between *ESG* and firm financial performance.

firms in the sample. The average *ESG* score of 59.51 suggests consistent, sustainable performance across firms in the sample. *INF* remains stable with a mean = 0.04, *BETA* = 0.99, indicating firms with market-level risk. The average of the debt-equity ratio reflecting differing capital structure, with a mean value = 90.95, and *SIZE* is uniform with 11.91 mean value. Board characteristics, including average *BRDS* 11.45, *BRDIND* = 5.76, and *BRDGEN* = 1.44 depicting moderate *GENDIV* and compliance with governance norms. The *BRDM* mean value = 7.49 highlights varied levels of board activity among firms.

The correlation matrix is shown in Table A.2 (Appendix) and highlight the relationships among the study variables including, *ROE* is negatively but found significant with *BETA* ($r = -0.357$, $p < 0.01$), followed by *SIZE* ($r = -0.409$, $p < 0.01$), and *BRDS* ($r = -0.141$, $p < 0.01$) indicating that higher risk, *LEV*, firm size along with size of board are associated with lower firm performance. *ESG* score has a weak but significantly negative relationship with *BETA* ($r = -0.182$, $p < 0.01$) and debt-equity ratio ($r = -0.236$, $p < 0.01$), *GENDIV* on the board ($r = 0.197$, $p < 0.01$) signaled that firms with the strongest *ESG* practices lead to lower financial risk and greater gender representation. *INF* is weakly correlated with *SIZE* ($r = 0.100$, $p < 0.01$) along with *ESG* ($r = 0.133$,

$p < 0.01$), *BRDM* in a year showing positive correlation with *SIZE* ($r = 0.303$, $p < 0.01$), revealing that big firms lead to more frequent *BRDM*. While checking the pairwise correlation between independent variables, no two variables are found highly correlated as none of the correlation coefficients are above 0.80 multicollinearity threshold limit (Gujarati & Porter, 2009), and also the variance inflation factor (VIF) is found below 1.5, indicating no multicollinearity due to accepting the threshold limit of (O'Brien, 2007).

The values of the Breusch-Pagan test for the random effect model indicated through Model 1, Model 2, Model 3 and Model 5 and modified Wald test for fixed effect indicated through Model 4 revealed statistically significant p-value (0.00) rejecting the null hypothesis of homoskedasticity, therefore heteroskedasticity is present in panel data which is addressed through robustness of the coefficient and heteroskedasticity-robust standard errors in the estimation process.

The p-value of Hausman test applied for respective model are (Model 1, $p = 0.5506$), Model 2 ($p = 0.3589$), Model 3 ($p = 0.4298$) and Model 5 ($p = 0.5831$) indicating no systematic difference between fixed and random effect model which refers to not rejected the null hypothesis, that means random effect model is suitable for these models and in Model 4 which includes the interaction term of between *ESG* and *BRDGEN*, the p-value is 0.0401 which is less than threshold limit of 0.05 suggesting the suitability of fixed effect models for Model 4.

Table A.6 (Appendix) showing the results of regression analysis, where in Model 1, *ESG* is found to be negatively but marginally significant with *ROE* ($\beta = -0.125$, $p = 0.0704$), indicating higher *ESG* score may leads to lowering down short-term profitability while control variables found statistically significant and show the their importance in explaining firm performance with value as *BETA* ($\beta = -7.971$, $p < 0.01$), *SIZE* ($\beta = -8.682$, $p < 0.01$), and past *ROE* (*ROE I*; $\beta = 0.542$, $p < 0.001$), the model is found fit in moderation with adjusted $R^2 = 0.386$.

