

# Capital Structure and Performance of Indian Microfinance Institutions

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*The main aim of this paper is to explore the impact of capital structure on the performance of Microfinance Institutions (MFIs), which have double bottom line, outreach and financial sustainability goals. The paper examines the relationship between MFIs' capital structure and financial and social performance. The random and fixed effect models have been applied to a panel dataset of 46 Indian Non-Banking Financial Companies-Microfinance Institutions (NBFC-MFIs) for the period 2009-10 to 2014-15. Panel regression analysis shows that Indian MFIs are highly leveraged, which has enhanced the efficiency of NBFC-MFIs by reducing cost per borrower and operating expenses resulting in improvement of portfolio quality. Leverage has a positive and significant impact on social and financial dimensions of the MFIs. This is a unique study in the Indian microfinance sector that explores the impact of capital structure on MFIs' social and financial dimensions.*

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## Introduction

Agency costs arise due to dissociation of ownership and control of the firm as managers who are agents of shareholders may set and pursue their interests which may be inconsistent with organizational goals leading to agency conflicts. One way to diminish agency costs is to appropriately design the firm's capital structure so as to reduce its impact to the minimum. The agency cost theory of the business points out that high leverage lowers expenses for external equity companies by pushing managers to work harder in favor of shareholders (Berger and Di Patti, 2006). Capital structure influences a company's efficiency but varies from the pioneering work of Modigliani and Miller's (1958) who postulated that capital structure is unrelated to the profitability of a company. Modigliani and Miller's (1958) work was based on the assumptions of absence of perfect capital market, no taxes, absence of trading cost and similar expectations of investors. Hamada (1969) and Stiglitz (1974) had supported the work of Modigliani and Miller, but in the present scenario where there is a high competition, such assumptions will not hold good. Jensen and Meckling (1976), Myers (1977), Williams (1987), and Harris and Raviv (1990) have highlighted the limitations of assertions made by Modigliani and Miller (1958).

Empirical research has focused on the capital structure and the performance of the firms and found mixed results. The studies of Abor (2005), Berger and Di Patti (2006), and

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Champion (1999) have shown a positive relation with capital structure and firm performance of companies. The studies of Krishnan and Moyer (1997), Fama and French (1998), and Zeitun and Tian (2007) have reported negative impact of leverage on firm performance. The studies based on Microfinance Institutions' (MFIs) capital structure are very limited and have also shown mixed results. There was a positive relation in the studies of Kyereboah-Coleman (2007) and Muriu (2011), while Bogan (2012) found a negative relation with capital structure and firm performance of MFIs. A few more critical and relevant studies are required to understand the relation between capital structure and firm performance of MFIs.

In the Indian context, not many studies are available based on capital structure and performance of MFIs, especially on dual dimensions. MFIs have double bottom line objective of outreach (serving a large number of financially excluded people) and sustainability (to serve the large population in the long run, MFIs must be financial sustainable). Consequently, the authors have investigated the effect of capital structure on MFIs' social and financial performance. Microfinance concept is not new in India; it evolved in the 19<sup>th</sup> century, but the sector witnessed significant growth following the liberalization of the Indian economy in 1991. Studies have found that capital structure affects firm performance, and studies in the Indian context (Agarwal and Sinha, 2010; and Dawar, 2014) have also supported those findings. Microfinance means the provision of different financial services to a section of the population who do not have access to formal banking system. Initially, MFIs were established in the form of trusts and societies under Section 25 Companies Act. These institutions with their limited resources depended on donations, grants and government subsidies. Through their evolution, MFIs have transformed into Non-Banking Financial Companies (NBFCs) and have access to commercial borrowings including funds from the capital markets. This transformation has implications on the operations and performance of these institutions as there is an external pressure to service their debt and maintain the profitability and efficiency of operations.

MFIs have been considered to be micro-banks (Cull *et al.*, 2007) that have dual objectives of social and financial sustainability. The MFIs have played an increasingly important role in the financial systems of most of the developing countries (Reed, 2011). Consequently, they have fulfilled their promise to help the poor to emerge out of poverty through the services they offer (Bubna and Chowdhry, 2010). Despite the success of many MFIs and the growing marketing of this sector, a large section of the population is still deserted (Christen *et al.*, 2004). There is a bigger challenge for MFIs to meet it from the supply side due to high operating costs and capital constraints (Helms, 2006). The commercialization of the sector may force the MFIs to focus more on financial objective rather than having a balanced approach towards the double bottom line objectives and this area need to be studied.

