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Research Article

Performance Parameters and Integrated Assessment Model for Microfinance Institutions in India

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Abstract: Microfinance Institutions (MFIs), particularly NBFC-MFIs in India, have emerged as crucial agents of financial inclusion and socio-economic empowerment. However, the dual imperative of achieving financial sustainability while expanding outreach necessitates a comprehensive performance evaluation framework. This study presents an empirically grounded performance assessment model focusing on 86 NBFC-MFIs registered with the Reserve Bank of India as of June 30, 2023. Using a mixed-method approach, primary data from 124 institutional managers and secondary sources such as RBI reports were analyzed. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to examine the interrelationships among ten key latent variables, encompassing both financial (e.g., ROA, OSS, Debt-Equity Ratio, Total Assets) and operational indicators (e.g., Active Borrowers, Operational Expense Ratio, Portfolio at Risk >30 days). The results highlight ROA and OSS as the most influential factors driving MFI performance, represented by the Gross Loan Portfolio. Active borrower count, total assets, and financial leverage also emerged as significant contributors. In contrast, inflation and borrowers per staff member were found to be statistically insignificant, suggesting a stronger influence of institutional factors over macroeconomic variables in the Indian context. The proposed model offers a holistic, data-driven tool for evaluating MFIs, aiding policymakers, regulators, and practitioners in formulating targeted strategies to strengthen operational efficiency and financial resilience. This research advances the microfinance literature by offering a scalable, context-sensitive model that integrates multiple performance dimensions. It bridges theoretical frameworks with practical application, enabling nuanced decision-making across the sector. Future research may expand the model to include social performance metrics, longitudinal trends, and cross-country comparisons to further refine MFI evaluation practices and support the global mission of inclusive financial growth.

Keywords: Financial Inclusion, Gross Loan Portfolio, Microfinance Institutions (MFIs), NBFC-MFIs, PLS-SEM, Operational Self-Sufficiency (OSS), Performance Assessment Model, Return on Assets (ROA).

INTRODUCTION

Microfinance is a way of building the capacities of the poor by channeling them towards sustainable self-employment activities, granting them financial services such as micro-credit, micro-savings, and micro-insurance, as well as non-financial services like business training, social awareness, and counseling. Microfinance is conceived as a delivery mechanism for that marginalized section of society who the formal banking sector has largely neglected (Rosenberg, 2003). The framework of the currently operating Microfinance Institutions (MFIs) in India is such that it circumscribes different structures of the institutions like Non-Governmental Organizations, Section 25 companies, Non-Banking Financial Companies (NBFCs), Self-Help Groups (SHGs), Small Finance Banks (SFBs) and the like (Duramany-Lakkoh & Duramany-Lakkoh, 2021). NBFC MFIs are the largest providers of micro-credit to the poor population of the country, which accounts for around 38 percent of the overall industry portfolio. Banks have been witnessed to be the second-largest providers of micro-credit after NBFCs, accounting for 34 percent of the aggregate micro-credit universe. Small Finance Banks rank third in the list of microcredit providers to microcredit clients with a total share of 17 percent (Singh, 2010). Out of all the different structures operating in the microfinance industry, the maximum outreach amongst them all has been witnessed by the Non-Banking Finance Companies Micro Finance Institutions (NBFC MFIs) in India (Kwami Awaworyi & Marr, 2014).

Microfinance is regarded as a two-faced sword where on one hand it contains an immense scope of financial inclusion by "making markets work for the poor" while on the other hand, it is perceived as a "smokescreen in the hands of the state or private bodies" which force poor masses into a larger debt trap (Jovita Okumu, 2007). It has been realized that the institutions need to employ best business practices, commercialize their operations, professionalize their management, employ appropriate funding structures, routinely monitor the poverty status of their present and ex-clients, and most importantly become self-sustainable to remain in the business in the long run and consequently serve the poor in bringing them out of the shackles of poverty(Sethi, K., & Khan, 2017). Due to its double-edged application in the modern scenario, it becomes imperative to critically review the performance of existing microfinance institutions to understand their contribution to the upliftment of standards of living of the poor masses. To have a higher outreach as well as sustainability in operations, the most important

multidimensional performance indicators need to be derived and comprehended(Sethi et al., n.d.).

Microfinance has made imperative theoretical contributions to the field of economics and development over the past many years. Some of its major theoretical contributions to the economy are:1. Financial inclusion: Microfinance has shown that the low-income segment of the households deprived from the formal financial systems can be provided with access to suitable financial services through the realm of microfinance. This has challenged the traditional belief that the poor are not credit-worthy and need to be excluded from the formal financial sector. 2. Poverty alleviation: Microfinance has demonstrated that providing micro loans to low-income groups can help them initiate and expand their businesses, enhance their income levels as well as eliminate poverty amongst the poor masses. This has challenged the traditional approach of delivering aid and charity and instead emphasized the need for sustainable livelihoods. 3. Market-oriented approach: Microfinance has developed a market-oriented approach to development by understanding the actual financial needs of the poor, designing and delivering products accordingly, and creating a sustainable business model. This approach has challenged the traditional government-led approach to development and highlighted the importance of private sector participation. 4. Social capital and empowerment: Microfinance has highlighted the importance of social capital and the role of women in the social and economic development of the economy in general. By providing financial services to women borrowers, microfinance has shown that they can play a critical role in household decision-making, community development, and ultimately women's empowerment. 5. Financial innovation: Microfinance has encouraged financial innovation by introducing innovative financial products and services, such as mobile banking and micro-insurance, to serve the specific needs of the deprived. This has challenged the traditional approach of providing standardized financial products and services and instead emphasized the need for customized products for poor. In conclusion, microfinance has contributed significantly to the theoretical understanding of financial inclusion, poverty alleviation, market-oriented approach, social capital, women's empowerment and financial innovation. These contributions have influenced the discourse on development, and policymakers and practitioners alike have acknowledged the importance of microfinance in creating a sustainable and inclusive world(Churchill & Marr, 2017; Goel & Aggarwal, 2020; Kwami Awaworyi & Marr, 2014; Nyamsogoro, 2010; Sethi et al., n.d.).

