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Dangers in Mismanaging the Factors Affecting the Operational Self-Sustainability (OSS) of Indian Microfinance Institutions (MFIs)—An Exploration into Indian Microfinance Crisis

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Abstract

This paper identifies the factors affecting the operational self-sustainability (OSS) of Indian Microfinance Institutions (MFIs) using multiple regression analysis. It shows revenue generation factor, cost efficiency factor and growth factor to have a positive influence on the OSS of Indian MFIs. Adjusted impairment loan loss allowance ratio, a portfolio risk factor and average loan size per borrower, a development factor, are seen to have a negative influence on OSS of Indian MFIs. The results thus infer five significant factors that Indian MFI managers must concentrate on to enhance the OSS of their organizations. The authors then discuss how mismanaging these five factors can deviate an MFI from its social goal of poverty alleviation. The crisis in Indian microfinance industry is explored to unveil the dangers involved in mismanagement of these factors. The paper concludes by stating that it is imperative for Indian MFI managers to introspect about their lending and recovery practices, so as to ensure that they manage the factors affecting their OSS, without exploiting the poor clientele.

Keywords: Microfinance, Sustainability, Mismanagement, Microfinance Crisis, India

Introduction

Microfinance Institutions (MFIs) are providers of financial services to poor—mainly credit and savings—although insurance and other payment services are rendered by some (Ledgerwood, 2001). Being an organization with dual goals—social goal of outreach and financial goal of sustainability—the challenge for MFIs is to remain sustainable without drifting from their mission of poverty alleviation (Armendáriz de Aghion and Morduch, 2005).

Since the effect of microfinance on poverty alleviation is hard to capture, the proposition that 'more microfinance' can be substituted for 'more poverty reduction' became well accepted in the microfinance industry (Bateman and Chang, 2009). In this regard the success of MFIs began to be judged widely by their ability to be financially sustainable and poverty reduction objective was assumed to be achieved concomitantly when microfinance services are made available to the poor.

But the proposition of more microfinance leading to more poverty alleviation, became widely skeptical due to the commercialized trends that became prevalent among MFIs. Christen (2001) regards more regulation, more profit orientation and more competition among MFIs to be the characteristics of commercialized microfinance. Commercialized microfinance with the pressure to meet the return expectations of debt and equity investors, began to influence the behavior of MFI loan officers. Loan officers of the commercialized MFIs began to actively seek new clients, prefer frequent repayment schedules, high interest rates and repayment rates, larger loan sizes and faster repeat loans[1]. Sinha (2010) observes these commercialized practices to have led to bullish trends among global MFIs, marking a growth rate of 70-100 per cent per annum. This made microfinance inevitably a market that is flooded by profit-seekers, leading to market saturation. The burgeoning microfinance market growth rates was ensued by practices that doomed a crisis in the industry—levy of exorbitant

interest rates leading to exploitation of clients, multiple lending leading to over-indebtedness among clients and coercive loan recovery practices leading to client suicides. The onslaught of this crisis, was overlooked by MFIs globally, as MFI management did not have internal controls that kept pace with its portfolio growth. This resulted in vulnerabilities in number of microfinance markets, especially in Bosnia, Morroco, Nicaragua, Pakistan and India. The crisis that occurred in India is the matter of interest of this paper.

Indian Microfinance Crisis

In India, the world's largest microfinance market, a crisis in the industry was triggered by a combination of the highly successful stock market listing of India's largest MFI, alongside several cases of suicides amongst the clients of MFIs in the district of Andhra Pradesh (AP) (Panwar, 2011). SKS Microfinance, the largest Indian MFI which went for an Initial Public Offering (IPO), projected the extend of profits made by microfinance businesses in India on one hand, along with a spate of suicides that prevailed among the microfinance clients in the district of AP. These suicides that occurred in the month of September 2010, allegedly due to exorbitant interest rates and the coercive recovery practices adopted by some of the MFIs in the region resulted in a crisis in Indian Microfinance Industry (Intellecap, 2010; Swami, Shekar & Choksey, 2010). Though there is no systematic investigation and conclusive evidence for these suicides to be instigated by MFI activities, these episode during the month of September 2010, threatened the viability of the entire microfinance sector not only in AP, but in India as a whole (Intellecap, 2010). As a result Indian MFIs, which is reputed globally as the least cost players in the microfinance industry, began to face reputation risks. Their operations were attributed to be tantamount to that of moneylenders, who charge exorbitant interest rates and use coercive recovery practices to exploit the poor (Singh, 2010). The crisis and reputation risks imparted the lesson that mere financial self-sustainability is not always a positive sign of MFI performance.

Hitherto this crisis financial sustainability was regarded as a key performance indicator of an MFI. But the crisis warns Indian MFI managers that obsession with financial sustainability of MFIs can be counterproductive for attaining the goal of poverty alleviation. In this study we identify the factors that Indian MFIs must concentrate on to enhance its financial sustainability and discuss how these factors if mismanaged can tend to exploit the poor clientele. By discussing the dangers in mismanaging these factors, we recommend Indian MFIs managers to introspect about their lending and recovery practices, so as to manage the factors affecting its financial sustainability in such a way that it is sustainable to itself and non-exploitative for the poor clientele.

