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The impact of outside control in microfinance

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Abstract

Purpose – Microfinance practitioners have emphasized that appropriate control mechanisms are critical for the success of a microfinance institution (MFI). The purpose of this paper is to study the effects of external governance mechanisms on MFIs' performance, whereby external governance is defined as the control exercised by stakeholders and markets, and accountability mechanisms that operate to enforce internal governance.

Design/methodology/approach – This paper uses a database of 108 MFIs operating in over 30 countries and analyzes their performance by adopting an empirical approach usually employed in cross-country banking research on the impact of market forces and regulation on performance. MFI performance is measured by sustainability and outreach indicators and is modeled as a function of external audit, microfinance rating, and regulatory status and controls for MFI and country-specific characteristics.

Findings – Results indicate that regulatory involvement and financial statement transparency do not impact performance, while some but not all rating agencies may play a disciplining role.

Research limitations/implications – At the time of the study, available data are limited to 108 organizations and since then more MFIs have made their financial statements available, therefore, the hypotheses of this paper can be retested.

Practical implications – Stakeholders should be aware that external control mechanisms in microfinance are weak, thus adequate internal governance mechanisms are important.

Originality/value – This paper offers empirical evidence that external governance mechanisms have limited impact on MFI performance.

Keywords Financial institutions, Governance, Management accountability

Paper type Research paper

Introduction

Well run microfinance institutions (MFIs) make better use of scarce funds by providing better financial services and reaching more poor clients. Although the literature on microfinance is significant and growing, very few studies explore the relationship between MFI performance and mechanisms of outside control. So far, studies have focused mainly on the role of innovative lending practices designed to improving outreach and sustainability, and on the impact that MFIs have on borrowers (Morduch, 1999; Aghion and Morduch, 2000).

Microfinance practitioners have emphasized that appropriate control and governance mechanisms are critical for the success of an MFI (Campion, 1998; Rock *et al.*, 1998), but only few studies on regulations in microfinance have touched upon these issues (McGuire, 1999). This paper focuses on the external governance in microfinance, whereby external governance is defined as the control exercised by stakeholders and markets, and accountability mechanisms that operate to enforce internal governance[1].

Closer examination of the mechanisms of control is important because MFI managers control significant resources. Recent study found that about 90 percent of the one billion dollars that funded microfinance initiatives came from public money, mainly from taxpayers in the developed countries (CGAP, 2004). Given that the unpaid microfinance board could exercise only limited internal control, understanding whether

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and how the external governance framework can impose market discipline is especially important (Manne, 1999).

As the microfinance industry grows and matures, the competition for donations and customers, as well as the presence of for-profit firms has made the impact of market discipline even more pronounced. Donors and creditors are increasingly relying on information from audited financial statements and many MFIs now choose to have their financial statements audited and make them available to the public.

In recent years, the microfinance industry has witnessed the emergence and growth of a number of rating agencies specializing in rating MFIs. In the absence of developed equity and debt markets, donors and investors could benefit from independent evaluation of MFIs' performance. Rating helps impose market discipline by producing and revealing information to the public and thus encourages better management.

In addition, some organizations previously operating as NGOs have raised funds, reorganized and transformed into regulated financial intermediaries and even more MFIs are considering such a transformation. Regulatory involvement impacts MFI performance by changing the internal rules of the organization, and through interaction with external mechanisms of control such as microfinance rating and the cost of external funds.

The impact of these mechanisms on MFI performance has not been studied, however. The lack of research is partially due to the fact that, until recently, there were no publicly available data with financial and outreach profiles of individual MFIs. The unique characteristics of MFIs also complicate such a study. For example, MFIs are similar to non-profit firms because they focus on outreach, and because many operate as NGOs. At the same time, many MFIs are similar to banks because they are regulated or supervised by a regulatory body and/or because they collect deposits.

This organizational diversity makes it difficult to choose an appropriate framework for analysis. The standard literature on governance focuses mainly on problems of the modern public company while the governance issues in banks and in non-profit organizations are much less understood and empirical studies of these organizational types are rare (Hermalin and Weisbach, 2003; Scott and Hopkins, 1999). These challenges are addressed by incorporating insights from the literature on governance in banks and in non-profit organizations.

