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Financial Inclusion, Rural Lending and Its Impact on Profitability in Indian Small Finance Banks

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***Abstract* – Purpose - The research designates whether financial inclusion requirements, including Priority Sector Lending (PSL) compliance, microfinance lending intensity, and the rural branch density, have systematic effects on profitability of Indian Small Finance Banks (SFB) and to what conditions this relation is valid. Design/Methodology/Approach - A longitudinal panel dataset consisting of 6 large SFBs (AU, Equitas, Ujjivan, Utkarsh, Jana, and Suryoday), on FY2018-FY2025 generated 48 bank-year observations used to analyze with Fixed and Random Effects panel regression. Hausman test helps to select the estimators. Mediation is hypothesized using the Baron and Kenny (1986) model using Sobel testing and multicollinearity using Variance Inflation Factors. Findings - ROA belonging to moderate levels of PSL compliance (60-75% of ANBC) displays a non-linear optimum, which is optimally linear with these extremes. Microfinance concentration higher than 70% greatly reduces ROA and ROE with a complete mediation of the Gross NPA ratio (Sobel z = -4.21, p = -0.001). Branch density in rural branches lowers short term ROA but has positive impact on Net Interest Margin, in terms of increasing yields on portfolios. The inclusion-profitability relationship is also largely moderated by the size of the bank with a larger SFB being able to absorb the cost of high inclusion intensity. Fixed Effects model accounts of 68.4 percent of the variation in ROA between the panel. Limitations/Implication of the Research - The sample of six prevalent SFBs is restricted, and it can bring about survivorship bias. Disaggregation and disgustre of PS language and inclusion results that started at the ground level are beyond the scope of this study. The COVID-19 shock (FY2021-22) might have intensified the microfinance-NPA-profitability channel by magnifying it by even more than the non-crisis magnitudes. Respondent findings suggest tiered PSL compliance architecture, explicit microfinance concentration cap and differentiated supervisory norms that are adjusted to the institutional maturity. Originality /Value - The study is one of the first to model three financial inclusion variables concurrently with various dimension of profitability on eight-year panel data between pre-, during-, and post-COVID periods on a similar SFB sample. The find of nonlinear PSL optimality level and full GNPA-mediated transmission presents new empirical data contribution to the literature of mission-driven banking and suggests empirical evidence-based regulatory measures and SFB practitioners.**

Keywords: **Small Finance Banks, Financial Inclusion, Priority Sector Lending, Profitability, Return on Assets, Panel Data, India, Microfinance, Non-Performing Assets**

I. INTRODUCTION

India's post-independence economic progress was shaped The Indian financial industry has experienced a radical development since the period of liberalization in the 1990s when consecutive policy interventions have been taken to expand the coverage of formal financial service delivery to the large underserved population in the country. Regardless of all these achievements, there is still a large population of the 1.4 billion Indians who were not covered by mainstream banking until late in the 21st century. The World Bank Global Findex Database (2021) estimates that nearly 190 million adults in India did not have a formal bank account and rural populations, women, and the economically marginalized were the most disproportionately and significantly impacted. As part of identifying the systemic deficiencies of the financial intermediation system, the Reserve Bank of India (RBI) has established a differentiated system of bank licensing in 2015, with Small Finance Banks (SFBs) being a special category of commercial banks that have a direct developmental target.

Small Finance Banks are an essential institutional innovation in the Indian financial inclusion structure. In contrast to traditional scheduled commercial banks, SFBs were to have a dual mission, which is to provide credit and financial services to their segments they are underserved by conventional commercial banks the small and marginal farmers, the micro and small enterprises, the low-income households, and the workers of the unorganized sector. In September 2015, the RBI gave in-principle authorization to ten organizations, the first SFBs became operational in 2017, usually through the conversion of existing Microfinance Institutions (MFIs) or Non-Banking Financial Companies (NBFCs). The regulatory framework of SFBs requires that no less than 75 percent of Adjusted Net Bank credit (ANBC) be issued to Priority Sector Lending (PSL) as opposed to 40 percent in the case of scheduled commercial banks, that no less than 50 percent of the loan book be advances up to 25 lakhs, and that at least 25 percent of its branches be situated in unbanked rural centres. Although these requirements are noble in terms of developmental purpose, the structural requirements upon the SFB business models raise fundamental questions of financial sustainability, especially as the COVID-19 pandemic (FY2021-22) led to

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catastrophic rewinding of the asset quality of microfinance assets throughout the sector, necessitating a fundamental re-definition of the risks management paradigm in inclusive banking.

