

EMPIRICAL STUDY

Empirical Study of Non-performing Assets and Financial Performance: Impact on Public and Private Sector Banks

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ABSTRACT

Non-performing assets refer to loans or advances that have stopped generating regular interest income for banks because the borrowers have failed to make repayments for a specified period. NPAs are considered a significant concern for banks as they affect profitability, capital adequacy, and overall financial health. Effective management of NPAs is crucial for maintaining a healthy banking sector and supporting sustainable economic growth. Therefore, this paper analyzed the NPAs and returns on assets of the public and private sector banks for the period of four years i.e., from 2018 to 2022. The study collected data from four public (State Bank of India; Punjab National Bank; Bank of Baroda and Canara Bank) and four private sector banks (HDFC Bank; ICICI Bank; Axis Bank and Kotak Mahindra Bank). The present study considered following parameters for measuring NPAs and Financial Performance like Net NPA percentage and Return on Assets (ROA) respectively. The study employed panel regression model for comparing the relationship between variables. According to the study, NPAs generally had a negative and significant impact on the financial performance (ROA) of banks in the public and private sectors. By investigating, the total effect of Gross NPAs and Net NPAs on the financial performance of banks will broadens the body of literature in the Indian context.

HIGHLIGHTS

- ① The study provides insights into the impact of Non-performing Assets (NPA) on (Returns on Assets) ROA of public and private sector banks.
- ② The findings of the study showed that NPAs has a negative and significant impact on financial performance of public and private sector banks.

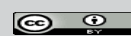
Keywords: Banks, Financial performance, Non-performing assets, Return on Assets

The Indian banking industry has been affected by the issue of non-performing assets. The target-oriented approach, which degrades the quality of lending, is the primary cause of the high percentage of non-performing assets (Lalitha *et al.* 2023). NPAs have a negative effect on banks' credibility, capital adequacy ratio, and profitability. Loans and advances that no longer bring in money for banks because borrowers have stopped making payments

are known as non-performing assets, or NPAs. Over the past few decades, the issue of non-performing assets (NPAs) in the Indian banking industry has attracted a lot of attention (Agrawal and Magar, 2023).

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Banking is an important segment of the tertiary sector. The banking system plays an essential role in the development of its economy (Rousseau and Sylla, 2003). The banking system in India consists of commercial banks and cooperative banks (Chachi, 2005). The main functions of banks are to lend money to different sectors, such as housing, agriculture, and retail, and to mobilize the public's savings by taking deposits from them (Tuyishime *et al.* 2015). The risk of lending money is always high because it is not guaranteed to be returned. As the major portion of the money land comes from the deposit received from the public and the deposits are repayable on demand (Farley *et al.* 2013). A major threat to the banking sector is the prevalence of Non-performing Assets (NPAs). NPAs pose a significant impact on the financial performance and stability of bank worldwide (Samir and Kamra, 2013). NPAs refer to loans or advances that have ceased to generate regular interest income or principal repayments as per the agreed terms and conditions. These assets are categorized as NPAs when the borrower fails to meet their repayment obligations for a specified period, typically 90 days or more (Kadanda and Raj, 2018). The existence of a high proportion of NPAs in a bank's portfolio indicates credit risk, affects profitability, erodes capital, and hampers the ability to lend further (Gaur and Mohapatra, 2021). The causes of NPAs are multi-faceted and vary across different banking systems and economic conditions. Factors contributing to NPAs include economic downturns, industry-specific problems, inadequate credit appraisal, wilful defaults, lack of proper loan monitoring, and ineffective recovery mechanisms (Chawla and Rani, 2022). It is crucial for banks to proactively identify and mitigate these risks to prevent the build-up of NPAs and protect their financial stability. The impact of NPAs on banks is substantial. High levels of NPAs reduce profitability by necessitating higher provisioning, resulting in lower net interest margins and increased credit costs (Sehgal and Agrawal, 2017). Additionally, NPAs weaken a bank's balance sheet, impair its ability to raise funds, and can lead to deterioration in credit ratings, restricting access to capital markets. To address the NPA challenge, banks employ various strategies. These include strengthening credit appraisal and risk management processes, enhancing loan monitoring mechanisms, implementing early warning systems, promoting

