



# Impact of Non-Performing Assets on Profitability of Indian Banks- An Empirical Analysis

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## ABSTRACT

*The purpose of this paper is to investigate the relationship between rising non-performing assets and profit rate of banks by conducting an empirical estimation of the factors influencing the profitability of Indian scheduled commercial banks for the period 2004-05 to 2021-22. A collection of macroeconomic and bank-specific explanatory variables have been used to determine the profitability determinants. The current paper employs panel regression model for three ownership banks—public sector banks, private sector banks, and foreign banks in India—for analytical purposes. Based on the assessment of panel data from all public, private, and foreign sector banks, we discovered that the rate of profit is negatively impacted by the rise in non-performing assets. Profitability is also found to be inversely correlated with bank size, inflation rate, and operating efficiency. The panel regression model's estimates indicate that the GDP growth rate, interest rate, net-interest margin, secured advances, capital adequacy, interest rate, and diversification of income have all favourably impacted Indian banks' profit rates during the study period.*

**Key words:** Indian Banks, Panel Regression, NPA, ROA.

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## 1 INTRODUCTION

The main objective of any business is to maximise profit. Profits are the driving force necessary to advance and expand a business. Banking is no exception to this. A profitable banking system is essential to complement economic development. The profitability of banks also depends on several factors. The main sources of income for banks are interest payments from loans they provide and repayment of loans. So interest payments on loans and non-repayment of principal will definitely reduce the profitability of banks. Subprime lending issues across America in 2007-2009 can be exemplified by the losses suffered by the banking sector, which led to a recession in the entire economy.

Several studies have already been undertaken to determine the adverse effects of NPAs on the profitability of banks. The main findings from their research confirmed that NPAs have a negative impact on the profitability and performance of banks (Santhosh kumar das and Kushboo Uppal 2021, Saikot Ghosh Roy 2015, Mukul Bhatnagar and Ercan Özen 2022). Because the non-repayment of loans reduces the income of the banks, it reduces their credit creation capacity, and the banks have to cover the losses due to NPAs from their earned income. Due to all these reasons, NPAs have become a major problem in the banking system. In this paper, the impact of NPAs on the profitability and performance of Indian banks is studied. Along with NPAs, other factors influencing the profitability of banks are also considered net interest margin (NIM), Income diversification, operating efficiency, bank size, capital adequacy ratio, deposits, Inflation rate, interest rate and GDP on the basis of previous studies.

Islam and Nishiyama identified a negative relationship between NPA and bank profitability in a study conducted from 1997 to 2012 in 259 commercial banks in South Asian countries, including India. Santosh Kumar Das

and Khushbu Uppal (2021), in a study conducted on factors determining the profitability of 39 public sector and private sector banks in India during the period from 2005 to 2019, stated that NPAs are reducing the profitability of Indian banks and that there is a need to reduce NPAs if the profitability of banks is to be increased.

## **2. OBJECTIVE OF THE STUDY**

➤ To investigate the impact of non-performing assets on the profitability of banks in India.

## **3. DATA AND DATA SOURCES**

The scheduled commercial banks with varying ownership structures that operate in India are covered by the study. A panel of public, private, and foreign banks make up the sample. Despite coming from various ownership groups, the banks operate similarly and are bound by the same regulations. The current paper employs panel regression model for three ownership banks—public sector banks, private sector banks, and foreign banks in India—for analytical purposes. Data is gathered during an 18 year period, spanning from the financial year 2004–05 to the financial year 2021–22.

The data for ROA and bank specific variables are collected from various issues of the "Report on Trend and Progress of Banking in India" published by the RBI. The data related to the GDP growth rate, inflation rate, and repo rate are collected from various issues of the "Handbook of Statistics on the Indian Economy," published by the RBI.

## **4. VARIABLES SELECTED FOR THE STUDY**

Based on several studies conducted in the past, the independent variables that determine the profitability of banks identified as follows.

### **4.1 Dependent variable-Profitability of Banks**

In the previous studies Return on Assets(ROA) used to represent the profitability of banks. Santhosh kumar das and Kushboo Uppal(2021), Saikot Ghosh Roy(2015) and many others used ROA as a proxy for profitability of banks. ROA is an important indicator of profitability of banks and is calculated as follows:

$$\text{ROA} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

### **4.2 Explanatory variables**

From the past literature, it is confirmed that the profitability of commercial banks have been determined by both macroeconomic and bank-specific determinants. We have selected 3 macroeconomic determinants and 8 bank-specific determinants as independent variables.

