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Performance of Microfinance Institutions in Southeast Asia from Regulatory Perspective[1]

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[1] The paper has not been finally completed and will be revised along with other comments after the meeting

Abstract

In the context of debate about regulatory transformation, besides advocates for rush to regulated microfinance, non-negligible opponents caution on forming and transforming to regulated microfinance institutions. Tracking from the research of Hartarska & Nadolnyak (2007), the first study so far examined the effect of regulation on MFIs, this paper deliberately focusing on Southeast Asia countries. The most important objectives are to test the effect of regulatory factor to MFIs and compare to the past literature reviews. The findings using the empirical analysis shows that regulatory status have no direct effect on financial sustainability and outreach, that are consistent with the cross-country evidence. However, the MFIs taking deposit, which is implied as the indirect influence of regulation, lead to better financial sustainability. Also, the paper have seen the inadequate of financial capacity on MFIs, particularly from NGO.

1. Introduction

During the past decade, the discussions on microfinance have been studied and broaden through a wide range of researches, reports, summits, conferences and so on. Microfinance institutions generally are considered one of the most efficient tools to alleviate poverty and play an important role in development policy. The idea of MFIs arose in the mid-1970s when Mohammad Ynus, who won the 2006 Nobel laureate in Peace, commenced a pilot program on lending small amounts of money to the poorest of the poor without collateral in Bangladesh. Most of them are women and facing lack of access to conventional finance resources. Nowadays, Grameen Bank have been runned by Ynus caters to more than 2 million people with 2,468 branches (Ynus, 2007). The pattern of Grameen Bank has been replicated all over the world from Western countries like America, Canada, Latin America to East Europe like Hungary, Russia and Africa, Asia, Pacific countries.

Microfinance institutions provide mostly credits as well as other financial services through a broad range of institutional channels such as: formal finance institutions, agricultural banks, credit unions, cooperatives, non-government organizations, people credit funds, etc. The operational manners of MFIs vary from country to country that in line with different institutional types. The operational manners of MFIs vary from country to country that in line with different institutional types. Some countries such as Bolivia, Indonesia, Philippines, and Sri Lanka, licensed regular commercial banks participate in providing financial services to the microfinance and small business sector, whereas the global context shows a rapid of appearance of inconsistent implementation of regulation and supervision. Derived from that circumstance, a controversy on regulatory issues has been arisen in microfinance area in recent years. The researches, policy makers as well as practitioners discuss to address basic questions: (1) Is there a need to regulate MFIs?, (2) If so, what activities should be regulated?, (3) Who should regulate and be regulated?, (4) What are the fundamental issues in the regulation of MFIs?

Conventionally, the regulation on economics activities is to reach the purpose of becoming the instrument to minimize the impact of market failure (Armstrong, Cowan, & Vickers, 1994). However, in finance sector, regulatory subject is considered between economics and social objectives (Cook & Minogue, 2003). In other words, regulation

encompasses a set of rules to keep balance between development goal and consumer interests. Focusing on microfinance area, to date, there is no consistent and integrated rule for regulating microfinance institutions due to diverse features and objectives of MFIs.

Many government institutions and non-government organizations have released the framework to deal with regulatory and supervision issues which impact operations and institutional development of microfinance institutions (H. V. Greuning, Gallardo, & Randhawa, 1998), (Christen, Lyman, & Rosenberg, 2003). Those reports and frameworks aim at providing guidance not only to the staff of the international donors who encourage, advise, and support developing and transitional country governments, but also to the national authorities who must participate in the decision making process, and the practitioners and other local stakeholders.

The debate on microfinance regulation is vivid but still in the infant phase. Besides the advocates of rushing to regulation, many studies gave reasons to caution and deliberate on deciding to form or transform to regulated MFIs. Due to lack of best solid practices, the debate mostly bases on contemporary experimentation, and contains the expand of institutional types, country contexts and the variety of segmentation, objectives (Hannig & Katimbo-Mugwanya, 2000). Hence, the arguments which support, oppose or are options to regulating microfinance all stem from the different approaches of country perspectives, institutional microfinance patterns, and target clientele. The authors have pointed out benefits and drawbacks as well as opportunities and challenges of regulating microfinance from the analysis of particular country or comparing among countries.

