

The relationship between the performance and legal form of microfinance institutions

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ABSTRACT

This paper investigates the relationship between the legal forms adopted by microfinance institutions (MFIs) and their performance within three scopes: financial performance, social performance, and efficiency in resource allocation. The MFIs studied are classified into four groups: banks, non-governmental organizations, cooperatives, and a fourth group formed of for-profit institutions not characterized as banks, made up of non-bank financial institutions (NBFIs) and rural banks. The data used are annual and cover the six years from 2007 to 2012. The quantitative regression model with panel data was used together with dummy variables to compare between the four groups of legal forms, except for the group made up of NBFIs and rural banks, which was not represented by any dummy variable. 304 MFIs from 59 countries made up the sample. In the study it was observed that larger MFIs have higher profits, higher returns, and higher operational self-sufficiency rates than smaller MFIs, indicating that MFI growth could enable consolidation in the microfinance market. The results also indicate that for smaller MFIs the way to consolidate and improve the indicators could be through assimilating or merging with other MFIs. It was also noted that non-bank financial institutions and rural banks are able to serve more customers and that cooperatives provide smaller loans, causing a bigger social impact, and that they obtain higher returns and profits. The results indicate that these legal forms may be the most appropriate for the microfinance market.

Keywords: microcredit, microfinance, legal form, ownership structure, financial performance.

1. INTRODUCTION

Microfinance constitutes an incentive tool for micro and small enterprises that have little or no access to the traditional financial system, as well as a source of credit for people and communities in need that do not have sufficient resources to access the traditional financial system. Without microfinance institutions (MFIs), the sources of funds for this portion of the market would be limited to friends, family members, or loan sharks, which restricts entrepreneurial capacity and affects the quality of life of a portion of the population (Soares & Melo Sobrinho, 2008).

Due to the social appeal of microfinance, MFIs can receive resources from governments, investors, and donors. In exchange, it is hoped that they provide financial services to this market in such a way that the operation is sustainable both for the borrowers and for the MFIs themselves. In this context, efficient resource allocation is essential to guarantee cost reductions and survival in the microfinance market. Efficiency is also important so that investors, interested in maximizing profits, invest in MFIs with the aim of maximizing the financial return on their investment (Hermes & Lensink, 2011).

As the performance signaled by MFIs is a determinant for the market when it chooses which institutions to invest in, the factors that affect the performance of MFIs are quite extensively explored by the literature. Among the factors explored, the following bear mentioning: the subsidy effect (D'Espallier, Hudon, & Szafarz, 2013), the relationship between social orientation and efficiency (Louis, Seret, & Baesens, 2013), the macroeconomic context (Ahlin, Lin, & Maio, 2011), and the level of MFI governance (Hartarska, 2005).

This paper is based on the problem of separating

the ownership and control of the capital allocated in organizations, known as the agency problem (Fama & Jensen, 1983a), as well as on the different implications resulting from the distinct legal forms for the appropriate allocation of invested resources, and on the right destination for possible surpluses obtained by MFIs (Fama & Jensen, 1983b). In this context, legal form comes to be observed as a determinant for agency cost and for MFI performance, given the demands of the market, of investors, donors, and governments, which invest resources in microfinance (Tchakoute-Tchuigoua, 2010).

This paper builds upon the study from Tchakoute-Tchuigoua (2010), innovating on two points: by using control variables, MFI size and solvency ratio, and by separating banks from other for-profit MFIs. Separation is warranted because of the way rural banks and non-bank financial institutions (NBFIs) operate, which is on a local scale and without the use of intermediaries, unlike big banks, which adopt structures centralized in urban centers and have difficulties serving distant communities without the use of intermediaries (Cyree & Spurlin, 2012). The study also differentiates itself by using a subsequent time period, updating the results found by Tchakoute-Tchuigoua (2010), and applying the panel data regression technique to deal with the time period and with the variables used.

304 MFIs were analyzed, operating between 2007 and 2012 and with data available in MixMarket (2014), a database in which financial and institutional information is found related to institutions that provide microcredit. The study aims to improve our understanding of how legal form influences the performance and actions of MFIs.

2. LITERATURE REVIEW

2.1 MFI Performance

In the credit market, the niche made up of the poorest customers was traditionally ignored by banks and financial institutions until the emergence of MFIs, since in order to serve this market niche institutions face relatively higher operating and administrative costs due to the amounts of credit required, which are smaller than those of richer customers (Kent & Dacin, 2013). In order to avoid charging customers high interest rates, some MFIs

have access to subsidized resources and donations in order to deal with the specificities of the microfinance market. However, due to the characteristics of the market, MFIs cannot be evaluated using only efficiency and financial performance metrics, as is the case with other financial institutions, since the higher costs and lower volumes are necessary in order to serve poorer customers (Gutierrez-Nieto, Serrano-Cinca, & Molinero, 2007).

To obtain the desired results, the institutions have to balance the demands of financial performance with

those of social performance, aiming towards operational self-sufficiency and investor returns, and at the same time enabling poorer customers to access financial system services in a sustainable way (Serrano-Cinca & Gutiérrez-Nieto, 2014). In light of the above, it can be perceived that MFIs face a dual situation in which financial results are not enough to warrant investments and the social role is not sustainable without returns on the costs involved. In this situation, MFIs are required to maximize the efficiency of the resources used (Piot-Lepetit & Nzongang, 2014).

