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Article

Unveiling the impact of COVID-19 on Small Finance Banks in India: An in-depth econometric analysis

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Abstract: This study assesses the performance of Small Finance Banks in India, focusing on their efficiency in the post-COVID-19 period from 2019 to 2023. It explores the influence of bank-specific and macroeconomic factors on the efficiency of Small Finance Banks, with the aim of understanding their role in promoting financial inclusion. The research employs a two-stage Data Envelopment Analysis (DEA) framework to evaluate the efficiency of 10 selected Small Finance Banks. It incorporates both bank-specific variables (such as capital adequacy ratio, credit-deposit ratio, and liquidity ratio) and macroeconomic factors (GDP and inflation) in a Tobit regression model to analyze their influence on efficiency. The study reveals that the majority of Small Finance Banks remained resilient during the pandemic, consistently achieving high efficiency scores, except for a slight dip in 2020–2021 due to lockdown measures. Bank-specific factors indicate a converse association between capital adequacy ratio and efficiency, while liquidity ratio and credit-deposit ratio positively correlate with efficiency. Macro factors, including GDP and inflation, have minimal impact on Small Finance Banks efficiency. This study provides a comprehensive assessment of Small Finance Banks' performance post-COVID-19, shedding light on the factors influencing their efficiency. It offers valuable insights for policymakers and Small Finance Banks to strengthen their role in advancing financial inclusion in India, contributing to a more inclusive and dynamic financial landscape. The findings suggest that Small Finance Banks should focus on expanding their influence in niche segments by increasing assets, deposits, and revenue streams while managing operating expenses and liquidity risks. Listing on the stock exchange and active policy support for research initiatives can enhance the Small Finance Banks ecosystem and drive financial inclusion.

Keywords: Small Finance Banks; data envelopment analysis; Tobit regression; Macro variables; COVID-19
JEL Classification: G21; C14; C24; E00

1. Introduction

Financial inclusion (FI) is essential for alleviating poverty and enhancing well-being [1–4]. Despite efforts to improve accessibility, traditional banking systems in India have primarily focused on large enterprises, often leaving small borrowers with costly debt [5]. This raises critical research questions: How effective are Small Finance Banks in promoting financial inclusion for unbanked and underbanked populations? What factors influence their efficiency in delivering financial services?

Motivated by the need to address these questions, this study investigates the performance of Small Finance Banks in India from 2019 to 2023, particularly in the context of the challenges posed by the COVID-19 pandemic and subsequent banking

policy changes [6]. Utilizing a two-stage Data Envelopment Analysis (DEA) framework, we assess both financial and non-financial inputs and outputs, incorporating macroeconomic variables such as inflation and GDP to provide a nuanced evaluation of Small Finance Banks efficiency.

This research contributes to the existing literature by filling a significant gap regarding the post-pandemic performance of Small Finance Banks, offering insights into their operational effectiveness and resilience. By analyzing the efficiency of Small Finance Banks in enhancing financial inclusion, this study not only highlights their critical role in the Indian banking landscape but also provides valuable recommendations for policymakers and financial institutions aiming to improve access to financial services for marginalized communities.

Therefore, the contribution of this research is to provide a comprehensive efficiency analysis of Small Finance Banks in India from 2019 to 2023, utilizing a two-stage Data Envelopment Analysis framework to assess their role in enhancing financial inclusion amidst the challenges posed by the COVID-19 pandemic and evolving banking policies.

2. Literature review

Significant strides in financial inclusion followed the Pradhan Mantri Jan Dhan Yojana, boosting bank accounts. However, digital finance adoption remains low among women, rural communities, the elderly, and less educated individuals [7]. Small banks, with tailored, low-cost products, can improve access, though UCBs, RRBs, LABs, and MFIs struggled, prompting the creation of Small Finance Banks [8]. These banks face challenges in building liability product portfolios, meeting constitutional norms, enhancing rural digital connectivity, and designing cost-effective solutions. To succeed, Small Finance Banks must innovate and develop differentiated business models [9–12].