The number of MFIs in India is increasing day by day, but financially excluded population is still significant. Funding is the major constraint for MFIs to increase their outreach, and at the same time financial sustainability of MFIs is also getting affected. In the same line, to understand the capital structure of MFIs is also very crucial. An important area which has not yet been explored is the effect of capital structure on the social and financial performance

of NBFC-MFIs in India. This study contributes to the limited literature which provides insights into the impact of capital structure on Indian MFIs' financial and social performance.

## Literature Review

Enterprise capital structure is the trade-off between debt and equity. Equity is a combination of equity shares, preference shares, retained earnings, and various reserves, while debt is a combination of borrowings from financial institutions. Indian MFIs have not allowed to accept deposits from the market, so institutions have limited funds. MFIs in India start their operations in the form of NGO-MFIs and are dependent on donor funds, grants and government subsidy. Socially responsible investors and donors are still funding MFIs all over the world (Armendariz and Morduch, 2010). Hermes *et al.* (2011) have reported that 70% of MFIs are still dependent on donor funds and government subsidies. Vanroose and D'Espallier (2013) have found that only 23% of MFIs in the world survive without any subsidy and raise market-based sources of funds (non-convertible debentures and private equity). Vanroose and D'Espallier (2013) have also assumed that MFIs and other formal financial institutions can compete and MFIs can fill this void by increasing financial inclusion. Inability to accept deposits and limited funding sources forced these MFIs to transform (into a regulated structure NBFC-MFIs) and start accessing funds through securitization and portfolio buyout. NBFC-MFIs have a better combination of equity and debt and perform good in the market after transformation. Indian NBFC-MFIs have captured 90% of the Indian microfinance industry, while the rest is targeted by NGO-MFIs, cooperative MFIs and others. It is important to study that how leverage affects the performance of MFIs. Theories in the past have proved the trade-off between capital structure and firm efficiency, and have drawn academics and practitioners' attention. Indeed, Modigliani and Miller's (1958) famous seminal paper has set the stage for numerous theories which are established to provide the theoretical foundations for this crucial idea. They have suggested that the composition of capital is unrelated to firm interest. They have updated their proposal however in 1963 by adding tax benefits as a determinant of capital structure. One of the difficult issues of the companies is to identify the best combination of debt and equity to reduce their financial burden and maximize the profits (Glen and Pinto, 1994).

The past literature has established a debate on the various theories of capital structure like MM Theory, Net Income Theory and Net Operating Income Theory, which have focused on defining an optimal balance of debt and equity. Throughout the developed and developing countries, various studies have been performed to identify the impact of capital structure on company efficiency. Researchers have investigated the relation between low leverage ratio, high leverage ratio, profitability, size of the firm, tax and other factors (Grossman and Hart, 1982; and Jensen, 1986). Most of the studies have provided evidence supporting a strong negative link between leverage and profitability of companies all around the world (Titman and Wessels, 1988; Rajan and Zingles, 1995; and Antoniou *et al.*, 2008). Researchers have indicated that firms should use minimum short-term debt and finance their assets from long-term debts. Long-term debts and equity are helpful in the countries where shareholders and investors have better legal security.

According to pecking order theory, managers are better informed than investors about company asset values, risk and growth opportunities. Regardless of this, rise in funding costs and asymmetric information generates organization and transaction costs. In this case, firms should tend to explore their internal funding option first to avoid the asymmetric information cost. Asymmetric information occurs when manager has more information than investor/ shareholders. Taggart (1985) has analyzed the financial structure of US-based microfinance companies on the basis of pecking order theory hypothesis and concluded that leverage is negatively related to productivity (Baskin, 1989; Adedeji, 1998; and Tong and Green, 2005). The comparative cost of available sources of funding suggest that firms should use internal funds (retained earnings and reserves) first, then focus on market-based sources of funds. Baskin (1989) has suggested that the debt should be the last option for the firms after the decision of available investment and retained earnings. Studies suggested that firm should use retained earnings first rather than exploring other debt options to fulfill the need of investment (Allen, 1993; and Adedeji, 1998).