Among many elements, performance of MFIs is the most basic factor is affected by regulation. As the result, performance becomes the most priority that obviously has been selected to identify effect of regulation. In general, performance of traditional financial institutions is measured by common financial ratios. But in microfinance industry, performance is measured statistically by using core indicators that specified for microfinance institutions and different from conventional financial institutions. In reality, there is not an integrated community that all MFIs in the world recognize and follow, so that leads to appear situation without unique standard and practice. The standards for microfinance have emerged since the early 1990s. The monograph is considered

relatively consensus and broadly using that is produced by the SEEP Network coordinate with other organizations in 1995, Financial Ratio Analysis of Microfinance Institutions, which became the standard set of 16 ratios that microfinance institutions monitored. Additionally, the main performance indicators were also provided by Rosenberg, CGAP group belongs to World Bank. That platform aims for generating global consensus on standards and norms for the entire microfinance industry (Rosenberg, 2002).

Inspirited by vibrant debate on regulating microfinance, this paper attempts to evaluate the impact of regulation on performance base on assess several core indicators of performance. However, majority of significant studies about microfinance concentrate on Latin American countries where have more mature experience than other areas like African, East Asia, Central Asia…That reason also brings the motivation for this paper conduct research in Southeast Asia countries.

2. Literature reviews and empirical specifications

2.1. Regulation

A number of research have studied in many aspects of microfinance regulation such as: legal frameworks draft, regulation in various countries, who should be regulated, who regulate the MFIs and so on. Goodwin (1998) divided the regulations in microfinance into two categories are: Non-prudential regulation and prudential regulation. In the Regulation guidance (CGAP, 2002), regulation is "prudential" when it is aimed specifically at protecting the financial system at a whole as well as protecting the small deposits at small institutions. Thus, prudential regulation involves government in attempting to protect financial soundness in regulated regulations. Prudential regulation is much more complicated, difficult and expensive than non-prudential regulation.

Meagher (2002) approached to regulation in microfinance by classifying the institution types and conducting tiering structure. The idea of the tiered structure was stemmed from commercial banks to non-profit NGO-MFIs is fully presented in Van Greuning et at (1999). In this study, the tiers are defined according to the institutions sources of funds: the public money (deposits), members money (in the case of cooperatives) and the people money (donor funds). Each threshold or tier matches more strict regulation with a wider field of activity and risk. Placed in a higher tier would

required MFIs to strengthen their operations, reach significant scope and achieve financial self-sufficient. Also, that position brings an expansion of authority such as: the eligibility to accept deposits of certain type or size, permission to handle financial transfers, the authorization to issue shares to publicity.

Moreover, Staschen (1999) divided regulation into three categories. The first is the regulation by banking law that proceeds all kind of bank-type business should be subject to banking legislation and government banking supervision, like other financial institutions. The second type is regulation by a special MFI law contain a system for MFIs with their specific features. Lastly, self-regulation, regulating MFIs is mostly conducted without resource of Government. In this case, government supervision is replaced by the publication of information.

Analyzing on movement of rushing to regulate, Rosenberg and Christen (2003) approach to microfinance regulation from the diverse objectives and situations of MFIs. Some NGOs, governments and donors want financial licenses to be more widely available in order to expand savings service for the poor; or expect setting up a special regulatory window for speeding up the emergency of sustainable MFIs, and have access to commercial sources of funds. Sometimes, local authorities are faced troubled by the weakness of many MIFs, and they want to intervene and clean up a situation that they think will be negative impact to the development of microfinance in their country. By transforming into regulated MFIs, this will allow them not only to access relatively stable source but also to widen their outreach by attracting larger pool of clients, and also improve the governance (Arbuckle, Campion, & Dunn, 2001).