2.1. Small Finance Banks and financial inclusion

Konar et al. [2] used Data Envelopment Analysis (DEA) to assess ten Small Finance Banks in India, employing fuzzy DEA models. They found a negative correlation between efficiency and the NPA ratio, indicating higher NPAs reduce efficiency, and a positive correlation with the capital adequacy ratio (CRAR), suggesting stronger capital reserves enhance efficiency. Augustus Immanuel [13] found that selected Small Finance Banks showed positive financial performance and sustainable growth. Data from RBI's CIMS initiative highlighted AU Small Finance Bank's robust growth, Ujjivan's excellence in profitability, liquidity, and capital adequacy, and Utkarsh's strong credit portfolio management. These Small Finance Banks, with high liquidity, adequate capital ratios, and good asset quality, are well-positioned to extend banking services to underserved segments and advance financial inclusion.

H_0: Small Finance Bank significantly improves the financial inclusion.

2.2. Macro-economic factors and banks performance

Although research on macroeconomic factors affecting Small Finance Banks is

limited, studies by [14,15] explored the impact of nominal GDP and inflation on financial variables from 2007 to 2011. Their regression analysis revealed that nominal GDP significantly affects return on average assets, liquidity ratio, and equity to net loans, highlighting macroeconomic influences on Islamic banks in Malaysia. Conversely, inflation rate showed a negative correlation with profitability ratios. [16] analysed data from five Jordanian banks listed on the Amman Stock Exchange (2009–2019) using key performance indicators like return on investment, return on assets, and net interest margin. The quantitative study, employing regression analysis, found a strong negative relationship between inflation rates and bank performance. Based on the discussion following hypothesis may be created:

H_0: Macro Economic Factors i.e., GDP and Inflation significantly impacts the financial performance of Small Finance Banks.

3. Data and methodology

Data collected from various sources such as the Reserve Bank of India, Indian Banking Association, and Annual Reports of respective banks to assess the performance of Small Finance Banks. Our study employs different variables (**Table 1**) for this purpose. To measure efficiency, we consider factors like loans and advances [17,18], deposits [19] total assets [18], interest income [20], interest expenses [16], non-interest income, net profits, and operating expenses [21].

The study evaluates the operational performance of Small Finance Banks during the period 2019 to 2023, utilizing the available data. The period from 2019 to 2023 was chosen for this analysis to capture the dynamic changes in the banking landscape, particularly in the context of the COVID-19 pandemic and its aftermath. This timeframe not only facilitates a comprehensive evaluation of Small Finance Banks efficiency but also contributes valuable insights into the ongoing efforts to enhance financial inclusion in India. The analysis also considers the impact of the COVID-19 pandemic on Small Finance Banks, specifically how macroeconomic variables have influenced their efficiency. During the pandemic, the central bank played a critical role in safeguarding the banks' interest. This involved strengthening balance sheets, providing essential liquidity support, and ensuring financial sector stability. Additionally, the Government of India took steps to establish the National Asset Reconstruction Company Limited (NARCL), aimed at facilitating the recovery process and improving the financial position of stressed banks [22,23].

In this current analysis, we have selected 10 small financial banks: 'Au Small Finance Bank Ltd, Capital Small Finance Bank Ltd., Equitas Small Finance Bank Ltd., ESAF Small Finance Bank Ltd., Fincare Small Finance Bank Ltd., Jana Small Finance Bank Ltd., North East Small Finance Bank Ltd., Suryoday Small Finance Bank Ltd., Ujjivan Small Finance Bank Ltd., and Utkarsh Small Finance Bank Ltd'. This selection is based on their establishment [24] and operationalization phases [25].

Table 1. DEA input-output table.