However, Myers and Majluf (1984) have suggested that when firms' expenses are relatively small, companies prefer to issue equity. Similarly, Myers and Majluf (1984), Frank and Goyal (2003), Flannery and Rangan (2006), and Huang and Ritter (2009) have expressed similar views. Benito (2003) has suggested that when cash flow of the companies is high, their debt remains at low level but, when companies focus on investment, their demand for debt automatically increases. However, Mayer and Sussman (2003) have found an interesting fact that large and successful companies prefer debt in their capital structure rather than equity. The cash flows of large companies are regular and companies want to take the benefits of tax advantages of debts. However, in the case of microfinance companies, Hartarska and Nadolnyak (2008) have found a negative, but insignificant relationship between profitability and MFI's financing policy. Profitable MFIs are expected to be less leveraged, because they are financially more efficient.

Lafourcade *et al.* (2005) have analyzed MFIs' outreach and financial results in Africa and found that African MFIs have only 25% of equity and 75% debt in their capital structure. NBFC-MFIs finance their operations from debt and equity while NGO-MFIs have only donor funds and grants because of inability to access funds from market. Olivares-Polanco (2005) has examined the relationship between profitability and depth of outreach by using OLS regression in 28 MFIs of Latin American countries and found a trade off. Older firms carried small loan size and it shows positive depth of outreach. Similarly, Makame and Murinde (2006) have examined the relationship between outreach and sustainability of 33 MFIs in East African countries. The study has used six years panel data and found that competition among MFIs' affect the outreach negatively, consequently less poor people benefitted. Abor (2005) has analyzed the same relationship in the construction industry, especially Small and Medium Enterprises (SMEs), and found that the low debt ratio is positively associated with high equity return. Berger and Di Patti (2006) have studied the bidirectional relationship between capital structure and firm results in commercial banks in the USA using the parametric measure of income efficiency as a predictor of agency costs. Similarly, Margaritis and Psillaki (2007) have investigated the relationship between firm efficiency and leverage

and used non-parametric DEA methods to investigate the impact of leverage on firm output and the reverse causality relationship. Hutchison and Cox (2007) have examined the correlation between bank capital and productivity using US bank data over two separate periods of time. The study has found that financial leverage is positively linked to ROE and ROA. The results of Hutchinson and Gul (2006) appear to support the hypothesis of the trade-off principle.

Similarly, Kyereboah-Coleman (2007) has investigated the effect of capital structure on MFIs' performance. The results are in line with those of Mayer and Sussman (2004) that high debt in the capital structure improves the outreach and economies of scale, thereby improving their ability to cope with moral hazards and adverse selection. Nevertheless, Bogan (2012) in another study has tested the Life Cycle Theory (LCT), and has examined the trade-off between the equity-debt mix and sustainability of the MFIs. The results have shown that both organizational self-sufficiency and financial sustainability are closely related to the variables in the life-cycle stage. The age of the MFI is found to be related to operations self-sufficiency. Grants have been found to be linked negatively to productivity but to cost in a positive way per borrower. The feasibility of investment funds has been observed to be the key driver in channeling alternative sources of funding to MFIs. The increasing competition to access sources of funding leads to a financial gap in the delivery of microfinance services. Consequently, increased funding on a short-term basis is beneficial for MFIs during financial crunch (Littlefield and Kneiding, 2009). Ebaid (2009) has used regression analysis to examine the effect of choice of equity-debt mix on the performance of Egyptian listed firms from 1997-2005 and found that equity-debt mix has low influence on the performance of the firms. Kar (2012) has examined the effect of the capital and funding system on MFIs' outcome/income and supported the implementation of the agency hypothesis that MFIs' income increased as a result of increased leverages.