This paper assembles a new database of 108 MFIs operating in 30 countries and analyzes their performance by adopting an empirical approach usually employed in (cross-country) banking research to study the impact of market forces and regulation on performance. The focus of the paper is on the impact of external audit, microfinance rating, and regulatory status on MFI performance, where performance is measured in terms of outreach and sustainability. Results indicate that regulatory involvement and financial statement transparency do not impact performance but that rating may hold the potential to play a disciplining role in microfinance. The main conclusion that the paper draws is that not all microfinance rating agencies are the same. Donors and investors would benefit from identifying rating agencies which help impose market disciplining and should promote these raters' methodologies.

The paper is organized as follows: the next section reviews the literature on rating, further sections describe empirical specifications and the data, the penultimate section discusses the results, and the final section offers concluding remarks.

Review of the relevant literature

Market discipline in microfinance

Markets can discipline financial intermediaries if investors observe and price the risk of these institutions so that management decisions are affected by the price signals (Sironi, 2003). Bliss and Flannery (2001) distinguish between *market monitoring* as the process of correctly understanding and pricing changes in risk profile, and *market influence* as the impact that changes in prices have on managers' behavior. Kwast (1999) argue that market influence can be in the forms of *direct market discipline* through the cost of capital as a function of the intermediaries' risk profile, and in banking, *indirect market discipline* through the impact of supervisor's actions motivated by the yields on banks' risk sensitive sources of funds.

MFI creditors do not differ from creditors of financial intermediaries – they seek and use information on MFI performance to ensure that their lending is prudent. However, MFI equity differs from that in banks and other financial intermediaries. A substantial part of the asset base of most MFIs is created through grants. Equity providers in MFIs are large (international) donors who do not have the option of selling stakes. Although these donors do not require dividends, they continue to monitor the MFI they created, usually through representatives on the MFI board.

MFIs and other financial institutions depend on having access to liquidity to meet current obligations and on external funds to finance expansion. Therefore, the willingness of donors and creditors to provide liquidity and to fund future projects is important. Donors and especially creditors, base their "good will" on information on the performance of MFIs, usually available through audited financial statements.

The impact of audit and disclosure

The ability of stakeholders (donors and investors) to effectively monitor managers depends crucially on the completeness and accuracy of the information they rely on. The main objective of external financial reporting is to reduce information asymmetries between the different stakeholders and the firm (Healy and Palepu, 2001). Lower level of information asymmetry usually translates into lower cost of funds.

External audit can be an effective external mechanism because it signals to potential investors and donors whether the manager complied with the accounting practices and did not misrepresent financial information. Quality of audit also matters as evidence suggests that it is usually driven by active stakeholders (Ashbaugh and Warfield, 2003). In addition, there is evidence that firms who voluntarily adopt the International Accounting Standards or US Generally Accepted Accounting Practices (GAAP) have lower cost of debt (Leutz and Verrecchia, 2000).

There are various views on the possible impact of external audit. For example, the general view is that the degree of MFI transparency helps impose market discipline because more transparent MFIs would attract more investors, creditors, and donors. However, if firm ownership is concentrated, stakeholders (donors) with substantial stakes could provide sufficient monitoring and the benefits of external audits may be less pronounced. On the other hand, high concentration may be precisely the reason for requiring audits because large equity providers may collude with management and engage in excessively risky (and more profitable) activities to the detriment of creditors and depositors (Leutz and Verrecchia, 2000).

The impact of audit on firm performance does not appear to have received much attention, perhaps because most countries have mandatory audits. It nonetheless is an issue worth pursuing, particularly since Izan (1980) finds that US bank managers were

unhappy when mandatory audits were imposed on them. Barth *et al.* (2004) find that policies that require accurate information disclosure empower private sector control of banks, foster incentives for private agents to assert corporate control, and work best to promote bank development, performance, and stability.

The impact of rating

In addition to audit and financial statement disclosure, rating provided by independent market participants may affect the willingness of potential equity holders, donors, and creditors to fund an MFI. Credit rating influences the price of debt directly and it produces information useful to equity provides as equity studies find that investors promptly incorporate rating information in bank stock prices (De Young *et al.*, 2001).

The theoretical literature provides only limited insights regarding the role of credit rating agencies. Nayar (1993) develops arguments in support of voluntary rating against compulsory rating. Kuhner (2001) views rating agencies as information intermediaries and studies their role in helping to overcome information asymmetries. He shows that, in periods of increased systemic risk credit rating agencies have the ability to distinguish between different categories of fundamental credit risk but that, in general, credit rating agencies are developing evidence that the market largely agrees with and this information does not influence the decisions made by investors.

