

The regional logic of inclusive governance: gender diversity, board independence and MFI performance in the Arab world

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Abstract

Purpose – This paper investigates how board gender diversity moderates the relationship between board independence and the financial performance of microfinance institutions (MFIs) in the Arab world, with explicit attention to the contingent role of subregional institutional logics. Challenging the assumption of regional homogeneity, this study examines why this governance synergy succeeds in some contexts but not others across four institutionally distinct subregions: the Maghreb, Nile Valley, Mashreq/Levant and Gulf.

Design/methodology/approach – Using a balanced panel of 84 MFIs from 10 Arab countries over 2006–2019 (1,176 firm-year observations), fixed-effects regression models are estimated with robust standard errors clustered at the MFI level. Financial performance is measured by Return on Assets and Return on Equity. Gender diversity is captured via Blau's and Shannon's indices, while macroeconomic and institutional controls are included to isolate governance effects.

Findings – Board independence positively influences MFI performance. Crucially, the effect of board independence on performance is significantly strengthened by gender diversity, but only in subregions where socio-cultural norms and legal frameworks support substantive female participation. This moderating effect is robust and statistically significant in the Maghreb (Tunisia, Morocco, Algeria) and partially in the Mashreq/Levant (Jordan, Lebanon), yet absent or weak in the Nile Valley (Egypt, Sudan) and the Gulf (Saudi Arabia, UAE, Bahrain). Macroeconomic stability further emerges as a critical enabler of financial sustainability.

Practical implications – The results caution against universalist gender quotas in governance. In inclusive environments, gender diversity acts as a performance multiplier for independent oversight; in resistant contexts, it risks remaining symbolic. Policymakers and MFI leaders must therefore couple board composition reforms with deeper institutional and cultural changes to unlock the developmental potential of inclusive governance.

Originality/value – This study advances development economics by demonstrating that the value of gender diversity as a governance enhancer is not intrinsic but regionally contingent. It introduces the concept of a “regional logic of inclusion,” showing how the interaction between governance mechanisms is embedded in, and amplified by, local institutional ecosystems. In doing so, it bridges agency theory with institutional analysis to offer a more nuanced understanding of effective governance in emerging economies.

Keywords Microfinance, Gender diversity, Board independence, Financial performance, Institutional context, Arab world, Economic development

Paper type Research article

1. Introduction

Microfinance institutions (MFIs) play a pivotal role in promoting financial inclusion and fostering economic development in low- and middle-income countries. By providing credit, savings and other financial services to underserved populations, particularly women, MFIs contribute not only to poverty alleviation but also to broader structural transformations in emerging economies (Ledgerwood *et al.*, 2013; Cull *et al.*, 2011; Salakpi *et al.*, 2025). Yet their



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dual mission of financial sustainability and social impact hinges critically on effective governance (Mersland and Strøm, 2009, 2010; Gupta and Mirchandani, 2020). In environments where regulatory oversight is weak and stakeholder accountability diffuses, internal governance mechanisms, especially board composition, become essential safeguards against mission drift and performance erosion.

A growing body of literature examines corporate governance in MFIs, with particular attention to board independence as a key monitoring mechanism. However, less attention has been paid to how social dimensions of governance, such as gender diversity, interact with formal structures like board independence to shape institutional outcomes. This gap is especially consequential in the Arab world, where women constitute the overwhelming majority of microfinance clients yet remain strikingly underrepresented in decision-making roles. The effectiveness of female directors cannot be assessed in an institutional vacuum; it depends on whether local norms, legal frameworks and cultural ecosystems empower them to exercise real influence or relegate them to symbolic presence.

The Middle East and North Africa (MENA) region is frequently portrayed as a monolithic cultural or religious bloc. Yet, this assumption obscures profound institutional, legal and socio-normative heterogeneity that critically conditions women's access to leadership and their capacity to influence governance. Decades of comparative sociological research have documented sharp ideological and institutional segmentation across the Arab world (Moaddel, 2005, Moaddel and Karabenick, 2018). These differences manifest in divergent legal frameworks on gender rights, varying levels of female labor force participation, contrasting educational investments in women, and uneven societal openness to female authority. Ignoring this embeddedness risks misattributing governance outcomes and designing ineffective policy prescriptions.

This paper addresses this gap by investigating *how board gender diversity moderates the relationship between board independence and financial performance across four institutionally distinct subregions of the Arab world: the Maghreb, the Nile Valley, the Mashreq/Levant and the Gulf*. Drawing on a balanced panel of 84 MFIs from 10 countries over the period 2006–2019, the study demonstrates that gender diversity significantly amplifies the positive effect of independent directors on performance, but only in contexts where cultural norms and institutional frameworks support substantive female participation, such as Tunisia, Morocco, Jordan and Lebanon. In more conservative settings, the same diversity yields little or no performance gain, revealing a “*regional logic of inclusive governance*” that challenges one-size-fits-all policy prescriptions.

These findings carry important implications for development economics and governance reform. They underscore that promoting women's presence on boards is necessary but insufficient without parallel efforts to transform organizational culture, legal rights and societal attitudes. Moreover, the study reaffirms the vulnerability of MFIs to macroeconomic instability, highlighting that even well-governed institutions struggle in high-inflation or low-growth environments. By integrating agency theory with institutional and regional analysis, this research advances a more nuanced understanding of how inclusive governance can become a catalyst for sustainable development in the Global South.

The paper proceeds as follows. Section 2 outlines the theoretical framework and develops hypotheses on the contingent role of gender diversity. Section 3 presents the empirical methodology and data. Section 4 reports the results, with emphasis on subregional heterogeneity. Section 5 discusses theoretical contributions, managerial and policy implications, limitations and directions for future research.