2.1.1 MFI social performance.

Most MFIs have a social mission, such as reducing poverty, increasing female autonomy, or stimulating small businesses, which is always related with improving the quality of life of the poor (Serrano-Cinca & Gutiérrez-Nieto, 2014). Due to the social appeal that microfinance can have, many MFIs have access to lines of credit with more attractive interest rates, subsidies, and donations from people and institutions (Hermes & Lensink, 2011). In this context, the social performance indicators enable it to be verified whether the MFIs are really providing improvements in the quality of life of the customers and communities they serve. A positive result in the social performance indicators also gives the MFI credibility in the microfinance market and among investors in order for it to continue receiving resources (Schicks, 2014).

Socially interested investors seek to evaluate MFIs, since they are concerned about credit being diverted to less poor customers (Louis et al., 2013) or about the availability of credit causing adverse social effects in terms of heightened customer debt (Schicks, 2014). Problems related with microfinance have already been reported in various locations: in India, an increase in customer poverty due to excess debt has been observed (Guérin, Roesch, Venkatasubramanian, & Kumar, 2013); in Kenya, higher interest rates charged to customers are associated with higher default rates in communities (Kodongo & Kendi, 2013); in Ghana, heightened customer debt due to the population's lack of financial knowledge and loans without any productive purpose have been reported (Schicks, 2014). The high cost of serving poorer customers, together with the pressure from donors and investors for the institutions to achieve economic sustainability, can result in higher interest rates being charged, which in turn can create social problems related with microfinance (Serrano-Cinca & Gutiérrez-Nieto, 2014).

The literature highlights the number of active MFI customers (Tchakoute-Tchuigoua, 2010), the number of loans granted to women (Cull, Demirgüç-Kunt, & Morduch, 2011), and the average values of loans granted (Cull et al., 2011; Tchakoute-Tchuigoua, 2010), as variables

that are commonly used to measure the social performance of MFIs.

2.1.2 MFI financial performance.

In general, MFIs seek returns on their operations, aiming for long term sustainability. Governments, investors, and donors hope that independently of the legal form adopted MFIs can operate using the revenues derived from the services offered to their customers (Roberts, 2013). It is also important for for-profit MFIs that investors perceive that the institutions are generating profits from the investments made, whether with dividends from the profit derived from the loan operations carried out or with capital gains derived from an increased valuation of ownership rights (Tchakoute-Tchuigoua, 2010).

In the context of microfinance, the indicators normally used to calculate financial performance are: return on assets (ROA), return on net equity (ROE), operational self-sufficiency and financial self-sufficiency (Strøm, D'Espallier, & Mersland, 2014), profitability, the level of MFI debt (Louis et al., 2013), the ratio between expenses and financial revenues, and the MFI asset portfolio (Sanfeliu, Royo, & Clemente, 2013).

2.1.3 MFI efficiency.

The history of microfinance shows that seeking to reduce operating costs is one of the ways for MFIs to achieve operational self-sufficiency and be able to carry out their role among the poor. In the 1960s and 1970s, some initiatives failed because they could not deal with the high costs of providing credit to the poorest and ended up channeling resources to customers that were not so poor (Louis et al., 2013). With increased efficiency, it is hoped that small MFIs can reduce their dependency on subsidies and donations, as well as surviving the competition with large banks, which have recently begun to participate in the microfinance market (Hermes & Lensink, 2011; Kent & Dacin, 2013).

Even when MFIs have donations and subsidized resources, reducing costs enables a reduction in the rates and fees charged to customers, thus reducing any penalization of the poorest (Serrano-Cinca & Gutiérrez-Nieto, 2014) and, since the availability of donations and lines of credit with lower costs is not unlimited, the market prefers those MFIs that manage to maximize the benefits of the resources used and favors the most efficient ones (Ghosh & Van Tassel, 2011). Signs of efficiency are even more important in the context of microfinance due to the low savings ability of the customers, making MFIs more dependent on external funds (Serrano-Cinca & Gutiérrez-Nieto, 2014).

Works in microfinance have used some of the following variables to measure MFI efficiency: Gutierrez-Nieto et al. (2007) used the ratio between operating expenses and gross credit portfolio, cost per customer, employee productivity, and the ratio of employees to agencies; Tchakoute-Tchuigoua (2010) used cost per client and the ratio of operating costs to the average gross credit portfolio; Louis et al. (2013) used cost per loan and the ratio between gross credit portfolio and total assets.

2.2 Legal Form and MFIs

Organizations act in different spheres of human life, providing products and services to people. Each market niche presents particular determinant characteristics for indicating which legal form implies better results with lower agency costs (Fama & Jensen, 1983b). The particular characteristics of the microfinance market mean that some of the organizations have to deal with conflicting goals. Some investors expect MFIs to focus on the social side of the activity and keep interest rates at a threshold that is just enough to maintain the institution, but there are also investors that expect MFIs to act exclusively in order to maximize profits and adopt a position more like a traditional financial institution (Piot-Lepetit & Nzongang, 2014).