These variables and their expected relationship with dependent variable (ROA) on the basis of past studies are explained below.

#### **4.2.1 Macroeconomic determinants**

The condition of the economy influences all sectors of the economy. Since banking is a vital sector in the economy, it is also influenced by macroeconomic fluctuations. On the basis of previous studies, we have considered three macroeconomic determinants, namely GDP growth rate, inflation rate, and interest rate, which affect the profitability of banks.

##### **GDP Growth Rate**

GDP is the market value of all final goods and services produced in a country in a year. All economic activity will be beneficial when the economy grows. The banking industry will do well financially when economic growth is stronger, and vice versa. Numerous studies have found a significant positive impact of GDP growth rate on profitability of banks.

##### **Inflation Rate**

A condition in which the prices of goods and services are constantly rising is called inflation. Previous studies on the relationship between bank profitability and inflation have not been unanimous. The purchasing power of money falls as the rate of inflation rises. In order to combat inflation, the central bank hikes interest rates and banking services become more costly. As a result, there is a negative correlation between the inflation rate and bank

profitability. Some studies have identified a positive relationship between inflation and bank profitability, as banks earn more income from higher interest rates.

### **Interest Rate**

The repo rate fixed by RBI has been used a proxy for interest rate, which controls the lending rate of banks in India. We can expect a positive relationship between interest rate and profitability of banks as increased lending rates bring more income to banks ( Santhosh Kumar Das and Kushboo Uppal ,2021).

## **4.2.2 Bank Specific Determinants**

### **Non-performing Assets**

One of the major determinants of profitability of banks is non-performing assets. We used net NPAs as a percentage of net advances as a proxy for NPAs that is NNPA .Net NPAs shows the actual burden on the balance sheet of banks due to loan non-repayment issues. Non-performing assets hinders the bank's profitability. Many studies have found that non-performing assets adversely impact the performance of banks. Rajeev and Mahesh (2010) opined that provisions for losses due to defaulted loans needs to be created, which lay constraint on the subsequent lending capacity of the banks. The actual loss from bad loans is to written off against the earnings.

### **Deposits**

Deposits are the main source of lending of the banks. Banks will get more funds to investment and lending purposes. we can expect a positive relationship between deposits and performance of banks. Santosh Kumar Das and Khushboo Uppal(2021) found same results in their study related to 39 public sector banks in India for the year 2005 to 2019.

### **Capital adequacy ratio**

The capital adequacy ratio represents the insolvency of banks. The capital adequacy ratio is measured by the CRAR (Capital to Risk-Weighted Assets Ratio). CRAR is calculated as follows:

$$\text{CRAR} = \frac{\text{Total risk weighted assets}}{\text{Total capital of the Bank}}$$

A higher level of CRAR shows a proportion of less risky loans. So we can expect a positive relationship between the profitability of banks and the capital adequacy ratio.

### **Secured Loans**

The proportion of secured loans plays a vital role in determining the profitability of banks. We used the ratio of secured advances to total advances to measure the secured loans, and it is calculated as below:

$$\text{Ratio of Secured Advances to Total Advances} = 100 * \frac{(\text{Secured by tangible assets} + \text{Covered by Bank/Government Guarantees})}{(\text{Total Advances})}$$

We can expect a positive relationship between secured loans and the profit level of banks. Since loan repayment and recoveries are guaranteed in secured loans, the credit risk is lesser in secured loans.

### **Bank Size**

Bank size is one of the important factors that influence the profitability of banks. According to Boyd and Runkle (1993), bigger banks have the benefits of information gathering and economies of scale, which help to improve the performance of banks. So we can expect a positive impact of bank size on the profitability of banks. Total assets are used to measure the size of the banks (Pasiouras and Kosmidou, 2007).

### **Operating Efficiency**

Operating efficiency is the ratio of operating expenses to operating profit. We calculate that as follows:

$$\text{Operating efficiency} = \frac{\text{operating expenses}}{\text{operating profit}}$$

Operating expenses include salaries, rent, taxes, printing, stationery, advertising, publicity, depreciation on bank property, postage, repairs and maintenance, insurance, and other expenses. We will get our operating profit by deducting interest paid and operating expenses from interest and non-interest income. Operating efficiency demonstrates how effectively a bank manages its operating costs. The efficiency increases with decreasing operational expenses incurred for earnings and increasing operating profits. Bank efficiency will increase with a lower ratio.

