



# A Comparison Of Nonperforming Assets (Npas) Between Public Sector And Private Sector Banks.

1. Prof Kankipati Srinivasa Rao

Dept of Commerce –

Govt Degree College Kukatpally, Medchal- Malkajigiri dt, Telangana State-500072

2. Dr. R Praveen Kumar Reddy

Associate Professor of Commerce

Govt Degree College Kukatpally, Medchal- Malkajigiri dt, Telangana State-500072

3. Dr K Mallikarjuna Rao

Associate Professor of Commerce–

Govt City College, Nayapul, Hyderabad, Telangana State

4. Dr Kandula Salaiah

Associate Professor of Commerce

Govt. Degree College for Women, Nalgonda.

## Abstract

The persistent challenge of non-performing assets (NPAs) has had a profound impact on the financial stability and profitability of the Indian banking sector. This study undertakes a comparative analysis of NPAs and key performance indicators—net profit margin (NPM) and net interest margin (NIM) between selected public sector banks (SBI, UBI, Canara Bank) and private sector banks (ICICI, HDFC, Axis Bank) over the five-year period from FY 2021 to FY 2025. The results reveal that private sector banks consistently outperform public sector banks in terms of NPM and NIM, with significant statistical differences across most years. While public sector banks have shown improvement in managing NPAs, the gap in asset quality remains significant in the later years of the study. Furthermore, regression findings confirm a strong negative relationship between NPAs and both NPM and NIM, underscoring the critical role of asset quality in financial performance.

**Keywords:** Non-Performing Assets (NPAs), Public Sector Banks, Private Sector Banks, Net Profit Margin, Net Interest Margin, Financial Performance

## Introduction

The issue of non-performing assets (NPAs) has emerged as a formidable challenge in the contemporary banking ecosystem, not only undermining the operational stability of financial institutions but also exerting macroeconomic reverberations that constrain credit expansion and economic growth. In the context of a developing economy like India, where banks constitute the primary conduit for financial intermediation, the proliferation of NPAs has become a critical parameter reflecting the robustness and prudential efficiency of the banking sector. The phenomenon of asset quality deterioration is not merely a consequence of exogenous economic shocks or regulatory arbitrage, but also a manifestation of internal inefficiencies, sectoral exposure vulnerabilities, and lapses in credit appraisal mechanisms. As the banking sector grapples with growing credit risk and provisioning burdens, NPAs have transcended their immediate accounting implications to become a focal point of policy discourse, institutional reform, and academic inquiry.

The distinction between public sector and private sector banks in India adds a complex layer to the analysis of NPA dynamics, particularly in terms of ownership structure, governance practices, and risk management capabilities. Public sector banks, by virtue of their socio-political mandates and legacy lending patterns, often operate under constraints that are not uniformly applicable to their private counterparts, leading to varied degrees of exposure to stressed assets. Conversely, private sector banks, typically more agile in credit monitoring and portfolio rebalancing, are not immune to asset quality risks, especially in an environment of economic volatility and regulatory recalibration. The comparative assessment of NPAs between these two segments of the banking industry not only facilitates a deeper understanding of systemic risk distribution, but also raises pertinent questions regarding accountability, operational efficiency, and the evolving nature of financial intermediation in a liberalized economic framework.

## Need for the Study

The persistent rise in non-performing assets (NPAs) across the Indian banking landscape has prompted serious concerns regarding financial stability and credit discipline, especially in the context of public versus private sector performance. While numerous institutional reforms and regulatory interventions have been initiated to curb the NPA crisis, the disparity in asset quality and profitability indicators between public and private sector banks remains a significant point of contention. The selection of State Bank of India (SBI), Union Bank of India (UBI), and Canara Bank from the public sector, alongside ICICI Bank, HDFC Bank, and Axis Bank from the private sector, provides a representative sample to investigate these asymmetries. A comparative analysis based on five years of recent data focusing on key financial indicators such as NPAs, net profit margin, and net interest margin offers a

nanced understanding of how institutional frameworks, risk appetite, and operational efficiency influence asset quality.