Today, the microfinance market is dominated by three different ownership structures: cooperatives, non-governmental organizations (NGOs), and for-profit institutions (Tchakoute-Tchuigoua, 2010). If, on one hand, the operations of for-profit MFIs are seen as predatory for the microfinance market, since these institutions can exaggerate when charging interest in order to maintain returns, thus discouraging future customers who fear getting excessively in debt and not being able to pay off their loans (Roberts, 2013), on the other hand, an excessive focus on the social orientation can make MFIs unsustainable. Philanthropic MFIs often do not have the technology to develop more efficient processes and can lose resources through unprofitable investments, such as high risk loans resulting from failures in the credit assessment process, and through agents of the organization diverting resources, enabled by weak corporate governance policies. Failure in the processes and lack of efficiency are not only damaging to non-profit MFIs; they can compromise the credibility and future of the whole microfinance market (Servin, Lensink, & Van den Berg, 2012).

The debate in relation to the legal form of MFIs intensified with the transformation process of some NGOs into for-profit institutions in the 1990s and the beginning of this century. Transformed MFIs present

improvements in their efficiency and operational self-sufficiency indicators, apparently showing that legal forms geared towards profit were more appropriate for the microfinance market (Fernando, 2004; Ito, 2008). Increased efficiency and operational self-sufficiency is a favorable argument for the transformed institutions, not only because of the improvement in internal processes (Servin et al., 2012), but it has also been observed that higher self-sufficiency and efficiency rates are related with greater impact being made by MFIs, which through adopting more economical processes can serve more customers (Ngo, 2015). However, gains in efficiency can originate from discrimination against poorer customers, who are naturally less profitable, indicating a possible deviation from the social mission of transformed MFIs (Ito, 2008).

Non-profit MFIs would initially have lower agency costs to achieve their social goals, thus avoiding a deviation from their social mission, since, as Fama and Jensen (1983b) report, institutions such as NGOs and cooperatives would not be able to transfer excess resources to the owners of the institution, and as they depend on donations, any deviation from their social mission would imply greater losses and risks to the continuity of the institution.

In relation to the legal forms of for-profit MFIs, these are classified into three types in terms of operating licenses and legal constraints: banks have a license to operate as banking institutions and can, among other financial services, raise funds from customers and use them to provide loans for other customers that need them; NBFIs are for-profit financial institutions characterized as not having a banking license and not being able to collect deposits from their customers, but they can offer financial services, such as credit and insurance services, using their own funds (Gupta, Yesmin, & Khan, 2013; Reserve Bank of India, 2015; Sufian, 2008); the rural banks in the study are financial institutions that are characteristic of India, funded by the State and by private banks, which can collect deposits from their customers, but unlike traditional banks, their operations are geographically limited by their license and they mainly operate in a rural region and provide credit to rural producers. Rural banks are similar to NBFIs, as these also focus on specific regions, unlike banks, which because they are bigger, can operate more widely (Cyree & Spurlin, 2012; Ibrahim, 2010). The lack of consensus regarding the most appropriate legal form for the microfinance market appears to be reflected in the sample studied, since no dominant legal form was observed, as can be noted from Table 4.

3. METHODOLOGY

3.1 Data

With the aim of studying MFIs, the study sample was composed of institutions registered in MixMarket. In the database, information on 2,294 MFIs is available for the period from 2007 to 2012. Of the 2,294 MFIs collected, MFIs without data for some of the periods were eliminated, leaving 304 MFIs and 1,824 observations composing the sample studied.

Regarding legal form, the sample is comprised of 126 NBFIs, 107 NGOs, 36 banks, 30 cooperatives, and five rural banks; therefore, the group made up of other for-profit institutions (rural banks and NBFIs) covered 131 institutions. The MFIs used to compose the sample are from 59 countries, mainly operating in Asia, in Latin America, and in Africa, with some in Eastern Europe. The five most represented countries in the sample are: Ecuador, India, Mexico, Honduras, and Peru, in that order.

In order to differentiate between the MFIs with regards to legal form, four groups were created: NGOs, credit cooperatives, banks, and the group made up of other for-profit institutions, which includes NBFIs and rural banks. The separation of banks from other non-profit institutions is due to differences regarding the business model adopted. Rural banks and NBFIs often only operate locally or regionally, whereas banks tend to operate on

a national scale, neglecting communities that are distant from urban centers or needing the help of intermediaries in order to serve these communities (Cyree & Spurlin, 2012).

3.2 Specification of the Model and Variables

The regression statistical technique with balanced and heteroskedasticity-robust panel data was used, attending to the result of the Breusch and Pagan test (1979). The study uses random effects to calculate the effect of the time-series panel, as this way it is possible to observe the effect of dummy variables that do not present any variation or a minimal variation over time (Torres-Reyna, 2010).