Besides many advocates, there are non-negligible opinions on caution with transforming to regulated MFIs. Hannig & Katimbo-Mugwanya (2000) presented challenges regulation in microfinance from the distinctive views of supervision such as: limited supervisory capacity, low technical capacity of external auditors with, conflicts of interest due to lack of independence from members or even donors. Several typical examples in India and Bolivia have shown as the evident of failure in regulating MFIs. However, the opinion of author approached regulation in microfinance as the matter of time, phase and appropriation in implementation. Such arguments support for non-regulated microfinance since the small size operation of microfinance could lead to fact

that cost of developing and implementing regulations exceed the benefits accrued from it. Several typical examples in India and Bolivia have shown as the evident of failure in regulating MFIs.

2.2. Performance of MFIs

Regarding to traditional financial perspective, "the efficient" is the most powerful and frequent to evaluate the performance of institutions. However, MFIs are ranging from grass roots self-help groups to commercial banks, have quite different standards to measure. As many MIFs primarily exist in order to help the poor people and alleviate the poverty, the performances dimensions have been used frequently are outreach and sustainability. Meyer (2002), indicated that there is a so-called "critical micro-finance triangle" that represented represent outreach to the poor, financial sustainability and welfare impact. Mostly, the impact indicators can be categorized as economic and non-economic benefits. Various studies on different countries on the performance of the MFIs confirmed this (Adongo & Stork, 2005), (Zeller & Meyer, 2002), (Cull, Demirguc-Kunt, & Morduch, 2007).

Additionally, Rosenberg (2002) offered basic tools to measure performance of MFIs in a few core areas: Outreach (in depth and in breath), collection performance, financial sustainability and efficiency. Barres et al., (2005) also provided a multitude of financial ratios and indicators, each of which may provide useful information to a microfinance institution manager that belong to four groups: Profitability and sustainability, asset management, portfolio quality; and efficiency and productivity. These indicators help managers evaluate the performance of their organization in several different aspects of its activity.

Yet, to date, only Hartarska & Nadolnyak (2007) have investigated whether regulated MFIs actually achieve better financial results and reach more clients than non-regulated MFIs. Basically, that research also stemmed from previous studies that documented the relation between regulation and bank performance. Pasiouras, Gaganis, & Zopounidis (2006) have studies the impact of baking regulations, supervisions, market structure and bank characteristics on individual bank ratings. Barth et al, (2003) examined the relationship between the structure, scope, and independence of bank supervision and one

key dimension of the banking industry – bank. The results indicate a weak influence for the structure of supervision on bank performance.

2.3. Model and specifications

Some previous studies measured bank performance by using a function of bank specific variables that includes individual bank characteristics, the national macroeconomic environment, country-specific and regulatory and supervisory variables (Barth et al., 2003; Demirguc-Kunt et al., 2004). Following these studies, the empirical model is:

$$P_{it} = constant + \beta MS_{it} + \gamma M_{it} + u_{it}$$

Where P_{it} is performance variables for MFI i at time t; MS_{it} are MFI specific variables; M_{it} are macroeconomics variables.

According to above literature reviews, performance of MFIs in this paper also follows two aspects are financial sustainability and outreach indicators. Financial performance contains three dimensions: return on assets (ROA), operational self-sufficient (OSS) and operational costs (or operating expense). The outreach dimension is measured by number of credit clients (in breath) and average of outstanding loan (in depth) (Rosenberg, 2002).

Regulation is constructed in the model as status of MFIs and represented by dummy variable that takes the value of 1 if MFIs is regulated, 0 if MFIs is non-regulated. The rest of MFI individual specific includes: total assets (size), equity to total assets (capital), loans to total assets (loan), and experience of MFIs (age) are all used by Demirguc-Kunt et al., Barth et al., Hartarska et al., and Grigorian & Manole (2002).

Christen & Rosenberg (2000) claimed the restricted status prohibited deposits and savings mobilization, which is a important source of capital. Hence, deposits to total assets (deposits) is also included to the model. Hishigsuren (2005) and Arbuckle et al., (2001) provided rationales to support the transformation from NGOs to regulated MFIs and showed the proof of movement and results in Latin American countries. We therefore use NGO determinant as a dummy variable in the model.

In addition, I put two more macroeconomic control variables are real GDP per capital (GDP) and economic freedom index. These variables control for the overall environment in which MFIs operate in different countries.

