The impact of board characteristics on financial performance in an emerging economy: the moderating role of nomination and remuneration committee

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Abstract

Purpose – This study investigates the moderating role of nomination and remuneration committees on the relationships between board characteristics and the financial performance of listed textile businesses in Bangladesh.

Design/methodology/approach – The study utilises the theoretical frameworks of agency, resource dependence and stakeholder theories. The study investigates the moderating effect of nomination committees using regression analysis by evaluating a sample of 270 firm-year observations from 2016 to 2021.

Findings – The results reveal that nomination committee presence enhances the performance benefits of larger board size and frequent meetings but negatively reinforces the detrimental effects of excessive independent directors lacking firm-specific expertise. Female board representation demonstrates an unexpected negative association, implying suboptimal selection.

Research limitations/implications – Overall, nuanced moderating effects of nomination committees on board characteristic-performance relationships are evidenced. This timely study contributes empirical evidence on an underexplored area and provides a foundation to advance academic literature on the linkages between nomination committees, corporate boards and firm-level outcomes. Further research avenues are highlighted.

Practical implications – The findings have salient implications for enhancing board competency and engagement, reforming nomination committee policies towards competency-based nominations and discouraging token appointments to fulfil regulatory mandates on board diversity.

Originality/value – This is the first study to provide insights into the moderating effects of nomination committees on board characteristic-performance relationships in Bangladesh's textile industry.

Keywords Nomination and remuneration committee (NRC), Corporate governance, Board characteristics, Financial performance, Moderating role of NRC

Paper type Research paper

1. Introduction

In the era of globalisation, corporate governance has assumed immense importance, with studies emphasising how robust governance practices foster greater accountability and transparency, and safeguard shareholder interests (Aguilera, 2023). Agency theory suggests that without proper governance mechanisms, self-interested managers may make decisions that compromise owner interests (Jensen and Meckling, 1976). Consequently, the Board of

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Directors plays a crucial role in supervising and controlling the actions of the company's executives for the company's operations (Alabdullah *et al.*, 2022). The Nomination and Remuneration Committee (NRC) is a board sub-committee recommending the nomination, remuneration, and evaluation of directors and senior management personnel.

The NRC, as a board sub-committee, plays a pivotal role in shaping board composition, director appointments, and performance-based compensation, thereby significantly influencing governance quality (Al-Absy and AlMahari, 2023). It performs the regulatory function of determining the composition and compensation of boards, which can influence their characteristics and performance (Aldegis *et al.*, 2023). By judiciously appointing board size, diversity, and independence, the NRC may regulate the impact of board characteristics on business performance (Al-Absy and AlMahari, 2023). Moreover, it addresses agency issues by optimally structuring the board and designing executive compensation packages to enhance monitoring and align shareholder-manager interests (Alfarisa and Harymawan, 2021). However, a gap exists in understanding how NRCs may alter the relationships between various board characteristics and organisational performance, particularly in the context of emerging economies like Bangladesh, which are undertaking substantive governance reforms (Al-Absy and AlMahari, 2023).

Prior studies in Bangladesh have found that boards are still too undiversified and dominated by family members or insiders rather than independent professionals (Siddiqui, 2010; Uddin and Choudhury, 2008). About 7% of board directors are women (Goyal *et al.*, 2023). To improve local firm transparency and performance, government agencies and industry associations have strongly encouraged gender diversity, ethnic diversity, and professional credentials (Rosenblum and Nili, 2019).

Bangladesh, as an emerging economy, offers a unique opportunity to study corporate governance and firm performance. Its efforts to meet international standards and attract foreign investment make it an attractive case study for studying how governance mechanisms like NRCs affect organisational outcomes. The ready-made garments and textile industry has fuelled Bangladesh's recent economic growth, accounting for over 80% of exports (BGMEA, 2022). This sector supports approximately 4 million workers, predominantly women from low socioeconomic groups (ILO, 2017). Sound textile company governance has huge economic and social welfare ramifications for the country.

To the best of the authors' knowledge, there is limited empirical research on how board features affect the textile sector's financial performance in Bangladesh, particularly considering the moderating role of the NRC. Earlier research has mostly focused on determining whether a causal relationship exists between board diversity or board qualities and business success (Atty *et al.*, 2018). NRC's moderating function has been the subject of scant academic investigation. Additionally, the impact of board size, independence, gender diversity, and meeting frequency on financial performance in the Bangladeshi textile industry has not been studied with the moderating effect of NRC. Since the role of NRC on moderating the impact of board characteristic on financial performance has not previously been experimentally investigated, this work represents a first attempt to do so in the context of Bangladesh's textile industry.

This study aims to address these gaps in extant knowledge by investigating the moderating role of NRC existence on relationships of four major board characteristics: board size, independence, meeting frequency, and gender diversity with financial performance within the economically significant textile industry of Bangladesh. Specifically, this research seeks to answer the following questions:

(1) How does the existence of the NRC moderate the impact of board size on financial performance?

(2) How does the existence of the NRC moderate the impact of board independence on financial performance?

(3) How does the existence of the NRC moderate the impact of board meetings on financial performance?

(4) How does the existence of the NRC moderate the impact of the proportion of female directors on financial performance?

