

# Ownership structure, Performance, and Risk in Microfinance Institutions

**Abstract** In recent years a considerable amount of funding from different types of investors has been channeled towards microfinance institutions (MFIs). This trend is part of a global effort towards socially responsible investments considered as instruments to combat poverty. In this study we aim to understand whether the identity of MFI shareholders affects their ability to reach social goals by ensuring at the same time an adequate financial return. Owners can have different risk-return preferences which might be in conflict with the mission of these institutions. Leveraging a unique hand-collected dataset of almost 500 MFIs with detailed information on the equity stakes of different shareholders types (banks, social investors, government entities, institutional and other private investors), we present novel findings showing that the ownership structure is an important driver of MFI performance and risk taking behavior. Contrary to previous studies, we find that government ownership is positively associated with MFI performance, whereas bank ownership displays an opposite pattern. Moreover, we provide novel evidence of non-linear relationships between the equity stakes of different types of investors, and MFI performance and risk. Our study provides evidence that the success of an MFI may depend, among other factors, on the different goals of its owners and their special focus on the social rather than financial performance of the institution.

**Keywords** Corporate Governance; Microfinance; Ownership Structure; Financial Performance; Social Performance.

**JEL Classification:** G21, G32

## Introduction

Microfinance institutions (MFIs) focus on the provision of small loans and other financial services to entrepreneurs that lack access to formal financial resources due to the absence of adequate collateral. In the last decades, this sector has received considerable attention from researchers and policy makers. Microfinance is considered to be ethically progressive given its objective to eradicate poverty around the globe (Hudon and Sandberg 2013; Postelnicu and Hermes 2016), and

it is part of a broad set of corporate social responsibility (CSR) tools employed in the financial sector to balance economic and social imperatives (Clacher and Hagendorff 2012).

An important strand of the microfinance literature has addressed the role of governance mechanisms for the performance of MFIs (Mersland and Strøm 2008, 2009, Hartarska and Mersland 2012; Bibi et al. 2018). This literature suggests that the extent to which MFIs are able to achieve their social and economic goals is affected by governance characteristics in particular stakeholder participation in the board as well as gender, age, education, previous experience of the board members (Vento and La Torre 2006). Other important factors comprise participation of MFI international capital providers in MFI board and whether the MFI is structured as a shareholder-based entity or non-profit organization (Tchakoute Tchuigoua 2015).

However, the MFI literature has overlooked an important research question: How do different types of owners affect MFIs' financial and social performance? This is the question we intend to address in this paper.

The importance of funding from institutional investors such as commercial banks, or mutual funds, which are commonly referred to as microfinance investment vehicles (or MIVs) has increased over the last decades (Mersland et al. 2011). However, other sources of capital are also available to the MFI, primarily development agencies (DFIs), Non-Governmental Organizations (NGOs), governmental entities, and private individuals such as MFI executives, employees or founders (Churchill 1998; Servin et al. 2012).

Even when all owners have a profit maximization objective, they may have different views on corporate strategy, because of different risk-return preferences (Thomsen and Pedersen 2000; Hoskinsson et al. 2002). In the microfinance industry this dilemma is exacerbated by the dual goal of MFIs: while a satisfactory economic performance is necessary, MFIs also strive to impose

positive externalities on society (social outreach). Typically, a positive return on investment is the primary goal for MFIs private investors, although social goals are also important. On the other hand, multilateral donors, NGOs or public entities usually focus on the social agenda of the MFI: serving poor entrepreneurs which otherwise would lack access to traditional banking services (Isern and Cook 2004).

The theoretical approach we adopt in this paper is based on agency theory in a context of multiple large shareholders (MLS). According to Arthurs and Johnson (2008), agency problems may arise from the interaction of the agent with multiple principals. Under this framework, different types of owners often present conflicting preferences with regards to firm objectives. When owners disagree with firm strategies they have two choices: exit or voice (Hoskinsson et al. 2002). In the case of MFIs, the first alternative is not easily viable since the market for corporate control is inexistent, therefore they have a strong incentive to exercise voice through activism in decisions making processes and shareholder meetings.

The existing literature on MLS does not lead to conclusive results. Some authors have found that the MLS presence leads to higher firm value, since large shareholders improve the monitoring process on the controlling owners and reduce the risk of expropriation of minority shareholders (Volpin 2002; Laeven and Levine 2008; Attig et al. 2009). However, conflicting objectives among new large shareholders and incumbents could also be detrimental for firm value, if the costs of these conflicts exceed the benefits of additional monitoring (Woidtke 2001). As an example, Hoskinsson et al. (2002) indicate that mutual funds compared to pension funds have a shorter-term investment horizon and tend to prefer acquiring innovation rather than producing it in-house in investee companies.

In this paper, we provide three main contributions to the literature. First, we shed light on the link between MFI performance and owner identity, using unique data on the equity stakes of different types of owners. This is an important topic that has so far been largely neglected in the microfinance literature. For example, Mori and Mersland (2014) use a series of binary variables to identify which constituencies (donors, employees, customers and creditors) have appointed board members, and how this impacts MFI performance. Wamba et al. (2018) investigate, among other things, the impact of insider ownership on MFI performance in Cameroon. To improve identification of the ownership structure for MFIs, and to allow for possible non-linearities, we leverage a hand-collected dataset of the equity stake for different types of institutional and private owners in a cross-country context for almost 500 MFIs. A second major novelty of this paper is that we consider a variety of owner types previously not examined by the literature: social investors (NGOs or development financial institutions - DFIs), banks, mutual funds (MIVs), local or central government entities, and other private investors.

Third, we contribute to the literature on the nexus between ownership structure and performance in financial institutions. This strand of literature has mainly focused on developed markets, and has investigated the impact of single owner types at a time such as managers, family, government or institutions (Iannotta et al. 2007; Andres 2008; Barry et al. 2011).

Our findings indicate that there are important heterogeneities in the way different types of owner influence MFI performance and risk: equity stakes of governments and social investors tend to improve MFI social performance; on the other hand, equity stakes of private investors correlate positively with MFI financial performance. We show also that state-owned MFIs do not perform financially worse than privately-owned ones, and that bank-owned institutions exhibit lower profitability than those where the major owner is a mutual fund.

Equity stakes of different types of shareholders also play a role in shaping the risk preferences of MFIs. Government-owned MFIs present higher default and credit risk than privately-owned MFIs. However, once we examine non-linearities, a more complex type of relationship is revealed. The relationship between government stakes and default/credit risk follows a U-shape pattern: it is negative for low levels of government ownership and positive for high levels of ownership. For private investors such as founders, families and managers, the non-linear relationship exhibits an opposite pattern (inverse U-shape): for low equity stakes the correlation is positive, and it becomes negative for high equity stakes. Previous studies have evidenced how the impact of ownership on financial performance or CSR activity often displays similar patterns (Dong et al. 2014; Oh et al. 2015).

Our results bear substantial implications for practitioners, policy makers and other stakeholders in the microfinance sector. Advocates of microfinance argue that MFIs can help to substantially reduce poverty through a broader access to finance. At the same time, MFIs are committed to guarantee a certain level of earnings and to be financially self-sustainable. The accomplishment of this dual mission depends on the strategies and policies of MFI's shareholders, because they might be conflicting with each other. The extent to which an MFI is able to attain its goals depends on its ability to balance the objectives of its stakeholders, as well as their social and the commercial dimension.

The article proceeds as follows. In the second section we discuss the current literature on the importance of ownership structure for MFI performance and develop research hypotheses. Section three describes the methodology and outlines the definition of dependent and explanatory variables. In Section four we illustrate the sample selection process and report some important

descriptive statistics. Section five discusses the main empirical results and Section six provides robustness tests. Finally, Section seven provides our conclusions and final remarks.

## **Theoretical background and research hypotheses**

The relationship between ownership structure and firm performance is rooted in agency theory, which claims that separation of control from ownership generates agency costs (Jensen and Meckling 1976). In his theory of the ownership of the enterprise, Hansmann (1996) further develops the concept of agency costs in relation to ownership. The firm is a nexus of contracts with a number of different stakeholders (employees, creditors, owners, and consumers) and there are transaction costs associated with dealing with any one of them. These transaction costs can be minimized if one of the stakeholders, or “patrons” (Thomsen and Pedersen, 2000) owns the firm: in this case, the transactions between the patron and the firm are “internalized”.

However, there is a trade-off between the reduction in transaction costs deriving from the internalizing process relations and two other types of costs: costs of ownership and costs of not internalizing relations with the other patrons (Thomsen and Pedersen, 2000). Costs of ownership comprise monitoring costs and costs involved in collective decision making, which may become burdensome in case of stakeholders with heterogeneous objectives and similar controlling shares. As an example, firms controlled by founders-managers avoid the transaction costs of hiring a professional manager, but would bear higher costs of financing compared to institutional investor ownership, because the firm cannot internalize the relations with both types of patrons simultaneously. A mixed solution is possible (more than one blockholder), but this could generate conflicts of interest between the two groups and it is unclear which one could prevail.

