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Non-Performing Assets and Their Impact on Financial Performance: A Comparative Study of SBI and ICICI Bank (2015–2024)

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Abstract

The rising volume of Non-Performing Assets (NPAs) has posed a persistent challenge to the financial stability and profitability of the Indian banking sector. This research presents a comparative study of NPAs in two of India's leading banks—State Bank of India (SBI) and ICICI Bank—spanning the period from 2015 to 2024. The objective is to analyze NPA trends, evaluate the strategies adopted by both banks to manage and reduce NPAs, and assess the impact of NPAs on key financial performance indicators. A *descriptive-comparative research design was employed using secondary data from annual reports and RBI bulletins. Statistical tools such as compound annual growth rate (CAGR), t-tests, and Pearson correlation analysis were applied using SPSS software.*

The findings reveal that both SBI and ICICI Bank experienced a sharp rise in NPAs between 2015 and 2018, followed by a significant decline up to 2024. Although SBI exhibited marginally higher average NPA ratios, the differences were statistically insignificant. However, the impact of NPAs on financial performance differed across banks. For SBI, strong negative correlations were found between NPAs and indicators such as Return on Assets (ROA), Return on Equity (ROE), Earnings Per Share (EPS), and Capital Adequacy Ratio (CAR), indicating significant financial vulnerability. In contrast, ICICI Bank's performance was moderately affected, with NPAs showing significant inverse relationships mainly with Net Interest Margin (NIM) and EPS.

Strategically, SBI focused on legal recourse and restructuring mechanisms, leveraging tools like SARFAESI and the Insolvency and Bankruptcy Code (IBC). ICICI Bank adopted a more technology-driven model, employing AI-based risk assessment, securitization, and shifting towards retail lending. Both strategies proved effective, as evidenced by the decline in NPA levels and improved financial metrics in the post-2018 period.

This study offers meaningful insights for banking professionals, policymakers, and investors by showcasing how distinct strategies in public and private sector banks affect asset quality and financial resilience. The research emphasizes the importance of early warning systems, data analytics, and diversified lending portfolios in managing credit risk efficiently.

Keywords: Non-Performing Assets (NPAs), SBI, ICICI Bank, Financial Performance, ROA, ROE, NIM, EPS, Risk Management, Asset Quality, SARFAESI, IBC

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Contribution by the Authors

Author	Contribution
Author 01	- Initiated the research idea - Drafted the design of the study - Carried out the comparative framework and policy-level implications -Did Review of Literature
Author 02	- Conducted data collection - Performed statistical analysis using SPSS - Created bibliometric visualizations - Drafted the manuscript
Author 03 & Author 04	- Jointly reviewed the results - Finalized the conclusions - Approved the final version of the paper

1. INTRODUCTION

1.1 Background of the Study

The banking sector serves as the backbone of economic development in any country. In India, banks function as crucial financial intermediaries, channeling savings into productive investments and facilitating credit distribution across various sectors of the economy. The efficiency and stability of the banking system are vital for sustaining economic growth. However, the overall health of the banking sector is heavily influenced by the quality of its assets, particularly its loan portfolio.

One of the most pressing issues confronting banks today is the rising volume of Non-Performing Assets (NPAs). NPAs refer to loans or advances that cease to generate income for banks due to default or non-repayment by borrowers. A growing level of NPAs directly hampers a bank's profitability, reduces liquidity, restricts credit flow, and undermines the confidence of investors and depositors. If left unmanaged, high NPAs can threaten the entire financial system's stability and resilience.

The keyword "Non-Performing Asset (NPA)" has become a focal point in financial distress literature, symbolizing broader issues in credit risk management, banking regulations, and macroeconomic stability. As evidenced by bibliometric analyses, NPAs appear at the intersection of multiple research clusters. For example, the purple cluster connects NPAs with credit risk, capital adequacy ratio, solvency, and risk management—highlighting their significance in regulatory compliance and financial forecasting. The green cluster links NPAs with profitability, liquidity, and panel data models, emphasizing their direct impact on financial performance. Meanwhile, the blue cluster reveals NPAs' association with debt, insolvency, and bankruptcy, reflecting their importance in systemic risk and macroeconomic analyses.

