

EXAMINING THE PROFITABILITY DYNAMICS OF SMALL FINANCE BANKS IN THE INDIAN FINANCIAL LANDSCAPE

Manash Pratim Goswami¹, Dr. Prerana Sarma², Pratyashi Tamuly³

¹Assistant Professor, Department of Banking, CKB Commerce College, Jorhat

²Assistant Professor, Department of Accountancy, CKB Commerce College, Jorhat

³Assistant Professor, Department of Accountancy, J.D.S.G College, Bokakhat

Abstract

This study aims to examine the profitability dynamics of Small Finance Banks (SFBs) in the Indian financial landscape and identify the key determinants of profitability specific to this emerging sector. The study utilizes panel data regression models to analyse the impact of various factors, including bank size, credit risk, liquidity, capital adequacy, priority sector lending, and operating efficiency, on the profitability of SFBs. Balanced panel data were collected for six SFBs for five years (2018-2022). The empirical results indicate that bank size and non-performing assets significantly influence the profitability of SFBs. Larger banks within the sample tend to be more profitable, highlighting the advantages of economies of scale. Moreover, a higher proportion of non-performing assets relative to advances adversely affects profitability, emphasizing the importance of effective credit risk management. This study contributes to the existing literature by providing original insights into the profitability dynamics of SFBs in India, which have received limited attention in previous research. The findings of this study provide valuable insights for policymakers, regulators, and SFBs in making informed decisions and developing strategies to enhance the profitability and overall financial health of SFBs. The findings of this study have social implications as the profitability of SFBs can lead to increased financial inclusion and access to credit for underserved sections of society, fostering economic development and social welfare.

Keywords: Small Finance Banks (SFBs), Profitability, Performance, Panel Data Regression, Return on Assets, Return on Equity, Net Interest Margin

JEL Classification: G21, G39

Introduction

A key characteristic that sets apart the Indian banking sector from banking sectors in many other nations is the promotion of multiple differentiated banking institutions that meet the varied requirements of various economic sectors (Jayadev et al., 2017). Differentiated banks, in contrast to universal banks, provide specialized banking services within specific verticals, thus distinguishing themselves from the broader range of services offered by universal banks. In September 2015, RBI granted provisional licenses to ten organizations for the establishment of a new category of differentiated banks known as Small Finance Banks (SFB).

SFBs are niche banks that offer affordable services to the unserved population with the goal of providing an institutional framework to mobilize funds from rural and semi-urban areas and give loans to viable economic entities in local areas. In India, SFBs are mandated to lend a significant portion (75%) of their loan portfolio to priority sectors, including agriculture, small businesses, microenterprises, and other sectors that contribute to economic development. This ensures flow of credit to sectors that often face challenges in obtaining finance from traditional banks. The majority of SFBs have contributed significantly to developing sustainable livelihoods, disseminating financial literacy, and promoting digital financial inclusion in India

(Srikanth et al., 2021). The performance evaluation of SFBs is of critical importance to assess their effectiveness in achieving their social and economic objectives.

In the pursuit of financial inclusion, the profitability of Small Finance Banks remains a critical concern. While the primary objective of SFBs is to serve the underserved, sustainable profitability is essential for their long-term viability, operational efficiency, and ability to fulfil their social mandate effectively. Therefore, understanding the profitability dynamics of SFBs is paramount for various stakeholders, including policymakers, investors, researchers, and the banking industry. This study seeks to provide valuable insights into the overall financial health of SFBs and their ability to generate sustainable profits by delving into the key determinants of profitability, such as asset quality, liquidity, capital adequacy, and operational efficiency. The findings of this study will not only contribute to the existing literature on banking profitability but also provide valuable insights for policymakers and regulators to fine-tune the operational framework of SFBs.

Literature Review

The literature review section aims to establish a theoretical foundation and highlight the knowledge gap that exists in relation to Small Finance Banks operating in India.