Mukhopadhyay (2003) is concerned with the moral hazard that rating agencies may create – once the firm is rated and funds are secured, managers may not have incentives to exercise maximum effort and may slack off. He shows that incentive payments to the rating agency that are based on expected returns on debt will remove the moral hazard problem.

Boot *et al.* (2004) argue that the mechanism of CreditWatch allows the rating agency to interact with the firms it rates and write an implicit contract with the management of a firm that is under a threat of having its credit rating changed. This allows for a "deal" between the firm and the credit rating agency where the firm commits to take actions to mitigate possible deterioration in rating. The rating and the implicit contract are incentive compatible provided that a group (that is, possible investors) conditions its financing decision on the rating. The insights from this model are relevant to microfinance rating where some rating agencies such as M-CRIL provide rating that is valid only for certain period of time and thus, donors and investors are more likely to act on it.

From a policy perspective a study on the impact of microfinance rating agencies and their ability to serve as an effective mechanism of external control is timely and important especially in view of recent attempts to support the industry. For example, in May 2001, the Consultative Group to Assist the Poor (CGAP) established a special fund with the purpose to subsidize rating of MFIs (see www.ratingfund.org).

As MFIs main objective id serving the poor, the emphasis on outreach is also important. MFI rating agencies do not rate exclusively debt; instead, microfinance rating agencies develop methodologies that focus on the overall performance of the organization in terms of both outreach and sustainability. Thus, studies on the impact of rating in microfinance should account for the impact of rating on MFI outreach.

Rating has value, however, if it produces information in addition to what the markets already know. In the case of banks and financial intermediaries, the ability of markets to generate price signals that correctly reflect risk is influenced by regulatory involvement through the bank supervisory authority. Specifically, if a regulator

provides explicit or implicit guarantees, market signals may be distorted, and the market may fail to play the disciplining role.

As many MFIs are regulated, regulatory involvement may be in conflict with the ability of rating agencies to help discipline MFI managers. In microfinance, donors who care about the mission of the organization and may provide implicit "guarantees" that the MFI can be recapitalized after bad performance. Since most MFIs – regulated, NGO, and non-bank financial institution – may be subject to such distortions, the value of the information provided by rating agency may be diminished.

The predominant view in the empirical literature is that, at least in the USA, regulatory interventions should co-exist with credit rating (Flannery, 1998; Morgan and Stiroh, 2000; Berger *et al.*, 2000). Cross-country empirical studies are rare but Sironi (2003) finds that, in the case of European banks, rating helped investors impose market discipline.

The impact of regulation

The impact of regulation on MFI performance is also unknown. Previous studies either discuss the transformation of a particular MFI into a regulated institution or take a normative approach and use banking theory to derive implications for MFI regulation (Chaves and Gonzalez-Vega, 1994; Rhyne, 2001). The main idea put forward is that deposit taking justifies regulation. Thus, deposit-taking institutions should be regulated, those without deposits form the public should not, and MFIs who fall in between should have some form of targeted regulation (Van Greuning *et al.*, 1999; Hardy *et al.*, 2003).

The main argument for regulation has been that in most cases regulation enables an MFI to attract deposits (Campion and White, 1999). In the absence of deposits, MFIs could only leverage donated resources by borrowing from formal financial institutions, and large institutional or individual investors or by accepting limited deposits from the public (Dowla and Alamgir, 2003). The need for regulation in institutions collecting deposit is justified because depositors are small, dispersed, uninformed, and cannot effectively monitor managers or exercise their control rights. In banks, Dewatripont and Tirole (1994) show that a regulator could better represent the interest of depositors by acting on their behalf. The regulator's role is to define the conditions under which equity holders would remain in control of the bank and under which they would lose control, usually through solvency regulations.

An argument against regulation is raised by the literature on regulatory capture, which cautions that regulation of an industry may result from the effort of incumbents to create and extract rents, and prevent entry by new competitors (Stigler, 1971). Because older MFIs are leading the trend towards regulation, it is important to study whether the presence of a regulator promotes better managerial effort and thus better performance.

Since regulation introduces the regulator as an additional stakeholder in the governance structure of the MFI, microfinance professionals worry about the impact of the new stakeholder on the mission (Dichter, 1997). Regulatory involvement may lead to a mission drift if demands to fulfill regulatory requirements divert attention away from serving the poor and may hold back innovation in lending technology that has been the driving force behind MFIs' ability to serve even poorer borrowers.

Recent empirical studies analyze the impact of banking regulations on bank performance worldwide using newly released World Bank Banking Survey data and find that regulatory power has no impact on bank performance and valuation but that

institutional environment supportive of private sector supervision of banks has positive impact (Barth *et al.*, 2004).