In the Indian banking landscape, State Bank of India (SBI) and ICICI Bank are two leading institutions representing the public and private sectors, respectively. Both banks hold substantial market share and play a critical role in shaping the country's credit environment. However, both have also faced persistent challenges in managing their NPAs. A comparative study of SBI and ICICI Bank offers a meaningful opportunity to explore the trends, causes, and consequences of NPAs within different organizational frameworks, lending strategies, and governance structures.

Given the multidimensional importance of NPAs spanning financial health, regulatory compliance, and credit efficiency, this study aims to analyze and compare the non-performing asset trends of SBI and ICICI Bank. Such an inquiry is vital to understanding how different types of banks manage credit risk and how their strategies influence asset quality and long-term financial sustainability.

1.2 Rationale of the Study

The issue of rising NPAs has gained national attention, especially in the wake of economic slowdowns, global financial crises, and sector-specific downturns. Although considerable research has been conducted on NPAs, there is a pressing need for comparative studies that examine the differences in asset quality and management practices across major banks. SBI, with its wide reach and government backing, and ICICI Bank, with its aggressive lending strategies and innovation-driven approach, offer a meaningful comparison to study how NPAs are managed in different banking environments.

1.3 Research Problem

While various banks have adopted policies and mechanisms to reduce NPAs, the effectiveness of these strategies remains questionable. The persistent rise in bad loans across both public and private banks raises concerns about credit appraisal systems, recovery processes, and risk management frameworks. This study seeks to address the following core question:

How do NPA trends and management strategies compare between SBI and ICICI Bank over a selected period?

1.4 Significance of the Study

- The findings of this study will provide valuable insights to stakeholders including investors, regulators, and bank management regarding the comparative NPA performance of two major banks in India.
- It will contribute to a better understanding of the NPA trends in the Indian banking sector.
- The study can serve as a basis for further research on the factors influencing NPA levels in different types of banks.

1.5 Objectives of the Study

1. To study the trends and patterns of non-performing assets in SBI & ICICI Bank from 2015-2024.
2. To compare the different strategies adopted by SBI & ICICI Bank for managing as well as reducing NPA.
3. To examine the impacts of NPAs on the financial performance and even profitability of both banks.

1.6. Hypothesis of the Study

<table>
<tr><td>1.</td><td colspan="2">H_{01}-There is no significant difference in the NPAs between SBI & ICICI Bank in terms of trends and patterns between SBI & ICICI bank.
H_{a1}-There is a significant difference in the NPAs between SBI & ICICI Bank in terms of trends and patterns between SBI & ICICI bank.</td></tr>
<tr><td>2.</td><td>A)</td><td>H_{02}-There are no significant impacts of NPAs on the financial performance and profitability of SBI Bank.
H_{a2}-There are no significant impacts of NPAs on the financial performance and profitability of SBI Bank.</td></tr>
<tr><td></td><td>B)</td><td>H_{03}-There are no significant impacts of NPAs on the financial performance and profitability of ICICI Bank.</td></tr>
</table>

		H_{a3}-There are no significant impacts of NPAs on the financial performance and profitability of ICICI Bank.

1.7 Structure of the Report

The study is organized into 7 chapters. The current chapter introduces the background, need, and objectives. Chapter 2 presents a review of the literature along with bibliometric analysis. Chapter 3 outlines the research methodology. Chapter 4 discusses the analysis, findings, and interpretation. Chapter 5 concludes the study and suggests policy-level recommendations.

2. Review Of Literature

To understand the current research landscape on Non-Performing Assets (NPAs), particularly in the Indian banking sector, a review of key academic contributions was conducted along with visual bibliometric and citation analysis. This section highlights core themes, key findings, and identifies gaps in existing research laying the foundation for the present study on the comparative analysis of NPAs in State Bank of India (SBI) and ICICI Bank.

