Impact of Sustainability Mediated by Corporate Governance in Extra Large Size Microfinance Institutions of Bangladesh

Md. Nazim Uddin, A. K. M. Ahasanul Haque, Md. Nuruzzaman, and Lutfun Nahar

Abstract This experimental study investigates the correlation between profitability and corporate governance in Bangladeshi MFIs. The study focuses on Bangladesh Microcredit Regulatory Authority (MRA)—classified extra-large MFIs. The research emphasizes the importance of corporate governance (CG) for these enterprises and discusses governance challenges in Bangladesh. STATA-17 is used to do the analysis. MRA, Grameen Bank, and MIX data are evaluated using panel data analysis and regression. The top five Bangladeshi MFIs were surveyed between 2012 and 2021. The results show that board size, competence, and diversity impact institutional survival. The relationship between board competence and sustainability did not hold for board size. Diversity is detrimental to sustainability, although women on boards are beneficial. The findings support the notion that strong corporate governance measures, including board competence, diversity, and female board members, enhance the sustainability of MFIs in Bangladesh.

Keywords Corporate governance · Sustainability · Microfinance institutions (MFIs) · Bangladesh

Md. N. Uddin
Department of Marketing, KENMS, International Islamic University, Kuala Lumpur, Malaysia

Department of Business Administration, Ankara University, Ankara, Turkey

International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia

A. K. M. A. Haque (✉)
Department of Business Administration, International Islamic University Malaysia, Box No 10, 50728 Kuala Lumpur, Malaysia
e-mail: ahasanul@iium.edu.my

Md. Nuruzzaman
Faculty of Business Studies, University of Rajshahi, 6205 Rajshahi, Bangladesh

L. Nahar
Department of Islamic Economics and Finance, Istanbul University, Istanbul, Turkey

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Introduction

Significant interest in sustainability has been in recent years, specifically in environmental stewardship. Predominantly dependent on the existence of microfinance organizations, or MFIs, is the provision of financial services to low-income individuals and communities in Bangladesh. However, the lack of suitable corporate governance principles sometimes presents a risk to the enduring sustainability of such organizational frameworks (Tjahjadi et al., 2021).

Corporate governance (CG) encompasses the policies, processes, and behaviors implemented to oversee and manage an organization (ElGammal et al., 2018; Gupta & Mirchandani, 2020). In the context of MFIs, corporate governance encompasses the management of financial, operational, and compliance risks. It also includes the management of social and environmental risks, which are particularly relevant for MFIs operating in developing countries like Bangladesh.

Microcredit Regulatory Authority (MRA) is a regulatory agency in Bangladesh, and it categorizes MFIs into four distinct categories based on their size. Extra-large microfinance institutions (MFIs) have more than one million different borrowers, whereas large-sized institutions have between half a million and one million borrowers. Small MFIs have less than 100,000 borrowers, whereas medium-sized ones have 100,000–500,000. Categories are used to study Bangladesh's MFIs (Jaiyeoba et al., 2018).

Bangladeshi MFIs' viability depends on corporate governance. Corporate governance aids MFI operational risk management. These include financial performance, regulatory compliance, and social and environmental implications. Two good corporate governances may assist MFIs in gaining customers', investors', and regulators' confidence. This is crucial for MFIs in underdeveloped nations, where trust and confidence are frequently limited. Thirdly, corporate governance improved MFI's social and environmental performance (Ashraf et al., 2022; Jaiyeoba et al., 2018). Environmental protection, community development, and responsible finance are discussed. By fostering sustainability, MFIs may help their communities thrive.

Bangladesh's microfinance industry is booming. Extra-large microfinance firms still struggle to survive. Corporate governance is needed to sustain such entities. Sustainable corporate governance, financial performance, and long-term sustainability of Bangladesh's extra-large microfinance firms are examined in this research. The research examines how corporate governance affects Bangladesh's microfinance industry's financial performance and sustainability.

Corporate governance helps Bangladesh's major microfinance institutions succeed in the long term. The effect is significant. Good corporate governance fosters transparency, stakeholder benefit, and risk management. Bangladesh's microfinance may develop and stabilize with an investor, consumer, and regulatory trust and build a reputation.

Corporate governance determines the success of Bangladeshi extra-large microfinance enterprises. Good corporate governance may decrease risks, boost trust, and

improve MFI's social and environmental performance. Good corporate governance may help microfinance institutions (MFIs) survive and thrive.

Literature Review and Hypothesis Development

CEO Duality

US CEOs often chair the board (Pascal et al., 2017). This structure may give the CEO too much power over the board and limit its capacity to control the corporation, causing corporate governance problems. Despite legal and public demand to separate the CEO and board chairman responsibilities, 54% of US firms used a CEO duality leadership structure in 2010 (Chien, 2022). CEO duality increases corporate success in certain studies but not others (Boateng et al., 2022). CEO duality may affect corporate performance based on resource scarcity and board independence. These literature results led to the following hypothesis:

H1: Company governance benefits immediately and favorably from CEO duality.

H2: CG mediates CEO duality's sustainability impacts.