To address these questions, this study draws upon three complementary theoretical perspectives: agency theory (Jensen and Meckling, 1976), resource dependence theory (Pfeffer and Salancik, 2015), and stakeholder theory (Freeman, 2010). These theories are particularly pertinent to this research as these three theoretical viewpoints collectively offer a comprehensive framework for analysing the hypothesised moderating influences of NRCs within the context of Bangladesh's textile industry. Through the agency theory lens, the study examines how NRCs can strengthen monitoring and mitigate conflicts across board characteristics like size, independence and meeting intensity (Alfarisa and Harymawan, 2021). The resource dependence perspective informs the analysis of how NRCs can enhance advisory and skills contributions through strategic director nominations contingent on board profiles (Kolev *et al.*, 2019). Finally, stakeholder theory guides the assessment of NRC roles in fostering stakeholder-oriented governance attuned to specific interests based on varied board demographics like gender diversity (Al-Absy and AlMahari, 2023). Together, these theories enable a nuanced analysis of the NRC's moderating role in the context of Bangladesh's textile industry.

This study makes several novel contributions to corporate governance literature. First, it provides pioneering empirical evidence on how NRCs moderate the relationship between board characteristics and firm performance in emerging economies' textile sectors. While previous studies have examined direct relationships between board features and performance, this research uniquely investigates NRC's contingent effects. Second, it extends governance literature by examining these relationships within the textile industry context, where effective governance has significant economic and social implications. Third, it contributes to the growing literature on emerging market governance by providing evidence from Bangladesh, offering insights generalizable to similar institutional contexts. Finally, by focusing on the textile sector—an essential contributor to Bangladesh's economy and a major source of employment, particularly for marginalized women—this study aims to provide sector-specific governance recommendations that could enhance overall industry performance.

The findings of this study are expected to have substantial implications for policy and practice regarding the restructuring of boards and the enhancement of diversity, to bolster transparency and achieve positive outcomes in value generation. For instance, the results may inform decisions on board composition, the implementation of NRCs, and the development of governance guidelines specific to the textile industry in Bangladesh. Moreover, by highlighting the importance of effective governance mechanisms, this research may contribute to improving the overall performance and sustainability of the textile sector, potentially leading to broader economic and social benefits for the country.

2. Literature review and hypothesis development

2.1 Conceptual framework

The present study draws upon three complementary theoretical perspectives to analyse the moderating role of NRC presence on relationships between board characteristics and firm performance.

Agency theory provides the foundational lens for examining how NRCs can address agency problems and enhance monitoring effectiveness across varied board structures through optimal composition and incentive alignment (Jensen and Meckling, 1976). By influencing board structure and compensation policies, NRCs can potentially reduce conflicts of interest between managers and shareholders, which may in turn lower agency costs and improve financial performance through enhanced corporate governance (Alfarisa and Harymawan, 2021).

Resource dependence theory emphasises the role of NRCs in bridging resource gaps and bolstering the provision of vital advice through suitable director appointments (Kolev *et al.*, 2019; Pfeffer and Salancik, 2015). By nominating directors with diverse skill sets, experiences, and network ties, NRCs can enhance boards' abilities to provide strategic counsel and access critical resources necessary for organizational success (Kolev *et al.*, 2019).

Furthermore, stakeholder theory highlights how NRC design, considering the interests of relevant constituencies, can foster better governance that is reflective of stakeholder representation across different board configurations (Pucheta-Martínez and Gallego-Álvarez, 2019; Jensen, 2001). More balanced decision-making can occur by ensuring proportional stakeholder involvement in NRC composition and aligning incentives with the risks and contributions of each group (Al-Absy and AlMahari, 2023).

These theories collectively provide a comprehensive framework for understanding the complex interplay between board characteristics, NRC presence, and firm performance in the context of Bangladesh's textile industry. They inform the hypotheses and guide the interpretation of results in the subsequent sections.

2.2 Board characteristics and firm performance

The board of directors is crucial in defending shareholders' interests, supervising management, and determining the firm's strategic direction (Jensen and Meckling, 1976). Board characteristics such as size, meeting frequency, diversity, and independence are critical determinants of a firm's financial success, measured by indicators like return on assets (ROA) and earnings per share (EPS), though with mixed results.

Board size, measured by the number of directors, has been extensively researched. While larger boards improve performance by bringing more experience and resources (Kanakriyah, 2021; Pucheta-Martínez and Gallego-Álvarez, 2020), coordination problems and slow decision-making in larger boards can hurt performance (Kufo and Shtembari, 2023). Board independence, the proportion of independent directors, aligns with agency theory's emphasis on autonomy for effective monitoring and value creation (Kufo and Shtembari, 2023; Pucheta-Martínez and Gallego-Álvarez, 2020). However, excessive independence may limit directors' firm-specific knowledge, hindering oversight (Rao and Tilt, 2016).

Research on board diversity, such as gender composition, suggests improved financial performance due to new perspectives and stakeholder engagement (Awwad *et al.*, 2023; Liu *et al.*, 2014). Board process metrics like meeting frequency demonstrate monitoring intensity, with more frequent meetings enabling timely advice and proposals (Nguyen and Huynh, 2023; Yakob and Abu Hasan, 2021).

2.3 Nomination and remuneration committee and firm performance

The Nomination and Remuneration Committee (NRC) is a crucial board sub-committee that may moderate the relationship between board characteristics and firm performance. The NRC's primary responsibilities include recommending the nomination, remuneration, and assessment of directors and senior management staff. By influencing board composition and compensation, the NRC can potentially alter the strength or direction of the relationship between various board characteristics (such as size, diversity, independence) and the firm's financial performance (Aldegis *et al.*, 2023; Al-Absy and AlMahari, 2023). This moderating role suggests that the impact of board characteristics on firm performance may vary depending on the presence and effectiveness of the NRC.