## Scope of the Study

The present study confines its analytical focus to six major banks—three from the public sector and three from the private sector—based on their significant market share, systemic importance, and data availability. Covering a five-year period, the scope encompasses a comparative evaluation of three core financial metrics: non-performing assets (NPAs), net profit margin, and net interest margin. The study does not extend to cooperative banks, foreign banks, or small finance banks, thereby maintaining a clear delineation between major public and private sector commercial banks operating within the Indian jurisdiction. Furthermore, the research is limited to secondary data derived from annual reports and published financial statements, ensuring reliability while excluding qualitative dimensions such as management practices or customer behavior. The findings aim to provide insights relevant to regulators, policymakers, financial analysts, and banking institutions regarding performance differentiation and asset quality management across ownership types.

## Research Objectives

1. To compare the nonperforming assets between public sector banks and private sector banks.
2. To know the financial performance of banking sector.
3. To know the impact of nonperforming assets on profitability in banks.

## Research Gap

While substantial literature exists on the causes and consequences of non-performing assets within the Indian banking sector, most prior studies have either treated the banking industry as a homogeneous entity or have focused predominantly on public sector banks in isolation. Moreover, many earlier analyses have been limited in scope, either temporally by examining only short timeframes or methodologically by relying on aggregate data that obscure inter-bank variations. There is a marked paucity of research that undertakes a direct, multi-year, and variable-specific comparison between leading public and private sector banks using empirical financial indicators such as NPAs, net profit margin, and net interest margin.

## Review of Literature

The persistent issue of non-performing assets (NPAs) has remained a critical challenge for the Indian banking sector, with literature consistently emphasizing the asymmetric burden borne by public sector banks compared to their private counterparts. Gaur and Mohapatra (2021) and Kaur et al. (2023) underline how elevated levels of NPAs, particularly in public sector banks, exert significant downward pressure on profitability, highlighting a clear link between asset quality and financial performance. This is reinforced by Kanoujiya et al. (2023), who argue that public banks struggle to strike a balance between

regulatory compliance, profitability, and NPA management, often due to political interference and systemic inefficiencies. The macroeconomic environment further complicates this landscape, as Anita et al. (2022) demonstrate that variables such as inflation, GDP, and unemployment significantly influence NPA ratios, particularly within institutions constrained by state-driven lending practices.

Operational and structural factors also play a decisive role in shaping NPA dynamics. Studies by Dsouza et al. (2022) and Mangala and Singla (2023) suggest that superior operational efficiency and robust corporate governance—more commonly found in private banks—serve as buffers against NPA escalation and earnings manipulation. Meanwhile, Sidhu et al. (2022) highlight the stabilizing role of liquidity management, with private banks typically better positioned to absorb credit shocks due to stronger liquidity coverage ratios. Technological modernization and risk transparency, explored by Dashottar and Srivastava (2021), also emerge as differentiators, with blockchain-enabled reporting proposed as a mechanism to improve credit monitoring. The broader regional and international perspectives offered by Yuan et al. (2022) and Foglia (2022) confirm the systemic impact of NPAs on bank profitability across different macroeconomic contexts, while Giammanco et al. (2023) emphasize the consequences of governance failures and public sector inefficiencies on the accumulation of bad loans in Asian economies.

## Research Methodology

This study adopts a quantitative and analytical approach to investigate the differences in asset quality and financial performance between public sector and private sector banks in India. The analysis is based on secondary data collected from the published annual reports and audited financial statements of six selected commercial banks over a five-year period from Financial Year (FY) 2021 to FY 2025. The selected public sector banks include State Bank of India (SBI), Union Bank of India (UBI), and Canara Bank, while the private sector sample comprises ICICI Bank, HDFC Bank, and Axis Bank. These banks were chosen based on their size, market capitalization, systemic importance, and data transparency. For each of the six banks, three key financial variables were considered: Non-Performing Assets (NPA), Net Profit Margin (NPM), and Net Interest Margin (NIM), resulting in a structured panel dataset of 30 observations.