2.1 Visualizing Research Trends

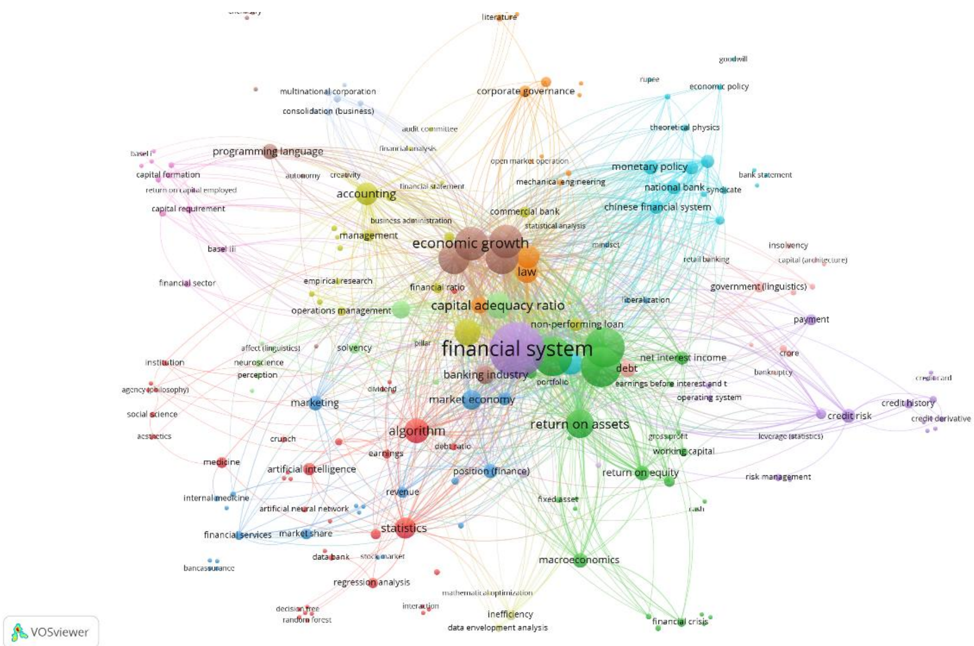


Figure 01: *Bibliometric Keyword Co-occurrence Map Generated Using VOSviewer.*

To better understand the key themes and relationships in existing literature, a bibliometric analysis was conducted using VOSviewer. The visualization (see Figure 01) reveals clusters of frequently co-occurring keywords such as financial system, return on assets, credit risk, and non-performing loan. This highlights the central role of NPAs in financial research and shows their strong connections with banking performance metrics like return on equity and capital adequacy. The position of non-performing loan near the core of the map further validates the relevance of this study in the current research landscape.

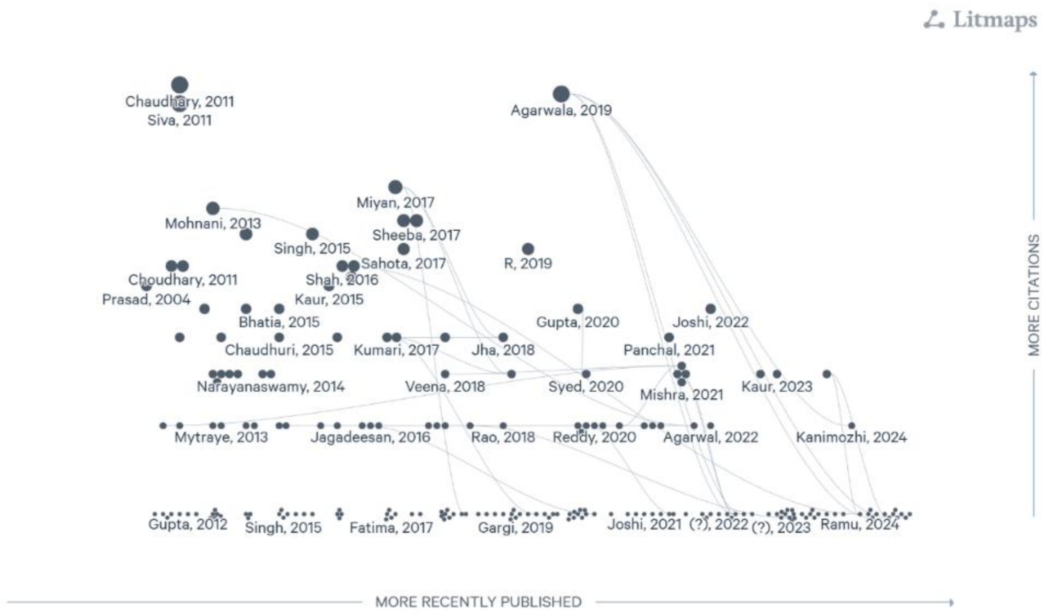


Figure 02: *Litmaps visualization showing citation relationships and key developments in NPA-related research over time.*