The empirical research on the relationship between the NRC and various measures of financial performance has yielded mixed and inconclusive results. Several studies have identified a positive and statistically significant association between the presence of an NRC and indicators of profitability, efficiency, growth, and firm value (Zraiq and Fadzil, 2018; Rahayu *et al.*, 2021; Harymawan *et al.*, 2020). However, other researchers have found no significant correlation between the NRC and economic metrics (Puni, 2015), while some have even identified a negative association (Rahayu *et al.*, 2022; Agyemang-Mintah, 2015; Azar *et al.*, 2018).

2.4 Moderating role of NRC on board size

Board size, the number of directors serving on the board, has been extensively studied in corporate governance literature. Larger boards allow for greater representation of diverse stakeholders, potentially enhancing decision quality (Hallo and Nguyen, 2021). However, coordination problems and slower response times can emerge in bigger groups (Payne, 2020).

Board size and financial performance have been the subject of conflicting empirical research. Several studies have shown negative correlations like Kufo and Shtembari (2023) and Assenga *et al.* (2018), while others have discovered positive relationships (Kanakriyah, 2021; Riyadh *et al.*, 2019; Bansal and Sharma, 2016). Al-Matari (2019), Oyedokun (2019) and Atty *et al.* (2018) concluded that there was no significant link between these variables.

This study posits that larger boards can bring more diverse expertise, broader networks, and enhanced monitoring capabilities to the firm, aligning with both resource dependence theory and agency theory. In the context of Bangladesh's textile industry, which faces complex challenges including global competition and sustainability pressures, a larger board may be better equipped to navigate these issues. Therefore, this study hypothesizes:

H1a. There is a positive relationship between board size and financial performance.

The monitoring and incentive alignment roles of nomination and remuneration committees (NRC) may moderate size-performance relationships. By optimal structuring of pay and director appointments, NRCs can improve the quality of decisions and oversight efficiency across different board scales (Sebhatu *et al.*, 2021). Evidence from Oman shows NRC effectiveness positively moderates links between board size and firm performance (Al-Matari *et al.*, 2014). However, Al-Absy and AlMahari (2023) found a negative moderating influence implying NRCs bolster accountability and shareholder orientation across board structures.

Based on agency and resource dependence perspectives, this study argues that NRCs can enhance the positive aspects of larger boards while mitigating their potential drawbacks. NRCs can ensure that larger boards are composed of diverse, qualified members and that their decision-making processes are streamlined. Thus, this study hypothesizes:

H1b. The existence of NRC positively moderates the relationship between board size and financial performance.

2.5 Moderating role of NRC on board meeting frequency

Board diligence, often measured through annual meeting frequency, reflects the intensity of oversight efforts. Higher meeting frequency allows for greater engagement with strategic issues and more timely responses to business challenges. According to empirical research conducted by Danoshana and Ravivathani (2019), Chen *et al.* (2016) and Johl *et al.* (2015), there exists a negative correlation between board meetings and firm profitability while Nguyen and Huynh (2023) and Yakob and Abu Hasan (2021) found positive connections. However, Sobhan (2021), Al-Matari (2019) and Atty *et al.* (2018), have reported a lack of statistically significant association.

In the context of Bangladesh's rapidly evolving textile industry, more frequent board meetings may enable better strategic oversight, risk management, and timely decision-making. This increased engagement can lead to improved firm performance. Therefore, this study proposes:

H2a. There is a positive relationship between board meeting frequency and financial performance.

NRC-designed remuneration incentives tying director pay to attendance and performance can motivate higher yet more focused engagement across different board meeting frequencies. Evidence from Oman, and Yemen shows positive moderation of meeting-performance relationships by NRC effectiveness through enhanced quality of members and decisions (Al-Matari *et al*., 2012, 2014). Similarly, Al-Absy and AlMahari (2023) reported improved accountability and shareholder orientation.

This study argues that NRCs can enhance the effectiveness of board meetings by ensuring that they are well-structured, focused on strategic issues, and attended by engaged directors. This can help maintain the benefits of frequent meetings while minimizing their potential drawbacks. Therefore, it hypothesizes:

H2b. The existence of NRC positively moderates the relationship between board meeting frequency and financial performance.

2.6 Moderating role of NRC on board independence

Board independence is considered an important attribute regarding monitoring effectiveness and protection of minority shareholder interests. By mitigating conflicts of interest and enhancing objective oversight, greater independence can lower agency costs and boost performance. However, it may also impede information flows and firm-specific knowledge, dampening decision quality over time.

There is a lack of consistency among empirical studies regarding the effects of board independence on financial returns. Numerous research, such as Kufo and Shtembari (2023) and Gulzar *et al.* (2019) have documented favourable outcomes. Conversely, Nguyen and Huynh (2023), Rao and Tilt (2016) and Bansal and Sharma (2016) have reported adverse associations. Sobhan (2021) and Al-Matari (2019) did not find any significant correlation, suggesting intricate interconnections between internal and external factors.

Despite the mixed empirical evidence, this study posit that board independence can enhance monitoring effectiveness and protect minority shareholder interests, in line with agency theory. However, this study also recognize that extremely high levels of independence might impede access to firm-specific knowledge. Thus, the study hypothesizes:

H3a. There is a positive relationship between board independence and financial performance.

NRCs can play an important moderating role here by linking appropriate incentives and competencies with Director appointments to enhance monitoring effectiveness across varying degrees of board independence (Al-Matari *et al.*, 2014). Evidence from Oman and Yemen shows positive moderation of independence-performance relationships by NRC quality (Al-Matari *et al*., 2012, 2014). However, Al-Absy and AlMahari (2023) found no such effect.