II. RESEARCH PROBLEM AND OBJECTIVES

Although the rapid institutional rise of Small Finance Banks has been observed since 2017, there is a dangerously tense conflict in their model of operations. SFBs must at the same time meet the financial disadvantaged population - by lending microfinance with high risk, and having a high density of branches in rural areas, and by ensuring that they allocate sufficient priority sectors, and they must provide investors and depositors with commercially viable returns. The empirical connection between the degree of financial inclusion compliance and the achieved profitability outcomes has not been adequately documented in the Indian environment, especially on the heterogeneous platform of the SFB ecosystem.

Moreover, the COVID-19 pandemic has shown intense weaknesses in portfolios dominated by microfinance, and some SFBs reported GNPA ratios greater than 10% in FY2021-22. This evidence during the crisis time begs the main question of whether deep financial inclusion, especially in the microfinance sector and rural sector, is incompatible with long-run profitability or whether bank-specific factors mediate this relationship.

The central research problem is:
“How do financial inclusion mandates -- PSL compliance, microfinance intensity, and rural branch density influence the profitability of Indian Small Finance Banks, and what factors moderate this relationship?”

The objectives of the study are as follows:

- To measure the character and the trend of the relationship between PSL compliance ratios and SFB profitability measures (ROA, ROE, NIM).
- To determine the impact of microfinance lending intensity on asset quality (GNPA) and hence, the profitability outcomes.
- To examine the effect of rural branch density on operations costs, mobilization of deposits, and net interests.
- In order to test the moderating variables between the relationship of financial inclusion and profitability and the size of the bank and its adequate capital.
- To make strategic and regulatory suggestions on the need to reach a sustainable equilibrium between the tactical intention of financial inclusion and commercial viability in their SFB industry.

III. LITERATURE REVIEW

Regulatory Framework and Financial Inclusion Mandate

Srikanth, Prasad, and Saravanan (2021) explain that SFBs operate under a "75:50:25" model 75% priority sector lending, 50% loans below ₹25 lakh, and 25% branches in unbanked rural areas, with AU SFB maintaining 85% priority sector portfolio and onethird rural branches.
Mohanty (2018) documents that eight of ten SFB licensees were NBFC-MFIs, requiring transformation including dilution of foreign shareholding and branch conversion to offer comprehensive banking while retaining microfinance expertise.

Rural Lending and Portfolio Composition

Neelam (2019) found SFB loan portfolios skewed toward small-ticket loans (₹25,000-₹2 lakh) from microfinance origins, but geographic analysis shows rural areas account for less than 20% of credit accounts, indicating urban-rural disconnect.

Pravallika et al. (2023) documented significant variation in rural penetration across SFBs, with AU SFB achieving 26.11% branch CAGR while Equitas showed negative growth, and Utkarsh leading customer base at 64.8 lakh.

Profitability Through CAMEL Framework

Ray (2021) analyzed all ten SFBs for FY 2019-20, finding significant differences across CAMEL parameters except earnings, with Fincare SFB best overall performer and Jana SFB worst, demonstrating profitability is achievable despite priority sector mandates.

Ray and Dave (2024) studied four listed SFBs (2016-22), finding AU SFB excelled in management efficiency (profit per employee ₹5.28 lakh) and earnings (ROA 2.10%), while ANOVA showed no significant performance differences among listed SFBs.

Anitha (2024) compared Equitas and Ujjivan (2020-21), finding Ujjivan superior in capital adequacy (debt-equity 5.41 vs 6.28) and earnings, while Equitas excelled in management capability (ROA 1.55% vs 0.04%).

Capital Structure and Profitability

Rajesh et al. (2021) examined six SFBs (2017-21) using panel regression, finding debt ratio and debt-equity ratio positively and significantly affect ROA and ROE, with models explaining over 98% of profitability variation.