Small Finance Banks (SFBs) in India

SFBs have been introduced in India as a means to achieve financial inclusion and address the challenges faced by existing differentiated banks. Kishore (2015) argues that the establishment of SFBs is necessary due to the failure of existing banks in producing the anticipated results. However, implementation of SFBs comes with its own set of challenges. Jayadev et al. (2017) highlights the immediate hurdles faced by SFBs, including the development of liability products, regulatory compliance, digital connectivity with rural customers, and the creation of affordable banking solutions. Despite the challenges, SFBs have shown promising financial positions over time. Ravikumar et al. (2020) indicate that SFBs have demonstrated sound financial positions as reflected in their NPA ratio and capital adequacy ratio (CAR). Additionally, Srikanth et al. (2021) highlight the positive developments brought about by SFBs in terms of financial inclusion, rural development, and providing loans to priority sectors. In terms of overall performance, Ray & Shantnu (2021) used the CAMEL rating to evaluate ten SFBs. While there were variations in capital adequacy, asset quality, management efficiency, and liquidity among the banks, Fincare SFB emerged as the best performer while Jana SFB was identified as the worst performer. Ali & Kaveri (2021) provided a comprehensive analysis of SFBs, highlighting the factors that influence their Return on Assets (ROA). The study reveals that the NNPA ratio and CIR have an inverse relationship with ROA, while the non-interest income ratio and bank size have a direct relationship.

Profitability Analysis of Banks

Bansal et al. (2018) conducted a panel regression analysis to examine the relationship between net profit margin and ROA along with various independent variables and opined that Interest Expended, Interest Earned and Credit Deposit Ratio have a negative impact on profitability. Mehzabin et al. (2023) examined how capital structure, operating efficiency, and non-interest income impact profitability measured by ROA and ROE of the banking sector in 28 Asian countries. The results indicate that debt financing and effective management of operating expenses and costs contribute to higher profitability. Sinha & Sharma (2016) measured profitability using the ROA metric and found that bank-specific variables such as the capital-to-assets ratio, operating efficiency, and diversification have a significant and positive impact, while, credit risk, as indicated by provisions for bad debts, has a negative effect. Pervez

& Ali (2022) found that the size of banks and cost inefficiency did not have a significant impact on the performance of public sector banks. Al-Homaidi et al. (2018) used Net Interest Margin (NIM), in addition to ROE and ROA, as a measure of the profitability of commercial banks in India. The results revealed that bank size, assets management ratio, assets quality ratio, and liquidity ratio all had a noteworthy positive influence on NIM.

It is important to note that the results of studies conducted on banks' profitability determinants provided mixed results and literature specific to SFB is very limited, which creates a notable gap in our understanding of the profitability dynamics unique to this emerging sector. Accordingly, the current study seeks to analyze the profitability of Indian SFBs by empirically assessing bank-specific drivers.

Objectives of the Study

The following research objectives are framed for the study:

- i. To investigate the key determinants of ROA of SFBs operating in India.
- ii. To explore the key determinants of ROE of SFBs operating in India.
- iii. To examine the key determinants of NIM of SFBs operating in India.

Significance of the Study

Small Finance Banks (SFBs) are new banking segment which lacks longitudinal researches, thus by exploring profitability drivers of SFBs over a 5-year period, this study fills a huge research gap in the banking literature. Delving into financial health of SFBs which are gaining recognition worldwide, this study makes significant contribution to the academic understanding of this model's financial performance.

The study stands significant considering the niche banking segment that the authors delve into, which is Small Finance Banks. SFBs are innovative banks, created for the purpose of increasing financial inclusion by catering to the needs of that section of the population which remains unserved like the farmers, unorganized sector, micro or small businesses. Also, SFBs are coupled with significant priority sector lending norms. Assessing their financial health helps to analyze the effectiveness of this differentiated banking model. Also, this study is important to understand whether the pursuit of financial inclusion is sustainable from a profitability perspective.

The study also stands significant considering it offers regulators like Reserve Bank of India and other policymakers' significant insights on how various factors interact with the profitability of SFBs as the regulators including the government have a keen interest in the success of Small Finance Banks. This study will also assist the regulators by offering empirical evidence in assessing the effectiveness of various policies framed for SFBs.

