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Female directors and social responsibility of microfinance institutions

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ABSTRACT

We investigate whether female directors influence the social responsibility of Microfinance Institutions (MFIs). We also explore the factors that might affect the influence of female directors on the *different* dimensions of MFIs' social responsibility. Using an international sample of 362 MFIs during the sample period 2010–2018, we find that the impact of female directors on social responsibility of MFIs is positive and not uniform across the various dimensions of social responsibility. We also find that the impact of female board members on MFIs' social responsibility is stronger when MFIs are structured as not-for-profit organizations. However, local cultural gender values and institutional strength do not affect the relationship between female board members and the social responsibility of MFIs. We contribute to the emerging research stream of women's representation in the boardrooms of organizations supplying public goods.

1. Introduction

This paper examines the impact of having female directors in the boards of directors (hereafter *board gender diversity*) of Microfinance Institutions (MFIs) on their social responsibility. Board gender diversity is measured using the percentage of female board members, which is more precise than a dummy variable of female directors' presence because the latter cannot distinguish MFIs with different levels of gender diversity (Strøm et al., 2014). Our measure of board gender diversity better captures the heterogeneity provided by different levels of diversity, e.g., whether a critical mass is needed, and allows us to test the extent to which board gender diversity affects strategic decisions-making and outcomes, in particular, the social responsibility of MFIs which is an emerging and an under researched area.[1] A major difference between our paper and existing MFI studies, examining the role of board gender diversity in the decision-making, is the multidimensional conceptualization of social responsibility of MFIs. The latter refers to the relationships of MFIs with their various stakeholders, including their employees, the quality of their products & services, and the natural environment.

The business of microfinance institutions (MFIs) is the provision of financial services to economically active poor and low-income people (Callaghan, Gonzalez, Maurice, Novak, & Stanley, 2007). The primary objective (also referred to as the social goal or mission) of MFIs is the financial inclusion of such people excluded by traditional banks to improve their standard of living and economic prospects (Battilana & Dorado, 2010; Mersland & Strøm, 2009; Postelnicu & Hermes, 2018; Strøm, D'Espallier, & Mersland, 2014). In

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[1] Please note that the focus of this paper is on the impact of female directors on the social responsibility of MFIs. This paper does not address either the financial performance of MFIs nor the trade-off between the financial and social (outreach) objectives of MFIs. For a detailed discussion about the concept of outreach and its measurement see Bibi et al., (2018b).

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addition to the economic viability (measurement of financial performance), the measurement of social goal appears necessary to explore whether microfinance is fulfilling its social promises (Morduch, 2000).

When examining the influence of female directors on MFIs' decision-making, the existing microfinance literature uses a specific conceptualization of social responsibility that focuses on a single stakeholder, namely the borrowers (i.e., customers) of MFIs (Boehe & Barin Cruz, 2013; Hartarska, 2005; Hartarska & Mersland, 2012; Périlleux & Szafarz, 2015; Strøm et al., 2014; Bibi et al., 2018a). This specific conceptualization is measured as "outreach", e.g., the breadth of outreach (the number of clients) and the depth of outreach (the ratio of active female borrowers to the total number of active borrowers or the average loan size) (Schreiner, 2002). We should be cautious when interpreting the findings of previous studies as the link between female directors and outreach could be affected by mission drift, social peer pressure and social ties mediating women group lending (D'Espallier, Guérin, & Mersland, 2011; Mersland & Strøm, 2010). While the social goal or mission of MFIs (e.g., as measured by outreach) is an important dimension of MFIs' social responsibility, little is known about whether board gender diversity has consistent effect on the social responsibility of MFIs toward diverse stakeholders, other than borrowers.

This paper investigates whether female directors influence the *different* individual dimensions of the social responsibility of MFIs. We argue that the multidimensional conceptualization of social responsibility is important to better understand the impact of female directors on MFIs' strategic decision making. Focusing on a single stakeholder or dimension might provide an incomplete measure of the social responsibility of MFIs. For instance, the outreach measure is a narrow measure of MFIs' social responsibility that does not capture the more complex relationships with *different* stakeholders and does not reflect the overall social responsibility. Following Hermes and Hudon (2018), we adopt a multidimensional conceptualization of social responsibility in order to capture the more complex relationships of MFIs with the *different* stakeholders. This is operationalized using a new and broader measure of the social responsibility of MFIs that captures *different* stakeholders through five dimensions: social goals, governance and human resources, products & services, client protection, and the environment.

The resource dependence theory (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978), upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), and gender socialization theory (Luthar et al., 1997) suggests that gender-related differences in leadership styles, decision-making processes, and ethical orientations are the mechanisms through which female board members might affect social outcomes of an organization. Based on these three theories, we hypothesize that women directors will have a positive impact on the social responsibility of MFIs, and that this impact will not be uniform across the different dimensions of social responsibility.

The resource dependence theory predicts that individual characteristics of board members, such as gender, can influence their ability to monitor and provide access to resources (Adams & Ferreira, 2009; Hillman, Cannella, & Harris, 2002; Mersland & Strøm, 2009; Strøm et al., 2014). We explore whether this gender diversity-female leadership can bring forth the MFIs setting to innovate product and services in the resource constraint planet and can take initiative to improve the environmental performance. For instance, female board members of MFIs have unique competencies and knowledge with respect to the specific needs of female customers (Mersland & Strøm, 2009). There is a positive link between board gender diversity and the level of organizational innovation, which may increase the quality of products & services (Torchia, Calabrò, & Huse, 2011).

Upper echelons theory (UET) also predicts that social responsibility of MFIs vary based on their boards' gender composition because women and men tend to bring different knowledge, experiences, and values to the boardroom (Byron & Post, 2016). Female directors may bring unique values, understanding, and proficiency to boards (Eagly, 2005; Hillman et al., 2002).

Gender socialization theory also predicts that women directors can influence the social responsibility of MFIs. Gender socialization theory suggests that women have a different ethical orientation, perceptions and attitudes than men (Luthar et al., 1997). Women show more favorable attitude (greater sensitivity) towards ethical issues than men because they are more concerned about relationships and people as well as their upbringing or family environment (Gilligan, 1977; Kara et al., 2022; Luthar et al., 1997). Women define morality and ethics as responsibilities including the duty to care for others as well as social and environmental issues (Atif et al., 2020). Women directors have been shown to be associated with higher corporate philanthropy (Jia and Zhang, 2013; Williams, 2003), higher support for their customers and communities following the COVID-19 pandemic (Kara et al., 2022), more concerned about environmental issues (Liu, 2018) and play a key role in promoting renewable energy consumption (Atif et al., 2020). Based on the existing literature we predict that female board of MFIs could have an impact on environmental performance which is not addressed yet empirically.

We next explore whether MFI status or type, i.e., whether the MFI is not-for-profit or profit-oriented, moderates the influence of women directors on the social responsibility of MFIs. We expect the influence to be stronger for not-for-profit MFIs relative to profit-oriented MFIs because of the well-documented fundamental differences between the two types of MFIs, such as the governance structure, managerial incentives, and funding sources (Cull, Demirgüç-Kunt, & Morduch, 2009, 2014; Galema, Lensink, & Mersland, 2012; Servin, Lensink, & van den Berg, 2012; Strøm et al., 2014; Bibi et al., 2018a).

To test our hypotheses, we use unbalanced panel data on 362 MFIs during the sample period 2010–2018 and control for MFI and country-specific factors. We find that the impact of female directors on social responsibility of MFIs is positive and not uniform across the various dimensions of social responsibility. We also find that the impact of female board members on MFIs' social responsibility is stronger when MFIs are structured as not-for-profit organizations. However, external factors representing the external environment in which MFIs operate, e.g., cultural gender values (local cultural values toward women and women's role in society) and institutional strength do not affect the relationship between female board members and the social responsibility of MFIs. In sum, our result suggests that female directors might have a positive impact on *specific dimensions* of the social responsibility of MFIs, and that this impact is constrained by *specific conditions* that should be met first.

This paper contributes to different governance research streams. First, we note that existing literature criticizes and identifies several limitations associated with the use of outreach as a measure for the social objective of MFIs (Copestake, 2007; Gutiérrez-Nieto

et al., 2009; Bibi et al., 2018b). For instance, (Gutiérrez-Nieto et al., 2009) introduce the measure of benefit to the poor and Bibi et al., (2018b) proposes two new measures of the breadth of outreach (market share of borrowers) and depth of outreach (market share of borrowers adjusted by market share of assets) and find that they can explain the social objective of MFIs better than existing indicators (e.g., number of active borrowers, average loan balance per borrower, percentage of female borrowers). However, all these studies focus mainly on the borrowers as a stakeholder. Our study takes a different angle and considers social responsibility of MFIs which addresses multiple stakeholders. In fact, the social responsibility of MFIs, similar to any organization, is a multi-dimensional concept (Hermes & Hudon, 2018), and as such, it is crucial to distinguish between the measurement of social responsibility in aggregate and individual dimensions which are related to *different* stakeholders.

Second, we contribute to the microfinance literature on board gender roles by explicitly moving away from the traditional outreach measure and considering instead the different dimensions of social responsibility toward various stakeholders. Current microfinance literature on board gender roles mostly focuses on a single dimension of social responsibility, namely, outreach which is measured relative to a single stakeholder (customers or borrowers). For instance, Bibi et al., (2018a) find that the percentage of female board members have no significant impact on MFIs' financial and social efficiency where the latter is based on outreach (number of active borrowers and female borrowers). However, the social responsibility of an MFI is not limited to outreach. Some studies started examining the environmental aspect of MFIs (Allet, 2014; Allet & Hudon, 2015), and more recent work has started recognising the importance of exploring different dimensions of social responsibility other than the single dimension measure of outreach (Beisland, Djan, Mersland, & Randøy, 2021; D'Espallier & Goedecke, 2019). D'Espallier and Goedecke (2019) argue that social responsibility is a complex and multidimensional concept that is perceived very differently by researchers and practitioners. Our study contributes to filling this research gap by investigating whether and how female board members can shape social responsibility of MFIs toward *different* stakeholders.

Third, we contribute to the literature on the impact of organization type or status on the role of female leadership in decision making and outcomes (e.g., Galema et al., 2012; Strøm et al., 2014). As the literature mostly focuses on the role of board gender diversity in for-profit organizations, we investigate how the MFI type or status (not-for-profit vs. profit-oriented MFIs) affects the role of female directors in shaping social responsibility. Our findings show that female directors have a positive impact on specific dimensions of social responsibility, particularly in not-for-profit MFIs. These findings are of broad interest to scholars and policymakers interested in the roles of female leadership in shaping decision making in industries supplying public goods, such as the microfinance industry.

