

# The impact of board gender diversity on the financing costs of microfinance institutions: a global evidence

Impact of  
board gender  
diversity

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Received 6 April 2022  
Revised 20 July 2022  
8 September 2022  
27 September 2022  
17 October 2022  
31 October 2022  
Accepted 2 November 2022

## Abstract

**Purpose** – Considering the existing evidence on the impact of female board members on the default risks of an organization, the purpose of this study is to investigate the effect of board gender diversity, alongside institutional characteristics and macroeconomic factors, on the financing costs of microfinance institutions (MFIs).

**Design methodology approach** – This study collected unbalanced panel data of 1,190 unique MFIs between 2010 and 2018 from the World Bank. The collected data, which covers a total of 95 developing and emerging countries, was thereafter analyzed using the pooled ordinary least squares and random effects model. To overcome endogeneity and omitted variable bias (e.g. time-invariant variables), the authors have also used the generalized method of moments and fixed effects model, respectively. Different proxies of board gender diversity and sub-sample analysis by regions were further undertaken to examine the robustness of the obtained results.

**Findings** – The findings of this study revealed that board gender diversity has a statistically significant negative effect on the financing costs of MFIs. This suggests that a gender-diverse board can generate cheaper funding for MFIs by minimizing their default risks through effective monitoring and strategic management. Furthermore, the negative impact of board gender diversity on financing costs appears to be more pronounced when there is a minimum of two female board members in the boardroom of MFIs. The results of this study remain consistent and valid regardless of alternate model specifications (e.g. sub-sample analysis, use of alternative proxies of board gender diversity and application of different estimators) and endogeneity issues. Ultimately, the findings in this study reiterate the importance of promoting and implementing gender diversity in the boardroom to minimize the financing costs of MFIs.

The authors are very grateful to two anonymous reviewers, the Editor (Professor Khaled Hussainey) and the Associate Editor (Dr Ammar Ali Gull) for their very useful comments and suggestions. The authors show their sincere appreciation to Dr Gull for suggesting to integrate “tokenism” and “critical mass” theories in this paper to enrich the analysis and findings. They believe that the content and quality of the paper has enhanced substantially after addressing their recommended revisions. Usual disclaimer applies.

**Funding:** Md Aslam Mia and Md Imran Hossain acknowledge that this research was funded under the project named “short-term research grant” (Grant number: 304/PMGT/6315547) from Universiti Sains Malaysia, Penang, Malaysia.

**Disclosure statement:** The authors declare that they have no known conflict of interest associated with the study.

**Data availability statement:** The data related to this study can be found here: <https://databank.worldbank.org/source/mix-market>



**Originality value** – This study investigated the relationship between board gender diversity and financing costs of MFIs by using relatively recent and global data. The minimum number of female board members required to significantly reduce the financing costs of MFIs was also identified.

**Keywords** Financing costs, Gender diversity, Female board members, Interest rates, Microfinance, Microfinance institutions

**Paper type** Research paper

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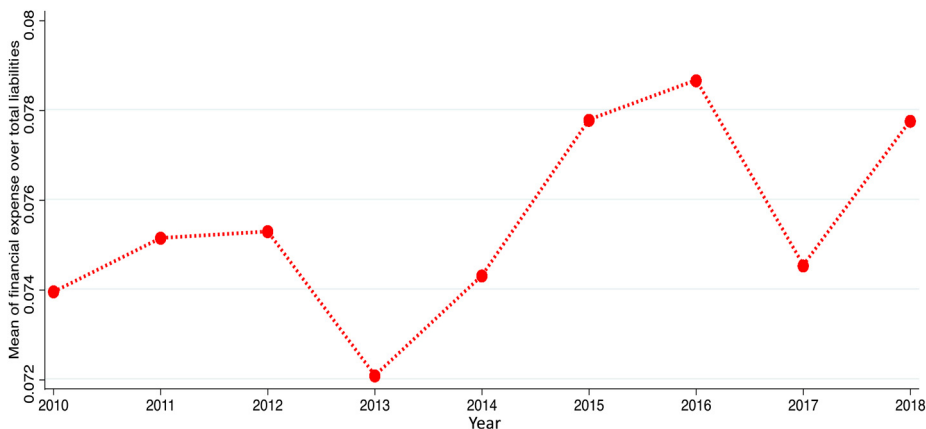
## 1. Introduction

Microfinance remains an important development tool for addressing poverty and promoting entrepreneurship and women empowerment in most developing countries. Unfortunately, because of its exorbitant interest rates, modern microfinance has been subject to serious criticism in recent years (Hudon *et al.*, 2020; Nwachukwu *et al.*, 2018; Sun and Liang, 2021). As highlighted by Nwachukwu *et al.* (2018), the average interest rate for financially self-sufficient microfinance institutions (MFIs) stood at 28.48% and was observed to be even higher in other studies – 35.4%, 20–80% (in emerging countries) and 36%, according to Cull *et al.* (2007), Abrar (2019) and Campion *et al.* (2010), respectively. The high-interest rate loans offered by MFIs have now become a subject of concern among managers, practitioners and policymakers.

A singular important factor responsible for the high-interest rate charges of MFIs is the shortage of internal funds. Most MFIs lack access to donations, deposits, subsidized funds and capital markets (Rahman *et al.*, 2018) and, consequently, rely on expensive debt sources to fulfill their credit demands. Conventionally, access to cheaper sources of funding will enable MFIs to offer affordable and low-interest loans to the poor, subsequently promoting the financial inclusion agenda of the Sustainable Development Goals (SDGs). Our initial assessment of secondary data revealed an increase in the overall financing costs [1] of the global microfinance industry, particularly after 2013 (Figure 1), but with a slight decline between 2016 and 2017. The overall rise in financing costs may also reflect the commercial interest of investors toward the derivation of competitive returns from microfinance businesses, among other factors.

That being highlighted, it is also worth noting that higher financing costs may have a negative impact on the attainment of operational self-sufficiency (OSS)/sustainability, thereby threatening the long-term viability of MFIs. To highlight the importance of the long-term sustainability of MFIs, Yunus (2009), the pioneer of microcredit, opined that a financially sustainable MFI is capable of serving the poor more efficiently than a financially unsustainable one. Moreover, MFIs are also required to achieve certain levels of financial self-sufficiency to attract private investors and improve their outreach goals (Hermes and Hudon, 2018; Parvin *et al.*, 2020). However, a significant number of MFIs are not always able to secure adequate private investors or equity investments to help expand their businesses, leading to their dependence on donations and highly-priced debts to partly offset their operational costs and extend loan services to the poor (Bhanot and Bapat, 2015; Gutiérrez-Nieto *et al.*, 2017). As highly priced debt financing has an unfavorable impact on the overall financial sustainability of MFIs, borrowers are expected to incur higher interest expenses for their loans.

In light of the above-stated dilemma of MFIs, various propositions have been advanced regarding the manner in which MFIs could achieve better financial sustainability and provide cheaper loans to unbanked clients to enhance their outreach goals. In this study, we



## Impact of board gender diversity

**Figure 1.**  
Trend of average financing expense over total liabilities of microfinance institutions globally (2010–2018)

**Notes:** The number of observations used in the calculation of the mean financing costs varies yearly. The variable was winsorized at the 1% and 99% levels to eliminate the effect of extreme outliers

**Source:** Authors, based on data from the World Bank

proposed that board gender diversity could help reduce the financing costs of MFIs, subsequently enabling them to avail relatively cheaper loans to the unbanked population. Existing studies have also documented that a diverse board tends to promote sound internal governance of firms (Usman *et al.*, 2019) through the enhancement of board independence (Lucas-Pérez *et al.*, 2015), proper monitoring (Adams and Ferreira, 2009), reduction of agency costs (Reguera-Alvarado *et al.*, 2017) and promotion of less risky investments (Faccio *et al.*, 2016). It can, therefore, be argued that a gender-diverse board will help reduce the default risks of firms (Usman *et al.*, 2019) and boost the confidence of potential lenders. Also, by ensuring a gender-diverse board, MFIs may choose to avail potential lenders with a lower financing rate to help sustain their services to the poor. MFIs benefit from lower financing costs in two ways: first, it facilitates their achievement of better OSS and financial performance (Bayai and Ikhide, 2018) [2]. Second, it allows them to offer products and services to their clients at affordable prices. These, in turn, attract more potential unbanked borrowers to seek credit from MFIs, subsequently promoting their overall outreach goal and the financial inclusion agenda of SDGs.

Our research is further motivated by the dearth of studies that explicitly investigate the linkages between board gender diversity and the financing costs of MFIs. On the contrary, numerous studies have been undertaken on the effects of board gender diversity on the costs of debt in banking and non-banking industries (Hernández-Nicolás *et al.*, 2019; Kamil and Appiah, 2022; Pandey *et al.*, 2020; Usman *et al.*, 2019). Moreover, there are limited studies on the impact of various organizational, institutional and macroeconomic factors on the costs of debt/capital structure from a microfinance perspective (Abrar, 2019; Adusei and Obeng, 2019; Rahman *et al.*, 2018). Therefore, this study, by investigating the effects of board gender diversity on the financing costs of MFIs using a relatively recent and globally representative sample, is a pertinent addition to the literature [3].

Specifically, our study contributes to the existing literature in the following ways. First, it provides empirical evidence to the literature on the association between board gender diversity and MFIs' financing costs, which is a less explored area of research in the

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microfinance industry. Second, the study proffers a better understanding of the relationship between board gender diversity and the financial decisions of MFIs, because of the study's adoption of reliable, recent and relatively large-scale data of global MFIs from the data set of the MIX Market. Additionally, several macroeconomic variables that may influence the relationship under study were also controlled, and as the majority of corporate governance literature on microfinance suffers from endogeneity issues (Nawaz *et al.*, 2018), an endogeneity-corrected technique such as the generalized method of moments (GMM) has been deployed to ensure the robustness and reliability of the findings. Third, based on the "critical mass" and "tokenism" theories, the minimum number of female board members required to significantly reduce the financing costs of MFIs has been investigated. Therefore, the findings in this study are expected to offer useful insights for policymakers, donors and regulatory and auditing authorities on the beneficial role of gender diversity in the boardroom of MFIs.