The rest of the paper is structured as follows. The next section covers a brief literature review on identification of factors affecting the financial sustainability of MFIs. Section 4 discusses the data, theoretical model and hypotheses used for testing the significance of the identified factors. Section 5 presents the empirical analysis and results on the significant factors affecting the sustainability of MFIs. Section 6 discusses the dangers in mismanaging these factors, by exploring the Indian microfinance crisis. Section 7 draws a summary and conclusion of the work.

Literature Review on Identification of Factors Affecting the Financial Sustainability of MFIs

Financial sustainability of MFIs is depicted in this work, by the measuring the operational self-sustainability ratio (OSS) of MFIs. OSS ratio is the ratio of operating income (i.e. interest, fees & other service income from loans and investments) over the total cost of an MFI (i.e. operating costs + financing costs + loan loss provisioning). A ratio above 100 per cent denotes that MFI has enough operational income to cover its costs, indicating an operationally self-sustainable status. This operational self-sustainable status is considered to be a basic accounting metric of financial sustainability of an MFI in microfinance literature. In order to compare the sustainability of both welfarist and institutionalist MFIs, without discriminating between the usages of subsidies, the use of OSS

ratio was preferred over other advanced measures of financial sustainability like Financial Self-Sustainability (FSS) Ratio and Subsidy Dependence Index (SDI). Moreover, since these advanced measures would require the computation of the amount of concessional funds used by MFIs and its associated opportunity cost for the MFI, for which data constraints exists in Indian microfinance industry, the usage of OSS ratio was preferred.

Literature depicts certain factors to have an influence on OSS of MFIs. These factors influencing the OSS of MFIs can be classified into seven broad categories. They are—Revenue Generation Factor, Portfolio Risk Factor, Cost Efficiency Factor, Capital Structure Factor, Development Factor, Growth Factor and Institutional Factor. Each of these factors is represented in this work, by selecting a proxy variable from the balance sheet, profit and loss account and websites of the sample Indian MFIs. This section is a discussion on these factors and the choice of their proxy variables.

Revenue Generation Factor

This factor denotes the means for revenue generation for an MFI, like interest rates and fee incomes. The prominence of this factor is discussed by Robinson (1996) and Conning (1999) who observe that only those MFIs which charge high and cost-covering interest rates are found to be profitable. Cull et al., (2007) confirms this observation but adds to it that, if interest rates become exorbitant and exploitative in nature, the MFIs will no longer be profitable as the demand for microcredit will subside. Nevertheless, Littlefield and Rosenberg (2004) argue that only those MFIs that cover all their expenses by operating at adequate financial margins are seen to be sustainable. Going by these observations, in this work, financial margin ratio [Financial Margin Ratio = (Revenue from Interest - Financial Expenses) / Average Assets] is used to proxy the revenue generation factor. Past work in similar lines by Crombrugghe et al., (2008) uses merely the figure of interest rate as a proxy variable.

Portfolio Quality Factor

This factor denotes the quality of MFI's loans. Cull et al., (2007) note that sustainable MFIs

maintain the quality of its loan portfolio by disbursing group loans, with joint liability on all the group members. Peer pressure and threat of social punishment within the groups effectively replaces the need for physical collateral and ensures high recovery rates for MFIs. Repayment rate and efficiency is seen higher under joint-liability contracts as compared to conventional individual-liability contracts because the former exploits a useful resource that the latter does not—the information borrowers have about each other in the groups (Ghatak, 2000). This reduces the information asymmetric credit market risks in lending operations. Though this has been the experience in India, the microfinance crisis[2] in the district of Andhra Pradesh has deteriorated the portfolio quality of Indian MFIs. Uncontrollable metrics of portfolio quality like Portfolio at Risk >30 days[3] and recovery rates were found to be adversely affected due to the crisis (Intellecap, 2010). In this scenario, provisioning of loan loss reserves towards bad loans becomes crucial for the OSS of MFIs (Malegam Committee Report, 2011). Therefore this work uses the adjusted impairment loss allowance ratio [Adjusted Impairment Loss Allowance Ratio = (Loan Loss Expenses + Write offs) / Gross Loan Portfolio] to denote the portfolio quality of MFIs. This measure reflects the MFI's reserves for loan loss and write-offs, on its overall portfolio. Compared to past works by Ayayi and Sene (2007) and Crombrugghe et al., (2008), that uses Portfolio at Risk >30 days as a proxy variable, this measure gives a broader view of portfolio quality. Usage of Portfolio at Risk >30 days can be misleading because write-offs can reflect an excellent portfolio at risk ratio, while the MFI is assuming big losses in its profit and loss account directly or is using their past reserves or provisions for non-performing loans. Instead, by summing up Loan Loss Expenses[4] and Write-offs[5] and dividing it by an MFI's loan portfolio, a better knowledge of the cost that an MFI assumes from the quality of its portfolio can be obtained.

Cost Efficiency Factor

This factor denotes the efficiency level of MFI operations and is crucial for the OSS of MFIs. Qayyum and Ahmad (2006) confirm this aspect by conducting a data envelopment analysis study that reports a direct relationship with the

efficiency and sustainability of Indian MFIs. Churchill (2000) exhorts MFIs to work towards the goal of efficiency and cost reduction, by adopting the efficient banking management practices. Savitha (2007) conducts three case studies on Indian MFIs and opines that by minimizing the cost per borrower, cost efficiency can be achieved. Going by this observation this work uses cost per borrower [Cost per Borrower = Total Cost of MFI / Number of Borrowers] as a proxy for cost efficiency. Prior works by Crombrugghe et al., (2008) and Ayayi and Sene (2007) have used cost per borrower and total cost ratios to depict this factor. For the sake of parsimony of the regression model, this work uses the former variable alone.

