Waqas Amin – Fengming Qin – Abdul Rauf – Fayyaz Ahmad

Effect of Regulations on Financial Performance and Outreach of MFIs

SUMMARY: The purpose of the study is to determine the effect of regulation status of MFIs on their financial performance and outreach. To find results, we used dataset of 413 MFIs over 21 Latin American Countries for the year 2005-2017. Using GMM, we found that regulated MFIs are more concerned for serving better off clients that decrease their cost per borrowing and improve financial performance. On the other side, unregulated MFIs also serve poor clients as they do not require to pay compliance cost. However, it increases their CPB that is compensated by serving better of clients. The findings are helpful for policy recommendations. Regulatory institutions must consider the cost of diminished level of outreach depth while valuing the benefits of regulation compliance with an eye to improve depositors' protection and constancy of MFIs.

KEYWORDS: Regulation, Outreach, Financial performance, Latin America
JEL CODES: G2, G21, G32

Microfinance is usually associated with small-sized loans provided to small enterprises to meet their needs of working capital (Churchill and Framkiewicz, 2006). Microfinance is a small scale financial assistance to small entrepreneurs, providing loans and savings facilities, which are concerned with manufacturing, selling, recycling or repairing products; which are concerned with rendering services; and which are concerned with operating lease of land, vehicles or other machines (Robinson, 2001). MFIs are also defined as institutions providing small level loans to poor clients (Jorgensen, 2012). UNCDF (2000) defined microfinance as the rendering of credit services to the clients who have refused to obtain credit from traditional banking system. The clients of MFIs are usually having low incomes and have no or limited reach to the formal credit system, their credits are generally for lower amounts.

These services are provided in several ways to satisfy several purposes required for small businesses development. The variety of services justifies the financial needs of small enterprises and low income individuals that evolve over time (Ledger wood, 1999). As these institutions primarily target low income people who do not find the services of traditional institutions feasible for them, therefore, MFIs have to inculcate non-formal techniques for such clients which are not practiced by formal institutions e.g. group lending methodology. These clients usually include small farmers, artisans, small ven-

E-mail address: waqas.amin97@yahoo.com
mqin@sdu.edu.cn
abdulraufhcc@gmail.com
fayyazahmad19@hotmail.com

dors and others who are deemed to be actively poor and live below or at the edge of poverty line. Primarily, these institutions were donor dependent that gradually realized the need of sustainability through profit orientation and reducing the dependence on donations.

The increase in MFIs necessitated the promulgation of regulations over MFIs. However, it is a concern that compliance with regulations is expensive for MFIs. The compliance cost is even expensive for banks, and in case of MFIs, it may cause financial achievement or stoppage of the business. Christen, Lyman and Rosenberg (2003) states that on average, a MFI has to bear compliance cost equal to 5% of the assets in first year of operation and 1% in later years. Keeping other things constant, increase in compliance cost reduces profitability. While canvassing regulations, the differentiating prudential regulations (PRs) and non-prudential regulation (NPRs) is necessary. PRs are designed to protect financial system on one side, and to provide safety to deposits on the other side. More importantly, providing safety to the poor depositors is more important function of the PRs as the poor depositors do not have easy access represent their views. On the other hand, NPRs are the regulations that deal with the operational activities of the institutions.

Most of the Latin American countries were undergone with significant financial regulatory reforms from 1980s to 1990s. Most of the countries were interested in strengthening their formal banking sector. However, some countries like Bolivia and Peru specify their interest towards sustaining their microfinance sector. Even those countries that refrained from reforms in microfinance sector at least led foundation for forthcoming reforms in microfinance sector. One of the important reforms was liberalization of interest rate that was key to generate sustainable lending. With the exception of a few countries that kept their lending rates controlled by central authority, most of the countries liberalized their lending rates. The targeted credit i.e. specific percentage of total advances specified to a sector, was eliminated in most of the countries except Jamaica and Paraguay. Finally, majority of the countries modernized their banking legislations as well as their capital markets.