More recent theoretical developments have expanded the discussion of agency costs in a setting with multiple large shareholders. In this case different owners may engage in a more efficient monitoring of the controlling shareholder, by forming coalitions or by competing for firm control (Block and Hege 2001; Attig et al. 2008). Alternatively, blockholders might find it convenient to collude, extract rents and expropriate other shareholders (Kahn and Winton 1998). These divergent views indicate that the role of MLS in mitigating or exacerbating agency costs is still an open debate, because it depends on the identity and strategies of each shareholder. This article addresses this important research question from an empirical perspective.

### **Ownership identity and financial performance of MFIs**

There are different types of owners in the microfinance sector. Institutional investors such as banks or other financial institutions are likely to improve MFI profitability because their performance is measured in terms of shareholder value (Thomsen and Pedersen 2000; Barry et al. 2011). There is empirical evidence supporting the view that ownership stakes of banks have a positive effect on firm performance and profitability (Cable 1985; Hoshi et al. 1990b). A potential explanation for this result is that bank-owned firms might have privileged access to capital, information and other services offered by these institutions (Thomsen and Pedersen 2000). Moreover, these investors hold a large portfolio of assets and are being continuously evaluated based on financial results. Commercial banks are also heavily regulated by national (and in some case supranational) supervisors, which should encourage them to maintain an adequate level of profitability (Woidtke 2002).

Other private investors such as families, founders or wealthy individuals have strong economic incentives to monitor managers and decrease agency costs (among others: Demsetz and

Lehn 1985, Andres 2008). Private investors' objectives are the preservation of capital and return maximization (Churchill 1998). Moreover, founders or families invest in human capital which is very firm specific, by creating a long term commitment to the company. These long nature ties with the firm allow them to build a reputation that affects their relationships with employees, customers or external suppliers of capital (Andres 2008).

We focus on changes in equity stakes of non-MIV investors as compared to the equity stake held by MIVs), and use the stake of the latter as a benchmark (Barry et al. 2011). The presence of institutional investors as blockholders should improve financial performance since they hold well-diversified portfolios and would favor all investment decisions that generate value at the single MFI. At the same time they would be indifferent to the riskiness of a specific microbank and would be the least interested (compared to other investors) towards MFI social goals. Since institutional investors, banking institutions, and private investors aim to maximize profits, it is likely that an increase (or decrease) of the stake of banks and private investors relative to the stake of MIVs do not lead to changes in financial performance. For this reason, we offer the following two testable hypotheses:

*Hypothesis 1a. A shift in equity from MIVs to banks does not lead to a higher or lower level of MFI profitability.*

*Hypothesis 1b. A shift in equity from MIVs to other private investors does not lead to a higher or lower level of MFI profitability.*

We now develop testable hypotheses with respect to the association between government ownership and MFI financial performance. The literature on the impact of government ownership on firms' financial performance argues that political considerations and a lack of monitoring incentives play an important role. Political interference usually comes at the expense of corporate



profitability, because governments seek political goals more commonly than economic ones (Dong et al. 2014). Low performance can also be due to a lack of incentives for government officials to monitor banks' managers, leading to misallocation of resources (Shleifer and Vishny 1986; Iannotta et al. 2007). For these reasons, government equity stakes tend to be negatively associated with financial performance (Claessens et al. 2002). In particular, state-owned banks in developing countries have relative low performance because they often engage in development programs, such as providing credit at low rates to underserved sectors of the economy or to business lobbies that support the government (Beck et al. 2004; Berger et al. 2005). These findings suggest that state-owned banks might be seen as vehicles for raising funds to finance projects with high social benefits but also high risk and with a low economic return (Sarkar et al. 1998; Iannotta et al. 2007). As a result of these considerations, we develop the following hypothesis:

*Hypothesis 1c. A shift of equity from MIVs to government entities leads to a lower level of MFI profitability.*

Similar to governments, social investors may have a negative impact on MFI financial performance. Although recent studies have found that large social investors are likely to invest more in MFIs that are able to achieve a satisfactory financial performance (Ashta and Hudon 2009; Conning and Morduch 2011; Mersland et al. 2011), social investors are likely to prioritize social performance (Rock et al. 1998), leading to the following hypothesis:

*Hypothesis 1d. A shift of equity from MIVs to social investors is associated with a negative effect on MFI profitability.*

## **Ownership structure and risk-taking behavior of MFIs**

Agency theory indicates that owners with well-diversified portfolios are more likely to invest in risky projects because they can diversify idiosyncratic risk away (Jensen and Meckling 1976; Demsetz and Lehn 1985). For this reason, institutional investors are likely to increase the risk-taking behavior of MFIs (Saunders et al. 1990). Banks are similar to institutional investors but generally they pursue more conservative strategies in terms of credit risk, therefore we should expect that an increase of the ownership stake of banks at the expense of MIVs should produce a decrease in the risk-taking behavior of MFIs (Barry et al. 2011).

Other owners such as families, founders or executives invest in firm-specific human capital which creates long-term ties to the company. These shareholders invest a large share of their wealth in the firm, which makes them risk averse and more likely to be capital rationed (Fama and Jensen 1985). With regards to the banking industry, the evidence is mixed. Laeven (1999), investigating a panel of Asian banks, highlights that privately owned banks exhibit a higher risk tolerance than foreign banks. Barry et al. (2011) find that a higher stake owned by individuals, families or banking institutions is associated with a decrease in asset and default risk compared to banks where the largest owner is an institutional investor.

State-owned banks have been associated with high non-performing loans, and credit risk. The reason lies in the fact that often they are focused not-exclusively in profit maximizing goals such as engagement in development programs, or providing “cheap” credit to specific sectors. Another related issue is the lack of incentives from government officials to monitor bank management behavior leading to managerial discretion and misallocation of resources (Iannotta et al. 2013). However, the empirical evidence so far has not led to definitive results (Altunbas et al. 2001; Fungáčová and Solanko 2009).

Based on these considerations, we test the following hypotheses:

*Hypothesis 2a. A shift of equity from MIVs to banks is associated with a negative effect on MFI asset and credit risk.*

*Hypothesis 2b. A shift of equity from MIVs to government entities is associated with a positive effect on MFI asset and credit risk.*

*Hypothesis 2c. A shift of equity from MIVs to private investors is associated with a negative effect on MFI asset and credit risk.*

### **Ownership structure and social performance of MFIs**

The impact of shareholder type on MFI social performance has not yet been tested empirically but there are case studies that have attempted to shed light on this issue. The starting point of these contributions is the motivation for a single owner to invest in a MFI. As previously mentioned, an adequate return on the investment is the main scope of private investors, whereas social investors or donors have generally other objectives (Churchill 1998; Mersland and Strøm 2008; Conning and Morduch 2011), which are generally concerned with a social goal such as: outreach, female empowerment, or reduction of poverty (Hermes and Lensink 2011). The extant literature shows that not only do donors provide funding to the MFIs, but they also spread good practice through technical assistance for reaching specific social goals (Mersland et al. 2011).

It has been stressed in the previous sections that the effect of Government ownership on financial performance should be negative. This is due to the general view that government agencies pursue other social goals such as providing subsidized loans to specific sectors of the economy or favoring a more social use of credit. Moreover, the return on investment may not be very important as the assurance that this investor will gain something in terms of public image. Therefore, we expect that public entities should have a positive impact of MFIs social performance.

We formulate the following hypothesis about the impact of owner identity on MFIs' social performance:

*Hypothesis 3a. A shift of equity from MIVs to government entities or social investors is associated with a positive effect on MFI social performance.*

## **Model specification and variables**

### **Methodology**

In the present paper we aim to test whether there is an association between the equity stakes held by different types of largest owners, MFIs economic and social performance and their risk-taking behavior.

We use the following econometric specification to test Hp.1a -1d<sup>1</sup>

$$Profit_{.i} = f(Bank_{.i}, Social_{.i}, GOV_{.i}, Other_{.i}, Controls_{.i}) \quad (1)$$

Hp.2a-2c are tested by the following model:

$$Risk_{.i} = f(Bank_{.i}, Social_{.i}, GOV_{.i}, Other_{.i}, Controls_{.i}) \quad (2)$$

Finally, we test Hp. 3a using the following specification:

$$Soc.perf_{.i} = f(Bank_{.i}, Social_{.i}, GOV_{.i}, Other_{.i}, Controls_{.i},) \quad (3)$$

Profitability is proxied by Return on Assets (ROA) and Operational Self-sufficiency (Op\_self), and social performance by Average outstanding loan/Gross National Income per capita (Avg\_outs)<sup>2</sup>. ROA is preferred to ROE because it is not influenced by the capital structure of the MFI. Op\_self focuses on revenues and expenses from the MFIs core business (Bruett 2005). The use of Avg\_outs has often been criticized because the average loan size of the borrowers can increase due to an improvement of their financial situation and not necessarily because the MFI is not serving the poor (Armendariz and Szafarz 2010; Hermes and Lensink 2011). However, it

remains the most commonly used variable for measuring the social performance of the MFIs in the literature (Mersland et al. 2011; Cull et al. 2014).