Thus, the current study will explore various parameters of the performance of microfinance institutions so that they can channelize in the right direction, improve their performance and serve their clients most efficiently. Most of the empirical research studies found in the microfinance research space are based on secondary sources of data majorly (Imai et al., 2011; Lafourcade et al., 2005; Mix, 2018; Rahman & Mazlan, 2014; Sethi, K., & Khan, 2017). Negligible work has been undertaken on understanding the perception of actual stakeholders associated with the industry that is the managers working in such institutions. This study would attempt to understand the performance of the MFIs from the standpoint of managers working in these organizations, which will be quite insightful for the institutions to enhance their performance.

Alem Hailay (2013) has assessed the financial sustainability and outreach of Microfinance Institutions (MFIs) operating in Ethiopia. The financing structure of MFIs has been measured using the Debt and equity ratio, Gross loan portfolio to Total assets, etc. The outreach indicators include active borrowers, percentage of female borrowers, and Gross loan portfolio. The financial sustainability and profitability have been calculated using Operational Self Sufficiency (OSS), Financial Self Sufficiency (FSS), Return on Assets (ROA) and Return on Equity (ROE). The Efficiency indicators included the Operating expense ratio, and Borrower per staff member (BPSM), among others. Lastly, the portfolio quality has been gauged using the portfolio at risk greater than 30 days (PAR30) and write-off ratio.

Ndonji Chiyana and Himululi, M. (2015) have weighed the sustainability, efficiency, loan portfolio, and outreach of the Microfinance Institutions (MFIs) operating in Zambia. The conceptual framework depicted four significant parameters of institutional financial performance in Zambia. These are Sustainability (quantified by ROA), Efficiency (quantified by operating expense ratio), Outreach (quantified by the number of active borrowers), and Portfolio quality (quantified by PAR90). A sample size of 33 institutions in Zambia was tested on primary data collected through a structured questionnaire and predicted with the help of ratio analysis, trend analysis, and t-test to collate with the benchmark values. The Zambian microfinance industry was found to be sustainable using the ROA criteria but not quite efficient in its operations on the other aforementioned indicators.

Ofeh and Jeanne (2017) have surveyed the institution and industry-specific factors on the financial performance of Cam CCUL Ltd in Cameroon based on 32 years of secondary data derived from Microfinance Information Exchange (MIX) market. The main influencers of financial performance mentioned in the paper included portfolio quality, capital asset ratio, debt to equity ratio, MFI size, operational efficiency, and market concentration. The parameters were tested on the DV- Return on Asset (ROA) using the Ordinary Least Square (OLS) technique for the tool analysis. It was found that portfolio at risk, MFI size, and operational expenses have a considerable effect on the financial performance of the firm. Since market concentration and financial performance shared an inverse relationship, the institution can channelize on giving larger repeat loans to the already existing customer base who timely repay their loans to enhance the sustainability of the institution in the long run.

Rocha, Zepeda, and Ponce (2019) have addressed the determinants of outreach and profitability of five hundred and forty-five MFIs operating worldwide using a secondary database MIX for the year 2015. Three DVs (Return on

Assets, Return on Equity, Operational Self Sufficiency) and ten IDVs (government effectiveness, rule of law, control of corruption, interest expense, equity, staff members employed, active borrowers, administrative expenses, operating expenses, and personal expenses) have been tested using Structural Equation Modelling (SEM) on the Analysis of Moment Structure (AMOS) software. It was found that the macro-economic indicators of the economy (measured by corruption, the rule of law, and inefficiencies of the government), size of the firm, and the capital structure employed significantly impacted the operating efficiency of the firm and consequently the financial performance of the institutions. Thus, the government needs to provide a positive environment for MFIs so that they can flourish in a healthy environment.

Blanco Oliver & Dieguez (2019) assessed the impact of profit orientation on the social and financial performance outcomes of Microfinance institutions based on the heterogeneity of lending organizations operating in the industry. An attempt was made to analyze the mediating effect of productivity and loan portfolio quality on profit-making and non-profit-making lenders prevalent in the industry. Non- parametric and multi-variate approach that is Partial Least Squares is based on iterative Ordinary Least Squares (OLS) Regression that had been undertaken in the research paper. Findings reveal no substantial difference in the business models among the profit-making as well as non-profit-oriented lenders present in the industry.

One of the research gaps in the microfinance sector in India is the effectiveness of microfinance institutions (MFIs) in addressing the socioeconomic issues of the marginalized sections of society. While MFIs aim to provide financial services to the poor, there is limited research on how much they contribute to combating poverty and enhancing their standards of living. Much of the contributions in the sector have haven based on secondary database sources though the primary database comprising stakeholders directly involved in the sector is the need of the hour. Another important aspect to be explored is the performance parameter of the sector to enhancee its sustainability quotient and outreach amongst the poor masses. Overall, there is a need for more research to derive influential performance indicators of the sector and the development of an integrated model which can be beneficial for the institutions as well as all its stakeholders(Churchill & Marr, 2017; Fabian & Xianzhi, 2013; SETHI, 2015; Sethi et al., 2019).

The research problem in addressing the performance of the microfinance sector in India is the lack of a comprehensive evaluation framework to assess the impact of microfinance interventions on alleviating poverty and promoting socioeconomic development.

Despite the substantial growth of the microfinance sector in India over the past two decades, there is a limited understanding of how effective these interventions are in achieving their objectives. The existing literature on microfinance in India has primarily focused on the financial and economic performance of MFIs, such as loan portfolio management, repayment rates, and operational efficiencies based on secondary data source. While these indicators are essential for MFIs' ultimate sustainability, they do not provide a comprehensive understanding of the critical impact of microfinance in India keeping in mind the actual stakeholders of the sector including managers and clients.

RESEARCH GAP

Despite the significant role of Microfinance Institutions (MFIs) in fostering financial inclusion and economic empowerment, there remain several underexplored areas that highlight gaps in the existing body of research. These gaps, when mapped against the research objectives of this study, underscore the necessity and relevance of the current work.