The MFIs that only make loans are not necessarily need to be regularized to the extent that MFIs accepting deposits need to be as the later are having money of the poor people. To provide safety to the money of poor people, these MFIs are needed to be given regulatory framework. Christen et al. (2012) states that legal restrictions have limit the MFIs, offering deposits, within regulatory boundaries relative to those MFIs that offer products other than deposits. The main issue pertains to regulation is how financial performance is influenced by regulations that ultimately effects the way of doing business. In other words, if financial performance of MFIs is deteriorated with tighter regulations, they are enforced to decrease depth of outreach and increase breadth of outreach to sustain their business. One of the few recognized studies in this issue includes Cull et al. (2011) that found negative relation between regulation and level of outreach. The study used data for 245 MFIs over 49 countries. Axmann (2014) states that regulatory environments have been changed since 2005 and more reliable findings can be obtained using latest and extended dataset.

The question arises here is that consequent upon increase in regulation cost, either MFI allow their financial performance to be hurt and continue their primary purpose of reaching to the poorest clients. We propose that regulated MFIs will decrease their depth of outreach (reach to bottom line poor) and increase breadth of outreach (better off clients) to set off incremental cost due to compliance of regulations. On the other side, non-regulated MFIs

are proposed to be more inclined for serving bottom line poor as they do not have to face incremental cost of complying regulations. The present study uses data for 2005 to 2017 for 413 MFIs over 21 Latin American Countries to determine the impact of regulation status on financial performance and outreach of MFIs.

LITERATURE REVIEW

The effect of regulatory status on MFIs is found to be inconclusive in previous studies. The inclusiveness is due to several reasons: first, the objectives of regulators and that of MFIs are opposing e.g. MFIs believe that regulations should be encouraging for new entrants whereas regulators believe that MFIs should be limited in numbers for having control over them. Second, the literature does not provide helpful consensus with regard to the effect of regulation on MFIs. Many country-specific studies have found conflicting results. Chiumya (2006) conducted a theoretical study in Zambia with regard to the effect of MFIs' regulations and concluded that strict regulations are associated with significant addition in cost that dramatically reduced the profitability of the MFIs and many of the MFIs were, thereby, enforced to leave the industry. Carrasco (2006) examined the effect of regulations on MFIs in Peru and found positive effect of regulatory changes on MFIs' growth. However, the study cannot be generalized to the other countries as different countries have different regulatory environment that makes it impossible to decide either studies are identical or contradictory. These facts make country specific studies unable to be generalized.

Many cross-country studies have been conducted to know the effect of MFIs regulations. Taking microfinance regulation and social sustainability into account for Nigeria and Zambia, Siwale & Okoye (2017) states that although regulations set the institutional quality to track, but the benefits for society are not improved accordingly. The less effective and poor regulations are deteriorating the social service goal and the image of these MFIs. This leads to less confidence from investors. Furthermore, these regulations are unable to provide sustainable growth and the relative benefits to the deserved community expected from these institutions. Competition and MFIs regulations have significant impact on the efficiency of Indian MFIs. This facilitates the borrowers and enhances the loan repayments. This, in turn, increases the profit and portfolio quality of institutions in India (Purkayastha et al., 2018).

Ayayi & Peprah (2018) inspects Cost associations of microfinance regulation in Ghana and establish that rule rises a range of doing business costs that MFIs incline to pass to their micro-clients with higher interest rates. These regulations result in less number of female borrowers and negatively affect the outreach of MFIs. A substantial change is required in the regulations in order to fulfill the true mission of MFIs. Examining the link between Microfinance regulation and effective corporate governance in Nigeria and Zambia, Okoye & Siwale (2017) conclude that regulations should be helpful to increase the economic activities and development through MFIs in developing countries. Gohar & Batool (2015) suggest that larger boards have decreased the economic efficiency but accelerate outreach and productivity of MFIs in Pakistan. The presence of female staff has a significant positive impact on outreach.