Empirical specifications

Empirical analysis of bank performance usually specifies performance as a function of bank-specific variables, macro-economic and institutional factors, and regulatory framework (Molyneux *et al.*, 1992; Samolyk, 1994; Barth *et al.*, 2003). The standard model of bank performance is augmented here by introducing a vector of variables that capture the impact of the external governance framework. The model is:

$$P_{it} = constant + \alpha' EG_{it} + \beta' MS_t + \phi' M_t + \varepsilon_{it} \quad (1)$$

where P_{it} is a performance variable for MFI i at time t; EG_{it} is a vector of variables that capture the impact of the external governance framework, including regulation; MS_t is a vector of MFI-specific variables; M_t are macro-economic country-specific variables, and ε_{it} is an error term.

Performance is measured by two variables because MFIs pursue a double objective – outreach and sustainability. Financial sustainability is measured by return on assets (*ROA*) and outreach is measured by the log of the number of active borrowers (*NAB*). Establishing the effect of external governance mechanisms and especially of regulation on outreach is important because proponents of transformation of MFIs into regulated institution have argued that regulated MFIs could reach more borrowers as their leverage opportunities improve.

EG_{it} consists of several variables. $AUDIT_{t-1}$, is a dummy for the existence of audited financial statement in the previous period and $AUDIT_t$ is a dummy for the current period. The audit variable is lagged one period, because the impact of audit is likely to be delayed. For example, if a manager has corrections in the previous audit he/she is motivated to improve in the next period. The hypothesis is that if auditing disciplines managers, everything else equal, MFIs with audited financial statements in the previous year will perform better than those without. Thus, a positive coefficient would indicate a disciplining role of auditing, and a negative link would indicate moral hazards, that is, managers slack off once previous year financial statements have been certified. Current period audit is included to control for the quality of the financial statements of the current period.

RATING is a dummy variable that controls for the disciplining role of rating. The analysis also includes specifications with dummies for various raters (*Rater_1, Rater_2, Rater_3*, and *Rater_4*) because studies have found that credit agencies differ in their evaluation of financial intermediaries (Morgan, 2002), suggesting that it is important to control for the quality of the rater. Rating is recorded for the year for which it was conducted but in most cases rating was based on financial statements for the preceding years. This is done because usually rating is based on pervious years' financial statements. For example, if an MFI was rated in 2000 it was recorded as rated in 2000, although the rater actually used financial statements for the years up to and including 1999. In cases of mid-year rating, raters used past years as well as current mid-year indicators of performance. This recording of rating permits studying the impact of rating on performance in the immediate period after the rating occurred and for which data were available. Positive coefficient would be interpreted to mean that rating disciplines MFIs and negative that rating leads to moral hazard.

RSTATUS variable controls for the impact of the presence of a regulator. A positive coefficient would indicate that regulated MFIs do better, that is, regulator-imposed rules discipline managers and promote better performance.

The first MFI–specific variable is the book value of equity divided by total assets lagged one period (*CAPITAL*). Total assets are lagged one period since profits, if not paid as dividends, have a contemporaneous impact on bank equity (Demirguc-Kunt and Huisinga, 1999). The individual risk profile measured by portfolio at risk (*PAR*), debt to equity ratio (*DEBT*), and (disbursed) loans to total assets (*LOANS*)[2]. Since not all regulated MFIs collect saving and not all MFIs that are regulated reported savings, regulation is not necessarily a prerequisite for collecting savings, (deposits) ratio (*SAVINGS*) is included as an separate variable. Other control variables include MFI age, age squared to control for non-linear impact of the age (*AGE* and *AGE2*, respectively) and MFIs size measured as the log of total assets (*SIZE*). Among the variables representing MFIs' profiles (excluding age), *SIZE* is not a ratio. The value of total assets entering *SIZE* is adjusted for inflation using the US CPI.

The empirical model also includes MFI type (bank, NGO, and non-bank financial intermediary) because Besley and Ghatak (2004) show that competition for donations may lead to a mission drift in mission driven organizations and donors would be willing to support an MFI if they were assured that the mission will not change. The non-profit status may reinforce mission credibility and ensure donors that the original mission will be maintained.

Macro-economic variables are per capital income (PCGNP), the size of the informal economy. Industry risk is measured by the standard deviation of the dependent variable for MFIs in peer groups.