Conceptual Framework

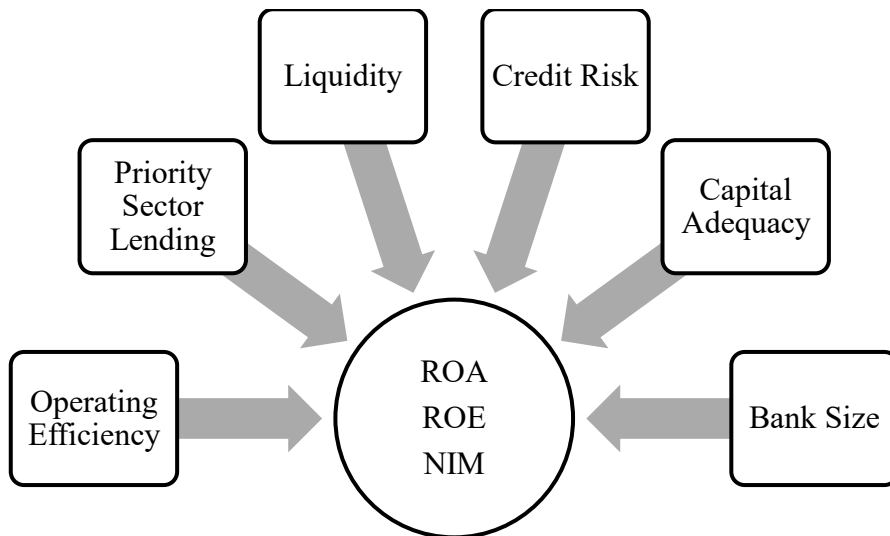
The profitability of banks is influenced by both internal factors (such as size, capital ratio, etc) and external factors (such as inflation, interest rates, and economic growth). This study specifically examines how internal factors affect profitability of SFBs as external factors are common across different bank categories (Seenaiah et al., 2015). The study employs different performance indicators to evaluate the profitability of SFBs which are listed below:

Table 1: Description of Selected Variables

Variable	Acronym	Description	Source
<i>Dependent</i>			
Return on Assets	ROA	Percentage of net profit to the total assets	Al-Homaidi et al., (2018)
Return on Equity	ROE	Percentage of net profit to the total equity	
Net Interest Margin	NIM	Net interest income to total assets	
<i>Independent</i>			
Bank Size	LogBS	Natural logarithm of total assets	Chaudhary & Kaur (2021)
Capital Adequacy	CAR	(Tier I capital + Tier II capital)/Risk-weighted assets	Bansal et al., (2018)
Credit Risk	CRI	Net Non-Performing Assets to Net Advance (NNPANA)	Pervez & Ali (2022)
Liquidity	CDR	Cash Deposit Ratio	Authors' Own
Operating Efficiency	OE	Operating expense to total assets	Pervez & Ali (2022)
Priority Sector Lending	PSL	Percentage of priority sector advances to net advances	Seenayah et al., (2015)

Source: Compiled by the authors

Figure 1: Conceptual Framework of the Study



Source: Authors' self-construct

Variable Definition

Dependent Variables: Commonly used proxies to measure profitability in the majority of prior profitability studies of banks are ROA, ROE, and NIM. This study uses the following proxies for profitability:

- *Return on Assets (ROA):* ROA provides insights into a bank's efficiency in generating profits from its assets.
- *Return on Equity (ROE):* ROE provides valuable insights into how effectively a bank utilizes its shareholders' investments to generate earnings.
- *Net Interest Margin (NIM):* NIM shows how much money a bank earns in interest on loans compared to how much it pays in interest on deposits.

Independent Variables

- *Bank Size:* The impact of bank size on profitability is influenced by a combination of factors such as economies of scale, diversification, market power, etc. But excessive growth can hinder a bank's profitability due to increased complexity, diminishing returns, regulatory constraints, and systemic risks.
- *Capital Adequacy:* It is measured by Capital Adequacy Ratio (CAR). CAR represents the proportion of a bank's capital to its risk-weighted assets and serves as a measure of a bank's ability to absorb potential losses.
- *Credit Risk:* Credit risk is the likelihood that a borrower would default on a loan, causing a financial loss for the bank. In this study, Net NPA to Net Advances (NNPANA) is used to measure the credit risk of banks.
- *Liquidity:* The present study used Cash-Deposit Ratio (CDR) as a measure of the liquidity position of banks. While a higher CDR can enhance a bank's liquidity and stability, it may hurt profitability due to reduced lending capacity.
- *Priority Sector Lending (PSL):* The PSL framework mandates banks to lend to sectors that may have difficulties accessing credit, such as small farmers, rural artisans, and entrepreneurs from economically weaker sections of society. Lending to priority industries is thought to have a negative effect on bank profitability (Seenaiyah et al., 2015), however, it contributes to overall economic growth (Gaur & Mohapatra, 2021b).
- *Operating Efficiency:* Operating efficiency is measured by dividing operating expenses by total assets. Thus, the lower the ratio, the better it is. Operating efficiency refers to the ability of a bank to generate revenue while effectively managing its operating expenses.