This study argues that NRCs can enhance the positive effects of board independence by ensuring that independent directors are not only unaffiliated with the firm but also possess the necessary skills and knowledge to effectively monitor and advise management. Therefore, this study hypothesizes:

H3b. The existence of NRC positively moderates the relationship between board independence and financial performance.

2.7 Moderating role of NRC on female directors

Gender diversity, as reflected in the proportion of female directors on boards, has elicited substantial research and policy interest regarding impacts on governance quality and firm performance. Growing female representation can broaden cognitive perspectives, tap wider talent pools and signal responsiveness to women stakeholders, thereby improving decisions and reputations (Nguyen and Huynh, 2023; Sobhan, 2021). However, excessive focus on measurable attributes like gender without linking suitable competencies may be counterproductive (Adams, 2016).

Inconclusive findings have been observed through empirical investigations. Numerous studies undertaken by Nguyen and Huynh (2023), Sobhan (2021), and Liu *et al.* (2014) have proven the favourable influence of female directors on financial results. Conversely, prior research carried out by Yang *et al.* (2019), Riyadh *et al.* (2019), and Fauzi and Locke (2012) have shown negative consequences. The research conducted by Atty *et al.* (2018) and Nguyen *et al.* (2015) suggests that no statistically significant correlation exists. Controversial factors are indicated based on variability across contexts like industry characteristics and national cultures.

Despite the mixed empirical evidence, this study argues that gender diversity on boards can bring valuable diverse perspectives and improve decision-making processes, in line with resource dependence theory. However, this study also recognizes that the benefits may depend on the specific context and the qualifications of the female directors. Therefore, this study hypothesizes:

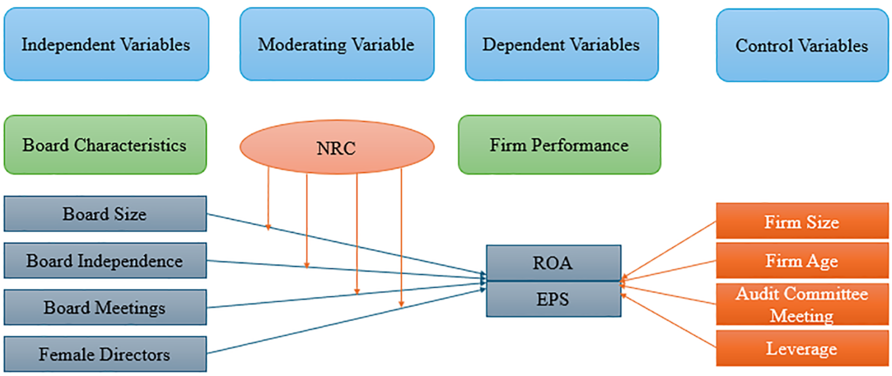
H4a. There is a positive relationship between the proportion of female directors and financial performance.

NRC-designed initiatives for promoting qualified women candidates and incentives aligning director contributions with shareholder wealth can positively moderate associations between gender diversity and firm performance. Studies in Oman and Yemen confirm such positive moderation by NRC effectiveness (Al-Matari *et al*., 2012, 2014). Improved monitoring of accountability and shareholder orientation of female directors is also reported (Al-Absy and AlMahari, 2023).

This study posits that NRCs can enhance the positive effects of gender diversity by ensuring that female directors are not only appointed for diversity's sake but also possess the necessary qualifications and are fully integrated into the board's decision-making processes. This can help realize the potential benefits of gender diversity while mitigating potential drawbacks. Thus, this study hypothesizes:

H4b. The existence of NRC positively moderates the relationship between the number of female directors and financial performance.

Drawing upon the aforementioned theoretical analysis and formulation of hypotheses, Figure 1 presents a conceptual framework that visually depicts the anticipated associations across variables:



Source(s): Authors' own work

Figure 1. Study framework

3. Research method

3.1 Sample and data collection

A quantitative research design will be employed to facilitate statistical analysis of numerical data for testing hypotheses on relationships between variables (Creswell and Creswell, 2017). The study population consists of all 58 textile companies listed on the Dhaka Stock Exchange (DSE). However, due to data availability and reliability issues, 45 companies were selected for the period 2016–2021, resulting in 270 firm-year observations. This six-year period balances pre- and post-regulatory changes, including three years before (2016–2018) and three years after (2019–2021) the mandatory introduction of NRC. This sample size meets the requirements for multiple regression analysis (Hair *et al.*, 2021).

Secondary data will be collected from annual reports, financial statements, corporate governance filings, and other public records. Financial performance will be measured through ROA and EPS. Independent variables include board size, meetings, independence, and gender diversity, with NRC existence as a moderating variable. Control variables such as firm size, age, audit committee meetings, and leverage are included for their established influence on performance. Firm size impacts performance through resource availability and economies of scale (Harymawan *et al.*, 2020), while firm age reflects accumulated experience and market position (Al-Absy and AlMahari, 2023). Audit committee meeting frequency indicates financial oversight, potentially affecting performance (Al-Absy and AlMahari, 2023). Leverage influences financial risk and performance (Rahayu *et al.*, 2022).

3.2 Research models and variables

Pooled ordinary least squares (OLS) regression analysis will be employed using STATA to examine relationships in the data. The association between the dependent financial performance variables (ROA, EPS) and independent board characteristic variables will be tested through direct effects models (Model 1a and 1b).

