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EXAMINING THE IMPACT OF ASSET QUALITY ON PROFITABILITY IN PRIVATE SECTOR BANKS: A PANEL DATA ANALYSIS

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ABSTRACT
The Indian banking system struggles with the rising burden of non-performing loans (NPLs), impacting financial stability and growth. This study evaluates how bank-specific factors and macroeconomic indicators affect the profitability of top private sector banks listed on the National Stock Exchange (NSE) in India. Using Return on Assets (ROA) as a profitability measure, it analyses variables such as the NPA ratio, Net Interest Margin (NIM), operating profit, inflation rate, and interest rate. The study employs quarterly data from 2011-12 to 2021-22, using panel data methodology for robust analysis. Findings indicate that high NPA ratios and inflation negatively impact ROA, highlighting the need for effective NPL management and macroeconomic stability. This research informs policymakers and stakeholders on strategies for NPL resolution and economic stabilization, suggesting future studies to explore additional determinants with advanced methodologies.

Keywords: Assets Quality, Bank Profitability, Inflation, NPAs, Repo Rate.

1 Introduction

The banking sector plays a pivotal role in any economy by mobilizing savings and channeling them towards productive investments. However, the banking sector's efficient functioning heavily relies on banks' ability to manage their assets effectively. For a nation to experience rapid economic growth, its financial system must be developed, cohesive, and efficient Something similar cannot occur unless there is a robust, sustainable banking institution that can move savings into investments. The banking system of a country facilitates the fine-tuning of its economic activities. One critical aspect that can significantly impact the stability and profitability of banks is the existence of Non-Performing Assets (NPAs). NPAs, also known as bad loans, refer to loans or advances provided by banks that have ceased to generate regular income or interest payments for the lender. In addition to these worries, high NPA levels negatively impact banks' ability to recycle funds and negatively impact their net worth. The banking crisis is a recurring phenomenon in India. India has experienced two episodes of NPA problems since the reforms in 1991, one during 1997–2002 and the current episode after the global financial crisis of 2008 (as reported by the National Bureau of Economic Research from December 2007 to June 2009). Around 2010, the NPA issue in the current episode started to get worse after 2013.

1.1 CONCEPTS OF NON-PERFORMING ASSETS

As the Indian banking system matures, the concept of non-performing assets has evolved in several ways. The Tandon Committee (1973) proposed categorizing borrower accounts into four categories: (a) excellent, (b) good, (c) average, and (d) unsatisfactory/bad and doubtful. Several subsequent committees, such as the Chore Committee (1980) and the Pendharkar Committee (1981), have also called for the classification of advances to maintain the asset quality of banks in the future. As a result, the RBI in 1985 introduced the "Health Code System" for loan portfolios. It did not adhere to international standards or be devoid of subjectivity. To reflect a bank's actual financial health in its balance sheet and as per the recommendations made by the Committee on Financial System (Chairman Shri M. Narasimham), the Reserve Bank has introduced, in a phased manner, prudential norms for income recognition, asset classification and provisioning for the advances portfolio of the banks. The general rule is that recovery records, not subjective judgments, should be the basis for objective income recognition policies. The way banks classify assets should also be founded on objective standards to guarantee uniformity and consistency. The provisioning should generally be made based on the classification of assets into different categories.

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1.2 DEFINITION OF NPAS

When an asset fails to perform is known as a non-performing asset. In the banking literature, the non-performing asset is defined as a credit facility in respect of which the interest and/or instalments of principal have remained 'past-due' for a specified period of time. The RBI implemented a phased reduction over the specified time period. The period was shortened from four quarters in 1993 to three quarters in 1994, and then to two quarters in 1995. In 2004, the RBI implemented a 90-day overdue standard subsequent to the 2001 elimination of the "past due" notion. According to the RBI, non-performing assets are those for which the principal or interest has not been paid for 90 days or two or one crop season, depending on the length of the crop. This includes assets related to overdue or out-of-order conditions regarding OD/CC. Depending on how long an asset has been non-performing and how realizable the outstanding debt is, banks must classify non-performing assets into substandard, doubtful, and loss assets.