Research Methodology

Data Source and Sample

Data is collected from RBI database called the "Database of Indian Economy". It is regarded as India's most reliable database for banking information (Al-Homaidi, et al., 2018). The present study covers 6 SFBs out of 12 SFBs (as of March 31, 2022) and a period of 5 years from 2018 to 2022. The reason behind this is that a balanced panel of data was aimed for the study. Balanced Panel data is generally considered to be better as the availability of uniform

data reduces heterogeneity in the data (Stack Exchange Inc, 2013). The names of the sample banks are stated below in Table 2.

Table 2: Sample Banks

1. Au Small Finance Bank Limited	4.Suryoday Small Finance Bank Limited
2.Capital Small Finance Bank Limited	5.Ujjivan Small Finance Bank Limited
3.Equitas Small Finance Bank Limited	6.Utkarsh Small Finance Bank Limited

Source: Compiled by the authors

Model Specification

To achieve the study's objectives, the study constructs the following econometric model using panel data estimations:

$$\text{Profitability}_{it} = \alpha + \beta_1(\text{CAR}_{it}) + \beta_2(\text{LogBS}_{it}) + \beta_3(\text{CRI}_{it}) + \beta_4(\text{CDR}_{it}) + \beta_5(\text{OE}_{it}) + \beta_6(\text{PSL}_{it}) + \varepsilon$$

Where, Profitability is the Dependent variable, ‘i’ refers to the banks, t refers to the period. Profitability includes Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM), CAR is capital adequacy ratio, LogBS is natural logarithm of bank’s total assets, CRI is credit risk, CDR is cash deposit ratio, OE is operating efficiency, PSL is percentage of priority sector lending to net advances is the independent variable, ε is the error term, α is the constant term, and β_1 to β_6 are the coefficients of determination.

Econometric Tools

The data used in the study is panel data and hence Panel data analysis is done. There are three types of Panel Data models, namely Pooled OLS, Fixed Effect Model and Random Effect Model (Fanbasten & Escobar, 2016). Pooled OLS regression is used to estimate the relationship between one or more independent variables and a dependent variable in a pooled cross-sectional and time-series dataset. It ignores the heterogeneity that exists between entities and between time periods. To address this problem, Fixed Effect Model (FEM) and Random Effect Model (REM) are available. REM, in contrast to Pooled OLS Regression, considers potential entity heterogeneity by assuming that each entity has a unique effect that is uncorrelated with the independent variables (Gjeka, 2017). On the other hand, entity-specific fixed effects are incorporated into the regression analysis by FEM in order to account for entity-specific heterogeneity.

Selecting the appropriate model is important as the relationship between dependent and independent variables is based on it. To use Pooled OLS, the assumption of equal intercepts of all entities should be met. To choose whether Pooled OLS is appropriate for the study, the Bruesch-Pagan Test (BP test) is used. The null hypothesis of the BP test states that variances of the random effect is zero, meaning Pooled OLS is an appropriate estimator of the data. The alternate hypothesis states that the variances of the random effects is not zero, meaning Fixed Effect or Random Effect model would be more appropriate than Pooled OLS model. If the p-value of the BP test is greater than 0.05, null hypothesis could not be rejected, meaning Pooled OLS model would be more appropriate. Conversely, if p value is smaller than 0.05, null hypothesis is not accepted, then FEM/REM would be better for the study. Amongst FEM/REM, the appropriateness of the model is decided by the Hausman Test (Seenaihet al., 2015). The next section outlines the various assumptions that need to be tested before applying Panel Data analysis and contains inferences drawn from various Panel data analyses to achieve the objectives of the study. Also, the study’s primary threshold for statistical significance and for

drawing conclusion, is set at the 5% significance level. This aligns with common practices in social science studies and ensures a higher level of confidence in the observed effects.