1.1 Gender dynamics in the MENA region: toward subregional segmentation

The MENA region is often treated as a monolithic cultural bloc in development discourse. Yet it exhibits profound institutional, legal and socio-normative heterogeneity that critically shapes women's access to leadership roles, particularly in financial governance. Recognizing this diversity is essential to avoid policy overgeneralization and to understand how gender-inclusive

governance translates, or fails to translate, into performance gains. Drawing on institutional theory (North, 1990) and empirical studies of ideological variation across the Arab world (Moaddel, 2005, Moaddel and Karabenick, 2018), *this study* adopts a subregional segmentation into four zones: the Maghreb, the Nile Valley, the Mashreq/Levant and the Gulf. *This approach* captures distinct “institutional logics” of gender inclusion that condition the effectiveness of board-level diversity.

These four subregions reflect divergent historical trajectories, legal traditions and societal attitudes toward women’s public roles. Together, they determine whether gender diversity on boards functions as a substantive governance asset or remains a symbolic formality. In the Maghreb, encompassing Tunisia, Morocco and Algeria, state-led modernization efforts since the mid-20th century have fostered relatively progressive legal frameworks, high female educational attainment and sustained investments in women’s civic participation. Tunisia, in particular, has enacted landmark reforms in family law, political quotas and labor rights. *These measures have created* an institutional environment where female directors are more likely to exercise real influence rather than serve as tokens (Bentaleb Sfar, 2018; Bentaleb and Ben Hassine, 2022). Although patriarchal norms persist informally, the alignment between formal rights and social infrastructure supports substantive female agency in decision-making spheres, including finance.

In contrast, the Nile Valley, comprising Egypt and Sudan, presents a paradoxical landscape. Despite relatively high levels of female labor force participation and extensive microfinance outreach, formal corporate and political power remains overwhelmingly male-dominated. Conservative social norms, weak enforcement of gender-equity legislation and entrenched patronage networks often marginalize women even when they are formally appointed to boards (Adusei, 2019). In this context, gender diversity may satisfy compliance requirements but rarely translate into meaningful oversight. Female directors operate in environments where traditional authority structures resist external or gender-based challenges.

The Mashreq/Levant, covering Jordan, Lebanon and Syria, faces compounded governance challenges due to institutional fragmentation, political volatility and sectarian dynamics. While Lebanon and Jordan have seen significant increases in female enrollment in higher education and professional sectors, corporate governance remains dominated by familial, clan-based or sectarian networks that are resistant to meritocratic or gender-diverse appointments (Abiad *et al.*, 2025). Nevertheless, pockets of progress exist. Donor-driven reforms, vibrant civil society organizations and targeted capacity-building initiatives, especially in Jordan’s microfinance sector, have enabled some women to assume visible leadership roles. *This suggests* that inclusive governance can take root even in fragile contexts when supported by external anchoring mechanisms.

Finally, the Gulf, represented by Saudi Arabia, the United Arab Emirates and Bahrain, has recently undergone rapid, top-down modernization under national visions such as Saudi Vision 2030. These reforms have explicitly promoted female board representation as a marker of economic openness and global alignment (Moaddel and Stuart, 2018). Yet because these changes originate from elite-driven agendas rather than grassroots social transformation, they often remain decoupled from deeper cultural shifts. As a result, women’s presence on boards frequently reflects “symbolic inclusion,” a performative gesture aimed at signaling modernity without conferring genuine decision-making power (Adusei and Sarpong-Danquah, 2021). Legal progress has thus outpaced societal readiness, raising questions about the operational impact of diversity in the absence of parallel empowerment in organizational culture and informal authority structures.

This subregional variation underscores a critical theoretical insight: governance mechanisms are socially embedded. The effectiveness of gender diversity cannot be assessed in an institutional vacuum. It depends on the alignment between formal appointments and the underlying cultural, legal and political ecosystems that either enable or constrain female directors’ agency. *Accordingly*, this analysis treats subregions not as a mere control variable but as a proxy for distinct institutional logics that condition the governance–performance nexus.

1.2 Independent directors and MFI performance

In MFIs, the separation between mission and management creates a distinct governance challenge. MFIs pursue a dual objective, financial sustainability and social outreach, which renders them especially vulnerable to mission drift (Mersland and Strøm, 2010). Agency theory (Meckling and Jensen, 1976) posits that independent directors mitigate information asymmetries and align managerial incentives with stakeholder interests by providing objective oversight (Fama and Jensen, 1983). In the MFI context, this monitoring function is not merely about financial control but also about safeguarding the institution's social mandate while ensuring operational efficiency (Gupta and Mirchandani, 2020). Independent directors, defined here as non-executive, non-affiliated members with no material ties to donors, founders or management, bring external expertise that enhances strategic risk assessment, curbs managerial opportunism and upholds institutional legitimacy (Labie, 2007; Bentaleb Sfar, 2018).

Importantly, unlike in for-profit firms, MFI boards often operate in environments where regulatory oversight is weak and stakeholder accountability is diffuse. Consequently, board independence becomes a critical internal governance mechanism, a buffer against mission drift and performance erosion (Cull *et al.*, 2011). Empirical evidence from global MFI samples supports this view: stronger governance ratings, particularly higher board independence, correlate with improved financial performance (Mersland and Strøm, 2014). While earlier studies yielded mixed results (Bozec, 2005; Hartarska, 2005), more recent cross-national analyses confirm that independent directors enhance Return on Assets (ROA) by improving portfolio quality and strategic discipline (Gupta and Mirchandani, 2020; Abiad *et al.*, 2025, in GCC contexts).

Based on this theoretical and empirical foundation, the following hypothesis is proposed.

- H1. The proportion of independent directors on the board positively influences the financial performance of MFIs.