Sub-standard Asset: With effect from March 31, 2005, an asset would be classified as sub-standard if it remained NPA for a period less than or equal to 12 months.

Doubtful Asset: An asset would be considered doubtful as of March 31, 2005, if it had remained non-performing asset (NPA) for more than a year.

Loss Asset: An asset classified as a loss asset is one for which the bank, RBI inspection, internal or external auditors have found a loss but the amount has not yet been fully written off.

2. IMPACT OF NPAS ON BANKS' PROFITABILITY

Liquidity, profitability, and safety are the three pillars upon which commercial banking is built. Modern bankers have added three more tenets to the sound banking system: stability, flexibility, and expansion. The banking industry's increasing non-performing assets (NPAs) pose a challenge to these principles. Their profitability will be zero if banks continue to maintain a high cash deposit ratio with them, despite having good liquidity. A prudent banker should try to maintain the right balance between profitability and liquidity. But NPAs are a double-edged sword to the banking sector. It hampers both liquidity and profitability. Actually, the influence of NPAs on the efficiency and profitability of banks is threefold. Firstly, a huge amount of provision needs to be created to cover up the losses due to loan default puts a strain on the further lending capacity of banks. Secondly, ill payment of periodic receivables (i.e., principal or interest) shrinks the expected cash flows. Finally, banks have to incur more operating costs for monitoring these assets. The higher the bank's operating cost lower the cost efficiency and lower the profits.

The measurement of banks' performance can be done in two ways. The efficiency approach and the profitability approach. Banks have the potential to transform resources into financial services through technical efficiency (Bhattacharyya et al., 1997, (Arora et al., 2018). It has also been used to measure the performance of the banking sector based on cost efficiency. (Mitchell & Onvural, 1996). The profitability approach, on the other hand, uses different financial ratios such as ROA, ROE, etc. as a proxy of bank performance.

2.1 THE RATIONALE OF THE STUDY

The economies like India where financial institutions take centre stage any negligence on the part of this could lead to economic turbulence(Gaur & Mohapatra, 2021). There are various factors including non-performing loans that affect the profitability of banks. These factors can broadly be classified into indigenous factors, industry-specific factors, and macro-economic factors. The present study intends to enquire about the gravity of the effect of NPAs in particular along with certain bank-specific and macro-economic factors in general on the profitability of selected banks and analyze the significance of this impact.

3. REVIEW OF LITERATURE

Researchers have been interested in an analysis of the financial performance of commercial banks since the start of World War II. (Ongore & Kusa, 2013) All business endeavor, including banking institutions, has profit as their primary goal, and over the last few decades, numerous studies have delved into the intrinsic relationship between non-performing assets and the profitability of the banking sector around the globe.

The profitability of the banking sector all over the world has been influenced by a variety of factors. The factors can be classified as exogenous or macroeconomic variables and as indigenous or bank-specific. Additionally, these studies have drawn from the banking industries of specific nations or cross-national data. (Molyneux & Thornton, 1992), (Demirguc-Kunt & Huizinga, 1999), (Pasiouras & Kosmidou, 2007), (Flamini et al., 2009),(Bertin et al., 2014) (Petria et al., 2015), (Ghosh, 2016), (Caporale et al., 2017), and(Le & Ngo, 2020) considered the banking sector of different countries. In contrast, (Athanasoglou et al., 2008), (Alper & Anbar, 2011), (Dietrich & Wanzenried, 2011), (Ongore & Kusa, 2013), (Owoputi et al., 2014), (Abel & Le Roux, 2016), (Rashid & Jabeen, 2016), (Tan, 2016), (Ebenezer et al., 2017), (Kassem & Sakr, 2018), and (Robin et al., 2018) examined a single nation's banking industry to ascertain the factors influencing performance.