Output Variables	Input Variables	Description
Loans and Advances	Total Assets	Loans and advances extended to customers, along with total assets, collectively constitute the entirety of fixed assets.
Interest Income	Deposits	Interest income includes the total income received on loans and advances. Whereas deposits are the total deposits including time, demand and saving deposits.
Non-interest Income	Interest Expenses	Non-interest income comprises earnings from commissions, fees, and all other revenue sources of the banks. Interest expenses infers the amount paid on all kinds of deposits.
Net Profits	Operating Expenses	Net profits encompass their total earnings after subtracting all expenses, taxes, and interest payments from their overall revenue. Operating expenses of banks includes employee expenses, administrative expenses, rent and lease expenses, marketing expenses, IT expenses, Depreciation and Amortization and Professional consultancy fees.

Source: Based on literature, 2023.

We aim at evaluating banks' performance concerning their efficiency in managing asset quality, generating income, handling deposits, and making investments [26]. Data Envelopment Analysis (DEA) is considered the most suitable method for assessing bank efficiency [27–31]. Therefore, our study employs a two-stage Data Envelopment Analysis approach to measure the performance of these Small Finance Banks during the period 2019–2023.

Methodology and research model

The application of the DEA framework to assess the effectiveness of industrial entities using input and output parameters is highly commendable. Devised by the innovative trio of Charnes, Cooper, and Rhodes (CCR) in 1978, DEA stands as a robust linear programming method. By evaluating the comparative efficiency ratings of various Decision-Making Units (DMUs) within a specific sample, DEA unveils valuable insights regarding their performance. In this analysis, the CCR paradigm proves to be a powerful tool for measuring the efficiency of individual Decision-Making Units (DMUs). By calculating the maximum ratio of the total weighted outputs to the total weighted inputs, this model reveals the true level of efficiency achieved by each DMU. It offers a comprehensive measure that captures both the overall performance and the allocation of resources within the units under scrutiny.

$$Efficiency = \frac{Aggregate\ weighted\ outputs}{Aggregate\ weighted\ inputs}$$

The establishment of weights within the proportion is guided by a vital constraint: The similarity ratios for every Decision-Making Unit (DMU) must remain below one. Consequently, the integration of numerous inputs and outputs condenses into a more straightforward depiction via the notion of 'virtual input' and 'virtual output', eliminating the necessity for direct weight allocation. This strategy adeptly distinguishes the efficiency standing of each DMU within the sample, separating those identified as efficient from those that do not measure up. Operating as a technique along the efficient frontier, DEA effectively identifies inefficiencies exhibited by distinct DMUs.

Rather than attempting to correlate a DMU's performance with statistical means that may not align with its specific circumstances, DEA achieves this by comparing the DMU with analogous, established efficient counterparts. Through the utilization

of this relative assessment, DEA provides valuable insights into the comparative performance of DMUs, facilitating targeted improvements and establishing a benchmark against the most proficient units in the dataset. Methodologically, the characteristics of DEA can be described through the original CCR model. Consider N units (each referred to as a DMU) that convert p inputs into q outputs, where p can be larger, equal to, or smaller than *q*. To measure the efficiency of a DMU, the following model is used.

$$Maxe^0 = \frac{\sum_{J=1}^{q} u_j^o y_j^o}{\sum_{i=1}^{p} v_i^o x_i^o} \tag{1}$$

Subject to

$$\frac{\sum_{q=1}^{Jq} u_q^o y_q^n}{\sum_{i=1}^{i} v^o x_q^n} \leq 1; n = 1, \ldots\ldots N$$

$$v_i^o, u_q^o \geq 0; i = 1 \ldots\ldots I: q = 1 \ldots\ldots q$$

where y_q^n, x_q^n are positive known outputs and inputs of n^{th} DMU and v_i^o, u_q^o are variable weights to be determined by solving (*i*) of the efficiency score e^0 = 1, satisfies the necessary condition to be DEA efficient; otherwise it is DEA inefficient. It is difficult to solve the problem as stated, because the objective function is non-linear and fractional [32], however transformed the above non-linear programming problem into a linear one as follows.