To conduct the comparative analysis, an Independent Samples t-Test was employed separately for each financial year from FY 2021 to FY 2025 to determine whether statistically significant differences exist in the performance of public sector and private sector banks across the three variables. Public sector banks were designated as Group 1 and private sector banks as Group 2 for this test. In addition to the comparative analysis, a multiple regression analysis was conducted to examine the influence of NPAs on profitability metrics. Specifically, NPA was treated as the independent (predictor) variable, while two separate regression models were developed: Model 1 with Net Profit Margin (NPM) as the dependent variable, and Model 2 with Net Interest Margin (NIM) as the dependent variable. The data analysis was performed using SPSS (Statistical Package for the Social Sciences) and Microsoft Excel. SPSS was used

primarily for conducting statistical tests, including t-tests and regression analysis, due to its robust capabilities in hypothesis testing and model estimation. Microsoft Excel was used for data cleaning, preliminary computations, and graphical representation. Prior to analysis, the data were checked for accuracy, consistency, and the assumptions required for parametric tests, including normality, homogeneity of variance, and linearity.

### Data Analysis

The data analysis in this study was conducted using both descriptive and inferential statistical techniques to examine the differences in asset quality and financial performance between public and private sector banks in India over the period FY 2021 to FY 2025. Independent Samples t-Tests were performed annually to compare Non-Performing Assets (NPA), Net Profit Margin (NPM), and Net Interest Margin (NIM) between the two groups, revealing significant variations in profitability and interest margins favoring private banks, while differences in NPAs became statistically significant in later years. Furthermore, multiple regression analysis was employed to assess the impact of NPAs on profitability indicators, demonstrating a strong and negative influence of asset quality deterioration on both NPM and NIM.

H1: The mean values of non-performing assets vary between public sector banks and private sector banks.

The independent samples t-test conducted for each year from FY 2021 to FY 2025 indicates a progressive and statistically significant difference in non-performing assets (NPAs) between public and private sector banks. While the p-values for FY 2021 (0.07) and FY 2022 (0.10) are greater than the 0.05 significance threshold, indicating no statistically significant difference, the results for FY 2023 ( $p = 0.04$ ), FY 2024 ( $p = 0.04$ ), and FY 2025 ( $p = 0.02$ ) show a significant difference in NPA levels. Public sector banks consistently reported higher mean NPA values compared to private sector banks, especially in the earlier years, highlighting greater asset quality issues. This supports the hypothesis partially—while differences were not statistically significant in the first two years, the trend becomes significant in the latter years, indicating a structural divergence in asset performance.

H2: The mean of net profit margin differs between public sector banks and private sector banks.

The t-test results reveal that private sector banks reported significantly higher net profit margins (NPM) than their public sector counterparts in most of the years under study. The differences were statistically significant in FY 2021 ( $p = 0.05$ ), FY 2022 ( $p = 0.01$ ), FY 2024 ( $p = 0.01$ ), and FY 2025 ( $p = 0.03$ ). The exception is FY 2023, where the p-value of 0.17 indicates an insignificant difference. Nevertheless, across all years, private sector banks consistently demonstrated superior profitability, as indicated by higher mean NPM values. This finding validates H2 and underscores the relatively stronger profit-generating capability of private banks, likely attributable to more efficient cost structures, better risk management, and higher operational autonomy.