Table 1

Definitions of dependent variables.

Variable	Explanation
Return on Assets (%), (ROA)	(Net operating income, less taxes)/ (Average annual assets)
Operational Self-Sufficiency (%), (OSS)	Financial revenue / (Financial expense + loan loss + operating expense)
Operational Cost (%)	(Operating expense)/(Average loan portfolio)
Number of Active Borrowers	Natural logarithm of the number of individuals or entities who currently have an outstanding loan balance with the MFI
Average Loan	(Average loan per borrower)/(GNP per capita, in $US)

Table 2

Definitions of independent variables.

Variable	Explanation
Size	Natural logarithm of total assets account
Capital (%)	Natural logarithm of (Total equity)/(Total assets)
Loans (%)	Natural logarithm of (Loans outstanding)/(Total assets)
Deposits (%)	Natural logarithm of (Total deposits, including both voluntary and compulsory deposits)/(Total assets)
Borrowers per Staff	Natural logarithm of (Active borrowers)/(Staff member)
Age	Years of operation or experience
NGO	A dummy with value 1 if an organization registered as a non profit for tax purposes or some other legal charter, 0 otherwise
Regulation	A dummy with value 1 if MFI is regulated by authorities, 0 otherwise
GDP per Capita	Natural logarithm of GDP per capita, (current $US)
Economic Freedom	Index of Economic Freedom; higher values mean less economic freedom.

3. Data and Methodology

3.1. Data source

This paper utilizes data collected by the MIX MARKET information platform (www.mixmarket.org). To date, MIX MARKET contains the best publicly available cross-country data of individual microfinance institutions' financial indicators. Through this information platform, individual MFI can provide financial and the MIX MARKET ranks these data for quality using a 5-star system, where 5 is the most complete data available, while 1 is the least complete data available (usually the number of borrowers and some other outreach indicators but little financial information).

When we were collecting the data, MIX MARKET had 1126 listed MFIs. The analysis used from 3 to 5 star ranked data. There is not much qualitative difference among 3-, 4- and 5-star ranked MFIs except that those with a rank of 5 have at least 3 years of financial statements, while those with rank 3, 4 have less than 3 years of operation. In addition, some MFIs were excluded from the analysis due to the lack of data on the institutional factors that may impact MFI performance, although they are placed in 3- or 4-star. Because lack of data for the instruments used to identify the impact of regulation could cause bias to the results.

The panel data used for this study consists of 56 MFIs from 4 countries in Southeast Asia are Philippine, Indonesia, Vietnam, Cambodia. Since the rest of countries in area have not had many the significant MFIs and qualified data in MIXMARKET, the paper deliberately focus on such those countries. This analysis has conducted the MFIs-level information over 2004-2007 periods. Also, the paper uses the country-level of macroeconomics factors from the source of MFI (www.imf.org) that gives the countries outlook in wide rage of economics and developments and Heritage Foundation (www.heritage.org).

Table 3 provides summary statistics on the number of observations of the four countries and compares proportion of sample with estimated population of MFIs. The estimated population is the total of MFIs in each country which are available from the MiX Market database.

Table 3

Ratio of MFIs by country in the sample and in the population.

Country	Sample		Population[3]		Ratio of representation[4]
	No	%	No	%	
Cambodia[5]	10	17.85	35	9.41	28.57
Indonesia	17	30.35	145	38.98	11.72
Philippine	25	44.64	167	44.89	20.96
Vietnam	4	7.16	25	6.72	16
Total	56	100	372	100	18.28

3.2. Random effects estimation

The panel data is constructed by repeating individuals on dependent performance variables up to four successive years, while independent regulation variable is considered constant during the estimated period. We can estimate the model by pooled OLS by run regression for all observations. However, there are numerous unobserved effects that lead to unobserved heterogeneity and resulting in biased coefficient estimates.

By running the Breusch-Pagan test for heretoscedaticity, the p-value show the strong evidence that below the 1% significant level, then we absolutely reject the null hypothesis of homoscedasticity.