$$Maxh^0 = \sum_{q=1}^{q} u_q^o y_q^o \tag{2}$$

Subject to

$$\sum_{i=1}^{j} v_q^o x_i^o = 1, \sum_{j=1}^{j} u_q^o x_q^n - \sum v^0 x_q^n \leq 0; n = 1 \ldots\ldots\ldots N$$

$$v_i^o \geq \sum, u_q^o \geq \sum, i = 1 \ldots I, q = 1 \ldots\ldots q$$

DEA analysis enables the researcher to choose inputs and outputs based on managerial priorities. Nevertheless, DEA does possess certain constraints. The DMUs identified as efficient are merely efficient relative to the others within the dataset. It's conceivable that a unit beyond the dataset could attain higher efficiency than the most proficient DMU within the dataset. The present investigation embraced an output-oriented methodology [17], signifying the aim to maximize output while utilizing the provided inputs.

The notion of decision-making units is introduced in a manner akin to that of entities, where each entity is evaluated as a component of a collective that employs inputs to generate outputs. The assessment's outcome, quantified as efficiency scores, spans a range from 0 to 1, representing the level of efficiency achieved by the DMUs. In essence, a DMU is deemed efficient when it achieves the pinnacle score of 1, or conversely, and for parameter estimation within the model encompassing censored data, the Ordinary Least Squares (OLS) technique is utilized; however, due to data characteristics, estimation results might lack consistency. Given the data

attributes, the study adopted the DEA-Tobit model grounded in Maximum Likelihood Estimation (MLE) to scrutinize the factors influencing the efficiency of Small Finance Banks from 2019 to 2023.

Tobit model [33] suggested the equation as follows:

$$I_i = \begin{cases} I_i^* = p_i\beta + \varepsilon, I_i > 0 \\ 0, \ I_i^* \leq 0 \end{cases} \quad (3)$$

where β is the regression function, ε is error term, p_i is the explanatory variable, and I_i is the efficiency value vector calculated by the DEA-BCC model. Efficiency of banks considered the dependent variable which is defined by bank specific variables [18] and Macro variables [34]. Therefore, in our study statistical estimation of Tobit regression is estimated as follows:

$$TE_{i,t} = \beta_0 + \beta_1 Car_{i,t} + \beta_2 Cdr_{i,t} + \beta_3 Lr_{i,t} + \beta_4 Loggdp_{i,t} + \beta_5 Loginf_{i,t} + \mathcal{E}_{it} \quad (4)$$

where $TE_{i,t}$ = Technical Efficiency scores, $Car_{i,t}$ = Capital Adequacy Ratio, $Cdr_{i,t}$ = Credit Deposit Ratio, $Lr_{i,t}$ = Liquidity ratio, $Loggdp$ = Log of GDP at constant Price 2011–12, $Loginf_{i,t}$ = Log of Inflation, Inflation measured by CPI approach (Annual reports ,2019–2023, Ministry of statistics and Programme implementation, GOI).

The combination of DEA and Tobit regression provides a robust methodological framework for assessing the efficiency of Small Finance Banks in India. By leveraging the strengths of both approaches, this study not only evaluates the operational performance of Small Finance Banks but also identifies the key factors influencing their efficiency. This dual methodology enhances the credibility of our findings and contributes valuable insights to the existing literature on financial inclusion and banking efficiency.

Next section exhibits the empirical results of DEA approach and Tobit regression by following the conclusion and policy implication.

4. Results and discussion

Table 2. Bank's technical and scale efficiency (2019–2020 to 2021–2023).