loan recovery measures, and exploring options such as loan restructuring and asset securitization (Padhy, 2015). Additionally, regulatory interventions and frameworks play a crucial role in facilitating timely recognition, resolution, and prevention of NPAs. NPAs are a major concern for banks as they can lead to loss of revenue, erosion of shareholder's value, affects the bank reputation, and can hamper the growth of the economy as a whole. NPAs are a serious problem for financial institution, especially banks (Goswami and Gulati, 2022). Thus, the main objective of this study is to analyze the relationship between NPA factors (Gross NPAs & Net NPAs) and financial performance (ROA) of public and private sector banks in India.

METHODOLOGY

The study has focused on the comparison of NPAs between Public and Private sector banks. On the basis of their market share in the year 2022 following banks were selected for the purpose of the study.

Public Sector Bank– State Bank of India (SBI), Punjab National Bank (PNB), Bank of Baroda (BOB) and Canara Bank

Private Sector Bank– HDFC Bank, ICICI Bank, Axis Bank and Kotak Mahindra Bank

The study is primarily analytical and descriptive based on secondary data collected from RBI publications, websites of Public and Private sector banks in India. Articles and papers relating to NPAs published in different business journals, newspaper, and periodicals were studied and data available on internet and other sources has been used. The time covered for the study is of 4 years i.e., from 2018-19 to 2021-22. Fixed-effect Panel regression model approach was used to analyse and compare the NPAs among public sector banks and private sector banks. One of the limitations of the study is that Hausman test was not conducted to check validity of the model specified. Return on Assets (ROA) was used as a indicator of financial performance and for NPAs Gross and Net NPAs was analysed. Net NPAs refer to the total value of non-performing assets after deducting provisions made for bad loans. These assets are typically loans that are not being repaid by borrowers, indicating credit risk and potential financial losses for the bank. On the other hand, ROA is a financial ratio that measures

the profitability of a bank by comparing its net income to its total assets. Table 1 represents the financial ratios of ROA and NPAs.

Table 1: List of Variables indicating ROA and NPAs

Variables	Formula
Gross NPAs	Gross NPAs / Gross Advances
Net NPAs	Gross NPAs – Provisions / Gross Advances – Provisions
ROA	Net Profit / Total Assets

Source: Authors compilation.

STATISTICAL TECHNIQUES

The equation of panel regression model is as follows:

$$Y = a + b_1x_1 + \mu \quad \dots(i)$$

$$Y = a + b_2x_2 + \mu \quad \dots(ii)$$

Where,

Y = ROA (Return on Assets)

a = constant term;

b_1 and b_2 = Regression coefficients for the respective variables,

x_1 and x_2 = GNPA Ratio and NNPA Ratio respectively, Y (i.e. ROA) is the dependent variable, while x_1 and x_2 are independent variables.

Fig. 1 represents dependent variable and its relationship with independent variables; Gross NPA and Net NPA.

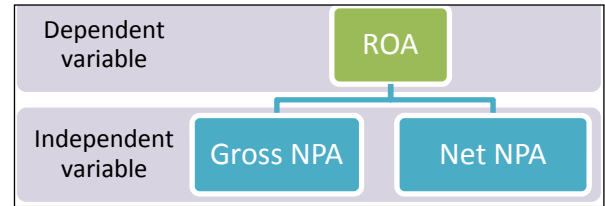


Fig. 1: Conceptual framework of the study

HYPOTHESES OF THE STUDY

H_0 : There is no significant relationship between NPAs and the financial performance (ROA) of public and private sector banks.

H_1 : There is a significant relationship between NPAs and the financial performance (ROA) of public and private sector banks.