The remainder of the article is organized as follows: a brief discussion on board gender diversity and microfinance, and the derivation of specific hypotheses are provided in Section 2, followed by the modeling of the study and data (methodology) in Section 3. The results are discussed in Section 4, while the conclusions, policy recommendations and limitations of the study are presented in Section 5.

## 2. Literature review and hypothesis development

### 2.1 Gender diversity and microfinance: an overview

Microfinance is generally regarded as a "women's business" and plays a dominant role in the development of a nation through the provision of financial services to the unbanked population, particularly in developing countries where the formal financial sector is largely underdeveloped (Mia *et al.*, 2019). However, high financing costs remain a major challenge experienced by MFIs, leading them to resort to the much-criticized practice of charging high-interest rates from borrowers – in a bid to offset their overall operational and financial costs. Hence, strategic management practices which can help minimize financing costs of MFIs and lower overall costs have become a center of attention for researchers, practitioners and policymakers.

To our understanding, board gender diversity can influence the overall performance of an organization. Gender diversity, particularly at the board level, enhances the financial performance of an organization by increasing its revenue and reducing its operational costs without jeopardizing the cost structure of the organization in question. This is consistent with the findings of studies conducted by Strøm *et al.* (2014) and Vishwakarma (2017), which revealed that gender diversity promotes the financial performance of MFIs. For any organization, the potential benefits of having a diversified board are twofold: first, a diversified board means diversified ideas, opinions, skills and knowledge. According to the upper echelons theory, the top decisions of an organization, such as the competitive interest rate of the firm and probable sources of financing, are made by top management (Finkelstein *et al.*, 1996; Hambrick and Mason, 1984). Therefore, a diversified board becomes better equipped in making optimal financial decisions that will boost the performance of firms (Gupta *et al.*, 2021; Marinova *et al.*, 2016; Memon *et al.*, 2022). Second, a gender-diverse board implies having diversified assets or resources (physical or intellectual), and according to the resource dependence theory (Pfeffer and Salancik, 2003), each member of the board can pool resources such as funds and information together for the organization. From this perspective, the existence of a diversified board in MFIs could generate diversified access to resources, including access to finance at lower costs.

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Numerous studies have comprehensively investigated the effect of gender diversity on the financing costs of financial institutions (Ain *et al.*, 2021; Faccio *et al.*, 2016; Nguyen, 2020; Usman *et al.*, 2019), institutional value (Ararat and Yurtoglu, 2021; Green and Homroy, 2018) and financial decision/performance (Al-Shaer and Zaman, 2016; Datta *et al.*, 2021; Mia, 2022). According to Faccio *et al.* (2016) and Adusei and Sarpong-Danquah (2021), female directors tended to indulge in less risky investments and practices in a bid to minimize debt financing. As women were commonly known to conduct more audits to ensure transparency (Gulzar *et al.*, 2019), board gender diversity plays a significant role in the overall business of firms, including MFIs (Adusei, 2019). Likewise, Mia *et al.* (2022) highlighted that the significant contribution of female board members to financial performance can be attributed to their adoption of cost-effective strategies and approaches. Ararat and Yurtoglu (2021) also concluded that the active involvement of female directors in the governance committee increases the value of the institution. Therefore, the vital contribution of female board members to firms' decision-making processes requires further investigation from a cost perspective.

## 2.2 Hypothesis development

In this section, three hypotheses based on the positive, negative and neutral relationships between board gender diversity and financing costs were developed, in line with the study conducted by Usman *et al.* (2019). As studies explicitly investigating the relationship from a microfinance context are limited, literature on general banking and finance perspective has been relied on to derive our hypotheses.

**2.2.1 Efficiency hypothesis.** Board gender diversity tends to improve decision-making outcomes because of the presence of alternative viewpoints (Zahra and Pearce, 1989). It also attracts better employees and promotes the external legitimacy of firms (Hambrick *et al.*, 2008). Moreover, gender-diverse boards promote corporate images and retention of the best female employees (Dalton *et al.*, 1999). Studies have also documented that a diverse board improves board meetings and attendance (Adams and Ferreira, 2009). Female directors are assumed to be more responsible than males (Fondas and Salsalos, 2000), as they tend to play better supervisory roles (Adams and Ferreira, 2009) and are not overconfident (Daily and Dalton, 2003). Consequently, a gender-diverse board promotes board independence (Lucas-Pérez *et al.*, 2015) and contributes to the reduction of agency costs (Reguera-Alvarado *et al.*, 2017). With the presence of female directors in the boardroom, less risky investment decisions will be made (Faccio *et al.*, 2016) and better corporate internal governance will be ensured (Adams and Ferreira, 2009).

Studies also argued that female directors/board members tend to be more hard-working than their male counterparts and can endure more pressure, because of their desire for a better position in the boardroom (Eagly and Carli, 2003). Similarly, firms having female directors automatically get higher credit ratings (Adusei and Obeng, 2019). With diversified board members, firms could access varying external sources of funds to satisfy their financial needs (Rahman *et al.*, 2018). In addition, gender diversity reduces the debt costs of bank-dependent firms (Karavitis *et al.*, 2021) and creditors' perception of the default risk, because of the paucity of asymmetric information (Usman *et al.*, 2019). Therefore, lenders will become more confident to offer cheaper funds to MFIs having a gender-diverse board. In light of the aforesaid, the following hypothesis is proposed:

- H1.* The proportion of female board members/board gender diversity has a significantly negative effect on the financing costs of microfinance institutions, *ceteris paribus*.

*2.2.2 Inefficiency hypothesis.* Gender diversity can negatively affect firms' performance because of impaired communication, conflicts and lack of cooperation (Pletzer *et al.*, 2015). Also, diversity at the board level can slow down decision-making processes and brew disagreement at board meetings, ultimately contributing to inefficiency and poor firm performance. In such a case, a gender-diverse board may possess a higher potential default risk because of conflicts between managers and lenders, which can motivate the latter to demand a higher rate of returns (Pandey *et al.*, 2020). Therefore, in line with the argument of Kamil and Appiah (2022), a second hypothesis regarding the positive relationship between gender diversity and cost of debt is proposed:

*H2.* The proportion of female board members/board gender diversity has a significantly positive effect on the financing costs of microfinance institutions, *ceteris paribus*.

*2.2.3 Neutrality hypothesis.* Gender diversity may have no significant effect on firms' performance (Adams and Ferreira, 2009) and may not be considered a significant factor in the formulation of various committees in an organization. This supports the partial inclusion of female directors in the boardroom (Peterson and Philpot, 2007), as their contribution to the decision-making process at the board level is negligible. Such an outcome is highly likely when the presence of female board members does not attain a "critical mass" level to influence the board-level decision-making process (Pandey *et al.*, 2020). Furthermore, Kanter (1977) argued that the presence, absence or absolute number of females in a group do not really matter, but their relative number do. Thus, the following hypothesis is proposed:

*H3.* The proportion of female board members/board gender diversity has a neutral/insignificant effect on the financing costs of microfinance institutions, *ceteris paribus*.

Based on the above discussion, the study framework is developed in Figure 2.

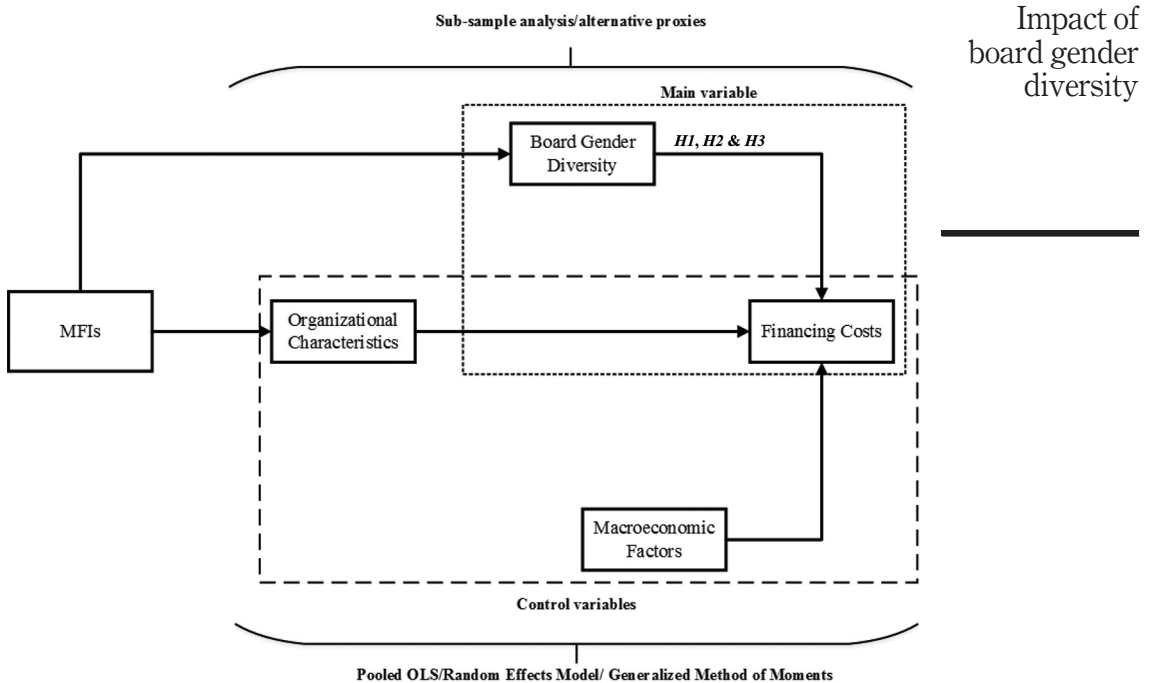
### 3. Methodology

#### 3.1 Modelling board gender diversity and financing costs

Considering the availability of unbalanced panel data, the following empirical expression was advanced to investigate the impact of board gender diversity on the financing costs of MFIs:

$$\begin{aligned} \text{FINEXP}_{it} = & \beta_0 + \beta_1 \text{FEMBOARD}_{it} + \beta_2 \text{LNBOARD}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{DTE}_{it} \\ & + \beta_5 \text{LLR}_{it} + \beta_6 \text{LS}_i + \beta_7 \text{PS}_i + \beta_8 \text{LNASSET}_{it} + \beta_9 \text{INF}_{jt} + \beta_{10} \text{GDPGR}_{jt} \\ & + \varepsilon_{it} \end{aligned} \tag{1}$$

where  $i = 1, 2, 3, \dots, 1,190$  refers to the cross-sectional units of MFIs in a country  $j$  (95 countries), time period  $t = 2010, 2011, \dots, 2018$  and error term  $\varepsilon_{it}$ . The main variable of interest (independent) in this study is the proportion of female board members (FEMBOARD), while the control includes a set of organizational and macroeconomic factors perceived to affect the costs of MFI funding. We have also controlled our model by integrating time and region dummies (stated otherwise).