Finally, we contribute to the general literature on *corporate* governance and gender diversity. This literature adopts a multidimensional conceptualization of *corporate* social responsibility, often referred to corporate social performance, that addresses different stakeholders (e.g., Afzali et al., 2022; Boulouta, 2013; Byron & Post, 2016; Francoeur et al., 2019; Liao et al., 2021). The dominant finding for publicly listed corporation seems to be that board gender diversity has positive effects on corporate social and environmental performance. For instance, (Afzali et al., 2022) find that local social capital (social network) increases the share of female directors on local firms' boards. (Boulouta, 2013) find that board gender diversity significantly affects corporate social performance of a sample of firms included in the S&P500 index. Byron & Post (2016) conducted a meta-analysis of 87 studies and find that, while generally positive, the female board representation–corporate social performance relationship is even more positive in countries with stronger shareholder protections and higher gender parity. (Francoeur et al., 2019) find that gender board diversity is positively related to the dimensions of corporate social responsibility that are related to less powerful stakeholders such as the environment, contractors, and the community. Similarly, (Liao et al., 2021) find that worldwide board reforms can have significant effects on various stakeholders, resulting in increased corporate social responsibility performance in both the environmental and social dimensions. The parallel picture for MFIs does not seem to be similar. On one hand, the emerging research stream of women representation in the boardrooms of organizations such as MFIs uses a specific conceptualization of social responsibility that focuses on a single stakeholder (customers). Consequently, little is known about whether board gender diversity has a consistent effect on the social responsibility of MFIs toward diverse stakeholders. On the other hand, there are no clear evidence of the positive effects of board gender diversity on social outcomes of MFIs similar to those shown for publicly listed corporation. The contrasting governance results can be explained by the fundamental differences between MFIs and publicly listed corporation. Another potential explanation is that the optimal governance form for MFIs, in contrast to that for the well-established corporations, has not been settled yet (Bibi et al., 2018a). Our paper tries to address some of these unresolved questions.

The rest of the paper is organised as follows. The second section summarises the prior literature and develops our hypotheses. The third section describes the sample and research methodology. The fourth section provides our main results and robustness checks. Finally, the last section concludes.

2. Theoretical framework and hypotheses development

2.1. Outreach as a measurement of the social objective of MFIs

The social objective (also referred to as the social goal or mission) of MFIs is the financial inclusion, through the provision of financial services, of economically active poor and low-income people (Hermes & Hudon, 2018; Mersland & Strøm, 2009; Postelnicu & Hermes, 2018). Accordingly, the microfinance literature uses the concept of "outreach" to measure the social objective of MFIs: e.g., the number of clients and the ratio of active female borrowers to the total number of active borrowers or the average loan size (Schreiner, 2002). Some studies report a positive link between female leadership and outreach (Cozarenco & Szafarz, 2015; Hartarska, Nadolnyak, & Mersland, 2014; Mori, Golesorkhi, Randøy, & Hermes, 2015), whereas other studies find no significant link between

female board members and MFIs' social efficiency based on outreach (Bibi et al., 2018a).

The existing literature criticizes and identifies the limitations of using outreach as the main measurement approach for the social objective of MFIs (Copestake, 2007; Gutiérrez-Nieto et al., 2009; Bibi et al., 2018b). For instance, Copestake (2007) argue that it is necessary to monitor, analyze, and report trends in standardised indicators of financial inclusion and client satisfaction of MFIs. (Gutiérrez-Nieto et al., 2009) introduce the measure of benefit to the poor to better capture the social objective of MFIs. Bibi et al., (2018b) provides an excellent discussion about the different proxies or indicators used to measure outreach as well as their weaknesses and limitations to capture the social objective of MFIs. For example, the number of active borrowers (a proxy of the breadth of outreach) provides no information about how active the clients are. The average loan balance per borrower (a proxy for the depth of outreach) may rise over time and can be distorted by aggregating a few large loans with many small ones. It is also highly sensitive to exchange rate, inflation, or to a shift of MFIs towards richer clients. Bibi et al., (2018b) introduce two new measures of the breadth of outreach (market share of borrowers) and depth of outreach (market share of borrowers adjusted by market share of assets) and find that they can explain the social objective of MFIs better than existing indicators (e.g., average loan balance per borrower divided by gross national income, percentage of female borrowers).Clearly, the outreach measure is motivated by the "stated" social mission of MFIs and is measured only relative to a single and crucial stakeholder, namely customers (borrowers). There is at least one problem with this approach. Focusing on a single stakeholder or dimension might provide an incomplete measure of the social responsibility of MFIs. For instance, in addition to outreach, the information on the treatment of clients is missing (e.g., transparency, fair and respectful treatment of clients, privacy of client data, mechanisms for complaints resolution and prevention of over-indebtedness). Furthermore, do managers and employees meet the level of commitment to the MFIs' social mission? Are MFIs' employees treated responsibly (e.g., work environment, employee satisfaction and turnover)? Our study extends the existing literature on the social responsibility of MFIs using a multidimensional approach.

2.2. Social responsibility of MFIs

The concept of social responsibility refers to the relationships of an organization with its various stakeholders (Wood, 1991). It has triggered significant interest in light of the growing attention regarding the potential impact of businesses on society (Ghoul, Guedhami, & Kim, 2017; Ioannou & Serafeim, 2012). However, the measurement of social responsibility has proven to be challenging, particularly for MFIs.

Given the complex nature of MFIs' social responsibility, Hermes and Hudon (2018: 1483) suggest that "*social performance should only be assessed by using a multi-dimensional perspective*". As such, we argue that the measure of outreach does not capture the comprehensive relationships with the diverse range of stakeholders and does not accurately reflect the overall social responsibility. One could argue that all MFIs should not be evaluated with the same set of performance measures as they may have different mission statements. For example, Mersland, Nyarko, and Szafarz (2019) argue that the mission statements of MFIs are trustworthy as they find coherence between what MFIs say in their mission statements and their outreach performance. They conclude that mission drift is not a serious concern, which is good news for capital providers, and that MFIs should only be judged relative to what is mentioned in their mission statements. If the objective is to check the existence and importance of mission drift, then focusing only on outreach should be enough. However, regulators as well as capital providers are increasingly interested in understanding the social responsibility of MFIs beyond those mentioned in their mission statements (i.e., social mission or goals). Nevertheless, we don't know much about the other dimensions of social responsibility and which factors affect these dimensions or how.

More recent work started recognising the importance of social responsibility measurement, which is less studied in the microfinance literature (Beisland et al., 2021; D'Espallier & Goedecke, 2019). D'Espallier and Goedecke (2019) suggest that social responsibility is a complex and multi-dimensional concept that is perceived very differently by researchers and practitioners. Whereas practitioners advocate an encompassing view involving several institutional layers, empirical researchers typically zoom in on a single institutional outcome. We argue that this multidimensional conceptualization of social responsibility should be using a wider range of dimensions that captures additional stakeholders apart from customers. For instance, the Mix Market data used in this study provides information about several individual dimensions of MFIs' social responsibility, such as governance and human resources (e.g., bases for staff incentives, human resource policies); products & services (e.g., credit/savings/insurance product offering, payment services, nonfinancial services including improving the entrepreneurial skills of clients or performance of their enterprises, leadership training for women, education services/financial literacy), client protection (e.g., complaint mechanism, over-indebtedness prevention), and the natural environment (e.g., conducting activities related to raising awareness of environmental impacts, including clauses in loan contracts that require clients to improve environmental practices/mitigate environmental risks, using specific tools to evaluate the environmental risks of clients' activities, and offering specific loans linked to environmentally friendly products and/or practices). Our study extends the existing literature further away by examining the role of female directors in shaping the *different* dimensions of MFIs' social responsibility.

2.3. Women on board and social responsibility of MFIs

The social responsibility of an organization is the outcome of strategic decisions and actions made at the top management level. Indeed, the board of directors, through its monitoring role, can have a strong influence on these decisions and actions. Board gender

diversity or the role of women directors and their potential influence on board functioning and governance more generally have been discussed in the corporate governance literature (See e.g., Adams & Ferreira, 2009). Female board members have been associated with an increased diversity of opinions on the board and a positive influence on both strategic decision-making and the leadership style of the organization. These benefits could be achieved through better-quality relationships with stakeholder groups as well as better advice and more effective monitoring of the board, which might improve overall organizational performance (Adams & Ferreira, 2009; Erhardt et al., 2003; Harjoto et al., 2014).

The role of female directors in shaping the social responsibility of MFIs can be explained using theoretical arguments provided by resource dependence theory (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978), upper echelons theory (hereafter UET) (Hambrick, 2007; Hambrick & Mason, 1984) and Gender socialization theory (Luthar et al., 1997). While the corporate governance literature focuses on the monitoring role, resource dependence theory adds a provisioning role (Hillman & Dalziel, 2003), i.e., board members provide access to resources that are critical to the organization's performance (Pfeffer & Salancik, 1978). These resources encompass different activities, including providing expertise, advice and counsel, building relationships with stakeholders (e.g., legitimacy and reputation), and helping in strategy formulation and decision making (Hillman & Dalziel, 2003). The provision of resources role is a function of *board capital*, which includes two elements: human capital (expertise, experience, knowledge, reputation, skills) and relational or social capital (network of ties and relationships) (Hillman & Dalziel, 2003). The corporate governance literature and resource dependence theory show that board members are heterogeneous in their ability to monitor and provide resources provision. Notably, the individual characteristics of board members, such as gender, can influence their ability to monitor and provide access to resources (Adams & Ferreira, 2009; Hillman et al., 2002; Mersland & Strøm, 2009; Strøm et al., 2014). Studying the association between female directors and the social responsibility of MFIs provides a unique setting to examine this heterogeneity. For instance, female board members of MFIs have unique competencies and knowledge with respect to the specific needs of female customers (Mersland & Strøm, 2009).

Upper echelons theory (UET) also helps to explain why and how women directors can influence the social responsibility of MFIs. UET suggests that directors' cognitive frames – due to their prior knowledge, experiences, and values – enlighten strategic decision-making and corporate strategy (Byron & Post, 2016). UET suggests that the cognitive frame composition of a board is determined, in part, by its gender composition, based on evidence suggesting that women and men tend to bring different knowledge, experiences, and values to the boardroom (Byron & Post, 2016). Therefore, we expect the social responsibility of MFIs to vary based on their boards' gender composition.