Model 1a. $\mathrm{ROA}_{it} = \beta_0 + \beta_1\,\mathrm{board\_size}_{it} + \beta_2\,\mathrm{board\_meet}_{it} + \beta_3\,\mathrm{board\_ind}_{it} + \beta_4\,\mathrm{fem\_dir}_{it} + \beta_5\,\mathrm{firm\_size}_{it} + \beta_6\,\mathrm{firm\_age}_{it} + \beta_7\,\mathrm{ac\_meeting}_{it} + \beta_8\,\mathrm{lev}_{it} + \varepsilon_{it}$

Model 1b. $\mathrm{EPS}_{it} = \beta_0 + \beta_1\,\mathrm{board\_size}_{it} + \beta_2\,\mathrm{board\_meet}_{it} + \beta_3\,\mathrm{board\_ind}_{it} + \beta_4\,\mathrm{fem\_dir}_{it} + \beta_5\,\mathrm{firm\_size}_{it} + \beta_6\,\mathrm{firm\_age}_{it} + \beta_7\,\mathrm{ac\_meeting}_{it} + \beta_8\,\mathrm{lev}_{it} + \varepsilon_{it}$

Subsequently, interaction effects will be analysed between the moderating variable NRC existence and each board attribute – size, independence, meetings and gender diversity to determine moderation impacts on financial performance (Model 2a and 2b).

Model 2a. $\mathrm{ROA}_{it} = \beta_0 + \beta_1\,\mathrm{board\_size}_{it} * \mathrm{nrc}_{it} + \beta_2\,\mathrm{board\_meet}_{it} * \mathrm{nrc}_{it} + \beta_3\,\mathrm{board\_ind}_{it} * \mathrm{nrc}_{it} + \beta_4\,\mathrm{fem\_dir}_{it} * \mathrm{nrc}_{it} + \beta_5\,\mathrm{firm\_size}_{it} + \beta_6\,\mathrm{firm\_age}_{it} + \beta_7\,\mathrm{ac\_meeting}_{it} + \beta_8\,\mathrm{lev}_{it} + \varepsilon_{it}$

Model 2b. $\mathrm{EPS}_{it} = \beta_0 + \beta_1\,\mathrm{board\_size}_{it} * \mathrm{nrc}_{it} + \beta_2\,\mathrm{board\_meet}_{it} * \mathrm{nrc}_{it} + \beta_3\,\mathrm{board\_ind}_{it} * \mathrm{nrc}_{it} + \beta_4\,\mathrm{fem\_dir}_{it} * \mathrm{nrc}_{it} + \beta_5\,\mathrm{firm\_size}_{it} + \beta_6\,\mathrm{firm\_age}_{it} + \beta_7\,\mathrm{ac\_meeting}_{it} + \beta_8\,\mathrm{lev}_{it} + \varepsilon_{it}$

All models will incorporate control variables to account for their potential effects. The regression coefficients and *p*-values will be statistically interpreted to draw inferences regarding the research hypotheses. STATA software will be used to run the regressions and related analysis.

The summary of variables and measurements is shown in Table 1.

Table 1. Summary of variables

Variable type	Variable	Definition	Measurement	Data source	References
Dependent variables	ROA	Return on assets, a measure of profitability	Net income divided by total assets	Financial statements of the sample companies	Rahayu *et al.* (2022)
	EPS	Earnings per share, a measure of profitability	Net income divided by the number of shares outstanding	Financial statements of the sample companies	Al-Absy and AlMahari (2023)
Independent variables	board_size	Number of total directors on the board, a measure of board diversity	Count of board members	Corporate governance reports or board committee reports of the sample companies	Harymawan *et al.* (2020)
	board_meet	Number of board meetings held in a year, a measure of board activity and involvement	Count of board meetings	Corporate governance reports or board committee reports of the sample companies	Al-Absy and AlMahari (2023)
	board_ind	Proportion of independent directors on the board, a measure of board diversity and quality	Number of independent directors divided by total number of directors	Corporate governance reports or board committee reports of the sample companies	Rahayu *et al.* (2021)
	fem_dir	Proportion of female directors on the board, a measure of board diversity	Number of female directors divided by total number of directors	Corporate governance reports or board committee reports of the sample companies	Rahayu *et al.* (2021)
Moderating variables	nrc	Nomination and remuneration committee, a board subcommittee that oversees the nomination and remuneration of directors and executives, a measure of corporate governance quality and practice	Dummy variable that takes the value of 1 if the company has an NRC, and 0 otherwise	Corporate governance reports or board committee reports of the sample companies	Zraiq and Fadzil (2018)
Control variables	lev	A measure of financial risk and capital structure	Total debt divided by total assets	Financial statements of the sample companies	Rahayu *et al.* (2022)
	firm_size	Natural logarithm of total assets, a measure of firm size and scale	Logarithm (base e) of total assets	Financial statements of the sample companies	Harymawan *et al.* (2020)
	firm_age	Number of years since the company was established, a measure of firm age and experience	Count of years from the date of establishment to the current year	Company websites or other relevant sources	Al-Absy and AlMahari (2023)
	ac_meeting	Number of Meetings of the Audit Committee in a year	Count of the meeting frequency of the audit committee in a financial year	Corporate governance reports or board committee reports of the sample companies	Al-Absy and AlMahari (2023)

Source(s): Authors' own work

4. Result and discussion

4.1 Descriptive statistics

Table 2 displays the descriptive statistics about all the variables that were incorporated in the regression models. The dataset consists of 270 firm-year observations for 45 textile businesses that are listed on the Dhaka Stock Exchange from 2016 to 2021.