Data

Data for this study come from several sources. Data for individual MFIs come from a database collected by MIX MARKET information platform (www.mixmarket.org). To date, MIX MARKET provides the only publicly available cross-country data of individual MFIs from over 60 countries for the period 1998-2002. At the time of data collection, it listed the profiles of over 108 MFIs from over 50 countries for the period 1998-2002, which resulted in about 150 individual annual MFI observations[3]. Definitions of the variables used in the regression analysis are shown in Table I.

Rating data were collected from several sources. First, the CGAP Rating Fund (www.ratingfund.org) lists MFI name, rater and the year in which rating was conducted for all MFIs who have received financial support for the rating. Raters listed at this website were ACCION, M-CRIL, Microfinanza Ltd., MicroRate, and Planet Rating. These raters were contacted and four of them responded by providing data on what organizations they rated. Although raters provided complete information of the MFIs they rated, only a small part of each rater's clients was part of the MIX MARKET database. Rating data were merged with the data profiles of individual MFIs from the MIX MARKET database to construct the database used in this analysis.

Ideally, data used in empirical analysis should come from a random sample. Most MFIs listed on MIX MARKET website had elected to participate motivated by the possibility that potential investors may review their profile and select them for funding. Thus, listed MFIs identified themselves as seeking funds and as being more transparent than MFIs that did not provide profiles. To the extent that demand for funds is an issue, the data are non-random. However, data collected by MIX MARKET include regulated and unregulated MFIs, MFIs with and without audited financial

Variable	Definition
ROA	Return on assets
NAB	Logarithm of the number of current borrowers, that is the number of individuals that currently have an outstanding loan balance with the MFI or are responsible for repaying any portion of the gross loan portfolio
AUDIT	A dummy variable that takes the value of 1 if the MFI has audited financial statements, zero otherwise
RATING	A dummy variable that takes the value of 1 if the MFI is rated in the current period (), zero otherwise; source: documentation provided by raters
RSTATUS	A dummy variable that takes the value of 1 if the MFI is regulated, zero otherwise
CAPITAL	Ratio of total equity to total assets (lagged one period back)
DEBT	The ratio of total liabilities to total equity, measures risk
PAR	Portfolio at risk for more than 30 days to gross loan portfolio
LOANS	Ratio of loans outstanding to total assets
SAVINGS	Ratio of saving to total assets
AGE, AGE2	Age and age squared of the MFI calculated as the number of years since inception
SIZE	Logarithm of the total assets of the MFI. Total assets include all assets net of contra asset accounts such as the loan loss reserve and accumulated depreciation
INFORMAL	Index of the size of the informal market; one equals market economy, five the informal market size is higher than that of formal; source: Heritage Foundation
PGDP	GDP per capita in constant 1995 US dollars; source: IMF
NAB_SD	Standard deviation of number of active borrowers for the peer group to which the MFI belongs; measures industry risk; source: MicroBankingBulletin
ROA_SD	Standard deviation of average return on assets for the peer group to which the MFI belongs; measures industry risk; source: MicroBankingBulletin
NGO	Dummy variable that takes the value of one if the MFI is registered as an NGO
NBFI	Dummy variable that takes the value of one if the MFI is a non-bank financial institution and zero otherwise

Table I.
Variable definitions

statements, MFI with and without rating. To the extent that the focus of this paper is on the impact of external governance framework, these data represent a relatively random sample of MFIs seeking funds. Given this assumption, the data could be used to study the impact of external mechanisms of control on this specific sample of relatively transparent MFIs.

Recent cross-country studies on financial intermediaries have found that macro-economic and institutional factors substantially affect bank performance (Barth *et al.*, 2004). The impact of the institutional environment is measured by the index of the size of informal economy provided by the Heritage Foundation. This variable is of interest because MFIs often serve non-registered businesses and entrepreneurs operating on the informal market. Data on per capita real income come from the IMF and are in constant 1995 US dollars. Data on industry risk (that is the standard deviations of ROA and NAB) were collected from several issues of the MicroBankingBulletin (MBB). NAB_SD and ROA_SD were constructed as each individual MFI was first classified in a peers group for each period for which MBB was published. Then the standard deviation of the NAB and ROA for the relevant peer group to which this MFI would have belonged was selected as a measure of industry risk.

Table II shows the means and standard errors of the variables used in the empirical analysis. About 35 percent of the MFIs have current and previous year audited financial statements, about 20 percent only have current year and about 20 only have previous year statement. Of the 108 MFIs, 33 are rated at least once and the database contains 49 ratings. A significant share of the MFIs are regulated – 68 percent.

