Loan Portfolio and Sustainability in Financial Institutions: An Empirical Study of Indian MFIs

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Abstract

This paper studies the loan portfolio management and financial health status of Indian Micro-Finance Institutions (MFIs), devoted mostly in rural sector. Taking secondary data on operational parameters of different categories of MSMEs, it compares financial performance of different units, across categories. The present paper, using regression model analysis finds that NBFC-MFIs are better managed microfinance organizations, which have successfully exploited the capital market for market driven funds. It uses NPA related indicators and off balance-sheet data for statistical analysis.

Key Words: Microfinance, Sustainability, NPA, off Balance-sheet portfolio, rural financing.

Introduction

'Financial development primarily follows economic growth' (Robinson, 1952). India's public policy on rural finance, since 1950, reflects the world pattern but credit access for bottom of the pyramid continues to be a problem area, till today. The efficacy of financial system narrates the story of economic growth of a nation and financial sector is often remaining at the top of the agenda. The endogenous emergence of financial institutions and markets has had their impact on real sector outcomes, including economic growth and income inequality. Borrowing has its history linked to human civilization. The idea of micro credit was mentioned in the 'Marshall Plan', at the end of World War II. Microfinance is the financial intermediation in terms of savings, transfer of credit, micro enterprise, and insurance. In the course of makeover, demand led and savings driven new world of finance has emerged with the conformity to sound criteria of effective financial-intermediation. Integration of microfinance strategies to micro policies that makes banking the micro economy and the poor both viable and sustainable. The evolution of microfinance in India has covered four phases such as co-operative movement, subsidized social banking, followed by institutionalization of micro credit and lastly its commercialization that question the sustainability of microfinance institutions. The sustainability and enhancement of living standard of marginal farmer government and donors emphasized on subsidized agricultural credit till 1960s. The structural adjustment policies during 1990s gave a definite shape to microfinance sector in India. The SHG-BL program by NABARD and its impact on poverty alleviation and financial inclusion gear up other financial institutions to get

themselves involved in micro credit sector. NBFC-MFIs have played a significant important role in the growth of micro credit market in India and allures investors to invest in this sector.

But the microfinance crisis during 2010 was the result of unjustified non-transparent pricing, over-indebtedness and coercive recovery method. The weak Balance Sheet of banks and financial institutions created a significant headwind for credit growth. The pernicious impact of burgeoning bad loans decreased the market share of loan portfolio of banks. The volume of stressed assets has been increasing too in spite of decrease in the annualized slippage ratio during first two quarters of current financial year 18-19 in the Indian financial system is a matter of concern. It reflects poor health of the banking and financial institutions and their lack of efficiency in allocation of capital resources to productive sectors raising the sustainability paradigm (Louis, Seret, & Baesens, 2013). Hence, NPA management must address two things, which include the reoccurrence in future at the present scale and management of existing accumulation.

MFIs being small in nature are vulnerable to such adverse development questioning their own sustainability. Microfinance contract inhibit investment in high return but illiquid business opportunities among poor, mostly in rural India. The large number of potential beneficiaries, the successful experience of many micro credit programs, showing very low default rate support the growth of micro credit market worldwide. Rapid diffusion of the micro credit program has stimulated the search for new source of funding. MFIs had started operation in NGO form which faced difficulties in raising fund and gradually converted themselves into NBFCs. The highest penetration of MFIs is in South India followed by eastern part that enabled greater financial inclusion contributing to development goals of poverty eradication(Chhatoi & Mishra, 2017), economic growth and jobs(Chhatoi & Mishra, 2017), greater food security and agricultural production, women's economic empowerment and health protection(Chhatoi, 2017b, 2017a; Chhatoi et al., 2020).

Sustainability of MFIs is influenced by subsidized loans (Brau & Woller, 2004; Morduch, 2005; Hudon & Traca, 2006), international support (Abrams & Von Stauffenberg, 2007), and existence of higher economic growth (Khandler 1996). The interest cap provision by RBI, competition among MFIs forced them to recast their cost component and risk management policies write off ratio (Schafer, 2008) is one of the major components of OSS to remain profitable. Volatile and less matured financial market influence the sustainability of MFIs as they rely more on market-Driven sources of funds. On the above back drop

the current study is carried out to study the operational performance of MFIs and its implication on financial health of the firm and to measure the credit growth and risk management practices to reduce the bad loan.