EPS and ROA serve as dependent variables measuring corporate performance. The average ROA is 1.4%, with a mean of 0.014, and ranges from −63% to 54%, as shown by the minimum and maximum values. The standard deviation is approximately 0.1. EPS shows a wide range, with a mean of 1.96, a standard deviation of 7.65, and values spanning from −13 to 75.

The number of board directors ranges from four to twelve, with an average of 6.93 members. Board meetings average 8 per year, ranging from four to 26. Independent directors constitute about 0.26 on average, with values between 0.2 and 0.43. Female directors vary from 0% to 67%, with a mean of around 22%.

Control variables show an average firm age of 22 years and assets of BDT 4645 million. Audit committee meetings range from four to eight per year, with a mean close to five. The average debt ratio is 47%, ranging from 7% to 192%.

The broad variation in these variables highlights diversity among firms and time periods, providing a basis for regression analysis to explore relationships.

4.2 Correlation matrix

Table 3 presents a correlation matrix between all the variables. ROA has positive correlations with EPS (0.20), board meetings (0.14) and firm size (0.07) indicating broad alignment. However, it is negatively related to board independence (−0.09) and female directors (−0.05). EPS shows positive correlations with board size (0.24), independence (0.25), meetings (0.29) and leverage (0.07). Among independent variables, board size displays high correlations with independence (0.80) highlighting the possibility of multicollinearity issues in regression analysis.

4.3 Multicollinearity test

Variance inflation factors (VIF) were computed to detect multicollinearity. As shown in Table 4, all VIF values are below the threshold of 5 as specified by Hair *et al.* (2021), indicating no significant multicollinearity in the models. The mean VIF is 1.63, which is satisfactory.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std.Dev	Min	Max
ROA	270	0.0137915	0.1003723	−0.6336	0.5439
EPS	270	1.955531	7.649705	−13.3499	75.9455
brd_size	270	6.929691	1.89313	4	12
board_meet	270	8.105123	3.555005	4	26
board_ind	270	0.2626907	0.0610843	0.2	0.4286
fem_dir	270	0.2208911	0.1539164	0	0.6667
firm_age	270	21.89015	11.36362	4	59
firm_size (in million)	270	4645.081	4050.132	424.7808	29299.41
ac_meeting	270	4.855926	0.9104117	4	8
lev	270	0.4675422	0.2405608	0.0731	1.9191

Note(s): All values are presented as raw values, not natural logarithm
Source(s): Authors' own work

Table 3. Correlation matrix

	ROA	EPS	board_ size	board_ meet	board_ ind	fem_ dir	firm_ age	firm_ size	ac_ meeting	Lev
ROA	1.00									
EPS	0.20	1.00								
board_ size	−0.02	0.24	1.00							
board_ meet	0.14	0.29	0.19	1.00						
board_ ind	−0.09	0.25	0.80	0.22	1.00					
fem_dir	−0.05	−0.01	0.20	0.06	0.20	1.00				
firm_ age	−0.04	0.07	0.14	−0.17	0.23	−0.07	1.00			
firm_ size	0.07	0.05	0.31	0.34	0.26	0.08	−0.14	1.00		
ac_ meeting	0.00	0.04	0.27	−0.01	0.19	−0.20	0.15	−0.12	1.00	
lev	−0.29	0.07	0.05	−0.05	0.08	0.02	0.17	−0.04	0.09	1.00

Source(s): Authors’ own work

Table 4. Multicollinearity test

Variable	VIF	1/VIF
board_size	3.03	0.329689
board_meet	2.94	0.339711
board_ind	1.30	0.771478
fem_dir	1.24	0.808381
firm_age	1.20	0.836448
firm_size	1.19	0.838391
ac_meeting	1.14	0.876008
lev	1.04	0.962339
Mean VIF	*1.63*	

Source(s): Authors’ own work

4.4 Heteroscedasticity test

The Breusch-Pagan test results in Table 5 show no heteroscedasticity issues for ROA models 1a and 2a ($p > 0.05$). However, EPS models 1b and 2b show presence of unequal variance in error terms ($p = 0$). To mitigate this, robust regression analysis was conducted for the EPS models.

Table 5. Heteroscedasticity test

Test	Model	Model	Chi^2	Prob > chi^2	H0 (Null)
Breusch–Pagan/Cook–Weisberg	ROA	1a	3.47	0.0623	Accepted
	ROA	2a	0.13	0.7211	Accepted
	EPS	1b	348.43	0	Rejected
	EPS	2b	178.6	0	Rejected

Note(s): H0: No heteroscedasticity problem
Source(s): Authors’ own work

4.5 Regression results

This study uses pooled OLS regression to analyse the moderating influence of the NRC on the relationship between board characteristics and financial performance (as assessed by ROA and EPS). Two direct effects baseline models and two moderated models with NRC and board characteristic interaction variables are estimated. Regression results for the four models are presented in Table 6.

4.5.1 Direct effects of board characteristics on performance. The baseline models examined the direct impacts of the board characteristics on financial performance, without incorporating moderating effects. For the ROA model 1a, the R-squared is 12.1%, indicating the predictors jointly explain over 12% of the variation in firm profitability. The F-statistic is significant at a 1% level.

There was a positive correlation between the frequency of board meetings and ROA, lending credence to the agency hypothesis that regular oversight reduces overhead and boosts returns (Jensen and Meckling, 1976). This finding supports hypothesis H2a. The results are consistent with previous research (Nguyen and Huynh, 2023).