Both fixed effects or random effects estimators are most used tool to test for unobserved effects panel data model. Since regulation, key explanatory variable, is time-invariant in this model, we can not use fixed effects to estimate its effect on dependent variables. Hence, random effect is feasible tool here. Using random effects, there is a very strong assumption that unobserved individual characteristics are uncorrelated with the regression. From the general model for T repeated cross-sections over n individual is:

$$y_{it} = \beta' x_{it} + \gamma' z_i + \eta_i + u_{it} = \beta' x_{it} + \gamma' z_i + v_{it} \quad (i=1,\ldots,n \; ; t = 1,\ldots T)$$

Where z are vector of time-invariant variables (unity for intercept), x are the vector of time varying variables, η are unobserved individual characteristics, u is error term. The GLS random effects estimator can be estimated by two stage FGLS estimator which

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[3] Data comprising the population in a country come from the Mix Market
[4] Sample proportion divided by population proportion
[5] MFIs from that country are overrepresented in the sample

developed by Balestra and Nerlove (Econometrica, 1966). The random effects estimator is combination of the within effects and between estimators. First, applying the transformation of differencing and demeaned data to obtain within group and between group estimators, respectively:

$$\hat{\sigma}_u^2 = \frac{1}{n(T-1)-k} \sum_{i=1}^{n} \sum_{i=1}^{T} e_{it}^2 \quad \text{where } e_{it} = (y_{it} - \bar{y}_i) - \hat{\beta}_{WG}'(x_{it} - \bar{x}_i) \text{; the within residuals}$$

$$\hat{\sigma}_\eta^2 = \frac{1}{n} \sum_{i=1}^{n} f_i^2 - \frac{1}{T} \sigma_u^2 \quad \text{where } f_i = \bar{y}_i - \hat{\alpha}_{BG}' \bar{w}_i \text{; the between residuals}$$

Then, using the variance estimates $\hat{\sigma}_u^2$ and $\hat{\sigma}_\eta^2$ to construct variance matrix $\hat{\Omega}_v$ and getting the FGLS estimator. Under the random effects assumption, the estimator is consistent and asymptotically normal distributed as N get large with T fixed.

4. Empirical evidence

4.1. Descriptive data

The main value of dependent and independent variables are shown in the two following tables. The all flow data in Mix Market are converted to $US, in which income statement items (net income, revenue, expense) using average rates for the period covered, and balance sheet (loan, capital, assets, deposit) are translated using period ending rates. That new currency translation approach brings data of MIX market in line with best practices in financial reporting.

Table 5 reports the return to total assets varying from as much as lowest -56 percent to 22.93 percent. The negative return ratio account for 16% of total observation. However, the average ratio nearly 3 percent and higher than 1.5 percent from data set of 278 MFIs in 60 countries in study of Mersland and Strom (2009). The operational self-sufficient-OSS measures how well the MFI can cover its costs and maintain its services through operating revenues. This indicator of performance is appropriate because profits may not be what the providers of finance pursue in sense of financial sustainability purpose. The interval of OSS even in a wider range from 26.67 percent to 282 percent. The last

indicators for financial sustainability is operational cost which measures how well MFIs control its administrative costs. All cost in the regression analysis are adjust for inflation.

Outreach is measured both in breath and in depth which represented by number of active borrowers and the average loan. The mean of clients here is around two times to sample in study of Mersland & Strom, so this show us MFI's lending highly spread to approach borrowers in such these countries. The average loan per borrower is adjusted to GNP of each country to reflect the level of credit provision in depth. Constructing the impact of regulation on outreach is important because proponents of the transformation have argued that regulated MFIs could reach more borrowers when their leverage opportunities improve as a result of regulation (Hartarska & Nadolnyak, 2007).

Table 5

Descriptive of dependent variables.