Literature Review

Portfolio growth and sustainability is considered as two broad indicators to study the performance of MFIs (Gul, Podder, & Shahriar, 2017), (Tchuigoua, 2016)'s study concluded that relation based lending, competition among MFIs, frequent repayment, short duration, contagion effect among borrowers in same location are factors increased the risk level of loan portfolio. Besides high interest rate (Kodongo & Kendi, 2013) rapid growth, management succession and new product development are also factors increase the risk level of portfolio. Increase in average debt level due to multiple contracting resulting in lowering the portfolio quality(Assefa, Hermes, & Meesters, 2013), (Baquero, Hamadi, & Heinen, 2012), (Guha & Chowdhury, 2014), (Vogelgesang, 2003). Basel Committee on Banking Supervision (BCBS) 2010 suggest higher CAR for MFIs as quality of credit is negatively affected due to information asymmetry about borrower and to have sufficient cushion against loan portfolio deterioration. The problem of Non-performing Assets (NPAs) first brought into focus by the Narasimham Committee on financial system (1991), set up at the advent of the liberalization process. The NPAs of financial institutions are volatile and influenced by both macro and micro economic variables (Chhatoi & Sahoo, 2019). As per Business Standard report on 12th April 2018 pricing of micro loans is linked to cost of fund as RBI capped the margin for NBSC-MFI at 10%. Better managed MFIs are able to reduce the cost of fund and overcome the demonetization effect. ICRA estimate the annualized growth of 20-22% for medium term for microfinance industry portfolio.

Studies by Schäfer & Fukasawa, 2011, revealed that number of borrower and write off ratio are major determinants of OSS based on data set of 1000 MFIs all over the world. Panel data (from 2004 to 2009) analysis by Tehulu concluded that management efficiency and PAR is significantly related to financial sustainability. Kruskal Wallies's study during 2007-08 about MFIs in India and Bangladesh discovered that NBFC-MFIs are better organized, viable and have high outreach. CARE in its note during Feb-2017 reported that profitability of Indian MFIs is expected to be negatively impacted mainly due to NPA but able to strengthen their risk management system due to demonetization.

Study by (Yimga, 2018) concluded that cost efficiencies

can be achieved due to standardization of product and services (Pal & Mitra, 2017) and aggressive growth of portfolio. It is supported by (Baumann 1, 2004), (Lafourcade, Isern, Mwangi, & Brown, 2005), (Farrington, 2000) who used cost per borrower as one of the parameter to measure the efficiency of MFIs. MFIs with good portfolio quality and with better measure for the quality outreach have long run sustainability without diverting from its social mission (Dorfleitner, Priberny, & Röhe, 2017). Economic growth has positive relationship with MFIs performance. MFIs in financially deeper economics have lower default and operating cost and charge lower interest rate(Ahlin, Lin, & Maio, 2011). The endogeneity associated with MFI's loan, country with higher MFI's GLP per capita tends to have lower level of poverty indices (Imai, Gaiha, Thapa, & Annim, 2012). Banking and MFIs are complement to each other and a developed banking sector leveraged the MFIs (Tchuigoua, 2014). The partnership between banks and MFIs is the superior mode of financing the poorest of poor (Shrivastav, 2017), to attain the Millennium Development Goal (MDG).

Trade-off between social mission and financial sustainability is a complex win-loss situation for client and MFIs respectively (Cull, Demirgüç-Kunt, & Morduch, 2018), (Hermes, Lensink, & Meesters, 2011),. MFIN report 2017 highlight that PAR30 for Indian MFIs is estimated to be 7.46% which compels them to adopt plus service model and LLP model risk management strategy to improve loan quality and have greater depth of outreach as small ticket loan to new client is costlier than high value repeat loan to existing client (Mersland & Strøm, 2010), (Serrano-Cinca & Gutiérrez-Nieto, 2014) and improving repayment rate through borrower-loan officer interface. Based on covenant of loan contract, repayment may start immediately or after a grace period. Increase in grace period increases the default rate with net positive welfare by improving short term business investment and long term profit (Field, Pande, Papp, & Rigol, 2013). Commercial banks are feeling the impact of bad loan (Chhatoi, 2012; Chhatoi & Pattanayak, 2015)where the Public Sector Banks are the worst sufferer (Arora & Ostwal, 2014). The operational efficiency of any organization affects its profitability, liquidity and dividend payment (Chhatoi, 2015). Credit policy and strategies of commercial financial institution is one of the major reason that percolate the bad loans (Srinivas, 2013), (Singh, 2013), (Datta, 2015). Macroeconomic factors like GDP, Repo rate, inflation etc are also to be measured in evaluation of default rate (Vallabh, Singh, Prasoon, & Singh, 2016).