The risk-taking behavior of the MFIs is measured by two variables, namely the Z-score and the write-off ratio (Write\_off) (Laeven and Levine 2009; Barry et al. 2011). Higher values of Z-score and lower values of Write\_off indicate lower probability of default and credit risk respectively. Z-score is commonly used in the banking literature to indicate the probability of failure of a given bank, whereas the write-off ratio is often adopted in the microfinance sector to measure the credit risk of a MFI (Barry et al. 2011).<sup>3</sup>

The ownership data in our sample is invariant through time, therefore we conduct cross-sectional analysis. Ownership structure in microfinance is rather sticky and rarely changes over time. There is a great number of studies in corporate finance that have attempted to investigate the link between firm performance and ownership structure (La Porta et al. 1999; Faccio and Lang 2002; Laeven and Levine 2009; Barry et al. 2011). In many of these contributions, the authors have frequently recognized that in large corporations there is a wedge between the cash flow rights of the largest owner and its voting rights. This occurs when shareholders control the firm through numerous intermediate levels which in the literature are known as pyramids (Caprio et al. 2007). This is not the case in the microfinance industry, the percentage of firms with a wedge different from zero is irrelevant.

Some authors have argued a potential endogeneity problem in studies where the relation between ownership, performance, and risk is examined (Classens et al. 2002; Gugler and Weigand 2003). However, our ownership variables do not change over the sample period, and previous literature has in this case ruled out the risk of endogeneity (Faccio and Lang 2002; Laeven and

Levine 2009; Chalermchatvichien et al. 2014). Therefore, we adopt the OLS specification for testing our hypotheses, consistent with previous literature (Barry et al. 2011).

### **Definition of explanatory variables**

The major shareholder (i.e. the owner detaining the largest stake of equity or donated capital) can be a bank, a social investor (Social), a MIV or Other which accounts for local private investors. Following Barry et al. (2011) we remove MIV from all models to use the stake held by institutional investors as a benchmark ownership share. By removing MIV from the explanatory variables, we consider whether a shift of the ownership from MIV to the other shareholders results in a change in the MFIs' performance and risk.

As previously mentioned, private investors such as banks, MIVs or families have mainly a profit maximizing objective even though they may differentiate their strategies given their aversion to risk. As a consequence, the coefficient for Bank and Private is undetermined. Conversely, we expect that when ownership changes hands from MIV to Social or GOV, the financial performance should deteriorate, therefore we expect the impact of Social and GOV on ROA and Op\_self to be negative. Among the various owners, only social investors have a clear outreach goal, therefore the sign of Social on Avg\_outs should be negative. However, based on abovementioned different theoretical views, when the owner is a government agency, there is a better focus on social performance compared to private owners, therefore, even the sign of GOV on Avg\_outs is expected to be negative.

We expect that a shift from MIVs to Other results in higher values of Z-score and lower values of Write\_off. With regards to banks as owners of MFIs, we argue that they are more risk-averse than MIVs due to regulatory policies and reputational costs in case of bankruptcy of one of

their affiliates. Therefore, when equity changes hands from MIVs to banks, there should be a decrease of the credit risk and default probability of the MFIs.

Conversely, the impact of GOV on the riskiness of the MFIs should be positive, given the aptitude of public banking institutions to engage in risky activities for social and political reasons (Iannotta et al. 2007; Dong et al. 2014).

We include in the regressions several control variables. We employ the natural log of the GLP (Ln\_GLP) to allow for the effect of MFI size and a categorical variable which aims to capture any differences in performance due to age (Age). Mature and larger financial institutions should behave differently from younger and smaller ones (Cull et al. 2014; Dietrich et al. 2014). Loan growth is included because fast growing MFIs could present different performance and risk than more “stable” institutions (Caprio et al. 2007). PAR30 proxies the credit risk of the portfolio, and is expected to correlate negatively with ROA and Op\_self (Mersland and Strøm 2009).<sup>4</sup> The MFIs’ legal status (NGO/COOP/NBFI/Bank) can play a role in MFI performance and risk-taking behavior. NGOs and COOPs should display weaker structures and are more focused on social performance than NBFIs and banks (Ledgerwood and White 2006; Mersland and Strøm 2008).

External governance mechanisms such as regulation can be relevant for MFIs. This is the reason why a dummy for regulated institutions is included among the explanatory variables. Banks are subject to more severe supervision by national regulators due to their access to deposits. This makes them more prone to respect stringent rules in terms of capital adequacy and performance compared to the other two categories (Hartarska and Nadolnyak 2007). Besides, a regulated MFI is more likely to earn customers’ trust and benefit from a low cost of funding than non-regulated institutions (Hardy et al. 2003). Financial leverage could affect both performance and MFI riskiness. Debt holders require lower return on investment than equity holders given their priority

in claims when liquidating the company and the tax deductibility of the cost of debt. Meanwhile, MFIs with higher debt tend to take more risks and thus could be more willing to lend to low income individuals in a certain country (Aebi et al. 2012). Last, we include a set of binary variables (Region) to capture different underlying conditions of the MFIs within a specific geographic area.

## **Data and sample selection**

We collect data on ownership structure from *MixMarket*, the most important source of financial and social data on the microfinance sector. *MixMarket* is a non-profit private organization that aims to promote information exchange in the microfinance industry. We focus on the largest 500 MFIs that report to *MixMarket* for the period 2000-2017. Missing data on financial and social performance in *MixMarket* were completed by consulting additional sources such as *Orbis Bank Focus* (*Bureau Van Dijk*). For each of these institutions we identify their major owners in *Orbis Bank Focus* when the MFI is a deposit-taking institution, or alternatively, by perusing their financial statements, official websites, or by asking them directly by email. Non-profit organizations do not have shareholders but there is evidence that donors become shareholders when NGOs are transformed into shareholder firms (Vanroose and D’Espallier 2013). Main donors also have substantial control over MFI strategies. The final sample after eliminating the MFIs with missing data about their main owners comprises 497 MFIs and 3357 firm-year observations.

We are aware that the sample may suffer from selection bias due to the restriction of the sample to just the largest firms that report to *MixMarket*. Participation by microfinance institutions in the *MIX* is voluntary. However, the microfinance sector is highly concentrated, and these MFIs cover 85% of the total gross loan portfolio of all those that report to *MixMarket* (about 1300 in 2017).



## **Ownership structure of MFIs**

The MFIs in our sample are non-profit organizations (NGOs), credit-unions (COOPs), NBFIs, and banks. In Table 1 (Panel A) all observations are sorted by region. The largest number of MFIs is domiciled in Latin America and the Caribbean (1257 obs. or 37.44% of the total sample) followed by Eastern Europe and Central Asia, South Asia, Sub-Saharan Africa, East Asia and the Pacific, and Middle East and North Africa.

In Table 1 (Panel B) we sort firm-year observations according to the identity of the largest owners and the equity stake they hold. MFIs where a social investor (NGO or DFI) holds an equity stake make up the largest share (2133 firm-year observations), followed by MFIs owned by private investors (1374), MIVs (514), banks (421), and government agencies (377). All major owners tend to hold more than 50% of the shares in the invested MFIs.

Social investors are the predominant investor in this case. The observations of MFIs where they hold an equity stake higher than 50% (1676 observations) outnumber those where the main owner is a bank, a MIV, government or other private investors.

-----  
insert Table 1 about here  
-----

## **MFI-specific characteristics**

For each of the MFIs in our sample, we provide in Table 2 information about their economic, social performance, default and credit risk. The main variables are sorted on the basis of legal status, that is, whether the MFIs are structured as NGOs, COOPs, NBFIs or Banks. All variables

have been winsorized at the 1% and 99% levels to avoid outliers. The definitions follow those adopted by MixMarket and we indicate in the appendix how all variables are measured.<sup>5</sup>

-----  
insert Table 2 about here  
-----

In terms of profitability, there are no remarkable differences for ROA and Op\_self between different groups. If we concentrate on the social performance, Avg\_outs, as expected, is much higher for banks than for the other groups. MFI lending only to individuals who are not among the poorest in a certain country is a signal of mission drift (Mersland and Strøm 2009): when the average amount lent by the MFI is too high compared to the average gross national income per capita only a small part of the population can access credit from these institutions.

The risk-taking behavior is not much different across groups. The average Z-score is slightly higher for COOPs and lower for NBFIs. Similarly, COOPs evidence lower write-off ratios (1%) against average values of 2% for the other groups. The PAR30 is lower for NBFIs and NGOs.

It can be observed that on average, Ln\_GLP is higher for banking institutions. As expected, banks are usually larger than NGOs, COOPs or NBFIs. NBFIs evidence a higher annual rate of loan growth. The D/E ratio (Leverage) is comparably higher for banks, as they have access to cheaper funds such as deposits from households.

## **Correlation matrix**

We exploit in Table 3 the pairwise correlations amongst performance indicators, ownership stakes of different owners, MFI riskiness and other MFI characteristics. Asterisks indicate significance at the 1% level. As expected, the profitability measures are highly correlated.

-----  
insert Table 3 about here  
-----

The correlation among owner types and MFI performance is not always significant. Bank and MIV are positively correlated with Avg\_outs. GOV is positively related to ROA, and Op\_self. Other does not exhibit any significant correlation with either financial or social performance.