Model 2 is defined for moderating effect, indicating a slightly but significant interaction between *ESG* and *BRDN* ($p = 0.0764$) concluded that larger *BRDS* may cause a negative relationship between *ESG* and *ROE*; the coefficient was found to be negative but marginally significant ($\beta = -1.803$, $p = 0.0562$). Model 3 refers to knowing the impact due to the interaction between *BRDM* with *ESG* on the financial performance through *ROE*, and indicates that there is no significance of *BRDM* ($\beta = 0.027$, $p = 0.9683$) nor the interaction term *ESG * BRDM* ($\beta = 0.0017$, $p = 0.8714$), with *ROE* indicating that the number of *BRDM* doesn't moderate the relationship between *ROE* and *ESG*. *BRDIND* and interaction with *ESG* (*ESG * BRDIND*), both variables are found insignificant in Model 4 with $p = 0.5526$ and ($p = 0.5526$), revealing no moderating effect, control variables remain robust and significant, and having an adjusted R^2 of 0.392 defines model fit in moderation. *BRDGEN* and its moderating effect are denoted by Model 5, and found *ESG* and *ROE* are positively moderated due to *GENDIV* on the board, after finding a marginally significant interaction term *ESG * GENDIV* ($\beta = 0.090$, $p = 0.0709$). This model's modified R^2 is 0.344. The lagged *ROE* variable (*ROE I*) continuously demonstrates a large positive influence on current

ROE across all models, indicating the firm's performance persistence. In contrast, *SIZE* and *BETA* continue to be significant in the majority of models, suggesting their applicability as control variables. In most models, the debt-equity and inflation ratios are negligible.

5. DISCUSSION

The descriptive statistics show significant variation in governance arrangements and firm performance. Although most businesses retain a reasonable level of sustainability commitment, as indicated by the average *ESG* score of 59.51, the wide range of *ROE* (mean = 19.80, S.D. = 16.65) indicates the presence of both high-performing and underperforming businesses.

However, a negative but marginally significant relationship between *ESG* and *ROE* in the base model (Model 1) suggests that *ESG* performance might not directly enhance short-term profitability; it might reflect long-term strategic alignment or intangible value creation not immediately captured in financial returns. The correlation finding indicates that *ESG* is marginally significant to lower financial risk (as demonstrated by the negative relationship with *BETA* and debt-equity ratio) and positively related to *GENDIV*. This supports existing literature that suggests strong *ESG* practices may contribute to de-risking the firm's financial profile.

Crucially, the moderating effect of board attributes produces a range of results. Larger boards may lessen the possible detrimental effect of *ESG* investments on short-term results, according to Model 2 marginally significant interaction between *BRDS* and *ESG*. Increased monitoring and a variety of viewpoints that aid in coordinating *ESG* with corporate strategy may be the cause of this. However, neither *BRDIND* (Model 4) nor *BRDM* (Model 3) shows any discernible moderating effects. This suggests that the *ESG*-performance link may not be sufficiently influenced by the frequency of meetings or the presence of independent directors alone. However, in Model 5, where the interaction term was found to be marginally significant, *GENDIV* shows up as a major moderator. Enhancing accountability and transparency in organizational operations related to equality, diversity, inclusion, and non-discrimination is a key component of the third phase of the ongoing reform of the GRI labor standards. The GRI 405 and GRI 406 exposure drafts aim to comply with international labor standards and integrate human rights protections into business plans. Final adjustments are expected by mid-2026. Through global public feedback, the program seeks to ensure that updated standards are practical, comprehensive, and capable of yielding measurable improvements in labor rights and workplace dignity.

The stability of firm performance over time is highlighted by the robustness of control variables, especially the notable impact of lagged *ROE*. The role of company size and market risk (*BETA*) as crucial control factors in financial performance models is further supported by their consistent significance. The results also show how little debt-equity and inflation can explain, indicating that internal strategic and governance variables are more important in determining the significance of *ESG* on firm performance.

Overall, by offering empirical evidence that board structure — particularly *GENDIV* and *SIZE* — can conditionally influence the relationship between *ESG* and company performance, this study adds to the expanding corpus of *ESG* literature. Enhancing board diversity and structure may be a strategic lever to achieve the financial value of *ESG* investments, according to these findings, which have implications for policymakers and corporate governance reforms in emerging nations.