Empirical Results and Discussion

Testing of Assumptions

The four key assumptions that are vital to Panel data analysis are no multi-collinearity, no heteroscedasticity, no unit root (stationery data) and no auto correlation (Boadi, 2015).

- Multi-collinearity means the independent variables in the study are highly correlated with each other (Boadi, 2015). To check multi-collinearity, Variance Inflation Factor (VIF) needs to be used (Gaur & Mohapatra, 2021). Data should have a VIF less than 10 to be devoid of multi-collinearity. The results of the multi-collinearity test are tabulated below:

Table 3: Multi-Collinearity Test

Variable	VIF	1/VIF
Capital Adequacy Ratio	3.94	0.25
Priority Sector Lending Ratio	2.8	0.36
NNPANA	1.72	0.58
Operating Efficiency	1.27	0.79
Ln Bank Size	1.24	0.80
Cash Deposit Ratio	1.18	0.85
Mean VIF	2.02	

Source: Compiled by the authors

The above table reflects that the VIF values of all the independent variables are less than 10, with a mean VIF of 2.02, which shows that the data is free from multi-collinearity and is fit for Panel Data analysis.

The next assumption is no auto-correlation. Auto-correlation means that the error terms are correlated over time (Liu, 2021). The Durbin-Watson statistic is used to detect the presence of auto-correlation in the data (Chaudhary & Kaur, 2021). A value less than 1 and greater than 3 in a Durbin Watson test is a concern for a study (Field, 2009). The value of Durbin Watson Statistics in all the models is clubbed in Table 4.

Table 4: Durbin-Watson Statistic

Models	Durbin-Watson Statistic
ROA	1.95
ROE	1.77
NIM	1.96

Source: Compiled by the authors

The values of the Durbin Watson statistic for all three models are all within the acceptable range of 1 to 3. Thus, auto-correlation doesn't pose a problem in this study.

The third assumption is that there should be no heteroscedasticity in the data. Heteroscedasticity is a problem when the variances of the error components or residuals differ between observations (Boadi, 2015). To detect the presence of heteroscedasticity, the Breusch-Pagan test (BP Test) is used (Gaur & Mohapatra, 2021). The null hypothesis of the BP test is that error variances are equal. Below in Table 5, the values of the BP test for the three models are displayed.

Table 5: Bruesch Pagan Test for the Models

Lagrange Multiplier Tests for Random Effects			
Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided			
ROA			
	Cross-section	Time	Both
Breusch-Pagan	2.686496	0.027548	2.714043
	(0.1012)	(0.8682)	(0.0995)
ROE			
	Cross-section	Time	Both
Breusch-Pagan	2.282776	0.025133	2.307909
	(0.1308)	(0.8740)	(0.1287)
NIM			
	Cross-section	Time	Both
Breusch-Pagan	0.130487	0.248978	0.379465
	(0.7179)	(0.6178)	(0.5379)

(Values in brackets signify the p-values)

Source: *Compiled by the authors*

The p value (probability value), in all the three cases are greater than 0.05, thus null hypothesis of equal variances cannot be rejected. It means that there is no heteroscedasticity in the data. The assumption is thus met.

The last assumption is testing whether data is stationery. It is tested generally to see if the mean, variance, and covariance of a time series are affected by the passage of time. However, when period of study (T) is lesser than number of entities (N), then the problem of Unit root doesn't exist (Wooldridge, 2010; Nawaz, 2018). Thus, unit root test need not be conducted in this study as T (study period) is 5 and N (number of banks) is 6. Unit root doesn't stand as a problem in this study.

Descriptive statistics

The analysis starts with discussing the descriptive statistics of the dependent and independent variables. Table 6 states the Descriptive statistics of the variables of the study.