RESULTS AND DISCUSSION

Table 2 represents the NPAs (gross and Net) and ROA of selected public and private sector banks.

Table 2: Non-Performing Assets (Gross & Net) and Financial Performance (ROA) of Public and Private sector banks

Banks	YEARS	2019	2020	2021	2022
SBI	Gross NPA	172750.36	149091.85	126389.03	112023.37
	Net NPA	65894.74	51871.3	36809.72	27965.71
	% of Gross NPA	7.53	6.15	4.98	3.97
	% of Net NPA	3.01	2.23	1.5	1.02
	ROA	0.02	0.36	0.45	0.63
PNB	Gross NPA	78472.7	73478.76	104423.42	92448.04
	Net NPA	30037.66	27218.89	38575.7	34908.73
	% of Gross NPA	15.5	14.21	14.12	11.78
	% of Net NPA	6.56	5.78	5.73	4.8
	ROA	-1.28	0.04	0.16	0.26
BOB	Gross NPA	48232.77	69381.43	66670.99	54059.39
	Net NPA	15609.5	21576.59	21799.88	13364.65
	% of Gross NPA	9.61	9.4	8.87	0.07
	% of Net NPA	3.33	3.13	3.09	0.02
	ROA	0.05	0.04	0.07	0.56
Canara	Gross NPA	39224.12	37041.15	60287.84	55651.58
	Net NPA	22955.11	18250.95	24442.07	18668.02
	% of Gross NPA	8.83	8.21	8.93	7.51
	% of Net NPA	5.37	4.22	3.82	2.65
	ROA	0.04	-0.30	0.22	0.46

HDFC	Gross NPA	11224.16	12649.97	15086	16140.96
	Net NPA	3214.52	3542.82	4554.82	4407.68
	% of Gross NPA	1.36	1.26	1.32	1.17
	% of Net NPA	0.39	0.36	0.4	0.32
	ROA	1.69	1.71	1.78	1.78
ICICI	Gross NPA	46291.63	41409.16	41373.42	33919.52
	Net NPA	13577.43	10113.86	9180.2	6960.89
	% of Gross NPA	6.7	5.53	4.96	3.6
	% of Net NPA	2.06	1.41	1.14	0.76
	ROA	0.34	0.72	1.31	1.65
Axis	Gross NPA	29789.44	30233.82	25314.84	21822.32
	Net NPA	11275.6	9360.41	6993.52	5512.16
	% of Gross NPA	5.26	4.86	3.7	2.82
	% of Net NPA	2.06	1.56	1.05	0.73
	ROA	0.58	0.17	0.66	1.1
Kotak Mahindra	Gross NPA	4467.94	5026.89	7425.51	6469.74
	Net NPA	1544.37	1557.89	2705.17	1736.71
	% of Gross NPA	2.14	2.25	3.25	2.34
	% of Net NPA	0.75	0.71	1.21	0.64
	ROA	1.55	1.65	1.81	1.99

Source: Authors compilation from the Annual reports of banks.

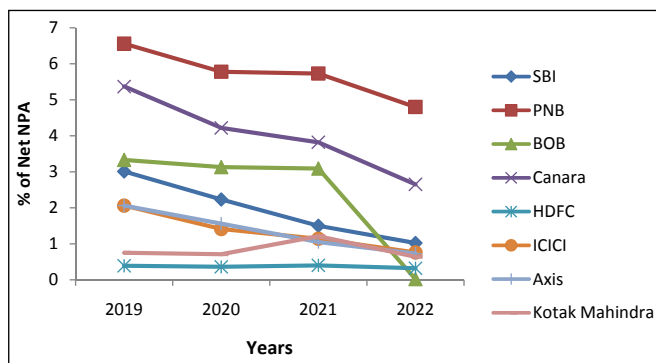


Fig. 2: Net NPAs of banks

Percentage of Net NPAs for SBI, PNB, BOB and Canara Bank are 1.02, 4.8, 0.02 and 2.65 respectively for the year 2022. Public sector banks in India, which are predominantly owned by the government, have higher NPA levels compared to private sector banks. In general, a higher level of net NPAs indicates higher credit risk and potential financial distress for a bank (Bajaj *et al.* 2021). However, significant efforts have been made by the government and the Reserve Bank of India (RBI) to address this issue. Several measures have been taken, such as asset quality reviews, restructuring schemes, and the Insolvency and Bankruptcy Code (IBC), to tackle NPAs in Public Sector Banks (Kattadiyil and Sisugoswami, 2020).