The other positive contributor to performance outreach and productivity are firm size, experience and nonprofit activities of MFIs. Assessing the link between credit risk and regulations, Karimu et. al (2018) find that credit risk varies according to competition stage. Furthermore, there is no link between regulations and operational risk at any stage.

Hartaska (2005) concluded in case of Central and Eastern Europe that non-regulated MFIs have higher profitability as compared to regulated MFIs. Later, Hartaska and Nadolnyak (2007) used larger dataset and included several country-level and firm-specific variables in the model and found no evidence for the effect of regulations on MFIs. However, the study found that regulated MFIs usually serve better off clients. Mersland and Strom (2009) also found no evidence for the effect of regulation on financial performance. Cull et al. (2011) used a larger dataset of 245 MFIs over several countries and found that regulation is positively correlated with outreach. However, the study did not find any effect on profitability. More recently, Axmann (2014) concluded that regulated MFIs less correlated lending to the women and high profitability. This is consistent with the view that regulated MFIs change their business models by reach to the better off clients that are less costly.

METHODOLOGY

Model and Variable Measurement

Based on the above critical review of the literature, we proposed the following model to be estimated:

$$P = \alpha_1 + \alpha_2 O_{it} + \alpha_3 C_{it} + \in_{it}$$

Where P denotes financial performance, O_{it} denotes vector of outreach, C_{it} reflects the vector of control variables in the model and $\in_{it}$ is error term. Financial performance is deemed to be efficient provided MFIs are able to deliver services to the poor at minimum cost (Bhatt and Tang, 2001). The primary objective of microfinance institutions is to lend small sized loans to the deprived poor whose reach had been restrained by the banks. Nevertheless, providing too many small loans is costly relative to the providing a few large loans due to involvement of fixed lending cost (Meyer, 2002). Thus, one of the challenges MFIs face is to serve poor while keeping cost minimum that efficient their financial performance (Gonzalez, 2007). The efficiency is financial performance is measured with cost per borrower (CPB) as suggested by Quayes (2012) and Hudan et al. (2011)

Outreach is defined as degree to which financial services are provided to the bottom line poor. For MFIs, it shows that the target population is broader than the customers that are also served by the traditional banks. It is multidimensional including depth and breadth of outreach. Depth of outreach measures how deep financial services of the MFIs reach to the poorest clients and is measured using average loan balance (ALB) as a proxy (Hermes and Lensink, 2009; quayas, 2012). It is determined by dividing gross loan portfolio by total borrowers. The lower value indicates greater number of borrowers served. It indicates smaller amount of loans are distributed among large number of deepest level of poor. The lower the value of the average loan size, the poorer the clients served. Breadth of outreach measures the number of borrowers served at a given layer of depth by microfinance and is measured using number of active borrowers (NOAB) as previously measured by Ashraf et al. (2014).

Additionally, control variables include ownership type including banks, NGOs, NBFIs and credit unions (as different types of MFIs may have different regulations), number of offices, capital ratio, diamonds, size and age of MFIs as institutional variables and real GDP and number of total MFIs in Latin American countries as macroeconomic variables. The data is divided into two classes on the basis of regulation status of MFIs. Regulated MFIs are denoted with dummy 1 and unregulated MFIs are denoted with dummy 0.

Estimation Methodology

According to Baltagi (2001), OLS produces biased and incompatible results if used to predict dynamic model. Moreover, our model consists of efficiency of financial performance and dimensions of outreach including depth and breadth that may have endogenous relation.

Generally, the problem of endogeneity is resolved by including external instruments that are not correlated with the idiosyncratic term. However, it is always difficult to find valid external instruments. To deal with these problems, we used two-step GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998) using Roodman's (2006) code in STATA 12.0. A significant feature of GMM is that it uses past values of variables in the model as instruments. Furthermore, this methodology is specifically designed for data having a few years and large cross sectional observation (Roodman, 2006) that fits for our data. To test the validity of instruments, we performed Hansen test. We also determined AR (1) and AR (2) to check either the model has second order autocorrelation or not. To deal with small sample biasness, GMM is run accompanied with robust small sample corrected S.E as suggested by Windmeijer (2005).