Table 6: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
	<i>Independent Variables</i>				
Priority Sector Lending Ratio (PSL)	30	6.26	91.90	60.3067	24.85
Operating Efficiency	30	2.71	7.30	4.91	1.43
Cash Deposit Ratio (CDR)	30	2.12	13.82	5.71	2.89
Bank Size	30	2163.50	69077.80	16666.20	15371.46
Capital Adequacy Ratio (CAR)	30	16.40	51.47	24.82	7.77
NPA	30	.12	5.97	1.46	1.28
<i>Dependent Variables</i>					
ROA	30	-2.04	3.00	.99	1.23
ROE	30	-15.30	21.98	7.96	8.82
NIM	30	3.40	11.44	7.12	2.31

Source: *Compiled by the authors*

It is evident in table VI that there is a huge gap of minimum (6.2%) and maximum (91.9) values of PSL ratio. A high standard deviation (24.8%) shows the disparity of PSL ratio among the sample banks. The difference between minimum and maximum values of operating efficiency is not as huge as the PSL ratio. The same is supported by a lower standard deviation value of 1.43%. In case of Cash Deposit Ratio there isn't a noteworthy variation as is evident by a smaller standard deviation value. However, there is a huge difference between the minimum and maximum bank size. The huge standard deviation shows the disparity amongst the sample banks in terms of their assets. The mean Capital Adequacy Ratio is 24.82 and the range (difference between minimum and maximum values) of Capital Adequacy ratio is also a significant one. The NPA values aren't that huge. The mean NPA ratio is 1.46%, which is comparatively better than the overall banking sector of India.

For the dependent variables, the mean ROA is 0.99%, but some banks have had negative ROA during the study period. Also, some banks have had high ROA, like 3%, which shows disparity in ROA amongst the SFBs. ROE shows a dynamic picture too. During the study period, amongst the sample banks, some banks have had a negative ROE to the extent of -15.30% and there are banks that have had a significantly high ROE (21.98%). The standard deviation value of ROE depicts that the highest variation exists in ROE amongst the dependent variables. The average Net Interest Margin is 7.12%.

It can thus be concluded from the above analysis that amongst dependent variables, the highest mean and highest standard deviation are observed in ROE and amongst independent variables, the highest mean and highest standard deviation are observed in bank size.

Panel Data Analysis

After evaluating the initial results, the article continues by applying panel data models to estimate the profitability determinants of ROA, ROE and NIM, showcasing the results in tables 7, 8, and 9, respectively.

Table 7: Results of Panel Data Model—ROA

Dependent Variable: ROA				
Method: Panel Least Squares				
Sample: 2018 –2022, Periods included: 5				
Cross-sections included: 6				
Total panel (balanced) observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.104668	2.522780	-1.230653	0.2309
LOGBANKSIZE	0.561184	0.222625	2.520758	0.0191
CAR	0.079297	0.043713	1.814034	0.0827
NNPANA	-0.735256	0.174019	-4.225151	0.0003
CASHDEPORATIO	-0.122273	0.064249	-1.903094	0.0696
OE	-0.224129	0.133929	-1.673493	0.1078
PSL	-0.004190	0.011527	-0.363515	0.7195
R-squared	0.560116	Mean dependent var		0.993667
Adjusted R-squared	0.445364	S.D. dependent var		1.237727
S.E. of regression	0.921784	Akaike info criterion		2.875952
Sum squared resid	19.54277	Schwarz criterion		3.202898
Log likelihood	-36.13927	Hannan-Quinn criter.		2.980544
F-statistic	4.881087	Durbin-Watson stat		1.957517
Prob (F-statistic)	0.002373			

Source: *Compiled by the authors*

The initial model employs ROA for measuring bank profitability. The Pooled OLS method is used, as the BP test did not provide evidence to reject null hypothesis (table V). The empirical results reveal that the model, as a whole, is statistically significant in explaining the profitability of SFBs. The F-statistic of 4.88, with a p-value less than 0.05, indicates that the regression model's explanatory variables collectively have a significant impact on the dependent variable, Return on Assets (ROA). The overall regression model has an R-squared value of 0.5601, indicating that approximately 56% of the variation in ROA can be explained by the independent variables included.

The empirical results indicate that several factors significantly affect ROA. Firstly, bank size is found to have a positive and significant impact on ROA, suggesting that larger banks within the sample tend to be more profitable. This could be due to economies of scale and the ability of larger banks to generate higher revenues. Secondly, credit risk (NNPANA) is found to have a negative and significant impact on ROA. This implies that a higher proportion of non-performing assets relative to advances adversely affects profitability of SFBs. On the other hand, variables such as cash deposit ratio, operating efficiency, and priority sector lending ratio are found to have an insignificant negative impact on ROA. Lastly, capital adequacy ratio is determined to be insignificant, implying that it has no major impact on the ROA of SFBs. These findings highlight the significance of bank size and management of non-performing assets in influencing their financial performance.