Capital Structure Factors

This factor denotes the structure of an MFI's capital mix. The impact of capital structure factors on the OSS of MFIs have been studied by Coleman (2007) and Bogan (2008). Coleman (2007) studies the impact of leveraged capital structure on the sustainability of MFIs and reports a positive relationship between the debt and sustainability. Bogan (2008) confirms the same finding with respect to debt, but reports a negative association between donations and financial self-sustainability of MFIs. In tune with these findings, this work uses two proxy variables to capture the effect of capital structure on operational self-sustainability — equity to asset ratio and donation to asset ratio [Equity to Assets Ratio = (Equity + Retained Earning) / Total Assets] and [Donations to Assets Ratio = Donations / Total Assets].

Development Factor

This factor denotes the development orientation of an MFI or depth of an MFI's outreach (i.e. ability of MFI in reaching out to the very poor clientele). This can be captured by poverty level and gender of the clients (Christen, 2001; Navajas et al., 2000; Bhatt & Tang, 2001; Olivares-Polanco, 2005 and Von Pischke, 1996). The assumptions in these studies are that the greater the number of poor clientele and women clientele served by the MFI, the deeper is the outreach. These studies perceive average loan size per borrower of the MFI to be a proxy for poverty level of clientele and regard women

clientele to be poorer than men. They also deliberate on the trend seen among MFIs, to adopt commercialised managerial practices to remain sustainable, thereby drifting from the mission of serving the poor. This discussion makes it interesting to study the relationship between an MFI's OSS and the mission drift issue faced by it. Going by this observation, this work introduces average loan size per borrower, [Average Loan Size per Borrower = Gross Loan Portfolio/ Number of Borrowers] a proxy variable for the poverty level of clientele, to see if there is a trade-off effect of mission drift for MFIs, while pursuing the goal of sustainability. The impact of serving the women clientele [Women Borrowers = Number of Women Borrowers] on the OSS of MFIs is also studied in this work. D'Espallier et al., (2009) observes that more of women clientele for an MFI is associated with lower portfolio-at risk, lower write-offs, and lower credit-loss provisions; all leading to higher OSS.

Growth Factor

This factor denotes the scale of MFI's operations and is vital for an MFI to achieve its OSS (Nisha, 2007). Qayyum and Ahmad (2006) observe economies of scale to directly influence sustainability of MFIs in India. Crombrugghe et al., (2008) tests the impact of growth on the sustainability of 42 Indian MFIs, using gross loan portfolio and total number of borrowers as proxies for growth. Similarly, Ayayi and Sene (2007) tests the influence of growth on the sustainability of a sample of 217 MFIs in 101 countries, using client outreach as a proxy for growth. The results of both the studies confirm the positive influence that growth has on sustainability of MFIs. In similar lines, Nair (2005) also suggests that scale economies could be reaped by Indian MFIs by pursuing growth. In tune with the observations of these prior works, this work also hypothesizes a positive relationship between growth and OSS, using gross loan portfolio as proxy variable for growth.

Institutional Factor

This factor denotes the aspects specific to an MFI, which affects its OSS. Prominent variables in this category are discussed in literature by Venkatraman and RajSekhar (2008), Ayayi and Sene (2007) and

Crombrugghe et al., (2008) . Venkatraman and RajSekhar (2008) in their study note, MFIs which are regulated in nature to have higher levels of sustainability in India. Ayayi and Sene (2007) in their study hypothesizes age as a variable sharing a direct relationship with sustainability. Apart from age, Crombrugghe et al., (2008) in their study, denotes location of MFI and savings facilities provided by MFIs, to have an influence on an MFI's sustainability. Going by the findings of these studies, this work incorporates manageable institutional-specific variables like location, savings facilities provided by MFIs and regulatory status of MFIs, to the regression model. Age, an uncontrollable institutional variable is also tested in order to study its impact on OSS.

Thus with literature support, the variables that proxy each of these seven factors are identified. These factors and variables are then used to formulate a theoretical model, which is later converted to an empirical regression model. By testing this empirical model on a sample of Indian MFIs, the impact of change in each of these variables is studied over change in the OSS of these MFIs. The change window is taken as 2005 to 2009. The data, theoretical model and hypotheses formulated to test the expected relationships between these variables and the OSS ratio is discussed in the next section.

Data, Theoretical Model and Hypotheses

Data for this work is sourced from a population of 800 odd MFIs in India. Out of this 800 odd MFIs, National Bank for Agriculture and Rural Development (NABARD) reports majority to be opaque, remaining largely unproven in terms of its sustainability. After reviewing the Microfinance Information Exchange Market Database, 50 Indian MFIs are found to have disclosed their standardized operational data for the period 2005-2009. This work is limited to these MFIs, which are probably more institutional oriented. Data is collected on these

transparent and comparatively sustainable Indian MFIs. As these 50 MFIs have not consistently reported their data on all the selected factors for the consecutive years 2005-09, a panel data analysis could not be undertaken. This forced the study to be a cross-sectional in nature. But the longitudinal effect is captured to the possible extend, by using the change in factors for the window 2005-09. Change in the values of these factors over the year 2005 to the year 2009 is ascertained and used for testing the hypotheses on a sample of 50 Indian MFIs. The 50 sample MFIs used in this study are spread across the geography of the nation. 62 per cent of MFIs in the sample were in South India and 38 per cent in North India. This proportion in the sample conforms to the increased concentration of MFIs in South India, which is a representative of the MFI population in India.