The Z-score is positively related to both ROA and Op\_self. The correlation between the Z-score and the ownership variables is in most cases insignificant, with the exception of Other, for which the correlation is positive. Write-off and Par30 are both negatively correlated with ROA and Op\_self. The former is also positively correlated with Bank.

As expected, mature and larger MFIs exhibit higher values of ROA, and Op\_self. This relationship is verified also for the social performance, but only for Ln\_GLP. Loan growth is associated to lower values of ROA, and Op\_self. Leverage is negatively correlated to Op\_self and Avg\_outs. MFIs with higher D/E ratios should present worse financial performance.

Generally, the results for the correlation matrix are consistent with previous literature, with some exceptions. First, we do not find any positive correlation between some owner types (Bank, MIV, and Other) and financial performance variables. Second, GOV should be negatively correlated with ROA and Op\_self, whereas it exhibits opposite sign. The signs of control variables go in the expected direction.

## **Empirical results**

### **The impact of owner type on MFI financial, social performance and risk**

In order to test the impact of ownership identity on MFIs' overall performance and risk, we apply models 1, 2 and 3. In all regressions we correct for heteroschedasticity using White methodology. The outcomes of the regressions are presented in Table 4. As previously outlined, all coefficients should indicate a substitution effect when the ownership changes hands from an institutional investor to a bank, social investor, government entity or other private investors.

-----  
insert Table 4 about here  
-----

The coefficient on Bank is negative for ROA and Op\_self. Therefore, a transfer of the ownership from MIV to Bank bears a negative effect on the profitability of microfinance institutions. This finding is at odds with Hp. 1a and previous literature (Barry et al. 2011). One possible explanation may be that banks tend to have more long-term and complex strategies and they can accept initially lower returns which will be counterbalanced in the following years. For instance, they can also be creditors of the MFI (Woidtke 2002).

The effect of the ownership change from MIVs to social investors is negative and significant as expected for ROA and Op\_self (Hp. 1d). We find that the presence of government entities as the largest owner has a positive and significant effect on Op\_self and not significant on ROA. Therefore, we assume that a shift from institutional to government ownership is associated with higher profitability (albeit the result is significant only for Op\_self). The impact of GOV on

Op\_self does not go on the predicted direction of Hp. 1c, although this result is only partial as the coefficient of GOV for ROA is not significant.

We obtain insignificant results for the association between private local investors and MFI profitability. These estimates are in line with Hp. 1b and the findings of Barry et al. (2011) when they investigate the same relationship for a sample of commercial banks.

If we concentrate on the effect of Social on Avg\_outs, we can spot that a higher presence of social investors at the expense of MIVs, impacts negatively on Avg\_outs. The results are consistent with Hp. 3a and confirm the predominant view among scholars and practitioners about the presence of donors in the sector (Ashta and Hudon 2009; Armendariz and Morduch 2010; Mersland et al. 2011). They are the most interested in the social performance of MFIs and less concerned than financial investors about the profitability.

Similarly, GOV impacts negatively on Avg\_outs. It confirms our expectations and the findings of previous studies about the role of government and its social goals when it represents the largest owner in private firms (Iannotta et al. 2013).

The impact of Bank goes on the expected direction for Z-score but not for Write\_off (Hp. 2a). This could be a consequence of tighter regulatory policies for depository institutions, which force them to be more conservative in signaling bad loans compared to other shareholders. An increase in government ownership increases both Z-Score and the amount of bad loans which is inconsistent with Hp. 2b. Finally, the impact of Other is positive on Z-score and negative on Write\_off. Both coefficients as expected (Hp. 2c), indicate that a shift from MIV ownership to other private investors reduces the default and credit risk of the MFIs on our sample.

The association between PAR30 and MFI profitability is negative. MFIs with higher percentage of non-performing loans, suffer in terms of financial performance. Among the three

binary variables that capture the legal\_status, only NBFIs are negative and significant for Op\_self but not for ROA. This result however, does not contradict previous research. Mersland and Strøm (2008) find that for-profit MFIs do not perform necessarily better than non-profit ones. This might be due to the better ability of the NGOs to tap into local information networks and reap higher benefits than NBFIs and Banks in terms of overall profitability. The sign of the coefficient of NBFIs and Bank on Avg\_outs shows that for-profit MFIs exhibit higher loan size on average. We notice that larger and more mature firms display higher profitability in terms of ROA and Op\_self. However, while size is positively correlated with social performance, age is negatively correlated. Regulated MFIs have no impact on profitability, but negative on Avg\_outs, in line with Hartarska and Nadolnyak (2007) and Mersland and Strøm (2009). Conversely, leverage has a negative effect on ROA and Op\_self, but positive on social performance.

Most of the coefficients on the control variables for the risk models are insignificant. Loan growth is negatively associated to Write\_off. We find that Coop (Bank) is positively (negatively) correlated with Write\_off. Therefore, when the MFI is structured as a credit-union (bank), the credit risk is generally higher (lower). MFI size is positively related to the Z-score as expected. Larger banks are generally safer than smaller institutions. Finally, Regulated is positively linked to Write\_off. This finding indicates that regulated institutions have to be more conservative in reporting bad loans and confirms the counterintuitive association between banks as owners of MFIs and the write-off ratio (Hp. 2a).

Overall, these preliminary results partially confirm our initial hypotheses and suggest that different owner types present different patterns in terms of profitability, social performance and risk. When there is a shift from MIV to government entities we observe an increase in profitability, social performance and a more conservative risk-taking behavior. Social investors present stronger

attitude towards social performance compared to MIVs. Banks exhibit lower financial performance, lower asset but higher credit risk compared to MIVs. Other private investors have neutral impact on profitability compared to MIVs and lower risk.

### **Controlling for non-linear effects**

In this section we control for possible non-linear effects in the relationship between the largest owner type and MFI economic, social performance and risk-taking behavior. Some theories suggest that owners such as families with a very large proportion of their wealth tied to the bank take less risk and achieve better performance (Jensen and Meckling, 1976; Saunders et al. 1990; Laeven and Levine, 2009). However, this relationship may be non-linear. Below a certain threshold, owners tend to pressure the management for higher risky projects. When the level of ownership concentration increases beyond that threshold, we should expect a lower level of risk taking and better financial performance. The non-linear effect is tested by including in the models 1, 2 and 3 a quadratic term for each largest owner ownership stake (S.Bank, S.Social, S.GOV and S.Other respectively). The results are presented in Table 5.

-----  
insert Table 5 about here  
-----

The most interesting results are related to some of the coefficients in columns 4 and 5. The relation between GOV and Z-score follows an inverse U-shape pattern, while the relation between GOV and Write\_off follows a U-shape pattern.<sup>6</sup> Therefore, when the equity stake of the government is low, an increase in the stake has a negative impact on risk, while for high equity

stakes the relationship becomes positive. Similar results have been found by other contributions which have empirically analyzed the banking industry. Dong et al. (2014) find that when government ownership is relatively weak, the risk-taking behavior of the banks is unaffected. However, further increases in government ownership may create control ambitions and enhance the capability of the controlling shareholder to venture in risky strategies and take extra risks. Non-linearities are also found in the relation between Other and the Z-score (U-shape), Social and ROA, Bank and Avg\_out (inverse U-shape) and Bank and Write\_off (U-shape).

The observed non-linearities are useful to reinterpret some of the counterintuitive results presented above. The impact of Bank on Write-off can support Hp. 2a but only at lower stakes of bank equity. Similarly, GOV initially reduces the overall riskiness of a MFI, but the more its stake increases, the riskier the portfolio and the default risk of the MFI becomes (in line with Hp. 2b). Even the beneficial effect of Other on Z-score is observed when this type of investor has linked a large proportion of its wealth to a specific institution, and is no longer diversified.

## **Robustness tests**

### **Excluding NGOs and COOPs**

We decided to run the same regressions as in Table 4-5, excluding NGOs and COOPs. The reasons are several. First, both of them are non-profit organizations, therefore owners or donors in these organizations could have significantly different risk-return preferences compared to shareholders in for-profit companies. Second, NGOs and COOPs ownership structure is much different from the other two types. They do not have shareholders, although there is evidence that donors have a *de facto* influence over NGO strategies. Third, they are seldom regulated due to the preclusion for non-banks to have access to deposits and the compulsory compliance for banks to Basel rules for



capital adequacy. Moreover, previous literature has provided evidence that when MFIs are structured as non-profit institutions they are more prone to pursue objectives other than profit maximization (Churchill 1998; Marr and Tubaro 2012). The results are presented in Table 6 below.

-----  
insert Table 6 about here  
-----

We observe a number of discrepancies in sign and magnitude between these estimates and those in Tables 4-5. The impact of Bank on ROA and Op\_Self is generally stronger than before, indicating that the shift from MIV to this type of shareholder has a more pronounced (negative) effect in for-profit MFIs. The sign of the coefficient on Social confirms a negative but insignificant association with ROA and Op\_self. With regard to the social performance, we notice that the impact of GOV, Social and Other is significantly negative. If we look at the regressions on the risk proxies, there is a general loss of significance. Bank is negatively associated to Write\_off, whereas Other positively impacts Z-score.