Compared to banks where the capital ratio is about 0.13 (see Barth *et al.* (2003) for a sample of banks from 47 countries), MFIs are much less leveraged as the capital ratio is 0.50, which is consistent with their higher levels of risk as they have heavily monitored debt that is difficult to leverage (Conning, 1999).

Discussion of the results

The results show that not all external governance mechanisms may be effective in disciplining managers. Table III presents result from several specifications with *ROA* as the dependent variable. Model 1 includes control variables for all external governance mechanisms. Except for the regulatory status, all external governance variables vary in time. As fixed effects model cannot be used when some of the explanatory variables are time invariant, the random effect model seems to be the only choice. A Brusch-Pagan test shows, however, that the random effect model is misperceived when regulatory status is included as an explanatory variable, thus, results from Model 1 are biased. The specific characteristics of the data do not permit to use regulatory status in the empirical analysis on the impact on *ROA*.

Model 2 excludes regulatory status. As a result, the specification passes the Breusch-Pagan test. Model 3 differs from Model 2 because it adds *AUDIT* to control for the quality of financial statements in the current period. In these specifications, the results on the impact of the remaining external mechanisms of control – audit and rating – are rather disappointing, as none of the key variables is significant in Models 1-3. Similar "no impact" results were found by Hartarska (2004) who analyses a sample

Variable	Mean	Std. Dev.	Min	Max
ROA	−0.0016	0.2173	−1.7208	0.99
NAB	8.8340	2.0265	2.1969	14.9322
AUDIT ($t-1$)	0.3545	0.4792	0	1
AUDIT	0.3481	0.4771	1	1
RATING	0.1550	0.3624	0	1
RSTATUS	0.6878	0.4639	0	1
CAPITAL	0.5016	0.3361	−0.9798	1
DEBT	2.5179	4.6147	−15.3489	44.2875
PAR	0.0470	0.0812	0	0.8938
LOANS	0.6754	0.1978	0.0509	1.0322
SAVINGS	0.1369	0.2198	0	0.9291
AGE	8	6	1	42
AGE2	102	176	1	1,764
SIZE	14.97	1.9985	8.97	21.88
INFORMAL	4.0853	0.8205	2	5
PGDP	6.7221	0.9052	4.5570	8.7304
NAB_SD	103,317	286,707	484	1,492,187
ROA_SD	0.0592	0.3450	0.005	0.151
NGO	0.5238	0.4999	0	1
NBFI	0.3378	0.4737	0	1

Table II.
Summary statistics

	(1)	(2)	(3)	(4)	(5)
Constant	−0.145 (0.65)	−0.115 (0.56)	−0.110 (0.53)	−0.214 (1.02)	−0.215 (1.02)
$AUDIT_{t-1}$	0.012 (0.62)	0.011 (0.56)	0.012 (0.58)	0.009 (0.47)	0.011 (0.58)
AUDIT			0.005 (0.28)		0.013 (0.68)
RATING	0.034 (1.47)	0.038 (1.46)	0.038 (1.46)		
Rater_1				0.035 (0.58)	0.033 (0.54)
Rater_2				0.127 (1.32)	0.132 (1.36)
Rater_3				0.001 (0.03)	0.001 (0.02)
Rater_4				0.195** (2.24)	0.202** (2.28)
RSTATUS	0.088** (2.40)				
CAPITAL	0.084* (1.68)	0.056 (1.12)	0.055 (1.09)	0.061 (1.22)	0.061 (1.21)
LOANS	0.219*** (2.78)	0.244*** (3.12)	0.242*** (3.10)	0.266*** (3.37)	0.264*** (3.35)
DEBT	0.001 (0.41)	0.002 (0.80)	0.002 (0.82)	0.003 (0.96)	0.003 (1.00)
PAR	−0.389 (1.23)	−0.703** (2.57)	−0.712*** (2.59)	−0.654** (2.40)	−0.654** (2.39)
SAVINGS	−0.068 (1.14)	−0.026 (0.43)	−0.025 (0.41)	−0.023 (0.36)	−0.021 (0.34)
AGE	0.019*** (3.20)	0.019*** (3.38)	0.018*** (3.39)	0.019*** (3.49)	0.019*** (3.51)
AGE2	−0.00048*** (2.93)	−0.00048*** (2.87)	−0.00046*** (2.87)	−0.00048*** (2.91)	−0.00048*** (2.94)
SIZE	0.008 (0.77)	0.003 (0.39)	0.003 (0.36)	0.005 (0.56)	0.005 (0.53)
ROA_SD	0.110 (0.36)	0.002 (0.01)	−0.010 (0.03)	0.154 (0.45)	0.132 (0.38)
PCGDP	−0.024 (1.18)	−0.004 (0.23)	−0.004 (0.22)	−0.002 (0.09)	−0.001 (0.04)
INFORMAL	−0.043*** (2.69)	−0.043*** (2.60)	−0.044*** (2.64)	−0.039** (2.32)	−0.040** (2.38)
Type dummies	Yes	No	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes
Observations	128	147	147	147	147
R-squared	0.33	0.31	0.32	0.30	0.31
Ftest	50.01	45.65	45.92	50.68	51.12
Breuch-Pagan	2.80	9.22	8.83	10.87	10.50
Rho	0.74	0.67	0.66	0.70	0.69