Due to the use of dummy variables, one group is not specified in the model, the group made up of NBFIs and rural banks. Because it is the biggest group in the sample, it was chosen to represent when all of the dummy variables take a zero value and is represented by the intercept. The data analysis was carried out using R language (R. Core Team, 2014) and the PLM statistical package (Croissant & Millo, 2008). All in all, eight panels were formed with the aim of verifying the relationship between the legal form and performance variables of the MFIs. The model used is presented in equation 1:

$$PER_{it} = \alpha_{it} + \beta_1 SIZE_{it} + \beta_2 RSOL_{it} + \beta_3 BANK_{it} + \beta_4 COOP_{it} + \beta_5 NGO_{it} + u_i + e_{it}$$

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in which: PER_{it} represents the MFI performance variables, the size of the MFIs over time is represented by $SIZE_{it}$, and the solvency ratio of each MFI over time is represented by $RSOL_{it}$. The dummy variables for banks, cooperatives, and NGOs are represented by $BANK_{it}$, $COOP_{it}$, and NGO_{it} , respectively. The random effect for each MFI is represented by u_i , e_{it} represents the non-observed error, and α_{it} represents the intercept.

The $RSOL$ variable was used as a control. The solvency ratio is used with the aim of reducing the effect of the

2008 crisis on MFI performance, given that financial institutions generally perform better when they are more leveraged and have a lower solvency ratio, especially during banking crises, such as the one that occurred in 2008, a period which is covered in the sample (Berger & Bouwman, 2013). MFI size was also used as a control variable, since larger MFIs would present efficiency gains from having a more developed structure and greater financial input (Cyree & Spurlin, 2012). The independent variables in the model are described in Table 1.

Table 1 *Independent variables used*

Type	Description of the variables	Abbreviation
Dummy	Binary variable representing banks.	BANK _{it}
Dummy	Binary variable representing credit cooperatives.	COOP _{it}
Dummy	Binary variable representing non-profit organizations.	NGO _{it}
	In the model, the intercept represents the group of rural banks and non-bank financial institutions.	α_{ij}
Continuous	MFI size measured by the logarithm of total assets.	SIZE _{it}
Continuous	MFI solvency ratio measured by the ratio between total net equity and total assets.	RSOL _{it}

Note: in every regression the same independent variables are used.

MFI = microfinance institution.

Source: Elaborated by the author.

To measure the financial performance of the institutions, the following variables were used: ROA, as it enables a comparison between for-profit and non-profit institutions (Bruett et al., 2005); profit margin, which indicates the ability of the MFIs to control costs and expenses and generate revenues, indicating their long-term sustainability (Louis et al., 2013); operational self-sufficiency, which makes it possible to observe how much the MFIs are able to cover their expenses with financial revenues (Tchakoute-Tchuigoua, 2010). The operational self-sufficiency of the MFIs is obtained by the ratio between financial revenue and the sum of expenses. Financial costs, operating expenses, and impairment losses, which are inherent to credit activities, are considered as expenses (MixMarket, 2014).

With the aim of measuring social performance, two variables were used: the number of active customers, which is an indication of the impact of MFIs on society, since MFIs that serve more customers cause a greater social impact (Hartarska, 2005), and the average value of the loans divided by the gross national product *per capita*,

which is a proxy indicator for the level of poverty of the customers that the MFI manages to serve (Cull, Demirgüç-Kunt, & Morduch, 2007; Hartarska & Nadolnyak, 2007). The average value of the loans should consider gross national product *per capita* when different countries are observed, in order to avoid distortions caused by the income level of the people served (Tchakoute-Tchuigoua, 2010).

For efficiency, cost of credit portfolio was used, which indicates the operating cost per unit of resource lent by the MFIs. The average cost per client was also used, which is made up of the ratio between operating costs and number of customers. For the cost of credit portfolio and cost per customer variables, the lower the result, the more efficient the MFIs will be (Gutierrez-Nieto et al., 2007; Tchakoute-Tchuigoua, 2010).

The risk of the MFI credit operations was observed using portfolio at risk for 30 days, which indicates the level of MFI customer defaults (Servin et al., 2012). Table 2 defines, describes, and refers to the studies from which the dependent variables used in the study originate.

Table 2 *Dependent variables*

Panel	Description of the variables	Abbreviation	Studies
Financial performance			
1	Return on assets.	ROA	Bruett et al. (2005)
2	Operational self-sufficiency measured by the ratio between financial revenue and the sum of operating and financial expenses and impairment losses.	OPSS	Tchakoute-Tchuigoua (2010)
3	Profit margin.	PROF	Louis et al. (2013)
Social performance			
4	Logarithm of the number of active customers.	NUC	Hartarska (2005)
5	Ratio between the average loans granted by the institution and the gross national product <i>per capita</i> of the country in which the MFI operates.	AVLG	Cull et al. (2007); Hartarska & Nadolnyak (2007)
Cost per customer			
6	Cost per customer measured by the ratio between operating cost and number of customers.	CPC	Gutierrez-Nieto et al. (2007)
Cost of portfolio			
7	Cost of providing credit measured by the ratio between operating cost and gross portfolio.	COP	Tchakoute-Tchuigoua (2010)

Table 2 Cont.