	2019–2020			2020–2021			2021–2022			2022–2023		
Name of the Banks	**CRSTE**	**VRSTE**	**Scale**	**CRSTE**	**VRSTE**	**Scale**	**CRSTE**	**VRSTE**	**Scale**	**CRSTE**	**VRSTE**	**Scale**
Au Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Capital Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Equitas Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
ESAF Small Finance Bank Ltd.	1	1	1	0.993	0.994	0.999	1	1	1	1	1	1
Fincare Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Jana Small Finance Bank Ltd.	1	1	1	0.897	0.983	0.913	1	1	1	1	1	1
North East Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Suryoday Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Ujjivan Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Utkarsh Small Finance Bank Ltd.	1	1	1	1	1	1	1	1	1	1	1	1
Mean Efficiency Score	1	1	1	0.989	0.998	0.991	1	1	1	1	1	1

Source: Author's compilation from different reports.

Findings of our study presented as efficiency scores derived from the first stage of Data Envelopment Analysis (DEA results **Table 2**). In the second stage of DEA analysis, descriptive analysis (**Table 3**), Correlation matrix (**Table 4**) and Tobit regression analysis (**Table 5**) were employed to identify the factors that influencing efficiency.

Table 3. Descriptive statistics of all variables.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Y	40	0.9992333	0.0032556	0.983	1
CAR	40	24.095	7.308483	15.26	51.47
CDR	40	104.6487	18.09625	71.38	151.47
LR	40	0.2312967	0.0557882	0.1589	0.4208
LogGDP	40	7.154141	0.0160025	7.132211	7.168365
LogInf.	40	2.215967	0.0213102	2.191125	2.242375

Source: Author's compilation.

4.1. Efficiency scores of DEA results

The data analysis depicted in **Table 2** vividly highlights the technical and scale efficiency scores of banks during the period of 2019–2023. It unequivocally conveys that all Small Finance Banks achieved the pinnacle of performance, scoring a flawless 1.000 in both CRSTE and VRSTE measures. This remarkable achievement underscores their ability to extend loans and advances to customers by leveraging the existing fixed assets within the institutions. The overall efficiency score of 1.000 for 2019–2020 signifies a strategic triumph for Small Finance Banks. This score affirms their adeptness in optimizing deposits and interest expenses to augment both interest and non-interest income [35,36]. Through prudent resource management and controlled operational expenses, these banks not only efficiently bolstered their net profits but also initiated a trajectory of growth.

It is noteworthy that, except for ESAF Small Finance Bank and Jana Small Finance Bank Ltd, all the sample Small Finance Banks maintained a perfect score of 1.000 in both CRSTE and VRSTE from 2020 to 2022. The efficiency of ESAF Small Finance Bank experienced a modest decline of 0.7% during 2020–2021, attributed to challenges in converting deposits into high-yielding assets [37,38]. On the other hand, the tumultuous landscape created by the pandemic possibly prompted Jana Small Finance Bank Ltd to adopt more cautious risk management practices, influencing lending and investment decisions in 2020–2021, which in turn led to a decrease in CRSTE efficiency by 10% and scale inefficiency by 8.7% [39].

Hence, as evidenced by the data presented in **Table 2**, the fiscal year 2021–2022 emerged as a captivating phase for all Small Finance Banks. This remarkable period showcased that the impact of the pandemic on these banks was considerably mitigated. The Small Finance Banks stood resilient at the frontier, a testament to their adeptness in efficiently harnessing deposits, assets, and expenditures to generate revenue and income. This strategic proficiency further solidified their viability and seamless integration within the financial ecosystem.

4.2. Descriptive analysis of all variables of Tobit regression

In contrast, when focusing on the explanatory variables encompassing Bank-specific and Macro factors, such as the Capital Adequacy Ratio and Credit Deposit Ratio, there has been a notable reinforcement in their performance across mean, median, and standard deviation between the years 2019–2020 and 2021–2022 [26,40]. Similarly, GDP (loggdp) and Inflation (loginf) have displayed substantial contributions to efficiency in terms of their mean and standard deviation [17]. Furthermore, Liquidity, as indicated by the mean values, showcases a consistent upward trend over time. Meanwhile, the declining trend in standard deviation throughout the assessed period suggests a reduction in the dispersion of liquidity values. This reduction implies a more stabilized liquidity position, potentially influencing the company's risk profile and overall financial stability.