The Litmaps visualization presents a citation-based mapping of key academic papers related to NPAs, Indian banking, and financial performance. The horizontal axis shows the publication timeline (left = older, right = more recent), while the vertical axis shows the number of citations (top = more cited). Larger dots indicate more influential papers, and connecting lines represent citation links between studies. Foundational works like Prasad (2004) and Chaudhary (2011) are visible on the left, while newer papers such as Kaur (2023) and Ramu (2024) appear on the right, showing how research has evolved over time.

2.2 Key Literature Contributions

Khandelwal & Choudhary (2020), This study highlights the importance of a stable banking sector for economic growth and examines NPAs in SBI and ICICI Bank using secondary data. It explains the rising trend of NPAs and provides recommendations to control them.

Rai, Gaurav Deep (2017), The author compares the financial health of SBI and ICICI Bank using the Mann-Whitney U test. The study analyzes various indicators of soundness and assesses how well both banks comply with RBI and Basel norms.

Ahmad & Khan (2019), This research compares Gross and Net NPAs of SBI and ICICI Bank from 2009 to 2018 using an Independent Sample t-test. It finds a clear difference in Gross NPA ratios between the banks but no significant difference in Net NPAs.

Jain, Lamba & Soni (2021), This study focuses on how NPAs impact the financial performance of public, private, and foreign banks in India. It finds that while income increases with NPAs, profits tend to decline, showing the negative effect of rising NPAs.

2.3 Literature Gap

Most studies on NPAs focus on either public or private banks separately, and few directly compare SBI and ICICI Bank. Also, many use older data and don't include visual tools to show research trends. This study fills the gap by comparing both banks using recent data and tools.

3. Research Methodology

The purpose is to describe how the study was conducted. It includes the methods used to collect and analyze data, along with a clear explanation of how the research objectives and hypotheses were addressed.

3.1 Research Design

A well-structured research design is critical for systematically addressing the research objectives and ensuring the reliability and validity of the findings. This study adopts a descriptive and comparative research framework to analyze and evaluate the trends and impacts of Non-Performing Assets (NPAs) in two major Indian banks, State Bank of India (SBI) and ICICI Bank over a ten-year period.

3.1.2 Research Design Type

This study employs a Descriptive and Comparative Research Design:

- Descriptive: To understand and explain the nature, trend, and movement of NPAs in SBI and ICICI Bank over the study period.
- Comparative: To conduct a side-by-side comparison of the financial performance of both banks based on their NPA levels, using statistical tools and performance indicators.

3.2 Source of Data

The study relies entirely on secondary data, which has been collected from credible and publicly available sources:

- Annual reports and financial statements of SBI and ICICI Bank (downloaded from their official websites).
- Supplementary data from the Reserve Bank of India (RBI) publications, banking sector bulletins, and financial regulatory reports to validate trends.
- Research databases and peer-reviewed articles to support bibliometric visualizations.

3.3 Study Period

The research covers a ten-year period from FY 2014-15 to FY 2023-24, offering a longitudinal view of how NPAs have evolved over time and their relationship with key financial indicators.

3.4 Population and Sampling

The population of this study includes public and private sector banks in India. However, purposive sampling is used to select SBI (public sector) and ICICI Bank (private sector) due to their dominant positions in their respective sectors, wide customer base, and consistent availability of financial data.

3.5 Restatement of Objectives and Hypotheses

To ensure clarity and alignment with the research framework, the key objectives and associated hypotheses of this study are restated below. These guided the choice of research design, selection of data, and statistical methods applied in the analysis.