Panel	Description of the variables	Abbreviation	Studies
Credit portfolio risk			
8	MFI Portfolio at risk for 30 days.	PAR	Servin et al. (2012)

Note: each one of the variables was used as a dependent variable in each one of the panel data regressions.

MFI = microfinance institution.

Source: Elaborated by the author.

3.3 Model Suitability Tests

With the aim of verifying the suitability of the panel data model, the following tests were carried out: the Breusch and Pagan test (1979), for heteroskedasticity, the Said and Dickey test (1984) (ADF test), for serial

autocorrelation in the variables, and the Im, Pesaran, and Shin test (2003) (IPS test), for serial autocorrelation of the panels. Six panels, the period analyzed, eliminates problems with cross-sectional dependency and serial correlation (Torres-Reyna, 2010). The results for the ADF and IPS tests don't indicated unit root presence.

4. RESULTS ANALYSIS

4.1 Descriptive Statistics

Table 3 presents the correlations between the performance variables and the variables used in the regression as a control.

Table 3 Correlations between the performance (ROA, OPSS, PROF, NUC, AVLG, CPC, COP, and PAR) and control (SIZE and RSOL) variables

	ROA	OPSS	PROF	NUC	AVLG	CPC	COP	PAR	SIZE	RSOL
ROA		0.52**	0.87**	0.06**	-0.02	-0.08**	-0.39**	-0.1**	0.09**	0.12**
OPSS	0.52**		0.52**	0.02	0.01	-0.08**	-0.23**	-0.08**	0.05*	0.16**
PROF	0.87**	0.52**		0.01	0.04	-0.05**	-0.33**	-0.14**	0.09**	0.12**
NUC	0.06**	0.02	0.01		-0.19**	-0.31**	-0.11**	0.01	0.75**	-0.35**
AVLG	-0.02	0.01	0.04	-0.19**		0.55**	-0.19**	0.01	0.19**	-0.1**
CPC	-0.08**	-0.08**	-0.05**	-0.31**	0.55**		0.05**	0.01	0.07**	0.07**
COP	-0.39**	-0.23**	-0.33**	-0.11**	-0.19**	0.05**		-0.01	-0.3**	0.28**
PAR	-0.1**	-0.08**	-0.14**	0.01	0.01	0.01	-0.01		0.01	-0.01
SIZE	0.09**	0.05*	0.09**	0.75**	0.19**	0.07**	-0.3**	0.01		-0.4**
RSOL	0.12**	0.16**	0.12**	-0.35**	-0.1**	0.07**	0.28**	-0.01	-0.4**	

*, **: 10% and 5% significance, respectively.

Source: Elaborated by the author.

The correlation results presented in Table 3 show that the number of customers served by a MFI is highly correlated with its size, with a correlation of 0.75. Other correlations with higher absolute values than 0.4 were: cost per customer and average loans (0.55), ROA and operational self-sufficiency (0.52), ROA and profit (0.87), and profit and operational self-sufficiency (0.52).

The positive correlation between cost per customer and average loans was expected, since the high cost per customer is one of the reasons MFIs avoid poorer customers and deviate from their social mission (Serrano-Cinca & Gutiérrez-Nieto, 2014). The negative correlation between cost of credit portfolio and ROA (-0.39) also

bears mentioning; the result may indicate that reducing costs is related with MFI financial self-sufficiency, which is consistent with Roberts (2013).

Table 4 shows the values of the means, minimum values, maximum values, and the standard deviation of the performance variables, the control variables, the variable that represents the group made up of NBFIs and rural banks, and the dummy variables that represent cooperatives, banks, and NGOs. According to the t test (Student, 1908), the means are significant to 95% confidence. The group of NBFIs and rural banks is not represented by a dummy variable and is presented only for comparison.

Table 4 Means, minimum and maximum values, and standard deviations of the performance variables (ROA, OPSS, PROF, NUC, AVLG, CPC, COP, and PAR), of the control variables (SIZE and RSOL), of the variables related with the legal forms (BANK, COOPERATIVE, and NGO), and the group represented by the intercept of the regressions (RURAL BANK and NBFIs)

	Mean	Minimum	Maximum	Standard deviation
ROA	0.02	-0.97	0.37	0.08
OPSS	1.18	0.15	7.20	0.40
PROF	0.08	-5.84	0.86	0.37
NUC	9.92	4.51	15.72	1.82
AVLG	0.54	0.01	10.24	0.80
CPC	205.95	1.00	7,610.00	353.05
COP	0.23	0.01	2.15	0.19
PAR	0.06	0.00	7.11	0.24
SIZE	16.66	12.00	22.00	1.72
RSOL	0.31	-1.04	1.00	0.22
BANK	0.12	0.00	1.00	0.32
COOP	0.10	0.00	1.00	0.30
NGO	0.35	0.00	1.00	0.48
RURAL BANK and NBFIs	0.43	0.00	1.00	0.50

Note: according to the *t* test (Student, 1908), the means are significant to 95% confidence.

Source: Elaborated by the author.

The values of the descriptive statistics enable it to be observed that the mean cost per customer is US\$ 205.95, but some institutions manage to achieve values lower than US\$ 10.00, such as BWDA Finance, Adhikar, and Sarala, which operate in India.