1.3 Gender diversity as a context-contingent moderator

While board independence establishes the structural capacity for oversight, its effectiveness is socially embedded and contingent on board composition. *This study* integrates agency theory (Meckling and Jensen, 1976) and institutional theory (North, 1990) to argue that women's presence on the board either amplifies or weakens the monitoring effectiveness of independent directors, depending on local institutional logics of gender inclusion. Institutional theory posits that organizational practices derive legitimacy not only from technical efficiency but also from alignment with local socio-cultural norms (North, 1990; Scott, 2008). In subregions where gender norms are relatively permissive, such as the Maghreb (Tunisia, Morocco, Algeria) and parts of the Mashreq/Levant (Jordan, Lebanon), female directors contribute cognitively and ethically to board deliberations. Empirical studies show that women exhibit higher monitoring vigilance, greater stakeholder sensitivity and lower tolerance for earnings manipulation (Adams and Ferreira, 2009; Giurge *et al.*, 2021). Their inclusion reduces groupthink, enriches risk assessment and strengthens the board's connection to the predominantly female client base of MFIs (Westermann *et al.*, 2005; Adusei and Sarpong-Danquah, 2021). In such contexts, gender diversity acts as a performance catalyst: it enhances the signal-processing capacity of independent directors, turning structural independence into substantive oversight.

Conversely, in socially conservative settings, such as the Nile Valley (Egypt, Sudan) or the Gulf (Saudi Arabia, UAE, Bahrain), formal board appointments may not translate into meaningful influence. Kanter's (1977) theory of tokenism warns that when women are underrepresented and operate in male-dominated environments, they are often marginalized, silenced or reduced to symbolic roles. In these contexts, gender diversity may exist on paper but fails to generate cognitive or behavioral change (Loukil and Yousfi, 2016; Ruijgrok *et al.*, 2006).

Empirical work in emerging markets confirms that the performance benefits of board gender diversity vanish, or even reverse, when institutional support is absent (Adusei, 2019; Uchenna *et al.*, 2017).

Notably, recent meta-analyses underscore that the gender–performance link is context-dependent: while positive on average (Post and Byron, 2015), its magnitude varies significantly across institutional environments (Byron and Post, 2016). In MENA firms, for instance, Abiad *et al.* (2025) find that board gender diversity boosts performance in GCC countries only when coupled with strong legal protections and board empowerment, conditions not yet universal.

Thus, gender diversity does not directly drive performance in isolation; rather, it moderates the relationship between board independence and performance by shaping how effectively independent directors fulfill their governance role. *Based on this reasoning, the following two hypotheses are proposed.*

H2a. Gender diversity on the board positively moderates the relationship between the proportion of independent directors and the financial performance of MFIs, such that the positive effect of board independence on performance is stronger when gender diversity is higher.

H2b. This moderating effect is significantly stronger in subregions where socio-cultural norms and institutional frameworks support substantive female participation, namely the Maghreb (Tunisia, Morocco, Algeria) and the Mashreq/Levant (Jordan, Lebanon), than in contexts where gender inclusion remains largely symbolic, such as the Nile Valley (Egypt, Sudan) and the Gulf (Saudi Arabia, UAE, Bahrain).

2. Empirical validation

This section presents the empirical strategy used to examine the relationship between board independence, gender diversity and the financial performance of Microfinance Institutions in the MENA region. The analysis focuses on the moderating role of gender diversity in the link between independent directors and financial outcomes, while controlling for institutional, macroeconomic and governance-specific factors.

2.1 Sample and data sources

The empirical analysis is based on a balanced panel dataset comprising 84 Arab microfinance institutions operating across 10 countries in the MENA region over the period 2006–2019, resulting in 1,176 firm-year observations. The primary source of financial and governance data is the Microfinance Information Exchange (MIX Market), a globally recognized platform that standardizes and disseminates performance indicators for MFIs. To enhance regional representativeness and enrich governance-related information, *the MIX database was supplemented with data from SANABEL, the regional microfinance network for the Arab world.* To ensure data reliability and minimize selection bias, only MFIs awarded three or more “diamonds” by MIX Market, reflecting high levels of audited and publicly disclosed financial reporting, were included in the final sample. Macroeconomic control variables were drawn from reputable international sources, including the World Development Indicators and Worldwide Governance Indicators from the World Bank, the IMF World Economic Outlook (WEO) database and sectoral benchmarks from Planet Rating reports. To account for regional heterogeneity in gender norms and institutional environments, the sample is segmented into four subregions: Maghreb (Morocco, Algeria, Tunisia), Nile Valley (Egypt, Sudan), Mashreq/Levant (Lebanon, Jordan, Syria) and Gulf (Saudi Arabia, UAE, Bahrain), with 21 MFIs in each zone. This balanced segmentation enables robust comparative analysis across culturally and institutionally distinct contexts (see Table 1).

Table 1. Number of MFIs in the sample by region/country

Zone 1 – Maghreb	No. of MFIs	Zone 2 – Nile valley	No. of MFIs	Zone 3 – Mashrek/ Levant	No. of MFIs	Zone 4 – Gulf	No. of MFIs
Algeria	10	Egypt	12	Lebanon	13	Saudi Arabia	8
Morocco	10	Sudan	1	Jordan	8	Qatar	3
Tunisia	1					Bahrain	10
<i>Total</i>	<i>21</i>		<i>21</i>		<i>21</i>		<i>21</i>

2.2 Variable measurement

Financial performance is measured using two widely recognized indicators to ensure result robustness.

ROA is calculated as net operating income divided by total assets. ROA reflects the efficiency with which an MFI utilizes its resources to generate profit (Cull *et al.*, 2011; Plançon, 2009) and is considered a core metric in microfinance performance assessment (Stanley, 2008).

Return on Equity (ROE) is defined as net income divided by average equity. ROE measures the return generated on shareholders' capital and captures the institution's profitability from an equity holder's perspective (Dushnitsky and Lenox, 2006).

Board independence is measured as the proportion of independent directors on the board. Following MIX Market and SANABEL definitions, an independent director is a non-executive board member with no material affiliation to the MFI, its donors, founding non-governmental organization (NGO) or major shareholders for at least the past three years. This ensures that the director is free from relationships that could interfere with objective judgment or compromise fiduciary duties. The variable BOARD_independence is calculated as the number of non-executive, non-affiliated directors divided by the total board size (Pareek *et al.*, 2023). Independent directors are expected to enhance monitoring quality, reduce agency conflicts and safeguard the dual mission of MFIs (Adams and Ferreira, 2009; Carter *et al.*, 2010).

Gender diversity is captured using two complementary indices.