Variable	Mean	Std. Dev.	Min	Max	Obs
ROA	2.948	7.703	-56.02	22.93	223
OSS	122.405	36.533	26.67	282	224
Operational Cost	26.026	16.892	3.03	81.65	224
Active Borrowers	27529.5	43239.03	106	320299	224
Average Loan	47.267	59.489	1.93	308.83	224

Table 6 presents the summary of explanatory variables used in the framework. Size of MFI is measured by the total of assets. Whereas the capitals, loans and deposits are constructed in ratio to total assets. The average capital ratio of MFIs in this paper obtains about 35 percent is less leveraged than bank's in study of Barth et al.,(2003) (sample of banks for 47 countries). MFIs are much less leveraged, which is explained by the fact that it is more difficult to leverage the risky microfinance loan portfolios (Conning, 1999). Capitals of many non-regulated MFIs or NGO come from grants and donors. Hence, the supporters for regulating MFIs believe that transformation generate opportunities to approach stable source of capital such as savings or deposits mobilization, shareholder capital. So along with most crucial lending service, other financial service also very important for the financial sustainability and outreach as well. Nonetheless, the deposits

ratio is included separately since not all MFIs collecting savings are regulated and not all regulated MFIs collect savings. In the sample, out of 47 percent regulated MFIs, 77 percent of MFI take deposits, including voluntary and compulsory, while up to 58 percent non-regulated MFI having deposits.

The regulators should take into consideration the different methodologies of lending, particularly group lending and individual lending. Group lending is induced by joint liability in group lending contracts and building on lending models pioneered by microfinance leaders like Bangladesh's Grameen Bank. This model have been found successful with success in serving clients that are just starting small businesses (typically with no employees but themselves) (Aghion & Morduch, 2000). But the programs tend to impose limits on wealthier borrowers. Thus, we introduce number of borrowers per staff variable in order to examine if less such amount could reach more efficient but lower outreach.

The control variables show the distinction of country-backgrounds. GDP per capita of the four countries are fairly divergence: the highest 1,640 USD (Philippines) is triple than the lowest 503 USD (Cambodia). The economic freedom index may have been the advantage to motive the MFI operating actively even in informal market or non-regulated firm. Cambodia also is the country has least opened level in economy.

Table 6

Descriptive of independent variables

Variable	Mean	Std. Dev.	Min	Max	Obs
Size	10,279,856	364,140	58,664	473,053,345	224
Capitals	35.114	24.484	2.41	98.53	224
Loans	72.452	14.953	27.28	105.51	224
Deposits	75.484	367.957	0	3934	211
Borrowers/staff	125.75	84.666	13	446	224
Age	17.41	11.558	4	51	224
NGO	0.366	0.483	0	1	224
Regulation	0.473	0.501	0	1	224
GDP	1231.533	413.76	503.27	1640.32	224
Econ Freedom	56.199	2.604	50	59.2	224

Table 7 describes correlation among explanatory variables. The highest relation is between GDP and Deposits variable 0.569. However, according to Kenedy (2008) stated that multi-collinearity is a problem when the coefficient is higher than 0.70. Moreover, working with panel data estimation gives data with small number of time and large number of individual, the regression is less suffered with multi-collinearity than with heteroscedascitity.

Table 7

Correlation between independent variables.

	Size	Capitals	Loans	Deposits	B/Staff	Age	NGO	Reg	GDP
Size	1								
Capitals	-0.11	1							
Loans	-0.207	0.105	1						
Deposits	0.012	-0.371	-0.222	1					
Borrowers/Staff	0.229	0.243	0.194	-0.384	1				
Age	0.368	-0.414	-0.43	0.412	-0.131	1			
NGO	-0.094	0.299	0.089	-0.179	0.271	-0.338	1		
Regulation	0.108	-0.077	-0.006	-0.194	0.004	0.217	-0.264	1	
GDP	-0.188	-0.394	-0.363	0.569	-0.184	0.279	0.041	-0.379	1
Econ Freedom	0.373	-0.125	-0.037	-0.37	0.086	0.164	-0.097	0.334	-0.31

4.2. Econometric evidence

The result is reported by conducting random effects estimation to evaluate the impact of regulation and other explanatory variables to financial sustainability and outreach.

4.2.1. Financial sustainability

Table 8 summarizes the outcome of regression on ROA, OSS and operational cost as dependent variables. Overall, regulation variable has no impact to any of three dimensions of financial performance. However, that is quite surprise to explore the others significant specifications in the model.