It is possible to perceive that, on average, the MFIs manage to generate returns on assets of 2% with a maximum of up to 37%. The cost of credit portfolio is, on average, 23% of gross portfolio, but some MFIs operate

with much higher costs, spending more than twice what they loan only to maintain their operations.

4.2 Main Results

The results of the multiple regressions are presented in Table 5. Then the results for the financial performance, social performance, and efficiency indicators and the quality of the credit portfolios of the MFIs studied are discussed.

Table 5 Regression results

	Dependent variables							
	ROA	OPSS	PROF	NUC	AVLG	CPC	COP	PAR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SIZE	0.014*** (0.002)	0.038*** (0.009)	0.07*** (0.008)	0.484*** (0.013)	0.04*** (0.013)	24.60*** (5.92)	-0.04*** (0.003)	-0.004 (0.01)
RSOL	0.067*** (0.011)	0.286*** (0.057)	0.41*** (0.052)	-0.52*** (0.072)	-0.005 (0.076)	161.4*** (33.109)	0.063*** (0.02)	-0.001 (0.03)
BANK	-0.018* (0.01)	-0.04 (0.055)	-0.035 (0.043)	0.037 (0.21)	0.68*** (0.133)	39.828 (62.606)	0.046 (0.03)	0.04** (0.02)
COOP	0.018* (0.01)	0.04 (0.058)	0.14*** (0.044)	-1.46*** (0.224)	0.40*** (0.142)	25.844 (66.713)	-0.17*** (0.032)	-0.009 (0.02)
NGO	0.024*** (0.007)	0.092** (0.038)	0.10*** (0.029)	-0.043 (0.145)	-0.015 (0.092)	-18.268 (43.157)	-0.06*** (0.02)	-0.012 (0.02)
Constant	-0.25*** (0.031)	0.422*** (0.163)	-1.2*** (0.141)	2.173*** (0.247)	-0.282 (0.24)	-254.2** (106.177)	0.962*** (0.061)	0.124 (0.08)
Observations	1824	1824	1824	1824	1824	1824	1824	1824
R ²	0.046	0.021	0.056	0.477	0.029	0.02	0.103	0.003
R ² adjusted	0.046	0.021	0.056	0.476	0.029	0.02	0.103	0.003
F test (df = 5; 1,452)	17.48***	7.719***	21.5***	332.1***	11.0***	7.399***	41.82***	1.117

*, **, ***: 10%, 5%, and 1% significance, respectively.

Source: Elaborated by the author.

4.2.1 Financial performance.

The results found show that NGOs and cooperatives have a higher ROA and banks have a lower ROA than rural banks and NBFIs (represented by the intercept). The higher return of the NGOs and cooperatives, when compared to the banks, NBFIs, and rural banks, coincides with the result from Galema, Lensink, and Spierdijk (2011). Tchakoute-Tchuigoua (2010) did not find any significant difference between the ROAs of the legal forms.

The return of the NGOs and cooperatives could be explained by the improvement observed in the management and transparency of the non-profit institutions and the increased competition for donations between the socially orientated MFIs, which is also seen as a predominant factor for NGOs and cooperatives to develop processes that raise ROAs. This way socially orientated MFIs show the market that they are becoming more self-sufficient (Mersland & Strøm, 2008; Tucker & Miles, 2004).

The competition for market niches with more customers is a factor that may explain the lower rates of return of banks and of some other for-profit MFIs. The for-profit MFIs may be focusing their efforts on more competitive markets, with the hope that the higher number of customers compensates for the low returns. In contrast, serving less competitive markets may be more interesting for NGOs and cooperatives, as they would have the social argument of bringing microfinance to customers who would not otherwise be served (Cull, Demirgüç-Kunt, & Morduch, 2014); but it is worth observing that the ROA may be a sign that the NGOs and cooperatives are exaggerating in the commercial character when they take microfinance to distant communities.

Size of assets is directly related with MFI profitability, thus agreeing with the results of Hartarska (2005) and Mersland and Strøm (2009). The relationship between ROA and size of MFIs may be explained by the way the institutions grow; assets appear to grow faster than the number of customers, that is, the return may originate from loans that are larger and proportionally cheaper and more profitable for the MFIs. The consolidation process also allows MFIs to invest in technologies that can reduce costs and increase return (Hartarska, Shen, & Mersland, 2013). The results of the study reinforce the idea that bigger MFIs provide, on average, larger loans and have lower costs per unit of credit, reinforcing the relationship between consolidation, larger loans, lower costs, and higher returns.

The result appears to show that NGOs have greater operational self-sufficiency than rural banks and NBFIs, which diverges from Tchakoute-Tchuigoua (2010),

but converges with the work of Hartarska (2005) and Mersland and Strøm (2009), who observed that NGOs are more self-sufficient than some private MFIs. The result may be related with the lower cost of the credit portfolio and higher returns of the NGOs and cooperatives for the sample studied. The results also indicate that larger MFIs manage to become more self-sufficient, thus agreeing with the study from Mersland and Strøm (2009).