A theoretical model is formulated for testing the significance of the factors affecting the OSS of MFIs on the sample data. The model comprises of the seven broad categories of factors affecting the OSS of MFIs, as discussed in the literature review section of this paper. These seven factors are proxied using twelve proxy variables, selected based on the theoretical support gained during the literature review phase of the study. A schematic of the theoretical model formulated by the author with this literature support is depicted below in Figure 1. The theoretical model coined and depicted in Figure 1 is a dependence model showing expected relationships between one dependent variable and several independent variables.
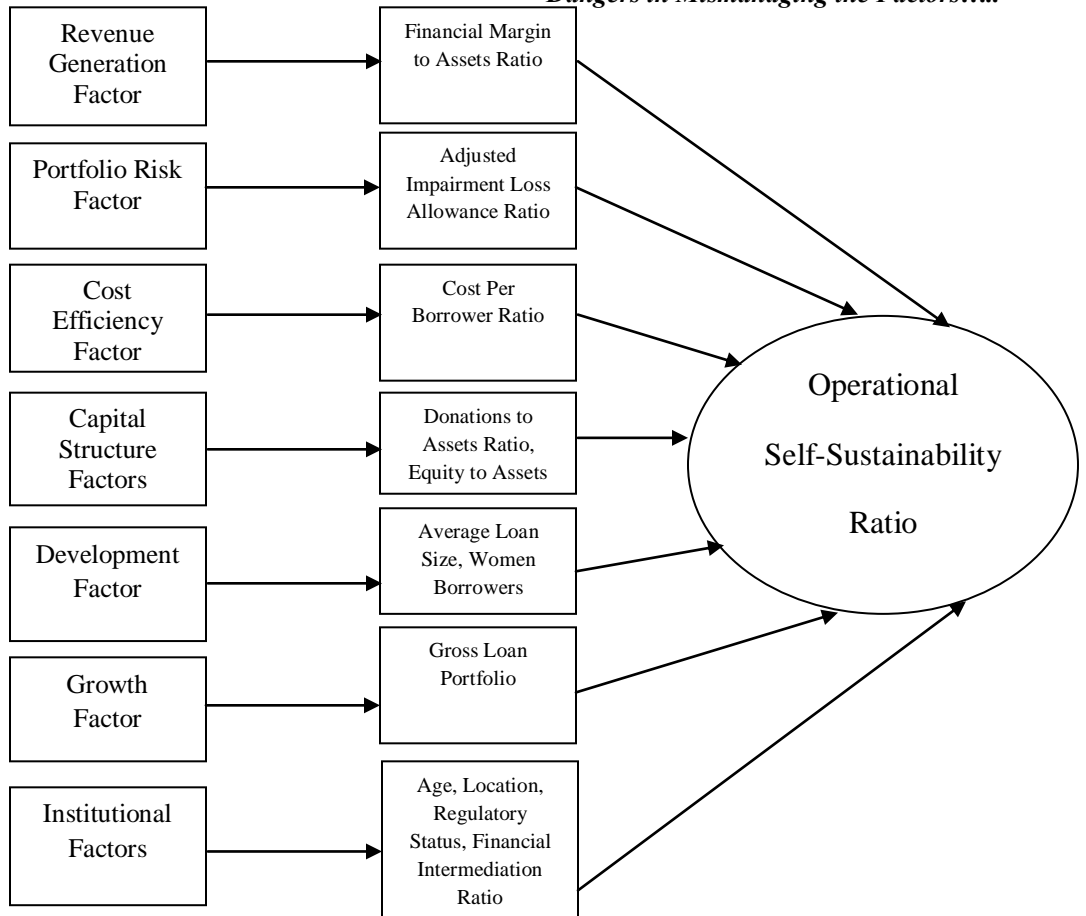
Figure 1. Theoretical Model: Factors Affecting the OSS of MFIs
Source: Author's Construct Based on Literature Review

This theoretical dependence model is empirically denoted by a multiple regression model. Each of the factors in the model is captured using variables, sourced from the balance sheet, profit and loss account and website of the sample MFIs. More details on these variables used in the multiple regression model is explained in the subsequent sections.

Dependent Variable
For the analysis purpose, OSS ratio is used as dependent variable. For the sample, the mean OSS for 2005 & 2009 is 104.14 percent and117.06 per cent respectively. The minimum OSS for 2005 & 2009 is 4.50 per cent and 25.02 per cent respectively and the maximum OSS for 2005 & 2009 is 195.05 per cent and

180.04 percent respectively. This shows that the sample comprises of MFIs with varying OSS levels and is to that extend representative of the different MFIs in the population.

Independent Variables and Hypotheses
Twelve independent variables are used in this study to proxy the factors affecting the OSS of MFIs. They are Financial Margin Ratio, Adjusted Impairment Loss Allowance Ratio, Cost Per Borrower, Donation to Asset Ratio, Equity to Asset Ratio, Average Loan Size, Number of Women Borrowers, Gross Loan Portfolio, Age, Location, Regulatory Status and Financial Intermediation Ratio. The details on these independent variables and the hypotheses used in the study are discussed in Table 1.