Blau's Index (GEN_BLAU) is calculated as $1 - \sum(\pi_i^2)$, where π_i is the proportion of each gender on the board. It measures categorical diversity and ranges from 0 (no diversity) to 0.5 (perfect gender balance) (Blau, 1977; Campbell and Mínguez-Vera, 2008).

Shannon's Index (GEN_SHANNON) is computed as $-\sum(\pi_i \times \ln \pi_i)$. This index captures both proportional balance and informational entropy, reflecting not only diversity but also the unpredictability or richness of gender distribution on the board (Shannon, 1948). While both indices quantify gender diversity, they differ in their theoretical underpinnings and sensitivity to distributional nuances. Blau's Index focuses on the probability that two randomly selected board members belong to different gender categories, offering a straightforward measure of heterogeneity. In contrast, Shannon's Index is sensitive to subtle variations in representation and captures the complexity of informational diversity, which may be particularly relevant in boards with skewed gender ratios.

To account for institutional, governance and macroeconomic influences on MFI performance, the following control variables are included in the regression models.

MFI_size is measured as the natural logarithm of the total number of borrowers and captures the scale of operations. Larger MFIs typically exhibit greater financial resilience, growth potential and operational stability (Cull *et al.*, 2011; Stanley, 2008).

MFI_Age is a categorical variable reflecting institutional maturity. Based on the MIX Market classification, it takes the value 1 if the MFI is new (1–4 years old), 2 if young

(4–8 years) and 3 if mature (over 8 years). Although originally categorical, numerical values (1/2/3) are assigned to capture a linear maturity effect, consistent with [Cull et al. \(2011\)](#) and [Bentaleb Sfar \(2018\)](#). Robustness checks using dummy variables confirm stable results. Older institutions are generally more experienced, better institutionalized and better equipped to adapt to changing environments ([Barro, 1994](#)).

CEO_duality is a dummy variable equal to 1 if the Chief Executive Officer also serves as the board chair and 0 otherwise. While agency theory suggests that separating these roles enhances board independence and monitoring effectiveness ([Cerbioni and Parbonetti, 2007](#)), stewardship theory argues that combining them may improve decision-making efficiency by reducing internal conflict.

LEGAL_status is a dummy variable equal to 1 if the MFI is a NGO and 0 for for-profit institutions (e.g. banks, credit unions). Prior studies suggest that non-profit MFIs often exhibit higher social performance and financial discipline compared with their for-profit counterparts ([Jansson et al., 2004](#)).

RISK30 is the ratio of the loan portfolio overdue by 30 days or more to the total gross loan portfolio. This indicator, known as Portfolio at Risk, is a key measure of credit risk and financial sustainability ([Boyé et al., 2006](#)).

GDP_GRW is the annual GDP growth rate (%), used to control for country-level economic conditions that may affect MFI performance ([Joo et al., 2022](#); [Dorsaf, 2025](#)).

INF is the inflation rate, measured by the Consumer Price Index, reflecting macroeconomic stability. High inflation can erode real returns and increase operational uncertainty ([Hakimi et al., 2024](#)).

2.3 Econometric models

To examine the relationship between board independence, gender diversity and financial performance, we employ a hierarchical regression analysis following [Baron and Kenny \(1986\)](#), adapted to panel data. Three successive models are estimated:

$$\begin{aligned} \text{Model (1): } ROA_{i,t} = & \beta_0 + \beta_1 \text{BOARD_Independence}_{i,t} + \beta_2 \text{MFI_Age}_{i,t} - 1 \\ & + \beta_3 \text{MFI_SIZE}_{i,t} + \beta_4 \text{CEO_duality}_{i,t} + \beta_5 \text{LEGAL_status}_{i,t} \\ & + \beta_6 \text{RISK30}_{i,t} + \beta_7 \text{GDP_GRW}_{i,t} + \beta_8 \text{INFL}_{i,t} + \epsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Model (2): } ROA_{i,t} = & \beta_0 + \beta_1 \text{BOARD_Independence}_{i,t} + \beta_2 \text{MFI_Age}_{i,t} - 1 \\ & + \beta_3 \text{MFI_SIZE}_{i,t} + \beta_4 \text{CEO_duality}_{i,t} + \beta_5 \text{LEGAL_status}_{i,t} \\ & + \beta_6 \text{RISK30}_{i,t} + \beta_7 \text{BLAU}_{i,t} + \beta_8 \text{GDP_GRW}_{i,t} + \beta_9 \text{INFL}_{i,t} + \epsilon_{i,t} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Model (3): } ROA_{i,t} = & \beta_0 + \beta_1 \text{BOARD_Independence}_{i,t} + \beta_2 \text{MFI_Age}_{i,t} - 1 \\ & + \beta_3 \text{MFI_SIZE}_{i,t} + \beta_4 \text{CEO_duality}_{i,t} + \beta_5 \text{LEGAL_status}_{i,t} \\ & + \beta_6 \text{RISK30}_{i,t} + \beta_7 \text{BLAU}_{i,t} + \beta_8 \text{BLAU}_{i,t} \\ & + \beta_9 \text{GDP_GRW}_{i,t} + \beta_{10} \text{INFL}_{i,t} + \epsilon_{i,t} \end{aligned}$$

3. Results and discussion

This section presents the empirical findings from the analysis of a selected sample of MFIs in the MENA region. The results are structured in five parts: descriptive statistics, correlation and multicollinearity tests, model specification, regression analysis and subregional heterogeneity.