Relevance of Study

The credit demand of unbanked poor is met through micro credit where SHG-BL program and MFIs are considered as two major channels. Subsidized credit programs and credit guarantees are often an easy and cheap tool of fiscal policy as they create contingent rather than real liabilities. To provide comprehensive financial and non-financial service to all the citizens', financial institutions should develop specific strategies for their own survival as well as client satisfaction. Microfinance sector in India is faced with the problem of multiple lending, over charging and aggressive loan recovery methods, target orientation of government schemes, communication gap with media as well as with bureaucracy and blind follower of operational blue print of their foreign counterpart. Institution specific strategies with respect to vision, recovery of credit and growth plan is a necessity in the present situation of rising NPA in India and to bring competitiveness among financial institutions to attain sustainable development goal.

The present research work is limited to study the bad loan issue of microfinance sector in India. The sector, having a promising future, should not face any 'bubble burst' as apprehended by experts worldwide. Lower the cost per borrower, higher the efficiency of an institution (Yimga, 2018). Large MFIs are more efficient than smaller ones (Gonzalez, 2007),. NBFC-MFI's market share is around 80% of GLP under MFI model of micro credit. There is very little study with regard to NBFC-MFIs, though there are good numbers of research work about MFI in international as well as national level.

Hypothesis Development

Long term survival of an institution is dependent upon its operational profitability. MFIs, developing and following different mode of financing in search of collateral substitutes for financial sustainability and risk minimization as well as to satisfy its social mission. In this regard, ROA and ROE are considered as parameters to measure the profitability Vis-a-Vis sustainability. Return on Assets (ROA), Return on Equity (ROE), Off-Balance Sheet Portfolio (OFB), Cost Per loan (CPL), Loan Loss Rate (LLR) and Write off Ratio (WR) are the parameters considered to develop a risk management model.

Off Balance Sheet Portfolio (OBP): It helps in enhancing the outreach and simultaneous distribution of lending. An increase in OBP portion helps MFIs in reduction of bad loan volumes. Leveraging of loan portfolio of MFIs through securitization and BC model complements the banks in fulfillment of social mission (Tchuigoua, 2014). Off balance sheet activities influence bank specific foreign exchange risk, improve its stock's return and have negative impact on ROE (Aktan, Gee, Žiković, & Evrim-Mandaci, 2013). Considering these pros and cons we expect that it

will negatively influence the sustainability.

H1: OBP negatively influences the sustainability.

Cost per loan (CPL): It includes both finance cost and operating cost expressed in terms of per unit of loan. Financing the poorest of poor is costly due to relatively high unit cost of small loans (Von Pischke, 1996), (Conning, 1999), (Navajas, Schreiner, Meyer, Gonzalez-Vega, & Rodriguez-Meza, 2000), (Schreiner, 2002). With the capping of interest rate, sustainability put pressure on cost. Operating Self Sufficiency (OSS) is influenced by cost management. As we know cost management is very important in competitive market, we expect cost per loan negatively influence the sustainability.

H2: Cost per loan (CPL) negatively influences the sustainability.

Write –Off Ratio (WR): It is the ratio of the value of loans written off against average gross loan portfolio. It is the volume of loan that covered under default list. A reduction in write off ratio implies better risk management to attain financial self sufficiency. It is an indicator to evaluate the quality of portfolio. Hence, we expect that write off ratio negatively influence the profitability.

H3: Write-off Ratio negatively affects profitability and sustainability

Loan Loss Rate (LLR): It is the ratio of write off value reduced by the amount of loan recovered against average gross loan portfolio. It indicates the changing situation about the loan portfolio quality. A reduction in LLR improves the profitability and liquidity of the institution. We expect change in LLR has negatively influence the ROA and ROE.

H4: LLR negatively affects the profitability and sustainability.