Board Size

The board of directors is essential to corporate governance since it guarantees that the company's agents correctly manage the business (Shukla et al., 2020). Past research indicates that larger board sizes can result in higher communication and coordination issues, a diminished capacity to regulate management, and a dispersion of the cost of lousy decision-making (Adusei, 2019). A few studies have shown a favorable association between the dimensions of the board and the degree of transparency exhibited in corporate governance (CG). However, several studies have failed to establish a correlation between board size and the disclosure of CG (Mori & Charles, 2019). Additionally, CG disclosure and CEO duality, which occurs when the CEO serves as the board's chairman, have been investigated. Several research studies have yielded contradictory results about the relationship between the two variables; some have even shown a negative correlation (Tadele, 2020; Vafaei et al., 2020). In broad terms, the impact of board size on a company's success is multifaceted and susceptible to the influence of several factors. The factors above include the nature of CG disclosure, the intricacy of the organization, and the approach used to evaluate board size. It is postulated, in light of the discourse identified earlier:

H3: Corporate governance is improved directly and positively by the size of the board.

H4: CG mediates the impacts of board size on sustainability.

Board Competence

MFIs depend on board competence. Bengono (2023) found that the sustainability of MFIs depends on good corporate governance, especially board competency. Good governance helps the company achieve social and financial objectives. It improves corporate efficiency, effectiveness, and ethics. The MFI board guides the organization's strategy and operations (Abu Chien, 2022; Memon et al., 2022; Wadi et al., 2022). A competent board ensures that the MFIs can adjust to changing environmental conditions and remain profitable. MFI boards should have financial skills and a thorough grasp of the MFI's operational environment (Boateng et al., 2022; Uddin et al., 2022). The board should also be ethical and transparent.

Literature review and critical analysis of ideas and actions offered the following hypothesis: Microfinance organizations' long-term viability hinges on board competence, research shows (MFIs). Good corporate governance helps these companies accomplish social and financial objectives. MFI sustainability relies on board competence, but several problems may impede it. These include lacking resources, training, and board representation of women and other underrepresented groups (Neralla, 2022).

H5: Board competence positively impacts governance.

H6: CG mediates board competence and sustainability.

Board Diversity

Previous research and findings will be used to examine the link between the corporate governance of microfinance institutions (MFIs) and sustainability regarding board diversity. This would determine whether that link exists (Vafaei et al., 2020). This study examines how board diversity improves risk management, decision-making, and governance in microfinance firms (MFIs).

Corporate governance in MFIs requires board diversity and promotes sustainability. Uddin et al. (2022) found that board diversity improves company governance, stakeholder representation, and risk management. A diverse board also boosts MFI's openness, accountability, and credibility. According to research, MFIs with diverse boards operate better, are more socially responsible, and considerably decrease poverty. The review will also analyze MFI board diversity issues and remedies. This hypothesis is proposed:

H7: The governance of corporations is enhanced by board diversity.

H8: The sustainability effects of board diversity are moderated by CG.

Female Board Member

A review of MFI sustainability and female board member research is required to see how much they incorporate them into corporate governance (Vafaei et al., 2020). The assessment would examine how female board members enhance governance, decision-making, risk management, and MFI sustainability (Uddin et al., 2020; Vafaei et al., 2020).

Boubacar (2018) states that more women on boards increase financial performance, corporate governance, and social responsibility. Khalaf and Saqfalhait (2020) found that MFIs with more female board members had more diverse perspectives, boosting risk management and decision-making. More women on MFI boards may increase image, openness, and accountability.

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H9: The presence of a female board member enhances governance.

H10: CG mediates female board members' sustainability impacts.

Board Independence

Board independence is important in microfinance institutions (MFIs) since it promotes sustainability. Independent boards are more likely to serve stakeholders and promote good governance (Uddin et al., 2020). Research also shows that MFIs with more independent boards perform better in risk management, decision-making, and finances. The difficulties MFIs confront in fostering board independence and their solutions. Since the preceding research supports the next premise, it has been established:

H11: The independence of the board of directors directly affects corporate governance.

H12: Board independence affects sustainability via CG.

Remuneration

MFI compensation affects company governance and sustainability. Insufficient compensation misaligns interests and weakens MFI corporate governance (Thompson et al., 2019). Healthy compensation encourages excellent business governance and promotes top management-stakeholder relations. MFI compensation influences senior management behavior and sustainability. Stakeholder involvement is

essential for MFIs to align their pay systems with customers, staff, investors, and regulators. By communicating with stakeholders, MFIs may better understand their expectations and create sustainable compensation procedures. MFI viability depends on salary and corporate governance (Thompson et al., 2019). Stakeholder participation in compensation system design ensures that all stakeholders benefit and MFIs survive. The previous debate led to the following hypothesis:

H13: Compensation immediately and favorably affects corporate governance.

H14: CG mediates compensation's sustainability effect.

Corporate Governance and Sustainability

Corporate governance affects MFIs' viability. Bangladesh has a rapid increase in MFIs. These organizations help low-income populations access finance (Tjahjadi et al., 2021). Good governance helps these organizations survive by ensuring ethical administration. Effective and sustainable organizations require good governance. The size and complexity of Bangladesh's MFIs make governance and sustainability difficult (Neralla, 2022). Despite the significance of corporate governance to MFI sustainability, the research found various barriers to establishing effective governance systems in Bangladesh (Thrikawala et al., 2016a, 2016b). Issues include regulation, skilled workforce shortages, and budgetary constraints. Bangladeshi MFIs should improve corporate governance by strengthening internal controls, including stakeholders, and establishing open and clear regulations, according to a report (Neralla, 2022; Tjahjadi et al., 2021).