### **Net Interest Margin (NIM)**

The net interest margin, or NIM, denotes the difference between the interest income earned and the interest paid by a bank or financial institution relative to its interest-earning assets. That is;

$$\text{NIM} = \frac{\text{Interest Received} - \text{Interest Paid}}{\text{Total Assets}}$$

A higher NIM would increase the profitability of the banks. A negative NIM indicates that the bank has been unable to make good use of its assets, as returns produced by investments have failed to offset interest expenses. Thus, NIM is a significant indicator of the financial stability of a lender. Santosh Kumar Das and Khushboo Uppal(2021) have found a positive impact of NIM on profitability of banks in India.

**Income Diversification**

Income diversification is one of the important determinants of profitability of banks. Income diversification can be calculated as follows;

$$\text{Income diversification} = \text{Non-interest Income} / \text{Total Assets}$$

Income diversification represents income generated from diversified sources. It helps banks lower their dependency on interest income by diversifying their investments so they can generate more income through non-traditional methods. Other income sources include commission, exchange, and brokerage; net profit on sales of investments; the sale of land and other assets; and exchange transactions. A better ratio will result in better bank performance of the banks. We can expect a positive relationship between the performance of banks and income diversification.

**Table No.1 Description of the variables Selected for the Study and their Expected Relationship with Dependent variable.**

Name of the variables		Description	Expected relationship with dependent variable(NPAs)
<b>I Dependent variable</b>			
Profitability of Banks(ROA)			
<b>II Explanatory Variables</b>			
<b>A. Macroeconomic variables</b>			
1	GDP	Annual Economic growth rate	Positive
2	Inflation rate	Annual consumer price index	Positive/Negative
3	Interest rate	Annual average of Repo rate	Positive
<b>B. Bank-specific variables</b>			
1	Non-performing Assets	NPAs as a percentage of net advances	Negative
2	Bank size	Total assets of the banks	Positive/Negative
3	Capital adequacy ratio(CRAR)	Ratio of Capital to Risk-Weighted Assets	Positive
4	Secured loans	Ratio of secured advances to total advances	Positive
5	Deposits	Deposits by the customers	Positive
6	Operating Efficiency	ratio of operating expenses to operating profit	Negative
7	Net Interest Margin(NIM)	Interest Received- Interest Paid/ Total Assets	Positive
8	Income Diversification	Non-interest Income/Total Assets	Positive

Source: Author’s compilation

**5. ECONOMETRIC METHODOLOGY**

To estimate the effect of bank-specific and macroeconomic variables on profitability of scheduled banks in India, we used a panel regression model.

The following econometric model is used to measure the impact of non-performing assets and other macroeconomic and bank specific variables on the profitability of banks.

$$Y_{it} = \alpha_{it} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \beta_9 X_{9it} + \beta_{10} X_{10it} + \beta_{11} X_{11it} + \beta_{12} X_{12it} + \beta_{13} X_{13it} + \beta_{14} X_{14it} + u_{it}$$

Where,

- Y= ROA
- X<sub>1</sub>=GDP
- X<sub>2</sub>=Inflation rate
- X<sub>3</sub>=Interest rate
- X<sub>4</sub>=Net non-performing assets
- X<sub>5</sub>=Bank size
- X<sub>6</sub>= Income Diversification
- X<sub>7</sub>= Capital adequacy ratio(CRAR)
- X<sub>8</sub>= Secured loans
- X<sub>9</sub>= Deposits
- X<sub>10</sub>= Operating Efficiency
- X<sub>11</sub>= Net Interest Margin(NIM)
- U<sub>it</sub>=Disturbance term
- α and β<sub>s</sub>=Parameters to be estimated
- ‘it’ represents i<sup>th</sup> bank in t<sup>th</sup> period.

## 6. RESULTS AND DISCUSSION

### 6.1 Summary statistics

In this paper the variables used for the study are described. This will provide a picture of the state of the economy and banking sector growth and performance during the study period. The analysis data was done using the mean value, the variation in the value of the data, i.e., the standard deviation, and minimum and maximum value of the variables.