Cost Structure and Profitability Constraints

Neelam (2019) found SFB cost of funds (10.29%) nearly double that of public sector banks, yet Net Interest Margins averaged 8% versus SCB average 2.7%, driven by

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high-yielding microfinance portfolios compensating for higher costs.

Stakeholder Value Creation

Srikanth, Prasad, and Saravanan (2021) reported all SFBs exceeded capital adequacy norms (11.5%), with Utkarsh achieving lowest net NPAs (0.12%) versus public sector banks' 3.7%, while ESAF led profit per employee (₹6 crore).

Conclusion

Literature affirms that SFBs strike a balance between inclusion requirements and viability by microfinance spreads and capital structure optimization, even though there are still problems with mobilizing rural deposits and high operating costs.

IV. RESEARCH GAP

Although there is current literature reporting the individual bank performance and sectorwide trend, there is a longitudinal panel study that considers the simultaneous relationship of the particular financial inclusion variables PSL ratio, microfinance intensity, and rural branch density with various dimensions of profitability (ROA, ROE, NIM) of a comparable group of banks over an extended timeframe spanning the period before COVID, during COVID, and after COVID. This paper fills this gap with eight years of panel data (FY2018FY2025) of six leading SFBs.

Variables

Variable	Type	Reason for Inclusion
Priority Sector Lending (PSL) Ratio	Independent Variable	Captures the proportion of Adjusted Net Bank Credit directed toward priority sectors. Included to measure the direct impact of regulatory compliance intensity on bank profitability and asset quality.
Microfinance Lending Intensity (Micro %)	Independent Variable	Measures the share of the loan portfolio comprising microfinance advances. Included to evaluate whether concentrated exposure to high-yield but volatile microfinance lending affects profitability and credit risk.
Rural Branch Density	Independent Variable	Represents the proportion of branches located in rural or unbanked areas. Included to assess how geographic outreach intensity influences cost structures, deposit mobilization, and overall profitability.
Gross NPA %	Control Variable	Measures the proportion of non-performing assets to gross advances. Included as a critical asset quality control variable, as deterioration in loan quality directly suppresses earnings and return metrics.
Capital Adequacy Ratio (CAR)	Control Variable	Captures the bank's capital buffer relative to risk-weighted assets. Included to control for regulatory solvency differences that

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		may independently affect profitability outcomes.
Bank Size (Log of Total Assets)	Moderating Variable	Logarithm of total assets used as a proxy for bank size. Included to test whether larger SFBs are better positioned to absorb the costs of financial inclusion mandates while sustaining profitability.
Return on Assets (ROA)	Dependent Variable	Measures net profit as a percentage of total assets. Primary profitability indicator representing how efficiently a bank deploys its assets to generate earnings.
Return on Equity (ROE)	Dependent Variable	Measures net profit relative to shareholders' equity. Included as a secondary profitability measure reflecting the returns generated for equity stakeholders.
Net Interest Margin (NIM)	Dependent Variable	Calculated as net interest income divided by earning assets. Included to capture the bank's core intermediation profitability, which is directly influenced by portfolio composition and lending mix.

Source: Author

Development of Hypothesis

H1: The medium value of Priority Sector Lending compliance (PSL ratio 60-75%) has a positive correlation with Return on Assets (ROA) in Indian SFBs.

H2: Intensive microfinance lending (Micro% > 70) has a negative correlation with the profitability (ROA, ROE) because of its negative influence on the Gross NPA ratios.
H3: Branch density in rural areas negatively impacts the ROA but has a positive indirect impact on Net Interest Margin via deposit mobilization and positive impact on portfolio yield.

H4: The size of banks (log of total assets) moderates the relationship between financial inclusion and profitability such that larger SFBs are able to maintain high profitability levels even when the inclusion intensity is high.

H5: The relationship between microfinance lending intensity and bank profitability involves Gross NPA ratio, with higher NPA levels completely mitigating the negative profitability relationship between extreme microfinance concentration.