A principle (like a corporation's shareholders) may govern an agent (like the management team) via their relationship. The theory is agency theory (Duong & Nghiem, 2022). Microfinance enterprises may use this theory to assess how corporate governance ensures that the management team serves shareholders, customers, and staff (Nourani et al., 2022).

Agency theory suggests that extra-large MFIs in Bangladesh may adopt effective corporate governance practices such as clear management structures, policies and procedures, risk management systems, and solid internal controls. These strategies promote managerial accountability and institution sustainability (Mehedi et al., 2020). The agency theory helps examine how corporate governance affects the sustainability of Bangladesh's extra-large MFIs. It may show that these organizations require good governance to succeed and endure. The investigation led to the following idea:

H15. Sustainability is enhanced by effective corporate governance.

According to the theoretical framework, corporate governance improves microfinance companies' sustainability transparency (MFIs). This research is thus preoccupied with possibilities, innovations, and corporate governance (Fig. 1).

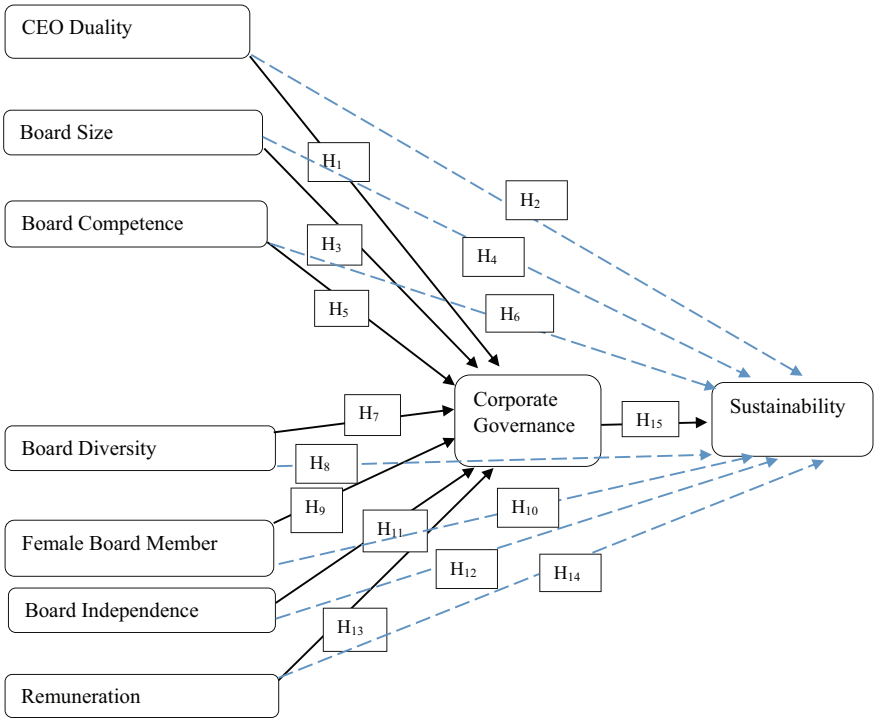

Fig. 1 Conceptual framework

Methodology

Quantitative research is frequently employed when little is known about a phenomenon (Hair & Fávero, 2019). It endeavors to comprehend the fundamental origins of a problem. This study aimed to evaluate the influence of corporate governance practices on the enduring viability of microfinance establishments in Bangladesh. The study used an experimental design. The focus of this investigation will be the acquisition of quantitative data. The result of incorporating quantitative approaches into the design process is a more efficient, accurate, and data-driven outcome, leading to improved performance and optimized solutions (Black & Babin, 2019). This allows the researcher to address research questions using empirical evidence. First, panel data analysis techniques are used to search the Microfinance Regulatory Authority of Bangladesh (MRA) data for microfinance institutions (MFIs) in Bangladesh for the Grameen Bank. Following this, the nature of the link between corporate governance and the long-term sustainability of MFIs is ascertained by a regression study.

The accessibility and availability of data limit the sample length, and in this investigation, a random sampling technique is used. Due to the availability of annual

reports, audited financial statements, and other financial and governance data from MFIs, 2012 was selected as the beginning point for data gathering. The sample's data collection concluded in 2021, the most current year for which data is available. Data is gathered from a variety of sources. The MFIs databases in Bangladesh include those of the Microfinance Regulatory Authority (MRA), Grameen Bank, the Microfinance Information Exchange (MIX), the Palli Karma-Sahayak Foundation (PKSF), the Institute of Microfinance (InM), and the World Bank Global Index. The MIX market database is the most comprehensive source of publicly accessible financial data on individual MFIs worldwide (Miled et al., 2022). Research done in the last few years has used the MIX market database. MIX derives most of its data from hired consultants and country-level networks. The database includes financial and social data on MFIs from all over the world, with 81 percent of the sample audited by someone else and 28 percent checked by the MFIs themselves (Tehulu, 2022).

The study has a longitudinal design (panel). The panel is uneven since the number of periods (t) for each business (i) is different. The panel dataset contains large top size 5 MFIs BRAC, Grameen Bank, ASA, Basic Unit for Resources and Opportunities of Bangladesh (BURO Bangladesh), and Society for Social Service (SSS) with year-by-year observations from 2012 to 2021. The sample size varies due to the non-availability of secondary data for specific MFIs without audited financial reports in the MIX database. A statistical software called STATA-17 (Stata is a syllabic acronym for statistics and data) is used to analyze the data.