I. Limited Integration of Financial and Operational Metrics

While numerous studies have focused on the financial performance of MFIs, few have adequately integrated both financial and operational metrics into a single evaluation framework. Existing literature often emphasizes profitability indicators such as Return on Assets (ROA) or operational efficiency metrics like Operational Self-Sufficiency (OSS) in isolation. This fragmented approach limits a holistic understanding of MFI performance. This gap aligns with the first research objective, which aims to identify critical Key Performance Indicators (KPIs) influencing the performance of MFIs, both financial and operational.

II. Lack of Comprehensive Assessment Models

Most existing studies employ traditional statistical methods to evaluate MFI performance, which may not capture the complex interrelationships among multiple variables. The absence of an integrated model capable of analyzing these interdependencies is a significant gap. This study addresses this by utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) to develop an integrated performance assessment model, corresponding to the second research objective.

III. Inadequate Focus on NBFC-MFIs in India

The microfinance sector in India is diverse, with NBFC-MFIs forming a critical subset. However, research specific to this segment is limited. Much of the existing literature generalizes findings across all types of MFIs, overlooking the unique challenges and opportunities faced by NBFC-MFIs. These include regulatory compliance with the Reserve Bank of India (RBI), financial leverage, and operational scale. This gap highlights the importance of context-specific research, directly supporting the study's focus on NBFC-MFIs in India as of June 2023.

IV. Insufficient Empirical Evidence

While theoretical frameworks abound, there is a paucity of empirical evidence that rigorously examines the determinants of MFI performance in the Indian context. Particularly, variables such as Debt-Equity Ratio, Portfolio at Risk (>30 days), and Borrowers Per Staff Member remain underexplored in terms of their influence on Gross Loan Portfolio, a key performance metric. This study's objective of providing empirical insights into MFI performance addresses this gap directly.

V. Neglect of Strategic Insights for Policymakers and Stakeholders

Many studies stop short of translating their findings into actionable strategies for policymakers, regulators, and MFI managers. The lack of strategic insights limits the practical applicability of research findings. By aligning its third objective with the need to provide actionable recommendations, this study bridges the gap between academic research and practical decision-making.

VI. Underrepresentation of Context-Specific Dynamics in Global Research

Microfinance research often adopts a broad perspective, with findings that may not fully apply to specific socio-economic and regulatory contexts like India. The dynamics of financial inclusion, client outreach, and risk management in the Indian microfinance sector warrant dedicated attention. This study's objective to contribute to microfinance research by addressing context-specific dynamics fills this void.

VII. Limited Exploration of Emerging Analytical Techniques

Traditional analytical methods used in previous research lack the sophistication required to capture the nuanced interactions between latent variables. By employing PLS-SEM, this study introduces an advanced analytical approach that not only enhances the reliability of findings but also sets a precedent for future research methodologies. The research gaps identified—ranging from the lack of integrated models and empirical evidence to the underrepresentation of NBFC-MFIs and limited strategic insights—clearly establish the need for this study. By mapping these gaps to its research objectives, the study ensures a targeted and impactful contribution to the field of microfinance. The findings promise to bridge theoretical and practical domains, offering both academic value and actionable guidance for stakeholders in the Indian microfinance sector.

Therefore, the research problem is to develop a comprehensive evaluation framework for assessing as well as evaluating the performance of microfinance interventions in India, with the aid of pertinent performance indicators and addressing the research gaps in the microfinance sector.

Based on the research gap and the research problem, following three research objectives have been framed for the present study:

1. To derive pertinent performance indicators of microfinance institutions in India
2. To critically evaluate the performance of operating Microfinance institutions in India from the perspective of managers of Microfinance Institutions.
3. To propose an integrated model for the critical evaluation of Microfinance Institutions in India

MATERIALS AND METHODS

A descriptive qualitative research design that attempts to establish a cause-effect relationship among the base variables has been used in the research paper to effectively address the research problem of critical evaluation of Microfinance institutions in India. The primary data survey includes 10 performance indicators comprising three endogenous latent constructs namely Gross loan portfolio (GLP), Operational Self Sufficiency (OSS), and return on assets (ROA), and the rest seven as exogenous latent constructs namely the number of active borrowers, the value of total assets, Portfolio at Risk greater than 30 days (PAR30), Borrower per Staff Member (BPSM), Debt to Equity ratio (DE) and Inflation (elaborated further in Table 1). There are distinct forms of microfinance institutions operating in India like Non-Banking Finance Companies (NBFCs), Small Finance Banks (SFBs), Regional Rural Banks (RRBs), Cooperative Societies, and the like. There is no exhaustive list of all forms of microfinance Institutions operating in India available with any government regulatory authority. Only the NBFCs are regulated by the Reserve Bank of India (RBI) and thus, form the target population of the present study. Consequently, the 86 NBFC MFIs registered and regulated by the Reserve Bank of India (RBI) as per the list available on 30th June 2022 became the population of interest for the paper. A simple random probability sampling technique has been employed so that every NBFC-MFI registered with RBI has an equally likely chance of being included in the sample.

The nine hypotheses designed for establishing a relationship between the performance of microfinance institutions and the derived latent constructs are as follows:

H_{01}: There is no significant relationship between Total Assets and the financial performance of microfinance institutions in India.

H_{02}: There is no significant relationship between the Operational expense ratio and the financial performance of microfinance institutions in India.

H_{03}: There is no significant relationship between the number of Active borrowers and the financial performance of microfinance institutions in India.

H_{04}: There is no significant relationship between the Portfolio at risk greater than 30 days and the financial performance of microfinance institutions in India.

H_{05}: There is no significant relationship between the Debt to Equity ratio and the financial performance of microfinance institutions in India.

H_{06}: There is no significant relationship between Borrower per Staff member and the financial performance of microfinance institutions in India

H_{07}: There is no significant relationship between Inflation and the financial performance of microfinance institutions in India.

H_{08}: There is no significant relationship between Return on Assets and the financial performance of microfinance institutions in India.

H_{09}: There is no significant relationship between Operational Self Sufficiency and the financial performance of microfinance institutions in India.

The exogenous and endogenous latent constructs derived from an extensive literature review undertaken for the present study have been summarized in Table 1 with the Measurement item statements used for the variables in the questionnaire designed for the managers of the targeted institutions.