Several studies have investigated the relationship between non-performing assets and the profitability of Indian banks, providing valuable insights into the challenges faced by both public and private sector banks.

Bank-specific factors influencing profitability have been a focal point of research. (Bhatia et al., 2012,) advocated indigenous factors considerably outweighed exogenous factors in determining the profitability of banks in the globalized

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era. (Prasanth Kiran & Jones Mary, 2016) noted that, except for SBI and PNB, there was a significant negative correlation between GNPAs and net profit. In a comparative study, (Borse, 2016) observed a more concentrated moderate degree of negative correlation between NPAs and ROA of public sector banks as compared to private sector banks. Further, profit per employee, net interest margin, non-interest income along net NPA ratio were the most influencing factors of profitability of all bank groups. (Maiti & Jana, 2017) According to an international study (Akter & Roy, 2017), thirty listed banks on the Dhaka stock exchange had their net interest margins significantly impacted negatively by non-performing loans. In another comparative study by (Bansal et al., 2018) the profitability of private banks in India is significantly influenced by interest expended to interest earned (IEIE) and credit deposit ratio (CRDR). For public banks, IEIE, CRDR, and quick ratio (QR) decrease profitability, while cash deposit ratio (CDR) and advances to loan funds (ALF) enhance effectiveness. In the case of total banks, IEIE and CRDR reduce profitability, while CDR, ALF, and Total Debt to Owners Fund (TDOF) increase profitability. Regarding return on assets (ROA), CRDR and TDOF diminish returns for private banks, while CDR, ALF, and QR improve profitability. (Kuknor & Rastogi, 2021) in a comparative study of public and private sector banks, advocated net profit margin was positively related to CAR (regulation) but negatively related to NPAs.

Macroeconomic factors play a pivotal role in this dynamic. Economic indicators like GDP growth, inflation, and interest rates are often taken into consideration. (Alper & Anbar, 2011) found that only real interest rates had a significant positive impact on the profitability of commercial banks in Turkey. But the studies of (Karimzadeh et al., 2013) showed that apart from lending rate and inflation GDP growth rate significantly impacted the profitability of the banks under study. Whereas GDP was negatively related to ROA and positively related to ROE in an insignificant way in the case of commercial banks in Kenya (Ongore & Kusa, 2013). This relationship supports the view that GDP growth is not necessarily positively related to bank performance.(Flamini et al., 2009). A study on the Nigerian banking system during 1998-2012, exhibited a significant negative relationship between inflation, interest rates, and banks' profitability, suggesting that the effect of GDP on bank profitability is not important (Owoputi et al., 2014). A dramatically opposite result was observed by (Misra, 2015) where none of the macroeconomic factors (GDP, inflation, and interest rate) acted as a determinant of the profitability of the Indian banking system during 2000-2011.

In a sample of banks operating in the EU from 2004 to 2011, (Petria et al., 2015a) exhibited that the GDP growth rate had a positive bearing on the profitability of banks. This observation finds support from (Pasiouras & Kosmidou, 2007) for domestic banks operating in the EU during 1995-2001. (Khan et al., 2015) also endorsed the same claim concerning the study on the banking sector of Pakistan during 2011-15. Apart from GDP, the other two macroeconomic variables inflation and exchange rate were taken into consideration by (Al-Homaidi et al., 2018), and found that while the inflation rate had a positive association, interest rate, exchange rate and GDP had a negative relationship with the profitability of the Indian commercial banks during 2008-2017.

To identify the role of bank-specific and macroeconomic variables impacting banks' profitability the following hypothesis can be framed based on the survey of the existing literature.