Table 4 presents correlation matrix encompassing all variables incorporated within the Tobit model. This matrix reveals that there exists a moderate level of correlation among all variables, each falling below the threshold of 40%. Notably, this correlation pattern remains consistent, with the exception of the relationship between the Capital Adequacy Ratio and Liquidity Ratio. Despite the presence of this moderate correlation, it's important to emphasize that it does not pose a detrimental impact on the model's ability to yield accurate and authentic conclusions [41]. **Figure 1** exhibits the relation of all variables in the scattered way infers the moderate or less corelations which confirms that selection of variables for the variables does not suffer multi-collinearity problem [42].

Table 4. Correlation matrix.

	Y	CAR	CDR	LR	LogGDP	LogInf.
Y	1.0000					
CAR	0.2103	1.0000				
CDR	0.1572	0.4007	1.0000			
LR	0.1720	0.3155	−0.1124	1.0000		
LogGDP	0.3338	−0.1930	0.0222	−0.2551	1.0000	
LogInf.	0.0179	−0.1914	−0.3035	−0.0501	0.2210	1.0000

Source: Author's compilation.

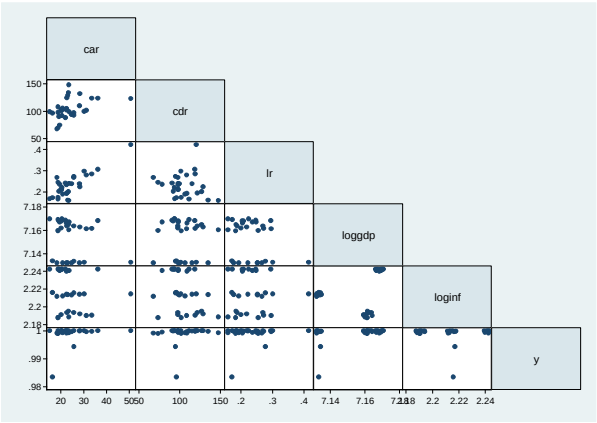

Figure 1. Scatter diagram of all variables.

Source: Author's compilation.

4.3. Second stage DEA analysis for efficiency of Small Finance Banks—Tobit results

Within the context of the second phase of Data Envelopment Analysis (DEA), the Tobit regression method is consistently applied to comprehend the connection between exogenous variables and the efficiency scores derived from DEA assessments [33]. **Table 5** demonstrate the results of Tobit regression where dependent variable is DEA efficiency scores [43] and independent variables are bank specific variables (Capital adequacy Ratio, Credit-deposit ratio and liquidity ratio) [17] and Macro variables (log of GDP and log of Inflation) [18]. Tobit regression model (Equation III) specify the parameters of dependent and independent variables. It is apprehended from the **Table 5** that the likelihood ratio chi-square of 12.12 (df = 5) with a p-value of 0.0332 tells us that our model as a whole fit significantly. Therefore, based on the results of Tobit regression analysis model of the study displayed in Equation (5):

$$TE_{i,t} = 0.272253 - 0.0013707Car_{i,t} + 0.000357Cdr_{i,t} + 0.1763922Lr_{i,t} + 0.0883876Loggdp_{i,t} + 0.0223409Loginf_{i,t} \quad (5)$$

Table 5. Results of Tobit regression analysis.

Y	**Coef.**	**Std. Err.**	***t***	***P*** > |***t***|	**[95% Conf. Interval]**	
CAR	−0.0013707	0.0005962	−2.30	0.030	−0.0025986	−0.0001428
CDR	0.000357	0.0001439	2.48	0.020	0.0000607	0.0006534
LR	0.1763922	0.0698058	2.53	0.018	0.0326245	0.3201599
LogGDP	0.0883876	0.0323401	2.73	0.011	0.0217818	0.1549933
LogInf.	0.0223409	0.0266542	0.84	0.410	−0.0325544	0.0772363
_cons	0.2722538	0.2321289	1.17	0.252	−0.2058246	0.7503322
/sigma	0.0026155	0.0003376			0.0019201	0.0033109
Obs. Summary		0 left-censored observations			Number of obs = 40	
		40 uncensored observations			LR chi^2 (5) = 12.12	
		1 right-censored observations			Prob > chi^2 = 0.0332	
					Pseudo R^2 = −0.0467	
					Log likelihood = 135.82131	

Source: Author's compilation.