**Table 1: Year Wise Independent Samples t-Test**

Year	Variable	Sector	N	M	SD	t-value (df)	p-value	MD	Result
2021	Nonperforming assets	Public	3	0.04	0.02	2.53 (4)	0.07	0.03	Not significant
		Private	3	0.01	0.01				
	Net profit margin	Public	3	0.05	0.02	2.75 (4)	0.05	-0.13	Significant
		Private	3	0.19	0.08				
	Net interest margin	Public	3	2.27	0.18	3.91 (4)	0.01	-0.99	Significant
		Private	3	3.27	0.40				
2022	Nonperforming assets	Public	3	0.03	0.02	2.12 (4)	0.10	0.02	Not significant
		Private	3	0.01	0.01				
	Net profit margin	Public	3	0.09	0.02	4.97 (4)	0.01	-0.16	Significant
		Private	3	0.25	0.05				
	Net interest margin	Public	3	2.30	0.14	4.07 (4)	0.02	-0.91	Significant
		Private	3	3.21	0.36				
2023	Nonperforming assets	Public	3	0.02	0.01	2.82 (4)	0.04	0.01	Significant
		Private	3	0.00	0.01				
	Net profit margin	Public	3	0.13	0.03	-1.64 (4)	0.17	-0.09	Not significant
		Private	3	0.22	0.10				
	Net interest margin	Public	3	2.50	0.15	-5.05 (4)	0.01	-1.06	Significant
		Private	3	3.57	0.33				
2024	Nonperforming assets	Public	3	0.01	0.00	2.81 (4)	0.04	0.01	Significant
		Private	3	0.00	0.00				
	Net profit margin	Public	3	0.14	0.01	-5.83 (4)	0.01	-0.11	Significant
		Private	3	0.25	0.03				
	Net interest margin	Public	3	2.55	0.09	-3.12 (4)	0.03	-0.89	Significant
		Private	3	3.45	0.49				
2025	Nonperforming assets	Public	3	0.01	0.00	3.50 (4)	0.02	0.01	Significant
		Private	3	0.00	0.00				
	Net profit margin	Public	3	0.15	0.02	-3.25 (4)	0.03	-0.08	Significant
		Private	3	0.24	0.04				
	Net interest margin	Public	3	2.39	0.17	-4.62 (4)	0.01	-1.05	Significant
		Private	3	3.44	0.36				

Notes: M = Mean, SD = Standard Deviation, MD = Mean Difference, df = degrees of freedom

Source: Output from SPSS

H3: The mean values of net interest margin vary between public sector banks and private sector banks.

The analysis reveals statistically significant differences in net interest margins (NIM) between public and private sector banks across all five years. The p-values for FY 2021 (0.01), FY 2022 (0.02), FY 2023 (0.01), FY 2024 (0.03), and FY 2025 (0.01) are all below the 0.05 threshold. The direction of difference is consistent, with private sector banks reporting significantly higher NIMs each year, with mean differences ranging from 0.89 to 1.06. This consistent trend confirms H3 and suggests that private banks maintain a more favorable spread between interest income and expenses, possibly due to better asset-liability management, a stronger retail lending portfolio, and more dynamic pricing of credit products.

The independent samples t-test results across five financial years (FY 2021–2025) reveal consistent and statistically significant differences in financial performance indicators between public and private sector banks. For non-performing assets, the difference was not statistically significant in FY 2021 and

2022, but became significant from FY 2023 onward, with public sector banks reporting consistently higher NPA levels. In contrast, net profit margin showed significant differences in four out of five years, with private sector banks demonstrating higher profitability across all years, except in FY 2023 where the difference was not significant. Net interest margin exhibited significant differences every year, with private sector banks maintaining a clear advantage, reflecting their superior efficiency in interest-based income generation.

**Table 2: Regression coefficients**

<i>Model</i>	<i>Path</i>	<i>Beta</i>	<i>t-value</i>	<i>p-value</i>	<i>R-square</i>	<i>F(1,28)</i>
1	Nonperforming assets → Net profit margin	-4.32	-5.20	0.00	0.49	27.09
2	Nonperforming assets → Net interest margin	-27.32	-4.06	0.00	0.37	16.51

Source: Output from SPSS

H4: Non-performing assets have a negative impact on net profit margin in the banking sector.