First, capitals have negative impact to financial performance of all three indicators, particularly have significant effect at 1% level with ROA and operational cost (or administrative expense). That may be explained by the fact that less leveraged MFI

absorbing and using the source from grants and donors better. In addition, that effect could refer to the insufficient of ability and experience to monitoring financial activities as well as institutions in such of developing countries. For instance, despite the financial system's growth in recent years, Philippines remains undeveloped compared to the financial sectors of other Asian countries. As the influence, the performance of MFIs in the Philippines shows that they have not become the efficient mean to alleviate poverty (Conroy, 2003).

Table 8

Regression on financial sustainability.

Variable	ROA	OSS	Operational cost
Intercept	-20.298	157.668	-110.618***
Size	0.482	2.721	-0.864
Capitals	-2.434***	-0.765	3.899***
Loans	0.308	12.909	-4.394
Deposits	1.562***	6.173***	-1.091**
Borrowers/Staff	0.257	-3.359	-0.498
Age	-0.116	-0.138	-0.133
NGO	-1.024	-15.735**	16.382***
Regulation	-0.683	-5.663	3.57
GDP	-0.003	-0.011	0.011***
Economic Freedom	0.419	-1.933	2.516***

Note: Significant level 10%, 5% and 1% are marked by *, **and ***

Second, NGO variable also has the negative effect to sustainability, with 5% and 1% statistical significance on OSS and operational expense, reflectively. Turn back to Philippines case, Llanto (2001) emphasized that majority of credit NGO in the Philippines are neither viable nor sustainable. While credit NGOs target and reach poor clientele, they are neither effective nor efficient credit intermediaries because of the weak institutional capacity and financial position. Credit NGOs are governed by volunteer individuals who do not own the institution. Members of the board are selected by the founding members, usually being chosen or invited due to their reputation and expertise.

That is likely to be the reason to contribute negative impact since MFIs from Philippines account largest percent in sample.

Third, the overwhelming effect of deposits to financial performance: statistically significant level at 1% to ROA, OSS and 10% level to operational cost. That highlight partly represent for prudential regulation since collecting savings or deposit usually impose on regulated MFIs. Therefore, the MFIs taking deposits, both voluntary and compulsory, may subject to a prudential approach to regulation in order to meet the capital adequacy requirements. We hence could refer deposits variable as the proxy of regulation.

Regarding to macroeconomic variables, that turns out higher national income per capita link with the higher expense of operation: namely Philippines and Indonesia are more developed than Vietnam and Cambodia, but relatively less efficient. The reason may come from microfinance sector itself, rather than from the factor wealthier economy. For example, in Cambodia, the lowest GDP per capita, a number of foreign agencies formed MFIs which operate independently with Cambodian entities and without the banking system. The microfinance programs have undergone to a rapid growth that build a diversified group of MFIs. The development of MFIs is acknowledged in respect with number of institutes and the widespread of outreach. At the end of 2004 the microfinance industry in Cambodia was serving approximately 450,000 borrowers and 150,000 depositors (BWTP, 2005).

4.2.2. Outreach

From table 9, we get the results of estimator coefficients on two indicators: number of active borrowers and average loan (adjusted to national income per capita). Again regulatory status causes no effect to outreach. Contrary to financial performance, the level of capitalization also does not affect significantly to outreach. Deposits show a positive connection to number of borrowers and negative one to average loan, but both are not significant. Take the interaction term of regulation and deposit, to check if the regulated MFIs taking deposits may reach better result, then the outcome is still the same.

Table 9

Regression on outreach .

Variable	No of Borrowers	Average of loan
Intercept	14.331***	115.489
Size	0.514***	16.829***
Capitals	-0.0003	2.289
Loans	0.312	50.284***
Deposits	0.023	-0.051
Borrowers/Staff	0.899***	-56.284***
Age	-0.001	-0.844**
NGO	0.751***	-28.143***
Regulation	-0.195	-0.023
GDP per capita	-0.0003	-0.01
Economic Freedom	0.184***	-4.362**

Note: Significant level 10%, 5% and 1% are marked by *, **and ***

Across the rest of specifications, size and loans of MFI has positive effects to number of borrowers and average loan at 1% significant level. That seems not be surprised, because the more assets or loan portfolios they attain and, the more capacity to reach borrowers and provide higher amount of loans. That also gives implication that transforming to regulated could get the benefit from more source of investment and result in obtaining more outreach level.