Data and Sample

Data was collected from 21 Latin American countries for 413 MFIs for 2005 to 2017. A summary of data is presented in *table 1.*

Table 1

LEGAL STATUS AND REGULATED

	Bank		Credit Union		NBFI		NGO		Others	
Year	R	NR	R	NR	R	NR	R	NR	R	NR
2005	31	1	25	8	48	24	9	104		
2006	32	1	28	8	51	34	9	111		
2007	36	1	35	10	59	43	10	127		
2008	38	1	41	11	64	49	9	142	1	
2009	39	1	47	11	66	56	10	143	1	
2010	39	1	48	13	66	59	12	146	1	
2011	39	1	49	11	66	57	12	139	1	
2012	36	1	41	10	61	56	11	119		
2013	34	1	30	8	61	53	12	104		
2014	35	1	33	10	61	47	12	110	1	
2015	36	1	35	11	62	48	12	114	1	
2016	36	1	36	11	62	50	12	115		
2017	38	1	37	12	63	50	12	115	1	

R = regulated,

NR = not regulated

Source: own edited

RESULTS AND ANALYSIS

Descriptive Estimations

Two sample t-test with equal variances is run to know either the mean values of the variables selected (LCPB, ALB and LNOAB) are different between a group. The group is selected on the basis of either MFI is regulated or not regulated. The mean score of LCPB in case of regulated MFIs is found to be higher, as expected, than that of unregulated MFIs as regulated MFIs have to face additional cost of compliance with regulations. The difference is significant. ALB is found to be lower in case of unregulated MFIs that indicate regulated MFIs are more concerned with lending to the better off clients to cover the incremental cost of compliance with regulations and unregulated MFIs are more inclined for advancing to the poor clients. Additionally, mean difference between these two groups is significant. Finally, mean score of LNOAB for regulated MFIs is higher that denotes that also shows that regulated MFIs are more concerned for serving to the better off clients. (See: *table 2*)

Regression Estimations

Table 3 shows regression coefficients for regulated MFIs using OLS as a base model and GMM as a sophisticated panel data technique. We cannot rely solely on OLS results if data is expected to have endogeinity issue. The regression analysis of outreach and financial performance may be subject to endogeneity issue. Quayas (2012) stated that outreach is determined by financial performance and, on the other hand, financial performance is also affected by the extent to which MFI is concerned about outreach. To address the problem of endogeneity, we extended our estimations from OLS generalized methods of moment (GMM) methodology. Two step system GMM developed by Arellano et al. (1995) combined with process of finite sample corrected standard error proposed by Roodman (2006) is estimated. The process is suggested by Windmeijer (2005).

Using GMM, we found insignificant effect of ALB on CPB. NOAB show strong relation with CPB. The coefficient is negative that states that in case of regulated MFIs, breath of outreach (NOAB) decreases CPB that indi-

Table 2

TWO-SAMPLE *t* TEST WITH EQUAL VARIANCES

Group	Obs	Mean	Std. Err.	Std. Dev.	*t*-stat
			LCPB		
Unregulated	1,624	5.06	0.030	0.88	–11.99
Regulated	1,320	5.14	0.019	0.67	
			ALB		
Unregulated	1,789	0.35	0.019	0.79	–11.30
Regulated	1,452	0.86	0.048	1.68	
			LNOAB		
Unregulated	1,810	8.67	0.038	1.62	–23.45
Regulated	1,503	9.93	0.046	1.76	