Table-1: Independent Variables and Hypotheses

Independent Variables		Hypotheses
Factors	**Proxies**	
Factor 1: Revenue Generation Factor	**Financial Margin to Assets Ratio** =(Revenue from Interest - Financial Expenses) / Average Assets	It denotes the margin earned on lending over the cost of lending. **Hypothesis 1:** Change in financial margin is directly related to the change in OSS. Higher the financial margin, better is the OSS of the MFI.
Factor 2: Portfolio Risk Factor	**Adjusted Impairment Loss Allowance Ratio** = (Loan Loss Expenses + Write offs) /Gross Loan Portfolio	It denotes the portfolio adjusted impairment loss allowance. **Hypothesis 2:** Change in portfolio adjusted impairment loss allowance ratio is inversely related to change in OSS. Lower the ratio, better the quality of loan portfolio and higher the OSS of the MFI.
Factor 3: Cost Efficiency Factor	**Cost per Borrower Ratio** = Total Cost of MFI / Number of Borrowers	It denotes cost efficiency per borrower. **Hypothesis 3:** Change in cost per borrower is inversely related to the change in OSS. Lower the cost per borrower higher is the cost efficiency and better the OSS of the MFI.
Factor 4: Capital Structure Factor	**Donations to Assets Ratio** = Donations / Total Assets	This denotes the donations used by an MFI in its capital structure. **Hypothesis 4:** Change in donation to assets ratio is directly related to change in OSS. Though a negative relationship is shared by donor dependency with financial self-sufficiency ratio, with OSS it has a positive association. This is so as the MFI performs well and attracts more donor funds; the donations act as catalyst for enhancing its OSS.
	Equity to Assets Ratio = (Equity + Retained Earning) / Total Assets = (Paid in capital + Retained Earnings + Share Premium +Treasury Shares+ Equity Reserves) / Total Assets	This denotes own funds and ploughed back contributions in the capital structure of a MFI. **Hypothesis 5:** Change in equity to asset ratio is inversely related to change in OSS. The reason is that from a sustainability perspective, leverage on equity is very important for a MFI's growth, as scale can dilute or offset fixed costs. Leverage may also boost profitability when the cost of financing do not exceed the marginal revenue generated from it, according to DuPont Analysis Formula: Return on Equity (ROE) = (Net Profits / Assets) x (Assets/Equity)
Factor 5: Development Factor	**Average Loan Size per Borrower** = Gross Loan Portfolio/ Number of Borrowers	This denotes the poverty level of the clientele. **Hypothesis 6:** Change in average loan size is directly related to change in OSS. Higher the average loan size, lower the poverty level of the clientele and better the MFI sustainability. This variable is introduced to see if there is a trade-off effect of mission drift, while pursuing sustainability. An increase in loan size though reduces transaction cost on loans and augments sustainability, indicates a drift from the mission of reaching the poor.
	Women Borrowers = Number of Women Borrowers	It denotes the number of female clientele, among the total number of active clients of the MFI. In microfinance, the belief is that female clientele needs to be empowered through financial strength; for women are perceived to be poorer than men and less autonomous in all financial respects. **Hypothesis 7:** Change in number of women borrowers is directly related to change in OSS. This is so as in microfinance women are more reputed for repayments than men.

Factor 6: Growth Factor	Gross Loan Portfolio	This denotes the outreach or scale achieved by the MFI, which in turn indicates its growth. **Hypothesis 8:** Change in gross loan portfolio is directly related to change in OSS. Higher the gross loan portfolio of the MFI better is the OSS of the MFI.
Factor 7: Institutional Factor	Age	It denotes the number of years since inception of the MFI. **Hypothesis 9:** Age of MFI is directly related to the change in the OSS. Age is expected to have a positive relationship with MFI sustainability, as the MFI is expected to be have matured and gained experience in establishing its operations with age.
	Location	It denotes the geographical location of the MFI. None of the MFIs in the sample has changed its geography of operation during 2005-09. So the change in location is not measured. Instead, dummy variables are used to distinguish between the Northern & Southern regions, in which the MFIs are located. We use 1 for denoting Southern and 0 for denoting Northern regions. In India above 80 percent of the MFIs are operating in South India[6]. As South India is the preferred location for MFIs, it interesting to study if there is a direct relationship between presence of MFI in South India and change in OSS. **Hypothesis 10:** Presence of MFI in South India is directly related to changes in OSS.
	Regulatory Status	It denotes the legal status of the MFI. Weightage (W) is given to the MFIs for the period they remained regulated. W= 0 for MFIs unregulated for the period 2005-09, W= 5 for MFIs regulated for the period 2005-09 and W value between 0 and 5, is assigned to all other MFIs based on the time period for which they remained regulated during the period 2005-09. **Hypothesis 11:** The time period for which an MFI remained regulated is directly related to changes in OSS. Regulated MFIs are expected to be more transparent and well governed; sourcing commercialized funds and mobilizing deposits, all augmenting sustainability.
	Financial Intermediation Ratio = Deposits / Loans	It denotes deposits mobilized as a ratio of loans disbursed. **Hypothesis 12:** Change in financial intermediation ratio is directly related to the change in OSS. High financial intermediation ratio is expected to add to the sustainability of a MFI, as the funds from savings can be parked in profitable assets which can yield higher rates of return for the MFIs.