Notes: *t*-statistics in parentheses; *significant at 10 percent; **significant at 5 percent; ***significant at 1 percent

Table III.
Random effect estimate of *ROA*

of 40 MFIs operating in Central and Eastern Europe and in the newly independent states.

Models 4 and 5 include separate dummies for each of the raters instead of one dummy variable for rating. These results indicate that not all raters are equal. When rating by individual raters is accounted for the coefficient of *Rater_4* is positive and significant at the 5 percent level. Rating, as the newest emerging control mechanism, may be able to impose market discipline on MFI managers. All else equal, MFIs rated by *Rater_4* have a *ROA* that is higher by 0.20 percent points than that of MFIs not rated by this rater. The coefficients on other raters are not statistically significant.

MFI with higher focus on lending (higher loans to assets ratio) have higher *ROA*, as expected. However, MFIs that are able to control risk fare better, as the negative and significant coefficient of the *PAR* variable indicate. Thus, for each one percent point increase in the *PAR* ratio, *ROA* decreases by 0.70 percent points. The capital ratio and the level of debt ratio do not impact performance, perhaps because the capital structure is less important in MFIs where donors and other providers of funds are flexible and could offer support in terms of both equity and loans. The level of savings and the size of an MFI do not impact sustainability. With age, MFIs improve their performance, but as an MFI matures this trend reverses and after the age of 20 the impact becomes negative.

Industry riskiness, measured by the standard deviation of *ROA* among peers operating in similar markets and region, does not impact *ROA*, and neither does the economic development of a country measured by the per capita income. As expected, because MFIs have a comparative advantage in serving informal enterprizes, the size of the informal economy has a positive impact on sustainability. For example, all else equal, an MFI operating in South Africa (index of 3, or smaller size of the informal economy) will have 0.4 percentage point lower *ROA* than an MFI operating in Mozambique (index of 4, or higher size of the informal economy) based on the value of the index in 2002.

Specification tests indicate that the estimated models are reasonable. The value of the *R* squared indicates that the models explain about 33 percent of the variation, and the *F* test confirms that the variables included in Models 1-5 are jointly significant, at the 1 percent level.

Table IV presents results for the regressions where NAB (log of the number of active borrowers) is the dependent variable. The results are disappointing because none of the variables that capture the impact of external governance mechanisms are significant. Specifications with regulatory status now pass the Breusch-Pagan test, but regulated MFIs do not reach more borrowers than non-regulated. Audit and rating, as well as the capital ratio are not significant in any of the regressions. These results probably indicate that, in spite of the industry's emphasis on outreach, MFI stakeholders (which determine the capital ratio) and market participants do not use outreach indicators when evaluating managerial performance, so that outreach is not promoted by auditing and rating. These results are consistent with predictions of models of optimal managerial incentives when the manager has multiple tasks. These models indicate that it is optimal to base performance evaluation on the best signal available if the two tasks are complementary (Holmstrom and Milgrom, 1991)[4].