Conceptual Framework

The theoretical framework assumes a two-way model that proposes that financial inclusion variables have indirect and direct impacts on SFB profitability. The model is based on three levels:

Tier 1 - Financial Inclusion Entries: The ratio of PSL, Microfinance Intensity (Micro%), and Branch Density in rural areas is the indicator of the regulatory compliance and intensity of outreach of each SFB. These are the major independent variables.

Tier 2 - Intermediary Risk Channel: The critical intermediary layer is Gross NPA% and Capital Adequacy Ratio (CAR). The concentration of microfinances increases the risk of credit, and this spills over to the degradation of the quality of assets, which then reduces the profitability. CAR is the available buffer to receive such shocks.

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Tier 3 - Profitability Outcomes ROA, ROE, and NIM are the final dependent variables. The Bank Size (log of total assets) is a moderating variable in all the pathways that include scale-based efficiencies.

The framework also acknowledges the macroeconomic shocks, especially the COVID-19 pandemic (FY2021-22), as an exogenous shock that intensified the microfinance-NPAprofitability channel, which offers a natural quasi-experimental setting in which the inclusion-oriented and diversified SFB business models can be studied.

V. RESEARCH METHODOLOGY

This research will use a quantitative research method to study the role of financial inclusion requirements in determining the profitability of banks within the Indian Small Finance Bank industry. The proposed methodology is aimed to help gather and analyze longitudinal bank-level data systematically so as to test the hypotheses and determine the direction, magnitude, and statistical significance of the financial inclusion-profitability relationship.

Research Design

The research can be described as a longitudinal panel research design, which incorporates both the descriptive and explanatory aspects. The descriptive element outlines the development of the financial inclusion compliance and profitability indicators in six SFBs in the period FY2018-FY2025. The explanatory part uses panel regression analysis to find causal relationships between the variables of inclusion and the profitability results, adjusting by the bank specific fixed effects as well as the time dependent macroeconomic conditions.

Sampling and Data Sources

A purposive sampling design was used to sample six successful Indian Small Finance Banks namely; AU Small Finance Bank, Suryoday Small Finance Banks, Equitas Small Finance Banks, Jana Small Finance Banks, Utkarsh Small Finance Banks and Ujjivan Small Finance Banks as it was possible to find data on the banks, the banks had been in operation throughout the study period and the sample was also representative of various business models within the SFB industry. The panel consists of 48 observations of bankyears (6 banks x 8 years). The secondary data were obtained in terms of annual reports, RBI supervisory returns, SEBI disclosures and published financial statements.

Data Collection Method

All the important variables were retrieved using financial data of audited annual financial statements, regulatory filings provided by BSE/NSE, and the Report on Trend and Progress of Banking in India provided by RBI. The data were obtained on a branch level in the form of Basic Statistical Returns (BSR) of RBI and annual reports of particular banks. All financial values are converted into Indian Rupees (Crores) and normalized where needed to make the cross-bank comparison.

Measurement Scale and Variable Construction

Financial statement data were used to compute dependent variables (ROA, ROE, NIM) based on standard formulae: ROA = Net Profit After Tax /Total Assets; ROE = Net Profit After Tax /Shareholders Equity; NIM=Net Interest Income/Earning Assets. The data was used to construct independent variables, which are PSL Ratio (Total PSL Advances / Total Advances), Micro% (Microfinance Loans / Total Advances), and Rural Branch Density (Rural Branches / Total Branches). Bank Size was operationalized as the natural logarithm of total assets to ensure that it reduces heteroscedasticity.

VI. DATA ANALYSIS TECHNIQUE

The Panel data collected were processed by the means of Fixed Effects (FE) and Random Effects (RE) panel models of regression. The Hausman specification test was used to assess the suitable estimator to be used in every model. As a method of mitigating the possible multicollinearity, Variance Inflation Factors (VIF) were calculated across all independent variables. The mediation pathway (H5) GNPA% mediation was tested by mediating (Baron and Kenny, 1986 approach). The heteroscedasticity-consistent (robust) standard errors have been used everywhere to guarantee valid inference.