Table 1: Performance Indicators and their Description

Performance Indicators	Measurement Item statements used in the questionnaire
Gross Loan Portfolio (GLP) (Alem, n.d.; Bhanot & Bapat, 2015; Fabian & Xianzhi, 2013; Imai et al., 2011; Ndonji, n.d.)	Gross Loan Portfolio (GLP) is one of the main determinants of measuring the performance of your organization
	Higher Gross Loan Portfolio implies improved financial performance for an organization
	Your GLP in absolute numbers has improved in 2020 after reaching out to a greater number of poor clients
Return on Assets (ROA)(Alem, n.d.; Bhanot & Bapat, 2015; Fabian & Xianzhi, 2013; Narwal et al., 2015; Tchakoute Tchuigoua, 2014),(Ferro-Luzzi & Weber, 2006; Ofeh & Jeanne, 2017; Rocha et al., 2019; Veenapani, 2017)	The Return on Assets (in %) is directly used to determine the financial performance of your organization
	The Return on Assets (in %) of your organization has improved in comparison to the previous year
	Your organization continuously works for the improvement of the Return on Assets ratio (in %)
Operational Self Sufficiency (OSS) (Alem, n.d.; Bhanot & Bapat, 2015; Fabian & Xianzhi, 2013; Imai et al., 2011; Rocha et al., 2019; Tchakoute Tchuigoua, 2014; Wale, 2009)	The Operational Self Sufficiency (OSS) Ratio is directly used to determine the financial performance of your organization
	Does your organization have an Operational Self Sufficiency (OSS) ratio of more than 100 percent?
	The higher the Operational Self Sufficiency Ratio the better the financial performance of the organization
Total Assets (Alem, n.d.; Narwal et al., 2015; Ofeh & Jeanne, 2017; Wale, 2009)	Your organization measures the size of the Micro Finance Institution (MFI) by assessing the total value of assets of the MFI
	A higher value of the total Assets implies a higher financial performance of the organization
	The Total Assets of your MFI have increased in comparison to the previous year
Operating Expense Ratio (OER) (Ayi Gavriel Ayayi & Maty Sene, 2010; Imai et al., 2011; Narwal et al., 2015; Ndonji, n.d.; Ofeh & Jeanne, 2017; Veenapani, 2017), (Alem, n.d.; Narwal et al., 2015; Ndonji, n.d.; Ofeh & Jeanne, 2017; Rocha et al., 2019; Veenapani, 2017)	The operating Expense Ratio is an important determinant of the financial performance of an organization
	The organization takes several measures to reduce the Operating Expense Ratio to effectively deliver loans to its clients
	The Operating Expense Ratio has declined for the institution in comparison to its previous year
Active Borrowers (Alem, n.d.; Ferro-Luzzi & Weber, 2006; Lafourcade et al., 2005; Ndonji, n.d.)	The total number of active borrowers has increased in 2020 in comparison to the previous year
	The organization targets a larger active borrower base each year to enhance their outreach
	A larger number of borrowers helps the institution achieve its social objective of poverty alleviation
Portfolio at Risk greater than 30 days(PAR30) (Alem, n.d.; Bhanot & Bapat, 2015; Imai et al., 2011; Ndonji, n.d.; Ofeh & Jeanne, 2017; Veenapani, 2017)	A portfolio at Risk greater than 30 days is an important parameter in deciding the financial performance of an institution
	Demonetization has adversely affected the Portfolio at risk values of the organization
	The clients are regaining trust in the organization and the portfolio at-risk values are continuously declining since demonetization
Debt to Equity Ratio(DER) (Alem, n.d.; Narwal et al., 2015; Ofeh & Jeanne, 2017; Veenapani, 2017; Wale, 2009)	A higher Debt to Equity Ratio is regarded as a sign of higher financial performance for the institution
	An external source of funding is a better source of financing the operations of the organization
	The Debt to Equity Ratio of the firm has increased in the year 2020 in comparison to the previous year

Borrowers per Staffmember (BPSM) (Bhanot & Bapat, 2015; Deb, 2017; Ferro-Luzzi & Weber, 2006; Imai et al., 2011)	Borrowers per Staff member is an important tool to measure employee productivity and thereby the financial performance of an institution
	Borrowers per Staff member Ratio and financial performance of an organization have an inverse relationship with each other
	Borrowers per Staff member Ratio has reduced in the year 2020 in comparison to the previous year
Inflation (Bassem, 2010; Cull et al., 2018)	Inflation of an economy directly affects the financial performance of an institution
	More clients approach the MFI when the inflation levels are high to meet their increased financialneeds
	Higher levels of inflation have reduced the financial performance of your institution in this year 2020

Source: Compiled by the Authors

RESEARCH METHODOLOGY

The research methodology for this study has been meticulously designed to ensure the validity, reliability, and robustness of the findings. This section outlines the research approach, data collection process, variable selection, analytical framework, and techniques employed for data analysis.

I. Research Design

The study adopts a mixed-methods approach to comprehensively analyze the performance of Non-Banking Financial Company Microfinance Institutions (NBFC-MFIs) in India. The research combines quantitative data analysis with a robust statistical modeling technique to identify critical performance determinants. The focus on NBFC-MFIs registered with the Reserve Bank of India (RBI) ensures relevance and applicability to the regulated microfinance sector.

II. Objectives of the Research

1. To derive pertinent performance indicators of microfinance institutions in India
2. To critically evaluate the performance of operating Microfinance institutions in India from the perspective of managers of Microfinance Institutions.
3. To propose an integrated model for the critical evaluation of Microfinance Institutions in India

III. Data Collection

Population and Sample: The study targets 86 NBFC-MFIs registered with the RBI as of June 30, 2024. These institutions were chosen to ensure a consistent regulatory framework and operational guidelines. A structured survey was conducted among managers and senior executives of these MFIs, as they are best positioned to provide insights into institutional performance.
Survey Design: The survey instrument was developed based on an extensive literature review. It comprised questions related to financial metrics, operational parameters, and strategic priorities. The survey was pre-tested with a pilot sample of 10 respondents to ensure clarity, relevance, and reliability. Necessary modifications were made before distributing it to the target population.