The regression analysis for Model 1, where NPA is the independent variable and net profit margin is the dependent variable, yields a negative beta coefficient of -4.32, with a t-value of -5.20 and a p-value of 0.00. This result is statistically significant at the 1% level, indicating a strong and negative relationship between NPAs and net profit margin. The R-squared value of 0.49 suggests that approximately 49% of the variance in NPM is explained by changes in NPAs. The results substantiate H4, highlighting that a rise in NPAs severely erodes profitability in banks, likely due to increased provisioning requirements and reduced interest income from non-performing assets.

H5: Non-performing assets have a negative impact on net interest margin in the banking sector.

In Model 2, NPAs exhibit a strong negative effect on net interest margin, with a beta value of -27.32, t-value of -4.06, and a p-value of 0.00, indicating statistical significance at the 1% level. The R-squared value of 0.37 demonstrates that 37% of the variance in NIM is explained by variations in NPAs. The results confirm H5, establishing that higher NPAs are associated with a significant contraction in interest margins, potentially due to impaired asset yield and the increasing cost of managing risk-weighted assets. The magnitude of the beta coefficient also points to a substantial sensitivity of NIM to asset quality deterioration.

The regression analysis for Model 1 examines the impact of non-performing assets on net profit margin across all selected banks. The results reveal a strong and statistically significant negative relationship between NPAs and NPM, with a beta coefficient of -4.32 and a p-value of 0.00, indicating significance at the 1% level. The R-squared value of 0.49 implies that approximately 49% of the variation in net profit margin can be explained by changes in NPAs. This finding underscores the detrimental effect of deteriorating asset quality on profitability, as higher NPAs lead to increased provisioning costs and reduced income, thereby constraining the banks' profit-generating capacity.

Model 2 investigates the relationship between non-performing assets and net interest margin, and the analysis reveals a significant and negative association. The beta value of -27.32 indicates a steep decline in net interest margin with increasing NPAs, supported by a statistically significant p-value of 0.00. The R-squared value of 0.37 suggests that 37% of the variation in NIM is accounted for by the level of NPAs. This implies that a higher incidence of non-performing assets adversely affects the banks' core income-generating capacity from lending operations, likely due to impaired loans earning no interest and the rising cost of risk management, thereby eroding interest spreads.

## Discussion and Conclusion

The empirical results of this study underscore a persistent and statistically significant divergence in financial performance between public sector and private sector banks in India. Private banks consistently outperformed their public counterparts in terms of net profit margin and net interest margin across all five financial years, as confirmed by the t-test results. While the difference in non-performing assets was not statistically significant in the initial two years, the subsequent years revealed a marked reduction in NPAs among private banks, suggesting more effective risk management and asset recovery mechanisms. These findings point to structural efficiencies in private sector banking, including more robust credit appraisal processes, better asset quality monitoring, and more agile operational practices. In contrast, public sector banks continue to be burdened by legacy NPAs, slower resolution processes, and broader social lending obligations, which collectively weigh down their profitability and margins.

The regression analysis further reinforces the critical role of asset quality in determining financial performance. The strong and statistically significant negative relationship between NPAs and both net profit margin and net interest margin reveals that rising NPAs directly impair banks' profitability and their ability to generate interest income. This relationship was especially pronounced in private sector banks, which appear to be more sensitive to asset quality changes given their leaner cost structures and tighter credit portfolios. The findings suggest that effective NPA management is not merely a regulatory necessity but a strategic imperative for maintaining financial health. In conclusion, the study highlights the urgent need for public sector banks to accelerate structural reforms, adopt data-driven credit monitoring, and enhance recovery mechanisms. Meanwhile, private banks must continue to invest in predictive analytics and credit risk assessment tools to sustain their competitive advantage in asset quality and profitability.