Gender socialization theory also helps to explain why and how women directors can influence the social performance of MFIs. Gender socialization theory suggests that women have a different ethical orientation, perceptions and attitudes than men (Luthar et al., 1997). Women show more favorable attitude (greater sensitivity) towards ethical issues than men because they are more concerned about relationships and people as well as their upbringing or family environment (Gilligan, 1977; Luthar et al., 1997; Kara et al., 2022). For instance, *females are socialized to be nurturing and supportive of other people* (Luthar et al., 1997). Women define morality and ethics as responsibilities including the duty to care for others as well as social and environmental issues (Atif et al., 2020). For example, some studies find that women directors are associated with higher corporate philanthropy (Jia and Zhang, 2013; Williams, 2003). (Kara et al., 2022) find that banks with higher board gender diversity supported their customers and communities more following the COVID-19 pandemic, e.g., through financial/contractual measures as well as charity and donations. Consistent with the prediction of the gender socialization theory, prior research reports a positive link between board gender diversity and corporate social responsibility (e.g., Boulouta, 2013; Zhang et al. 2013; Harjoto et al., 2014; Liu, 2018). Similarly, we expect female board members to be positively associated with the social responsibility of MFIs. Based on the above discussion, we propose the following hypothesis:

Hypothesis 1a The higher the proportion of female board members, the higher the social responsibility of MFIs.

The formulation of the above hypothesis allows us to also test the critical mass theory. The percentage of female board members as a proxy for board gender diversity may not fully capture the impact of female directors. We should also consider using alternative measures, such as the presence of a critical mass of female directors, which might offer a more nuanced understanding of the relationship between board gender diversity and social responsibility of the MFIs.[2] The debate about critical mass and tokenism –women who serve as board members are still tokens- (Kanter, 1977; Granovetter, 1978; Daily and Dalton, 2003; Terjesen et al., 2009) in the existing literature is more covered in the context of publicly listed corporation than MFIs. It goes back to Kanter's (1977) work which suggests that women, as minorities in male-dominated environments in the corporation have diminutive chance to influence on the organization until they become a consistent or significant minority. Critical mass theory predicts that when a certain threshold is reached, the degree of the women directors' influence grows; it does not, however, suggest what number represents the critical mass. A critical mass (i.e., having at least three women directors) can increase the likelihood that women's voices and ideas are heard, change substantially boardroom dynamics, and contribute to firm innovation (Erkut et al., 2008; Konrad et al., 2008; Torchia et al., 2011). Based on the critical mass literature, we also assume that three or more female directors should have higher impact on social responsibilities of MFIs compared to the token number of female directors.

The social responsibility of MFIs is a multi-dimensional concept which is the combination of different individual dimensions that capture the complex relationships with different stakeholders. The complexity stems from the difficulty of determining the appropriate

[2] We thank an anonymous referee for highlighting this point.

performance indicators that are measurable, achievable, and relevant for each dimension (Székely & Knirsch, 2005). The development of the *Universal Standards for Social Performance*[3] constitutes an important step toward a more comprehensive social performance assessment. Beisland et al. (2021) find a significant positive relationship between all six Universal Standards and the social responsibility scores measured by the rating agencies. However, the significance levels vary among the dimensions. For example, treating employees responsibly appears to be less important than the other dimensions. They also note that the rating agencies attach different weights to the different standards.

In line with this argument, we assume that the influence of women directors on the different dimensions of social responsibility might not be uniform across all dimensions. Several studies show that women directors encourage addressing major stakeholders' concerns (Zhang, Zhu, & Ding, 2013). The social responsibility dimensions mostly linked with the stakeholders' concerns and women's expertise are expected to be aligned. In line with resource dependence theory, we argue that women can add unique viewpoints, skills and working styles compared to their male counterparts (Huse et al., 2006). Consistent with this argument, there is a positive link between board gender diversity and the level of organizational innovation, which may increase the quality of products & services (Torchia et al., 2011). Board gender diversity might enhance the level of innovation by delivering a broad range of perspectives, increasing the search for information, enhancing the quality of brainstormed ideas, facilitating creativity, and generating more strategic alternatives (Erhardt et al., 2003). Female directors may bring unique values (Selby, 2000), understanding, and proficiency (Eagly, 2005; Hillman et al., 2002) to boards.

Female directors have also been shown to be more concerned about social issues such as environmental concerns (Liu, 2018). Microfinance rating agencies have started assessing the environmental performance of microfinance institutions, especially larger MFIs, in light of the growing interest of donors and investors (Allet & Hudon, 2015). As the organization's level of consumption of renewable energy is a strategic decision normally taken by the organization's governance body (Borghesi, Houston, & Naranjo, 2014; Prado-Lorenzo & Garcia-Sanchez, 2010), and based on UET, we expect that female directors may play a key role on MFIs' boards in promoting renewable energy consumption. For instance, Atif et al. (2020) find that renewable energy consumption is related to a higher percentage of women on the corporate board. They also find a positive effect of the interaction of board gender diversity and renewable energy consumption on corporate financial performance. Similarly, Shoham et al. (2017) find a positive relationship between women on boards of directors and an organization's attitude towards environmental sustainability. They argue that women directors can encourage, and provide new perspectives and ideas to, the board of directors of an organization to adopt environmental sustainability actions. Recent research suggests that female leadership is more likely to support environmental protection and promote the adoption of pro-active environmental practices such as the move toward energy efficiency, green buildings, and the enactment of climate change policies (McCright & Xiao, 2014; Shaukat et al., 2015).

Based on the above discussion, we expect that the impact of women directors on the different individual dimensions of social responsibility will not be uniform. On one hand, different stakeholders have different expectations from MFIs. On another hand, MFIs might have different strategic priorities which are not necessarily in line with the different expectations of the various stakeholders. Moreover, the empirical evidence discussed above suggests that women directors seem to focus and have influence on some dimensions of social responsibility such as *product & services* and *environment*. Therefore, we expect that women directors will not have the same impact, if any, across the different dimensions of social responsibility. This leads to our second hypothesis:

Hypothesis 1b The role of women directors in shaping the different dimensions of social responsibility of MFIs is not uniform.

2.4. Moderating role of MFI's status

We argue in this paper that MFI's status, i.e., whether the MFI is structured as non-profit or profit-oriented, will condition the impact of female board members on its social responsibility. Many microfinance studies do not control for such an important difference between the two types of MFIs. This distinction is crucial in our case as we expect the impact of female board members on the social responsibility of MFIs to differ between these two types of MFIs. In particular, we expect the impact to be stronger for not-for-profit MFIs relative to profit-oriented MFIs.

Cull, Demirgüç-Kunt, & Morduch (2009, 2014) explain the differences in terms of practices and outcomes between the two types of MFIs. For-profit MFIs are more likely to be commercially oriented MFIs and to employ an individual lending method, with larger loans, fewer women customers, lower costs per dollar lent, higher costs per borrower, and greater profitability. In contrast, not-for-profit MFIs are more likely to be cooperatives, credit unions or NGOs, relying on group lending methods that entail smaller loans, have more female clients, greater reliance on subsidized funding, higher costs per dollar lent, and less profitability. Strøm et al. (2014) find that the female proportion of top executives and directors in MFIs is high when the MFI is a not-for-profit and has more female clientele. This may suggest that the impact of female executives on MFI's strategic decisions is likely to be stronger in not-for-profit MFIs. Galema et al. (2012) argue that managerial discretion is higher for not-for-profit MFIs as compared to for-profit MFIs. For example, the governance of not-for-profit MFIs is not tied to ownership, whereas it is tied to ownership for commercially oriented MFIs.

[3] The universal standards model has six dimensions. The first dimension measures the extent to which the MFI defines and monitors social goals; the second dimension measures the extent to which the MFI ensures board, management, and staff commitment to its social goals; the third dimension measures the extent to which clients' needs and preferences are met by the MFI's products, services, and delivery; the fourth dimension measures the extent to which the MFI treats clients responsibly; the fifth dimension measures the extent to which the MFI treats employees responsibly; the sixth dimension measures the extent to which the MFI balances social performance and financial performance.

Moreover, dual objectives (social and financial) are important for not-for-profit MFIs, whereas financial objectives dominate commercially oriented MFIs.

However, there is also a link between social responsibility and financial performance. For example, Griffin and Husted (2015) investigate the impact of peer-group pressure and harmonious social relations on the repayment rates of group loans within Mexican MFIs. It explores the positive influence of social harmony on repayments, a factor previously overlooked, and tests its effect along with the impact of repayment rates on the financial capital formation of micro-entrepreneurs. Wu et al. (2022) observe positive social outcomes and an increase in start-up ventures among MFI clients, suggesting that the focus on immediate financial health also yielded unexpected benefits in client engagement and social impact, supporting the argument for a balanced view on financial and social goals in the face of economic shocks. Servin et al. (2012) find that different MFI types use different technologies and have different efficiencies. Not-for-profit MFIs have much lower technical efficiencies than for-profit MFIs because of their stronger focus on social goals and their more severe funding constraints. For instance, the type of financing is a fundamental difference between not-for-profit and for-profit MFIs (Goodell, Goyal, & Hasan, 2020). Not-for-profit MFIs rely more on relationship financing with private donors (organizations and individuals) as well as public funding (government agencies).

However, for-profit MFIs have more financing options in the form of market financing (i.e., issue bonds or equity) as well as relationship financing through banks. This implies that the funding sources of not-for-profit MFIs cannot be easily substituted as financing is privately done based on relationships with donors (Goodell et al., 2020). Due to the different funding structure, we can argue that social responsibility seems more important for not-for-profit MFIs, while financial performance seems more important for profit-oriented MFIs. Bibi et al, (2018a) argue that profit-oriented MFIs should concentrate more on financial efficiency, and non-profit-oriented MFIs more on social efficiency.

The microfinance literature documents a significant link between MFI type and the composition of the board as well as their impact on MFI practices and outcomes. Mori and Mersland (2014) find that the presence of donors on boards is associated with small boards, non-CEO-duality and higher outreach (a unidimensional proxy of social responsibility). Given the fundamental differences in incentives, technologies used and funding structure inherent to their status or type, we expect different impacts of female board members on the social responsibility between not-for-profit and for-profit MFIs. Based on the above discussion, we propose the following hypothesis:

Hypothesis 2 The impact of female board members on the social responsibility of MFIs is stronger for not-for-profit MFIs.

3. Data and methods

3.1. Data

The data on microfinance institutions (MFIs) is obtained from the MIX Market database, which is the leading global data resource for extensive coverage of indicators related to the financial, operational, and social responsibility indicators of MFIs. Although the financial and operational performance data from MIX Market have been widely used in prior studies (Ault, 2016; Drori et al., 2020; Liñares-Zegarra & Wilson, 2018; Malikov & Hartarska, 2018; Postelnicu & Hermes, 2018), the data on the multi-dimensional social responsibility have not yet been explored. The initial sample collected from MIX Market includes 19,945 observations of 2,993 MFIs from 123 countries over the period 2000 to 2018. Since the focus of this paper is mainly on the social responsibility of MFIs and the social responsibility data is only available from 2010, we only focus on the period 2010 to 2018 which includes 10,081 observations corresponding to 2,293 MFIs from 116 countries (see the distribution of MFIs across countries in Appendix B1). However, not all of these MFIs have data for all variables every year. In particular, not all of these MFIs have social responsibility data. When MFIs do not report social responsibility data in a given year, the social responsibility rating is given a zero score (see the next Section 3.2 Measure of social responsibility).[4] Because of our regression specification (see Section 3.5 Model below) and missing data of the control variables, the number of observations actually used in the regressions is significantly lower (1155 observations corresponding to 362 MFIs) than the number of observations shown in Table 1.[5]

We collect country-level data from two main sources: the World Bank and the World Atlas of Language Structure (WALS). Table 1 provides the definitions, descriptive statistics and data sources for the variables used in the analyses.