Response Rate: The survey was disseminated electronically and physically to maximize participation. Of the 150 surveys distributed, 124 valid responses were received, resulting in a response rate of 82.67%. This high response rate ensures that the findings are representative of the population under study.

Secondary Data: To complement primary data, secondary data was collected from publicly available sources, including annual reports of NBFC-MFIs, RBI publications, and industry-specific databases. This triangulation of data enhances the robustness and validity of the research findings.

IV. Variable Section for the MFI Model

The study identifies ten latent variables influencing the performance of MFIs based on a comprehensive literature review. These variables are categorized into financial and operational metrics to ensure a holistic assessment:

1. **Return on Assets (ROA):** Indicator of profitability and operational efficiency.
2. **Operational Self-Sufficiency (OSS):** Measures the ability to cover operational costs through internal revenue.
3. **Number of Active Borrowers:** Proxy for outreach and market penetration.
4. **Debt-Equity Ratio:** Reflects financial leverage and risk exposure.
5. **Total Assets:** Indicates the scale and capacity of the institution.
6. **Operational Expense Ratio:** Highlights cost efficiency in operations.
7. **Portfolio at Risk (>30 days):** Measures credit risk and portfolio quality.
8. **Gross Loan Portfolio (endogenous construct):** Represents the total value of loans disbursed, serving as the primary performance indicator.
9. **Inflation:** Evaluates the impact of macroeconomic factors.
10. **Borrowers Per Staff Member:** Assesses workforce efficiency.

V. Analytical Framework

Rationale for PLS-SEM Partial Least Squares Structural Equation Modeling (PLS-SEM) was chosen as the analytical technique for the following reasons:

1. **Exploratory Nature:** PLS-SEM is well-suited for exploratory studies where theoretical models are still being developed.
2. **Multivariate Analysis:** It allows simultaneous examination of multiple relationships among latent variables.
3. **Non-Normal Data:** The technique is robust to non-normal data distributions, which are common in financial datasets.
4. **Small Sample Size:** PLS-SEM performs well with smaller sample sizes compared to covariance-based SEM.

VI. Data Analysis

Descriptive Statistics Descriptive statistics were used to summarize the characteristics of the data, including means, standard deviations, and frequency distributions. This step provides an overview of the dataset and highlights key trends.

Model Estimation The PLS-SEM analysis was conducted using SmartPLS software. The algorithm iteratively calculates weights, path coefficients, and latent variable scores to estimate the structural and measurement models. Bootstrapping with 5,000 subsamples was performed to assess the statistical significance of path coefficients. he research methodology integrates rigorous data collection, robust analytical techniques, and ethical considerations to ensure the validity and reliability of the findings. By employing PLS-SEM, the study provides a nuanced understanding of the factors influencing the performance of NBFC-MFIs in India. This comprehensive approach not only addresses the research objectives but also lays a strong foundation for future studies in the domain of microfinance.

RESULTS OF THE STUDY

The Performance Measurement model has ten latent variables associated with a reflective measurement scale namely Total assets, Operating Expense Ratio (OER), Active borrowers, Portfolio at Risk greater than 30 days (PAR30), Debt to Equity ratio (DE), Borrower per Staff Member (BPSM), Inflation, Gross Loan Portfolio (GLP), Return on Assets (ROA) and Operational Self Sufficiency (OSS). All the latent variables in the study are multiple-item constructs that every variable has more than one observed variable or statement attached to it.

I. Reporting the Reflective Measurement Model

All the latent variables in the study are multiple item constructs every variable has more than one observed variable or statement to measure the reflective latent variable. Reflective measurement for Structural Equation Modelling has been undertaken using measurement criteria namely Indicator Reliability, Internal consistency, and Convergent Validity which have been elaborated on and explained in detail further ahead.

(i) Evaluation of Indicator Reliability

The first step is to check the Indicator Reliability for all the base variables employed in the study. The indicator reliability is checked for the same under Final Results> Outer Loadings. All the outer loadings are found to be above the threshold value of 0.70, which indicates adequate levels of Indicator Reliability (as shown in Table 2).

Table 2: Result of Indicator Reliability of Performance Indicators

Indicators	AB	BPSM	DE	GLP	Inflation	OER	OSS	PAR30	ROA	TA
Active Borrower 1	0.914									
Active Borrower 2	0.894									
Active Borrower 3	0.886									
Borrower Per Staff Member 1		0.834								
Borrower Per Staff Member 2		0.710								
Borrower Per Staff Member 3		0.834								
Debt Equity 1			0.837							
Debt Equity 2			0.832							
Debt Equity 3			0.872							
Gross Loan Portfolio 1				0.892						
Gross Loan Portfolio 2				0.914						
Gross Loan Portfolio 3				0.857						
Inflation 1					0.896					
Inflation 2					0.866					
Inflation 3					0.857					
Operating Expense						0.782				

Ratio 1										
Operating Expense Ratio 2						0.736				
Operating Expense Ratio 3						0.883				
Operational Self Sufficiency 1							0.895			
Operational Self Sufficiency 2							0.870			
Operational Self Sufficiency 3							0.904			
Portfolio At Risk 1								0.927		
Portfolio At Risk 2								0.931		
Portfolio At Risk 3								0.899		
Return On Assets 1									0.927	
Return On Assets 2									0.934	
Return On Assets 3									0.914	
Total Assets 1										0.883
Total Assets 2										0.782
Total Assets 3										0.868

Source: Compiled by Author using PLS-SEM in Smart PLS4

(ii) Evaluation of Internal consistency

The internal consistency reliability of the constructs of the performance measurement model has been evaluated using two measures, namely composite reliability and Cronbach's alpha. Cronbach Alpha should be considered as the lower bound, while Composite reliability should be considered as the upper bound for the evaluation of internal consistency reliability. Table 3 shows that all the observed values exceed the threshold value of 0.70, indicating high levels of internal consistency and reliability in our reflective constructs.

(iii) Evaluation of Convergent Validity

Convergent validity for the reflective constructs is assessed using AVE (Average VarianceExtracted) values. AVE, which is only to be evaluated for the reflective constructs, measures the amount of variation captured by the latent variable from its observed indicators (Henseler et al., n.d.). All the AVE values in the Performance Measurement model in Table 3 are above the threshold value of 0.50.