**Note:** Although board gender diversity is part of the organizational characteristics of MFIs, it has been used as the main (independent) variable in this study, because of its centrality to our research

**Source:** Authors

**Figure 2.**  
Overall framework of the study

**3.1.1 Financial expense.** The main dependent variable in this study is the financing expense of MFIs, also known as the cost of debt, and is calculated as the ratio of financial expenses on liabilities to total liabilities (FINEXP). While there are several other proxies to capture the financial expense or cost of debt of MFIs (e.g. financial expenses over total assets), the FINEXP is preferred, as it directly captures the costs incurred by MFIs because of operational liabilities. As MFIs are also constrained by capital, they often resort to various external sources of funds, including conventional/Islamic debt instruments, all of which incur costs (Adusei and Sarpong-Danquah, 2021; Ahmad *et al.*, 2020). Therefore, higher financing expenses will strain the overall operational viability of MFIs. In other words, MFIs should continuously explore ways to lower their financing costs to attain better operational self-sustainability (Song *et al.*, 2014).

**3.1.2 Board size.** Board size is an important organizational characteristic capable of influencing the overall performance of a firm and is well-recognized in the literature on corporate governance (Cheng *et al.*, 2008). In highlighting the role of board size, John and Senbet (1998) observed that a positive association exists between board size and the board's monitoring capability. In addition, a larger board size facilitates information transparency, thus allowing firms to enjoy a lower weighted average cost of capital (Upadhyay and Sriram, 2011). Hence, it can be argued that a larger board size contributes to greater transparency, which ultimately reduces financing costs. This is further corroborated by

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studies conducted by [Lorca et al. \(2011\)](#), where a negative association was observed between board size and firms' financing costs. Therefore, we have captured the board size by taking the natural logarithm of the total number of board members (LNBOARD).

**3.1.3 BLAU index.** The BLAU index of diversity is a popular proxy of gender diversity ([Belaounia et al., 2020](#); [Campbell and Mínguez-Vera, 2008](#); [Farhana, 2020](#)) that has been used in this study to enrich our model estimation. The BLAU is particularly relevant in this study, as it considers the number of gender classes and the distribution of board members between them. According to the study conducted by [Campbell and Mínguez-Vera \(2008\)](#), gender diversity in the boardroom can enhance the overall firm performance and firm value. The presence of female directors on the board produces superior competitive advantages for firms and ultimately enhances their creditworthiness ([Lee-Kuen et al., 2017](#)). As gender diversity promotes lower credit risks, reduced financing costs and, eventually, better financial performance, a negative relationship between the BLAU Index and the financing cost of MFIs is anticipated. In general, the BLAU index value ranges from 0 (all directors are either male or female) to 0.5 (equal proportion of male and female directors).

**3.1.4 Return on assets.** Return on assets (ROA) is an important indicator of a firm's financial performance and also assesses the level of efficiency in the management of firm assets ([Campbell and Mínguez-Vera, 2008](#)). A higher ROA enhances the financial position of firms and their ability to repay creditors ([Hang et al., 2019](#)). It also minimizes their default risks, thereby encouraging lenders to charge lower interest on their offered loans. Therefore, a negative relationship is expected between the ROA and financing costs. The ROA was estimated by taking the ratio of after-tax net income to average total assets.

**3.1.5 Debt to equity ratio.** The debt-to-equity ratio (DTE) is used to assess a firm's financial leverage, with a high DTE probably resulting in two different outcomes for MFIs. On the one hand, a highly leveraged MFI will be able to borrow a bulk amount of funds at a much cheaper rate, while on the other hand, an MFI possessing high DTE risks losing its bargaining power with creditors ([Opler and Titman, 1994](#)), because of its already high leverage which signals a high risk of potential investment in the firm ([Chen et al., 2020](#)). As a higher DTE indicates that the firm had already taken a huge amount of loan and further lending may heighten its default risk, potential investors are ultimately encouraged to request higher returns. Therefore, the DTE, which was calculated by taking the ratio of total liabilities over total equities, is expected to have a mixed association with the financing costs of MFIs.

**3.1.6 Loan loss rate.** The loan loss rate (LLR) may indicate the portfolio quality or the credit risk of an MFI ([Fersi and Boujelbene, 2021](#)). Higher risk exposure tends to reduce the OSS and ROA of MFIs ([Awaworyi Churchill, 2018](#)). Moreover, donors, lenders and international funding agencies consider repayment performance as a key indicator for funding an MFI ([Godquin, 2004](#)). A higher LLR increases the credit risk of MFIs and positively impacts their funding cost, consequently threatening their sustainability in the long run. As investors generally charge higher interest rates to MFIs with more credit risks to offset their high-risk exposure, we assumed that the LLR will positively affect the financing cost of MFIs. We have calculated LLR by considering the total write-off (after subtracting recovered loans) over the average gross loan portfolio.

**3.1.7 Legal status.** Legal status (LS) can also influence the financing decision and costs of MFIs. While several types of LSs such as banks, credit unions/cooperatives, non-governmental organizations (NGOs), non-bank financial institutions and rural banks exist, they have all been broadly categorized into two: NGOs and non-NGOs. LS was included in our model, because of its relationship with a firm's borrowing costs ([Fields et al., 2012](#)). The study conducted by [Shailer and Wang \(2015\)](#) documented that government-owned firms can borrow at much lower costs compared to non-government-owned firms. Furthermore, NGOs



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mostly use donated and subsidized funds, and investors have less expectation of returns from them (Ghose *et al.*, 2018). Therefore, a negative relationship is expected between LS and the financing costs of MFIs, particularly NGOs. LS is a dummy variable that gets the value 1 in the case of NGOs and 0 otherwise.

*3.1.8 Profit status.* MFIs can be profit-oriented (e.g. microfinancing wings of some commercial banks) or non-profit-oriented (e.g. civil societies organized at community, national and international levels). As opposed to non-profit MFIs, investors of profit-oriented MFIs may demand relatively higher returns. As most profit-oriented MFIs run based on commercial interests (Nourani *et al.*, 2022), investors are compensated based on market returns. Considering the social cause of not-for-profit MFIs, they are expected to experience much lower funding costs compared to their for-profit counterparts. A dummy variable was used to capture the profit status (PS) of MFIs, with a profit-oriented MFI coded as 1 and a non-profit-oriented MFI coded as 0.

*3.1.9 Size.* The size of an MFI could also be an important determinant of borrowing costs, and it is assessed by the natural logarithm of total assets (LNASSET). A larger MFI tends to access much cheaper loans because of its larger credit scale compared to its smaller counterpart. Also, larger MFIs, because of their “size effect,” possess special bargaining capacity with their lenders (Rahman *et al.*, 2018) and are considered relatively safer, because of their anticipated gains from the economies of scale (Borisova *et al.*, 2015) which is valued by the potential investors/lenders (Kamil and Appiah, 2022). Therefore, the size of MFIs is expected to have a negative influence on their financing costs.

*3.1.10 Inflation.* Inflation (INF) and financing costs are expected to be highly correlated (Lintner, 1975). Financial institutions are mostly affected by inflation rates, because of their frequent use of borrowing and deposits in their operations. The heavy usage of debt financing over deposits by MFIs in their operations would result in inflation having a positive impact on their overall financing costs. Therefore, a positive association between inflation and the financing costs of MFIs is expected. Consistent with studies conducted by Adusei (2016) and Pephrah and Adekoya (2020), we have included the inflation rates, which indicate the overall rate of price change in the economy as a whole (see Table 1 for the full definition).

*3.1.11 Gross domestic product growth.* The gross domestic product growth (GDPGR) is used to measure the overall economic progress of a country. Generally, GDP growth affects the aggregate demand and aggregate supply, resulting in the creation of a trade-off in the determination of nationwide borrowing costs. For instance, a progressive economy will possess a well-developed financial system and high availability of funds. Therefore, the developed financial system should be able to provide credit access at a cheaper rate (Levine, 2003). On the other hand, a higher GDP growth implies that the demand for capital will also be higher. As such, the possibility of either a positive or negative relationship between the GDP growth and financing costs of MFIs exists. To capture the effects of economic progress, the overall average growth rate of GDP has been considered in our model. Kindly refer to Table 1 for a detailed definition of each of the variables used in our empirical analysis.