Methodology and Methodological Issues:

The present research work is based on secondary data collected from MFIN documents for a period of 7 (seven) years. Due to data insufficiency, our analysis is restricted to NBFC-MFIs only. Reference data are taken mostly from 'The Micro-Scape', (2011-12 to 2016-17). These MFIs are categorized into small, medium and large sectoral-categories, to arrive at a meaningful conclusion. The data is analyzed using SPSS, first by descriptive analysis, like, averages, CAGR, correlation and then carries out regression model fittings. To examine the influences of different parameters (determinants) of sustainability and risk management, the following generalized regression models are proposed for empirical verification, for its significance.

The linear models are;

$$ROA = a_0 + b_1\,OBP + b_2 CPL + b_3 WR + b_4 LLR + e \ldots\ldots\ldots(1)$$

$$ROE = a_0 + b_1\,OBP + b_2 CPL + b_3 WR + b_4 LLR + e \ldots\ldots (2)$$

ANALYSIS & DISCUSSION

The provision for micro credit to unbanked group is made broadly through SHG-BL and MFI model. The table below describes the Gross Loan Portfolio (GLP) of last 7 years in micro credit sector in India.

TABLE-1: Loan Portfolio and its Growth

GROSS LOAN PORTFOLIO ACROSS MICRO FINANCE SECTOR (Amount Rs crores)												
YEAR	SHG-BL	YoY (%)	MFI-SMALL	YoY (%)	MFI MEDIUM	YoY (%)	MFI LARGE	YoY (%)	OTHER MFI	YoY (%)	TOTAL	YoY (%)
2010-11	31221		329		794		15,558		4,875		52,777	
2011-12	36340	16	292	-11	659	-17	14,000	-10	9,116	87	60,407	14
2012-13	39375	8	281	-4	1,075	63	14,925	7	9,457	4	65,113	8
2013-14	42927	9	464	65	2,014	87	20,749	39	10,290	9	76,444	17
2014-15	51721	20	958	106	3,913	94	33,117	60	10,894	6	100,603	32
2015-16	57119	10	282	-71	2,867	-27	21,880	-34	38,825	256	120,973	20
2016-17	61581	8	326	16	3,811	33	27,504	26	15,202	-61	108,424	-10
CAGR (%)	10.19		-0.13		25.12		8.48		17.64		10.83	
AVERAGE	45755		418.86		2161.86		21105		14094		83534.4	

Source: Compiled from The MicroScape (2011-12 to 2016-17)

The above table revealed that the CAGR for NBFC-MFI (medium) is the highest and NBFC-MFI (small) is least during last five years. The overall CAGR for the micro credit sector in the country is 11%, and it is 9% and 13% under SHG-BL model and MFI model respectively. The average loan outstanding is highest under SHG model and lowest for NBFC-MFI (s). The CAGR for NBFC-MFI(S) is negative during the study period. All microfinance institutions have shown an aggressive trend during FY 14-15 and FY 15-16 where the growth of gross loan portfolio is highest among the study period.

TABLE-2: Off Balance Sheet Portfolio of NBFC-MFIs

GROWTH OF OFF BALANCE SHEET PORTFOLIO(Amt Rs Crores)									
YEAR	NBFC-MFI (S)	YOY (%)	NBFC-MFI (M)	YOY (%)	NBFC-MFI (L)	YOY (%)	%of OBP to GLP (S)	% of OBP to GLP (M)	% of OBP to GLP (L)
2010-11	3		65		1,981		0.91	8.19	12.73
2011-12	19	533	75	15	1,660	-16	6.51	11.38	11.86
2012-13	7	-63	204	172	1,453	-12	2.49	18.98	9.74
2013-14	25	257	365	79	3,220	122	5.39	18.12	15.52
2014-15	114	356	588	61	3,786	18	11.9	15.03	11.43
2015-16	91	-20	561	-5	5,338	41	32.27	19.57	24.4
2016-17	63	-31	746	33	4,741	-11	19.33	19.57	17.24
CAGR (%)	54.49		41.71		13.28				
Average	46		372		3,168				

Source: Compiled from The MicroScape (2011-12 to 2016-17)

Table-2 shows the off-balance sheet portfolio of different categories of NBFC-MFIs and its year over year growth. The CAGR of NBFC-MFI(S) is highest and that of large is lowest over the study period. The yoy for small one is high in comparison to other two categories. This shows small MFIs relying more on OBP for their survival. The percentage of OBP in case of NBFC(S) shown an increasing trend and reach its peak during FY15-16. In case of others OBP has shown a steady increase over the years. The negative growth during FY 16-17 is due to the conversion of 8(eight) large MFIs into Small Finance Banks.