In another study, Hoque *et al.* (2011) have explored the effect of commercialization on MFIs' capital structure, mission, and efficiency. The data analysis has been done using Tobit and two-stage least square regression and the results confirmed that leverage affects the outreach to the poor and commercialization increased the risk of default because of increased cost of borrowings. By using multivariate regression analysis, Lisveland (2012) has studied the effect of equity-debt mix on the overall financial performance of MFIs and found that MFIs are highly leveraged and used four times more debt than equities. Similarly, Sekabira (2013) has studied the effect of capital structure on the 14 MFIs of Uganda to analyze the sustainability and found that debt is negatively correlated to operational and financial sustainability. In another study, Tadele (2013) has examined the effect of capital structure on the operational sustainability of MFIs in Africa. In Africa, MFIs are playing a very important role in alleviating poverty. The study has analyzed 275 MFIs in 26 countries for the duration of 2006-10 and found that capital structure is a strong determinant of operational sustainability. Tchuigoua (2014) has examined the effect of institutional framework on the capital structure of MFIs and found significant relationship. Dawar (2014) has studied the effect of the combination of equity-debt on S&P BSE 100 index companies' performance and

found that leverage had a negative influence. Abrar and Javaid (2016) have analyzed the effects of the capital structure on MFIs' profitability using the concept of random effect. The results have indicated that deposits enhance the overall profitability of MFIs while increased amounts of operating cost and relative risks reduce the profitability.

In the Indian context, the author has found two relevant studies in the context of MFIs. Agarwal and Sinha (2010) have analyzed the financial performance of Indian MFIs. The study has analyzed MFIs' performance on financial structure, revenue, expenses, efficiency, productivity and risk. Cross-sectional data of 22 MFIs, irrespective of their legal structure, has been analyzed by using multivariate analysis for only one year. The study has failed to establish any relationship between the variables. In another study, Bi and Pandey (2011) have compared the performance of MFIs with the commercial banks. The study has considered 24 MFIs for a period of five years. The results have shown that performance of MFIs have improved over the years and a few large MFIs dominated the whole microfinance industry. Only the above two studies (Agarwal and Sinha, 2010; and Bi and Pandey, 2011) have focused on the financial performance of MFIs and that too only on the interrelationship between capital structure and firm performance.

The above studies are mixed and have focused on NGO-MFIs (Lafourcade *et al.*, 2005; Armendriz and Morduch, 2010; and Vanroose and D'Espallier, 2013), NBFC-MFIs, and Banks (Berger and Di Patti, 2006; and Bi and Pandey, 2011) and showed the relationship between capital structure and firm performance. Very few studies explored this relationship in the Indian context (Agarwal and Sinha, 2010; and Dawar, 2014). The present study differs from the other studies by considering double bottom line objective of MFIs and focused on both financial and social dimensions. The studies have postulated various hypotheses based on the type of institutions and different outputs have been achieved. Worldwide very few studies (Kyereboah-Coleman, 2007; Hoque *et al.*, 2011; Kar, 2012; Sekabira, 2013; Tchuigoua, 2014; and Abrar and Javaid, 2016) have been done in the context of MFIs. While in the Indian context, the author has not found a single study which focused on capital structure and performance of Indian MFIs. In India, NBFC-MFIs have captured 90% of Indian microfinance market, fulfilling the objective of serving large number of financially excluded population. So, it is important to study the effect of debt-equity mix on social and financial performance of Indian MFIs. Aside from being a vital component of the financial system, the microfinance sector is often seen as a tool to alleviate poverty for developing countries such as India. This study seeks to fill this void by analyzing the effect of capital structure on social as well as financial dimensions of the capital structure.

## Data and Methodology

The panel data for six years from 2009-10 to 2014-15 of 46 NBFC-MFIs has been purposefully selected due to constraint of availability of data. The period has been restricted up to 2014-15 as 15 NBFC-MFIs have either transformed or applied for transformation as small finance banks. The advantage in the case of small finance banks is that they can accept deposits,



whereas NBFC-MFIs cannot accept deposits. The annual data has been accessed from the website of Microfinance Information Exchange Market, a US-based NGO providing data on MFIs across the world. MFIs have been selected based on consistent availability of data.