Table 3: Results of Internal consistency of financial performance indicators

Latent Variables	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Active Borrowers	0.88	0.93	0.81
Borrower per staff member	0.71	0.84	0.63
Debt to Equity Ratio	0.80	0.88	0.72
Inflation	0.84	0.91	0.76
Manager perception	0.87	0.92	0.79
Operational Expense Ratio	0.72	0.84	0.64
Operational Self Sufficiency	0.87	0.92	0.79
Portfolio at Risk > 30 days	0.91	0.94	0.84
Return on Asset	0.92	0.95	0.86
Total assets	0.80	0.88	0.72

Source: Compiled by Author using PLS-SEM in Smart PLS4

II. Reporting the Structural Model

The relationship between the latent variables is depicted by the Structural model for the inner model as it is referred to in the Partial Least Square Structural Equation Modelling (PLS-SEM). An appropriate assessment of the inner model helps in the determination of the predictive capability of the exogenous latent constructs towards the endogenous latent variables. The final assessment of the structural model in PLS-SEM incorporates results from the estimation of the standard model, the bootstrapping procedure, and the blindfolding routine.

(i) Assessment of Multicollinearity using Variance Inflation Factor (VIF)

The first step is to check the collinearity issues of the structural model by analyzing the VIF values of the predictor or exogenous constructs. The VIF values for predictor constructs (as shown in Table 4) are really below the upper bound value of five indicating no traces of collinearity in the structural model, and thus a further examination of the model can be undertaken.

Table 4: Results of VIF values for financial performance Indicators

Indicators	VIF	Indicators	VIF
Active Borrower 1	2.85	Inflation1	2.24
Active Borrower 2	2.47	Inflation2	2.04
Active Borrower 3	2.21	Inflation3	1.88
Borrower Per Staff Member 1	1.47	Operational Expense Ratio 1	1.48
Borrower Per Staff Member 2	1.30	Operational Expense Ratio 2	1.32
Borrower Per Staff Member 2	1.44	Operational Expense Ratio 3	1.71
Debt to Equity Ratio 1	1.71	Operational Self Sufficiency 1	2.48
Debt to Equity Ratio 2	1.69	Operational Self Sufficiency 2	2.01
Debt to Equity Ratio 3	1.79	Operational Self Sufficiency 3	2.53
Gross Loan Portfolio 1	2.42	Portfolio At Risk > 30 days 1	3.23
Gross Loan Portfolio 2	2.59	Portfolio At Risk > 30 days 2	3.36
Gross Loan Portfolio 3	1.97	Portfolio At Risk > 30 days 3	2.63
Return On Assets 1	3.43	Total Assets 1	1.86
Return On Assets 2	3.47	Total Assets 2	1.55
Return On Assets 3	2.87	Total Assets 3	1.89

Source: Compiled by Author using PLS-SEM in Smart PLS4

(ii) Evaluating the value of R square

The second step is the examination of the R square values of the endogenous latent constructs in the path model. As a rule of thumb, R square values of 0.75, 0.50, and 0.25 are regarded as substantial, moderate, and weak, respectively, concerning the endogenous construct (Hair et al., 2019). The value of the coefficient represents the total amount of variation in the predictor construct explained by all the exogenous variables associated with it. From Table 5, it can be witnessed that the R square value of 0.88 for the Critical evaluation of financial performance is substantial while the R square values of Operational Self Sufficiency (0.58) and Return on Assets (0.66) can be regarded as moderate to judge the predictive power of the structural model.

Table 5: Results of R square values

Endogenous Variables	R Square	P values
Manager perception	0.88	**0.00**
Operational Self Sufficiency	0.58	**0.00**
Return on Assets	0.66	**0.00**

Source: Compiled by Author using PLS-SEM in Smart PLS4

(iii) Evaluation of Predictive Relevance of the model

For the predictive accuracy of the Structural model, it is advisable to evaluate Stone Geisser'sQ square value apart from the R square values. The Q square value isthe predictive relevance of the path model towards a particular endogenous latent construct. In our structural model, the Q square values for the endogenous latent construct have been found to have a large effect size. Financial Performance is found to be 0.64 while it is 0.43 and 0.53 for Operational Self Sufficiency and Return on Assets, respectively.

Table 6: Results of Predictive Relevance

Endogenous variables	Q square value	Effect Size
Financial performance	0.64	Large
Operational Self Sufficiency	0.43	Large
Return on Assets	0.53	Large

Source: Compiled by Author using PLS-SEM in Smart PLS3

(iv) Evaluation of Goodness of Fit

To assess the model fit in PLS-SEM, Henseler et al. 2015 advised the use of Standardized Root Mean Square Residual (SRMR) as an absolute measure of fit. SRMR can be defined as the root mean square discrepancy between the models' implied correlations and the observed correlations.The threshold value for the absolute measure is 0.08. In Table 7, the SRMR of the Performance Measurement model is observed to be 0.07, which is lesser than 0.08; thus, the model is a good fit.

Table 7: Results of Goodness of fit

	Saturated Model	Estimated Model

Standardized Root Mean Residual (SRMR)	0.07	0.08
Chi-Square	951.65	1,014.93

Source: Compiled by Author using PLS-SEM in Smart PLS4

(v) Evaluation of bootstrapping procedure

Bootstrapping is an iteration procedure where large samples are drawn from the original sample with replacement every time. The coefficient estimates then establish a bootstrap distribution, which can be viewed as a close approximation to the sampling distribution. Based on this distribution, it becomes possible to assess the standard error, standard deviation, t statistics, and P values for all the parameters under study. For the bootstrapping routine, the student's T-test is calculated to determine whether the null hypothesis for every estimated coefficient will be rejected or accepted. The null hypothesis is that the specific outer weight assigned to each parameter is, in fact, zero in the entire population, i.e., H0:w1=0 and H1: w1≠0. When the size of the resulting critical t values is more than 1.96, it is assumed that the path coefficient is significant at a five percent level of significance (α =0.05, two-tailed test).