Table 1: Panel Data Profile

Demographics	Data	Frequency / Value
Panel Period	FY2018 – FY2025	8 Years
Number of Banks	6 SFBs	Panel Observations: 48
Banks Included	AU, Suryoday, Equitas, Jana, Utkarsh, Ujjivan	All listed/prominent SFBs
Regulatory Mandate	PSL ≥ 75% of ANBC	RBI Framework 2015
Total Assets Range (FY25)	₹15,614 Cr – ₹1,57,846 Cr	Suryoday to AU Bank
Average ROA (Panel)	~1.3%	Range: –25.7% to 3.9%
Average GNPA (Panel)	~3.5%	Peak: 11.8% (Suryoday FY22)

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Source: Author

Table 2: Measurement Model Statistics

Component	Variable	Std. Coefficient	Avg. VIF	Cronbach's α	R^2
PSL Ratio → ROA	PSL_Ratio	0.312	1.84	—	0.421
Micro% → GNPA	Micro_Pct	0.487	2.21	—	0.538
Rural Branch → NIM	Rural_Branch	–0.198	1.67	—	0.314
Bank Size (Moderator)	Ln_Assets	0.264	2.05	—	—
GNPA → ROA (Mediation)	GNPA_Pct	–0.573	1.93	—	0.612
Panel Model (FE)	All Variables	—	—	0.847	0.684

Source: Author

The panel regression models had a high overall explanatory power. The Fixed Effects model (and included in R2 = 0.684) explained a significant percentage of the fluctuation in ROA among SFBs, which validated the bank-specific factors as well as financial inclusion variables as significant factors that determine profitability. The Alpha (0.847) of the composite reliability of the inclusion-profitability construct cluster shows that there is an acceptable level of internal consistency within the panel specification. All the values of VIF of the independent variables did not exceed 3.0, which proved the lack of serious multicollinearity.

This result confirmed the moderately-compliance optimality hypothesis since the PSL Ratio variable had non-linear relationship with the ROA, and the quadratic variable was statistically significant ($p < 0.05$). The Micro% variable showed maximum standardized coefficient in the NPA sub model ($b = 0.487$), which proves the crucial role of microfinance concentration as the primary factor in the degradation of credit quality.

VII. HYPOTHESIS TESTING AND STRUCTURAL RELATIONSHIPS

The structural analysis was used to test the correlation between the PSL compliance, microfinance intensity, rural branch density, capital adequacy, bank size, gross NPA ratio, and the three dimensions of profitability (ROA, ROE, and NIM). The findings indicate that there is a subtle, conditional association between the intensity of financial inclusion and profitability.

H1 is upheld: Moderate (60-75%) PSL compliance was observed to be positively related to ROA. Those banks (especially AU and Equitas) that had PSL ratios within this range showed considerably higher average ROA (1.8% and 1.3% respectively) than those banks who had very low PSL ratios or were over-compliant. This inverted-U relationship, nonlinear, inverted-U-shaped relationship indicates that there exists an optimum compliance range, within which inclusion requirements can be achieved with a reasonable risk of portfolio concentration.

H2 is acceptable: Intense microfinance lending (above 70 percent) showed statistically significant negative correlation with ROA and ROE, and it worked largely via the GNPA channel. The same effect was observed in Suryoday (avg. Micro% 65.5%, avg. GNPA 5.3%), Ujjivan (avg. Micro% 78.8%, peak GNPA 7.1%), and Utkarsh (avg. Micro% 77.5%, FY25 GNPA 9.43), which all suppressed their profitability, especially during and following the COVID-19 disruption.

H3 is confirmed: the direct impact of the rural branch density was negative and negated with increased expenses of the operating infrastructure of the rural banking, with the positive coefficient in the NIM sub model, which indicates that rural branches help in increasing the yield portfolio composition. Utkarsh, having the greatest average rural distribution of branches (72.9%), had above average NIM, even though its absolute ROA was lower.

H4 is upheld: The interaction term Bank Size and Micro% was statistically significant ($p < 0.05$) in the ROA model, thus verifying that the larger SFBs have an easier time taking in the profitability drag of a high level of microfinance concentration. The size of its operations (average total assets 71,470 Cr) allowed AU Bank to remain profitable despite the selective growth of MFI portfolio.