**Table No.2 Summary Statistics of the Variables Selected for the Study**

Sl. No.	Name of the variables	Mean	Standard deviation	Min value	Max value
1	Return on assets(ROA)	1.12963	.6628769	-.84	2.28
2	GDP	6.157388	3.496944	-6.596081	8.681229
3	Inflation rate	6.816556	3.388027	2.07181	13.91304
4	Interest rate	6.435	1.172091	4.2	7.9
5	Non-performing Assets	1.677778	1.544151	0.4	8
6	Bank size	3103326	3261427	153636.3	12707643
7	Capital adequacy ratio(CRAR)	28.51204	21.05439	11.2	77.73
8	Secured loans	70.11401	16.71903	42.14268	87.17615
9	Deposits	2344589	2608257	76534	10717361
10	Operating Efficiency	0.8535015	0.1630675	0.6119079	1.232421
11	Net Interest Margin(NIM)	.0288694	.0058268	.0195385	.0400857
12	Income Diversification	.0150517	.0057417	.0075085	.0334599

Source: Author’s calculation (STATA 17.0)

The results of the data summary have been consolidated in Table No. ROA represents the profitability of banks. The average ROA of the sample Indian banks we have taken for the study is positive, at 1.12963. Although the average is in a better position, the high value of the standard deviation shows the variation among Indian banks. We can notice that variation by observing the minimum and maximum values. Some of the banks were in a good position with a 2.28 percent ROA, but some banks are suffering losses, as indicated by a negative minimum value.

The result shows that over the study period, the sample bank has experienced net non-performing assets of about 1.68% of the total loans granted. Some of the banks have been able to manage their assets well and maintain

their net of non-performing assets at a 0.4% level. Contrary to this, some of the banks have experienced net non-performing assets as high as 8% of their total advances. That shows there are a lot of differences in the level of net non-performing assets across the banks, and every bank is suffering from the non-performing assets problem, though the percentage varies.

The average bank size or assets of Indian banks, throughout the study period was 3103326. The minimal and maximum values of bank size were 153636.3 and 12707643, respectively, indicating that there are significant differences in bank sizes in India. In terms of assets, the Indian banking industry consists of extremely small to very large banks.

India recorded an average GDP growth rate of 6.15% during the study period, i.e., 2005 to 2022. In some years, the GDP growth rate reached a maximum of 8.68 percent, but it can be recognized from the minimum value that the GDP growth is negative in the time of covid pandemic that was in the year 2020-21. The average inflation rate during the study period in India was 6.81%. The gap between the maximum value of 13.91 and the minimum value of 2.07 shows the largest fluctuations in inflation over these 18 years. The average repo rate for the study period was 6.435, and the RBI also adjusted its repo rate between a minimum of 4.2% and a maximum of 7.9% in line with inflationary fluctuations.

The mean value of the ratio of secured loans for the strategy period is 70.11, which shows that 70% of loans from Indian banks were secured, but some of the Indian banks have only 42.14% of secured loans. But some banks have a very high proportion of secured loans, which is 87.17 percent, which shows that there are differences in the bank's preference to provide loans.

Throughout the study period, the average deposit value of Indian scheduled commercial banks was 2344589, indicating that an enormous volume of deposits were received by Indian banks. The minimum and highest values indicate that not all banks collected deposits in the same way.

The average value of the capital adequacy ratio was 28.51204 during the study period at Indian scheduled commercial banks. There are a lot of variations in the rate of CRAR of Indian scheduled commercial banks, which is shown by the standard deviation. Many banks are able to manage less risky loans with a maximum value of 77.73, but some of the banks have a minimum value of 11.2, which shows there is no uniformity in managing less risky loans in all public, private, and foreign sectors scheduled commercial banks in India during the study period.

Operating efficiency demonstrates how effectively a bank manages its operating costs. Efficiency increases with decreasing operational expenses incurred for earnings and increasing operating profits. Bank efficiency will increase with a lower ratio. The mean value of operating efficiency was 0.85. The standard deviation value of 0.16 asserts that there are no significant variations in the operating efficiency of Indian scheduled commercial banks in the study period. The minimum value of 0.611 shows many of the banks' ability to manage their operating costs lower, but at the same time, the maximum value of 1.232 shows some banks' inefficiency in keeping their operating expenses low.