TABLE-3: Overall Performance Indicator

MFI Category	ROA	ROE	% of Off B/S Portfolio to GLP	Cost Per Loan	PAR 30	Loan Loss Rate
NBFC-MFI(S)	0.48	5.41	11	1247	1.49	0.70
NBFC-MFI(M)	1.98	11.47	23	978	0.32	0.45
NBFC-MFI(L)	2.27	12.41	18	902	0.29	0.77

Source: Compiled from The MicroScape (2011-12 to 2016-17)

Table-3 above shows the category wise overall performance. Larger the size of the institution improves the performance. The profitability indicator shows an increasing trend with the increase in size. The OBP is highest for medium category where as it is lowest for small category. Loan loss rate is highest for large category even if they are able to reduce the cost as well as improving the risk management strategy.

The correlation analysis reveals that all the selected parameters have showing certain amount of relationship with the performance measurement parameters. There is significant relationship between ROA and ROE for all categories of institutions. Off Balance Sheet portfolio showing significant relationship with ROA and ROE for all categories. Cost per borrower did not have significant relationship in case of medium and large category where as it has significant relationship with small category. Write off ratio and loan loss rate did not have significant relationship among all categories. However, write off ratio and loan loss rate have significant relationship with off balance sheet portfolio.

Both internal and external variables affect the sustainability of any institution. Here we are considering the internal variables, assuming all the possible external variables to remain constant. Interest rate being capped by RBI, final rate is dependent on bank rate, which is more or less fixed for a time period. Hence, it has less variable effect on ROE and ROA. Other important components like Off Balance sheet Portfolio (OBP), Cost-per-Borrower (CoB), Write off Ratio (WR) and Loan Loss Rate (LLR) have been considered for the present study, which has not been considered by earlier studies. The linear equation has been developed based on the general model equation stated earlier.

TABLE- 4-a: Regression Analysis for Return on Assets (ROA)

Category/ Particulars	NBFC MFI (SMALL)	NBFC MFI (MEDIUM)	NBFC MFI (LARGE)
Multiple R	0.59	0.97	0.71
R Square	0.35	0.96	0.50
F	0.27	10.90	0.50
Significance F	0.88	**0.08**	0.75

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

TABLE - 4-b

SUMMARY OUTPUT (MEDIUM) ROE					
Regression Statistics					
Multiple R	0.967				
R Square	0.934				
Adjusted R Square	0.80				
Standard Error	3.17				
ANOVA	Medium ROA				
	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	286.38	71.59	7.13	0.08
Residual	2	20.09	10.04		
Total	6	306.47			

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

Table - 4 – C: Coefficient and 'b' Value for ROA

Particulars/ Categories	Small		Medium		Large	
	coefficient	P value	coefficient	P value	coefficient	P value
Intercept	- 1.33	0.82	6.02	0.22	-8.72	0.80
Variable -1	0.02	0.51	0.00	0.09	0.00	0.37
Variable -2	0.00	0.93	-0.00	0.29	0.00	0.88
Variable -3	0.24	0.84	-0.24	0.83	0.74	0.90
Variable -4	0.62	0.81	-1.77	0.10	-0.91	0.76

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

The regression and ANNOVA test for all categories of NBFC-MFIs in respect of ROA is given in table-4, where R square for small category is 0.35. The test shows that the selected parameters are not significant even though relationship exists between and among the parameters. Based on the test following model equation, derived for small category, is not significant.