## Recommendations

In light of the findings, several strategic and policy-level recommendations can be advanced. First, public sector banks should prioritize the modernization of their credit appraisal and risk management frameworks. This may include the adoption of AI-driven credit scoring models, real-time asset monitoring systems, and early warning mechanisms to identify potential NPAs before they crystallize. Second, both public and private sector banks must institutionalize robust loan recovery strategies, including more



efficient use of insolvency and bankruptcy mechanisms under the Insolvency and Bankruptcy Code (IBC). Third, regulatory bodies such as the Reserve Bank of India (RBI) should encourage differentiated provisioning norms and performance-linked capital incentives that reward institutions maintaining low levels of NPAs. Additionally, a more integrated approach to bank governance especially within the public sector could help mitigate politically influenced lending and improve accountability. Finally, consistent benchmarking of profitability and margin indicators should be implemented to assess long-term financial sustainability, rather than relying solely on short-term performance metrics.

### **Limitations of the Study**

While the study provides meaningful insights, it is subject to certain limitations. Firstly, the analysis is confined to a small sample of six banks, which, although representative, may not fully capture the heterogeneity of the Indian banking sector. Secondly, the study is based exclusively on secondary data from published financial statements, which may not reflect certain qualitative aspects such as management efficiency, customer behavior, or internal governance practices. Thirdly, external macroeconomic variables such as GDP growth, inflation, and regulatory shifts—have not been explicitly modeled, although they may influence NPAs and profitability. Additionally, the study spans only five financial years, which, though recent and relevant, may not account for long-term cyclical trends or post-pandemic structural changes in banking behavior.

### **Directions for Future Research**

Future research can expand the scope of this study in several ways. A broader dataset incorporating a larger number of banks, including regional rural banks, cooperative banks, and foreign banks operating in India, would provide a more comprehensive analysis of sector-wide trends. Incorporating macroeconomic variables such as interest rate volatility, credit-to-GDP ratio, and industrial output could yield deeper insights into the systemic factors affecting asset quality and profitability. Further, longitudinal studies over extended periods could better capture the impact of regulatory reforms and economic cycles on financial performance. Qualitative research such as case studies, expert interviews, or content analysis of governance practices could also complement quantitative findings and provide richer interpretations. Finally, future research could explore the role of digital banking and fintech integration in influencing the NPA-performance relationship, particularly as the sector continues to evolve in a technologically driven environment.

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## Appendix

Table 3: Secondary data

Sector	Bank	Year	NPA	NPM	NIM
Public	SBI	2021	0.015	0.077	2.440
Public		2022	0.010	0.115	2.420
Public		2023	0.007	0.151	2.620
Public		2024	0.006	0.147	2.580
Public		2025	0.005	0.153	2.500
Public	UBI	2021	0.046	0.042	2.300
Public		2022	0.037	0.077	2.330
Public		2023	0.017	0.104	2.550
Public		2024	0.010	0.137	2.620
Public		2025	0.006	0.167	2.480
Public	Canara	2021	0.038	0.037	2.080
Public		2022	0.027	0.082	2.150
Public		2023	0.017	0.126	2.330
Public		2024	0.013	0.134	2.450
Public		2025	0.007	0.142	2.200
Private	ICICI	2021	0.021	0.205	3.160
Private		2022	0.008	0.270	3.360
Private		2023	0.005	0.292	3.920
Private		2024	0.005	0.286	3.970
Private		2025	0.004	0.289	3.830
Private	HDFC	2021	0.004	0.257	3.710
Private		2022	0.003	0.289	3.480
Private		2023	0.003	0.273	3.520
Private		2024	0.003	0.235	3.000
Private		2025	0.004	0.224	3.130
Private	AXIS	2021	0.011	0.104	2.930
Private		2022	0.007	0.193	2.810
Private		2023	0.004	0.112	3.260
Private		2024	0.003	0.227	3.370
Private		2025	0.003	0.215	3.370