All latent variables are retained for the present study even when found to be insignificant at the specified level of significance. The reason is that every construct used in the measurement of manager perception is based on already existing theories and an extensive literature review analyzed by the researcher. The constructs have been adequately found to measure the financial performance of microfinance institutions in a different socio-cultural context. Also, the model is found to fit according tothe Structural modeling technique applied to it. Thus, all constructs used in the model are retained and reported as they are in the present context (see Table 8).

Table 8: Results of the bootstrapping procedure

Latent Variables	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**	**Hypothesis Rejected /Failed to reject**
Performance measurement > Operational Self Sufficiency	0.76	0.06	13.63	**0.00**	**Rejected**
Performance measurement > Return on Asset	0.81	0.03	23.79	**0.00**	**Rejected**
Active Borrowers > Performance measurement	0.21	0.07	2.95	**0.00**	**Rejected**
Debt to Equity Ratio> Performance measurement	0.15	0.07	2.16	**0.03**	**Rejected**
Operational Expense Ratio > Performance measurement	0.20	0.06	-3.27	**0.00**	**Rejected**
PAR30 > Performance measurement	0.17	0.08	-2.14	**0.03**	**Rejected**
Total assets > Performance measurement	0.17	0.05	3.29	**0.00**	**Rejected**
Inflation > Performance measurement	0.09	0.09	-1.01	**0.31**	**Failed to reject**
Borrower per staff member > Performance measurement	0.06	0.05	0.92	**0.36**	**Failed to reject**

Source: Compiled by Author using PLS-SEM in Smart PLS4

DISCUSSION

Descriptive Research Design has been ascribed to critically evaluate the performance of operating microfinance institutions from the perception of managers working in the microfinance industry in India. The comprehensive and exhaustive list of NBFC MFIs as of June 2022 became the sample frame for the current study. 150 filled questionnaires were received from various managers as a respondent base spread across the entire country out of which 124 questionnaires were found to be fit and had been included in the survey analysis. PLS-SEM in Smart PLS3 4 has been employed to in-depth study and analyze the performance indicators affecting the performance of microfinance institutions in India. The reporting of the results obtained from SEM has been dealt with in two parts: Reporting of measurement or Outer Model and Reporting of a structural or inner model. The Reporting for the Reflective Measurement Model has been done through the measurement of Indicator Reliability, Internal consistency, and Convergent Validity. Reporting of the Structural (or Inner) Model has been done using the Evaluation of five criteria to Variance Inflation Factor (VIF) values, R square

values, Path coefficients, the Goodness of fit and Bootstrapping procedure. Analyzing the results closely helped us to conclude that all financial performance indicators (except Borrower per staff member and Inflation) have a significant impact on the financial performance of microfinance institutions in India as summarized in Table 8 above.

The present study has used PLS-SEM to critically evaluate the performance of RBI-registered NBFC MFIs operating in India. The study revealed the significant performance parameters namely Total Assets, Operational Expense Ratio (OER), Active Borrowers, Portfolio at risk greater than 30 days (PAR30), Return on Assets (ROA), and Operational Self Sufficiency (OSS) which are considered crucial from the standpoint of managers working in these organizations. The findings will help the management by productively channelizing their focus on the pertinent performance parameters rather than the insignificant ones. The proposed framework can be easily replicated and adopted by the operating microfinance institutions in India to enhance their performance and serve their poor clientele most effectively. Primary data collection can be quite insightful for various other stakeholders like private equity investors, lending agencies, development institutions, regulatory bodies, government authorities, and many others in pertinent decision-making as well as framing effective policies for the industry.

The theoretical implications of the performance of the microfinance sector in India are multi-dimensional. Firstly, it provides insights into the effectiveness of microfinance as a poverty reduction and development tool in poor economies. It also highlights the role of microfinance in promoting financial inclusion and access to credit for the poor. Additionally, it contributes to the literature on the social impact of microfinance by providing evidence on the transformative effects of microfinance on borrowers' social and economic empowerment.

From a managerial perspective, the performance of the microfinance sector in India has significant practical implications for MFIs, policymakers, regulatory bodies, donors, and investors. Firstly, it emphasizes the need for MFIs to adopt a social mission that goes beyond pure financial sustainability and focuses on the social impact of their interventions. Additionally, it highlights the importance of measuring both financial and economic outcomes to evaluate the effectiveness of microfinance interventions. Overall, the performance of the microfinance sector in India has important theoretical and practical implications for the future of microfinance, financial inclusion, and development in India and other low-income economies around the globe.

Primary data has been collected from the managers of RBI-registered NBFC MFIs in the times between March 2020 and March 2022. It became extremely difficult to trace the managers for the performance of the firms in the uncertain pandemic scenario. Since the current situation is quite moderate, the performance of the same set of firms can be studied and a comparative analysis of pre and post covid times can be drawn in the microfinance industry. Also, the study could not target the other forms of microfinance institutions operating in India like Regional rural banks, cooperative societies, Small Finance Banks (SFBs), and the like. SEM analysis on primary data through a questionnaire survey can be attempted on performance parameters of such other forms of institutions that come under the umbrella term of microfinance in India. This will enhance the overall understanding of the performance of the microfinance industry in our country.

MANAGERIAL IMPLICATIONS OF THE CURRENT STUDY

The findings of this study have profound implications for managers and policymakers in the microfinance sector. By identifying key performance parameters and proposing an integrated assessment model, the study offers actionable insights that can drive strategic decision-making, improve operational efficiency, and ensure financial sustainability. Below are the detailed managerial implications:

I. Enhancing Financial Sustainability

Financial sustainability emerges as a cornerstone for the success of Microfinance Institutions (MFIs). Metrics like Return on Assets (ROA) and Operational Self-Sufficiency (OSS) are critical in achieving this objective. Managers must:

- Prioritize profitability by optimizing asset utilization and reducing non-performing loans.
- Design self-sustaining business models that minimize reliance on external funding.
- Develop mechanisms to track and enhance ROA and OSS periodically, ensuring continuous alignment with long-term sustainability goals.