Income diversification represents income generated from diversified sources. 0.015 was the mean value of income diversification, which shows very low diversification of funds by banks. There are no significant differences in the income diversification of Indian scheduled commercial, public, private, and foreign banks, which was confirmed by the value of the standard deviation of 0.005.

The difference between interest generated and interest paid by the bank is known as net interest income. Indian public, private, and foreign-sector scheduled commercial banks are receiving good interest revenue, as indicated by the mean figure of 80256.78. However, the highest number of 297950.4 and the lowest value of 5129 indicate the biggest swings in the banks' NII during the span of the study.

The bank's capacity to effectively utilise its assets is shown by its NIM. NIM had an average value of 0.029. The standard deviation, minimum, and maximum values show that, throughout the study period, there were no notable changes in the NIM of Indian scheduled commercial banks in the public, private, or foreign sectors.

## **6.2 Correlation between ROA and Explanatory Variables**

Pair wise correlation analysis has been used to evaluate how several variables are related to one another. Table lists the relationships between the ROA and explanatory variables.

**Table No.3 Correlation of Explanatory variables with Dependent variable**

Sl.no	Variables	Correlation Coefficient with ROA	P value
1	GDP	0.0675	0.6279
2	Inflation rate	0.2340	0.0885
3	Interest rate	0.2041	0.1388
4	Non-performing Assets	-0.8260	0.0000
5	Bank size	-0.7796	0.0000
6	Capital adequacy ratio(CRAR)	0.5770	0.0000
7	Secured loans	0.6090	0.0000
8	Deposits	-0.07875	0.0000
9	Operating Efficiency	-0.6444	0.0000
10	Net Interest Margin(NIM)	0.7580	0.0000
11	Income Diversification	0.6683	0.0000

Source: Author's calculation (STATA 17.0)

The above correlation coefficients give us a picture of the relationship between the profitability of banks and selected macroeconomic and bank-specific variables. All the macroeconomic variables, namely GDP growth rate, inflation rate, and interest rate, positively correlated with the profitability of banks, as expected, but these correlations are not statistically significant.

On the contrary, the relationship of all the bank-specific variables with the profitability of banks is statistically highly significant. Except for deposits, all other bank-specific variables have an expected relationship with the profitability of banks in India. Non-performing assets, bank efficiency, deposits, and bank size were negatively correlated with the profitability of banks. CRAR, secured loans, income diversification, and NIM were positively correlated, as predicted.

### 6.3 Results of Panel regression Model for determinants of Profitability of Indian Banks

**Table No.4 Results of Panel regression Model for determinants of Profitability of Indian Banks**

Sl no.	Name of the variable	Coefficient	P value
1	GDP growth rate	0.004218	0.645
2	Inflation rate	-0.0110057	0.297
3	Interest rate	0.0241623	0.416
4	Non-performing assets	-0.2126208	0.000
5	Bank size	-0.1170089	0.631
6	NIM	17.02994	0.174
7	Capital adequacy ratio	0.0102719	0.058
8	Operating efficiency	-1.261555	0.000
9	Income diversification	26.1429	0.043
10	Secure advances	0.0198014	0.004
11	Deposits	-0.0109175	0.965
Wald chi2		489.62	
Prob>chi2		0.0000	

Source: Author's calculation (STATA 17.0)

The above table displays the panel regression estimation findings for the factors influencing Indian banks' profitability. The positive regression coefficient value of 0.004218 confirms the positive correlation between the GDP growth rate and bank profitability. It goes without saying that the banking industry benefits from a strong economy.

This result is similar to the findings by Santosh Kumar Das and Khushboo Uppal (2021). But there is no statistically significant association here.

The inflation rate's regression coefficient is -0.0110057 and the p value is 0.297, indicating a statistically insignificant negative correlation between the inflation rate and bank profitability. According to Perry (1992), Revell (1979), and Boyd *et al.*, (2001) the impact of inflation on bank profitability will be determined by how quickly inflation is outpaced by bank expenses and other operating costs. Because inflation interferes with banks' ability to allocate resources efficiently, it has a significant detrimental impact on banking performance. Due to lower demand, there may be a slowdown in economic activity during inflationary pressures, which could ultimately mean lower bank profitability.