The panel data analysis begins with a commonly used multiple regression analysis. A linear multiple regression model shows corporate governance's effect on microfinance firms' sustainability. In addition, the regression model can estimate dynamic equations with lagged dependent variables on the right-hand side and solve for missing data. The panel data estimation method was used (Hair & Fávero, 2019). Consequently, the essential regression equation for panel data analysis is written more generically as follows:

$$\begin{aligned}\text{Sustainability}_{it} = {} & \alpha + \beta_1\,\text{CEO Duality}_{it} + \beta_2\,\text{B size}_{it} + \beta_3\,\text{B Competence}_{it} \\ & + \beta_4\,\text{B Diversity}_{it} + \beta_5\,\text{FBM}_{it} + \beta_6\,\text{Bind}_{it} \\ & + \beta_7\,\text{Remuneration}_{it} + \varepsilon_{it} \ldots \end{aligned} \tag{1}$$

Descriptive statistics simplify data analysis by explaining and summarizing. Duong and Nghiem (2022) recommend summarizing data using the mean, median, variance, standard deviation, histograms, and pie charts. Choosing the best central tendency statistic for this dataset is the first step. The arithmetic mean describes the average variable values. Outliers and large sample gaps may affect the mean. If the data distribution is skewed, the median—the center point—can be better. Calculating the standard deviation determines if the data are homogenous or heterogeneous. The standard deviation is a well-known metric of interval data dispersion. This study uses a variable's lowest and highest values to identify its extreme values and data distribution range. A complete descriptive statistics analysis shows data behavior. This step is carefully checked to ensure parametric techniques are applied appropriately.

Results and Discussions

Descriptive Statistics

Table 1 displays descriptive data for the 2012–2021 analysis variables. Each variable's observation, mean, median, standard deviation, and lowest and maximum values are shown. Financial stability regarding sustainable indicators is common in microfinance firms studied. The people had the lowest financial self-sufficiency (FSS) score of 1.49, supporting Remer and Kattilakoski's empirical findings (2021). The empirical mean FSS values of 0.99 and 1.10 match these values (Iqbal et al., 2019). Our analysis found that 405 MFIs in 73 countries had an FSS average of 0.98 to 1.01 between 2001 and 2010. The mean practical scaled score across 114 microfinance institutions (MFIs) in 62 countries was 0.89, according to Jaiyeoba et al. (2018), (2020, Rassel & Win) MFIs averaged 0.92 FSS from 2010 to 2015. Shettima and Dzolkarnaini (2018), over 10 years, 278 MFIs had an average FSS score of 0.89. García-Pérez et al. (2018) identified a worldwide FSS level of 0.88 among 350 MFIs across 70 countries from 2008 to 2015. 22 five-star MFIs had an average FSS of 1.264 and a median of 1.121 (Babajide et al., 2017). Chikalipah (2018) found that 329 microfinance businesses serviced over 10 years had a mean FSS of 0.97. According to Nanayakkara (2017), European FSS mean values were 85.41 percent. All participants gave the organization a median rating of 1, indicating success in Bangladesh. The minimum FSS standard is 0.22, range 0.22–1.49.

The mean and median values for operational self-sufficiency (OSS) are 1.38 and 1.34, respectively. This is the standard deviation of OSS achieved in Bangladesh and indicates that extra-large size MFIs operate well in Bangladesh. The median OSS for the 405 MFIs operating in 73 countries from 2005 to 2015 is 1.11, while the average OSS is 1.14. (Dorfleitner et al., 2020) discover that an analysis of data from over 60 countries yields an OSS mean of 1.077. According to Roy and Pati (2019), the average OSS for each country between 2008 and 2017 was 1.145. Dutta and Das (2014), between 2009 and 2013, the average OSS on standardized tests was 1.119 in 278 MFIs across 60 nations. (Leite et al., 2019) discovered that from 2012 to 2016, the OSS mean value in 350 manufacturing facilities across 70 nations was 1.12. The 22 top-rated financial institutions in India's OSS rankings range from 0.5946 to 3.3565. Quayes and Hasan (2014), from 2009 to 2013, the OSS mean values across 329 MFIs across 73 countries were 1.56. According to Gul et al. (2017), the average OSS for the Eastern Mediterranean region is 85.41%. The importance of the means and medians suggests that MFIs in Bangladesh efficiently offer loans. The OSS precision ranges from 0.96 at the least to 2.06 at the greatest.