The results obtained show that non-profit MFI profitability was higher than that of NBFIs and rural banks, which may derive from pressures from investors and governments interested in operational self-sufficiency and in expanding the number of customers served. This may be making NGOs and cooperatives adopt more commercial practices that, allied with the advantage of operating with financial benefits and without any of the legal constraints of profit-orientated financial institutions, would result in greater financial performance. The profitability of these institutions is a warning sign if we consider that some MFIs are accused of practicing high interest rates and credit and collection policies that verge on being abusive, which in the case of socially-orientated MFIs could be mitigated by reducing profits so that they do not diverge from their social mission (Bédécarrats, Bastiaensen, & Doligez, 2012; Serrano-Cinca & Gutiérrez-Nieto, 2014). In this context, it could be questioned whether expansion through retaining surplus earnings is the best solution when assimilation or merger with other financial institutions is also an option.

In this paper, it was observed that all of the financial performance indicators were directly significant with relation to the solvency ratio. Berger and Bouwman (2013) report that a financial institution's financial performance is directly related to the proportion of own capital to total assets, especially in times of crisis, such as the 2008 crisis, which is contemplated in the sample, when they suffer more shocks related with levels of deposits, debtor default, and low availability of creditors' capital. The arguments that support the relationship between a higher solvency ratio and higher financial performance are access to cheaper funds and the preference for some types of more profitable customers that maintain longer relationships with the financial institutions, since, in both cases, a high solvency ratio is seen by the market as a sign of lower risk and favors the institution. It is unlikely that customers are able to assess the capital structure of MFIs; therefore it seems more reasonable to explain the relationship between the solvency and financial performance of the institutions via the reduction in risk and access to cheaper funds.

The results for the financial performance variables showed that, in general, NGOs and cooperatives have

higher returns, higher profits, and greater operational self-sufficiency than companies that adopt other types of legal form.

4.2.2 Social performance.

The results found show that the NBFIs and rural banks serve more customers than the cooperatives and diverge a little from Tchakoute-Tchuigoua (2010), since, due to the statistically non-significant result for NGOs and banks, it was not possible to carry out the same comparisons. However, in his paper he observes that for-profit MFIs are, on average, larger than non-profit MFIs such as cooperatives. In this sense, the result found indicates that the fact that cooperatives serve fewer customers than NBFIs and rural banks may be due to the greater size of the for-profit institutions in relation to the correlation between asset size and number of customers served, which as can be seen in Table 3, is 0.75 for the sample studied. It is also observed that larger MFIs provide, on average, larger loans, agreeing with the result from Cull et al. (2007) and being an indication that when MFIs grow, they serve less poor customers.

The ratio between own capital and assets was inversely significant with the number of customers, indicating that more financially leveraged MFIs manage to serve more customers. One possible explanation is based on the fact that the availability of subsidized lines of credit is an incentive for MFIs to meet their social goals and one of these consists of causing the maximum impact in the local society and serving the greatest number of poor people possible (Ghosh & Van Tassel, 2011).

The cooperatives present lower average loans than the banks and the results coincide with Tchakoute-Tchuigoua (2010). The results found may be related with the greater social orientation of cooperatives when compared to banks: cooperatives can provide smaller loans and serve poorer and less profitable customers because they have access to cheaper and subsidized funds (Serrano-Cinca & Gutiérrez-Nieto, 2014).

4.2.3 Efficiency, costs, and risk.

In relation to cost of credit portfolio, the NGOs and cooperatives presented lower costs when compared with the for-profit MFIs, except banks, which did not present any statistical significance that allows for comparison. The results coincide with Gutierrez-Nieto et al. (2007) and Tchakoute-Tchuigoua (2010). A portion of the higher costs of the rural banks and NBFIs may be related with the lack of subsidized lines of credit and donations, increasing the cost of capital for these MFIs (Ghosh & Van Tassel, 2011). Another possibility is that the business model of for-profit MFIs, probably based on products and services

from the traditional financial system, is less efficient for the microfinance market that that developed by NGOs and cooperatives, which adopt practices based on local customs and partnerships, thus reducing the cost of their operations. Adapting the traditional financial system services is difficult, given that poorer customers may not be able to cover all of the costs involved, with adaptations being necessary to “deliver more, costing less”; that is, adapting to the needs of the consumer market (Gonzalez, Diniz, & Pozzebon, 2015).

In the “cost per customer” variable, it was not possible to observe any differences regarding the legal forms; the dummy variables for NGOs, cooperatives, and banks did not present any statistical significance. MFI size is directly related with costs per client, but inversely related with cost of credit portfolio. The result appears to indicate that the big financial institutions are perhaps not accessible for the poorest customers and distant communities traditionally avoided due to the difficulty of geographical access and higher operating costs (Soares & Melo Sobrinho, 2008). The infrastructure needed to operate in more distant locations and with poorer customers appears to be economically unviable for large financial institutions; in this case, an improved relationship between MFIs and local partnerships may represent a way of avoiding costs. The banking intermediation model in which local businesses play the role of banking correspondents is an example to be observed by MFIs in expansion; with the knowledge of local agents and support of a robust communications and information technology infrastructure, the model allows large banks to operate in distant locations without having to assume the cost of a dedicated local infrastructure (Diniz, Pozzebon, & Jayo, 2009; Gonzalez et al., 2015).