6. CONCLUSION

In developed economies, investors, stakeholders, and regulatory bodies are increasingly integrating *ESG* practice, which promotes transparency, ethical governance, and long-term value creation. In India, *ESG* adoption is gaining momentum, especially after SEBI mandated about the top 1000 listed companies to disclose BRSR, which aligns with global frameworks such as GRI and SASB, furthermore the third phase of the continuing reform of the GRI labor standards has a strong emphasis on increasing accountability and transparency in organizational activities pertaining to equality, diversity, inclusion, and non-discrimination. The GRI 405 and GRI 406 exposure drafts seek to incorporate human rights safeguards into business plans and conform to global labor standards. With final revisions anticipated by mid-2026, the program aims to guarantee that updated standards are comprehensive, realistic, and able to produce quantifiable gains in workplace dignity and labor rights through international public input. The *ESG* journey in India is changing, with market reforms, stakeholder awareness, and institutional pressure driving *ESG* disclosures and practices across industries. The present research is supported by resource-based theory, which reflects views of *ESG* as a strategic asset that can create competitive advantage, and stakeholder theory, which highlights the firm's responsibility to several stakeholders outside of shareholders. Even while *ESG* is becoming more and more important, its direct impact on short-term financial success, as determined by ROE, is still complex and dependent on internal governance processes.

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According to the study, ROE and *ESG* performance are only weakly and negatively correlated, indicating that while sustainable investments may not be profitable right away, they can add resilience and value over the long run. However, board characteristics have a big impact on this relationship. In particular, the *ESG* performance with firm financial performance was found to be positively moderated by the size of the board members and gender diversity on the board, arguing that boards that are well-structured and diversified improve the supervision and incorporation of *ESG* practices. Formal compliance does not necessarily translate into effective *ESG* governance, as seen by the lack of a substantial moderating influence of board independence and meeting frequency.

The robustness of control variables in explaining business profitability is confirmed by the persistent influence of variables like firm size, market risk (BETA), and prior performance (delayed ROE) on ROE. The controlled macroeconomic volatility and different capital structures across the sample enterprises are reflected in the restricted impact of inflation and leverage.

In summary, the research has examined the NIFTY 50 index of Indian companies by experimentally confirming the conditional influence of *ESG* performance on company profitability. The present study adds to the expanding body of knowledge. Governance structures, particularly the composition of the board, play a critical enabling role in this process. To fully appreciate the economic and social benefits of sustainability, policymakers and business executives should prioritize not only *ESG* reporting but also bolstering board governance, especially by encouraging diversity and capability. The major finding of the present study indicates that gender diversity as a moderator shows positive but marginally significant results and is indicated as a major moderator among all in the present study. To further enhance these findings, future studies should examine longitudinal designs, sector-specific *ESG* effects, or expand the investigation to other emerging markets. The limitation of the study indicates the smaller number of firms that is NIFTY 50 index of Indian and a selected number of companies found in the NIFTY 50 index.

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APPENDIX

Table A.1. Descriptive statistics

Variables	Mean	Median	S.D.	Min	Max
ROE	19.80	16.62	16.65	-20.97	115.43
ESG	59.51	59.51	59.51	13.11	93.21
INF	0.04	0.04	0.04	0.03	0.06
BETA	0.99	0.95	0.95	-0.02	2.34
Debt-equity	90.95	76.86	76.86	0.02	55.34
SIZE	11.91	11.92	11.92	10.44	13.72
BRDS	11.45	12.00	12.00	4.00	18.00
BRDIND	5.76	6.00	6.00	0.00	11.00
BRDGEN	1.44	1.00	1.00	0.00	4.00
BRDM	7.49	6	6.00	3.00	51.00