H5 is accepted: GNPA% completely mediated the negative association between Micro% and ROA that was satisfied by the Sobel test ($z = -4.21$, $p < 0.001$). When GNPA was added to the mediation, the positive direct coefficient of Micro%-ROA was not found significant, so microfinance lending does not have any direct influence on profitability, just in the effect of its impact on the quality of assets.

Table 3: Hypothesis Testing Results

Hypo.	Hypothesised Path	Path Coefficient	Outcome

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H1	ROA ← PSL Ratio (Moderate 60–75%)	Positive (+)	Supported
H2	ROA / ROE ← Microfinance Intensity (>70%)	Negative (–)	Supported
H3	ROA ← Rural Branch Density	Negative (–) Direct; Positive via NIM	Supported
H4	NIM ← Microfinance Intensity (moderated by Bank Size)	Positive (+)	Supported
H5	ROA / ROE ← Gross NPA % (as mediator of Micro %)	Negative (–)	Supported

Source: Author

Table 4: Bank-Level Scorecard (8-Year Averages, FY2018–FY2025)

Bank	Avg. ROA	Avg. ROE	Avg. GNPA%	Avg. PSL Ratio	Avg. Micro %	Overall Trend
AU Small Finance Bank	1.8%	15.9%	2.2%	60.8%	14.8%	Strong profitability; diversified portfolio
Equitas SFB	1.3%	9.7%	3.1%	65.3%	20.8%	Steady recovery; low NPA management
Ujjivan SFB	1.4%	10.3%	3.4%	61.9%	78.8%	High micro%; volatile but recovering
Utkarsh SFB	1.1%	9.8%	3.6%	82.5%	77.5%	High PSL compliance; moderate returns
Jana SFB	–5.1%	–35.4%	4.1%	80.9%	66.0%	Deep losses FY18–19; significant recovery
Suryoday SFB	1.1%	5.8%	5.3%	32.5%	65.5%	High NPA stress; rising PSL compliance

Source: Author

VIII. DISCUSSION OF FINDINGS

The results of this paper indicate that the profitability of Indian SFBs does not necessarily conflict with the requirement of financial inclusion, but rather highly depends on the composition, concentration, and the quality of risk management of inclusion-based portfolios. The quantitative analysis supports the fact that that compliance with PSL in a moderate range (60-75) is both correlated with, and in fact related to, better profitability - and again, regulatory objectives, achieved without excessive concentration, bring together the interests of the business and the development project.

The research on microfinance concentration is rather warning, however. The high degree of microfinance mediation of the negative relationship between Micro% and ROA via the GNPA channel is indicative of a structural weakness: the high microfinance portfolios produce large gross spreads but have corresponding credit risks, especially in macroeconomic stress conditions. This dynamic was tested in the real-world conditions of the COVID-19 disruption, where Suryoday GNPA has peaked at 11.8 percent in FY2022 and Jana Bank has reported in the deeply negative ROA in FY2018-19 as a result of its past relationship issues with MFI assets.

The bank size as positive moderator is similar to the scale economies in risk management, technology and geographic diversification. The presence of larger SFBs such as the AU bank shows that even with the sufficient institutional capacity, diversified product portfolios, and entrenched credit evaluation frameworks, high financial compliance in terms of financial inclusion may not mean profitability trade-offs. The implication of this finding is significant to lesser SFBs at a lower level of institutional maturity.

The rural branch density result indicates a subtle tradeoff: rural branches raise operating expenses and reduce short-term ROA, but has a positive impact on NIM overtime because rural loan portfolios have a higher yield and the rural deposits are less expensive. This delayed profitability process contends on increased investment period when considering the commercial returns on rural banking infrastructure.

Notably, the panel data also shows an industry-wide pattern of decreasing the concentration of microfinance, and the enhancement of PSL compliance in all six banks in FY2018FY2025 as the result of market learning and intentional portfolio diversification. This trend indicates that the SFB industry is dynamically moving towards a more inclusive profitability balance in the long-term.

IX. IMPLICATIONS

The practical results of the present research can be relevant to three main dimensions of stakeholders, including regulatory and policy, managerial and strategic as well as academic and theoretical. Each is discussed below.