The hypotheses discussed above, are tested using multiple regression analysis.

Empirical Analysis and Results

The empirical multiple regression model tested in the study is as follows:

ΔOperational Self-Sustainability (OSS) = $\beta 0$ + $\beta 1$ ΔFinancial Margin Ratio + $\beta 2$ ΔAdjusted Impairment Loss Allowance Ratio + $\beta 3$ ΔCost Per Borrower + $\beta 4$ Δ Donation to Asset Ratio + $\beta 5$ ΔEquity to Assets Ratio + $\beta 6$ ΔAverage Loan Size + $\beta 7$ Δ Number of Women Borrowers + $\beta 8$ ΔGross Loan Portfolio + $\beta 9$ Age + $\beta 10$ Location + $\beta 11$ Regulatory Status + $\beta 12$ ΔFinancial Intermediation Ratio + μ

Where,

Δ is the change in value of the variable from 2005 to 2009. $\beta 0$ is the intercept. B1 to $\beta 12$ are the beta coefficients of the independent variables and μ is the random error term.

The regression analysis results show that model is well specified with non-biased coefficients. The non-biasedness and efficiency of the co-efficients are confirmed by checking for the normality and homoskedasticity of the regression residuals. There was also no trace of endogeneity, as there was no significant correlation between between the error term and the independent variables.

The Fischer's F test confirms the over-all model fit. The F value of 5.303 with the prob >F = 0.000 signifies that the model has good over-all significance. This result is also corroborated by the adjusted R^2 of 51.30 per cent, which signifies that 51.30 per cent of the variance of the dependent variable is explained by the independent variables in the model.

The non-biased regression results and collinearity diagnostics are depicted in Table 2.

Table-2: Regression Results and Collinearity Diagnostics

Model	Standardized Coefficients Beta	t value	Significance at 5%	Collinearity Statistics	
				Tolerance	Variance Inflation Factor
(Constant)		(2.931)*	.006		
Hypothesis 1: Financial Margin to Asset Ratio	.283	(2.453)*	.019	.744	1.344
Hypothesis 2: Adjusted Impairment Loss Allowance Ratio	-.299	(-2.686)*	.011	.801	1.249
Hypothesis 3: Cost per Borrower Ratio	-.377	(-3.439)*	.001	.827	1.209
Hypothesis 4: Donation to Asset Ratio	-.111	(-1.040)	.305	.868	1.152
Hypothesis 5: Equity to Asset Ratio	-.114	(-.730)	.470	.405	2.468
Hypothesis 6: Average Loan Size per Borrower	-.667	(-3.096)*	.004	.214	4.676
Hypothesis 7: Women Borrowers	-.182	(-.963)	.342	.278	3.593
Hypothesis 8: Gross Loan Portfolio	.754	(3.304)*	.002	.191	5.242
Hypothesis 9: Age	-.094	(-.661)	.513	.488	2.049
Hypothesis 10: Location	-.210	(-1.784)	.083	.719	1.390
Hypothesis 11: Regulatory Status	-.114	(-.981)	.333	.738	1.356
Hypothesis 12: Financial Intermediation Ratio	-.016	(-.142)	.888	.742	1.347

Collinearity diagnostics like tolerance value and variance inflation factor, depicted in table 2 is used to check the problem of multicollinearity among the independent variables.

Multicollinearity is a problem that arises when there is high inter-correlation among the independent variables in the multiple regression model. This high inter-correlation makes the

regression coefficients inflated and difficult for interpretation. The results presented in table 2 shows tolerance values above .10 and variance inflation factor below 10. This denotes that there is no multicollinearity problem among the independent variables included in the study.

As per the probability values (i.e. significance values at 5 per cent) depicted in the table, six independent variables are found to be significant in the study–Financial Margin, Adjusted Impairment Loss Allowance Ratio, Cost Per Borrower, Average Loan Size Per Borrower and Gross Loan Portfolio. All of these four variables, except Average Loan Size Per Borrower complied with the hypothesized theoretical relationships discussed earlier.

These five variables represent the following factors respectively—Revenue Generation Factor, Portfolio Risk Factor, Cost Efficiency Factor, Development Factors and Growth Factor. Thus the results infer these factors to be the most significant ones affecting the sustainability of Indian MFIs.
Gross Loan Portfolio which denotes the MFI's growth in outreach has the highest beta co-efficient. This depicts that sustainability of MFI is enhanced by economies of scale in loan disbursement operations. As expected, other variables like Cost Per Borrower, Financial Margin and Adjusted Impairment Loss Allowance Ratio are also found significant, indicating Cost Efficiency, Financial Margin and Portfolio Quality to be crucial factors affecting the sustainability of MFIs. Intuitively, it infers that MFI managers must concentrate on these aspects for enhancing the sustainability of their organizations.

Average Loan Size Per Borrower is found significant but has a negative relationship with OSS. Average Loan Size was introduced as an independent variable to see if Indian MFIs are improving their sustainability levels by increasing their loan size, thereby drifting their attention to the less poor clients. But the regression results seem to show that such a mission drift does not happen in Indian context. This would mean Indian MFIs are not profiting by drifting its mission of serving the poor. Moreover, the negative relationship shows that poorer the clientele better the sustainability.