Table 6. Regression results

Variable	Direct impact Model 1a ROA	Model 1b EPS	Moderating effect Model 2a ROA	Model 2b EPS
board_size	0.0400591	4.7805110		
	0.2970000	0.091*		
board_meet	0.0401327	5.8660340		
	0.017**	0.001***		
board_ind	−0.0954338	3.5779920		
	0.035**	0.2660000		
fem_dir	−0.0055249	−1.3831990		
	0.6830000	0.017**		
brd_size*nrc			0.0375906	−0.0177704
			0.007***	0.8800000
board_meet*nrc			0.0961539	0.9300490
			0.026**	0.014**
board_ind*nrc			−0.2174801	−28.7800000
			0***	0.001***
fem_dir*nrc			−0.0222151	−5.6277620
			0.2470000	0.028**
firm_age	0.0130811	−1.077597	0.0116459	2.00041
	0.298	0.293	0.351	0.029**
firm_size	0.0059353	−2.4302	0.0028334	−0.2509112
	0.455	0.166	0.709	0.699
ac_meeting	0.0141995	−2.4302	−0.0133157	−1.340217
	0.631	0.07*	0.724	0.262
lev	−0.0540395	0.8631686	−0.0161227	1.398842
	0***	0.415	0.165	0.121
constant	−0.1252573	−12.12441	−0.0141021	0.1295848
	0.147	0.018**	0.851	0.98
F value	4.49	5.78	5.79	2.65
R squared	12.1	15.05	13.75	11.72
Observation	270	270	270	270

Note(s): ***significant at 1% level, **significance at 5% level, *significance at 10% level
Source(s): Authors' own work

Contrary to agency and resource dependency theories, board independence exhibited a significant negative relationship with ROA. A plausible explanation is that internal directors possess a better grasp of the firm's activities than independent directors in Bangladeshi contexts, limiting the latter's ability to contribute effectively due to a lack of company-specific knowledge and skills. This finding rejects hypothesis H3a. This finding aligns with some prior research, such as that of Bansal and Sharma (2016).

Board size and gender diversity showed statistically insignificant relationships with ROA, contrary to agency and resource dependence predictions. These findings reject hypotheses H1a and H4a. The ability to effectively govern operations and boost asset returns seems independent of the number of directors or female representation for Bangladeshi textile firms. Atty *et al.*'s (2018) prior studies support these findings.

Among controls in model 1a, financial leverage bore the expected negative association with profitability, validating higher interest costs and risk of debt-eroding returns for textile companies.

For the EPS model 1b, predictors explained 15.05% of the variation in EPS, with a significant F-statistic. Board meetings demonstrated positive relationships with EPS, providing further evidence that regular board meetings increase both profits and the value of a company, consistent with agency and resource dependency theories. Previous research by Nguyen and Huynh (2023) agrees with this finding and it supports hypothesis H2a.

Board size also demonstrated a positive relationship with EPS at a 10% significance level, highlighting how a larger board size improves monitoring effectiveness and earnings performance by providing more expertise, resources, and experience. This result supports H1a and is supported by agency and stakeholder theories and previous research by Bansal and Sharma (2016).

EPS was inversely related to the representation of women on boards, contradicting agency and stakeholder theories which rejects hypothesis H4a. Riyadh *et al.*'s (2019) prior research provides further corroboration for this result.

However, there seemed to be no substantial correlation between EPS and board independence, contrary to agency theory and resource dependency theory which rejects H3a. It is possible that these directors are not fulfiling their role as expected or have not been adequately informed by the managers about the firm's activities, which could explain why board independence has not had a significant impact on firm performance. Al-Matari's (2019) prior research supports this finding as well.

Overall, the direct effects models provide consistent evidence that higher board activity through more frequent meetings positively influences financial performance indicators of both ROA and EPS. Larger board size also enhances EPS. The findings confirm academic arguments on how board monitoring intensity and resources impact financial outcomes.

4.5.2 Moderating effects of the nomination and remuneration committee. Table 6 shows that the second set of regression models incorporates interaction terms between the NRC existence and board characteristics to examine the moderating hypotheses.

In the ROA model (model 2a), incorporating interactions slightly improved explanatory power compared to the direct effects model. Specifically, the interaction term between NRC and board size had a positive coefficient, indicating that increases in board size have a more pronounced positive impact on ROA in the presence of an NRC. This aligns with resource dependence theory, which suggests that NRC enhances board capacity and resources, leveraging larger size for performance gains (Pfeffer and Salancik, 2015). This finding supports the hypothesis H1b that NRC positively moderates the impact of board size on firm performance.

For board meetings, the interaction with NRC had no significant impact. However, results indicate that higher meeting frequency enhances ROA more under NRC than without it. This finding validates agency theory arguments that NRC strengthens the financial performance benefits of active monitoring through increased meeting frequency (Jensen and Meckling, 1976), supporting hypothesis H2b and consistent with Al-Absy and AlMahari (2023).

Regarding board independence, the interaction term between NRC and board independence became even more negative and significant, suggesting that increased board independence is associated with a greater decline in ROA when NRC is present. This finding contradicts agency and resource dependency theories. One interpretation is that excessive monitoring by independent directors may restrict managers' beneficial risk-taking, exacerbated by NRC oversight, leading to poorer profitability. This evidence contradicts the hypothesis H3b that NRC positively moderates the impact of board independence on financial performance, measured by ROA.

The impact of female directors on ROA remains insignificant. This contradicts stakeholder theory, which posits that NRC designs fair, transparent, and competitive remuneration policies that align the interests of female directors with other stakeholders. This finding rejects the hypothesis H4b that NRC positively moderates the impact of female directors on financial performance, measured by ROA.