## 3.2 Data

Relevant data were collected from the World Bank [4]. Large-scale data on the corporate governance and income statements of global MFIs has been made available to researchers for free, courtesy of the cooperation between the World Bank and MIX Market in 2019. Further to the cleaning of the data for input errors (e.g. repeated MFIs) and exclusion of missing data for all selected variables, a total of 1,190 MFI data from 95 economies were retained. The study spans the period 2010–2018, as data on our main independent variable (i.e. board gender diversity) was almost non-existent before 2010 and after 2018, as of the

Abbreviation	Full name	Definition	Expected sign
FINEXP	Financial expense	The ratio of financial expenses on liabilities divided by total liabilities*	
FEMBOARD	The proportion of female board members	The ratio of female board members to total board members	-
BLAU	BLAU index	Defined as $1 - \sum_{i=1}^n P_i^2$ , where $P_i$ is the proportion of group members in each of the $i$ categories and the value of $n = 2$ (men and women)	-
W1	One female board member	W1 is a dummy variable, which gets the value 1 if the MFI has only 1 female board member and 0 otherwise	-
W2	Two female board members	W2 is a dummy variable; it takes the value 1 if the MFI has only 2 female board members and 0 otherwise	-
W3	Three or more female board members	W3 is a dummy variable and gets the value 1 if the MFI has only 3 or more female board members and 0 otherwise	-
LNBOARD	Board size	Natural logarithm of the total number of board members	-/+
ROA	Return on assets	(Net Operating Income – Taxes)/Average Total Assets	-
DTE	Debt to equity ratio	Debt to equity ratio	+/-
LLR	Loan loss provision	(Write-offs – value of loans recovered)/Average gross loan portfolio	+
LS	Legal status	LS is a dummy variable and takes the value 1 in the case of NGOs and 0 otherwise	-/+
PS	Profit status	PS is a dummy variable and takes the value 1 in the case of profit-oriented MFIs and 0 otherwise	-/+
LNASSET	Size of MFIs	Natural logarithm of the total assets (in US\$)	-
INF	Inflation rate	The GDP implicit deflator is the ratio of GDP in the current local currency to GDP in constant local currency. Inflation, as measured by the annual growth rate of the GDP implicit deflator, shows the rate of price change in the economy as a whole	+
GDPGR	Gross domestic product growth	The annual percentage growth rate of GDP at market prices is based on the constant local currency	-/+

**Notes:** \*Financial expense on funding liabilities = All costs incurred in raising funds from third parties including deposits, borrowings, subordinated debt and other financial obligations in addition to fee expenses from non-financial services. Total liabilities: Total value of present obligations of financial institutions arising from past events, the settlement of which is expected to result in an outflow from the financial institution of resources embodying economic benefits

**Source:** Authors compilation from the World Bank

**Table 1.**  
Definitions of the variables

time of collecting the data. As data were voluntarily submitted to the World Bank by MFIs, the majority of the MFIs do not consistently update their data, resulting in an unbalanced panel data set. Moreover, several macroeconomic variables such as data on the inflation rate and GDP growth were also collected from the World Development Indicators of the World Bank. Each continuous variable was winsorized at 1% and 99% levels to ensure that our findings are unaffected by the extreme outliers. Firm-year observations and the list of countries are reported in [Appendix 1](#) and [2](#), respectively.

#### 4. Results and discussions

[Table 2](#) presents the descriptive statistics of the sampled MFIs and the macroeconomic variables. The mean financing cost of the selected MFIs was observed to be 7.54%, with

Variable	Mean	SD	Minimum	Maximum
FINEXP	0.0754	0.0514	0	0.3177
FEMBOARD	0.3075	0.2434	0	1
BLAU	0.3074	0.1756	0	0.5
W1	0.2836	0.2836	0	1
W2	0.2199	0.2199	0	1
W3	0.3397	0.3397	0	1
BOARD*	7.7033	6.1911	1	57
LNBOARD	1.8801	0.5371	0	4.0431
ROA	0.0170	0.0664	-0.3123	0.1771
DTE	4.1975	4.2902	-3.9500	27.6300
LLR	0.0126	0.0256	-0.0401	0.1403
LS	0.3521	0.3521	0	1
PS	0.4147	0.4147	0	1
ASSET*	91,000,000	238,000,000	225,216	1,630,000,000
LNASSET	16.5567	1.9374	12.3248	21.2094
INF	5.6061	5.0760	-2.4910	26.6776
GDPGR	4.8479	2.5491	-3.0636	11.0952

**Notes:** All variables have a constant observation of 4,280. \*BOARD: The number of total board members and ASSET: The amount of total assets measured in US\$. All continuous variables were winsorized at 1% and 99% levels

**Source:** Authors based on the World Bank

**Table 2.**  
Descriptive statistics  
(main variables)

minimum and maximum values of 0% and 31.77%, respectively. The 0% minimum value of financial costs may imply that a minimum of one or more MFIs in our sample were heavily dependent on charity or donation funds and, therefore, do not incur charges for using such capital. Other than donations and charity, MFIs incur charges for using alternative fund sources. As such, a minimum of one or more MFIs was observed to pay as high as 31.77% for generating funds, which is considered exorbitant for a socially oriented institution like an MFI. On average, our sample recorded 30.75% female board members, with a standard deviation of 24.34%. This implies that only around three out of ten MFI board members are female (yearly proportion of female board members is presented in [Appendix 3](#)). The minimum and maximum values of the variable FEMBOARD indicate that some MFIs in our sample were fully run by female board members, while others had no female board members at all. To be more specific, the means of the dummy variables for MFIs having one, two and three or more female board members were observed to be 0.2836 (28.36%), 0.2199 (21.99%) and 0.3397 (33.97%), respectively. The result also indicated that approximately 15.64% (1-0.8436) of the sampled MFIs in this study lacked female members in their boardroom. In general, our sample comprises approximately 35.21% NGOs and 41.47% profit-oriented MFIs.

Before conducting the regression analysis, the existence of multicollinearity problems among the independent variables was assessed using the correlation matrix. As presented in [Table 3](#), the value of the correlation matrix does not exceed 0.8, implying that the models may not suffer from severe multicollinearity problems. We have also included a dependent variable in the correlation matrix to provide an initial understanding of the relationship (based on the coefficient sign) between variables of interest and their strength (based on the correlation value). As per the correlation results reported in [Table 3](#), none of the control variables are highly correlated with the dependent variable as well.

To execute the objectives of the study, equation (1) was initially estimated using the pooled OLS (POLS) and random effects model (REM), as the fixed-effects model (FEM) may

**Table 3.**  
Pearson pairwise  
correlation

	FINEXP	FEMBOARD	BLAU	W1	W2	W3	LNBOARD	ROA	DTE	LLR	LS	PS	LNASSET	INF	GDPGR
FINEXP	1														
FEMBOARD	-0.0349**	1													
BLAU	-0.0451***	0.4358***	1												
W1	0.0563***	-0.2530***	-0.0421***	1											
W2	0.0065	0.0326**	0.2944***	-0.3340***	1										
W3	-0.1055***	0.6306***	0.3621***	-0.4514***	-0.3808***	1									
LNBOARD	-0.1937***	0.0057	0.1774***	-0.2285***	0.0132	0.4121***	1								
ROA	0.0295*	0.0420***	0.0058	-0.0365**	0.0429***	0.0153	0.0093	1							
DTE	-0.0854***	-0.0623***	-0.0241	-0.0163	-0.0256	0.0151	0.1212***	-0.0766***	1						
LLR	0.0663***	-0.0434***	-0.0101	0.0243	0.0142	-0.0482***	-0.0431***	-0.1259***	-0.039**	1					
LS	0.0212	0.1463***	0.1086***	-0.0841***	0.0752***	0.0982***	-0.0327**	0.0556***	-0.0892***	0.0006	1				
PS	0.1201***	-0.2232***	-0.1294***	0.1720***	-0.0369**	-0.2293***	-0.1199***	-0.0006	0.0543***	0.0923***	-0.5908***	1			
LNASSET	-0.1113***	-0.1687***	-0.0210	0.0105	0.0109	-0.0146	0.3023***	0.1241***	0.2237***	0.0253**	-0.2920***	0.2709***	1		
INF	0.2016***	-0.0293*	-0.0704***	-0.0178	-0.0074	-0.0340**	-0.1160***	-0.0080	-0.0129	0.0127	0.0455***	0.0745***	-0.1985***	1	
GDPGR	-0.0400**	-0.0059	-0.0442***	0.0059	-0.0162	0.0054	0.0535***	0.0306**	0.0762***	-0.1326***	0.0140	0.1216***	-0.0372**	0.0706***	1

**Notes:** We have estimated Pearson pairwise correlation. \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

**Source:** Authors

be inappropriate for time-invariant variables such as PS and LS (Brown, Beekes, and Verhoeven, 2011). To identify the best-fit model between the POLS and REM, the Breusch–Pagan Lagrangian Multiplier Test (BPLM) was conducted, with the outcome favoring the usage of the REM. Moreover, we have also included region dummies – namely, Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean (LAC) and Middle East and North Africa – in the regression (stated otherwise). However, the South Asian region was treated as a base category.

Results of the Pooled OLS (Model 1) and REM (Model 2) are presented in Table 4. For Model 2, the coefficient sign of our main variable of interest, that is, board gender diversity, supports the first hypothesis (*H1*), and it is statistically significant. In other words, the presence of female board members is negatively related to the financing cost of MFIs, which suggests that MFIs with gender-diverse boards could generate funding at lower costs. Our findings support the efficiency hypothesis of board gender diversity (*H1*) and the overall result of Usman *et al.* (2019) but contrast the overall findings of Kamil and Appiah (2022).

Our findings further revealed that larger MFIs, larger board sizes and highly leveraged MFIs have a statistically significant negative effect on the financing costs of MFIs. These results may be justified by the fact that board and MFI sizes increase the bargaining power of MFIs with potential lenders for lower funding costs. Additionally, larger MFIs enjoy economies of scale, as their capital generation and bulk borrowing activities tend to result in a discounted interest rate from their lenders. Regarding the risk profile of MFIs proxied by LLR, it has a statistically significant positive effect on the funding costs of MFIs. This finding reiterates that high-risk MFIs pay higher risk premiums to lenders to secure financing.