Private sector banks in India, such as HDFC, ICICI, Axis Bank and Kotak Mahindra Bank has Net NPAs

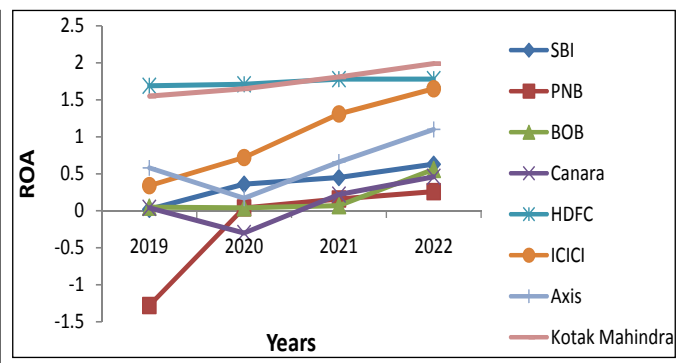


Fig. 3: ROA of Public and Private sector banks

of 0.32, 0.76, 0.73 and 0.64 respectively for the year 2022 which is lower than the NPAs level public sector banks. Private sector banks follow stricter lending practices, have better risk management frameworks, and often focus on specific sectors or segments is the main reason for lower NPAs (Sikdar and Makkad, 2013).

Fixed Panel Regression findings

The descriptive analysis of selected public and private sector banks is shown in Table 3. The mean value of ROA in public sector banks is 0.11 percent. In comparison, private sector banks have a mean ROA of 1.28 and a standard deviation of 0.60, with minimum and maximum values of 0.17 and 1.99, respectively. The minimum and maximum ROA values are -1.28 and 0.63, respectively, with a

standard deviation of 0.44. In comparison to public sector banks, the mean, minimum, maximum, and SD values and ROA are higher in private sector banks.

Table 3: Descriptive Statistics

Banks	Variable	Mean	Min.	Max.	Std. Dev.
	ROA	0.11	(1.28)	0.63	0.44
Public sector	Gross NPA	8.73	0.07	15.50	3.98
	Net NPA	3.52	0.02	6.56	1.84
Private sector	ROA	1.28	0.17	1.99	0.60
	Gross NPA	3.28	1.17	6.70	1.75
	Net NPA	0.97	0.32	2.06	0.57

Source: Panel regression output SPSS 22.

Table 4 shows the adjusted value of the R square (0.4149), which indicates that the independent variable (Gross NPA and Net NPA) is responsible for 41.49% of the fluctuations in the dependent variable (ROA). The independent factors' percentage value that the independent variables characterise the 49.2% variances in ROA is shown by the coefficient of determination (R-square) value of 0.4929. Public sector banks' independent and dependent variables are related to one another. In private sector banks, the adjusted R square value is 0.6419, which indicates that the independent variables (Gross NPA and Net NPA) are responsible for 64.19% of the variability in the dependent variable (ROA). The R-square (coefficient of determination) value of 0.6897 indicates a good link between the independent and dependent variables. Both public sector banks' F statistics, which are 6.3175 and 14.4454 respectively, are significant at the 0.05 level for both banks. The variation of the independent and dependent variables is readily shown. P values for banks in the public and private sectors were 0.012 and 0.000, respectively, both below the 0.05 threshold. Consequently, the 5% level of significance shows an important relationship between NPAs and financial performance.