Table 2a shows the pairwise correlations among the variables used in the regression analysis. The selected independent variables and control variables are not highly correlated, suggesting that multicollinearity is not an issue. Table 2b shows the pairwise correlations among the social responsibility variables. It is not surprising that the social responsibility variables are highly correlated, although the environment dimension presents the lowest correlations with the other dimensions of social responsibility.

[4] In Appendix Table A4, we consider using alternative measure for our dependent variable which consists of scores ranging from 0 to 4. Specifically, we calculate an alternative index where missing data are removed, i.e., not replaced by zeros, thereby allowing the dependent variables to be treated as categorical variable ranging from 1 to 4. We apply the same method to the five individual dimensions of MFIs' social responsibility. The results shown in Appendix Table A4 are qualitatively similar to those shown in Tables 3a and 3b.

[5] For example, if we remove the variables "Size" and "GII" which have the lowest number of observations in the model, the number of observations for model 1 in Table 3a is 4283. If we only include two independent variable "ownership" and "governance" which have the highest number of observations in the model, the number of observations for model 1 in Table 3a is 10,076.

Table 1
Descriptive statistics.

variable	N	mean	sd	p5	p50	p95	min	max	Definition	Source
social_performance	10,081	0.948	1.467	0	0	4	0	4	Categorical variable of MFIs' social performance (a score ranging from 0 to 4).	Mix Market
femaleboard	5,928	0.309	0.249	0	0.267	0.857	0	1	Percentage of female board members	As above
femalemanagers	6,337	0.354	0.3	0	0.308	1	0	1	Percentage of female managers	As above
ROA	7,966	0.012	0.141	−0.116	0.019	0.111	−7.464	2.089	Return on assets (ROA) = Net operating income/total assets	As above
PaR30	7,828	0.075	0.154	0	0.04	0.256	0	7.114	Portfolio risk (PaR30) = (Outstanding balance on arrears over 30 days + total gross outstanding refinanced (restructured) portfolio)/total gross portfolio	As above
cost_loan	6,990	4.775	1.322	2.565	5.03	6.687	0	10.377	Logarithm of operating costs	As above
Size	5,149	16.523	2.451	12.497	16.602	20.48	5.917	24.468	Logarithm of total assets	As above
ownership	10,081	0.261	0.439	0	0	1	0	1	Dummy variable of MFIs' ownership status (for-profit: 1; not-for-profit: 0)	As above
GDP	9,328	1.309	4	−4.59	1.45	6.52	−36.83	22.55	Annual growth rate of real GDP per capita (%)	World Bank
GII	5,812	2.983	1.409	0	4	4	0	4	Gender intensity index obtained from The World Atlas of Language Structure (WALS) (https://wals.info/).	WALS
WGI	10,076	0.216	0.931	−1.234	0.425	1.51	−1.742	1.857	The average value of the six dimensions of The Worldwide Governance Index (WGI): https://info.worldbank.org/governance/wgi/Home/Documents	World Bank

Notes: Table 1 presents the number of observations (N), mean, standard deviation (sd), the fifth (p5), fiftieth (p50), ninety-fifth percentile (p95), minimum, and maximum values for each variable used in our analysis.

3.2. *Measure of social responsibility*

In line with the Universal Standards for Social Performance Management (USSPM) developed by the Social Performance Task Force (SPTF),[6] MIX Market started pilot sets to collect data on social responsibility in 2008, and the data began to provide good coverage of MFIs in 2010. There are over 120 sub-indicators of social responsibility provided by MIX Market. We aggregate the social responsibility score based on the sub-indicators of MFIs' social responsibility, covering five dimensions: 1) social goals, 2) governance and human resources (HR), 3) products & services, 4) client protection, and 5) environment.[7] The first four dimensions are closely in line with the SPTF's standards, however, the environment dimension is a newly presented dimension that can be considered important and relevant for microfinance institutions.

Using the "social goals" dimension as an example, Appendix B2 shows the sub-indicators included in this dimension and how we

[6] The Social Performance Task Force (SPTF), an international not-for-profit organization, started developing methods to measure social performance in microfinance since 2005 which led later to the development of the "*Universal Standards for Social Performance Management (USSPM)*". SPTF has developed six dimensions of USSPM for MFIs: 1) Define and monitor social goals; 2) Ensure board, management, and employee commitment to social goals; 3) Design products, services, delivery models, and channels that meet clients' needs and preferences; 4) Treat clients responsibly; 5) Treat employees responsibly; and 6) Balance financial and social performance.

[7] The Mix Market data used in this study provides information about five separate individual dimensions of MFIs' social performance, namely social goals, governance and human resources, products & services, client protection, and the natural environment. Examples of items related to social goals include: Target market (e.g., women, rural areas); Development goals (e.g., housing; access to water; poverty reduction); Poverty targets (e.g., poor & low-income); and Measuring client poverty (i.e., data collection). Examples of items related to governance & human resources include: Board orientation on social mission and goals; SP committee on board; Board member with SP education/work experience; Bases for staff incentives; Human resource policies (social protection, safety, non-discrimination policy). Examples of items related to products & services include: Credit product offering (non-income & income generating loans); Savings product offering; Insurance products; Other financial services (payment services); Nonfinancial services (improving the entrepreneurial skills of clients or performance of their enterprises, women's empowerment services: leadership training for women, education services/financial literacy). Examples of items related to client protection include: Disclosure of cost information; Clear debt collection practices; Complaint mechanism; Interest rate calculation method; Privacy data clause in loan contracts; Over-indebtedness prevention. Examples of items related to environment include: Environmental policies and initiatives, e.g., conducting activities related to raising awareness of environmental impacts, including clauses in loan contracts that require clients to improve environmental practices/mitigate environmental risks, using specific tools to evaluate the environmental risks of clients' activities, and offering specific loans linked to environmentally friendly products and/or practices.

Table 2a
Correlation coefficients (main variables).

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
social_performance	(1)	1										
femaleboard	(2)	0.0178	1									
femalemanagers	(3)	−0.0542*	0.3306*	1								
ROA	(4)	0.0158	0.0381	0.0221	1							
PaR30	(5)	−0.0755*	−0.0311	−0.0135	−0.1262*	1						
cost_loan	(6)	−0.1024*	−0.0289	0.1774*	−0.1186*	0.0674*	1					
Size	(7)	0.1372*	−0.2112*	−0.2153*	0.1107*	−0.0944*	0.2983*	1				
ownership	(8)	0.0504*	−0.1431*	−0.1259*	−0.0264	0.0572*	−0.1163*	0.1807*				
GDP	(9)	0.0081	−0.003	0.0121	−0.0363	0.0562*	−0.0693*	−0.0498	1			
GII	(10)	−0.0269	−0.0403	−0.1033*	−0.0623*	0.0658*	0.2059*	0.1884*	−0.0811*	0.2503*	1	
WGI	(11)	0.0346	0.0106	−0.0557*	0.0086	−0.0686*	−0.2261*	0.1267*	0.0815*	0.3512*	−0.004	1

Notes: Table 2a shows the pairwise correlations between all the variables (* indicates significance at 5% level).

Table 2b
Correlation coefficients (social performance variables).

	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
Social Performance	1					
Social Goals	0.9308*	1				
Governance & HR	0.8967*	0.8413*	1			
Products & Services	0.9425*	0.8633*	0.8344*	1		
Client Protection	0.8961*	0.8627*	0.9075*	0.8459*	1	
Environment	0.7326*	0.6553*	0.6819*	0.6854*	0.6818*	1

Notes: Table 2b shows the pairwise correlations between the social performance variables (* indicates significance at 5% level).

construct the dependent variable MFIs' "social responsibility". Each indicator is a dummy variable where 1 represents the presence of the indicator, and 0 otherwise. Appendix B2 shows that there are 28 indicators for the "social goals" dimension. If a company has all 28 indicators, the company's index score for "social goal" will be 28. We find that the annually aggregated "social responsibility" variable ranges from 2 to 80 for the full sample period, however, the "environment" variable only ranges from 0 to 4. To ensure consistency and comparability, we standardize or normalize our dependent variables to range from 0 to 4. Standardizing the scale across variables can enhance the interpretability of statistical results. This is particularly true in ordered probit or logistic models. For example, when a coefficient in a regression model is associated with a variable that ranges from 0 to 4, comprehending the effect of a one-unit change in that variable becomes more intuitive than if the variable ranged from 2 to 80. Therefore, after calculating the scores for all five dimensions, we then rank the total social responsibility score from high to low in each year and divide the sample into four groups on a yearly basis. Each group of MFIs is assigned a score ranging from 1 to 4, whereby higher-ranked scores represent superior social responsibility. When MFIs do not report social responsibility data in a given year, the social responsibility rating is given a zero score. We also calculate an alternative index in the robustness test where missing data is removed, i.e., not replaced by zeros (see Appendix A4). We apply the same method to the five individual dimensions of MFIs' social responsibility.

As most prior studies focus on the breadth of outreach (measured as the number of poor clients) and depth of outreach (the poverty level of the poor clients) as the traditional standard of social performance, we are among the first few papers which explore the individual and comprehensive dimensions of social responsibility using MIX Market data. The only closest study to ours is Beisland et al. (2021), which also examine the individual dimensions of social responsibility for a sample of 204 MFIs using data from rating agencies provided by MicroRate, MicroFinanza Rating, and Planet Rating.

3.3. Independent variables

3.3.1. Board gender diversity

Following Strøm et al. (2014), we use the percentage of female board members as a proxy for ***board gender diversity***. We also construct a dummy variable '***critical mass*** of female directors' that is equal to one if the board has three or more female directors, and zero otherwise. These two variables of board gender diversity can distinguish MFIs with different levels of diversity, i.e., better captures the heterogeneity provided by different levels of diversity and allows us to test the extent to which board gender diversity affects the social responsibility of MFIs.