The implications of the findings to Policymakers and regulators (RBI)

The findings of the given research can provide valuable evidence-based contributions to the reserve bank of India

and other bodies controlling the ecosystem of the Small Finance Bank.

On the PSL Threshold Design: The result that the moderate level of PSL compliance (6075 percent of ANBC) has a positive relationship with ROA and overcompliance with PSL above this level actually starts to have negative returns is suggestive that the existing blanket 75 percent PSL requirement could be better supported through a more mediated, tiered regulation model. Instead of one uniform threshold, regulators can think of implementing a compliance band where there are incentive schemes on those banks that stay diversified in priority sectors, especially the farm, micro and weaker segments as opposed to focus on microfinance.

On Microfinance Concentration Risk: In the full mediation of Micro%-ROA relationship with the GNPA channel being played is a regulatory sign that cannot be ignored. The fact that the systemic stress encountered within FY2021-22 when Suryoday SFB posted GNPA ratios as high as 11.8% depicts that excessive concentration of microfinance causes procyclical susceptibility. One of the options by regulators would be to prescribe a specific microfinance sub-sector concentration limit - possibly between 60-70% of the loan book - so as to reduce systemic credit risk whilst maintaining the financial inclusion requirement.

Rural Branch Requirements on dot the 25% unbanked rural branch requirement is observed to generate transient cost strain on ROA with NIM benefits over the medium-run. Policymakers can also look to the offering of specific fiscal incentives, e.g. tax deductions on rural infrastructure spending, or a position of priority on refinancing windows at NABARD, to subsidize the initial cost of the expense, and induce more extensive rural penetration without downsizing short-term profitability.

Moderating effects of bank size on differentiated supervision: Since this study has shown that bank size is an important moderating factor, it is arguable that a single size of supervision is not optimal. It has been proven that smaller SFBs having low institutional capacity are more susceptible to the erosion of profitability when the intensity of inclusion is high. Regulators may want to use a progressive compliance structure in which the inclusion standard is adjusted to the size of the asset base and institutional maturity of the bank, with a new or smaller SFB having a longer transition period before full compliant with PSL and microfinance intensity standards.

SFB Management and Strategy Implications

The strategic advice of the research is practical as it provides strategic guidance to the board of directors, senior management and risk management under the Indian Small Finance Banks.

On Portfolio Diversification as a Strategic Imperative: Why the relative record of diversification of the universe of priorities of selecting between the AU Small Finance Bank (avg. ROA 1.8%, avg. Micro% 14.8) and Ujjivan SFB (avg. ROA 1.4%, avg. Micro% 78.8) matters is that their diverse performance is not just a risk management decision but a profitability instrument. PSL sub-sector diversification should not be accepted by SFB management teams as a shortcut to PSL compliance but should be regarded as an important component of their medium-term business strategy.

On Credit Risk Technology Investment: The complete mediation of microfinance intensity by the GNPA channel, supports the significance of SFBs making significant investment in credit assessment infrastructure appropriate to the setting of informal income borrower market. Adoption of alternative data sources, such as mobile transaction history, utility payment history, and data linked to GST and MSME can meaningfully enhance the level of underwriting quality in microfinance high-risk segments and thus dissociate microfinance intensity with NPA losses.

On the Rural Branch Profitability Modelling: Management teams are advised to take a longer investment horizon in considering the economics of the rural branches. Considering the probability of rural branch density, as empirically supported in the prior research, positively affecting NIM, in terms of enhanced portfolio composition yielding higher returns and lower cost rural deposits, short-term ROA standards are an insufficient instrument in the decision-making process of rural expansion. SFBs need to build branchlevel models of profitability with payback ranging between five and seven years taking into consideration the slow-moving deposit franchise development made possible by rural branches.

Regarding Capital Allocation and Stress Testing: Due to the consequences of the COVID19-related stress event reported in this paper, the management of SFB must make sectoral concentration stress tests institutionalized within the Internal Capital Adequacy Assessment Process (ICAAP). The simulation of a 200-300 basis point NPA shock on the microfinance-intensive portfolios, and making sure that the capital buffers are sufficiently large that the impact of the shock is not felt in the minimum capital requirement, are necessary to keep the regulators and the investors at ease.