Table 4: Anova summary

Banks	R ²	Adjusted R ²	F-value	P-value
Public banks	0.4929	0.4149	6.3175	0.0121
Private banks	0.6897	0.6419	14.4454	0.0005

*Predictors: (constant), Gross NPA, Net NPA; **Dependent variable: ROA.

Table 5: Fixed Effect Panel Output

Banks	Variable	Coefficients	Standard Error	t Stat	P-value
Public banks	Intercept	0.71364	0.21332	3.34540	0.00527
	Gross NPA	-0.00451	0.06492	-0.06950	0.94565
	NET NPA	-0.16011	0.14065	-1.13836	0.27551
Private banks	Intercept	2.18035	0.19469	11.19878	0.00000
	Gross NPA	-0.12557	0.14662	-0.85646	0.00725
	NET NPA	-0.50164	0.45319	-1.10690	0.01840

*Dependent variable: Return on asset.

$$ROA = (0.71364) - 0.00451(x_1) - 0.16011(x_2) \dots (1)$$

$$ROA = (2.18035) - 0.12557(x_1) - 0.50164(x_2) \dots (2)$$

Equation 1 explains the impact of NPAs (Gross NPA and Net NPA) on the financial performance (ROA) of public sector banks and Equation 2 explains the impact of NPAs (Gross NPA and Net NPA) on the financial performance (ROA) of private sector banks. Table 5 represents significant value (p value) of private sector banks is less than 0.05 for ROA, Gross NPA and Net NPA. As a result, the null hypothesis (H0) is not accepted, indicating that there is a substantial correlation between NPAs and private sector banks' financial performance (ROA). Public sector banks' ROA has a substantial p value of less than 0.05. As a result, the null hypothesis (H0) was rejected indicating that NPAs and financial performance have significantly negative relationships. The finding of these studies showed that managing credit risk properly reduces the amount added to non-performing assets (NPA). Determining the quality of the assets requires an understanding of how nonperforming assets (NPAs) change over the year (Lalitha *et al.* 2023; Kaur *et al.* 2023; Thalari and Rajanikanth, 2024). The results indicated that higher GNPA and NNPA ratios have a significant negative impact on both ROA for banks. This effect was more pronounced in public sector banks due to their higher NPA levels and lower operational efficiency.

The impact of Gross NPA and Net NPA on ROA has been different for public and private sector banks

due to variations in their lending practices, risk management frameworks, and government support (Kumari *et al.* 2017). Public sector banks, often subject to regulatory requirements and government mandates, may have a higher exposure to non-performing loans due to lending to priority sectors or weaker credit appraisal processes. Consequently, public sector banks may experience higher net NPAs and, thus, a lower ROA compared to private sector banks. The significant negative impact of NPAs on financial performance underscores the need for robust risk management practices, particularly in public sector banks (Thalari and Rajanikanth, 2024). Improved governance, better credit assessment, and proactive NPA resolution mechanisms are essential for mitigating the adverse effects of NPAs.

CONCLUSION

The study, which spans the years 2019 to 2022, looks at how NPAs affect the financial performance of banks in the public and private sectors. Following are the limitations of the study short time frame of 4 years only and limited sample of only 8 banks were used for the analysis. The panel regression model technique is the foundation for the data analysis. Overall, the findings indicate that banks in both the public and private sectors should pay careful attention to variables that are sensitive to NPAs. The study indicated that Gross NPA and Net NPA had a significant and negative impact on the financial performance (ROA) of public sector banks. Public sector banks were adversely affected due to higher NPA levels, underscoring the need for targeted reforms and stronger risk management practices. Private sector banks, while performing better, must continue to innovate and maintain stringent risk controls to sustain their performance. In conclusion, NPAs remain a critical challenge for banks, influencing their financial stability and lending capacity. Further research could explore the macroeconomic factors, impact of regulatory changes and economic cycles on NPAs and bank performance. Post covid impact on the NPAs of the banking sector can also be explored by the researchers.

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