Return on equity values vary from −0.02 to −0.53, with −0.02 being the minimum and −0.53 representing the maximum. The average return on equity is 0.20, while the standard deviation is 0.11. The median is 0.18. It is apparent that MFIs provide competitive interest rates and allocate their assets in a manner that benefits the owners of the institutions, as shown by the positive mean value. Prior research focused on operational cost ratios on ROE, which is an effective measure of ROE since it suggests

Table 1 Descriptive statistics of extra-large size MFIs in Bangladesh

Variables	Acronym	Mean	Median	Std. Dev.	Min	Max
Dependent variables						
Sustainability variables						
Financial self-sufficiency	*FSS*	0.99	1.10	0.42	0.22	1.49
Operational self-sufficiency	*OSS*	1.38	1.34	0.33	0.96	2.06
Return on equity	*ROE*	0.20	0.18	0.11	−0.02	0.53
Return on assets	*ROA*	0.07	0.06	0.07	−0.001	0.39
The yield on a gross loan portfolio	*YOGLP*	0.15	0.16	0.03	−0.09	0.25
Independent variables						
Corporate governance						
CEO duality	*CEODuality*	1	1	0.48	0	1
Board size	*Bsize*	10.04	10	3.15	5	17
Board competence	*BCompetence*	21	20	5.21	15	30
Board diversity	*BDiversity*	5.92	6	2.81	3	10
Female board member	*FBM*	5.9	5	3.58	0	12
Board independence	*Bind*	8.86	10	3.35	4	17
Remuneration	*Remuneration*	1	1	0	1	1

This table presents descriptive data based on the sample of extra-large MFIs; CEO duality, remuneration are computed based on levels instead of a dummy form for an explanation

that MFIs that make smaller loans are inferior to those that offer enormous loans, even if both classes of MFIs suffer comparable amounts of operating expenditures (D'Espallier et al., 2017). Microfinance institutions (MFIs) in Nepal had a median return on equity (ROE) of 17.05 percent and an average return on equity (ROE) of 22.08 percent. According to two separate studies, India's average and median return on equity are 0.37415% and 0.1602%, respectively, with a range of −0.3965 to 2.1238 (Gupta & Mirchandani, 2020). Bangladeshi MFIs' ROE varies from -2 percent to 53 percent, depending on their size. Negative valuation occurs because some MFIs typically function only on the owners' equity for several years and need an infusion of capital to provide more services. This report uses the relative poverty rate as the denominator, using the Microcredit Regulatory Authority (MRA) methodology.

The median return on assets (ROA) for MFIs in Bangladesh is 6%, while the average is 7%. Fifty percent of Bangladesh's MFIs achieved this 7% ROA score between 2009 and 2018. According to data from the five biggest MFIs in Bangladesh, there is a 6% standard deviation in return on assets (Dorfleitner et al., 2020; Tchakoute-Tchuioua and Soumaré, 2019). In Bangladesh, MFIs had ROAs ranging from −1 to 39%. This negative number is included because a handful of the MFIs in the sample are non-profit. 2017 (Uchenna et al., 2017) The mean and median ROA values in 22 Indian five-star MFIs range from −0.1288 to 0.3086 and are 0.0304

and 0.01365, respectively. The average ROA in Mediterranean countries varies from −7.58% to 33.0% (Leite et al., 2019). It implies that between 2007 and 2016, the shareholders' returns increased. For extra-large MFIs in Bangladesh, the ROA ranges from −1 to 39%, with −1 being the lowest number. The Bangladeshi non-profit MFIs are responsible for the ROA's negative value. Extra-large MFIs in Bangladesh have lower ROAs than average, suggesting that some can need to increase their industry investments to keep making money.

The average portfolio yield (YOGLP) for Bangladeshi MFIs is 15%, the median portfolio yield is 16%, and the standard deviation is 3%. However, compared to the average return of 379 microfinance institutions (MFIs) from 73 countries, which was 33%, the highest yield of 25% is much lower. Nine percent is the lowest yield (D'Espallier et al., 2017). The portfolio yield of MFIs in a database of 675 MFIs was 40%, which is not particularly unusual for this industry (Dato et al., 2018; Garca-Pérez et al., 2018).

As shown by a standard deviation of 0.48 and a mean and median of 1, the CEO duality (CEODuality) of Bangladesh's many large-scale microfinance organizations is 1. The values mentioned above are both positive. In this poll, 48% of MFIs in Bangladesh are reported as having a chairperson, whereas only 44% had chairs. According to research, only 15 percent of foreign subsidiaries have dual CEOs, which is almost double for local public firms in Bangladesh, consistent with this study's findings. According to Iqbal et al. (2019), twenty percent of European companies employ two CEOs. 68 percent of CEOs have dual jobs, whereas 65 percent each in Austria and France, the United Kingdom, Germany, Sweden, and Poland do not have such dual positions. Non-Asian countries do not benefit from the descriptive statistics suggesting a greater share of Asian CEOs in those nations. The CEO duality variable is a fictitious creation. The inquiry's findings indicate that the minimum and maximum values are zero and one, respectively.

The average board size (BSize) is 10.04, the median value is 10.06, and it has a standard deviation of approximately 3.15. The minimum and maximum values for the MFIs change overdue 5 and 7 (Ahmed & Khan, 2016). They noticed the mean value of 7.15, and the median was 8.65 in 350 manufacturing facilities in 70 countries from 2005 to 2015. Therefore, this analysis utilizes surface area as an alternate denominator, which is deemed the correct microfinance method. MFIs with board competence is 21, the median is 20, and the standard deviation is 5.21 in extra-large size MFIs Bangladesh, which means 15, minimum values are 30, and maximum values of Bangladeshi MFIs have board competence.