The empirical results of the model using ROE are depicted in table 8:

Table 8: Results of Panel Data Model—ROE

Dependent Variable: ROE				
Method: Panel Least Squares				
Sample: 2018 2022, Periods included: 5				
Cross-sections included: 6				
Total panel (balanced) observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.78658	18.17076	-1.033891	0.3119
LOGBANKSIZE	4.238828	1.603496	2.643491	0.0145
CAR	0.424769	0.314853	1.349102	0.1904
NNPANA	-4.160299	1.253400	-3.319210	0.0030
CASHDEPORATIO	-0.826880	0.462767	-1.786816	0.0872
OE	-2.686209	0.964646	-2.784658	0.0105
PSL	0.008364	0.083025	0.100737	0.9206
R-squared	0.550925	Mean dependent var		7.965000
Adjusted R-squared	0.433775	S.D. dependent var		8.823246
S.E. of regression	6.639307	Akaike info criterion		6.824856
Sum squared resid	1013.849	Schwarz criterion		7.151802
Log likelihood	-95.37284	Hannan-Quinn criter.		6.929449
F-statistic	4.702737	Durbin-Watson stat		1.774523
Prob (F-statistic)	0.002926			

Source: Compiled by the authors

The BP test suggests that Pooled POLS model is appropriate, as the null hypothesis of no heteroscedasticity cannot be rejected (table V). The overall model is statistically significant, as indicated by an F-statistic of 4.70 with a p-value below 0.05. The R-squared for the model is 0.5509, indicating that approximately 55% of the variation in ROE can be explained by the independent variables.

Regarding the specific independent variables, the results indicate that bank size, credit risk (NNPANA), and operating efficiency have a significant effect on ROE. Bank size exhibits a positive impact on ROE, suggesting that larger banks tend to achieve higher returns on equity. Conversely, NNPANA has a negative impact on ROE. A higher proportion of non-performing assets relative to advances negatively affects the profitability of SFBs, which could be a result of credit risk management challenges. Similarly, higher operating inefficiency hampers ROE, potentially due to inefficiencies in cost management and operational processes. On the other hand, the remaining independent variables, namely capital adequacy ratio, priority sector lending (PSL) ratio, and cash deposit ratio, do not have a significant impact on ROE.

Table 9 provides valuable insights into the factors influencing the NIM of SFBs.

Table 9: Results of Panel Data Model—NIM

Dependent Variable: NIM				
Method: Panel Least Squares				
Sample: 2018 2022, Periods included: 5				
Cross-sections included: 6				
Total panel (balanced) observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.557095	3.310798	-0.470308	0.6426
LOGBANKSIZE	0.137438	0.292165	0.470412	0.6425
CAR	0.120595	0.057368	2.102136	0.0467
NNPANA	-0.562795	0.228375	-2.464339	0.0216
CASHDEPORATIO	-0.118586	0.084318	-1.406410	0.1730
OE	1.155104	0.175763	6.571938	0.0000
PSL	0.003741	0.015127	0.247307	0.8069
R-squared	0.783808	Mean dependent var		7.128000
Adjusted R-squared	0.727411	S.D. dependent var		2.317010
S.E. of regression	1.209713	Akaike info criterion		3.419607
Sum squared resid	33.65833	Schwarz criterion		3.746553
Log likelihood	-44.29410	Hannan-Quinn criter.		3.524200
F-statistic	13.89785	Durbin-Watson stat		1.963450
Prob(F-statistic)	0.000001			

Source: Compiled by the authors

The BP test indicates that Pooled OLS is appropriate for this model, as the null hypothesis of no heteroscedasticity is not rejected (table V). The overall model is statistically significant, as evidenced by the F-statistic of 13.89 and its associated p-value, which is less than 0.05. The R-squared is 0.7838, indicating that approximately 78% of the variation in NIM can be explained by the independent variables.