Regarding the non-linear models, the main discrepancies pertain to profitability and social performance regressions. For Social and Other there is now an inverse U-shape relation with ROA and Op\_self, whereas for GOV there is a U-shape relationship with both profitability variables. As for the risk models, the main difference is the loss of significance for GOV on write-off ratio.

### **The effect of owner identity in the case of a controlling shareholder**

From the above analysis, it can be assumed that the effect of the largest owner equity stake on MFI performance is largely consistent with our initial expectations. However, the roles of different

shareholder types might be biased due to the stake held by the controlling owner. Major owners could have a much stronger influence on the economic, social performance or risk-taking behavior of MFIs if they control the majority of the voting rights. Therefore we apply specifications 1, 2 and 3 as in the fifth section with the difference that now the ownership variables indicate the stake of different owner types given that this stake is higher than 50%.

The coefficients of Social, GOV, Bank and Other confirm those in Table 4 with regards to financial performance. When the controlling owner is an NGO, DFI, or government entity the average outstanding loan per GNI per capita decreases and the coefficient is strongly significant. The coefficient of Bank is confirmed positive for Write-off but not anymore significant for Z-score. The coefficients of the other three owner types are positive for Z-score and negative for Write\_off confirming the positive effect of the shift of ownership from MIVs to these shareholders for MFI asset and credit risk<sup>7</sup>.

### **6.3 Additional robustness tests**

We also perform additional robustness checks. First, we run tests to rule out the possibility that the impact of different owner types on MFI performance is simply due to a substitution effect from MIV to other shareholders. To this end, we run Models 1 and 2 on a subsample where the stake held by MIVs is equal to zero. Our main results remain virtually unchanged.

Second, there is some evidence in the microfinance literature that owners of large MFIs focus on profitability/sustainability whereas shareholders of small MFIs are more concerned about serving a larger number of poor borrowers (Cull et al. 2014). To test whether MFI size affects the

coefficients of the main variables, we run separate regressions for small and large MFIs.<sup>8</sup> Our main results remain unchanged.

Third, we check whether in the aftermath of the financial crisis (i.e., after Lehman's collapse in September 2008), the relationship between the ownership structure and MFI performance has changed. This could be a consequence of tighter financial constraints for certain groups of shareholders given the increasing cost for obtaining credit in international financial markets. Specifically, MIVs and private investors could have found it more difficult to renew their credit lines, and this might have lead them to focus on profitability rather than social performance. However, when we run again Models 1-3 after excluding the period 2009-2011, the results are virtually the same.

## **Conclusions and final remarks**

This study sheds light on the association between equity stakes of different types of institutional and private investors on MFIs' profitability, risk, and social performance. To the best of our knowledge, this work is the first in the microfinance literature which addresses this important research question.

Our main findings are as follows. First, we provide robust evidence of a positive association between profitability and equity stakes of private investors, consistent with the view that they have a profit maximization objective. However, MIVs and private investors show a higher propensity to achieve financial goals as compared to banks. Banks as shareholders of MFIs might encourage conservative risk-taking strategies at their subsidiaries to avoid future costly financial support in case of their distress. This policy could produce a more moderate profitability at the individual MFI level. Moreover, the profitability of MFIs increases when ownership shifts

from MIVs to state-owned agencies. This outcome is at odds with the received wisdom and recent findings in the banking literature.

Second, we find that social performance and risk are also affected by ownership structure: a shift from MIVs to social investors or government entities results in lower average loan per borrower. Third, a shift from MIVs to state-owned agencies or other private investors results in a reduction in MFIs credit and default risk.

To dig deeper into the nature of the relationship between ownership structure and performance, we also investigate possible non-linearities. We find that the impact of three owner types on MFIs' risk taking behavior presents a U-shape (or inverse U-shape) pattern. At lower levels of the government stake the relationship between credit/default risk and government ownership is negative, but for high levels of the government stake the relationship becomes positive. For local private investors, on the other hand, the relationship with default risk follows an opposite pattern. Banking institutions as owners of MFIs present a similar U-shape pattern to that of government, but only for credit risk.

This study aims to tackle an important gap in the literature. However, more work is needed in the future to investigate the contribution of owners such as public entities and banking institutions which present counterintuitive results. The motive of partial contradictions with the previous literature could depend on the more complex relationships between owners in MFIs than in commercial banks. Their risk-return preferences need to be balanced with the dual mission of each MFI, its legal status and the social environment where these institutions operate. Moreover, other important stakeholders might be decisive for the strategies of the single MFI. These could include for instance, MFI creditors, and local communities. An important improvement could also derive from investigating the presence of different stakeholders on the boards of MFIs controlling

for the equity stake of each one of them. Previous literature has already evidenced that the goals of single shareholders are better aligned with those of the MFI when they sit on its board, which is where most strategic decisions are taken.

#### **Appendix** List of the MFI characteristics used in this article

Return on assets (ROA)	Net operating income/average assets
Operational self-sufficiency (Op_self)	Financial revenues/(financial expenses+ impairment loss + operating expenses)
Average outstanding loans/GNI per capita (Av_outs)	Gross loan portfolio (GLP)/number of loans outstanding)*(1/GNI per capita)
Z-score	(100 + average ROE)/SDROE
Write_off	Loans written off/gross loan portfolio
PAR30	Loans outstanding past due for more than 30 days/gross loan portfolio
NGO/COOP/NBFI/BANK	A set of binary variables taking values 1 if the MFI is a NGO, a COOP, a NBFI, a bank respectively and zero otherwise.
Age	A categorical variable equal to one if the MFI is young (0-3 years), 2 if middle age (3-7 years) and 3 if mature (more than 7 years).
Regional dummies	A list of binary variables taking values 0/1 for World regions: Latin America and the Caribbean, Eastern Europe and Central Asia, South Asia, Sub-Saharan Africa, East Asia and the Pacific, and Middle East and North Africa
Loan growth	$(GLP_t - GLP_{t-1})/GLP_{t-1}$
Ln_GLP	Log of Gross Loan Portfolio
Regulated	Dummy equal to 1 if the MFI is regulated by any national authority and zero otherwise
Leverage	Debt/Equity ratio
ROE	Return on Equity
SDROE	Standard deviation of ROE for each MFI

Notes: The definition of the variables follows the one adopted by Mixmarket, [www.mixmarket.org](http://www.mixmarket.org)

## TABLES

**Table 1** Firm-year observations sorted by region and by the equity stakes of different owners

Panel A	Number of firm year obs.	Frequency			
Region					
Sub-Saharan Africa	478	14.23%			
East Asia and Pacific	363	10.82%			
Eastern Europe and Central Asia	636	18.94%			
Latin America and the Caribbean	1257	37.44%			
Middle East and North Africa	138	4.13%			
South Asia	485	14.44%			
Total	<b>3357</b>	<b>100%</b>			
Panel B					
	Owner type				
Equity stake	Bank	Social inv.	MIV	GOV.	Other
0% - 30%	82	320	156	50	462
higher than 30% - 50%	70	137	120	45	162
higher than 50%	269	1676	238	282	750
Total	<b>421</b>	<b>2133</b>	<b>514</b>	<b>377</b>	<b>1374</b>

This table reports firm-year observations sorted by region and by equity stakes of different owners. In Panel A we divide the firm-year observations based on the region where the MFI is domiciled. The regions are Sub-Saharan Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa and South Asia. In Panel B firm-year observations are sorted based on the equity stake held by a different type of largest owner, namely: banks, Social investors, Microfinance Investment Vehicles (MIVs), Government entities (GOV) and local private investors (Other). The stakes held by these owners are grouped in the 0% -30% range, higher than 30% -50% range and higher than 50% - 100%).

**Table 2** Descriptive statistics for main variables

	N	Mean	Std. Dev	Median	Min	Max
NGO						
ROA	853	0.02	0.12	0.03	-0.80	1.00
Op_self	955	1.16	0.43	1.12	0.10	3.34
Avg_outs	657	0.36	0.41	0.20	0.02	2.28
Par30	930	0.05	0.08	0.03	0.00	0.61
Z-score	706	14.16	28.50	10.20	-1.46	505.76
Write_off	817	0.02	0.04	0.01	0.00	0.25
Ln_GLP	1044	15.51	1.74	15.50	8.37	22.64
Loan_growth	915	0.53	1.97	0.29	-0.97	50.17
Leverage	967	2.90	6.34	1.50	0.00	43.17
COOP						
ROA	587	0.02	0.06	0.02	-0.53	0.29
Op_self	649	1.18	0.34	1.15	0.08	3.05
Avg_outs	442	0.78	0.81	0.50	0.03	4.81
Par30	621	0.06	0.06	0.04	0.00	0.50
Z-score	491	15.60	13.28	12.10	-0.65	62.26
Write_off	574	0.01	0.02	0.01	0.00	0.22
Ln_GLP	702	16.46	1.93	16.52	9.71	22.31
Loan_growth	614	0.43	0.67	0.30	-0.70	8.50
Leverage	658	4.65	4.93	4.18	0.00	49.31
NBFi						
ROA	866	0.01	0.10	0.02	-0.53	0.29
Op_self	953	1.12	0.39	1.12	0.08	3.38
Avg_outs	668	0.54	0.67	0.32	0.02	6.52
Par30	896	0.05	0.06	0.03	0.00	0.48
Z-score	711	12.05	13.68	8.60	-1.58	179.27
Write_off	817	0.02	0.04	0.01	0.00	0.22
Ln_GLP	1035	15.92	1.82	15.93	9.08	20.91
Loan_growth	907	0.71	2.10	0.39	-0.80	39.66
Leverage	978	4.50	7.13	2.79	0.00	49.31
Bank						
ROA	454	0.02	0.06	0.02	-0.25	0.17
Op_self	503	1.12	0.28	1.14	0.22	2.70
Avg_outs	335	1.11	1.34	0.55	0.04	8.53
Par30	426	0.06	0.08	0.03	0.00	0.68
Z-score	383	14.49	16.52	10.52	0.05	146.37
Write_off	414	0.02	0.03	0.01	0.00	0.16
Ln_GLP	534	17.25	2.09	17.27	8.27	23.67
Loan_growth	471	0.64	2.98	0.33	-0.38	63.12
Leverage	506	5.90	4.64	5.45	0.00	28.93