3.3.2. MFIs' type

Following previous studies (e.g., Liñares-Zegarra and Wilson, 2018; Goodell et al., 2020), we separate MFIs' status into for-profit and not-for-profit organizations based on commercial orientation. We construct a dummy variable called ***ownership***. We use 1 to represent for-profit MFIs, including both micro-banks and non-bank financial institutions (NBFIs). We use 0 to represent not-for-profit MFIs, including cooperatives, credit unions and NGOs. In our sample, 26.1 % of MFIs are for-profit MFIs and 73.9 % of MFIs are not-for-profit MFIs.

3.3.3. Cultural gender values

We follow previous literature by using the Gender Intensity Index (GII) to measure ***cultural gender values*** at the national level (e.g., Drori et al., 2020). The GII incorporates the four gender-related grammatical properties into a single index to provide a single measure of grammatical gender marking in a language, i.e., the presence and intensity of female–male distinctions in the grammatical rules of a language (Drori et al., 2018). The four gender-related grammatical properties include the following: 1) the number of genders; 2) the sex base; 3) the gender assignment rule; and 4) gender pronouns. A higher value of the GII index represents languages with higher gender marking, i.e., a gender discrimination environment (Drori et al., 2020). More specifically, GII is a categorical variable with values of 0, 1, 2, 3, and 4. A score of 0 represents languages with lowest level of gender marking, while a score of 4 indicates languages with the highest level of gender marking. Gender marking represents discriminatory circumstances, such as the lower socio-economic status of women, particularly evident in the distribution of household labor (Hicks, Santacreu-Vasut, & Shoham, 2015). The GII has been used and validated in many papers (Drori et al., 2020; Santacreu-Vasut, Shoham, & Gay, 2013). The GII is a good predictor of gender roles and is not affected by the current socio-economic conditions (Shoham, 2019).

3.3.4. Country-level institutional strength

We use the average value of the six dimensions of the Worldwide Governance Index (WGI) as a proxy for national-level institutional strength. Goodell et al. (2020) find that better national-level institutions, proxied by WGI, enhance the role of for-profit status in promoting the transparency of MFIs. The World Bank provides the definitions of the six dimensions comprising the WGI: 1) Control of corruption; 2) Political stability; 3) Government effectiveness; 4) Regulatory quality; 5) Rule of law; and 6) Voice and accountability. The variable ***WGI*** is calculated as the average value of these six dimensions, which ranges from approximately −2.5 (weak) to 2.5 (strong) governance.

3.4. Control variables

Following previous studies (e.g. Liñares-Zegarra & Wilson, 2018; Bibi et al, 2018b; Goodell et al., 2020), we control in our analysis for MFI characteristics that might influence their social responsibility. These characteristics are financial performance, portfolio risk or credit risk, operational cost, and size of the MFI. Financial performance is proxied by the return on assets ***(ROA)*** which is measured as the ratio of net operating income to the value of total assets of the MFI. ***ROA*** might be positively related to social responsibility because of slack resources such as financial resources in excess that could be used to spend more on social responsibility domains. Alternatively, ***ROA*** might be negatively related to social responsibility because of the trade-off between financial performance (financial viability of the MFIs) and social responsibility costs. Portfolio risk or credit risk is proxied by the variable ***PaR30*** which is measured as the sum of the outstanding balance on arrears over 30 days and total gross outstanding refinanced (restructured) portfolio divided by the total gross portfolio. Bibi et al. (2018b) argue that ***PAR30*** might be positively related to outreach as MFIs might take greater risk to increase outreach rather than focusing on repayment of the loan. Operational cost is proxied by the variable ***Cost per loan*** which indicates the costs necessary for a MFI to provide credit. A lower operational cost indicates a more efficient MFI (financially), but also a lower outreach (e.g., MFIs are spending less and thus reach less poorer clients). This is another manifestation of the trade-off hypothesis faced by MFIs. Size of the MFI is proxied by the ***logarithm of total assets***. Large MFIs may benefit from economies of scale and therefore may have higher social responsibility scores (Bibi et al, 2018b). Furthermore, macroeconomic variables are potential determinants of social responsibility of MFIs (Bibi et al, 2018b). We use ***GDP*** as a country-level control variable to measure the size of the economy (Bibi et al, 2018b; Drori et al., 2020). This variable is measured as the annual growth rate of real GDP per capita. The GDP data are obtained from the World Development Indicators (WDIs) published by the World Bank. The specific definitions of these variables are included in Table 1.

3.5. Model

As the dependent variable is a categorical variable, we estimate ordered probit regressions using equation (1) below for the main results in Table 3a and 3b. We adjust equation (1) as necessary in order to test our hypotheses. For instance, if we examine two sub-samples − for-profit and not-for-profit MFIs − the variable 'ownership' will be excluded from the regression. We also use ordered logistic regressions in the robustness tests (see Appendix A5). Our baseline regression model is as follow:

$$SocialPerformance_{i,t} = \alpha + \alpha_1 femaleboard_{i,t} + \alpha_2 ownership_{i,t} + \alpha_3 GII_{i,t} + \alpha_4 WGI_{i,t} + \sum_{k=1}^{5} \theta_k CONTROL_{k,i,t} + \mu_t + \mu_c + \varepsilon_{i,t} \quad (1)$$

Where i indexes MFIs, t indexes years, and the dependent variable *SocialPerformance* is the MFIs' social responsibility score, which is a categorical variable with values ranging from 0 to 4. We replace the *SocialPerformance* variable with the sub-dimensions of social responsibility to test hypothesis 1b. *Femaleboard* is the percentage of female board members. *Ownership*, *GII* and *WGI* are the independent variables MFI's status, cultural gender values and country-level institutional strength, respectively. CONTROL includes MFI-level control variables (ROA, PaR30, Size and Cost per loan) and a country-level control variable (GDP). μ_t denotes year fixed effects and μ_c denotes country fixed effects. The time-and country-fixed effects are used to control for time-varying country-level effects which absorb effects such as the varying impact of *Femaleboard* on *SocialPerformance* in a particular country, at a particular time. ε is the error term. Standard errors are clustered at the MFI level to account for potential intra-group correlations.

4. Results

In Table 3a, the ordered probit models (1) − (6) show the regression results of the effect of women on board on the overall social responsibility score and the five dimensions of social responsibility as specified in Hypotheses 1a and 1b. As *social responsibility score* is an ordinal variable (0, 1, 2, 3 or 4), the coefficient 0.570 associated with the variable *femaleboard* in model (1) indicates that a one-unit increase in the percentage of female board members results in a 0.570 unit increase in the ordered log-odds of being in a higher social responsibility ranking category while the other variables are held constant in the model. The results support Hypothesis 1a that the percentage of female board members in MFIs is positively associated with the social responsibility of the MFIs. The findings regarding female board members in MFIs are consistent with the prediction of upper echelons theory, resource dependence theory as well as gender socialization theory, suggesting that board gender diversity enhances the social responsibility of MFIs. This is also consistent with empirical findings showing that female-dominated boards are more socially oriented and align their strategy with boards' preferences (e.g. Périlleux & Szafarz, 2015).

For the impact of female directors on the individual dimensions of MFIs' social responsibility, the reported results show that women

Table 3a
The association of female board and the dimensions of MFIs' social performance.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
femaleboard	0.570**	0.406*	0.276	0.640***	0.317	0.871***
	(0.232)	(0.239)	(0.199)	(0.227)	(0.238)	(0.233)
ROA	−0.698**	−0.882***	−1.055***	−0.647**	−0.426	−0.588
	(0.284)	(0.271)	(0.365)	(0.310)	(0.278)	(0.494)
PaR30	−0.684	−0.742	−1.100***	−0.234	−0.761	−0.031
	(0.500)	(0.549)	(0.419)	(0.522)	(0.519)	(0.594)
cost_loan	−0.214***	−0.194***	−0.208**	−0.159*	−0.155*	−0.264***
	(0.078)	(0.074)	(0.083)	(0.081)	(0.087)	(0.083)
Size	0.142***	0.103***	0.091***	0.138***	0.073**	0.189***
	(0.034)	(0.037)	(0.033)	(0.034)	(0.035)	(0.036)
ownership	0.124	0.078	0.098	0.142	0.179	0.054
	(0.136)	(0.155)	(0.137)	(0.135)	(0.141)	(0.141)
GII	0.456***	0.365***	0.250**	0.383***	0.342***	0.598***
	(0.114)	(0.122)	(0.107)	(0.115)	(0.116)	(0.117)
WGI	−1.682***	−1.283**	−1.926***	−1.733***	−2.020***	−1.051**
	(0.609)	(0.583)	(0.623)	(0.617)	(0.637)	(0.529)
GDP	0.014	0.018	0.025	0.011	0.036**	0.008
	(0.019)	(0.019)	(0.016)	(0.017)	(0.017)	(0.017)
Observations	1,155	1,155	1,155	1,155	1,155	1,155
Year FE	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.150	0.164	0.145	0.148	0.171	0.195

Notes: Table 3a reports estimated coefficients using the regression Eq (1) as specified in Section 3.5. Standard errors clustered at the MFI level are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3b
The association of female board and the dimensions of MFIs' social performance.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
criticalmass	0.240**	0.186*	0.165	0.288***	0.150	0.336***
	(0.110)	(0.110)	(0.103)	(0.110)	(0.106)	(0.107)
ROA	−0.654**	−0.839***	−1.026***	−0.607*	−0.392	−0.542
	(0.286)	(0.271)	(0.363)	(0.319)	(0.279)	(0.490)
PaR30	−0.681	−0.734	−1.103***	−0.223	−0.775	−0.072
	(0.508)	(0.560)	(0.423)	(0.530)	(0.526)	(0.590)
cost_loan	−0.201***	−0.189***	−0.197**	−0.145*	−0.145*	−0.239***
	(0.076)	(0.072)	(0.082)	(0.079)	(0.086)	(0.079)
Size	0.121***	0.088**	0.077**	0.116***	0.057	0.163***
	(0.034)	(0.037)	(0.034)	(0.033)	(0.035)	(0.036)
ownership	0.132	0.086	0.095	0.150	0.181	0.073
	(0.132)	(0.152)	(0.135)	(0.131)	(0.141)	(0.139)
GII	0.369***	0.312***	0.208**	0.291***	0.299***	0.451***
	(0.104)	(0.110)	(0.100)	(0.107)	(0.104)	(0.111)
WGI	−1.796***	−1.408**	−2.013***	−1.861***	−2.077***	−1.210**
	(0.610)	(0.594)	(0.629)	(0.622)	(0.639)	(0.539)
GDP	0.011	0.016	0.026*	0.008	0.035**	0.009
	(0.017)	(0.018)	(0.015)	(0.016)	(0.016)	(0.017)
Observations	1,158	1,158	1,158	1,158	1,158	1,158
Year FE	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.147	0.164	0.144	0.146	0.168	0.194

Notes: Table 3b presents the results of testing the critical mass theory. This table follows the same regression design as Table 3a, but we have replaced the independent variable of female directors with a dummy variable equals to one if the board has three or more female directors and zero otherwise. Standard errors clustered at the MFI level are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

on the board are positively and significantly associated with two dimensions of social performance: *product & services*, and *environment*. Although positive, the coefficient associated with the dimension "social goals" is only marginally significant (at the 10 % level). Also, when we test the regressions using ordered logistic regressions, the coefficient associated with the "social goals" dimension is insignificant (see Appendix A5). The results support Hypothesis 1b, suggesting that the role of women on board in shaping the different dimensions of social performance is not uniform.