	Model (1)	Model (2)	Model (3)
	POLS	REM	FEM
FEMBOARD	−0.0047 (0.0033)	−0.0085* (0.0045)	−0.0093** (0.0047)
LNBOARD	−0.0095*** (0.0017)	−0.0049** (0.0022)	−0.0009 (0.0022)
ROA	0.0223 (0.0179)	0.0061 (0.0226)	−0.0113 (0.0136)
DTE	−0.0009*** (0.0002)	−0.0005** (0.0002)	−0.0005** (0.0002)
LLR	0.1137*** (0.0385)	0.0942*** (0.0350)	0.0804*** (0.0283)
LS (NGO = 1 and 0 others)	0.0058*** (0.0018)	0.0078** (0.0033)	–
PS (PROFIT = 1 and 0 others)	0.0135*** (0.0020)	0.0177*** (0.0034)	–
LNASSET	−0.0027*** (0.0005)	−0.0043*** (0.0010)	−0.0087*** (0.0015)
INF	0.0019*** (0.0002)	0.0007*** (0.0002)	−0.0001 (0.0002)
GDPGR	−0.0004 (0.0004)	−0.0015*** (0.0004)	−0.0020*** (0.0003)
Time dummy	yes	yes	yes
Region dummy	yes	yes	no
CONS	0.1277*** (0.0089)	0.1549*** (0.0163)	0.2275*** (0.0244)
Observations	4,280	4,280	4,280
F/Chi <sup>2</sup>	37.4220***	328.7127***	10.4701***
R <sup>2</sup>	0.1891	0.1708	0.0517
BPLM test		1,304.74***	
# of MFIs		1190	1190

**Table 4.**  
Base results (pooled  
ordinary least  
squares, random  
effects model and  
fixed effects model)

**Notes:** Fixed Effects Model considers time-invariant variables as fixed/constant; therefore, LS and PS have no coefficient/standard errors in Model 3. Robust standard errors in parentheses. The robust standard errors estimated here were based on the clustering of the firms/MFIs. \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

**Source:** Authors

Profit-oriented MFIs have been observed to have higher financing costs compared to non-profit-oriented MFIs, as indicated in their positive and statistically significant coefficient sign. Understandably, creditors will charge profit-oriented MFIs competitive and market rates, because of their vested commercial interest. Conversely, fund providers are expected to charge NGO-MFIs lower interest rates, considering their non-PS (in most cases) and pro-social cause. However, our empirical estimation revealed that NGOs incur higher funding costs compared to their non-NGO counterparts. This result suggests that NGO-MFIs may not be able to use conventional funding instruments and, therefore, resort to limited and expensive funding opportunities instead. Contrary to the initial expectation, ROA has a positive but statistically insignificant (Model 2) effect on the financing costs of MFIs. This finding is in contrast with studies conducted by [Miao \*et al.\* \(2021\)](#) and [Yugang \*et al.\* \(2021\)](#), which demonstrated a negative effect of ROA on the cost of debt financing.

With respect to macroeconomic variables, a significant positive effect of inflation on the funding costs of MFIs was observed. This implies that in a highly inflationary environment, MFIs have to pay higher capital costs to their creditors. As higher inflation erodes value, MFIs are burdened with higher interest rates in their usage of capital generated from various market sources. Interestingly, GDP growth has a negative and statistically significant effect on the funding costs of MFIs, which highlights that in a progressive economy, the higher availability of capital forces prices down, thereby making capital relatively cheaper to borrow for MFIs.

For comparison's sake, the FEM has also been estimated and reported along with POLS and REM in [Table 4](#) (Model 3). Another benefit of FEM is its ability to address omitted variable bias and time-invariant heterogeneity ([Islam, 1995](#); [Lee and Kim, 2009](#)). Our findings further support the earlier observation of a significantly negative effect of female board members on the financing costs of MFIs (Model 3).

#### 4.1 Additional/robustness tests

As our sample comprises various geographical regions, we have randomly selected the LAC microfinance sector and conducted a sub-sample analysis by re-estimating equation (1). Our sub-sample analysis reconfirmed that board gender diversity has a negative and statistically significant effect on the funding costs of MFIs ([Table 5](#), Model 4). Apart from that, we discovered that the ROA has a negative (insignificant) sign in the context of LAC microfinance market as opposed to the positive (insignificant) sign in the base result ([Table 4](#)).

To further examine the robustness of our findings on board gender diversity, we have replaced the proportion of female board members with the *BLAU* diversity index, in line with the existing literature ([Nekhili \*et al.\*, 2020](#); [Usman \*et al.\*, 2019](#)). Specifically, the *BLAU* index investigates how equally, men and women are represented on the board ([Abad, Lucas-Pérez, Minguez-Vera, and Yague, 2017](#)). Thereafter, we rerun equation (1) using REM, and the results are reported in [Table 5](#), Model 4. Again, a statistically significant negative effect of *BLAU* was observed on the financing costs of MFIs, thus reiterating that board gender diversity results in a lower financing cost of MFIs.

So far, the above-estimated models have consistently revealed that board gender diversity has a negative effect on the financing costs of MFIs. However, most of the governance literature in microfinance may suffer from endogeneity issues, because of reverse causality/omitted variable bias. To ensure that our findings are unaffected by these endogeneity issues, we have performed a two-step system generalized method of moments (GMM) developed by [Arellano and Bover \(1995\)](#) and [Blundell and Bond \(1998\)](#). The GMM estimator is also, to some extent, suitable for addressing the omitted variable bias/time-varying country effects ([Doytch and Uctum, 2011](#); [Lee and Kim, 2009](#)), as our model may have excluded some macroeconomic/institutional characteristics that might influence the overall financing costs of MFIs [5]. In

	Model (4) LAC	Model (5) Full sample
Dependent variable: FINEXP		
FEMBOARD	-0.0157* (0.0082)	
BLAU		-0.0112** (0.0056)
LNBOARD	-0.0145*** (0.0038)	-0.0041* (0.0022)
ROA	-0.0653 (0.0456)	0.0055 (0.0226)
DTE	-0.0022*** (0.0008)	-0.0005** (0.0002)
LLR	0.1333* (0.0708)	0.0930*** (0.0348)
LS (NGO = 1 and 0 others)	0.0059 (0.0073)	0.0081** (0.0033)
PS (PROFIT = 1 and 0 others)	0.0129*** (0.0043)	0.0184*** (0.0034)
LNASSET	-0.0052** (0.0023)	-0.0042*** (0.0010)
INF	0.0015** (0.0006)	0.0007*** (0.0002)
GDPGR	-0.0015** (0.0007)	-0.0015*** (0.0004)
Time dummy	yes	yes
Region dummy	no	yes
CONS	0.1873*** (0.0391)	0.1530*** (0.0161)
Observations	1,477	4,280
Chi <sup>2</sup>	130.4300***	327.4253***
R <sup>2</sup>	0.2259	0.1709
# of MFIs	334	1190

**Notes:** Model 5:

$$\text{FINEXP}_{jit} = \beta_0 + \beta_1 \text{BLAU}_{it} + \beta_2 \text{LNBOARD}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{DTE}_{it} + \beta_5 \text{LLR}_{it} + \beta_6 \text{LS}_i + \beta_7 \text{PS}_i + \beta_8 \text{LNASSET}_{it} + \beta_9 \text{INF}_{it} + \beta_{10} \text{GDPGR}_{it} + \varepsilon_{it} \quad (2)$$

Robust standard errors in parentheses. The robust standard errors estimated here were based on the clustering of the firm. \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

**Source:** Authors

**Table 5.** Sub-sample analysis (Latin America and the Caribbean) and alternative proxy of board gender diversity (*BLAU*), random effects model

terms of model fitness and diagnostic tests, the GMM results are valid, given the existence of a statistically significant effect of the lag-dependent variable, an insignificant Hansen test to validate the instruments, an insignificant second order-serial correlation (AR2) and a lower number of instruments compared to groups/MFIs (Table 6). Again, the main result remains the same, that is, board gender diversity has a negative and statistically significant effect on the financing costs of MFIs. Therefore, our study establishes and reaffirms the existence of a negative relationship between female board members and the financing costs of MFIs.

Further to the confirmation of the negative effect of board gender diversity on the financing cost of MFIs via the aforementioned tests, the concepts of the “critical mass theory” and “tokenism theory” were applied to determine the minimum number of female board members required to exert a negative impact on the financing cost of MFIs. Based on the tokenism theory, a single woman could be treated as a token with no significant influence on board-level decision-making (Usman *et al.*, 2019). This underscores the importance of more female board members to influence the decision-making process at the board level. In this regard, Kristie (2011) argued that “one is a token, two is presence, and three is voice.” Therefore, consistent with the studies conducted by Gull *et al.* (2022) and Usman *et al.* (2019), three different dummy variables have been created to capture the extent of female board members in the boardroom of MFIs: a dummy variable equaling 1 if the board has a female director and 0 otherwise (W1); another dummy variable equaling 1 if the board has two female directors and 0 otherwise (W2); and the final dummy variable

	Model (6) Dependent variable: FINEXP
FINEXP <sub>t-1</sub>	0.4345*** (0.0205)
FEMBOARD	-0.0106** (0.0044)
LNBOARD	-0.0045** (0.0019)
ROA	-0.0431*** (0.0140)
DTE	-0.0005*** (0.0002)
LLR	0.0605*** (0.0232)
LS (NGO = 1 and 0 others)	0.0023 (0.0018)
PS (PROFIT = 1 and 0 others)	0.0074*** (0.0018)
LNASSET	-0.0026*** (0.0004)
INF	0.0004** (0.0002)
GDPGR	-0.0002 (0.0002)
Time dummy	yes
Region dummy	yes
CONS	0.1055*** (0.0095)
Observations	2,676
Chi <sup>2</sup>	90.1186***
AR1 ( <i>p</i> -value)	-4.7094 (0.0000)
AR2 ( <i>p</i> -value)	1.0190 (0.3082)
Hansen ( <i>p</i> -value)	164.8078 (0.3808)
# of instruments	184
# of MFIs	823

Notes: Model 6:

$$\text{FINEXP}_{jit} = \beta_0 + \beta_1 \text{FINEXP}_{it-1} + \beta_2 \text{FEMBOARD}_{it} + \beta_3 \text{LNBOARD}_{it} + \beta_4 \text{ROA}_{it} + \beta_5 \text{DTE}_{it} + \beta_6 \text{LLR}_{it} + \beta_7 \text{LS}_i + \beta_8 \text{PS}_i + \beta_9 \text{LNASSET}_{it} + \beta_{10} \text{INF}_{jt} + \beta_{11} \text{GDPGR}_{jt} + \varepsilon_{it} \quad (3)$$

**Table 6.**  
Two-step system  
generalized method  
of moments

Standard errors in parentheses. \**p* < 0.10; \*\**p* < 0.05; \*\*\**p* < 0.01

Source: Authors

equaling 1 if the board has three or more female directors and 0 otherwise (W3). Then, we performed the analysis through REM, included year and region dummies and calculated the robust standard errors at the firm level. The results are reported in [Table 7](#).