H_1: NPAs ratio has a significant negative relationship with ROA.
H_2: NIM has a significant positive impact on ROA
H_3: Operating profit has a significant positive relationship with ROA.
H_4: Inflation has a significant negative relationship with ROA.
H_5: Rate of interest has a significant negative impact on ROA

4. DESCRIPTION OF VARIABLES

4.1 DEPENDENT VARIABLES

The prior studies in this specific area of research either used ROA (Flamini et al., 2009); (Bhatia et al., 2012) , (Karimzadeh et al., 2013), (Khan et al., 2015), (Borse, 2016), net profit (Kiran & Jones, 2016) ROA and ROE (Athanasoglou et al., 2006), (Alper & Anbar, 2011) (Petria et al., 2015), (Abel & Le Roux, 2016) or ROA, ROE and NIM (Ongore & Kusa, 2013), (Al-Homaidi et al., 2018), (Kassem & Sakr, 2018), (Robin et al., 2018). I have considered ROA as the proxy for profitability or the dependent variables in my study. The rationale for selecting ROA has been explained below.

Return on Assets: Return on assets (ROA) is a financial metric used to evaluate a company's profitability by measuring how efficiently it generates profits from its assets. The higher the ROA higher is the profitability. Along with other measures, ROA is used as a performance measure by (Athanasoglou et al., 2006), (Bhatia et al., 2012), (Karimzadeh et al., 2013), (Misra, 2015), (Khan et al., 2015), (Maiti & Jana, 2017), (Tandon et al., 2017), (Bansal et al., 2018), (Hakuduwal, 2021).

4.2 INDEPENDENT VARIABLES

4.2.1 BANK-SPECIFIC FACTORS

***Assets Quality*:** A higher net NPA ratio indicates deteriorating asset quality, which may signal poor lending practices, economic challenges, or inadequate risk management by the bank. A high net NPAs ratio negatively impacts a bank's return on assets by reducing interest income, requiring higher provisions for loan losses, signalling poor asset quality, increasing borrowing costs, raising operational expenses, and triggering regulatory constraints. The previous studies of

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(Athanasoglou et al., 2006), (Bhatia et al., 2012), (Petria et al., 2015, (Misra, 2015), (Maiti & Jana, 2017),(Tandon et al., 2017), (Gaur & Mohapatra, 2020), (Das & Uppal, 2021), considered NNPs ratio to explain profitability.

Net Interest Margin*:* Net interest margin (NIM) is a key profitability metric for banks, representing the difference between the interest income earned on assets such as loans and securities and the interest expenses paid on liabilities such as deposits and borrowings. A bank's ability to maintain a healthy net interest margin often reflects its effectiveness in managing interest rate risk, credit risk, and liquidity risk. Effective risk management practices contribute to sustained profitability and, consequently, a higher return on assets. NIM was taken into account in the studies of (Bhatia et al., 2012) (Misra, 2015), (Khan et al., 2015), (Maiti & Jana, 2017), (Gaur & Mohapatra, 2020).

Operating Profit**:** Operating profit reflects the efficiency of a bank's core operations. It also highlights the bank's ability to manage risks associated with its core operations. Banks with higher operating profit margins are generally better positioned to absorb unexpected losses, which can positively impact ROA by reducing the likelihood of significant write-downs that would lower net income.

4.2.2 MACRO-ECONOMIC FACTORS

Inflation: In a broader sense, inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. The annual average growth of CPI is generally used as a measure of inflation (Sarkar & Rakshit, 2023). Inflation can potentially have a positive and negative impact on both ROE and NIM for banks. Depending on how fully inflation is predicted (Athanasoglou et al., 2006), (Sarkar & Rakshit, 2023) and how well the economy predicts future inflation, (Lutf & Omarkhil, 2018) (Sarkar & Rakshit, 2023) banks' profitability will be affected by inflation. (Flamini et al., 2009) (Alper & Anbar, 2011), (Ongore & Kusa, 2013) (Bertin et al., 2014), (Petria et al., 2015) (Almaqtari et al., 2019) (Sarkar & Rakshit, 2021) (Sarkar & Rakshit, 2023) considered inflation as an explanatory variable to explain profitability. Inflation has also been taken in my study.