ROA(S) = -1.33+ (0.02) OBP + (0.00) CPB + (0.24) WR + (0.62) LLR ……… (Equation-1)

The above table reveals the results of regression analysis of ROA for medium category. The R-square value is 0.96 and the parameters are significant at 10% level. The model equation for medium category is

ROA (M) = 6.02+ (0.00) OBP-(0.01) CPB-(0.24) WR-(1.77) LLR …….. (Equation-2)

The result of regression test for large category against ROA has given in above table where R square value is 0.50 and as per the result parameters are insignificant. The model equation is,

ROA (L) = -8.72+ (0.00) OBP+ (0.01) CPB+ (0.74) WR-(0.91) LLR ……(Equation-3)

TABLE-5-a: Regression Analysis for Return on Equity (ROE)

Category/ Particulars	NBFC MFI (SMALL)	NBFC MFI (MEDIUM)	NBFC MFI (LARGE)
Multiple R	0.62	0.97	0.87
R Square	0.38	0.93	0.75
F	0.31	7.13	1.50
Significance F	0.85	0.13	0.44

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

TABLE-5-b

ANOVA	Large – ROE				
	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	467.99	116.99	1.50	0.43
Residual	2	155.50	77.75		
Total	6	623.49			

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

Table- 5 – C: Coefficient and 'b' Value for ROE

Particulars/ Categories	Small		Medium		Large	
	coefficient	P value	coefficient	P value	coefficient	P value
Intercept	6.16	0.73	20.75	0.37	-41.74	0.69
Variable -1	0.03	0.68	0.03	0.07	0.01	0.19
Variable -2	0.00	0.64	-0.02	0.40	0.03	0.78
Variable -3	0.74	0.85	3.65	0.56	1.41	0.93
Variable -4	2.65	0.74	-5.49	0.24	-4.41	0.62

Source: Estimated based on data from The MicroScape (2011-12 to 2016-17)

Similar type of ANOVA test has been carried out for ROE, where the R square is 0.38 and the parameters are also not significant. The model equation is as follows;

ROE(S) = 6.16 + (0.03) OBP + (0.00) CPB + (0.74) WR + (2.65) LLR ……… (Equation-4)

The result of regression analysis and ANOVA test for medium category has been shown in table-6 where the R square value is 0.93 for ROE. It is found from the result that the selected parameters are not significant, in this case also. The model equation is as follows:

ROE (M) = 20.75 + (0.03) OBP – (0.02) CPB + (3.65) WR – (5.49) LLR … (Equation-5)

The result of regression test for large category against ROE has given in Table-9, where R-square value is 0.75 and, as per the statistical software output result, parameters are found to be insignificant. The model equation developed is as follows:

ROE (L) = - 41.74 + (0.01) OBP + (0.03) CPB + (1.41) WR – (4.41) LLR … (Equation-6)

The above equations indicate that selected parameters are influence differently across the categories. CPB did not influence the sustainability across the categories as interest rate for micro borrowing is higher than the bank rate. The experts and practitioners are opined that NBFC-MFIs are able to cover their cost due to application of modern

technologies by large category and providing loan to small numbers of borrowers by small category. But the medium category institutions are suffering due to high ambitious plan to do better.

Off Balance sheet portfolio, a new way of financing diversified the risk level of MFIs is in nascent stage of operation in India. It is the complimentary act of NBFC-MFIs, enhances the outreach to fulfill the social objective of commercial banks. The amount of finance under this method is very small in comparison to total finance. Hence, its impact is negligible. Write-Off ratio and loan loss rate have their influence on risk bearing capacity across the categories as indicated by its co-efficient. However, the change in methods of financing with improved management strategies MFIs is able to diversify the risk and reduce the volume of bad loans.

Conclusion

Available secondary data, used for this article, shows a positive sign of improved financial health, at least for bigger units. Assuming all the possible external variables to remain constant, this study finds that, credit growth and risk management practices reduce the 'bad-loan' significantly. It has been proved by earlier studies that, Indian MFIs are better managed in comparison to their counterpart in other countries.

The insignificance of selected parameters in the present study does not mean that the parameters are not influencing the sustainability and risk management strategies of NBFC-MFIs in India. Based on available secondary data, result of regression analysis finds that NBFC-MFIs in India are able to develop new innovative business strategies to remain competitive to serve the rural sector.

References:

Abrams, J., & Von Stauffenberg, D. (2007). Are public development institutions crowding out private investment in microfinance. MFInsights. Washington, DC: MicroRate.

Ahlin, C., Lin, J., & Maio, M. (2011). Where does microfinance flourish? Microfinance institution performance in macroeconomic context. Journal of Development Economics, 95(2), 105-120.

Aktan, B., Gee, C. S., Žiković, S., & Evrim-Mandaci, P. (2013). Off-balance sheet activities impact on commercial banks performance: an emerging market perspective. Economic research-Ekonomska istraživanja, 26(3), 117-132.