Our findings support both the tokenism and critical mass theory, in the sense that a single female board member has a negative but statistically insignificant impact on the financing costs of MFIs. However, the effect becomes statistically significant when the number of female board members is two or more. It is also worth noting that the effect of three or more female board members was statistically significant at both 5% and 10% levels, while the effect of two female board members was significant only at 10% level. Therefore, it can be argued that board gender diversity will have a significantly negative effect on the financing costs of MFIs in the presence of two or more female board members. The findings for other control variables remain consistent with the earlier reported results.

## 5. Conclusions, recommendations and research directions

Motivated by the limited literature on board gender diversity and financing costs of MFIs, we have used an updated and globally representative data set of 1,190 unique MFIs from 95 countries to test three hypotheses developed to assess the causal relationship between board gender diversity and the financing costs of MFIs. Overall, we found a statistically significant negative effect of board gender diversity on the financing costs of MFIs.



	Model (7) Dependent variable: FINEXP
W1	-0.0015 (0.0027)
W2	-0.0059* (0.0032)
W3	-0.0057** (0.0029)
LNBOARD	-0.0031 (0.0023)
ROA	0.0061 (0.0227)
DTE	-0.0005** (0.0002)
LLR	0.0946*** (0.0350)
LS (NGO = 1 and 0 others)	0.0081** (0.0033)
PS (PROFIT = 1 and 0 others)	0.0178*** (0.0034)
LNASSET	-0.0042*** (0.0010)
INF	0.0007*** (0.0002)
GDPGR	-0.0015*** (0.0004)
Time dummy	yes
Region dummy	yes
CONS	0.1522*** (0.0160)
Observations	4,280
F-statistics	330.9994***
R <sup>2</sup>	0.1715
# of MFIs	1190

Notes: Model 7:

$$\text{FINEXP}_{jit} = \beta_0 + \beta_1 W1_{it} + \beta_2 W2_{it} + \beta_3 W3_{it} + \beta_4 \text{LNBOARD}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{DTE}_{it} \\ + \beta_7 \text{LLR}_{it} + \beta_8 \text{LS}_i + \beta_9 \text{PS}_i + \beta_{10} \text{LNASSET}_{it} + \beta_{11} \text{INF}_{it} + \beta_{12} \text{GDPGR}_{it} + \varepsilon_{it} \quad (4)$$

Robust standard errors in parentheses. The robust standard errors estimated here were based on the clustering of the firm. \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Source: Authors

**Table 7.**  
The number of  
female board  
members and the  
financing costs of  
microfinance  
institutions, random  
effects model

The findings suggest that a gender-diverse board is associated with lower financing costs of MFIs, thereby supporting the board gender diversity-efficiency hypothesis. To confirm that our results are unaffected by endogeneity issues (which is the case for most corporate governance literature, because of reverse causality), the two-step GMM was performed, which reaffirmed our findings. A significant negative effect of board gender diversity was also observed when the model was assessed using other robustness measures such as the FEM, the use of different proxies (e.g. BLAU) and sub-sample (e.g. LAC) analysis. Based on the series of tests and robustness analysis, we are convinced that promoting board gender diversity will reduce the financing costs of MFIs. The results remain robust and reliable with respect to definition, modeling and technique. In addition, our findings further revealed that a minimum of two female board members is required to significantly reduce the financing costs of MFIs, as lesser than two female board members were observed to have a statistically insignificant negative effect on the financing costs of sampled MFIs.

Our study outcome advises the promotion of board gender diversity in microfinance, as some MFIs have few or no female board members in their board rooms. Particularly, ensuring a minimum of two female board members could result in a significant reduction in the financing cost of MFIs. Furthermore, we also recommend the inclusion of gender diversity as part of the metrics for rating the performance of MFIs. In other words, credit-rating agencies should consider the board gender diversity parameters when auditing relevant MFIs. As our study documents that NGO-MFIs have a relatively higher financing

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cost compared to their non-NGO counterparts, there is a need to support NGO-MFIs with concessionary and subsidized funds to minimize their overall funding costs.

Additionally, MFIs should devise strategies to minimize their loan loss ratio, as it exposes them to bankruptcy risk and ultimately prompts higher financing costs from potential lenders. A plausible solution could be establishing a better loan-screening mechanism and after-service loan monitoring to ensure timely loan repayment of borrowers. However, this warrants the provision of adequate training and facilities to the loan officers who are the direct contact for most microfinance clients. Furthermore, our findings on profit orientation are in sync with the conventional argument that profit-oriented MFIs are likely to experience higher financing expenses because of their commercial motive; however, we encourage potential lenders to lower their financing costs for MFIs (regardless of their profit orientation), considering their primary role of serving the poor. This would enable the profit-oriented MFIs to offset some of their financing expenses and subsequently charge lower interest rates for their loan products.

While this study has contributed significantly to research on board gender diversity and the financing costs of MFIs, it is not devoid of limitations. One of the possible extensions of the study would be the examination of the lag effect of some of the variables in the model, as their impact may not be immediate on financing costs. Second, the exploration of the quadratic relationship between gender diversity and funding costs/other aspects of MFI performance could also be considered in future studies. Third, as the effect of board gender diversity may be mediated by some institutional characteristics of MFIs, the usage of interaction/moderators with board gender diversity or other relevant variables could generate interesting outcomes. Finally, a future study could also be conducted to examine whether lower financing costs of MFIs as a result of board gender diversity make microfinance affordable for the poor.

## Notes

1. Financing costs, funding costs and financing expense were interchangeably used in this study.
2. Financial cost was used as the denominator in calculating OSS (see definition in Table 1); therefore, the lower the value of financial expense, the greater the OSS. Moreover, lower financial expense reduces the overall weighted average costs and ultimately stimulates the financial performance of MFIs.
3. For simplicity, “financing costs,” “costs of debt,” “funding costs” and “costs of borrowing” were interchangeably used in this study.
4. The available data can be obtained from the following link: <https://datacatalog.worldbank.org/search/dataset/0038647>
5. We wanted to include several other macroeconomic variables, such as lending rate, interest rate spread and financial sector development. However, after exploring the data, we realized that there are many missing observations. As a result, a substantial number of MFIs were eliminated from our estimation, which eventually affect the overall results.

## References

- Abad, D., Lucas-Pérez, M.E., Mínguez-Vera, A. and Yagüe, J. (2017), “Does gender diversity on corporate boards reduce information asymmetry in equity markets?”, *BRQ Business Research Quarterly*, Vol. 20 No. 3, pp. 192-205.
- Abrar, A. (2019), “The impact of financial and social performance of microfinance institutions on lending interest rate: a cross-country evidence”, *Cogent Business and Management*, Vol. 6 No. 1, p. 1540072, doi: [10.1080/23311975.2018.1540072](https://doi.org/10.1080/23311975.2018.1540072).

- Adams, R.B. and Ferreira, D. (2009), "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, Vol. 94 No. 2, pp. 291-309.
- Adusei, M. (2016), "Does entrepreneurship promote economic growth in Africa?", *African Development Review*, Vol. 28 No. 2, pp. 201-214.
- Adusei, M. (2019), "Board gender diversity and the technical efficiency of microfinance institutions: does size matter? ", *International Review of Economics and Finance*, Vol. 64, pp. 393-411, doi: [10.1016/j.iref.2019.07.008](https://doi.org/10.1016/j.iref.2019.07.008).
- Adusei, M. and Obeng, E.Y.T. (2019), "Board gender diversity and the capital structure of microfinance institutions: a global analysis", *The Quarterly Review of Economics and Finance*, Vol. 71, pp. 258-269.
- Adusei, M. and Sarpong-Danquah, B. (2021), "Institutional quality and the capital structure of microfinance institutions: the moderating role of board gender diversity", *Journal of Institutional Economics*, Vol. 17 No. 4, pp. 641-661.
- Ahmad, S., Lensink, R. and Mueller, A. (2020), "The double bottom line of microfinance: a global comparison between conventional and Islamic microfinance", *World Development*, Vol. 136, p. 105130.
- Ain, Q.U., Yuan, X., Javaid, H.M., Usman, M. and Haris, M. (2021), "Female directors and agency costs: evidence from Chinese listed firms", *International Journal of Emerging Markets*, Vol. 16 No. 8, pp. 1604-1633, doi: [10.1108/IJOEM-10-2019-0818](https://doi.org/10.1108/IJOEM-10-2019-0818).
- Al-Shaer, H. and Zaman, M. (2016), "Board gender diversity and sustainability reporting quality", *Journal of Contemporary Accounting and Economics*, Vol. 12 No. 3, pp. 210-222.
- Ararat, M. and Yurtoglu, B.B. (2021), "Female directors, board committees, and firm performance: time-series evidence from Turkey", *Emerging Markets Review*, Vol. 48, p. 100768.
- Arellano, M. and Bover, O. (1995), "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, Vol. 68 No. 1, pp. 29-51.
- Awaworyi Churchill, S. (2018), "Sustainability and depth of outreach: evidence from microfinance institutions in sub-Saharan Africa", *Development Policy Review*, Vol. 36, pp. 0676-0695.
- Bayai, I. and Ikhide, S. (2018), "Financing structure and financial sustainability of selected SADC microfinance institutions (MFIs)", *Annals of Public and Cooperative Economics*, Vol. 89 No. 4, pp. 665-696.
- Belaounia, S., Tao, R. and Zhao, H. (2020), "Gender equality's impact on female directors' efficacy: a multi-country study", *International Business Review*, Vol. 29 No. 5, p. 101737.
- Bhanot, D. and Bapat, V. (2015), "Sustainability index of micro finance institutions (MFIs) and contributory factors", *International Journal of Social Economics*, Vol. 42 No. 4, pp. 387-403, doi: [10.1108/IJSE-01-2014-0001](https://doi.org/10.1108/IJSE-01-2014-0001).
- Blundell, R. and Bond, S. (1998), "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, Vol. 87 No. 1, pp. 115-143.
- Borisova, G., Fotak, V., Holland, K. and Megginson, W.L. (2015), "Government ownership and the cost of debt: evidence from government investments in publicly traded firms", *Journal of Financial Economics*, Vol. 118 No. 1, pp. 168-191, doi: [10.1016/j.jfineco.2015.06.011](https://doi.org/10.1016/j.jfineco.2015.06.011).
- Brown, P., Beekes, W. and Verhoeven, P. (2011), "Corporate governance, accounting and finance: a review", *Accounting and Finance*, Vol. 51 No. 1, pp. 96-172.
- Campbell, K. and Minguez-Vera, A. (2008), "Gender diversity in the boardroom and firm financial performance", *Journal of Business Ethics*, Vol. 83 No. 3, pp. 435-451.
- Campion, A., Ekka, R.K. and Wenner, M. (2010), "Interest rates and implications for microfinance in Latin America and the Caribbean", available at: <https://publications.iadb.org/publications/english/document/Interest-Rates-and-Implications-for-Microfinance-in-Latin-America-and-the-Caribbean.pdf>
- Chen, J., Gong, D. and Muckley, C. (2020), "Stock market illiquidity, bargaining power and the cost of borrowing", *Journal of Empirical Finance*, Vol. 58, pp. 181-206.