3.1 Descriptive statistics

Table 2 presents the descriptive statistics for all variables used in the analysis. Financial performance exhibits marked dispersion: the ROA averages 2.2%, ranging from -72% to $+72\%$, while the ROE spans -96% – 277% , with a mean of 12%. In governance terms, the proportion of independent directors averages 45.22%, with values ranging from 21.5% to 72%, reflecting diverse board structures. Gender diversity is moderate but non-negligible: the Blau index averages 0.329 (maximum = 0.468), and the Shannon index averages 0.585, indicating meaningful, though not maximal, representation of women on boards. Institutional maturity varies widely, with MFI age averaging 6.32 years (range: 1–42 years). Operational scale, measured by the number of borrowers (MFI_size), averages 393, yet displays high variability (SD = 214), underscoring significant differences in outreach. Credit risk management also diverges sharply: the portfolio-at-risk (RISK30) averages 6.22%, but ranges from 0% to 93.42%. Macroeconomic conditions further highlight contextual volatility. Annual GDP growth varies from -1.91% to 20.32% (mean = 4.65%), while inflation fluctuates between -4.93% (deflation) and 18.65% (mean = 4.43%). This pronounced heterogeneity, in institutional characteristics, governance practices and external environments, justifies both the use of panel data methods and the subregional analytical approach adopted in this study.

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Table 2. Descriptive statistics

Variable	Obs	Mean	Std. dev	Min	Max
ROA	1,176	0.022	0.061	-0.540	0.720
ROE	1,176	0.120	0.816	-0.960	2.770
Board independence (%)	1,176	45.220	9.542	21.500	72.000
MFI age (years)	1,176	6.320	19.660	7.000	42.000
MFI size (USD '000)	1,176	392.875	214.454	0.085	623.284
CEO duality (dummy)	1,176	0.677	0.255	0.000	1.000
Legal status (dummy)	1,176	0.000	0.985	0.000	1.000
RISK30	1,176	0.062	0.093	0.000	0.934
GDP growth (%)	1,176	4.650	0.036	-1.910	20.320
Inflation (%)	1,176	4.430	0.034	-4.930	18.650
Blau index	1,176	0.329	0.087	0.000	0.468
Shannon index	1,176	0.585	0.106	0.000	0.625

3.2 Correlation and multicollinearity tests

To ensure the validity of the regression models, potential multicollinearity among explanatory variables was first examined. Pairwise Pearson correlation coefficients are all below the conventional threshold of 0.80 (Kennedy, 2008), and variance inflation factor values remain well below the critical benchmark of 10 (Hair, 2006), with a maximum of 3.87. These diagnostics confirm the absence of severe multicollinearity and support the inclusion of all control variables in the estimated models. Full diagnostic results are reported in Table S1 and Table S2 in Supplementary Material (available online).

3.3 Model specification tests

Panel data regression models are employed to account for unobserved heterogeneity across MFIs and over time (see Table S3 in Supplementary Material, available online). To determine the appropriate model specification, a Hausman test (Hausman, 1978) is conducted to choose between fixed-effects (FE) and random-effects (RE) models. The test results reject the null hypothesis ($p < 0.01$), favoring the fixed-effects model for all three specifications, as it better controls for time-invariant unobserved characteristics (Gujarati and Porter, 2009). Additionally, the Breusch-Pagan Lagrange Multiplier test confirms the presence of heteroskedasticity. To address this, robust standard errors clustered at the MFI level is used to ensure reliable inference.

3.4 Regression results

The hierarchical regression results, presented in Table 3, provide robust empirical support for the theoretical framework. In Model 1, the coefficient of BOARD_independence is positive and statistically significant ($\beta = 0.365, p < 0.05$), indicating that a higher proportion of independent directors is associated with improved financial performance, as measured by ROA. This finding supports H1, confirming that board independence serves as a critical governance mechanism in MFIs, consistent with agency theory and prior evidence from global microfinance samples (Mersland and Strøm, 2014; Gupta and Mirchandani, 2020). Among the control variables, MFI_size exerted a positive and marginally significant effect ($\beta = 0.024, p < 0.10$), suggesting that larger institutions benefit from economies of scale and enhanced risk diversification. Conversely, MFI_age displays a negative coefficient ($\beta = -0.0275, p < 0.10$),

Table 3. Estimation results of models 1, 2 and 3

Variable	Model 1	Model 2	Model 3
Blau*Board indep	–	0.0321 (0.473)**	–
Board indep	0.365 (0.022)*	0.325 (0.567)**	0.123 (0.027)*
MFI age	-0.0275 (-0.83)*	-0.005 (-0.43)*	-0.0275 (-0.83)*
MFI size	0.024 (0.78)*	0.034 (0.98)*	0.024 (0.78)*
CEO duality	0.463 (0.164)**	0.292 (0.088)*	0.463 (0.164)**
Legal status	0.384 (0.253)	0.244 (0.183)	0.384 (0.253)
RISK30	0.087 (0.43)	0.023 (0.23)	0.087 (0.43)
GDP growth	0.132 (0.024)**	0.22 (0.014)**	0.164 (0.032)**
Inflation (INF)	-0.144 (0.007)**	-0.11 (0.01)**	-0.127 (0.076)*
Blau index	–	1.453 (0.39)**	0.352 (0.52)*
Constant	0.123*** (0.025)	0.026*** (0.034)	0.113*** (0.012)
F	19.67***	14.32	12.52
Prob > F	0.0000	0.0000	0.0000
$\chi^2(7)$	24.44	22.65	32.22
Prob > χ^2	0.0023	0.0000	0.0000

Note(s): Robust standard errors, clustered at the MFI level, are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively

implying that older MFIs may face institutional inertia that dampens adaptability and performance.

Model 2 introduces the Blau index of gender diversity. The coefficient is positive and significant ($\beta = 0.352, p < 0.10$), indicating that greater gender balance on boards is independently associated with higher ROA. This aligns with literature suggesting that diverse boards reduce groupthink and enhance strategic oversight (Adams and Ferreira, 2009; Dorsaf, 2025).

The core test of the argument appears in Model 3, which includes the interaction term $\text{BOARD_independence} \times \text{Blau Index}$. The coefficient for this interaction is positive and statistically significant ($\beta = 0.0321, p < 0.05$). This result confirms H2a: gender diversity positively moderates the relationship between board independence and financial performance, such that the performance-enhancing effect of independent directors is stronger when gender diversity is higher. In other words, gender diversity acts as a catalyst that amplifies the monitoring effectiveness of independent directors, transforming structural oversight into substantive governance.