Monetary Policy Interest Rate: The impact of the monetary policy interest rate (Repo Rate) on the Return on Assets (ROA) of the banking sector is significant and multifaceted. The repo rate can impact the ROA of the banking sector through its effects on interest income, interest expense, loan demand and quality, investment returns, and broader economic conditions. Banks need to closely monitor changes in the repo rate and its implications for their business operations, risk management practices, and profitability. In line with the studies of (Alper & Anbar, 2011), (Rashid & Jabeen, 2016), (Lutf & Omarkhil, 2018), (Almaqtari et al., 2019), (Sarkar & Rakshit, 2021), (Sarkar & Rakshit, 2023) it has been considered Repo rate as an explanatory variable in this study.

TABLE 1. Description of variables

Variables	Acronym	Measurement	Variable Type	Expected Relation
Return on Assets	ROA	Net income/total assets (%)	Dependent	
Non-performing Assets	NPAs	Net Non-performing assets/ Net advances	Independent	Negative
Net Interest Margin	NIM	Interest income/Total assets	Independent	Positive
Operating Profit	OP	Total Operating profit	Independent	Positive
Inflation	INF	Quarterly average inflation in India (CPI)	Independent	Negative
Interest Rate	INT	Repo Rate	Independent	Negative

5. DATA AND METHODOLOGY

5.1 DATA SOURCE AND SAMPLE SELECTION

For this study, the top 5 private sector banks (Axis Bank, HDFC Bank, Kotak Mahindra Bank, ICICI Bank, IndusInd Bank) listed at the National Stock Exchange (NSE) based on their market capitalization as of March 2021 have been taken into consideration. ROA as a profitability measure has been taken as the dependent variable. Three bank-specific factors viz. NPAs ratio, NIM, operating profit, and two macroeconomic factors rate of inflation and interest rate have acted the role of explanatory variables. The quarterly data of NPAs ratio, NIM, and operating profit has been taken from the ProwwssIQ database whereas the quarterly rate of inflation from the World Bank and banks' Repo rate from the RBI's website.

6. METHODOLOGY

A panel regression approach has been used to ascertain the impacts of bank-specific and macroeconomic variables on the profitability of selected private sector commercial banks listed at NSE. Panel data, also known as longitudinal data or cross-sectional time-series data, refers to a dataset that combines both cross-sectional and time-series dimensions. In panel data, multiple entities (e.g., individuals, firms, countries) are observed over multiple periods. This data structure helps to analyze changes across entities (cross-sectional variation) and over time (time-series variation), providing more insights into underlying trends, patterns, and relationships. Three commonly used models in panel regression are pooled OLS, random-effect model, and fixed-effect model. The pooled OLS model is a multiple regression analysis with panel data,

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and it assumes that the cross-section units are homogeneous. The estimate observed from the pooled model may be biased because of unobserved heterogeneity. This bias may be reduced or avoided by including cross-section or time-specific errors in the panel data. When this error component is non-random, it is a fixed-effect model, and it is a random-effect model when this error component is random (P. Das, 2019). Fixed-effects estimation examines the association between explanatory variables and explained variables within an entity by eliminating the impact of the time-invariant unobserved features. As a result, in a fixed-effects model, we can estimate the net effect of the explanatory variables on the explained variable. In a random-effects model, the distribution of intercepts captures the random effects of the unnoticed heterogeneity. In the random-effects model, degrees of freedom are more and it is more suitable in the case of micro-panel or short panel. The choice of a fixed-effects model or random-effects model is decided based on the Hausman test. If the null hypothesis that the individual effects are uncorrelated with other regressors is rejected, a fixed-effects model is chosen (P. Das, 2019).