Regarding bank-specific factors, the efficiency of all 10 Small Finance Banks displays an inverse relationship with the capital adequacy ratio (−0.13%). This suggests that a higher capital adequacy ratio impacts the loan portfolio requirements, consequently exerting a negative influence on efficiency [19]. Conversely, a positive correlation emerges between efficiency and the credit-deposit ratio (0.035%) as well as the liquidity ratio (17.6%). Notably, during the period of 2019–2021, ESAF and Jana Small Finance Bank exhibit the lowest shares in liquidity and credit-deposit ratio (RBI's report on the trend and progress of Banking in India, 2021–2022).

In the realm of macro factors, the negligible impact (less than 1%) of GDP and inflation on the efficiency of Small Finance Banks is discernible [44]. This can be

attributed to the localized customer base, the inherent characteristics of these banks, and their relatively smaller scale when compared to other commercial banks. These factors collectively contribute to the muted influence of macroeconomic indicators on the efficiency of Small Finance Banks. The study not only advances the understanding of SFB efficiency dynamics but also provides a roadmap for policymakers and stakeholders to support SFBs' role in advancing financial inclusion and stability in India's evolving financial landscape. Future research could delve deeper into cross-regional variations and customer-centric factors to further enrich the discourse.

5. Conclusion

Small Finance Banks were established to serve the unorganized and marginalized sectors of society. A study of 10 Small Finance Banks (2019–2023) using a two-stage DEA approach showed resilience post-COVID-19, except ESAF and Jana Small Finance Banks in 2020–2021. Efficiency scores were high, slightly declining in 2020–2021. Tobit analysis found capital adequacy ratio negatively impacts efficiency, while liquidity and credit-deposit ratios positively influence it. Small Finance Banks can expand their influence by increasing bank size, assets, and deposits. Controlling operating expenses and managing liquidity risks can bolster revenue. To enhance financial inclusion in India, Small Finance Banks should prioritize operational efficiency, cost-effective processes, and advanced digital technologies. Listing Small Finance Banks on the stock exchange can strengthen capital reserves. Policymakers should support research initiatives to identify trends, address challenges, and seize opportunities within the Small Finance Banks sector. By integrating these measures, Small Finance Banks can significantly contribute to financial inclusion, creating a resilient and inclusive financial landscape that benefits all societal strata.

6. Scope of further research

The analysis of Small Finance Banks in India from 2019 to 2023 opens several avenues for further research that can deepen our understanding of their role in promoting financial inclusion. Future studies could extend the analysis beyond 2023 to assess the long-term impacts of the COVID-19 pandemic on Small Finance Banks operations and strategies. Comparative research between Small Finance Banks and other banking models, such as Microfinance Institutions and traditional commercial banks, could identify best practices for enhancing service delivery to underserved populations. Additionally, exploring the effects of digital transformation on Small Finance Banks efficiency and customer engagement is crucial, as is investigating sector-specific challenges faced by Small Finance Banks in areas like agriculture and small enterprises. Understanding customer satisfaction and experience can provide insights into barriers to accessing financial services, while evaluating the impact of regulatory frameworks can inform evidence-based policy recommendations. Furthermore, assessing the socio-economic outcomes of financial inclusion initiatives and examining regional variations in Small Finance Banks performance can yield valuable insights for tailored strategies. Collectively, these research

directions can contribute to a more comprehensive understanding of the challenges and opportunities facing Small Finance Banks, ultimately enhancing their effectiveness in fostering inclusive economic growth in India.

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