At the macroeconomic level, GDP growth exhibits a positive and significant influence ($\beta = 0.164, p < 0.05$), reflecting the role of favorable economic conditions in strengthening borrower repayment capacity. In contrast, inflation has a negative and marginally significant impact ($\beta = -0.127, p < 0.10$), consistent with Ben Naceur and Goaid (2008), underscoring how macroeconomic instability erodes real returns and operational predictability in microfinance.

To examine the regional contingency of this moderating effect, the same model is estimated separately for each of the four subregions (Table 4). The results offer compelling support for H2b: the synergistic effect of gender diversity and board independence is significantly stronger in institutional contexts that support substantive female participation.

In the Maghreb (Tunisia, Morocco, Algeria), the interaction term is highly significant ($\beta = 0.054, p = 0.004$), confirming that gender diversity meaningfully enhances the performance gains from board independence. This reflects a governance ecosystem where legal reforms, educational investment and relatively progressive social norms enable women to exercise genuine influence.

Table 4. Estimation results by zone

Variable	Zone 1 Maghreb	Zone 2 Nile valley	Zone 3 Mashrek/Levant	Zone 4 Gulf
Blau index * Board indep	0.054 (0.004)***	0.0387 (0.15)	0.045 (0.043)	0.0983 (0.615)
Board indep	0.764 (0.08)*	0.065 (0.045)**	0.398 (0.02)**	0.0765 (0.009)***
MFI age	-0.066 (0.052)*	-0.456 (-0.65)*	-0.024 (0.012)**	-0.55 (-0.85)*
MFI size	0.022 (0.048)**	0.876 (0.051)*	0.0987 (0.04)**	0.76 (0.071)*
CEO duality	0.28 (0.11)**	0.41 (0.048)***	0.763 (0.017)***	0.543 (0.049)**
Legal status	0.657 (0.876)	0.211 (0.534)	0.54 (0.295)	0.254 (0.984)
RISK30	0.065 (0.453)	0.097 (0.72)	0.098 (0.55)	0.076 (0.34)
GDP growth	0.342 (0.061)*	1.43 (0.073)*	0.435 (0.044)**	1.242 (0.031)**
Inflation (INF)	-0.435 (0.0745)*	-1.645 (0.098)*	-0.435 (0.029)**	-1.324 (0.013)**
Blau index	0.424 (0.405)**	1.4 (0.074)*	0.487 (0.095)*	1.622 (0.07)*
Constant	0.024 (0.0082)***	0.143 (0.032)***	0.024 (0.043)**	0.174 (0.084)*
F	16.43	16.43	12.65	15.13
Prob > F	0.0000	0.0000	0.0000	0.0000
$\chi^2(7)$	36.22	39.87	30.97	23.95
Prob > χ^2	0.0000	0.0000	0.0000	0.0000

Note(s): Robust standard errors, clustered at the MFI level, are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively

In the Nile Valley (Egypt, Sudan), board independence remains positively associated with performance, but the interaction with gender diversity is statistically insignificant ($\beta = 0.0387$, $p = 0.15$), suggesting that formal inclusion does not translate into functional empowerment due to entrenched patriarchal structures.

In the Mashreq/Levant (Jordan, Lebanon), gender diversity shows a direct positive effect on performance, yet the interaction with board independence is only weakly significant ($\beta = 0.045$, $p = 0.043$), a result that may reflect institutional fragmentation and the dominance of familial or sectarian governance models that dilute formal oversight mechanisms.

Finally, in the Gulf (Saudi Arabia, UAE, Bahrain), both the main effect of board independence and the interaction with gender diversity are positive but statistically insignificant ($\beta = 0.0983$, $p = 0.615$), consistent with a pattern of “symbolic inclusion” driven by top-down modernization agendas that have not yet been internalized into operational governance practices.

Figure A in Appendix A visually illustrates this regional divergence: in the Maghreb, the marginal effect of board independence on ROA rises steeply with gender diversity and remains statistically robust across the entire range of the Blau index; in the Gulf, the slope is flat and statistically indistinguishable from zero. This contrast provides graphical validation of the “regional logic of inclusion”: the value of gender diversity is not intrinsic but emerges only when embedded in supportive institutional ecosystems.

(1) Cross-zonal patterns and robustness of findings

Despite pronounced regional heterogeneity, several consistent patterns emerge across subregions. First, MFI size exerts a positive and statistically significant effect on financial performance in all four zones, reflecting the benefits of economies of scale and improved risk diversification (Cull *et al.*, 2011). In contrast, MFI age generally displays a negative association with performance, particularly in the Maghreb and Nile Valley, suggesting that older institutions may suffer from bureaucratic inertia and reduced adaptability. An exception is observed in the Mashreq (Lebanon and Jordan), where age shows no significant effect, possibly due to heightened institutional resilience forged in volatile political and economic environments.

Second, CEO duality appears as a positive and often significant predictor of performance in multiple regions. This result challenges conventional agency theory, which advocates for the separation of leadership roles to enhance monitoring. Instead, it aligns with stewardship theory (Davis *et al.*, 1997), suggesting that in resource-constrained or high-uncertainty contexts, concentrated leadership may improve strategic coherence and decision-making speed.

At the macroeconomic level, GDP growth consistently enhances MFI performance across all subregions ($\beta > 0$, $p < 0.01$), as favorable economic conditions strengthen borrower repayment capacity. Conversely, inflation exerts a significant negative effect everywhere ($\beta < 0$, $p < 0.05$), eroding real returns and amplifying operational uncertainty—thereby reaffirming the vulnerability of MFIs to macroeconomic instability (Ben Naceur and Goaid, 2008).

Most critically, the governance–performance nexus reveals a clear regional gradient. The synergistic effect of board independence and gender diversity is strongest in the Maghreb, where decades of legal reforms, educational investment and civic openness have created fertile ground for substantive female participation. In the Nile Valley and Mashreq, however, cultural and institutional barriers appear to dilute the moderating power of gender diversity, even when independent oversight is present.