Results from Table IV show that MFI age and size impact outreach positively. Results from Model 4 in Table IV also indicate that MFIs with higher focus on lending reach more borrowers, while MFIs with lower proportion of debt to equity also reach

	(1)	(2)	(3)	(4)
Constant	6.594*** (3.56)	6.680*** (3.60)	7.116*** (3.75)	6.053*** (2.92)
$AUDIT_{t-1}$	−0.140 (0.63)	−0.148 (0.66)	−0.181 (0.79)	−0.169 (0.75)
AUDIT		0.054 (0.26)		−0.070 (0.31)
RATING	0.304 (1.15)	0.301 (1.12)		
Rater_1			−0.633 (0.70)	−0.732 (0.95)
Rater_2			−0.380 (0.42)	−0.472 (0.61)
Rater_3			0.372 (1.15)	0.206 (0.67)
Rater_4			0.172 (0.25)	0.081 (0.12)
RSTATUS	0.215 (0.71)	0.221 (0.73)	0.230 (0.76)	0.197 (0.55)
CAPITAL	−0.560 (1.19)	−0.550 (1.15)	−0.671 (1.38)	−0.677 (1.41)
LOANS	1.234 (1.59)	1.227 (1.58)	1.199 (1.53)	1.396* (1.65)
DEBT	−0.041 (1.31)	−0.039 (1.23)	−0.050 (1.56)	−0.061* (1.67)
PAR	−0.604 (0.21)	−0.387 (0.13)	−0.267 (0.09)	−2.073 (0.67)
SAVINGS	0.736 (1.32)	0.734 (1.29)	0.960 (1.62)	0.999* (1.74)
AGE	0.065*** (2.80)	0.064*** (2.78)	0.060** (2.57)	0.062** (2.29)
SIZE	0.337*** (3.75)	0.332*** (3.66)	0.315*** (3.36)	0.358*** (3.52)
NAB_SD	0.0002*** (3.83)	0.0002*** (3.88)	0.0002*** (4.00)	0.0002*** (2.91)
PCGDP	−0.534*** (2.84)	−0.539*** (2.88)	−0.532*** (2.83)	−0.462** (2.10)
INFORMAL	−0.075 (0.52)	−0.082 (0.56)	−0.095 (0.62)	−0.050 (0.33)
Type dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations	82	82	82	82
R-squared	0.72	0.73	0.73	0.71
Ftest	149.73	150.54	151.02	122.61
Breuch-Pagan	5.38	5.00	4.77	4.50
Rho	0.53	0.48	0.47	0.79

Table IV.
Random effect estimate of NAB

Notes: Absolute value of *z* statistics in parentheses; *significant at 10 percent; **significant at 5 percent; ***significant at 1 percent

more borrowers. These results are not robust however and are significant only at the 10 percent level.

MFIs operating in a more risky environment (as measured by the standard deviation of the number of borrowers reached by peers operating in similar conditions and countries) are able to reach more borrowers. In addition, MFIs operating in poorer countries also reach more borrowers, as indicated by the negative and significant coefficient on the per capital income.

Overall, the results indicate that not all external governance mechanisms are able to discipline MFI managers. The data do not permit to explore the impact of regulation on sustainability measured by *ROA*, but regulatory status does not impact outreach. Audit also does not impact performance. Results on the impact of rating are more promising and suggest that rating agencies use different rating methodologies and only one rater is able to play a disciplining role.

Conclusions

In spite of the fact that developed countries have invested about $900 million in microfinance, very little is known about the ability of the external governance mechanisms to impose market discipline and thus ensure better use of these resources. For example, while donors and investors may require financial statement transparency

and subsidize microfinance rating, it is yet unclear whether these efforts pay off. This paper is the first to focus on the impact of financial statement transparency, rating, and regulation on MFI outreach and sustainability.

The empirical analysis uses a new database consisting of 108 MFIs operating in over 30 countries and adopts an empirical approach used in studies on the impact of market forces and regulation on bank performance. The focus of the paper is on the impact of audit and financial statement transparency, microfinance rating, and regulatory intervention on MFI performance, where performance is measured in terms of outreach and sustainability. The results indicate that, while regulatory involvement and financial statement transparency do not impact performance, rating may hold the potential to play a disciplining role in microfinance. The main conclusion that the paper draws is that not all microfinance rating agencies are the same. Donors and investors would benefit from identifying rating agencies which help impose market disciplining and should promote these raters' methodologies.

Notes

1. Halme (2000) provides detailed description of internal and external governance.
2. Most empirical models that study bank performance include loans as a measure of bank risk exposure. Unlike banks, however, most MFIs do not engage in income generating activities other than lending, therefore, *LOANS* not only controls for risk exposure but also for MFI focus on lending because using funds for other purposes such as new buildings, cars, etc., is likely to affect income generation in the current period.
3. The analysis excludes credit unions.
4. In microfinance, there is no clear agreement as to whether outreach and sustainability are complements or substitutes. Many authors analyze the performance of a single MFI to conclude that outreach and sustainability are complements but no study has ever analyzed a sample of MFIs operating in different institutional environments.

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