### Variable Selection

MFIs have dual goals of offering financial services to the vulnerable (social) and also cover costs of being financially viable to maintain their programs for longer time. The performance of MFIs therefore needs to be assessed on financial and social dimensions. Social progress is assessed through outreach and financial results through profitability and efficiency. For social performance, the depth and breadth of outreach has been considered. The depth of outreach has been calculated by the Number of Active Borrowers (NOAB) and the breadth by the Average Loan Balance Per Borrower (ALBPB) over GNI per capita. For measuring financial performance, Return on Assets (ROA), Return on Equity (ROE), Operating Self-Sufficiency (OSS) and Yield on Portfolios (PFY) have been used. Therefore, dependent variables are OSS, ROA, ROE, PFY, ALBPB and NOAB and independent variables are the Debt-Equity Ratio (DER) and the Debt-Asset Ratio (DAR) which are representative of the company's capital structure. Besides the above variables, size, age and risk level also affect the capital structure and are included in this analysis. The analysis has been done using E-Views 9.

### Model Specification

The panel data of 46 NBFC-MFIs over a period of six years having 276 observations is used to run the panel regression to establish a relationship between capital structure and performance of MFIs. Panel data provides variations in data and less collinearity and helps in detecting and measuring the effect which cannot be observed by cross-sectional and time series data individually. The study employs the following panel regression model:

$$Performance_{it} = \alpha + \beta DebtR_{it} + \phi Control_{it} + u_{it} \quad \dots(1)$$

where  $i$  denotes the cross-section dimension for individual MFIs,  $t$  represents the time,  $\alpha$  is intercept and  $\beta$  is the coefficient. Many systems use a one-way error variable model to estimate a panel data model for the disturbances with,

$$u_{it} = \mu_i + v_i \quad \dots(2)$$

where  $\mu_i$  represents the unobservable individual-specific effect and  $v_i$  denotes the remainder of the disturbances. The study estimates the following panel regression models [Equations (3) and (4)] considering independent variables  $DER$  and  $DAR$  which is similar to the econometric model of Miyajima *et al.* (2004).

$$Performance_{it} = \alpha + \beta DER_{it} + \phi Control_{it} + u_{it} \quad \dots(3)$$

$$Performance_{it} = \alpha + \beta DAR_{it} + \phi Control_{it} + u_{it} \quad \dots(4)$$

where  $DER_{it}$  represents company  $i$ 's debt-equity ratio at time  $t$ , and  $DAR_{it}$  represents company  $i$ 's debt-asset ratio at time  $t$  and  $Control_{it}$  portrays company  $i$ 's control variables at time  $t$ .

## Regression Equations

Based on the social and financial performance variables, six regression equations have been estimated to analyze the impact of capital structure on the performance of MFIs wherein Equations (5) and (6) measure social performance while Equations (7) to (10) measure financial performance.

$$NOAB_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(5)$$

$$ALBPB_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(6)$$

$$ROA_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(7)$$

$$ROE_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(8)$$

$$OSS_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(9)$$

$$PFY_{it} = \alpha_0 + \alpha_1 DebtR_{it} + \alpha_2 Size_{it} + \alpha_3 Risk_{it} + \alpha_4 Age_{it} + u_{it} \quad \dots(10)$$

$DebtR_{it}$  is the debt ratio of companies  $i$  at the period  $t$  measured by  $DER_{it}$  and  $DAR_{it}$  separately.

## Estimation Techniques

Various approaches have been used for estimating the parameters, among them the basic OLS model is appropriate where no specifications on firms and time are made and the observations are serially uncorrelated for a given business with individual and time homoskedastic errors (Johnston and DiNardo, 1984). But in the practical scenario, the error terms are not homoskedastic and they may be correlated across individuals and over time. The basic panel model is therefore the most suitable technique for estimating parameters when there is a reliance on the error term structure and also the relation between the error term and the observed explanatory variables and this study has used the basic panel regression model. However, one of two techniques can compromise the non-observable effect, but the basic question that arises here is “is it a fixed or random effect?” Hausman (1978) performed a specification study for choosing between random effect and fixed effect. If the Hausman test’s probability value is less than 5%, then the fixed effect model is suitable; otherwise, a random effect is suitable for analysis.