3.5.1 Objectives of the Study

1. To study the trends and patterns of non-performing assets (NPAs) in SBI and ICICI Bank from 2015 to 2024.
2. To compare the strategies adopted by SBI and ICICI Bank to manage and reduce NPAs.
3. To examine the impact of NPAs on the financial performance and profitability of both banks.

3.5.2 Hypotheses of the Study

- **H_{01}**: There is no significant difference in the NPAs between SBI and ICICI Bank in terms of trends and patterns.
- **H_{a1}**: There is a significant difference in the NPAs between SBI and ICICI Bank in terms of trends and patterns.
- **H_{02}**: NPAs have no significant impact on the financial performance and profitability of SBI Bank.
- **H_{a2}**: NPAs have a significant impact on the financial performance and profitability of SBI Bank.
- **H_{03}**: NPAs have no significant impact on the financial performance and profitability of ICICI Bank.
- **H_{a3}**: NPAs have a significant impact on the financial performance and profitability of ICICI Bank.

3.6 Variables Under Study

The variables are aligned with the specific objectives of the research and divided into independent and dependent categories.

Objective	Independent Variable	Dependent Variables
1. To compare the trend and levels of NPAs in SBI and ICICI Bank.	Type of Bank (SBI & ICICI)	Gross NPA (%), Net NPA (%), Net NPA to Advances (%)
2. To assess the relationship between NPAs and financial performance.	Net NPA Ratio (%)	Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), Earnings Per Share (EPS), Capital Adequacy Ratio (CAR)

3.7 Tools and Techniques for Analysis

To ensure a robust analysis of the collected data, a combination of statistical tools and techniques is employed:

- Descriptive Statistics: The Mean, Standard Deviation (SD), and Compound Annual Growth Rate (CAGR %) is be calculated for each NPA-related indicator across the 10-year study period for both SBI and ICICI Bank. This helps identify patterns, dispersion, and growth trends in NPAs.
- Ratio and Percentage Analysis: Used to analyze year-on-year changes in key indicators such as Gross NPA, Net NPA, and Net NPA to Advances ratio, providing a clear picture of each bank's NPA dynamics.
- Independent Samples Two-Sample T-Test: This test has been determined whether the difference in the mean values of NPA indicators (GNPA, NNPA, and Net NPA to Advances ratio) between SBI and ICICI Bank is statistically significant. The test will be conducted at a 5% level of significance ($p < 0.05$).
- Correlation Analysis: Pearson correlation coefficients is calculated to explore the strength and direction of relationships between NPA ratios and financial performance metrics (such as ROA, ROE, NIM, EPS, and CAR). This will help identify how asset quality impacts overall financial health.
- Statistical Software: The data analysis is carried out using SPSS for Windows (Version 20.0), which ensures accurate statistical computation and facilitates comparative interpretation.

3.8 Data Presentation

The analyzed data is presented using:

- Tables for numerical values and year-wise comparisons.
- Graphs and Charts (bar graphs, line graphs, and pie charts) to visually demonstrate trends, differences, and relationships.

This structured approach ensures the clarity, accuracy, and visual appeal of the findings, making the interpretation more accessible and academically rigorous.

3.9 Ethical Considerations

Since this study is based on publicly available data, there are no ethical concerns related to human subjects. However, all data sources are duly acknowledged to maintain academic integrity.

4. Data Analysis, Findings, and Interpretation

The analysis of data collected from the financial reports of SBI and ICICI Bank over the period 2015 to 2024. The findings are interpreted in line with the research objectives, and the hypotheses are tested using appropriate statistical tools to draw meaningful conclusions.

4.1 Objective One: To study the trends and patterns of non-performing assets in SBI & ICICI Bank from 2015-2024.

Hypothesis: H_{01}-There is no significant difference in the NPAs between SBI & ICICI Bank in terms of trends and patterns between SBI & ICICI bank.

H_{a1}-There is a significant difference in the NPAs between SBI & ICICI Bank in terms of trends and patterns between SBI & ICICI bank.