Arora, N., & Ostwal, N. (2014). Unearthing the Epidemic of Non-Performing Assets: A Study of Public and Private Sector Banks. Management Insight, 10(1).

Assefa, E., Hermes, N., & Meesters, A. (2013). Competition and the performance of microfinance institutions. Applied Financial Economics, 23(9), 767-782. doi:10.1080/09603107.2012.754541

Baquero, G., Hamadi, M., & Heinen, A. (2012). Competition, loan rates and information dispersion in microcredit markets. LSF Working Paper Series No. 11-17, (July 26, 2012). doi:http://dx.doi.org/10.2139/ssrn.2006485

Baumann 1, T. (2004). Pro-poor microcredit in South Africa: cost-efficiency and productivity of South African pro-poor microfinance institutions. Development Southern Africa, 21(5), 785-798.

Brau, J. C., & Woller, G. M. (2004). Microfinance: A comprehensive review of the existing literature. The Journal of Entrepreneurial Finance, 9(1), 1-28.

Chhatoi, B. P. (2012). A study on portfolio behaviour of banks with regard to the management of non performing assets. Utkal University.

Chhatoi, B. P. (2015). A Study on relationship between profitability and dividend Payment in Iron & Steel Industries in India. Pacific Business Review International, 08(01), 70–78.

Chhatoi, B. P. (2017a). Increasing responsibility towards self-esteem and self-confidence of women: micro credit impact. In Micro finance issues and challenges in new era (pp. 48–59). Himalaya Publishing House,.

Chhatoi, B. P. (2017b). Promoting Marginalized and Deprived Women's Social-Strengthening Pathways across Residency: Microfinance Effect. Al-Barkaat Journal of Finance & Management, 9(1), 99. https://doi.org/10.5958/2229-4503.2017.00008.X

Chhatoi, B. P., & Mishra, P. (2017). Enhancing Economic Sustainability through Microcredit: An Analysis over Different Activities. SUSTAINABILITYInspiration, Innovation and Inclusion, 177–197. https://www.researchgate.net/profile/Pallabi_Mishra/publication/318348208_Sustainability/links/5964e810aca2720a5ccdf0fc/Sustainability.pdf#page=187

Chhatoi, B. P., Mishra, P., & Sahoo, S. P. (2020). Sustainable Social Independence: Microfinance Experience. In Resource Efficiency, Sustainability, and Globalization Exploring India-European Union Cooperation. Apple Academic Press.

Chhatoi, B. P., & Pattanayak, D. (2015). Performance of Public Sector Commercial Banks in India-A

comparative study of Sbi Group and other Nationalised Banks. Al-Barkaat Journal of Finance & Management, 7(1), 41–59.

Chhatoi, B. P., & Sahoo, S. P. (2019). A Review on Role of Macro and Micro Banking Environment on Non-Performing Assets Management. In T. Tripathi, M. Kumar Dash, & G. Agrawal (Eds.), Behavioral Finance and Decision-Making Models (pp. 281–294). IGI Global. https://doi.org/10.4018/978-1-5225-7399-9.ch016OnDeman

Conning, J. (1999). Outreach, sustainability and leverage in monitored and peer-monitored lending. Journal of Development Economics, 60(1), 51-77.

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2018). The microfinance business model: enduring subsidy and modest profit. The World Bank Economic Review, 32(2), 221-244.

Datta, D. K. (2015). NPA management by banks: interbank disparities in India. The Management Accountant Journal, 50(1), 34-41.

Dorfleitner, G., Priberny, C., & Röhe, M. (2017). Why do microfinance institutions fail socially? A global empirical examination. Finance Research Letters, 22, 81-89.

Farrington, T. (2000). Efficiency in microfinance institutions. Microbanking Bulletin, 4(1), 18-23.

Field, E., Pande, R., Papp, J., & Rigol, N. (2013). Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India. American Economic Review, 103(6), 2196-2226.

Gonzalez, A. (2007). Efficiency drivers of microfinance institutions (MFIs): The case of operating costs. Microbanking Bulletin, 15.

Guha, B., & Chowdhury, P. R. (2014). Borrower targeting under microfinance competition with motivated microfinance institutions and strategic complementarity. The Developing Economies, 52(3), 211-240.