This table reports descriptive statistics for main variables. All MFIs are divided into four groups, based on their legal status, namely, NGOs, COOPs, NBFIs and Banks. For each group we calculate descriptive statistics for return on assets (ROA), operational self-sufficiency (Op\_self), the ratio of average loan outstanding balance per borrower to GNI per capita (Avg\_outs), credit risk (PAR30), Z-score, the write-off ratio, the log of gross loan portfolio (Ln\_GLP), the annual growth of the gross loan portfolio (Loan\_growth), and the D/E ratio (Leverage). All variables are explained in the Appendix.

**Table 3** Pairwise correlations

		1	2	3	4	5	6	7	8
1	ROA	1.000							
2	Op_self	0.719*	1.000						
3	Avg_outs	0.009	0.046	1.000					
4	Bank	0.003	-0.012	0.202*	1.000				
5	Social	-0.043	-0.058*	-0.114*	-0.305*	1.000			
6	GOV	0.061*	0.1213*	-0.052	-0.095*	-0.300*	1.000		
7	MIV	0.018	-0.016	0.058*	-0.086*	-0.277*	-0.078*	1.000	
8	Other	0.020	0.025	-0.018	-0.168*	-0.550*	-0.172*	-0.148*	1.000
9	Z-score	0.082*	0.091*	0.017	-0.031	-0.023	0.046	-0.033	0.079*
10	Write-off	-0.204*	-0.233*	-0.079*	0.089*	0.011	-0.045	0.020	-0.042
11	Par30	-0.141*	-0.155*	-0.008	0.003	-0.057*	0.003	-0.049*	0.114*
12	Ln_GLP	0.217*	0.217*	0.195*	0.247*	-0.176*	0.214*	0.068*	-0.093*
13	Age	0.249*	0.222*	-0.040	-0.056*	0.017	0.124*	-0.124*	0.040
14	Loan_growth	-0.118*	-0.055*	-0.025	0.021	-0.042	-0.002	0.052*	-0.004
15	Leverage	-0.045	-0.058*	0.087*	0.164*	-0.171*	0.010	-0.015	0.041

  

		9	10	11	12	13	14	15
9	Z-score	1.000						
10	Write-off	-0.109*	1.000					
11	Par30	0.090*	0.285*	1.000				
12	Ln_GLP	0.050	0.013	0.029	1.000			
13	Age	0.032	0.033	0.123*	0.395*	1.000		
14	Loan_growth	-0.036	-0.108*	-0.138*	-0.119*	-0.220*	1.000	
15	Leverage	-0.064*	-0.022	0.033	0.235*	0.102*	0.013	1.000

This table reports the correlation matrix. Pairwise correlations have been calculated among MFI characteristics and ownership stakes held by different owner types, under the condition that they are the largest owners of the MFI. All variables are explained in the Appendix. Asterisks indicate significance at the 1% level.



**Table 4** The effect of owner identity on MFIs' economic and social performance

	ROA	Op_self	Avg_outs	Z-score	Write_off
Bank	-0.017* (0.035)	-0.063* (0.020)	0.046 (0.706)	2.629* (0.041)	0.007† (0.063)
Social	-0.015* (0.026)	-0.054* (0.015)	-0.206** (0.004)	5.830** (0.001)	-0.004† (0.063)
GOV	-0.011 (0.129)	0.076* (0.013)	-0.350*** (0.000)	5.376** (0.003)	-0.007* (0.011)
Other	-0.001 (0.962)	0.011 (0.672)	-0.170* (0.026)	8.080*** (0.000)	-0.007** (0.003)
Par30	-0.250*** (0.000)	-0.922*** (0.000)	0.165 (0.434)		
MFI is a COOP	0.001 (0.878)	-0.022 (0.309)	-0.035 (0.372)	-2.031 (0.523)	0.005* (0.031)
MFI is a NBFI	-0.004 (0.507)	-0.068** (0.006)	0.309*** (0.000)	0.319 (0.926)	-0.004 (0.174)
MFI is a BANK	-0.001 (0.920)	-0.025 (0.275)	0.172** (0.002)	-0.267 (0.922)	-0.006** (0.004)
Age	0.024*** (0.000)	0.063*** (0.000)	-0.053† (0.056)	-1.086 (0.590)	-0.001 (0.320)
Loan_growth	-0.006† (0.063)	-0.007 (0.285)	0.001 (0.856)	-0.368 (0.125)	-0.001** (0.010)
Ln_GLP	0.008*** (0.000)	0.029*** (0.000)	0.067*** (0.000)	0.753* (0.020)	0.000 (0.733)
Regulated	0.001 (0.978)	-0.001 (0.975)	-0.076† (0.061)	-2.944 (0.277)	0.006** (0.008)
Leverage	-0.001*** (0.001)	-0.005*** (0.000)	0.004* (0.027)	-0.246 (0.412)	0.000 (0.237)
Regional dummies	Yes	Yes	Yes	Yes	Yes
Intercept	-0.176*** (0.000)	0.583*** (0.000)	0.153 (0.395)	-0.691 (0.931)	0.011 (0.219)
N	2556	2574	1912	2167	2474
adj. R-sq	0.148	0.129	0.209	0.036	0.126
F	11.33	20.41	25.62	12.40	8.85

This table reports the results of OLS regressions corrected for heteroskedasticity to test the link between owner identity and MFI performance. The dependent variables are the return on assets (ROA) and operational self-sufficiency (Op\_self) for financial performance, the ratio of average outstanding balance per borrower to GNI per capita (Avg\_outs) for social performance. Risk is proxied by: Z-score and Write\_off. Owner identity is proxied by: Bank, Social investors (Social), government entity (GOV), private investors (Other) and MIV. The stake held by MIVs is used as a benchmark. All variables are described in the Appendix. The number of firm-year observations and adjusted R-squares are listed below each regression. F is the F-test for the overall statistical significance of the predictors. P-values are reported in brackets below the corresponding coefficients.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001

**Table 5** Testing for non-linear effects on the relationship between owner identity and MFIs economic and social performance, default risk and credit risk.

	ROA	Op_self	Avg_outs	Z-score	Write_off
Bank	0.003 (0.931)	0.202 (0.104)	1.974** (0.002)	3.343 (0.821)	-0.075*** (0.000)
Social	-0.094* (0.022)	-0.052 (0.671)	0.394 (0.230)	-4.949 (0.281)	0.006 (0.595)
GOV	0.012 (0.772)	0.402 (0.127)	-0.149 (0.535)	21.49* (0.049)	-0.043** (0.001)
Other	0.023 (0.469)	0.132 (0.392)	-0.318 (0.391)	-21.010*** (0.000)	0.009 (0.490)
S_Bank	-0.025 (0.443)	-0.273* (0.033)	-2.017** (0.003)	-3.159 (0.835)	0.090*** (0.000)
S_Social	0.079* (0.049)	0.011 (0.926)	-0.552† (0.079)	9.273 (0.102)	-0.012 (0.292)
S_GOV	-0.026 (0.535)	-0.322 (0.226)	-0.146 (0.534)	-18.340† (0.066)	0.036** (0.005)
S_Other	-0.027 (0.351)	-0.111 (0.462)	0.225 (0.515)	28.30*** (0.000)	-0.018 (0.158)
Par30	-0.248*** (0.000)	-0.910*** (0.000)	0.212 (0.318)		
MFI is a COOP	0.002 (0.803)	-0.019 (0.401)	-0.040 (0.325)	-1.707 (0.598)	0.004† (0.052)
MFI is a NBFI	-0.004 (0.586)	-0.065* (0.011)	0.297*** (0.000)	1.045 (0.764)	-0.004 (0.127)
MFI is a BANK	0.000 (0.981)	-0.021 (0.365)	0.161** (0.004)	0.028 (0.992)	-0.006** (0.003)
Age	0.024*** (0.000)	0.062*** (0.000)	-0.060* (0.035)	-1.147 (0.566)	-0.001 (0.349)
Loan_growth	-0.005† (0.067)	-0.007 (0.322)	0.003 (0.697)	-0.374 (0.122)	-0.001** (0.007)
Ln_GLP	0.008*** (0.000)	0.030*** (0.000)	0.079*** (0.000)	0.681* (0.045)	0.000 (0.906)
Regulated	0.000 (0.962)	0.000 (0.989)	-0.085* (0.037)	-3.050 (0.269)	0.006** (0.005)
Leverage	-0.001** (0.001)	-0.006*** (0.000)	0.002 (0.480)	-0.245 (0.447)	0.000 (0.756)
Regional dummies	Yes	Yes	Yes	Yes	Yes
Intercept	-0.172*** (0.000)	0.556*** (0.000)	0.060 (0.755)	1.885 (0.832)	0.013 (0.144)
N	2556	2574	1912	2167	2474
adj. R-sq	0.15	0.129	0.216	0.039	0.134
F	9.86	16.95	22.23	11.77	8.859