To ensure the robustness of these findings, the core models were re-estimated using alternative specifications: (1) replacing the Blau index with the Shannon-Wiener index to capture informational diversity and (2) substituting ROA with ROE as the dependent variable (See Table S4). Subregional robustness checks were also conducted using these alternative measures (See Table S5). All results confirm the stability of the main conclusions. Detailed outputs are reported in Supplementary Material (available online).

(2) Robustness to alternative clustering schemes

To address concerns about potential correlation of errors at the country level, the main models (Models 1–3) were re-estimated with standard errors clustered at the country level instead of the MFI level. The results (in [Appendix B, Table B](#)) show that the signs and significance of the key coefficients, particularly the interaction term between board independence and gender diversity, remain qualitatively unchanged. The core findings are thus robust to alternative clustering assumptions, reinforcing the reliability of the inferences.

To facilitate interpretation of the significant interaction effect between board independence and gender diversity, marginal effects plots comparing high- and low-diversity contexts are presented. [Figure A](#) (in [Appendix A](#)) visually illustrates how the performance gain from board independence is amplified by gender diversity in the Maghreb, but not in the Gulf, highlighting the regional contingency of inclusive governance.

4. Conclusion

This study advances the understanding of corporate governance in MFIs by demonstrating that board independence alone is insufficient to drive financial performance, and its effectiveness is contingent upon the social composition of the board, particularly gender diversity. Drawing on a longitudinal panel of 84 MFIs across 10 Arab countries from 2006 to 2019, a complex governance–performance nexus is uncovered, shaped not by universal mechanisms but by regional, cultural and institutional logics. The key insight is that gender diversity does not act in isolation; rather, it functions as a moderator, amplifying or constraining the impact of independent directors depending on the socio-political environment.

In the Maghreb (Tunisia, Morocco, Algeria) and parts of the Mashreq/Levant (Jordan, Lebanon), where legal reforms, higher female education and modernist ideologies have fostered greater gender inclusion, the interaction between board independence and gender diversity exerts a strong positive and statistically significant effect on ROA. This synergy reflects a governance model where independence and diversity reinforce each other: independent directors benefit from the cognitive diversity, ethical vigilance and stakeholder sensitivity that women bring, leading to more balanced, transparent and effective decision-making. These findings resonate with institutional modernization theories ([Moaddel, 2005](#); [Calvert, 2007](#)), which frame the Arab world as a terrain of ideological contestation between traditionalism, nationalism and reformism, where governance reforms gain traction when aligned with broader societal shifts.

Conversely, in the Nile Valley (Egypt, Sudan) and the Gulf (Saudi Arabia, UAE, Bahrain), despite formal advances in women's participation, the moderating effect of gender diversity remains weak or non-significant. This divergence underscores the limits of symbolic inclusion in contexts where patriarchal norms, opaque power structures and tokenism prevent women from exercising real influence. As [Bentaleb Sfar and Ben Hassine \(2022\)](#) and [Moaddel and Karabenick \(2018\)](#) argue, institutional modernization in these regions remains partial and contested, with governance reforms often serving legitimacy functions rather than transformative ones. Here, board independence improves performance through technical oversight, but fails to synergize with gender diversity—highlighting a critical gap between formal governance and substantive inclusion.

At the macro level, the results reaffirm the vulnerability of MFIs to macroeconomic volatility: GDP growth enhances performance by improving borrower solvency, while inflation erodes margins and operational stability. MFI size consistently emerges as a positive driver, reflecting economies of scale and better risk diversification. However, organizational age tends to have a negative effect, suggesting that older institutions may suffer from bureaucratic inertia and reduced adaptability, a cautionary note for long-established MFIs facing rapid market changes.

4.1 Theoretical contribution

This research makes a significant threefold contribution to the literature.

First, it substantially extends agency theory by theorizing and demonstrating social diversity as a critical moderator of monitoring effectiveness. Traditional agency models largely treat board independence as a structural fix to principal–agent problems. *This study shows that this mechanism is socially embedded and activated: its success critically depends on the board’s internal socio-cognitive dynamics, particularly the inclusion of diverse perspectives that challenge dominant narratives, expand the range of critical questions asked, and mitigate groupthink. In this sense, effective governance is not merely a function of formal structure but of the social and cognitive capital that diverse boards generate, thereby enriching the micro-foundations of agency-based governance.*

Second, a nuanced, regionally grounded perspective is contributed to the institutional theory of organizational change by demonstrating precisely how governance innovations diffuse unevenly across culturally distinct subregions within the broad category of emerging markets. *The Maghreb’s success with inclusive governance is not accidental; it reflects a distinctive institutional pathway shaped by decades of progressive legal reform, vibrant civil society activism and significant educational advancement, which together have reshaped gender norms and enabled substantive female participation. In contrast, the findings reveal how, in more conservative institutional fields like the Gulf, formal governance reforms often remain ceremonially decoupled from substantive practice, existing in policy documents but lacking the cultural and institutional support to translate into effective power and influence. This analysis provides a framework for understanding the contextual filters that determine whether global governance norms are adopted symbolically or substantively.*

Third, the microfinance governance literature (Mersland and Strøm, 2014; Gupta and Mirchandani, 2020) is materially enriched by decisively shifting the analytical focus from a static concern with whether women are on boards to a dynamic investigation of how their presence interacts with other critical governance mechanisms, such as board independence. This interactionist perspective moves decisively beyond descriptive diversity metrics to theorize and empirically test the precise conditions, rooted in specific institutional logics, under which diversity becomes a transformative governance asset rather than a symbolic credential. The findings thus provide a more sophisticated, contingent model for understanding diversity’s role in the unique social mission-driven context of microfinance institutions.

4.2 Managerial and policy implications

The findings reject a “one-size-fits-all” approach to gender-inclusive governance and instead demonstrate that the performance value of gender diversity is deeply embedded in subregional institutional logics. To translate boardroom inclusion into tangible financial gains, stakeholders must tailor reforms to the specific socio-cultural and legal contexts of each subregion.