Table A.2. Correlation matrix

Variables	ROE	ESG	INF	BETA	Debt-equity	SIZE	BRDS	BRDIND	GENDIV	BRDM	VIF
ROE	1.000										
ESG	-0.005	1.000									1.15
INF	0.001	0.133***	1.000								1.03
BETA	-0.357***	-0.182***	0.002	1.000							1.45
Debt-equity	-0.250***	-0.236***	-0.046	0.438***	1.000						1.38
SIZE	-0.409***	0.095	0.100***	0.461***	0.386***	1.000					1.45
BRDS	-0.141***	0.029	-0.059	0.079	0.079	0.206***	1.000				1.05
BRDIND	-0.026	0.091	-0.068	-0.110	-0.038	-0.118	0.347***	1.000			1.03
GENDIV	0.008	0.197***	0.048	-0.166***	-0.073	-0.194***	0.050	0.268***	1.000		1.06
BRDM	-0.072	0.013	0.010	0.106***	0.105***	0.303***	-0.167***	-0.268***	-0.108	1.000	1.01

Note: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.10$.

Table A.3. Model selection

Test	Breusch-Pagan test (random effect)			Modified Wald test (fixed effect)	Breusch-Pagan test (random effect)
	Model 1	Model 2	Model 3	Model 4	Model 5
p-value	0.000	0.000	0.000	0.000	0.000
Heteroskedasticity detected	Yes	Yes	Yes	Yes	Yes

Table A.4. Model specification for random effect and fixed effect

Model	Model description	Hausman test (Chi ²)	p-value	Suitable
1	ESG	$\chi^2 = 3.04$	0.5506	Random effects
2	ESG * BRDS	$\chi^2 = 6.61$	0.3589	Random effects
3	ESG * BRDIND	$\chi^2 = 5.94$	0.4298	Random effects
4	ESG * BRDGEN	$\chi^2 = 13.19$	0.0401	Fixed effects
5	ESG * BRDM	$\chi^2 = 4.70$	0.5831	Random effects

Table A.5. Criteria selection

Criteria	Model selection
Hausman p-value < 0.05	Fixed effects
Hausman p-value ≥ 0.05	Random effects

Table A.6. Regression analysis

Variables	Model 1 (ESG)	Model 2 (ESG * BRDN)	Model 3 (ESG * BRDM)	Model 4 (BRD * IND)	Model 5 (ESG * GENDIV)
ROE I	3.13e-05*** (0.542)	0.535 (9.32e-05***)	0.529 (4.76e-21***)	0.543 (8.34e-25***)	0.540 (3.81e-06***)
ESG	0.0704* (-0.125)	-0.368 (0.0729*)	-0.029 (0.7725)	-0.217 (0.1681)	-0.154 (0.1636)
INF	0.674	26.269 (0.4652)	51.999 (0.1829)	59.142 (0.1508)	24.500 (0.4593)
BETA	0.0078*** (-7.971)	-2.424 (0.3161)	-3.119 (0.1417)	-8.045 (7.64e-05***)	-2.863 (0.2316)
Debt-equity	-0.014(0.1229)	0.0019 (0.8934)	0.0012 (0.8937)	-0.0123 (0.4094)	0.0035 (0.8127)
SIZE	0.0029*** (-8.682)	0.2954	-4.191 (0.2106)	-9.288 (0.0005***)	0.0685*
BRDN		-1.803 (0.0562*)			
BRDM			0.027 (0.9683)		
BRDIND				-0.861 (0.5526)	
GENDIV					-2.858 (0.2187)
ESG * BRDN		0.032 (0.0764*)			
ESG * BRDM			0.0017 (0.8714)		
ESG * BRDIND				0.014 (0.5792)	
ESG * GENDIV					0.090 (0.0709*)
Constant	0.0006***	30.470 (0.0183**)	60.159 (0.1355)	138.851 (9.66e-06***)	15.250 (0.0326**)
Adjusted R ²	0.386117	0.330472	0.324485	0.392489	0.343869

Note: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.10$.