The decrease in R^2 from model 1b (15.05%) to model 2b (11.72%) warrants further examination. This reduction in explanatory power upon introducing interaction terms suggests that the moderating effects of NRC on the relationship between board characteristics and EPS are complex and non-linear. It may indicate that NRC's impact is not uniformly positive across all board characteristics or that other influential factors become more significant when NRC is present. This finding highlights the need for a more nuanced analysis of how NRC interacts with board characteristics to influence financial performance, potentially incorporating additional variables or non-linear relationships in future research.

The interactions model for EPS deepens the understanding of NRC's role as a moderator. In the direct EPS model (Model 1b) without interactions, board size was positively associated with EPS. However, with NRC included, the effect became insignificant. This suggests that while larger boards may boost EPS, NRC oversight optimizes board size by selectively screening directors based on firm needs. By bringing in directors with competencies to address strategic gaps, NRC may prevent unchecked board expansion. This outcome aligns with Al-Absy and AlMahari (2023) and rejects the hypothesis H1b that NRC moderates the influence of board size on EPS.

Board meetings were positively correlated with EPS in the direct model, and the NRC's moderating effect further strengthened this impact. NRC oversight enhances the efficiency of meetings, improving earnings performance through better information flows and engagement. This result supports hypothesis H2b and is consistent with Al-Absy and AlMahari (2023).

There was no significant correlation between independent directors and EPS in the direct model, but the interaction with NRC produced a negative effect. This suggests that excessive monitoring by independent directors, combined with NRC oversight, limits managerial flexibility and strategic risk-taking, reducing performance. This finding contradicts hypothesis H3b.

In Model 1b, the percentage of women on the board negatively impacted EPS at a 5% significance level. In Model 2b, this effect worsened with NRC as a moderator, indicating that poor selection processes may have left the board lacking necessary talent and resources. Gender diversity alone may not improve performance without proper training and education (Noland *et al.*, 2016). This result rejects hypothesis H4b. Table 7 summarizes the test of hypothesis.

Table 7. Summary of test of hypothesis

Hypothesis	Relationship examined	Results	Inference
H1a	Board size → Financial performance	Insignificant (ROA), Positive (EPS)	Partially supported
H2a	Board meeting frequency → Financial performance	Positive (ROA and EPS)	Supported
H3a	Board independence → Financial performance	Negative (ROA), Insignificant (EPS)	Rejected
H4a	Female directors → Financial performance	Insignificant (ROA), Negative (EPS)	Rejected
H1b	NRC moderates Board size → Financial performance	Positive (ROA), Insignificant (EPS)	Partially supported
H2b	NRC moderates Board meeting frequency → Financial performance	Positive (ROA and EPS)	Supported
H3b	NRC moderates Board independence → Financial performance	Negative (ROA and EPS)	Rejected
H4b	NRC moderates Female directors → Financial performance	Insignificant (ROA), Negative (EPS)	Rejected

Source(s): Authors' own work

5. Conclusion

This study's findings have significant implications for corporate governance reforms and performance enhancement in Bangladesh's textile industry. The results highlight the moderating role of NRCs and can guide efforts to restructure board compositions, align incentives, and promote diversity for improved transparency, accountability, and value creation. Frequent board meetings consistently improved financial performance, aligning with agency theory. NRCs enhanced this benefit, but excessive independent directors lacking firm knowledge proved detrimental, exacerbated by NRC oversight. The proportion of female directors demonstrated an unexpected negative association, suggesting suboptimal NRC selections failing to appoint complementary skills. The findings provide practical implications for regulators and firms aiming to reform board processes and enhance governance effectiveness.

The study also has substantial implications for policymakers and regulatory bodies developing and implementing governance codes. First, regulatory bodies should mandate comprehensive competency frameworks for board appointments, moving beyond demographic quotas. Second, governance codes should emphasize the quality of board independence over quantitative requirements. Third, regulators should establish clear guidelines for NRC operations, including criteria for nominations and performance evaluation mechanisms.

For textile industry stakeholders, the study suggests actionable recommendations. Companies should develop detailed board skills matrices to identify gaps in expertise and guide NRC nominations. Industry associations could establish sector-specific governance guidelines that account for textile firms' unique challenges. Additionally, companies should invest in professional development programs for board members, particularly female and independent directors, to enhance their effectiveness.

Practical recommendations include increasing board meeting frequency judiciously, balancing independence with industry expertise during nominations, and NRCs prioritizing competency-based appointments over demographic considerations. Tokenism or appointments solely to fulfil diversity quotas should be avoided. Structural compliance with governance regulations alone may not lead to substantive performance improvements; effective NRC functioning requires competency-based nominations.

This study has limitations. First, it focuses solely on Bangladesh's textile industry, potentially limiting generalizability to other sectors or countries. Second, the study period (2016–2021) coincides with major global events, including the COVID-19 pandemic, which may have influenced the results. Third, it relies on quantitative measures of board characteristics and performance, possibly missing important qualitative aspects of board dynamics and effectiveness.

Future research should explore nonlinear effects, executive attributes, institutional features, other performance metrics, qualitative methods, and cross-country comparisons. Regulators should consider implementing more stringent disclosure requirements regarding NRC policies, board appointment criteria, and competency assessments. This could include mandatory reporting of board skills matrices, detailed explanations of selection processes, and regular evaluations of board effectiveness. Such transparency would help stakeholders assess governance quality and make informed decisions.

Overall, the study demonstrates the multifaceted impact of NRCs, offering a platform for further research on their interaction with boards and firm outcomes, while guiding companies, investors, regulators, and researchers towards reforms that improve board quality and governance.

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