## Results and Discussion

Table 1 shows the summary statistics of the variables which indicates that MFIs are highly leveraged with average debt to assets ratio of 0.746 which means 74% of the assets are financed by debt. The capital structure of MFIs has more than three times debt over equity as reflected by the mean  $DER$  value of 3.07. The sample firms are ranging from having no debt to a maximum debt of 9.5 times over equity. The average value of  $OSS$  for the period 2009 to 2015 was 1.06 (106%), which shows that MFIs can cover their costs through operating revenue although the average value is low. An MFI achieves sustainability if  $OSS$  is at least 1 (100%); the results show that some MFIs are not earning enough profits to cover their total costs.



Variables	Mean	Max.	Min.	SD	Obs.
DAR	0.746	2.980	0.017	0.361	276
DER	3.070	9.490	0.000	2.278	276
OSS	1.063	1.800	0.041	0.295	276
PFY	0.137	0.965	-0.071	0.089	276
ROA	0.015	0.477	-0.743	0.105	276
ROE	0.095	4.458	-2.633	0.399	276
NOAB (L)	5.53	62.42	0.00	10.80	276
ALBPB	6.121	16.111	0.081	2.221	276
AGE	6.332	24	1	4.029	276
SIZE (M)	4,650	67,100	2.17	9,620	276
PAR	0.063	0.994	0	0.180	276

**Note:** DAR is Debt to Asset Ratio, DER is Debt to Equity Ratio, OSS is Operational Self-Sufficiency and PFY is Portfolio Yield. Similarly, ROA is Return on Assets, ROE is Return on Equity, NOAB is Number of Active Borrowers, L represents NOAB in lakh, ALBPB is Average Loan Balance Per Borrower, Age shows the total years from the date of establishment, Size represents total assets given in Million (M) amount and PAR represents Portfolio at Risk.

For ROA and ROE, the sample MFIs have a mean value of 0.015 and 0.095, respectively, and the output is widely scattered indicating that a few MFIs can drive the overall mean output. The depth of outreach is noticeable with a mean value of 5.53 lakh of NOAB. With significantly varying sizes determined by their asset base, these organizations have been running with an average operating age of 6 years for the past 24 years.

Table 2 shows the Pearson correlation coefficient between variables, wherein outreach shows positive association with leverage, OSS, ROA and ROE which means that with increase

	DAR	DER	OSS	PFY	ROA	ROE	NOAB	ALBPB	AGE	SIZE	PAR
DAR	1										
DER	-0.008	1.000									
OSS	-0.144	0.284	1.000								

Table 2 (Cont.)

	DAR	DER	OSS	PFY	ROA	ROE	NOAB	ALBPB	AGE	SIZE	PAR
PFY	-0.110	0.081	0.250	1.000							
ROA	-0.177	0.288	0.166	0.083	1.000						
ROE	-0.082	0.348	0.275	0.063	0.490	1.000					
NOAB	0.128	0.218	0.154	-0.174	0.175	0.197	1.000				
ALBPB	0.148	0.251	0.044	-0.061	0.003	0.038	0.039	1.000			
AGE	0.293	0.212	0.062	-0.166	0.064	0.062	0.281	0.140	1.000		
SIZE	-0.004	0.293	0.233	-0.119	0.130	0.167	0.845	0.155	0.270	1.000	
PAR	0.314	-0.193	-0.356	-0.342	-0.202	-0.124	0.162	-0.070	0.250	0.068	1.000

in debt the outreach of the MFIs may expand. *DAR* shows a negative association with *ROA*, *ROE*, *PFY* and *OSS*, but *DER* shows a positive association with these indicators. *PAR* is positively associated with *DAR* and negatively with *DER*.

### The Impact of Capital Structure on Financial Performance of MFIs

Table 3 presents the impact of the leverage on MFIs' financial performance. The negative and insignificant relationship between leverage and *ROA* is close to the Kyereboah-Coleman (2007) and Sekabira (2013) analysis. *ROA* is the most common measure of profitability reflecting the ability of an organization to profitably deploy its assets. The returns for MFIs may be lower due to increased borrowing costs on account of high leverage or increased operating costs or loan-loss provisions. It may also be due to lower margins on account of narrower spreads. Leverage has a positive and significant relationship with *ROE* indicating that MFIs which are using more debt are generating higher returns for the owners. The findings were consistent with those of Lafourcade *et al.* (2005) who examine the relationship between capital structure and firm performance of African MFIs. The higher the returns will sustain as long as the cost of borrowings is significantly lower than the margins on the loan portfolios. However, as leverage increases the cost of borrowings will significantly increase and this will be reflected as MFIs turn to commercial borrowings which will be at competitive rates arrived at after analyzing the risk profiles of MFIs.