The solvency ratio was significant for the two cost variables, indicating that less leveraged MFIs have higher costs per customer and higher costs per unit of credit. The possibility is that a more costly operation that favors poorer and more expensive customers makes more creditors’ resources available to MFIs and enables them to have a more financially leveraged structure. Ghosh and Van Tassel (2011) report that the most socially orientated MFIs are the ones that receive more subsidized funds and donations. In this case, the costs would be a reflection of social actions and the leveraged structure an incentive and a need for the activities of these MFIs.

With regards to the quality of the credit portfolio for 30 days, only the binary variable of the cooperatives was significant in the model, with a negative result, which does not enable comparison between the legal forms. Tchakoute-Tchuigoua (2010) found that NGOs and cooperatives have a higher risk, but Chakravarty and

Pylypiv (2015) found that NGOs and cooperatives have a lower risk, showing that there is no consensus regarding the effect of the legal form for MFI credit portfolio risk. However, the average found by Tchakoute-Tchuigoua (2010) for the PAR variable (0.064) is similar to that found for the sample studied (0.06), indicating that low credit portfolio risk may be a characteristic that is inherent to the microfinance market as a whole.

4.2.4 Legal form and performance.

The results found for the cooperatives show that they present the second highest return, the highest profit, the lowest average for loans granted, and the lowest cost per unit of credit granted, however they were also shown to serve a smaller number of customers when the group was compared to other legal forms. The NGOs obtained the highest return, the greatest operational self-sufficiency, the second highest profit, and the second lowest cost of credit portfolio, which may be attributed to the ease of access that MFIs with a greater social orientation have to subsidized lines of credit, which does not necessarily guarantee benefits for the customers, as some institutions adopt inefficient practices, wasting resources that could guarantee more loans to customers (Hermes & Lensink, 2011). The results of the study themselves reinforce this fear, since it was not possible to observe that the financial performance of the NGOs is reflected in lower average loans or a greater number of customers served; that is, in greater social performance.

The banks obtained a lower ROA and higher average loans. Cyree and Spurlin (2012) note that rural banks are more efficient and obtain higher profits than large banks when they operate in rural communities. Roberts (2013) highlights that an excessive orientation towards profit can be prejudicial to the financial performance of MFIs in a market in which investments and subsidies

favor institutions that are more orientated towards social results. Gonzalez et al. (2015) speak of the importance of the right use of local partners and information technology to create intermediaries or banking correspondents, aiming to reduce the costs of the activities of large banking institutions by reducing the infrastructure needed, as well as adapting services and products to the poorest, by favoring the local knowledge and practices already adopted by this clientele.

With regards to the group made up of NBFIs and rural banks, this obtained higher average returns than the banks, but lower ones than the NGOs and cooperatives. The profit was also lower than that of the NGOs and cooperatives. These institutions were shown to serve more customers, even when facing higher costs per unit loaned than NGOs and cooperatives and with lower financial performance. More studies are thus needed to identify how NBFIs and rural banks manage to serve more clients in the microfinance market.

The results for the bank group are an indication that the traditional structure of the financial institutions may not be suitable for the microfinance market. It may be that, as Gonzalez et al. (2015) report, adaptations are needed in the financial services offered and in the infrastructure, seeking to reduce costs without preventing the poorest customers from having access to the financial institutions and their services. In contrast, even with higher financial results than other MFIs, it was not possible to affirm that NGOs use surplus funds to serve a greater number of customers or provide smaller loans, thus weakening the arguments related to social action. In this context, a combination of more modern financial service practices and less formal socially-orientated financial institution practices may serve as the basis for a business model that meets the needs of the poorest and serves as a model for the microfinance market.

5. FINAL REMARKS

In this paper, it was shown that larger MFIs obtained higher returns, greater self-sufficiency rates, higher profits, served a greater number of customers, and had a lower cost of credit portfolio than smaller institutions. Thus, mergers and assimilations may be an interesting alternative for MFIs for two reasons: a reduction in the costs of smaller MFIs, which could adopt more efficient technologies and practices that allow for economies of scale (Hartarska et al., 2013); and taking advantage of the structure already established by smaller MFIs, especially those that operate in more distant locations, thus assimilating the knowledge,

relationships, structures, and practices, in order to serve this clientele (Gonzalez et al., 2015; Hartarska et al., 2013; Jeon & Menicucci, 2011).

It was also observed that cooperatives, NBFIs, and rural banks are the legal forms that can balance the demands for financial performance, seeking to guarantee a return on the investments carried out and the financial sustainability of the organization, with the demands of investors for social results. The results found are an indication that cooperatives, NBFIs, and rural banks may be the most appropriate legal forms for the microfinance market,

showing that, as foreseen by Fama and Jensen (1983b), the specificities of each activity favor some forms of ownership over others.

The results are indications that investors, donors, and governments should focus investments and incentives

on larger MFIs that adopt the legal form of NBFIs, rural banks, and cooperatives, as well as encouraging mergers and acquisitions between small and large institutions specialized in microcredit and microfinance.

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