The positive regression coefficient value of 0.0241623 indicates that during the study period, bank interest rates positively impacted bank profitability in India. Even so, it lacks statistical significance. The same conclusion was reached by research conducted by Bourke (1989), Santhosh Kumar Das, Demirguç-Kunt and Huizinga (1999), and Kushboo Uppal (2021). The banks' interest revenue rises in accordance with the interest rate.

Non-performing assets always hinder the bank's profitability, which is proven again in our study also. The negative regression coefficient value of NPAs with the profitability of banks is -0.2126208, and it is also highly significant at the 1% level of significance. Most of the previous studies, like Santhosh Kumar Das and Khushboo Uppal (2021), Ghosh (2015), Cucinelli D (2015), Duraj B, Moci E (2015), and Islam and Nishiyama S (2016), also found a negative impact of NPAs on the profitability of banks in different regions of the world also. Because the higher-level NPAs fail to generate income for the banks, as well as the cost of follow-up and recovery, write-offs make the profit level of banks even worse.

The size of the banks, calculated as the natural logarithm of total assets, had a negative impact on the profitability of Indian banks during the study period. The regression coefficient of bank size, which is -0.1170089, also confirms the same. A larger bank will have more management challenges, more operating expenses, a higher risk of launching new branches in unfamiliar regions, miscommunications, etc., all of which will reduce bank profit.

The regression coefficient for NIM is 17.02994, which shows the positive impact of NIM on profitability of banks as predicted. However, statistical significance is not present. The banks would be more profitable if their NIM was greater. NPAs have a negative impact on NIM because, once an asset is designated as an NPA, it no longer generates interest revenue. As a result, banks earn less interest even if they are still required to pay interest on deposits. That demonstrates how net revenue from interest-bearing assets and liabilities can boost a bank's profitability. The study by Santhosh Kumar Das and Khushboo Uppal (2021) supports these findings.

The Capital Adequacy Ratio (CRAR) has a positive effect on bank profitability, as indicated by the regression coefficient of 0.0102719. This effect is statistically significant at the 10% significance level. This finding provides reassurance that banks may enhance their profitability by decreasing the percentage of loans with high risk.

Operating efficiency is negatively associated with the profitability of banks. It is also statistically significant at the 5% level of significance. These results show that the lower the operating expenses incurred for earning a given level of operating profits, the higher the efficiency. These findings are similar to those by Athanasoglou *et al.* (2008), Doyran (2013), and Bougatef (2017).

By diversifying their investments and generating income from sources other than interest earnings, banks can increase their performance and profitability. A bank that diversifies its income is less dependent on interest income. Diversification also enables organisations to use non-traditional revenue streams to increase revenue generation. The income diversification regression coefficient value (26.1429), which is significant at the 5% level, further supports this. The same findings have previously been reported by Gurbuz *et al.* (2013), Chiorazzo *et al.* (2008), and Alhassan (2015).

The regression coefficient for the secure advances is 0.0198014 and it is also significant at 5% level of significance. Banks are always able to prevent loan defaults by using secured advances. Because secured advances enable banks to recover their loans through the surrender of securities by borrowers at the time of credit. Our study also provides proof of it. The regression results shows that the bank deposits negatively impacting the profitability of the banks but it is insignificant.



The Wald chi<sup>2</sup> value of 489.82 is significant at 1% level of significance. It implies that the predicting variables have jointly significant impact on the predicted variable, profitability of banks.

## **7. CONCLUSION**

The purpose of this paper is to investigate the relationship between rising non-performing assets and profit rate by conducting an empirical estimation of the factors influencing the profitability of Indian scheduled commercial banks. A collection of macroeconomic and bank-specific explanatory variables have been used to determine the profitability determinants. Based on the assessment of panel data from all public, private, and foreign sector banks, we discovered that the rate of profit is negatively impacted by the rise in non-performing assets. Profitability is also found to be inversely correlated with bank size, inflation rate, and operating efficiency. The panel regression model's estimates indicate that the GDP growth rate, interest rate, net-interest margin, secured advances, capital adequacy, interest rate, and diversification of income have all favourably impacted Indian banks' profit rates during the study period. The growing NPAs are concerning since banks rely heavily on the performance of their loan assets as a vital source of revenue and profit. It lowers their interest income, but it also has an impact on future deposits and raises operating costs because it will become more expensive to recover non-performing assets (NPAs). In order to increase profitability, the study suggests that banks cut back on both their operating costs and non-performing assets.

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