Although, this result corroborates the basic belief in microfinance that the poor are bankable, it also contradicts the trade-off argument between serving the poor and attaining sustainability. Such contrasting results have been supported by Ashim (2010) in his dissertation on sustainability and mission drift in microfinance.

Rest of the independent variables—Age, Financial Intermediation Ratio, Legal Form, Geographic Location, Women Borrowers, Donation to Asset Ratio and Equity to Asset Ratio—are not significant in explaining the changes in OSS.

Out of the seven factors used for testing the hypotheses, five turned out to be significant. They are the Revenue Generation Factor, Portfolio Risk Factor, Cost Efficiency Factor, Development Factor and Growth Factor. Out of two proxy variables used for Development Factor, only Average Loan Size Per Borrower turned out to be significant. These significant factors deserve considerable attention from MFI management as they play a major role in determining the sustainability of MFIs. These factors also needs to be managed judiciously, for if they are optimized only for the sake of attaining sustainability, without considering its impact on clientele, it will results in dangerous consequences for the microfinance industry.

Dangers in Mismanaging the Five Factors Affecting the OSS of Indian MFIs—An Exploration into Indian Microfinance Crisis

The term 'mismanagement of factors' is used to denote a situation where in an MFI is managing the factors affecting its OSS, in such a way that it maximizes its financial sustainability, by exploiting the poor clientele. This is considered to be 'mismanagement in microfinance' for if an MFI does so, then it deviates from its social goal of poverty alleviation, for the sake of attaining financial sustainability. It forgets the tenet put forth by Rhyne (1994) — sustainability is only a means to achieve the goal of poverty alleviation, and not an end in itself.

An exploration into Indian microfinance crisis, depicts that when few MFIs in Andhra Pradesh

(AP) district of India, began to act oblivious of this tenet, it threatened the viability of the entire microfinance sector in the nation. The crisis and reputation risks that ensued imparted the lesson that mere financial self-sustainability is not always a positive sign of MFI performance. An MFI that is obsessed with attaining sustainability can undermine the very spiritual foundation of microfinance that aims at poverty alleviation. An exploration into Indian microfinance crisis corroborates this, by depicting the dangers in mismanaging the significant factors affecting the sustainability of MFIs. The dangers with respect to mismanaging each of the five factors found significant in affecting the OSS of Indian MFIs are discussed below:

a. **Revenue Generation Factor:** Revenue generation factor is denoted by the financial margin levied by the MFIs. Charging cost covering interest rate is an acceptable practice among MFIs to remain sustainable. But when commercialized MFIs aiming at financially sustainability, began to levy cost-covering interest rates without any transparency in their operations, it raised concerns about margins being client exploitative. Lack of transparency would make it impossible to know if the MFIs were passing on their operational inefficiencies to the clients in the form of cost-covering interest rate. The Malegam Committee Report (2011) cites some large Indian MFIs to be levying interest rates close to 50.53 per cent. On an average the interest rate charged by Indian MFIs comes to 28-36 per cent in the year 2009-10, providing them with huge financial margins. It provided a financial margin of close to 24 per cent for large Indian MFIs, whose average financing cost is 11.78 per cent and interest rate yield is 36.79 per cent for the year 2009-10. Even the small Indian MFIs reaped a financial margin of 16 per cent as their average financing cost is 11.71 per cent and interest rate yield is 28.73 per cent for the year 2009-10. Though these yields were less compared to the global

average of 31 per cent, for a nation like India, this pricing was viewed as more commercialized than being pro-poor. Spate of suicides among poor MFI borrowers in the Indian district of A.P, due to inability to repay at these exorbitant rates, proved these interest rates to be unaffordable for the Indian poor. Such revenue maximization practices by MFIs, at the expense of the poor's welfare, made India's Malegam Committee to insist a financial margin cap of 12 per cent and interest rate cap of 26 per cent for Indian MFIs. This mismanagement on part of Indian MFIs, attracted a legal action which imposed a cap on interest rates and financial margins, which was otherwise best determined by the market forces.

b. **Portfolio Risk Factor:** Portfolio risk factor is captured by the Impairment Loss Allowance Ratio of MFIs. Prabhu (2011) points out that commercialized MFIs who aim at sustainability, aim at rapid expansion of their operations with a zero tolerance for delinquency rates. In order to attain this zero non-performing assets status, the commercialized MFI staff often maintain a high borrower to staff ratio (average comes around 400 per loan officer for large MFIs, which in some cases goes up to 700 per loan officer). Consequently, the relationship between the borrower and staff weakens, with the latter having no clue about the cash flow patterns of the former. The staff who have no background knowledge about the clients in their operational area, indulge in overbearing behavior with the poor clients. As their incentives are tied with achieving zero delinquency rates in their operational area, they justify the use of such overbearing behavior for recovery. This mismanagement done by few Indian MFIs, to maximize the performance of their loans, have raised concerns about client protection in microfinance. The recovery rate on Indian microfinance loans which was once reported as close

to 99 per cent, has deteriorated on account of the strained relationship between MFI clients and staff. This danger of poor portfolio quality, can be overcome if MFI consciously decide to give up frantic plans for growth achieved through high borrower to staff ratio. Moreover, MFIs should train its staff to establish good client-relationships, by understanding their financial needs and cash flow patterns.