This table reports the results of OLS regressions corrected for heteroskedasticity to test any non-linear effect between owner identity and MFI performance. The dependent variables are the return on assets (ROA) and operational self-sufficiency (Op\_self) for financial performance, the ratio of average outstanding balance per borrower to GNI per capita (Avg\_outs) for social performance. Risk is proxied by: Z-score and Write\_off. Owner identity is proxied by: Bank, Social investors (Social), government entity (GOV), private investors (Other) and MIV). S\_bank, S\_Social, S\_GOV and S\_Other are the quadratic terms of the stakes held by each largest owner. The stake held by MIVs is used as a benchmark. All variables are described in the Appendix. The number of firm-year observations and adjusted R-squares are listed below each regression. F is the F-test for the overall statistical significance of the predictors. P-values are reported in brackets below the corresponding coefficients. † p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001

**Table 6** The effect of owner identity on MFIs' economic and social performance only for NBFIs and commercial banks (NGOs and COOPs are excluded)

	ROA	Op_self	Avg_outs	Z-score	Write_off
Effect of largest owner					
Bank	-0.020* (0.013)	-0.078* (0.022)	-0.144 (0.561)	1.667 (0.324)	-0.009* (0.032)
Social	-0.014 (0.110)	-0.052 (0.136)	-0.488** (0.009)	2.834 (0.134)	0.000 (0.957)
GOV	-0.001 (0.947)	0.096* (0.029)	-0.566* (0.019)	-3.471 (0.209)	0.002 (0.662)
Other	-0.017* (0.038)	-0.046 (0.238)	-0.357† (0.092)	7.655* (0.023)	-0.002 (0.665)
Controls	Yes	Yes	Yes	Yes	Yes
Intercept	0.082* (0.037)	1.394*** (0.000)	-0.008 (0.986)	-7.592 (0.199)	0.033* (0.016)
N	935	939	701	799	907
adj. R-sq	0.160	0.151	0.193	0.213	0.102
F	10.64	10.70	12.08	20.13	4.75
Non-linear effects					
Bank	0.043 (0.195)	0.287† (0.073)	3.059* (0.013)	5.441† (0.061)	-0.110*** (0.000)
Social	0.114** (0.002)	0.700*** (0.001)	0.649 (0.482)	5.804 (0.415)	0.002 (0.112)
GOV	-0.196* (0.024)	-2.613*** (0.000)	2.717 (0.384)	58.17*** (0.000)	-0.058 (0.140)
Other	0.081* (0.042)	0.414** (0.006)	-1.130 (0.172)	-16.60* (0.017)	-0.015 (0.691)
S_Bank	-0.050† (0.080)	-0.303† (0.056)	-3.354** (0.009)	-5.655† (0.062)	0.125** (0.001)
S_Social	-0.118*** (0.001)	-0.701*** (0.001)	-1.084 (0.203)	-4.572 (0.333)	-0.004 (0.268)
S_GOV	0.210* (0.016)	2.797*** (0.000)	-3.195 (0.309)	-55.35*** (0.000)	0.048 (0.141)
S_Other	-0.087* (0.016)	-0.394** (0.007)	0.919 (0.190)	25.64*** (0.000)	0.005 (0.636)
Controls	Yes	Yes	Yes	Yes	Yes
Intercept	0.068† (0.093)	1.334*** (0.000)	0.007 (0.989)	-4.185 (0.629)	-0.020* (0.021)
N	935	939	701	799	907
adj. R-sq	0.172	0.172	0.209	0.219	0.123
F	12.78	10.60	13.65	17.12	4.80

This table reports replicated regressions of Table 4, and 5 without considering NGOs and COOPs. The dependent variables are the return on assets (ROA) and operational self-sufficiency (Op\_self) for financial performance, the ratio of average outstanding balance per borrower to GNI per capita (Avg\_outs) for social performance. Risk is proxied by: Z-score and Write\_off. Owner identity is proxied by: Bank, Social investors (Social), government entity (GOV), private investors (Other) and MIV. The stake held by MIVs is used as a benchmark.. The coefficients of control variables are not reported for reasons of space. The number of firm-year observations and adjusted R-squares are listed below each regression. F is the F-test for the overall statistical significance of the predictors. P-values are reported in brackets below the corresponding coefficients.

† p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001

## Endnotes

---

<sup>1</sup> In following Barry et al. (2011), in the models 1-3 we have removed the MIV stake and use it as benchmark. The initial model would be:

$$Y_i = \beta'_0 + \beta'_j \sum_{j=1}^5 B_{ji} + \beta_6 C_i + \varepsilon_i$$

where  $B_{ji}$  are the original shareholder types and  $C_{ij}$  the control variables. Because  $B_{5i} = 100 - \sum_{j=1}^4 B_{ji}$  Models 1-3 can be rewritten as :

$$Y_i = (\beta'_0 + 100\beta'_5) + \sum_{j=1}^4 (\beta'_j - \beta'_5) B_{ji} + \beta_6 C_i + \varepsilon_i$$

Therefore we estimate the following models 1-3:

$$Y_i = \beta_0 + \sum_{j=1}^4 \beta_j B_{ji} + \beta_6 C_i + \varepsilon_i$$

where  $\beta_0 = (\beta'_0 + 100\beta'_5)$  and  $\beta_j = \beta'_j - \beta'_5$  for  $j$  taking values 1, 2, 3 or 4.

<sup>2</sup> All variables are explained in the Appendix

<sup>3</sup> The Z-score is measured as  $(100 + \text{average ROE}) / \text{SDROE}$  where average ROE is the average return on equity for each MFI in the sample period and the SDROE is the standard deviation of the ROE (Barry et al., 2011). Both variables are in percentages. In unreported robustness tests we calculated alternative measures of Z-score by using ROA instead of ROE or by taking the log of this variable. Our regressions results remain virtually unaltered.

<sup>4</sup> PAR30 is included only for models 1 and 3, not for model 2.

<sup>5</sup> The only variable not taken from MixMarket is the Z-score.

<sup>6</sup> The inflection point is at around 60% for Z-score and 55% for Write\_off.

<sup>7</sup> All the results of the regressions of this section and the next one are available upon request from the authors.

<sup>8</sup> The threshold for dividing small MFIs from large one is the median point of total assets in our sample, equal to 14 million USD.

---

## References

- Aebi, V., Sabato, G., & Markus, S. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking and Finance*, 36(12), 3213–3226.
- Altunbas, Y., Evans, L., & Molyneux, P. (2001). Bank ownership and efficiency. *Journal of Money, Credit and Banking*, 33(4), 926–954.
- Andres, C. (2008). Large shareholders and firm performance - An empirical examination of founding-family ownership. *Journal of Corporate Finance*, 14(4), 431-445.
- Armendariz, B. & Morduch, J. (2010). *The economics of microfinance*. Cambridge, MIT Press.
- Armendariz, B. & Szafarz, A. (2010). On mission drift in microfinance institutions., in: *Handbook of Microfinance (ed)*, World Scientific.
- Arthurs, J. D. & Johnson, R. A. (2008). Managerial agents watching other agents: Multiple agency conflicts regarding underpricing in IPO firms. *Academy of Management Journal*, 51(2), 277-294.
- Ashta, A. & Hudon, M. (2009). *To whom should we be fair? Ethical issues in balancing stakeholder interests from Banco Compartamos*. Working paper no.9/036, CEB.
- Attig, N., Guedhami, O. & Mishra, D. (2008). Multiple large shareholders , control contests, and implied cost of equity. *Journal of Corporate Finance*, 14(5), 721-737.