- 
- Cheng, S., Evans, J.H. and Nagarajan, N.J. (2008), "Board size and firm performance: the moderating effects of the market for corporate control", *Review of Quantitative Finance and Accounting*, Vol. 31 No. 2, pp. 121-145.
- Cull, R., Demirgüç-Kunt, A. and Morduch, J. (2007), "Financial performance and outreach: a global analysis of leading microbanks", *The Economic Journal*, Vol. 117 No. 517, pp. F107-F133, doi: [10.1111/j.1468-0297.2007.02017.x](https://doi.org/10.1111/j.1468-0297.2007.02017.x).
- Daily, C.M. and Dalton, D.R. (2003), "Women in the boardroom: a business imperative", *Journal of Business Strategy*, Vol. 24 No. 5, doi: [10.1108/jbs.2003.28824eaf.002](https://doi.org/10.1108/jbs.2003.28824eaf.002).
- Dalton, D.R., Daily, C.M., Johnson, J.L. and Ellstrand, A.E. (1999), "Number of directors and financial performance: a meta-analysis", *Academy of Management Journal*, Vol. 42 No. 6, pp. 674-686.
- Datta, S., Doan, T. and Toscano, F. (2021), "Top executive gender, board gender diversity, and financing decisions: evidence from debt structure choice", *Journal of Banking and Finance*, Vol. 125, p. 106070.
- Doytch, N. and Uctum, M. (2011), "Does the worldwide shift of FDI from manufacturing to services accelerate economic growth? A GMM estimation study", *Journal of International Money and Finance*, Vol. 30 No. 3, pp. 410-427, doi: [10.1016/j.jimonfin.2011.01.001](https://doi.org/10.1016/j.jimonfin.2011.01.001).
- Eagly, A.H. and Carli, L.L. (2003), "The female leadership advantage: an evaluation of the evidence", *The Leadership Quarterly*, Vol. 14 No. 6, pp. 807-834.
- Faccio, M., Marchica, M.-T. and Mura, R. (2016), "CEO gender, corporate risk-taking, and the efficiency of capital allocation", *Journal of Corporate Finance*, Vol. 39, pp. 193-209.
- Farhana, S. (2020), "The impact of gender diversity in the boardroom on banks performances", *Jurnal Keuangan Dan Perbankan*, Vol. 24 No. 4, pp. 434-448.
- Fersi, M. and Boujelbène, M. (2021), "Overconfidence and credit risk-taking in microfinance institutions: a cross-regional analysis", *International Journal of Organizational Analysis*, doi: [10.1108/IJOA-11-2020-2510](https://doi.org/10.1108/IJOA-11-2020-2510).
- Fields, L.P., Fraser, D.R. and Subrahmanyam, A. (2012), "Board quality and the cost of debt capital: the case of bank loans", *Journal of Banking and Finance*, Vol. 36 No. 5, pp. 1536-1547.
- Finkelstein, S., Hambrick, D. and Cannella, A.A. (1996), *Strategic Leadership*, West Educational Publishing, St. Paul.
- Fondas, N. and Salsalos, S. (2000), "A different voice in the boardroom: how the presence of women directors affects board influence over management", *Global Focus*, Vol. 12 No. 2, pp. 13-22.
- Ghose, B., Paliar, S.J. and Mena, L. (2018), "Does legal status affect performance of microfinance institutions?: empirical evidence from India", *Vision: The Journal of Business Perspective*, Vol. 22 No. 3, pp. 316-328, doi: [10.1177/0972262918786104](https://doi.org/10.1177/0972262918786104).
- Godquin, M. (2004), "Microfinance repayment performance in Bangladesh: how to improve the allocation of loans by MFIs", *World Development*, Vol. 32 No. 11, pp. 1909-1926.
- Green, C.P. and Homroy, S. (2018), "Female directors, board committees and firm performance", *European Economic Review*, Vol. 102, pp. 19-38.
- Gull, A.A., Atif, M. and Hussain, N. (2022), "Board gender composition and waste management: cross-country evidence", *The British Accounting Review*, p. 101097, doi: [10.1016/j.bar.2022.101097](https://doi.org/10.1016/j.bar.2022.101097).
- Gulzar, M., Cherian, J., Hwang, J., Jiang, Y. and Sial, M.S. (2019), "The impact of board gender diversity and foreign institutional investors on the corporate social responsibility (CSR) engagement of Chinese listed companies", *Sustainability*, Vol. 11 No. 2, p. 307.
- Gupta, P.P., Lam, K.C., Sami, H. and Zhou, H. (2021), "Boardroom gender diversity and long-term firm performance", *International Journal of Disclosure and Governance*, pp. 1-19, doi: [10.1057/s41310-021-00114-4](https://doi.org/10.1057/s41310-021-00114-4).
- Gutiérrez-Nieto, B., Serrano-Cinca, C., Cuéllar-Fernández, B. and Fuertes-Callén, Y. (2017), "The poverty penalty and microcredit", *Social Indicators Research*, Vol. 133 No. 2, pp. 455-475.

- 
- Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *The Academy of Management Review*, Vol. 9 No. 2, pp. 193-206.
- Hambrick, D.C., Werder, A. V. and Zajac, E.J. (2008), "New directions in corporate governance research", *Organization Science*, Vol. 19 No. 3, pp. 381-385.
- Hang, H.T.T., Trinh, V.K. and Vy, H.N.T. (2019), "Analysis of the factors affecting credit risk of commercial banks in Vietnam", in Kreinovich, V., Thach, N., Trung, N. and Van Thanh, D. (Eds), *Beyond Traditional Probabilistic Methods in Economics. ECONVN 2019*, Studies in Computational Intelligence, Springer, Cham, Vol. 809, doi: [10.1007/978-3-030-04200-4\\_38](https://doi.org/10.1007/978-3-030-04200-4_38).
- Hermes, N. and Hudon, M. (2018), "Determinants of the performance of microfinance institutions: a systematic review", *Journal of Economic Surveys*, Vol. 32 No. 5, pp. 1483-1513, doi: [10.1111/joes.12290](https://doi.org/10.1111/joes.12290).
- Hernández-Nicolás, C.M., Martín-Ugedo, J.F. and Mínguez-Vera, A. (2019), "The effect of gender diversity on the board of Spanish agricultural cooperatives on returns and debt: an empirical analysis", *Agribusiness*, Vol. 35 No. 4, pp. 639-656.
- Hudon, M., Labie, M. and Reichert, P. (2020), "What is a fair level of profit for social enterprise? Insights from microfinance", *Journal of Business Ethics*, Vol. 162 No. 3, pp. 627-644, doi: [10.1007/s10551-018-3986-z](https://doi.org/10.1007/s10551-018-3986-z).
- Islam, N. (1995), "Growth empirics: a panel data approach", *The Quarterly Journal of Economics*, Vol. 110 No. 4, pp. 1127-1170.
- John, K. and Senbet, L.W. (1998), "Corporate governance and board effectiveness", *Journal of Banking and Finance*, Vol. 22 No. 4, pp. 371-403.
- Kamil, R. and Appiah, K.O. (2022), "Board gender diversity and cost of debt: do firm size and industry type matter?", *Gender in Management: An International Journal*, Vol. 37 No. 1, pp. 19-38, doi: [10.1108/GM-12-2020-0363](https://doi.org/10.1108/GM-12-2020-0363).
- Kanter, R.M. (1977), "Some effects of proportions on group life: skewed sex ratios and responses to token women", *American Journal of Sociology*, Vol. 82 No. 5, pp. 965-990.
- Karavitis, P., Kokas, S. and Tsoukas, S. (2021), "Gender board diversity and the cost of bank loans", *Journal of Corporate Finance*, Vol. 71, p. 101804.
- Kristie, J. (2011), "The power of three", *Directors and Boards*, Vol. 35 No. 5, pp. 22-32.
- Lee, K. and Kim, B.-Y. (2009), "Both institutions and policies matter but differently for different income groups of countries: determinants of long-run economic growth revisited", *World Development*, Vol. 37 No. 3, pp. 533-549.
- Lee-Kuen, I.Y., Sok-Gee, C. and Zainudin, R. (2017), "Gender diversity and firms' financial performance in Malaysia", *Asian Academy of Management Journal of Accounting and Finance*, Vol. 13 No. 1, pp. 41-62.
- Levine, R. (2003), "More on finance and growth: more finance, more growth?", *Review*, Vol. 85 No. 4, pp. 31-46.
- Lintner, J. (1975), "Inflation and security returns", *The Journal of Finance*, Vol. 30 No. 2, pp. 259-280.
- Lorca, C., Sánchez-Ballesta, J.P. and García-Meca, E. (2011), "Board effectiveness and cost of debt", *Journal of Business Ethics*, Vol. 100 No. 4, pp. 613-631.
- Lucas-Pérez, M.E., Mínguez-Vera, A., Baixauli-Soler, J.S., Martín-Ugedo, J.F. and Sánchez-Marín, G. (2015), "Women on the board and managers' pay: evidence from Spain", *Journal of Business Ethics*, Vol. 129 No. 2, pp. 265-280.
- Marinova, J., Plantenga, J. and Remery, C. (2016), "Gender diversity and firm performance: evidence from Dutch and Danish boardrooms", *The International Journal of Human Resource Management*, Vol. 27 No. 15, pp. 1777-1790.
- Memon, A., Akram, W. and Abbas, G. (2022), "Women participation in achieving sustainability of microfinance institutions (MFIs)", *Journal of Sustainable Finance and Investment*, Vol. 12 No. 2, pp. 593-611.