c. **Cost Efficiency Factor:** Cost efficiency factor is captured by cost per borrower ratio of the MFI. Though Indian MFIs are looked upon as the least cost players in world microfinance markets, its efficiency is mainly on account of scale efficiency and not managerial efficiency. The efficiency analysis done by Qayyum and Ahmad (2006) on Indian MFIs empirically proves this finding. But Sinha (2010) observes that even the scale economies enjoyed by Indian MFIs, are due to its frantic expansion operations achieved by disproportionately increasing the clients to staff ratio, which will only exacerbates the portfolio risk of the MFI in the long run. This apparent scale efficiency achieved by straining the relationship between clients and staff of MFIs, instigates the usage of coercive practices for loan recovery. Thus the cost efficiency achieved through hectic expansion plans, can also exploit the poor clientele.

d. **Development Factor:** The development factor that turned out significant in this study is average loan size per borrower. The negative relationship shared by average loan size per borrower and OSS ratio, shows that there is no mission drift issues in Indian microfinance market. But this conclusion is based on the theoretical belief that average loan size proxies the poverty level of the microfinance clientele (smaller the average loan size means the MFI is reaching the poor clients). But Sinha (2010) opines that mere provision of small loan size will not result in

development orientation. By limiting loans to small amounts, an MFI may reduce its own portfolio risk at the individual level, but it will fail to fulfill the borrower's financial needs. This will make them approach other MFIs and money lenders, leading to the problem of multiple borrowing. Such multiple borrowing from different financial intermediaries who do not understand the cash flow pattern of the clients, will result in over-indebtedness making clients unable to repay their loans. This problem of multiple borrowing is alleged to have caused client suicides, leading to a microfinance crisis in India. Thus the crisis proves that MFIs true development orientation lies in designing loans in amounts that match the client's financial needs and repayment capacity, rather than partially fulfilling their needs and making them go for multiple loans.

e. **Growth Factor:** Growth factor is captured by the gross loan portfolio of the MFI. The tendency seen among Indian MFIs to capture a burgeoning microfinance market with a growing loan portfolio, has been the root cause of the microfinance crisis in India. Prabhu (2011) opines that when hectic growth and expansion plans are pursued by MFIs, it will need commercialized funds from equity and debt investors. Such commercialized MFIs will face the pressure to meet the return expectations of debt and equity investors and this will in turn make them influence the behavior of MFI staff adversely. Levy of exorbitant interest rates, multiple lending and coercive loan recovery practices will be the means adopted by the staff to meet the growth and return expectations of the owners and investors. All these practices though earned short-run profits for Indian MFIs, deviated them from its social goal. It resulted in a crisis, with reputation risks hampering the future growth of MFIs. These problems associated with growth can be rectified

only if MFIs have a clear vision to achieve steady growth, without deviating from its social goal.

Summary and Conclusion

With an empirical analysis this work identified the determinant factors for Indian MFI's OSS. Further by referring to the Indian microfinance crisis, it discussed how mismanaging these factors can deviate MFIs from its social goal of poverty alleviation. The dangers in such mismanagement which can hamper the growth of the microfinance market are elucidated in this paper. The paper concludes by stating that it is imperative for Indian MFI managers to introspect about their lending and recovery practices, so as to ensure that they manage the factors affecting their OSS, without exploiting the poor clientele. The discussion in the paper shows that any effort made by the MFI to maximize its revenue and growth rates by passing on its cost burden to the poor in the form high interest rates, by adoption of coercive loan recovery practices and by usage of multiple lending practices will adversely affect its long term perpetuity in the sector. Efforts of an MFI to enhance loan recoveries, cost efficiency and growth rates of loan portfolio can also hamper sustainability in the long run, if it uses lending strategies that adversely affect the quality of its credit officer-client relationship, to achieve these ends. Even the practice of provision of small loan size, which is done by an MFI as a means to ensure development orientation, can be detrimental to its own long-term sustainability, as it has a downside risk of creating the tendency of multiple borrowing among the clients. Therefore based on the observations made in this study, Indian MFI managers are recommended to be wary of the adverse affects that can occur if the factors affecting their MFI's OSS are mismanaged. The study unveils how such mismanagement, which is usually done unintentionally by the MFIs in the name of enhancing their short-term profitability, can hamper its own long-term sustainability, as it often results in client exploitation. So based on the discussions made in this study, the MFI managers are recommended to introspect about their current lending and recovery practices, so

as to ensure that they refrain from mismanaging the factors crucial for their OSS.

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Endnotes

[1]Compartamos, a commercialized Latin American MFI, that was first to go for an Initial Public Offering in the year 2007, charges an interest rate of close to 100 per cent per annum.

[2] A spate of suicides among the microfinance clients in the district of Andhra Pradesh, during the month of September, 2010, allegedly due to exorbitant interest rates and the coercive recovery practices adopted by some of the MFIs have resulted in a crisis in Indian Microfinance Industry. For more details see, Intellecap, 2010.

[3] This denotes all the loans outstanding for an MFI, that have one or more installments of principal past due for more than 30 days.

[4]Loan Loss Expenses are generally incurred to comply with some sort of regulation; either self-imposed or mandated by regulators on due loans.

[5] Write-offs are loans that the MFI has to take out of their books after a determined period of time; having done all the collection efforts on it.

[6] The district of Andhra Pradesh, where the crisis on account of high interest rates of MFIs was alleged is also in the southern part of India.