- 
- Barry, T.A., Lepetit, L., & Tarazi, A. (2011). Ownership structure and risk in publicly held and privately owned banks. *Journal of Banking and Finance*, 35(5), 1327-1340.
- Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2004). Bank competition and access to finance: international evidence. *Journal of Money, Credit & Banking*, 36(3), 627–648.
- Berger, A.N., Clarke, C.R.G., Cull, R., Klapper, L., & Udell, G. (2005). Corporate governance and bank performance: A joint analysis of the static, selection, and dynamic effects of domestic, foreign, and state ownership. *Journal of Banking and Finance*, 29(8-9), 2179-2221.
- Bibi, U., Balli, H. O., Matthews, C. D. & Tripe, D. W. L. (2018). Impact of gender and governance on microfinance efficiency. *Journal of International Financial Markets, Institutions and Money*, 53, 307-319.
- Bloch, F. & Hege, U. (2001). *Multiple large shareholders and control contests*. Mimeo HEC.
- Bruett, T. (2005). *Measuring performance of microfinance institutions: a framework for reporting analysis, and monitoring*. Working paper, The SEEP Network, Washington DC.
- Cable, J. (1985). Capital market information and industrial performance: The role of Western German banks. *Economic Journal*, 95(377), 118-132.
- Caprio, G., Laeven, L., & Levine, R. (2007). Governance and bank valuation. *Journal of Financial Intermediation*, 16(4), 584–617.
- Chalermchatvichien, P., Jumreornwong, S., Jiraporn, P., & Singh, M. (2014). The effect of bank ownership concentration on capital adequacy, liquidity and capital stability. *Journal of Financial Services Research*, 45(2), 219-240.
- Churchill, C. (1998). *Ownership, competition and control of microfinance institutions*. Working Paper, Microfinance Network.

- 
- Clacher, I. & Hagendorff, J. (2012). Do announcements about corporate social responsibility create or destroy shareholder wealth? Evidence from the UK. *Journal of Business Ethics*, 106(3), 253-266.
- Claessens, S., Djankov, S., Fan, J.P.H., & Lang, L.H.P. (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *Journal of Finance*, 57(6), 2741-2771.
- Conning, J. & Morduch, J. (2011). Microfinance and social investment. *Annual Review of Financial Economics*, 3(1), 407-434.
- Cull, R., Demirgüç-Hunt, A., & Morduch, J. (2014). Banks and microbanks. *Journal of Financial Services Research*, 46(1), 1-53.
- Demsetz, H. & Lehn, K. (1985). The structure of corporate ownership: causes and consequences. *Journal of Political Economy*, 9(6), 1155–1177.
- Dietrich, A., Hess, K., & Wanzenried, G. (2014). The good and bad news about the new liquidity rules of Basel III in Western European countries. *Journal of Banking and Finance*, 44, 13-25.
- Dong, Y., Meng, C., Firth, M., & Hou, W. (2014). Ownership structure and risk taking: Comparative evidence from private and state-controlled banks in China. *International Review of Financial Analysis*, 35, 120-130.
- Faccio, M. & Lang, L.H. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*, 65(3), 365-395.
- Fama, E.F. & Jensen, M.C. (1985). Organizational forms and investment decisions. *Journal of Financial Economics*, 14(1), 101-119.
- Fungáčová, Z. & Solanko, L. (2009). Risk-taking by Russian banks: Do location, ownership and size matter?, *In Current trends in the Russian financial system* (Ed.). SUERF, WIENNA.

---

Gugler, K. & Weigland, J. (2003). Is ownership endogenous? *Applied Economics Letters*, 10(8), 249-280.

Hansmann H. 1996. *The ownership of enterprise*. The Belknap Press of Harvard University Press: Cambridge, Massachusetts.

Hardy, D. C., Holden, P., & Prokopenko, V. (2003). *Microfinance institutions and public policy* (Vol. 2). International Monetary Fund.

Hartarska, V. & Mersland, R. (2012). Which governance mechanisms promote efficiency in reaching poor clients? Evidence from rated Microfinance Institutions. *European Financial Management*, 18(2), 2218-2239.

Hartarska, V. & Nadolnyak, D. (2007). Do regulated microfinance institutions achieve better sustainability and outreach? Cross country evidence. *Applied Economics*, 39(10), 1207-1222.

Hermes, N. & Lensink, R. (2011). Microfinance: Its impact, outreach, and sustainability. *World Development*, 39(6), 875-881.

Hoshi, T, Kashyap, A., & Sharfstein, D. (1990b). The role of banks in reducing the costs of financial distress in Japan. *Journal of Financial Economics*, 27(1), 67–88.

Hoskisson, R. E., Hitt, M. A., Johnson, R. A., & Grossman, W. (2002). Conflicting voices: The effects of institutional ownership heterogeneity and internal governance on corporate innovation strategies. *Academy of Management Journal*, 45(4), 697-716.

Hudon, M., & Sandberg, J. (2013). The ethical crisis in microfinance: Issues, findings, and implications. *Business Ethics Quarterly*, 23(4), 561–589.

Iannotta, G., Nocera, G. & Sironi, A. (2007). Ownership structure, risk and performance in the European banking industry. *Journal of Banking & Finance*, 31(7), 2127-2149.



- 
- Iannotta, G., Nocera, G., & Sironi, A. (2013). The impact of government ownership on bank risk. *Journal of Financial Intermediation*, 22(2), 152– 176.
- Isern, J. & Cook, T. (2004). *What is a network? The diversity of networks in microfinance today*. CGAP Working paper no. 26, Available at : <http://www.cgap.org/sites/default/files/CGAP-Focus-Note-What-Is-a-Network-The-Diversity-of-Networks-in-Microfinance-Today-Jul-2004.pdf>
- Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3(4), 305– 360.
- Kahn, C. & Winton, A. (1998). Ownership structure, speculation, and shareholder intervention. *Journal of Finance*, 53(1), 99–129
- La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *Journal of Finance*, 54(2), 471–517.
- Laeven, L. & Levine, R. (2008). Complex ownership structures and corporate valuations. *Review of Financial Studies*, 21(2), 579-604.
- Laeven, L. & Levine, R. (2009). Bank governance, regulation and risk taking. *Journal of Financial Economics*, 93(2), 259-275.
- Laeven, L. 1999. *Risk and efficiency in East Asian banks*. Discussion Paper, World Bank.
- Ledgerwood, J. & White, V. (2006). *Transforming microfinance institutions*. The World Bank and the Microfinance Network, Washington D.C.
- Marr, A. & Tubaro, P. (2012). Crisis in the Indian microfinance and a way forward: Governance reforms and the Tamil Nadu model. *Journal of International Development*, 23(7), 996-1003.
- Mersland, R. & Strøm, R. Ø. (2008). Performance and trade-offs in microfinance organizations - Does ownership matter? *Journal of International Development*, 20(4), 598-612.

- 
- Mersland, R. & Strøm, R. Ø. (2009). Performance and governance in microfinance institutions. *Journal of Banking and Finance*, 33(4), 662-669.
- Mersland, R., Trond, R., & Strøm, R. Ø. (2011). The impact of international influence on microbanks' performance: A global survey. *International Business Review*, 20(2), 163-176.
- Morduch, J. (2000). The microfinance schism. *World Development*, 28(4), 617-629.
- Mori, N. & Mersland, R. (2014). Boards in microfinance institutions: How do stakeholders matter? *Journal of Management and Governance*, 18(1), 285-313.
- Oh, W., Cha, J. & Chang, Y.K. (2015). Does ownership structure matter? The effects of insider and institutional ownership on corporate social responsibility. *Journal of Business Ethics*, 146(1), 111-124.
- Postelnicu, L. & Hermes, N. (2016). Microfinance and social capital: A cross-country analysis. *Journal of Business Ethics*, available at: <https://doi.org/10.1007/s10551-016-3326-0>
- Rock, R., Otero, M., & Saltzman, S. (1998). *Principles and practices of microfinance governance*. Microenterprise Best Practices.
- Sarkar, J., Sarkar, S., & Bhaumik, S. K. (1998). Does ownership always matter? Evidence from the Indian banking industry. *Journal of Comparative Economics*, 26(2), 262-281.
- Saunders, A., Strock, E., & Travlos, N. (1990). Ownership structure, deregulation, and bank risk taking. *Journal of Finance*, 45(2), 643-654.
- Servin, R., Lensink, R., & van den Berg, M. (2012). Ownership and technical efficiency of microfinance institutions: Empirical evidence from Latin America. *Journal of Banking and Finance*, 36(7), 2136-2144.
- Shleifer, A. & Vishny, R. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94(3), 461-488.

- 
- Tchakoute Tchuigoua, H. (2015). Determinants of the governance quality of microfinance institutions. *Quarterly Review of Economics and Finance*, 58, 32-43.
- Thomsen, S. & Pedersen, T. (2000). Ownership structure and economic performance in the largest European companies. *Strategic Management Journal*, 21(6), 689-705.
- Vanroose, A. & D’Espallier, B. (2013). Do microfinance institutions accomplish their mission? Evidence from the relationship between traditional financial sector development and microfinance institutions’ outreach and performance. *Applied Economics*, 45(15), 1965-1982.
- Vento, G. & La Torre, M. (2006). *Microfinance*, Palgrave Macmillan, UK.
- Volpin, P. F. (2002). Governance with poor investor protection : evidence from top executive turnover in Italy. *Journal of Financial Economics*, 64, 61-90.
- Wamba, L.D., Bengono, I. B., Sahut, J. M. & Teulon, F. (2018). Governance and performance of MFIs: the Cameroon case. *Journal of Management and Governance*, 22(1), 7-30.
- Woidtke, T. (2002). Agents watching agents?: evidence from pension fund ownership and firm value. *Journal of Financial Economics*, 63(1), 99-131.