This research shows that extra-large MFIs in Bangladesh vary, with an average of 5.92, a median of 6, and standard deviations of 2.81, which have board diversity (BDiversity). In Europe, microfinance institutions (MFIs) exhibit a spectrum of board diversity values ranging from 5.0 to 9.0, whereas Nepal maintains an average of 0.48. Portugal and Poland have board diversity representation levels of about 6.0, whereas Switzerland, Sweden, and France have numbers of 9.0 (Mehedi et al., 2020). Wale (2015) found that Mediterranean nations had varying BDiversity mean values of 0.457.

This study found that Bangladeshi small and medium-sized microfinance institutions (MFIs) had 5.9 female board members (FBM), with a median of 5 and a standard deviation 3.58. African MFIs somewhat increased over the preceding two ranges (Boubacar, 2018). Both minimum and maximum values are 0 now. Périlleux and Szafarz (2015) found that Mediterranean boards had 0.398 percent female directors. This percentage exceeds the European average of 17% and matches Portugal and Poland's board representation of women. The highest proportion of women among microfinance institutions (MFIs) in Nepal is one hundred percent, while the lowest is zero percent. In Sri Lanka and India, the requirement that governments nominate a minimum of one female board member might increase the proportion of women serving on microfinance institutions (MFIs) boards. Many cooperatives and non-governmental organizations (NGOs) that aim to assist women are also managed by women.

The extra-large size of Bangladeshi MFIs boards is about 8.86, the median is ten, and the standard deviation is 3.35 for directors that reflect board independence (Bind), which is a crucial representation compared to literature (Ahmed & Khan, 2016; Uchenna et al., 2017). Mollah and Zaman (2015) note that the average representation of board independence for MFIs worldwide is 5.6, and (Ahmed & Khan, 2016) find that MFIs boards have a board independence standard 5.2. The analysis finds that around half of the Bangladeshi sample does not have a board to represent. Like results from (Uchenna et al., 2017), directors of Bangladeshi MFIs are predominantly (Bind). The Bangladesh MFIs' average board size is 4, with the maximum number being 17. The number of autonomous board members on MFIs worldwide is 11, but in Central and Eastern Europe MFIs, there are just 4. The analysis showed the independent board members' representation of their board's freedom.

Table 1 indicates that the average remuneration means for Bangladeshi MFIs is 1; the median is also 1; the standard deviation is 0. The minimum is 0, and the maximum is 1. Using a dummy variable, zero implies no, and one indicates yes. Hubert (2015), the average payment at the Sri Lankan and Nepali MFIs was around the same. Boubacar (2018) posits that pay is a constructive contribution that cannot be overlooked. Iqbal et al. (2019) propose that a basic income for better performance is feasible. Boubacar (2018) states that the average annual remuneration ranges from 0.99 to 1.04 in 580 MFIs from 78 countries.

Every board meeting is an opportunity to remember. In contrast to Europe, where the mean proportion of directors stands at 80 percent, microfinance institutions in Bangladesh exhibit the following values at the median, average, and standard deviation (SD): 12.5, 12, and 6.31, respectively. This percentage is higher than the average number of directors in Europe. Norwegian board members comprise 98 percent of the composition, while Polish board members comprise 59 percent. Portugal and Poland have board representation percentages over 60 percent, while Switzerland, Sweden, and France have board representation rates beyond 90 percent. According to Ershad (2017), the percentage of independent directors to total directors is higher in Mediterranean nations than elsewhere. The number of participants in the board directors' meeting ranges from six to a maximum of twenty-four. The increased

Table 2 Multiple regression tests

Dependent variables	Multiple regression			
	F statistics	*P*-value	*R*-square	Adj. *R*-squared
FSS	25.80	0.000	0.9192	0.8836
OSS	12.31	0.000	0.8445	0.7759
ROE	5.24	0.000	0.6979	0.5646
ROA	6.40	0.000	0.7386	0.6233
YOGLP	5.11	0.000	0.6927	0.5572

This table displays the results of the multiple regression test

meeting attendance was ascribed to the need for the boards of MFIs to have at least one meeting each month because of their increased size.

Board of directors (BDirectors) sizes for microfinance institutions (MFIs) range from a minimum of seven members to a maximum of twenty-one members, with an average size of 11.82, a median size of 10, and a standard deviation of 4.64. Boubacar (2018) considered the average board of directors for Sri Lankan MFIs to be approximately 5.6 members, comparable with the average size for Bangladeshi MFIs. The average (BDirector) scale within the sample was seven to nine. (Mehedi et al., 2020) found a benefit of getting a minimal board of directors. Rasel and Win (2020) propose a board size 10, describing how companies do best on smaller boards. They observed that small to medium companies' average board size is 5.4. The Council of Microfinance Equity Funds (Council) advises that boards of less than five members are inefficient and that the optimal board size is seven to nine. However, a successful board size can include as few as five or as many as 30 or more members. (Wale, 2015) finds that European boards of directors can have a composition of 12 people.

Multiple Regression Analysis

This research applied multiple regression analyses to assess whether average outcomes differ for different communities. Multiple regression was determined to be used for diagnosing governance framework and chronic structural failure (Table 2).