*OSS* refers to the ability to generate sufficient revenues to cover operational expenses, financing cost and loan-loss provisions of MFIs. *OSS* is taken as a proxy of sustainability and indicates operational efficiency of MFIs in generating sufficient amount of funds to meet future operational expenses. Leverage has a positive and significant relationship with *OSS* and it indicates that NBFC-MFIs are operationally self-sufficient. *PFY* is the most important

**Table 3: Capital Structure and Financial Performance of NBFC-MFIs**

Regressors	ROA		ROE		OSS		PFY	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
DER	-0.019 (-0.533)		0.261 (3.342)*		0.026 (3.938)*		0.004 (0.964)	
DAR		-0.065 (-0.300)		1.994 (2.527)*		-0.043 (-0.996)		0.112 (1.402)
lnAGE	-0.065 (-0.300)	-0.064 (-0.525)	-0.059 (-1.335)	-0.072 (-1.620)	0.013 (0.449)	0.022 (0.708)	-0.005 (-2.087)	-0.000 (-0.118)
lnPAR	-0.064 (-0.525)	0.024 (0.766)	-0.089 -1.326	-0.066 -1.006	-0.034 (4.666)*	-0.038 (-5.111)*	0.006 (1.405)	-0.004 (-0.628)
lnSIZE	0.201 (4.560)*	0.193 (4.823)*	0.127 1.274	0.198 (2.102)**	0.037 (2.756)*	0.053 (4.178)*	0.005 (0.995)	-0.011 (-0.716)
Constant	-7.866 (-9.441)*	-7.702 (-9.730)*	-6.404 (-3.569)*	-8.200 (-5.107)*	-0.006 (-0.026)	-0.265 (-1.042)	0.075 (0.771)	0.259 (0.968)
R <sup>2</sup>	9.72%	9.98%	41.00%	34.53%	21.18%	16.87%	15.44%	51.42%
No. of Obs.	252	252	252	252	274	274	210	210
Hausman	0.270	0.110	0.748	0.091	0.461	0.130	0.046	0.008

**Note:** All regressions include a constant; t-statistics are in brackets; and \* and \*\* indicate significance at 1% and 5% levels, respectively.

measuring indicator for an MFI's performance. Despite its effectiveness, an MFI must have the resources to raise loans: if delinquency is not held to low rates, it may spiral out of control rapidly (Rosenberg, 2009). The results show that leverage has a positive relation with *PFY* but it is insignificant. It must be noted that in the case of NBFC-MFIs, RBI has issued guidelines relating to interest rates and fees and charge. *PFY* evaluates how much interest and other payments the MFI actually received from its clients during the time. If the companies can access more funds, they get more yields on the loan portfolio. Krishnan and Moyer (1997), Gleason *et al.* (2000), Zeitun and Tian (2007) and Ibrahim (2009) noted that highly leveraged firms are less profitable. Bigger firms can raise more funds from the market and increase their profitability.

Among the control variables, size has a positive and significant relation and also influences the performance of MFIs. Age has a negative and insignificant relationship and indicates that older MFIs are more self-sufficient. Risk has a negative and significant relationship with leverage, and size has a positive and significant relationship with leverage which shows that large MFIs are more self-sufficient.

### **The Impact of Capital Structure on Social Performance of MFIs**

Social change in relation to outreach refers to reaching out to the poor and is measured by the amount of disadvantaged people served at a given time (Rosenberg, 2009). The depth and breadth are the two most frequent elements of literary outreach (Navajas *et al.*, 2000). The depth of outreach refers to the level of deprivation represented by the clients, while the breadth of outreach refers to the size of operations carried out by an MFI. Breadth of outreach (*NOAB*) and depth of outreach (*ALBPB*) are known as the proxy variables for social success.