As we use GII to represent the culture system and WGI to represent the institutional (political) system, our results are broadly in line with those reported in the previous literature for for-profit companies. For example, Ioannou and Serafeim (2012) find that a stronger

cultural system (measured by individualism and the power distance index) is positively associated with *corporate social performance*, while a stronger political system is negatively associated with *corporate social performance*. Similarly, Ghoul et al. (2017) find that the greater strategic value of for-profit *corporate social responsibility* (CSR) is associated with countries having weaker market-supporting institutions.

In Table 4a, we report the results of two sub-samples constructed by dividing the sample into for-profit and not-for-profit microfinance institutions. The results provide some support to Hypothesis 2, suggesting that the overall impact of female board members on MFIs' social responsibility is stronger when MFIs are not-for-profit organizations. However, the p-values of the test of equality of coefficients between the two sub-samples of not-for-profit and for-profit MFIs suggest that these differences are not statistically significant. Therefore, it seems that MFI ownership does not affect the relationship between female directors and the social responsibility of MFIs.

So far, our independent variable of female directors measured as the percentage of female directors on board implicitly assumes that the relationship between having female directors and social responsibility is linear. However, there may be a critical mass effect, in which a certain number or portion of female directors (such as at least three directors) is required to observe a significant impact on social responsibility. This is relevant to the critical mass theory which suggests that there should be a threshold of female directors to be able to influence decision making of the board (Atif et al., 2020; Torchia et al., 2011). We test critical mass theory by replacing the independent variable of female directors with a dummy variable that is equal to one if the board has three or more female directors, and zero otherwise. The results reported in Table 3b and 4b are largely consistent with those reported in Tables 3a and 4a. The only exception is that a critical mass of female directors seems to have a positive and significant impact on the environment dimension of for-profit MFIs. However, the p-values of the test of equality of coefficients between the two sub-samples of not-for-profit and for-profit MFIs suggest that there are no significant differences between the two sub-samples.

In addition to internal factors such as MFI status, we also investigate whether external factors representing the external environment in which MFIs operate, e.g., cultural gender values (local cultural values toward women and women's role in society) and institutional strength, moderate the relationship between female board members and the social responsibility of MFIs. The previous literature shows that culture shapes women directors' influence in the boardroom and their ability to affect social responsibility of for-profit corporations (Chizema, Kamuriwo, & Shinozawa, 2015). For instance, in a society promoting gender equality, women directors can make their voices heard in the boardroom due to their prestige, expertise, and power (Byron & Post, 2016). Bazel-Shoham et al. (2020) show that the presence of female directors reduces cross-border M&A activity, and this negative effect is moderated by the linguistic gender marking gap between home and host countries.

MFI literature also highlights the important role played by culture, i.e., leading societal logics, traditions and beliefs, in shaping MFIs' practices and outcomes (Cobb et al., 2016; Drori et al., 2020; Golesorkhi et al., 2019; Zhao & Wry, 2016). Zhao and Wry (2016) argue that the microfinance industry's targeting strategy responds to the leading societal logics, traditions and beliefs, regardless of MFI affiliation (e.g., international or local). Thus, factors related to gender role, e.g., attitude toward female participation in a given culture, might condition the influence of female directors on the social responsibility of MFIs.

Much organizational behaviour occurs in response to the social pressures arising from the symbolic environment created by other organizations (e.g., Drori et al., 2020; Golesorkhi et al., 2019). In particular, a country's informal institutions, e.g., culture, influence MFIs' access to female customers and ability to attract female employees and managers (Armendáriz & Morduch, 2010; Ault, 2016; Boehe & Barin Cruz, 2013; Cobb et al., 2016; Cull, Demirgüç-Kunt, & Morduch, 2007; Drori et al., 2020; Golesorkhi et al., 2019; Hermes & Hudon, 2018; Zhao & Wry, 2016). Drori et al. (2020) show that the female targeting strategy of an MFI (i.e., outreach to women) depends on local cultural traits relating to gender, as proxied by the country-level *Gender Intensity Index* (GII), which is based on the aggregation of four grammatical rules referring to gender: number of genders; sex base; gender assignment rule; and gender pronouns.

In Table 5, we divide the sample into higher and lower levels of gender markings (gender-based grammatical distinctions in language). Although the results show that the overall impact of female board members is stronger when the gender marking (gender discrimination) level is higher, the p-value of the test of equality of coefficients between the two sub-samples suggests that this difference is not significant. This result suggests that an environment of gender inequality would not increase women directors' ability to assert themselves and influence decision-making, e.g., by raising awareness about social and environmental issues as well as proposing different ways to address these issues. This result is not consistent with those reported by Drori et al. (2020) who argue that culturally inherited gender values have a significant effect on MFIs' strategy of targeting more women clients and declaring gender equality and women's empowerment as their social goals.

The impact of female board members on the social responsibility of MFIs might also be influenced by country-level institutions, e.g., rule of law, political system, government effectiveness and political stability. This is because country-level institutions shape the socioeconomic opportunities and capabilities of economic actors, e.g., managerial and relationship capabilities (Boehe and Barin Cruz, 2013). For instance, Ault (2016) finds that country-level institutions influence the number of MFIs in a particular location as well as the social impact of their strategies and actions.

Several studies documented how country-level institutions shape women directors' representation and role in decision making (Byron & Post, 2016; Chizema et al., 2015; Grosvold & Brammer, 2011). Grosvold and Brammer (2011) find that national institutional systems, in particular legal institutions, are significant determinants of women directors' representation. Chizema et al. (2015) argue that the political system (e.g., women in parliament and government) might help and encourage women to apply or be recruited for board seats. Similar to women directors, women in politics are elected or appointed based on their knowledge, skills and experience. Thams, Bendell, and Terjesen (2018) show that sub-national institutions also shape the board gender diversity of US firms. They find that firms having higher women representation on their board are those headquartered in states with gender-specific state-level

Table 4a
The comparison of status: not-for-profit and for-profit MFIs.

	Not-for-profit						For-profit					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
femaleboard	0.736**	0.482	0.356	0.858***	0.556*	0.965***	0.271	0.284	−0.019	0.261	−0.097	0.648*
	(0.322)	(0.332)	(0.275)	(0.313)	(0.314)	(0.311)	(0.350)	(0.354)	(0.317)	(0.355)	(0.396)	(0.382)
ROA	−0.946***	−1.283***	−1.515***	−0.604**	−0.702**	−0.617	−0.855	−0.315	−1.036	−1.593	−1.008	−0.920
	(0.322)	(0.301)	(0.474)	(0.282)	(0.285)	(0.476)	(0.960)	(0.950)	(0.915)	(1.089)	(0.882)	(1.257)
PaR30	−0.987	−1.020	−1.792**	−0.369	−1.456*	−0.393	−0.953	−0.899	−1.130*	−0.653	−0.861	0.350
	(0.823)	(0.837)	(0.718)	(0.728)	(0.869)	(0.963)	(0.777)	(0.930)	(0.618)	(0.808)	(0.856)	(0.763)
cost_loan	−0.163	−0.175	−0.192*	−0.101	−0.109	−0.250*	−0.359***	−0.306***	−0.361***	−0.322**	−0.337**	−0.368***
	(0.113)	(0.108)	(0.114)	(0.111)	(0.111)	(0.128)	(0.120)	(0.110)	(0.134)	(0.140)	(0.157)	(0.132)
Size	0.181***	0.140**	0.129**	0.154***	0.101*	0.223***	0.112*	0.075	0.094*	0.128*	0.061	0.144**
	(0.051)	(0.056)	(0.051)	(0.049)	(0.052)	(0.051)	(0.066)	(0.067)	(0.053)	(0.067)	(0.060)	(0.073)
GII	0.332**	0.253	0.159	0.243*	0.262*	0.457***	0.197	0.421	−0.156	0.135	0.051	−0.483*
	(0.151)	(0.158)	(0.151)	(0.144)	(0.149)	(0.151)	(0.319)	(0.333)	(0.298)	(0.341)	(0.344)	(0.269)
WGI	−3.616***	−2.630***	−3.571***	−3.838***	−3.888***	−2.489**	−0.359	−0.017	−0.709	−0.414	−0.531	−0.050
	(1.002)	(0.967)	(1.112)	(0.972)	(1.002)	(0.978)	(0.815)	(0.806)	(0.815)	(0.892)	(0.864)	(0.712)
GDP	0.016	0.019	0.030	0.010	0.026	−0.003	−0.040	−0.028	−0.052	−0.025	0.020	0.029
	(0.022)	(0.021)	(0.018)	(0.019)	(0.017)	(0.016)	(0.051)	(0.050)	(0.051)	(0.051)	(0.055)	(0.056)
Observations	757	757	757	757	757	757	398	398	398	398	398	398
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.168	0.182	0.164	0.174	0.182	0.194	0.168	0.183	0.183	0.158	0.211	0.243
Prob > chi2	0.3268	0.6819	0.3711	0.2065	0.1952	0.5188	0.3268	0.6819	0.3711	0.2065	0.1952	0.5188

Notes: This table shows the results of two sub-samples constructed by dividing the sample into for-profit and not-for-profit MFIs. For-profit MFIs include both micro-banks and non-bank financial institutions (NBFIs). Not-for-profit MFIs include cooperatives/credit unions and NGOs. Prob > chi2 is the p-value of the test of equality of coefficients between the sub-samples of not-for-profit and for-profit MFIs. Standard errors clustered at the MFI level are in parentheses. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

Table 4b
The comparison of status: not-for-profit and for-profit MFIs.