Examining the impact of individual independent variables, it is found that the capital adequacy, credit risk (NNPANA) and operating efficiency have a statistically significant effect on NIM. The capital adequacy ratio exhibits a positive impact on NIM, indicating that higher capital adequacy leads to a higher Net Interest Margin. This positive effect can be attributed to the increased confidence of depositors and investors, allowing the bank to attract funds at lower costs, thereby positively influencing the Net Interest Margin. Similarly, operating efficiency has a positive impact on NIM. It indicates that the increase in operating expenses leads to higher NIM. On the other hand, NNPANA has a negative impact on NIM. A higher proportion of non-performing assets relative to advances negatively affects the profitability and asset quality of SFBs, resulting in a lower NIM. This negative effect highlights the importance of effective credit risk management and the need to minimize non-performing loans to maintain a healthy and profitable interest margin. The remaining independent variables, including bank size, priority sector lending (PSL) ratio, and cash deposit ratio, were observed to have a negligible impact on the NIM.

The findings of the three models are summed up below in table 10. The ‘+’ symbol is used to depict the positive impact of variables and ‘-’ symbol is used to show the negative impact of the variables. The symbol ‘*’ is used to depict those variables that have a significant impact on the profitability measures.

Table 10: Summary of the Results

Profitability Measures	Bank Size	Capital Adequacy Ratio	PSL	Operating Efficiency	Credit Risk	Cash Deposit Ratio
ROA	+ **	+ *	-	-	- ***	- *
ROE	+ **	+	+	- **	- ***	- *
NIM	+	+ **	+	+ ***	- **	-

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Compiled by the Authors

Conclusion

This study aimed to examine the profitability dynamics of Small Finance Banks (SFBs) in the Indian financial landscape by investigating the key determinants of profitability. Through panel data regression analysis, this study obtained valuable insights into the factors influencing the profitability metrics of SFBs, including Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). This study represents one of the initial and original studies specifically focusing on the profitability of SFBs, addressing a notable gap in the literature.

The findings revealed that bank size had a positive and significant impact on both ROA and ROE, suggesting that larger SFBs tend to be more profitable. This aligns with the concept of economies of scale, where larger banks can benefit from cost efficiencies and generate higher revenues. However, the effect of bank size on NIM was found to be insignificant, indicating that other factors play a more prominent role in determining the Net Interest Margin. Furthermore, the analysis highlighted the significant negative impact of credit risk, as represented by the Net Non-Performing Asset to Net Advances (NNPANA) ratio, on all the three dependent variables. This underscores the importance of effective credit risk management in minimizing non-performing loans and improving the overall profitability of SFBs. Regarding NIM, the results revealed that the capital adequacy ratio had a positive and significant impact. Additionally, operating inefficiency, as indicated by higher operating expenses, was found to have a positive impact on NIM. On the other hand, variables such as priority sector lending (PSL) ratio and cash deposit ratio were observed to have a negligible impact on profitability measures across different models.

Overall, the results contribute to a better understanding of the profitability dynamics of SFBs and emphasize the importance of bank size, credit risk management, capital adequacy, and operational efficiency in driving profitability. These findings can guide SFBs in formulating strategies to enhance their financial performance, such as improving credit risk assessment practices, optimizing operational efficiency, and maintaining adequate capital levels. It will provide valuable insights for policymakers, regulators, and SFBs themselves, enabling them to make informed decisions and develop strategies to enhance profitability, sustain growth, and contribute to the overall stability and development of the Indian financial system.

It is important to note that this study addresses a gap in the existing literature on the profitability of SFBs, which has been relatively limited. By providing empirical evidence on the specific determinants of profitability, this research contributes to a more comprehensive understanding of the financial dynamics within the Indian banking sector. Given the relative novelty of the study and the limited existing literature on the profitability of SFBs, further research and analysis are warranted to explore additional factors and potential interactions that may influence the profitability dynamics of SFBs in India.

One important limitation of this study is the small sample size, which consists of only six Small Finance Banks (SFBs). Although efforts were made to ensure a balanced panel, the restricted number of observations may limit the generalizability of the findings. Therefore, caution should be exercised in extrapolating the results to the entire population of SFBs in India. Future research endeavours could address this limitation by expanding the sample size to include a larger number of SFBs, encompassing the entire universe of these banks operating in India.

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