Regression Model

The results apply to models including both fixed effects and random effects. Based on the findings of the Hausman test, it can be concluded that the FSS and YOGLP variables need a fixed-effect model. This occurs because the null hypotheses are rejected at p-values significantly below the predetermined threshold of 0.05. On the

Table 3 Model selection: fixed or random-effect

Dependent variable	Prob > chi^2	Hausman test result
FSS	0.0002	Fixed-effect model
OSS	0.9997	Random-effect model
ROE	0.9954	Random-effect model
ROA	0.3302	Random-effect model
YOGLP	0.0046	Fixed-effect model

This table displays the Hausman test result for variables related to sustainability

other hand, a random-effect model can be used to look at variables like OSS, ROE, and ROA. This is because these variables can be looked at in this way (Table 3).

The Breusch and Pagan LM test for random effects measures robustness. Using the panel GMM estimate approach, the study could perform a robustness test. The test result (Prob > $chi^2 = 0.00$) reveals that the pooled regression model is insufficient for the OSS, ROE, and ROA dependent variables, as the null hypothesis is rejected at a significance level of 5% (Prob > $chi^2 = 0.00$). The acceptance of the alternative hypotheses indicates that a random-effect model is appropriate.

Empirical Results

The multiple linear regression investigation findings are shown in Table 4, accompanied by the p-values computed to control the unaccounted-for variability. Only a small number of the model's coefficients—related to the viability of extra-large size MFIs in Bangladesh—were statistically significant. Below is a list of the variables and their statistical significance.

Only the board's board size (BSize) and FSS and OSS have a substantial negative correlation ($t = -1.16$, $p = 0.01$), with the latter two also having a negative correlation ($t = -2.27$, $p = 0.03$). This research looks at the findings from the analysis (Ahmed & Khan, 2016; Boubacar, 2018). The conclusion implies that MFIs sustainability is strengthened if it has fewer participants on its team. A negative impact of board size on MFIs' success flows from their domestic dedication to the family and society (Saeed et al., 2018; Uchenna et al., 2017). In the South Asian zone, the MFI's board size has more unpaid work at MFIs, such as volunteering activities and handling the household rather than performing on the board. Social considerations can also significantly influence the board's growth as it evolves simultaneously with the community. Usually, in corporations, the chairperson is the company's owner, and the board members are the subordinates and mostly passive and inactive delegates (Thrikawala et al., 2016a, 2016b). Their effect on the organization's financial sustainability is likely to be insignificant. This study indicates that it could be necessary to conclude that boards of diverse sizes impact MFIs' financial sustainability in Bangladesh.

Table 4 Relationship between corporate governance and sustainability

Variables	FSS			OSS			ROE			ROA			YOGLP		
	Coef.	*p*	*t*	Coef.	*p*	*t*	Coef.	*p*	*t*	Coef.	*p*	*t*	Coef.	*p*	*t*
CEO duality	0			0			0			0			0		
Board size	**−0.116*****	0	−4.4	**−0.065****	0.03	−2.3	−0.02	0.167	−1.4	−0.01	0.202	−1.3	−0.004	0.329	−1.0
Board competence	−0.011	0.732	−0.4	−0.015	0.67	−0.4	0.015	0.407	0.84	**0.021****	0.028	2.29	−0.006	0.231	−1.2
Board diversity	−0.016	0.658	−0.5	−0.03	0.45	−0.8	−0.017	0.406	−0.8	**−0.027****	0.012	−2.7	−0.015**	0.013	−2.6
FBM	0.1**29*****	0	5.40	**0.05***	0.065	1.91	0.001	0.922	0.10	−0.001	0.912	−0.1	0.002	0.533	0.63
BInde	0.006	0.787	0.27	0.006	0.783	0.28	0.001	0.95	0.06	**0.011***	0.057	1.97	0.003	0.444	0.77
Remuneration	0			0			0			0			0		
Constant	1.991	0.01	2.71	1.085	0.184	1.36	−0.574	0.161	−1.4	−0.345	0.102	−1.7	0.401***	0.002	3.43
Mean dep. var	0.992			1.375			0.198			0.065			0.158		
SD dep. var	0.419			0.329			0.118			0.065			0.034		
No. of obs	50.000			50.000			50.000			50.000			50.000		
Prob. > *F*	0.000			0.000			0.000			0.000			0.000		
R-squared	0.919			0.844			0.698			0.739			0.693		
F-test	25.799			12.309			5.236			6.404			5.110		
AIC	−39.991			−31.43			−100.6			−167.53			−223.65		
BIC	−9.399			−0.842			−70.04			−136.94			−193.06		
Wald chi^2	4066.18									39,385.47			5301.34		

The following table illustrates the impact of corporate governance on the long-term profitability of prominent microfinance organizations in Bangladesh. A significant rate of 10%, 5%, and 1% is seen for the variables *, **, and ***, respectively. In order to get p-values, standard robustness errors are modified to account for serial correlation and heteroskedasticity in the error term. The outcomes are included between parentheses. *T*-statistics are included in square brackets, as shown

A favorable and statistically significant link ($t = 2.29$, $p = 0.028$) has been seen between the return on assets (ROA) of institutions and board competence (Competence). Additionally, it exhibits consistency, aligning with previous results (Banto & Monsia, 2020; Borlea et al., 2017). The findings of this analysis on board competence support the general assumptions of (Borlea et al., 2017; Hacker & Washington, 2017) that corporate governance is board competence and has a beneficial impact on organizations' sustainability, and board competence members of the board endorse it. The findings supported the hypothesis that high board expertise standards would help increase significant MFIs' environmental sustainability.