Besides, the evidence clearly shows the positive link to number of borrowers but negative to average loan, in other words, that is substitute effects. Adding one borrower could reduce average loan as much as 56%. The proof somehow implies the individual contract methodology of lending is easier to approach more clients than group lending. Hence, the regulator should take into consideration methodology of lending or control the reasonable number staff to meet demand of client in order to achieve the goal in outreach. While the MFI with more experience tend to provide lower average amount of loan, but with a small magnitude.

Parallel to inference above, NGO causes negatively impact to average loan but could reach more borrowers, over 7% increase in number of borrowers but 28% decrease in amount of average loan and if MFI is NGO. Although the sector focuses on outreach, NGO's donor who control the availability of equity may not have been willing to provide more equity to MFIs with better outreach in depth or could not mobilize enough capital as expected.

Additionally, the more openness of economic freedom indicates decreasing number of credit clients but with a larger amount of average loan and, in table 8, the better capacity to manage the operational cost.   Schramm (2008) points up a crucial dimensions of economic freedom is fluidity. The degree of economics freedom in any society will reflect the amount of fluidity in the institutional, organizational and individual elements of the economy. At an institutional level, fluidity signals a society's capacity to adapt to changing circumstances, its ability to absorb adaptations productively, and its openness to new ideas. Take an advantage of such traits, MFIs are very likely to attain more efficiently by well control the administrative cost. Also, in such of more freedom economy, the MFI may tend to reach more wealthier client with larger loan than just spread market in broad.

5. Conclusion

The first paper's objective is to evaluate the performance between regulated and non-regulated microfinance institutions in Southeast Asia countries. Next, to compare the results of previous studies and related arguments which assess performance of MFIs under effect of regulatory factors or related specifications. We conclude the several point of result and further implication as well

In general, the findings are consistent with some preceding studies of Hartarska & Nadolnyak (2007) that we use as the principal references. The main finding of this paper is regulatory status have no effect on financial sustainability and outreach. State more clearly, the result of regulatory involvement of MFIs in Southeast Asia countries is similar with from cross-countries evidence. As mentioned earlier, deposits reflect partial of prudential regulation, so this suggests that there may be indirectly effect of regulation thought savings to performance. However, MFIs taking deposits show evidence of better

financial performance but not in outreach which opposite to Hartarska & Nadolnyak's finding that improve on both dimensions.

Consistent with the cross-countries evidence, outreach is not affected by the level of capitalization and leverage. That result is unexpected in the sense of the argument that there is a need to increase leverage in order to reach more poor borrowers. The findings are inclusive for the major question on the trade-off between reaching the poor and achieving financial sustainability.

Additionally, one more notable finding is MFIs in non-profit status or NGO have positively impact to outreach but negatively to financial sustainability and efficiency. This derives from the regulation of Indonesia and Philippine that NGOs conducting microfinance are constrained to mobilize the capital so that make pressure to decline in financial sustainability as well as in outreach in depth. The findings is quite surprising but in accordance with the practice of microfinance industry of this area which paper aims at capturing.

Lastly, inspired from the view of point that approaching regulation in microfinance as the matter of time, phase and appropriation in implementation. Combining with the ideas of firm cycle theory, Adizes (1988) pointed out that business strategy and organizational structures of firms fluctuate based on the perspectives condition at distinct stages of life cycle of firms. Concerning in microfinance context, MFIs also are existing in different scale and mature levels. For instance, MFIs in Latin American countries largely have been more developed and experienced than other regions. As the result, the MFIs could be approached by another method in order to examine the relation among observations after being classified under life cycle criteria. We therefore intend to carry out the further study of evaluate of regulation using dynamic perspective by quantile regression.

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