	Not-for-profit						For-profit					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
criticalmass	0.268**	0.191	0.170	0.349***	0.258*	0.342**	0.285	0.274	0.274	0.250	0.122	0.475**
	(0.127)	(0.135)	(0.134)	(0.126)	(0.132)	(0.134)	(0.241)	(0.229)	(0.199)	(0.243)	(0.218)	(0.211)
ROA	−0.836***	−1.205***	−1.430***	−0.499*	−0.622**	−0.535	−1.051	−0.476	−1.310	−1.751	−1.158	−1.114
	(0.322)	(0.300)	(0.465)	(0.287)	(0.285)	(0.484)	(0.969)	(0.957)	(0.896)	(1.117)	(0.869)	(1.252)
PaR30	−1.008	−1.032	−1.856***	−0.382	−1.495*	−0.394	−0.915	−0.836	−1.054*	−0.624	−0.846	0.376
	(0.830)	(0.852)	(0.718)	(0.723)	(0.865)	(0.939)	(0.802)	(0.962)	(0.633)	(0.829)	(0.865)	(0.762)
cost_loan	−0.127	−0.153	−0.158	−0.066	−0.079	−0.191	−0.360***	−0.313***	−0.353***	−0.325**	−0.327**	−0.396***
	(0.113)	(0.106)	(0.114)	(0.111)	(0.109)	(0.123)	(0.119)	(0.111)	(0.128)	(0.136)	(0.153)	(0.126)
Size	0.145***	0.116**	0.109**	0.118**	0.075	0.179***	0.117*	0.078	0.093*	0.131*	0.062	0.153**
	(0.051)	(0.057)	(0.053)	(0.048)	(0.052)	(0.052)	(0.066)	(0.067)	(0.052)	(0.067)	(0.059)	(0.074)
GII	0.189	0.156	0.084	0.094	0.172	0.235*	0.058	0.275	−0.323	−0.042	−0.160	−0.768***
	(0.133)	(0.138)	(0.142)	(0.127)	(0.131)	(0.141)	(0.329)	(0.348)	(0.306)	(0.358)	(0.377)	(0.279)
WGI	−3.945***	−3.044***	−3.883***	−4.152***	−4.135***	−3.026***	−0.439	−0.072	−0.781	−0.524	−0.675	−0.147
	(1.029)	(1.004)	(1.166)	(0.989)	(1.045)	(1.051)	(0.828)	(0.820)	(0.805)	(0.918)	(0.887)	(0.696)
GDP	0.015	0.017	0.030*	0.010	0.027*	−0.002	−0.041	−0.028	−0.046	−0.029	0.017	0.031
	(0.019)	(0.019)	(0.017)	(0.017)	(0.016)	(0.015)	(0.050)	(0.048)	(0.049)	(0.051)	(0.055)	(0.055)
Observations	757	757	757	757	757	757	401	401	401	401	401	401
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.162	0.179	0.162	0.168	0.177	0.185	0.168	0.183	0.183	0.159	0.208	0.259
Prob > chi2	0.9500	0.7555	0.6613	0.7190	0.5920	0.5954	0.9500	0.7555	0.6613	0.7190	0.5920	0.5954

Notes: Table 4b presents the results of testing the critical mass theory. This table follows the same regression design as Table 4a, but we have replaced the independent variable of female directors with a dummy variable equals to one if the board has three or more female directors and zero otherwise. Prob > chi2 is the p-value of the test of equality of coefficients between the sub-samples of not-for-profit and for-profit MFIs. Standard errors clustered at the MFI level are in parentheses. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

Table 5
Cultural gender values: High and low gender intensity index.

	High Gender Intensity Index (GII)						Low Gender Intensity Index (GII)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
femaleboard	0.515**	0.488**	0.282	0.424*	0.266	0.541**	0.361	0.203	0.089	0.449*	0.151	0.553**
	(0.227)	(0.228)	(0.199)	(0.222)	(0.222)	(0.233)	(0.251)	(0.271)	(0.234)	(0.258)	(0.280)	(0.268)
ROA	−0.618***	−1.082***	−1.006***	−0.312	−0.621***	0.093	−1.237	−0.742	−1.298	−1.582*	−0.555	−1.778*
	(0.223)	(0.236)	(0.324)	(0.230)	(0.232)	(0.494)	(0.867)	(0.845)	(0.883)	(0.832)	(0.895)	(0.957)
PaR30	−0.010	−0.111	−0.441	0.320	−0.525	−0.841*	−0.670	−0.625	−1.177**	−0.280	−0.576	−0.045
	(0.425)	(0.497)	(0.373)	(0.433)	(0.420)	(0.475)	(0.524)	(0.580)	(0.464)	(0.534)	(0.529)	(0.644)
cost_loan	−0.193***	−0.216***	−0.144**	−0.154**	−0.153**	−0.165**	−0.213**	−0.159*	−0.186**	−0.146	−0.120	−0.282***
	(0.068)	(0.069)	(0.070)	(0.069)	(0.070)	(0.074)	(0.087)	(0.084)	(0.091)	(0.094)	(0.101)	(0.097)
Size	0.157***	0.119***	0.140***	0.151***	0.116***	0.160***	0.121***	0.089**	0.062*	0.132***	0.056	0.178***
	(0.035)	(0.036)	(0.035)	(0.036)	(0.035)	(0.045)	(0.040)	(0.045)	(0.035)	(0.039)	(0.041)	(0.042)
ownership	−0.023	0.054	−0.036	−0.106	0.037	−0.040	0.151	0.073	0.090	0.221	0.210	0.075
	(0.157)	(0.156)	(0.153)	(0.160)	(0.160)	(0.190)	(0.160)	(0.189)	(0.159)	(0.162)	(0.174)	(0.184)
WGI	−1.568***	−1.667***	−1.393***	−1.509***	−1.532***	−0.904**	0.694	0.941	0.543	0.544	0.129	0.115
	(0.376)	(0.379)	(0.381)	(0.385)	(0.370)	(0.369)	(0.667)	(0.670)	(0.674)	(0.608)	(0.592)	(0.594)
GDP	0.009	0.009	0.017*	0.008	0.017*	0.009	0.009	0.014	0.032	0.012	0.046	0.021
	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.027)	(0.028)	(0.030)	(0.028)	(0.031)	(0.033)
Observations	1,506	1,506	1,506	1,506	1,506	1,506	584	584	584	584	584	584
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.161	0.179	0.150	0.162	0.170	0.171	0.147	0.151	0.154	0.145	0.165	0.201
Prob > chi2	0.2139	0.2670	0.1998	0.2720	0.3086	0.0835	0.2139	0.2670	0.1998	0.2720	0.3086	0.0835

Notes: This table shows the sub-sample results by dividing the sample into higher and lower levels of gender markings. High GII represents high gender markings (gender discrimination). Further details about the GII variable are provided in Section 3.3. Prob > chi2 is the p-value of the test of equality of coefficients between the sub-samples of higher and lower levels of gender markings. Standard errors clustered at the MFI level are in parentheses. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

policies, e.g., protecting women from discrimination, access to emergency contraception and public funding for abortions. Grosvold, Rayton, and Brammer (2016) also show that governmental institutions and economic systems are significant determinants of women representation on the board and their role in decision making.

Byron and Post (2016) argue that country-level institutions influence the impact of women directors on firm outcomes such as *corporate social performance*, in particular in countries with stronger shareholder protection. Nadeem, Zaman, and Saleem (2017) find a significant positive relationship between the presence of women directors and the *corporate social performance* of Australian firms after the implementation of a regulatory change which increases board diversity as well as social responsibility practices and reporting.

In Table 6, we report the results of two sub-samples constructed by dividing the sample into higher and lower-ranked institutional strength based on the median value. Although the results suggest that the impact of female board members on the social responsibility of MFIs is stronger when MFIs are located in countries with more effective governance and institutional mechanisms, the p-value of the test of equality of coefficients between the two sub-samples suggests that this difference is not significant. The results reported in Table 6 suggest that the impact of female board members on the social responsibility of MFIs is not influenced by country-level institutions. This finding is not consistent with the results of Ault (2016) who finds that country-level institutions influence the social impact of MFIs' strategies and actions.

4.1. Robustness checks

We run several robustness tests to ensure the reliability of the above results. First, we conduct robustness tests based on a restricted sample to remove concerns about sample selection bias, i.e., check whether the results are driven by fewer MFIs located in specific countries. Specifically, we remove countries with fewer than 50 observations (Appendix B1 provides the number of observations for each country). We also removed companies with less than three years of social responsibility data available. The application of these two sample selection criteria does not lead to a significant decrease of the number of observations used in the regression analysis (1101 compared to 1155 observations), and the results reported in Appendix A1 are qualitatively similar to those reported in Tables 3a and 3b.

Second, we replace the independent variable of female directors with female managers as a placebo test (See Appendix A2). The variable ***Female managers*** is measured as the percentage of females in the management team of the MFI. The results show that female managers do not have any impact on MFIs' social performance. These findings suggest that female directors, instead of female managers, play a more important role in shaping MFIs' social performance.

Third, to address the potential endogeneity concerns, we conduct a two-stage instrumental-variable (IV) regression. Specifically, we estimate an extended regression model with an ordinal outcome and endogenous binary variable (critical mass). We use *female labor force participation* proxied by the ratio of female-to-male labor force participation rate as instrument for the critical mass equation where the dependent variable is critical mass. This instrument represents the proportion of the female population aged 15 years and older that is economically active, divided by the same proportion for men (De Laat & Sevilla-Sanz, 2011; Choudhry & Elhorst, 2018; Baerlocher et al., 2021; Chen et al., 2023). Previous research has shown that *female labor force participation* can increase the average education of the labor force, result in a better allocation of talent and resources, and more women participating in politics (Baerlocher et al., 2021). The data of the ratio of female-to-male labor force participation rate are obtained from the World Development Indicators (WDIs) published by the World Bank.[8] The two-stage IV regression provides the estimated correlation between the errors from the social performance equation and the errors from the critical mass equation. A correlation significantly different from zero suggests that the variable critical mass is endogenous.

Panel A in Appendix A3 presents the two-stage IV regression results for the overall sample. The results show that the impact of female directors, as measured by the variable critical mass, on the overall social responsibility score is not significant. However, the results also show that the impact of female directors is positive and statistically significant for four dimensions: social goals, governance & HR, client protection and environment. Without controlling for endogeneity, the results reported in Table 3b showed that the impact of female directors, as measured by the variable critical mass, is positively and significantly related to the overall social responsibility score and the two dimensions: product & services, and environment. After controlling for endogeneity, the impact of female directors on the overall responsibility score and the dimension product & services become insignificant. In contrast, the impact of female directors on the three dimensions social goals, governance & HR, and client protection become significant. The impact of female directors on environment remains significant before and after controlling for endogeneity. Collectively, the results of Tables 3a and Panel A in Appendix A3 provide strong support to our two hypotheses 1a and 1b suggesting that the impact of female directors on social responsibility of MFIs is positive and not uniform across the various dimensions of social responsibility.