The results of impact of the leverage on social performance is shown in Table 4. As expected, leverage has a positive and significant relationship with the breadth of outreach and a negative and significant relationship with the depth of outreach. As businesses raise the level of debt, the number of active borrowers increases and the average loan balance per borrower falls. Leverage has a positive impact on the performance of MFIs serving larger number of persons without having loan portfolio at risk because in the analysis leverage has a negative relation with *PAR*. The results are consistent with profit incentive theory indicating that higher commercial debt enhances the capital base of MFIs and helps in increasing earnings. It also shows that adequate capital in MFIs helps in expanding their services to the poor by providing small loans. The study has identified that highly leveraged MFIs have a profit incentive to increase their earnings. Globally, microfinance industry focuses on lending and tries to increase its outreach level. This increased focus helps in extracting premium from the loans previously disbursed. The premium adds to the income flow and productivity of the company and could be used for servicing loans. A higher degree of outreach helps companies to experience economies of scale resulting in reduced overall operating costs. In addition, increased awareness could also lead to product diversification for different customer groups and allows an MFI to cushion itself against risk (Kyereboah-Coleman, 2007).

Regressors	NOAB		ALBPB	
	Model 1	Model 2	Model 1	Model 2
DER	0.036 (2.616)*		-0.075 (1.663)	
DAR		0.377 (4.343)*		-5.757 (-2.552)**
lnAGE	0.433 (6.280)*	0.298 (4.138)*	1.171 (5.148)*	0.501 (1.710)
lnPAR	-0.012 (-0.818)	-0.015 (-1.035)	-0.266 (-5.139)*	0.967 (3.941)*
lnSIZE	0.288 (7.754)*	0.380 (10.99)*	0.252 (2.090)**	-0.275 (-5.354)*
Constant	5.046 (7.183)*	3.180 (4.717)*	-2.708 (-1.184)	0.407 (3.518)*
R <sup>2</sup>	95.80%	96.01%	73.54%	73.56%
No. of Obs.	274	274	269	269
Hausman	0.000	0.000	0.001	0.002

**Note:** All regressions include a constant; *t*-statistics are in brackets; and \* and \*\* indicate significance at 1% and 5% levels, respectively.

## Conclusion

Poverty continues to be one of the main policy issues for a nation like India. Several studies conducted around the world have found that various microfinance programs have been able to make a difference to the lives of the target population. Nevertheless, questions about the financial viability of MFIs have gradually been raised. MFIs need to be socially and financially viable and sustainable in the long term, but no attention is given to the economic consequences of long-term sustainability. There seems to be no working model, at least in India, for analyzing the social and financial performance of MFIs. Several studies based on the original paper by Modigliani and Miller (1958) have shown that the capital structure influences the corporate performance. Studies in this area have not been carried out in India. This is important to understand the connection between the capital structure and performance of MFIs because of its importance from the policy point of view and also as an evolving sector, particularly as

a development tool. This study's major contribution is an attempt to investigate the impact of capital structure on the social and financial performance of MFIs in India as none of the studies have catered to this issue, especially in the Indian context. Accordingly, the study has explored the linkage using panel data of 46 MFIs covering a six-year period from 2009-10 to 2014-15. The results show that the Indian MFIs are highly leveraged and have about 74% of their assets financed through debt. The regression results show that highly leveraged MFIs perform better by reducing the operating costs and growing ROE. Leverage has a positive effect on ROE and OSS, while other sustainability and profitability indicators (ROA and PFY) are found to be insignificant. Leverage has enhanced the efficiency of NBFC-MFIs by reducing cost per borrower and operating expenses, resulting in improvement of portfolio quality. Leverage has also had a positive and important effect on MFIs' social results.

**Future Scope:** Further studies can explore the impact of institutional framework on the capital structure of Indian MFIs. In India, institutional framework is not very strong for MFIs. NBFC-MFIs are regulated by RBI, while other forms of MFIs are excluded from regulatory ambit which is not good for a country like India where MFIs are catering to more than 40 million financially excluded population. Further research can explore other parameters of performance. ▲

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