Gul, F. A., Podder, J., & Shahriar, A. Z. M. (2017). Performance of microfinance institutions: Does government ideology matter? World Development, 100, 1-15.

Hermes, N., Lensink, R., & Meesters, A. (2011). Outreach and efficiency of microfinance institutions. World Development, 39(6), 938-948.

Hudon, M., & Traca, D. (2006). Subsidies and sustainability in microfinance. Centre Emile Bernheim, Working Paper WP-CEB 06-020, 20.

Imai, K. S., Gaiha, R., Thapa, G., & Annim, S. K. (2012). Microfinance and poverty—a macro perspective. World Development, 40(8), 1675-1689.

Kodongo, O., & Kendi, L. G. (2013). Individual lending versus group lending: An evaluation with Kenya's microfinance data. Review of development finance, 3(2), 99-108.

Lafourcade, A.-L., Isern, J., Mwangi, P., & Brown, M. (2005). Overview of the Outreach and Financial Performance of Microfinance Institutions in Africa.

Lassoued, N. (2017). What drives credit risk of microfinance institutions? International evidence. International Journal of Managerial Finance, 13(5), 541-559.

Louis, P., Seret, A., & Baesens, B. (2013). Financial efficiency and social impact of microfinance institutions using self-organizing maps. World Development, 46, 197-210.

Mersland, R., & Strøm, R. Ø. (2010). Microfinance mission drift? World Development, 38(1), 28-36.

Morduch, J. (2005). Smart Subsidy for Sustainable Microfinance. Finance for the Poor-Quarterly Newsletter of the Focal Point for Microfinance, 6(4), 1-16.

Navajas, S., Schreiner, M., Meyer, R. L., Gonzalez-Vega, C., & Rodriguez-Meza, J. (2000). Microcredit and the Poorest of the Poor: Theory and Evidence from Bolivia. World Development, 28(2), 333-346.

Pal, D., & Mitra, S. K. (2017). Does the number of borrowers per loan officer influence microfinance institution asset quality? A stochastic frontier analysis. Investigación económica, 76(300), 81-103.

Robinson, J. (1952). The Rate of Interest and Other Essays. London: MacMillan.

Schäfer, K., & Fukasawa, Y. (2011). Factors determining the operational self-sufficiency among microfinance institutions. Advances in Business Research, 2(1), 171-178.

Schreiner, M. (2002). Aspects of outreach: A framework for discussion of the social benefits of microfinance. Journal of International Development, 14(5), 591-603.

Serrano-Cinca, C., & Gutiérrez-Nieto, B. (2014). Microfinance, the long tail and mission drift.

International Business Review, 23(1), 181-194.

Shrivastav, S. M. (2017). PRIORITY SECTOR LENDING THROUGH MFIs:AN ANALYSIS OF NPA OF FEW BANKS IN INDIA. International Journal of Management and Social Science Research Review, 1(31), 82-91.

Singh, A. (2013). Performance of non-performing assets (NPAs) in Indian Commercial Banks. International Journal of Marketing, Financial Services & Management Research, 2(9), 86-94.

Srinivas, K. (2013). A Study on Composition of NPAs of Public Sector Banks in India. International Journal of Engineering and Management Research (IJEMR), 3(6), 116-121.

Tchuigoua, H. T. (2014). Institutional framework and capital structure of microfinance institutions. Journal of Business Research, 67(10), 2185-2197.

Tchuigoua, H. T. (2016). Buffer capital in microfinance institutions. Journal of Business Research, 69(9), 3523-3537.

Vallabh, G., Singh, D., Prasoon, R., & Singh, A. (2016).

Methodology to Predict NPA in Indian Banking System. Theoretical Economics Letters, 6(04), 827.

Vogelgesang, U. (2003). Microfinance in times of crisis: The effects of competition, rising indebtedness, and economic crisis on repayment behavior. World Development, 31(12), 2085-2114.

Von Pischke, J. (1996). Measuring the trade off between outreach and sustainability of microenterprise lenders. Journal of International Development, 8(2), 225-239.

Yimga, J. (2018). Microfinance expansion and its effects on cost efficiency. The Quarterly Review of Economics and Finance, 69, 205-216

Reports

The Bharat Microfinance Report (Annual Publication of Sa-Dhan) from 2011-12 to 2016-17.

The MicroScape (Annual publication of MFIN) from 2011-12 to 2016-17.