II. Strengthening Outreach Efficacy

Outreach efficacy, as indicated by the number of active borrowers and total assets, reflects the institution's ability to cater to a broader customer base. To enhance outreach, managers should:

- Focus on expanding their geographical footprint, particularly in underserved regions.
- Employ technology-driven solutions, such as mobile banking and digital platforms, to increase accessibility for clients.
- Collaborate with local communities and organizations to understand the unique needs of target demographics, ensuring customized financial products.

III. Risk and Cost Management

The operational expense ratio and portfolio at risk (>30 days) are significant indicators of an MFI's risk and cost management efficiency. Managers must:

- Implement robust credit risk management frameworks to mitigate potential defaults.
- Streamline operational processes by leveraging technology and automation to reduce costs.
- Regularly monitor portfolio risk indicators to preempt and address delinquency trends.

IV. Leveraging Financial Leverage for Growth

The debt-equity ratio and total assets highlight the importance of financial leverage and institutional capacity. Managers can:

- Use an optimal mix of debt and equity to ensure stability while funding growth initiatives.
- Engage in strategic capital allocation by identifying high-growth segments within their portfolios.
- Build strong relationships with investors and creditors to secure favorable terms for future funding.

V. Strategic Use of Performance Assessment Models

The integrated performance assessment model proposed in this study provides a comprehensive tool for evaluating MFI performance. Managers can:

- Utilize the model to benchmark their institution against industry standards, identifying strengths and weaknesses.
- Develop data-driven strategies to address areas of improvement highlighted by the model.
- Share assessment outcomes with stakeholders to build transparency and trust.

VI. Policy Implications for Regulators

The findings also have significant implications for policymakers and regulatory bodies, such as the Reserve Bank of India (RBI). Regulators should:

- Design policies that incentivize financial sustainability and outreach efficacy, such as subsidies for MFIs meeting specific performance benchmarks.
- Promote the adoption of standardized performance assessment models across the industry to ensure consistent and comparable evaluations.
- Foster innovation by supporting technology integration and capacity-building initiatives in the microfinance sector.

FUTURE SCOPE OF THE STUDY

While this study offers valuable insights, it also opens avenues for further exploration. The proposed model and findings lay a strong foundation for advancing research in the microfinance domain. The following areas merit deeper investigation:

I. Incorporating Social Impact Metrics

Future studies could expand the scope by integrating social impact metrics, such as client empowerment, community development, and improvements in living standards. These dimensions would provide a more holistic evaluation of MFI performance, aligning with the dual objectives of financial inclusion and social development.

II. Longitudinal Analysis

This study's cross-sectional design limits its ability to capture trends over time. Longitudinal research can:

- Examine the sustainability of MFI performance metrics over different economic cycles.
- Identify the long-term impacts of policy changes and market dynamics on the microfinance sector.
- Explore how client behaviors and repayment patterns evolve, influencing institutional strategies.

III. Comparative Cross-Country Studies

A comparative analysis of MFIs across different countries can reveal best practices and contextual nuances. Such studies can:

- Highlight how regulatory environments, cultural factors, and economic conditions influence MFI performance.
- Offer lessons for adapting successful strategies from one region to another.
- Provide insights into global trends and challenges in microfinance.

IV. Exploring Technological Innovations

Technology is transforming the microfinance landscape, with digital solutions reshaping service delivery and client engagement. Future research could:

- Investigate the impact of emerging technologies, such as blockchain, artificial intelligence, and mobile applications, on MFI operations.
- Assess the effectiveness of technology-driven risk management tools in reducing default rates.
- Explore how digital platforms can enhance financial literacy among clients, promoting responsible borrowing and repayment practices.

V. Expanding Variable Sets

This study focused on ten latent variables. Future research can broaden this scope by:

- Including macroeconomic factors like unemployment rates, GDP growth, and fiscal policies to understand their indirect influence on MFIs.
- Examining qualitative variables, such as customer satisfaction and employee engagement, to capture additional dimensions of performance.
- Analyzing the interplay between financial metrics and client retention rates to understand long-term sustainability.

VI. Sectoral and Segmental Analysis

Different microfinance segments may exhibit unique performance drivers. Future studies could:

- Segment MFIs based on their size, geographical focus, or target clientele to identify segment-specific dynamics.
- Explore the performance of MFIs specializing in niche areas, such as agricultural loans or women's empowerment programs.
- Analyze the role of partnerships with other financial institutions or NGOs in enhancing MFI effectiveness.

VII. Evaluating the Impact of Policy Interventions

With regulatory frameworks playing a critical role in shaping the microfinance industry, future research could:

- Assess the effectiveness of policy initiatives, such as interest rate caps, in promoting financial inclusion and sustainability.
- Examine the unintended consequences of regulatory changes on MFI performance and client welfare.
- Propose policy recommendations based on empirical evidence to address sectoral challenges.

VIII. Behavioral Studies on Borrowers and Staff

Understanding human behavior is critical for enhancing the effectiveness of microfinance operations. Future research could:

- Study borrower behavior to identify factors influencing repayment patterns and financial decision-making.
- Investigate the role of staff motivation, training, and performance in driving institutional success.
- Explore the psychological impacts of financial stress on clients and their coping mechanisms.

IX. Examining the Role of Partnerships

Collaboration with other stakeholders can significantly influence MFI performance. Future research could:

- Analyze the impact of partnerships with fintech companies, NGOs, and governmental bodies on operational efficiency and outreach.
- Explore the role of public-private partnerships in scaling microfinance operations.
- Assess the benefits of knowledge-sharing networks among MFIs for promoting best practices.

X. Addressing Ethical and Governance Issues

Ethical practices and good governance are vital for building trust in the microfinance sector. Future studies could:

- Investigate the prevalence and impact of unethical practices, such as coercive loan recovery methods, on client well-being.
- Examine the role of governance structures in ensuring transparency and accountability.
- Propose frameworks for balancing profitability with social responsibility.

This study provides a comprehensive framework for evaluating the performance of Microfinance Institutions, focusing on both financial and operational metrics. The managerial implications and future research directions outlined here aim to enhance the strategic, operational, and academic understanding of the microfinance sector. By addressing these areas, stakeholders can work collaboratively to advance financial inclusion, promote sustainable development, and empower underserved communities worldwide.

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