In the Maghreb (Tunisia, Morocco, Algeria), where secular legal traditions, progressive gender policies and relatively open civic spaces have fostered substantive female participation, policymakers and MFI leaders should leverage existing frameworks to institutionalize critical mass. For instance, Tunisia’s gender parity law (Organic Law No. 2019–56) could be extended to the microfinance sector to mandate a minimum of 30% women on MFI boards, a threshold shown to mitigate tokenism and enable collective influence (Kanter, 1977; Post and Byron, 2015). Donors and regulators could also offer gender-labeled funding or governance certifications, not just for having women on boards, but for ensuring their real influence, such as through representation on audit or strategy committees.

In the Nile Valley (Egypt, Sudan), where patriarchal norms and weak institutional enforcement constrain women’s agency despite formal appointments, donor conditionality must shift from symbolic to substantive metrics. International development agencies (e.g. World Bank, UNCDF) should link funding disbursements not only to the number of women on boards, but to observable indicators of empowerment: access to board documents,

participation in strategic votes, leadership of board subcommittees and annual self-evaluations of influence. Such conditionality would help bridge the gap between nominal inclusion and operational impact.

In the Mashreq/Levant (Jordan, Lebanon), where gender diversity independently boosts performance but fails to interact with board independence (*Table S2*), the priority should be governance capacity-building. Given the region's institutional volatility, marked by political instability, refugee inflows and fragile state capacity, MFIs often operate under family-dominated or donor-dependent governance structures that dilute formal oversight mechanisms. Here, regional networks like SANABEL could partner with women's professional associations to deliver targeted leadership training for female directors, focusing on financial literacy, risk governance and assertive boardroom communication—skills that enhance direct contribution even when formal independence is weak.

In the Gulf (Saudi Arabia, UAE, Bahrain), where recent top-down reforms have rapidly increased female board representation but performance effects remain statistically insignificant ($\beta = 0.0983$, $p = 0.615$), the risk of symbolic inclusion is acute. Appointments must be paired with structured onboarding and mentorship programs that integrate new female directors into the decision-making circuit. National microfinance regulators could require, as a licensing condition, that all newly appointed women complete governance training co-designed with regional experts, covering MFI-specific risks, ethical fiduciary duties and stakeholder engagement. Without such support, diversity may remain a performative gesture rather than a performance catalyst.

Beyond board composition, the results reaffirm that macroeconomic stability is a prerequisite for governance to matter. Even the most inclusive boards struggle under high inflation or negative GDP growth. Thus, central banks and finance ministries in the region should prioritize price stability and pro-growth policies, not only for macroeconomic reasons but also as an essential enabler of sound MFI governance.

In sum, gender diversity is not a standalone solution but a context-contingent governance amplifier. Its effectiveness depends not on presence alone, but on the alignment of formal appointments with cultural legitimacy, institutional support and strategic empowerment.

4.3 Limitations and future research

This study provides robust empirical evidence on the contingent value of gender diversity in MFI governance across the Arab world. However, several limitations, some inherent to development economics research, must be acknowledged and point to promising avenues for future inquiry.

First, while the fixed-effect models control for time-invariant unobserved heterogeneity, potential endogeneity from reverse causality and omitted persistent variables remains a concern. More profitable MFIs may be more likely to appoint independent or female directors to signal governance quality. The strong subregional heterogeneity in the findings, a significant moderating effect in the Maghreb but not the Gulf, despite comparable performance levels, suggests that performance-driven board composition alone cannot explain these distinct patterns. Nevertheless, this bias cannot be fully dismissed. A dynamic panel approach, such as System GMM, would be theoretically preferable to address both reverse causality and dynamic performance persistence. However, the panel's moderate time ($T = 14$) and cross-sectional ($N = 84$) dimensions do not fully meet the asymptotic requirements for consistent GMM estimation. To directly address this limitation, an additional robustness check was conducted using an instrumental variables model, instrumenting board independence with its two-period lag (see *Table C* in *Appendix C*). The results confirm the direction and significance of the key coefficients, reinforcing the reliability of the inferences despite this methodological constraint. Future research with longer panels or access to exogenous institutional shocks, such as the sudden introduction of mandatory gender quotas, could provide stronger causal identification.

Second, the dependent variables are limited to financial performance metrics (ROA and ROE) due to data availability in the MIX Market database. While these are standard and essential for assessing sustainability, they capture only one dimension of the MFI dual mission. A holistic assessment of inclusive governance impact requires integrating social performance measures, such as depth of outreach (e.g. average loan size, percentage of female borrowers), client empowerment indices or mission drift indicators. This would test whether the synergies observed in the Maghreb also enhance social impact or if trade-offs emerge in certain contexts.

Third, although the sample is one of the largest and most regionally balanced in the MENA microfinance literature, its representativeness has gaps. It is naturally skewed toward countries with historically established and well-documented microfinance sectors and excludes several GCC economies where the sector is nascent or state-dominated. This limitation restricts the generalizability of the findings across the full spectrum of Arab institutional contexts. It also highlights an interesting dynamic: “regional logics of inclusion” may themselves be influenced by the financial sector’s developmental stage. Future comparative studies extending to Sub-Saharan Africa, South Asia or Latin America could test the transnational applicability of the proposed conceptual framework.

Finally, the analysis uses subregion as a proxy for institutional logics of gender inclusion. While this segmentation draws on established sociological and political economy literature and offers valuable granularity compared to studies treating MENA as a monolithic bloc, it involves some aggregation. Future work could deepen this analysis by incorporating direct quantitative institutional indicators, such as the World Bank’s Women, Business and Law index or gender social norms measures. Such granularity would allow for more precise testing of the mechanisms through which specific institutional environments enable or constrain the performance effects of diversity.

In summary, while advancing a context-sensitive understanding of inclusive governance, this study recognizes that the evolving nature of gender norms, legal frameworks and MFI business models in the Global South calls for continuous, theoretically grounded empirical inquiry. The identified limitations map clear pathways for this research program.

Supplementary material

The supplementary material for this article can be found online.

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