The research findings support that a diverse board would enhance major MFIs' long-term financial sustainability. Research has shown a negative correlation ($t = -2.65$, $p = 0.12$) between board diversity and both ROA and YOGLP ($t = -2.63$, $p = 0.13$). The findings of this analysis on the variety of board members provide support to the overarching concepts of (Ghosh & Guha, 2019; Mehedi et al., 2020; Uchenna et al., 2017) that board diversity has a detrimental impact on organizations' sustainability, but female members confirm this on the board. However, while females are on the team, female clients profit more from MFIs in Bangladesh.

Female board members (MBM) have a significant level of positive association ($t = 0.129, p = 0.0$) with FSS, and OSS has ($t = 1.19, p = 0.065$). Board independence's favorable relationship to ROA is meaningful ($t = 1.57, p = 0.011$). These studies indicate a strong association between female leadership and the survival of extra-large-size MFI providers. This analysis's findings offer evidence for the general proposition that women in management positively affect organizations' sustainability, and it is endorsed by the board's independent directors (Boubacar, 2018; Ghosh & Guha, 2019; Memon et al., 2020).

Results support the prediction that leverage negatively affects extra-large MFI sustainability in Bangladesh FSS ($t = 2.28$, $p = 0.029$). This shows that the variables' association is statistically significant. Thrikawala et al. (2016a), who emphasize corporate governance, support this conclusion. The meeting is not statistically significant, connected with the institution's openness, and consistent with other MFI studies (D'Espallier et al., 2017; Nalukenge, 2020). Results indicate a positive correlation between MFI size and sustainability. This analysis's meeting data supports the idea that openness helps organizations survive (Thrikawala et al., 2016a, 2016b).

No substantial correlation exists between corporate governance, CEO duality, and broad or extra-large MFIs in Bangladesh. It is hard to determine whether MFIs with the same CEO and chair would be better governed. Other research suggests that separating the roles of CEO and chair in MFIs does not improve governance (Boubacar, 2018). The study found no evidence that CEO/chair duality hurts sustainability.

This study examines how corporate governance affects the profitability of Bangladesh's extra-large microfinance organizations. Large boards of directors negatively impact microfinance firms' financial viability, according to the research (MFIs), because a smaller board of directors makes the firm more sustainable. ROA and board competence are positively correlated, which boosts business sustainability. Board diversity, financial sustainability, and ROA are inversely related (ROA). Microfinance institutions (MFIs) with more women on their boards are more financially

stable. A non-significant relationship existed between dual leadership, CEO duality, corporate governance, and Bangladeshi MFI viability.

Conclusion

In conclusion, this study examined how corporate governance factors affect Bangladeshi extra-large microfinance enterprises' long-term survivability. The boards' makeup, competence, and diversity substantially affected these institutions' survivability. Board competence increased sustainability, whereas board size decreased it. Although more female board members improve sustainability, studies suggest that board diversity hurts it. The study also found that MFIs' long-term survival was unaffected by the CEO and chair's roles. The results support the core premise that strong corporate governance standards, such as board diversity, competence, and women's participation help Bangladeshi microfinance institutions (MFIs) survive.

The sample size limits the generalizability of the findings to all Bangladeshi MFIs. The paper uses cross-sectional data, making causation between factors and sustainability challenging. The link between CEO dualism and sustainability is unclear; thus, further study is required. Smaller boards, competent board members, female board members, and reduced leverage may help extra-large MFIs in Bangladesh survive.

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Md. Nazim Uddin is a post-doctoral research fellow at International Islamic University Malaysia and a research fellow at Ankara University, Turkey. Dr. Uddin is also an associate editor for Nature's Humanities and Social Sciences Communications. He is the author of several books, many book chapters, and peer-reviewed articles. His research interests, which include microfinance, social finance, green finance and banking, corporate governance, sustainable finance, and the delicate realms of Islamic microfinance and Islamic banking and finance, are informed by this unique mix of theoretical and practical understanding.

A. K. M. Ahasanul Haque is a professor in the Department of Business Administration at International Islamic University Malaysia. He obtained his Ph.D. in marketing from the Graduate School of Management (AACSB), Universiti Putra Malaysia 2001. He published numerous books, book chapters, study modules, and research articles in internationally refereed indexed journals and many conference proceedings. He received several research awards for outstanding research. In addition, he is involved in many research grants locally and internationally and numerous consultancy projects such as World Bank Group, Telekom, Z-consulting, and others. He also serves as an editor-in-chief and an editorial board member of internationally indexed journals. His research interests cover the areas of retail marketing, Islamic marketing, digital marketing, international marketing, and consumer behavior.

Md. Nuruzzaman has been working as a full-time faculty member in the Department of Marketing at the University of Rajshahi. He has twenty-five years (25) of teaching and research experience at the university level at home and abroad. He produced more than 22 research papers published in reputed scholarly journals.

Lutfun Nahar is a dedicated Ph.D. candidate at Istanbul University in the Department of Islamic Economics and Finance and earned her master's degree at Sakarya University, Turkiye, where she was honored with the Turkish president's gold medal. Fueled by a blend of theoretical expertise and practical insights, her research focuses on Islamic Microfinance and Islamic Banking and Finance. Lutfun's pursuit of knowledge reflects her passion for unraveling the complexities of economic systems, contributing to the dynamic landscape of Islamic finance.