To determine the bank-specific and macroeconomic determinants of profitability top 5 private sector banks based on their market capitalization have been taken into consideration from 2011-12 to 2011-22. The functional form of the model that is to be estimated in this analysis can be written as follows.

$$Profitability = f(\ NNPAs\ ratio, NIM, OP, INF, INT) \qquad (1)$$

The regression equation following form 1 can be as under

$$ROA_{it} = \alpha_i + \beta_1 NNPA\ Ratio_{it} + \beta_2 NIM_{it} + \beta_3 OP_{it} + \beta_4 INF_{it} + \beta_5 INT_{it} + u_{it} \qquad (2)$$

In equation (2) β_1 to β_5 are the coefficients of the independent variables, *i* refers to individual banks, *t* refers to time and *u* is the error term.

7. ANALYSIS OF RESULTS

7.1 DESCRIPTIVE STATISTICS

TABLE 2 Descriptive Statistics

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
NPAs	220	1.287273	1.139463	.09	4.89
NIM	220	3.929818	.4985055	2.61	5
OP	220	4165.774	3450.295	311.72	16775.95
INF	220	4.430227	4.302318	-4.55	14.33
INT	220	6.430436	1.415632	4	8.5

Source: Authors' calculation

Table 2 shows the descriptive statistics of the data taken for this study. The NPA ratio is found to have an average of 1.28 and a variability of 1.14, ranging from 0.09 to 4.89. NIM during the study period ranges between 2.61 to 5 with an average of 3.92 and a standard deviation less than unity. Moreover, operating profit (₹ in Crore) has a standard deviation of 3450.295 and an average of 4166, with minimum and maximum values of 311.72 and 16776, respectively. Table 2 also depicts that the rate of inflation ranges between -4.55 to 14.33 with an average of 4.43 and a variability of 4.30. The interest rate has a maximum value of 8.5 and a minimum value of 4, respectively. The mean value of the rate is 6, with a standard deviation of 1.41.

7.2 CORRELATION MATRIX AND DIAGNOSTIC OF MULTICOLLINEARITY

TABLE 3: Correlation matrix

	ROA	NPAS	NIM	OP	INF	INT
ROA	**1.0000**					
NPAS	**-0.1249**	**1.0000**				
NIM	**0.4351**	**0.0573**	**1.0000**			
OP	**0.2600**	**-0.1036**	**-0.0597**	**1.0000**		
INF	**-0.1112**	**-0.1073**	**-0.0678**	**0.0142**	**1.0000**	
INT	**0.2165**	**-0.1686**	**-0.1274**	**-0.5442**	**-0.0770**	**1.0000**

Source: Authors' calculation

TABLE 4: VIF value

VARIABLE	VIF
INT	**1.61**
OP	**1.55**
NPAS	**1.11**
NIM	**1.05**
INF	**1.03**
MEAN VIF	**1.27**

Source: Authors' calculation

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Table 3 makes it clear that both multicollinearity and collinearity among the variables and it can be inferred from the pairwise correlation between the variables between 0.05 and 0.54 can be found in the pairwise correlation of the explained variables. This indicates that the data does not have the multicollinearity issue. To achieve a more consistent outcome VIF value (Table 4) of the explanatory variables have been calculated. The highest VIF value is 1.61that clearly indicates the absence of multicollinearity among independent variables used in the study.

In accordance with previous research, we have estimated Equation (2) using panel regression analysis. In this work, we have estimated the effect of non-performing assets on the financial performance of selected private sector banks using both random-effect and pooled OLS models. The most suitable model has been chosen using the Breusch and Pagan Lagrangian multiplier test to validate the suitability of the Pooled OLS and RE models. The findings of the test favor the random-effect model as the $prob. > \chi^2 = 0.0000$. The Hausman test has been used to choose between FE and RE. The fixed-effect model is more appropriate than the random-effect model as the $prob. > \chi^2 = 0.0000$. By comparing polled OLS and FE, fixed -effect model is the most appropriate as Prob > F = 0.0000. The results of the fixed effect estimation have been presented in Table 5