Source: own edited

Table 3

REGULATED MFIS – REGRESSION COEFFICIENTS

	GMM		OLS	
CPB	Coef.	*t*	Coef.	*t*
L.CPB	0.15	1.33	–	–
ALB	–0.05	–0.68	0.05	3.43*
NOAB	–0.83	–4.30*	–0.63	–23.44*
OFF	0.17	1.78	–0.00	–0.16
SIZE	0.51	4.21*	0.51	22.61*
AGE	–0.08	–1.91	–0.07	–1.40**
DM	0.04	0.74	–0.03	–1.08
ETA	0.36	1.30	0.08	0.87
GDP	0.17	2.54**	0.13	13.39*
COUNT	–0.30	–2.67*	–0.17	–7.63*
BANK	–2.86	–0.54	–0.21	–0.89
NGO	–1.76	–0.34	–0.14	–0.82
NBFI	–1.69	–0.19	–0.28	–0.58
CO	–2.60	–0.45	–0.66	–2.81*
cons	1.66	0.23	–0.07	–0.53
Number of obs.	1103		1305	
f-stat	29.32*		200.67*	
AR(1)	–2.93(0.004)			
AR(2)	0.46(0.681)			
Hansen test	113.70(0.018)			

***sig. at less than 10%, ** significant at less than 5%, * sig. at less than 1%

Source: own edited

cates increase in financial performance. This is consistent with the view that regulated MFIs are more concerned for lending to the better off clients to set off the incremental cost of observing regulations that increase their profitability (Axmann, 2014). In case of other controlling variables, SIZE is found to have significant positive impact on CPB as increase in size increases cost per borrower due to agency and dysfunction problems (Karray and Chichti, 2013). GDP is found to have positive coefficient and finally, COUNT reduces cost per borrowers making MFIs more efficient. Other variables are found to be insignificant.

Table 4 shows regression coefficient for unregulated MFIs. Using GMM, we found significantly positive relation between ALB and CPB. It indicates that unregulated MFIs advance loans to the bottom line poor that increase their CPB and cause inverse effect on financial performance. On the other side, they advance loans to the better off clients also that

Table 4

UN-REGULATED MFIs – REGRESSION COEFFICIENTS

	GMM		OLS	
CPB	Coef.	*t*	Coef.	*t*
L.CPB	0.24	2.24**	–	–
ALB	0.21	1.66***	0.22	9.34*
NOAB	–0.96	–1.78**	–0.67	–25.11*
OFF	0.28	1.56	0.00	3.33*
SIZE	0.59	1.78***	0.47	16.75*
AGE	–0.07	–0.50	–0.04	–2.36**
DM	–0.03	–1.62	–0.07	–0.79
ETA	–0.68	–0.85	–0.13	–2.10**
GDP	0.08	0.76	0.21	20.34*
COUNT	–0.16	–0.46	–0.29	–11.09*
BANK	–1.2	–0.21	Omitted	–
NGO	Omitted	–	0.34	4.19*
NBFI	–0.65	–0.98	0.53	6.56*
CO	–12.21	–1.16	0.16	1.36
cons	2.33	0.75	–0.66	–2.00**
Number of obs.	1206		1570	
f-stat	126.64*		245.35*	
AR(1)	–3.31(0.006)			
AR(2)	0.62(0.577)			
Hansen test	96.67(0.589)			

***sig. at less than 10%, ** significant at less than 5%, * sig. at less than 1%

Source: own edited

set off increase in CPB due to reach to the deepest level of poor. In controlling variables, we found only SIZE as a significant variable.

CONCLUSION

The effect of regulation status on MFIs has rarely been researched in microfinance literature. Particularly, the empirical studies on effect of regulation status on financial performance and outreach are inadequate and inconclusive. This study is the extension of the few studies that have been done previously including Cull et al. (2011) and Axmann (2014) with larger and different dataset and different estimation technique. The research is conducted on 21 Latin American Countries. From these countries data was selected from 413 MFIs for the period 2005 to 2017. We used GMM for obtaining regression coefficients.

We found that regulated MFIs are more focused for serving better off clients to cover their incremental cost of compliance with regulations. We do not find any association between financial performance and depth of outreach in case of regulated MFIs. On the other side, unregulated MFIs serves poor clients but it increases their cost of borrowing. The cost of reaching to the poorest clients is set off by serving the better off clients. The results are found as proposed. The findings are helpful for policy recommendations. Regulatory institutions must consider the cost of diminished level of outreach depth while valuing the benefits of regulation compliance with an eye to improve depositors' protection and constancy of MFIs.

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