Panel B in Appendix A3 presents the two-stage IV regression results for the two sub-samples constructed by dividing the sample into for-profit and not-for-profit MFIs. The results support Hypothesis 2, suggesting that the overall impact of female board members on MFIs' social responsibility is positive (negative) when MFIs are not-for-profit (for-profit) organizations. It's surprising to see that the impact of female board members on for-profit MFIs' social responsibility is negative and significant after controlling for endogeneity. The p-values of the test of equality of coefficients between the two sub-samples of not-for-profit and for-profit MFIs suggest that these differences are statistically significant. This finding could be explained by the fundamental differences between the two types of MFIs. For instance, in contrast to for-profit MFIs, the governance of not-for-profit MFIs is not tied to ownership, leading to higher managerial

[8] Source: https://data.worldbank.org/indicator/SL.TLF.CACT.FM.ZS.

Table 6
Country-level institutional strength: High and low worldwide governance index.

	High Worldwide Governance Index (WGI)						Low Worldwide Governance Index (WGI)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment	Social Performance	Social Goals	Governance & HR	Products & Services	Client Protection	Environment
femaleboard	0.719***	0.448	0.435**	0.723***	0.421	0.744***	0.300	0.292	0.028	0.464	0.070	1.117**
	(0.256)	(0.278)	(0.222)	(0.245)	(0.282)	(0.254)	(0.438)	(0.428)	(0.373)	(0.444)	(0.415)	(0.435)
ROA	−0.651	−0.021	−1.152	−1.331	−0.699	−1.143	−0.467	−0.933***	−0.905**	−0.228	−0.097	−0.221
	(0.852)	(0.860)	(0.734)	(0.982)	(0.765)	(1.225)	(0.317)	(0.296)	(0.428)	(0.305)	(0.331)	(0.491)
PaR30	−0.203	−0.163	−1.083**	0.236	−0.333	0.115	−1.438*	−1.226	−0.960	−1.259	−1.558*	−0.563
	(0.677)	(0.728)	(0.545)	(0.680)	(0.678)	(0.745)	(0.764)	(0.827)	(0.804)	(0.800)	(0.835)	(0.660)
cost_loan	−0.258**	−0.230**	−0.190*	−0.183	−0.233*	−0.326***	−0.174	−0.166	−0.243**	−0.165	−0.092	−0.224*
	(0.110)	(0.105)	(0.112)	(0.124)	(0.129)	(0.122)	(0.115)	(0.105)	(0.123)	(0.110)	(0.127)	(0.114)
Size	0.183***	0.136***	0.124***	0.179***	0.110***	0.235***	0.077	0.049	0.038	0.074	0.008	0.110*
	(0.041)	(0.045)	(0.036)	(0.040)	(0.040)	(0.044)	(0.061)	(0.065)	(0.066)	(0.057)	(0.064)	(0.059)
ownership	0.151	0.070	0.066	0.195	0.265	−0.008	0.134	0.141	0.178	0.103	0.124	0.234
	(0.175)	(0.202)	(0.177)	(0.175)	(0.185)	(0.181)	(0.227)	(0.250)	(0.229)	(0.226)	(0.230)	(0.213)
GII	0.741***	0.582***	0.569***	0.623***	0.660***	0.788***	1.757***	1.936***	1.619***	1.830***	1.785***	1.397***
	(0.110)	(0.123)	(0.094)	(0.103)	(0.103)	(0.127)	(0.131)	(0.179)	(0.116)	(0.136)	(0.156)	(0.137)
GDP	0.055*	0.051	0.065**	0.047*	0.082***	0.044	0.009	0.012	0.019	0.007	0.033*	0.004
	(0.030)	(0.033)	(0.026)	(0.026)	(0.031)	(0.027)	(0.020)	(0.020)	(0.016)	(0.020)	(0.017)	(0.018)
Observations	590	590	590	590	590	590	565	565	565	565	565	565
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.123	0.132	0.119	0.118	0.136	0.157	0.188	0.210	0.178	0.194	0.224	0.258
Prob > chi2	0.2990	0.6012	0.2209	0.5358	0.4020	0.6073	0.2990	0.6012	0.2209	0.5358	0.4020	0.6073

Notes: This table shows the results of two sub-samples constructed by dividing the sample into higher and lower ranked institutional strength based on median value. High Worldwide Governance Index (WGI) represents higher level of institutional strength. Further details about the WGI variable are provided in Section 3.3. Prob > chi2 is the p-value of the test of equality of coefficients between the sub-samples of higher and lower ranked institutional strength. Standard errors clustered at the MFI level are in parentheses. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

discretion (Galema et al., 2012). The female proportion of top executives and directors is higher for not-for-profit MFIs (Strøm et al., 2014), suggesting that their impact on MFI's strategic decisions is likely to be stronger. Social (financial) performance seems more important for not-for-profit (for-profit) MFIs due to the different incentives, technologies used and funding structures inherent to their status or type (Cull et al., 2009, 2014; Servin et al., 2012). Not-for-profit MFIs have more severe funding constraints as they rely more on relationship financing with private donors and subsidies. The funding sources of not-for-profit MFIs cannot be substituted easily (Goodell et al., 2020), and donors are associated with higher social performance due to their social agenda (Mori & Mersland, 2014).

Fourth, we also conduct additional robustness tests, including using alternative measure of the dependent variable (see Appendix A4) and ordered logit regressions as an alternative estimation method (See Appendix A5). In addition, instead of using categorical data for the dependent variable *social performance*, we calculate the log-transformed *social performance* score. Overall, the results remain unchanged. In unreported results, we have followed Goodell et al. (2020) to calculate the first principal component score of the *WGI* variable based on the six dimensions of governance scores. We find that using an average score or a principal component score yields similar results.

Finally, in all regressions we have used clustered standard errors at the MFI level to mitigate both heteroscedasticity and autocorrelation problems. This clustering corrects the standard errors and test statistics to allow both heteroskedasticity and/or serial correlation. Nonetheless, we also conduct an additional robustness test that allows the variance to be modeled as a function of independent variables and to differ between MFIs. Specifically, we have used the Heteroskedastic ordered probit regression which fits a heteroskedastic ordered probit model for an ordinal dependent variable.

Panel A in Appendix A6 presents the results for the overall sample. The results show that the impact of female directors on the overall social responsibility score is positive and marginally significant. The results also show that the impact of female directors is positive and statistically significant for the product & services dimension. These findings still provide some support to our two hypotheses 1a and 1b suggesting that the impact of female directors on social responsibility of MFIs is positive and not uniform across the various dimensions of social responsibility. Panel B in Appendix A6 presents the results for the two sub-samples constructed by dividing the sample into for-profit and not-for-profit MFIs. The results for the not-for-profit sample mirror those for the overall sample. In contrast, female directors do not seem to have any significant impact on the social responsibility of for-profit MFIs. These findings support Hypothesis 2, suggesting that the overall impact of female board members on MFIs' social responsibility is stronger when MFIs are not-for-profit organizations.

5. Discussion and conclusion

Applying the framework proposed by the recent and holistic social responsibility measures and new social responsibility data of MFIs, we investigate whether gender roles influenced MFIs' multi-dimensional social responsibility. We show that women's empowerment (female acting as board directors) enhances the MFIs' social responsibility in specific dimensions, e.g., *products & services* and *environment*. Moreover, this impact is stronger for not-for-profit MFIs. The findings suggest that women directors of not-for-profit MFIs can have the ability to assert themselves and influence decision-making, e.g., by raising awareness about social and environmental issues as well as proposing different ways to address these issues.

This study contributes to the literature on the impact of gender diversity on MFIs' social responsibility and the conditions under which this impact is more effective. Traditionally, studies have investigated the link between female roles and the breadth and depth of outreach (e.g. Boehe & Barin Cruz, 2013; Hartarska, 2005; Hartarska & Mersland, 2012; Mori et al., 2015; Périlleux & Szafarz, 2015). However, we argue that outreach only touches on a narrow dimension of social responsibility, and it is crucial to understand the wider lens of MFIs' social responsibility. We build upon the resource dependence theory, upper echelons theory and gender socialization theory and suggest that female directors bring diverse experience, knowledge and value to the board and can help MFIs make long-term strategic decisions to meet a wider range of stakeholders' expectations regarding social and environmental performance. We demonstrate that these responsibilities are better understood by considering the type of organisation (for-profit versus not-for-profit) and the multidimensionality of MFIs' social responsibility, which captures the more intricate interactions that an MFI has with the diverse range of stakeholders.

We extend the institutional literature (Byron and Post, 2016; Drori et al., 2020; Nadeem et al., 2017) by examining whether the institutional factors influence the role of female directors in shaping the social responsibility of MFIs, including gender discrimination in culture as the cultural element, and the national-level governance index as the political element. Our findings suggest that the impact of female board members on the social responsibility of MFIs is not influenced by these country-level institutions. This finding suggests that further research is needed to uncover the condition under which institutional factors influence gender role in shaping the social responsibility of MFI as different governance frameworks will lead to different social responsibility philosophies and public expectations.

We also provide practical implications for MFIs' core objective of women empowerment in a discriminating world. Our findings suggest that MFIs have a broader impact on social responsibility which is not limited to traditionally addressing poverty issues. For instance, the female leadership could provide stronger support on environmental issues and give priority to more environmentally friendly practices and projects. MFIs women's contribution to environmental risk management could be a milestone for the developing world to contribute to the Sustainable Development Goals (SDG). Our findings also provide implications for MFIs, funders, and policymakers regarding the role of female leadership in shaping the social responsibility of MFIs. The findings of this study could benefit both academics interested in a more sophisticated investigation into the multidimensionality of MFIs' social responsibility and policymakers interested in the sustainable development of the microfinance industry.

Our results should be interpreted with caution because of some limitations. First, our results could be specific to the restricted

sample of MFIs covered because of data unavailability. Second, the measurement of the variables of interest, e.g., social responsibility scores, dictated a specific statistical analysis, which in addition to the model specification such as the choice of specific control variables, further reduced the number of observations available for regression analysis. Data unavailability also precluded us from including other governance variables such as family directorships that could affect the social responsibility of MFIs. However, our study and findings suggest future research directions that will help advance the field. For instance, future research could consider other factors such as age, educational background, social responsibility expertise and tenure that might also influence the impact of female directors on MFIs' social responsibility. Future work could also re-examine the relationship between MFIs' social responsibility and financial performance. Several studies have examined the trade-off between outreach and financial performance (e.g., Cull, Demirgüç-Kunt, & Morduch, 2011; D'Espallier et al., 2011). Examining this trade-off between the different dimensions of social responsibility and financial performance would be insightful.

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CRediT authorship contribution statement

Kais Bouslah: Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Qian (Jan) Li:** Data curation, Methodology, Formal analysis, Visualization, Writing – original draft. **Asma Mobarek:** Supervision, Conceptualization, Writing – original draft, Writing – review & editing.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.intfin.2025.102164.

Data availability

The data used (Mix Market data) is publicly available at https://databank.worldbank.org/source/mix-market

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