- 
- Mia, M.A. (2022), "Do women on boards affect employee benefits? Evidence from the global microfinance industry", *Economics Letters*, Vol. 210, p. 110194.
- Mia, M.A., Dalla Pellegrina, L. and Wong, W.-Y. (2022), "Female participation and financial performance of microfinance institutions: evidence from transition economies", *Development Policy Review*, Vol. 40 No. 5, p. e12602, doi: [10.1111/dpr.12602](https://doi.org/10.1111/dpr.12602).
- Mia, M.A., Lee, H.A., Chandran, V.G.R., Rasiah, R. and Rahman, M. (2019), "History of microfinance in Bangladesh: a life cycle theory approach", *Business History*, Vol. 61 No. 4, pp. 703-733.
- Miao, Y., Zhou, X. and Dai, X. (2021), "Corporate social responsibility disclosure, debt financing costs, and innovation capacity", *Discrete Dynamics in Nature and Society*, Vol. 2021, p. 4692383, doi: [10.1155/2021/4692383](https://doi.org/10.1155/2021/4692383).
- Nawaz, A., Iqbal, S. and Ehsan, S. (2018), "Does social performance drive corporate governance mechanism in case of Asian MFIs? An issue of endogeneity", *Global Business Review*, Vol. 19 No. 4, pp. 988-1012.
- Nekhili, M., Gull, A.A., Chtioui, T. and Radhouane, I. (2020), "Gender-diverse boards and audit fees: what difference does gender quota legislation make?", *Journal of Business Finance and Accounting*, Vol. 47 No. 1-2, pp. 52-99.
- Nguyen, P. (2020), "Board gender diversity and cost of equity", *Applied Economics Letters*, Vol. 27 No. 18, pp. 1522-1526.
- Nourani, M., Mia, M.A., Saifullah, M.K. and Ahmad, N.H. (2022), "Brain drain in microfinance institutions: the role of gender and organizational factors", *Gender in Management: An International Journal*, Vol. 37 No. 3, pp. 305-327, doi: [10.1108/GM-04-2021-0092](https://doi.org/10.1108/GM-04-2021-0092).
- Nwachukwu, J.C., Aziz, A., Tony-Okeke, U. and Asongu, S.A. (2018), "The determinants of interest rates in microfinance: age, scale and organizational charter", *Review of Development Economics*, Vol. 22 No. 3, pp. e135-e159.
- Opler, T.C. and Titman, S. (1994), "Financial distress and corporate performance", *The Journal of Finance*, Vol. 49 No. 3, pp. 1015-1040.
- Pandey, R., Biswas, P.K., Ali, M.J. and Mansi, M. (2020), "Female directors on the board and cost of debt: evidence from Australia", *Accounting and Finance*, Vol. 60 No. 4, pp. 4031-4060.
- Parvin, S.S., Hossain, B., Mohiuddin, M. and Cao, Q. (2020), "Capital structure, financial performance, and sustainability of micro-finance institutions (MFIs) in Bangladesh", *Sustainability*, Vol. 12 No. 15, p. 6222.
- Peprah, A.A. and Adekoya, A.F. (2020), "Entrepreneurship and economic growth in developing countries: evidence from Africa", *Business Strategy and Development*, Vol. 3 No. 3, pp. 388-394.
- Peterson, C.A. and Philpot, J. (2007), "Women's roles on US fortune 500 boards: director expertise and committee memberships", *Journal of Business Ethics*, Vol. 72 No. 2, pp. 177-196.
- Pfeffer, J. and Salancik, G.R. (2003), *The External Control of Organizations: A Resource Dependence Perspective*, Stanford University Press, Stanford.
- Pletzer, J.L., Nikolova, R., Kedzior, K.K. and Voelpel, S.C. (2015), "Does gender matter? Female representation on corporate boards and firm financial performance-a meta-analysis", *Plos One*, Vol. 10 No. 6, p. e0130005.
- Rahman, M., Mia, A., Ismail, I.B. and Isa, C.R. (2018), "Factors affecting the financing cost of microfinance institutions: panel evidence", *Enterprise Development and Microfinance*, Vol. 29 No. 2, pp. 103-117.
- Reguera-Alvarado, N., de Fuentes, P. and Laffarga, J. (2017), "Does board gender diversity influence financial performance? Evidence from Spain", *Journal of Business Ethics*, Vol. 141 No. 2, pp. 337-350.
- Shailer, G. and Wang, K. (2015), "Government ownership and the cost of debt for Chinese listed corporations", *Emerging Markets Review*, Vol. 22, pp. 1-17.
- Song, I., Lui, C. and Vong, J. (2014), "Lowering the interest burden for microfinance", *International Journal of Process Management and Benchmarking*, Vol. 4 No. 2, pp. 213-229.

- Strøm, R.Ø., D'Espallier, B. and Mersland, R. (2014), "Female leadership, performance, and governance in microfinance institutions", *Journal of Banking and Finance*, Vol. 42, pp. 60-75.
- Sun, S.L. and Liang, H. (2021), "Globalization and affordability of microfinance", *Journal of Business Venturing*, Vol. 36 No. 1, p. 106065, doi: [10.1016/j.jbusvent.2020.106065](https://doi.org/10.1016/j.jbusvent.2020.106065).
- Upadhyay, A. and Sriram, R. (2011), "Board size, corporate information environment and cost of capital", *Journal of Business Finance and Accounting*, Vol. 38 Nos 9/10, pp. 1238-1261.
- Usman, M., Farooq, M.U., Zhang, J., Makki, M.A.M. and Khan, M.K. (2019), "Female directors and the cost of debt: does gender diversity in the boardroom matter to lenders?", *Managerial Auditing Journal*, Vol. 34 No. 4, pp. 374-392, doi: [10.1108/MAJ-04-2018-1863](https://doi.org/10.1108/MAJ-04-2018-1863).
- Vishwakarma, R. (2017), "Women on board and its impact on performance: evidence from microfinance sector", *Indian Journal of Corporate Governance*, Vol. 10 No. 1, pp. 58-73, doi: [10.1177/0974686217701465](https://doi.org/10.1177/0974686217701465).
- Yugang, C., Yu, L., Shahab, Y. and Yuan, Z. (2021), "Do staggered board elections affect firms' financing costs? Evidence from China", *International Journal of Finance and Economics*, Vol. 26 No. 2, pp. 2118-2133.
- Yunus, M. (2009), *Creating a World without Poverty: Social Business and the Future of Capitalism*, Public Affairs.
- Zahra, S.A. and Pearce, J.A. (1989), "Boards of directors and corporate financial performance: a review and integrative model", *Journal of Management*, Vol. 15 No. 2, pp. 291-334.

#### Further reading

- Al-Azzam, M.D. (2019), "Financing microfinance institutions: subsidies or deposit mobilisation", *Applied Economics*, Vol. 51 No. 15, pp. 1621-1633, doi: [10.1080/00036846.2018.1527467](https://doi.org/10.1080/00036846.2018.1527467).

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Year	Frequency	(%)	Cumulative
2010	611	14.28	14.28
2011	588	13.74	28.01
2012	472	11.03	39.04
2013	422	9.86	48.9
2014	520	12.15	61.05
2015	552	12.9	73.95
2016	441	10.3	84.25
2017	367	8.57	92.83
2018	307	7.17	100
<i>Total</i>	<i>4,280</i>	<i>100</i>	

**Table A1.**  
Firm-year  
observations

**Source:** Authors based on the World Bank data

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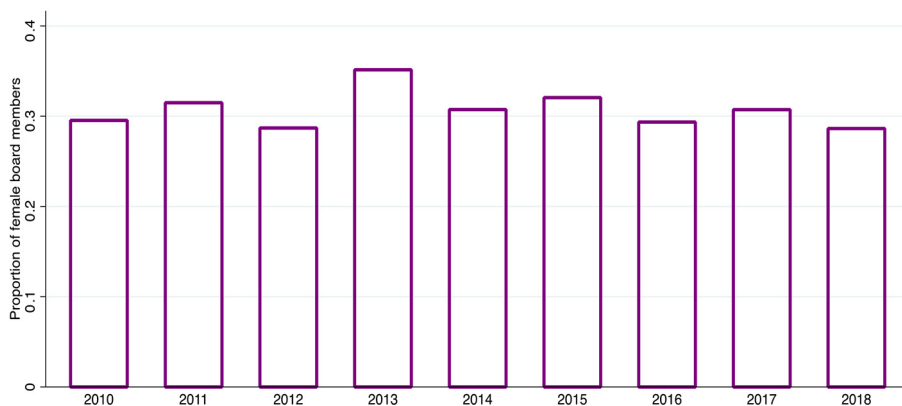


## Appendix 2. List of countries

Afghanistan, Albania, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Chile, Colombia, Comoros, Costa Rica, Dominican Republic, Ecuador, El Salvador, Ethiopia, Fiji, Gambia, Georgia, Ghana, Guatemala, Guinea, Guyana, Haiti, Honduras, India, Indonesia, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kosovo, Lebanon, Liberia, Madagascar, Malawi, Malaysia, Mali, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Rwanda, Samoa, Senegal, Serbia, Sierra Leone, Solomon Islands, South Africa, Sri Lanka, Sudan, Suriname, Tajikistan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Uzbekistan, Vietnam, Zambia, Zimbabwe.
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**Source:** Authors based on the World Bank data

**Note:** To conserve space, country-wise frequencies were not reported here; however, they can be requested from the corresponding author



**Figure A1.**  
Proportion of female board members in the global microfinance industry, 2010–2018

**Note:** The proportion of female board members was winsorized at 1% and 99% levels to minimize the effect of extreme outliers

**Source:** Authors based on the World Bank data

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