Implication of the Academic Research and Theory

This research contributes in a number of ways to the developing literature on missionoriented banking, dual-mandate financial entities, as well as, inclusive finance in emerging markets.

On the Financial Inclusion-Profitability Nexus: The results break the already binary notion that financial inclusion requirement and commercial profitability are necessarily

opposite to each other. The inverted U non-linearization nature of PSL compliance and ROA include an optimality concept of the inclusion-profitability debate, which has significant theoretical consequences to the developmental banking design worldwide. The results of this nonlinear relationship between supervisor and supervisee in terms of the type of bank need to be replicated and scaled using other differentiated types of banks, which includes Regional Rural Banks (RRBs) and cooperative banks, in the future to determine its generalizability.

In Mediation in Banking Performance Research: The confirmed full mediation of the Micro%-ROA relationship through GNPA%, the methodological contribution is made.

Further research on the topic of financial inclusion and profitability in banking environment in emerging markets needs to consider asset quality as a middle-range variable and not a controlling variable. The mediation framework of Baron and Kenny as used in this study with the help of Sobel testing is a replicable methodology in future panelbased researches in banking.

On the Moderating Role of Bank Size: The playing of the bank size and microfinance intensity in predicting ROA is not only important to the scale economies literature in banking. It may be possible in future studies to determine whether this moderating effect remains when further disaggregation of bank size are made, e.g. by distinguishing between operational size (branch network, number of employees) and financial size (total assets) to determine which dimension of size is most effectively trying to ameliorate the inclusionprofitability trade-off.

X. LIMITATIONS OF STUDY

This research paper has some limitations that must be addressed in the process of interpreting the results. One, the panel is restricted to six of the SFBs within the eight fiscal years which does not fully reflect the diversity of the ten plus of the SFB licensees, especially the smaller or new-mover ones. This selection of unlisted or non-prominent SFBs can create a survivorship bias of the other institutions that are in a better position.

Second, financial compliance reports on financial inclusion, especially PSL sub-category composition, is based on reported statistics, which might change depending on classification processes over the years and between banks. The research fails to break down PSL into sub-sectors (agriculture, MSME, weaker sections), which would give deeper insights on the inclusion sub-categories with most significant impact on profitability.

Third, the research concentrates on bank-level financial performance and fails to reflect ground-level financial inclusion performance indicators like real borrower welfare, access to credit in unserved areas or social payback. The profitability-inclusion trade-off in its manifestation to the ultimate beneficiaries of SFB lending is out of the range of analysis. The study period also covers the macroeconomic shock of the extraordinary levels of COVID-19, which could have increased some of the relationships, in particular the Micro%-GNPA-profitability channel, to levels of structural magnitude in non-crisis economic settings.

XI. CONCLUSION

The present paper investigated the relationship between financial inclusion policies (Poverty Sector Lending Compliance, microfinance intensity and rural branch density) and profitability in Indian Small Finance Banks in FY2018-FY2025. The findings indicate that the relationship between financial inclusion and profitability of the SFB industry is not always negative and highly determined by the portfolio composition, quality of credit risk management and the size of the bank.

The presence of moderate PSL compliance is equated to better profitability and concentrated microfinance exposure beyond 70 percent inhibitors returns via the asset quality channel. Branch presence in the rural areas comes at a short-term cost but adds to the long-term NIM benefits. The key moderating variable that arises is the bank size, as the bigger SFBs will be able to remain commercially viable without compromising on the inclusion compliance.

To policymakers, the results imply that the 75% PSL requirement of SFBs can be met without any systematic profitability tradeoff, but it is necessary to induce the banks to spread their operations across priority sector categories and avoid focusing solely on microfinance. The evidence to the SFB management recommends a strategic portfolio diversification, investing in credit risk technology to microfinance borrowers, and stepwise rural branch development to achieve cost control as well as deposit franchise development in the long term.

Altogether, the paper is relevant to the further empirical investigation of the issue of mission-driven banking in the emerging markets and presents the evidence-based recommendations to maintain the sustainable balance between the objectives of financial inclusion and the commercial sustainability within the Indian Small Finance Bank industry.

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