TABLE 5: Regression Result (Fixed Effect)

R-sq.: overall = 0.4040		Prob > F = 0.0000
ROA	Coefficient	P value
NPAs	-0.745126	0.000***
NIM	1.86658	0.000***
OP	0.0003291	0.000***
INF	-0.05498	0.027**
INT	0.78936	0.000***
		Prob > F = 0.0000

Source: Authors' Calculation

Note: * significant at 1%; ** significant at 5%; *** significant at 10%

8. EMPIRICAL RESULTS FROM PANEL REGRESSION

The above table (Table 5) exhibits that there is a high statistically significant negative relationship between non-performing assets and profitability of the selected private sector banks under study and thereby supports our hypothesis H_1. The negative association between asset quality and profitability finds support in (Bhatia et al., 2012), (Misra, 2015), (Borse, 2016), (Maiti & Jana, 2017). (Misra, 2015), (Khan et al., 2015), (Maiti & Jana, 2017), and (Tandon et al., 2017), found a positive relation among operating profit, NIM, and profitability. we have also found that operating profit and net interest margin positively and statistically significantly affect profitability. This empirical result supports our hypotheses H_2 and H_3. Inflation has a moderately statistically significant negative impact on profitability supported by the studies of (Karimzadeh et al., 2013), (Khan et al., 2015), (Das & Uppal, 2021). This also supports our hypothesis H_4. This study reveals that the monetary policy interest rates (Repo rate) have a highly statistically significant positive impact on profitability that rejects our hypothesis H_5 adhering to the studies of (Khan et al., 2015), (Gaur & Mohapatra, 2021).

9. CONCLUSIONS

In a bank-based economy like India, the profitability of this sector becomes a dominant yardstick to measure its performance. However, this sector is under continuous stress due to mounting non-performing assets. Undoubtedly, over the last few decades, the accumulation of NPAs has been one of the most influential determinants of financial stability and growth in the banking industry's finances. This is because high NPAs have a deteriorating impact on capital, liquidity, and profitability. The profitability of commercial banks is the function of bank-related, industry-related, and macroeconomic variables (Sarkar & Rakshit, 2023). To comprehend the effects of growing non-performing assets on profitability, this paper has empirically estimated the factors that determine the profitability of particular private-sector banks. An array of macroeconomic and bank-specific variables has been taken into consideration to estimate the determinants of profitability. The quality of the assets is the main factor preventing the banks under investigation from being profitable. The effect of inflation on banks' profitability depends on whether it is anticipated or not (Athanasoglou et al., 2008), (Curak et al., 2012), (Sarkar & Rakshit, 2023) and also on the predictive power of the economy in foreseeing future inflation.(Lutf & Omarkhil, 2018), (Sarkar & Rakshit, 2023). Anticipated inflation can aid commercial banks in timely interest rate modifications and profit-making. (Curak et al., 2012), (Sarkar & Rakshit, 2023). Theorists contend that whether operating expenses rise more quickly than revenue increases will determine how inflation affects bank profitability (Dietrich & Wanzenried, 2011), (Sarkar & Rakshit, 2023). The current study shows a substantial inverse relationship between the inflation rate and bank profitability. This lends support to the fact that operating expenses increased at a faster pace than revenue. In addition, the banks under study fail to adjust interest rates in a timely fashion to capitalize on inflation. The monetary policy interest rate has a positive impact on profitability, thereby implying that the banks are capable enough to pass on the increased cost of funds provided by the RBI to the borrowers.

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10. LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

The study is limited to the sample of five private sector banks based on their market capitalization. A comparative analysis between public and private sector banks may be undertaken, or all private sector banks may be included. Other bank-specific determinants such as size, cost efficiency, managerial efficacy, etc. may also be included. Apart from inflation and monetary policy interest rate other external factors like GDP, and exchange rate may also be considered. Future studies may be conducted by incorporating these factors to have more comprehensive understanding.

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