Years	SBI Bank			ICICI Bank		
	Gross NPA (%)	**Net NPA (%)**	**Net NPA To Advances (%)**	**Gross NPA (%)**	**Net NPA (%)**	**Net NPA To Advances (%)**
2015	4	2.12	2	4	1.61	2.00
2016	7	3.81	4	6	2.98	3
2017	7	3.71	4	9	5.43	5.00
2018	11	5.73	6	0	5.43	5
2019	8	3.01	3	7	2.29	2
2020	6	2.23	2	6	1.54	2
2021	5	1.5	2	8	2.1	2
2022	3.97	1.02	1.02	4	0.81	1
2023	2.78	0.67	0.67	2.87	0.51	0.51
2024	2.24	0.57	0.57	2.26	0.45	0.45
Mean	5.699	2.44	2.526	4.913	2.32	2.296
Standard deviation	2.52429	1.56	1.64339	2.645	1.73	1.54099
CAGR (%)	2.69007497	1.24	1.11564	2.687	0.74	1.16625

Note: GNPA= Gross Non-Performing Assets, NNPA= Net Non-Performing Assets, NNPA to Advance= Net Non-Performing Assets to Advances (%)

Source: *Author Compiled Data from Annual report of SBI & ICICI Bank from 2015 to 2024 Through*

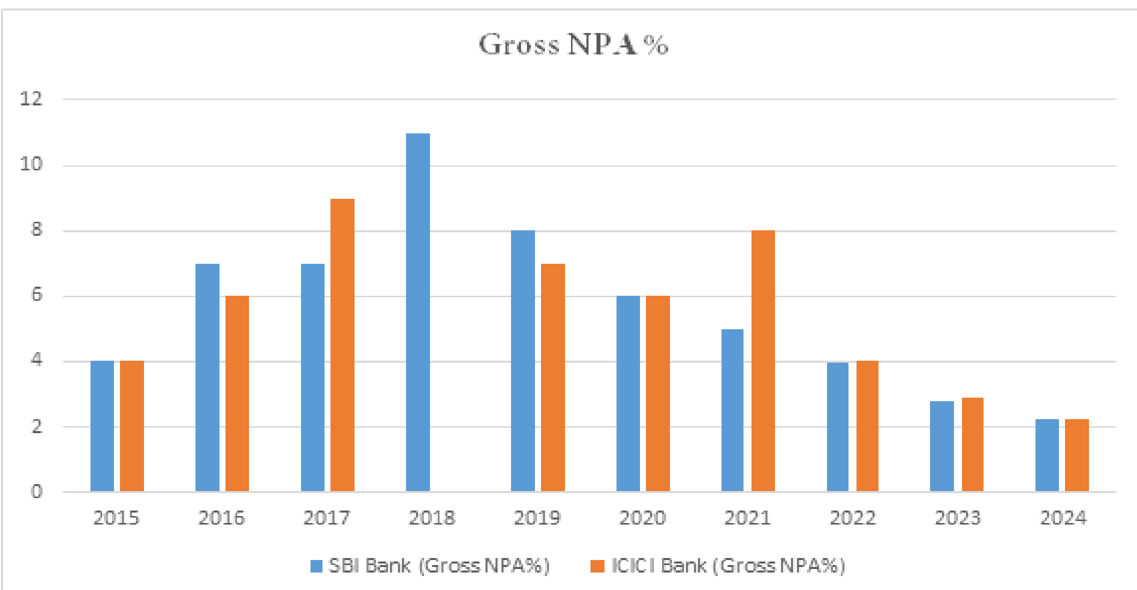
Two-Sample t-Test

NPA Metric	SBI Bank Mean (%)	ICICI Bank Mean (%)	T-Statistic	p-value	Result
Gross NPA (%)	5.70	4.91	0.644	0.527> 0.05	No Significant Difference
Net NPA (%)	2.44	2.32	0.157	0.877> 0.05	No Significant Difference
Net NPA To Advances (%)	2.53	2.30	0.306	0.763> 0.05	No Significant Difference

Interpretation:

Two-sample t-tests on mean NPA metrics (Gross, Net, and Net NPA to Advances) between SBI and ICICI Bank from 2015-2024 yielded p-values greater than 0.05. This indicates a failure to reject the null hypothesis for all three metrics. Consequently, the analysis state no statistically significant difference in the average levels of Gross NPA, Net NPA, and Net NPA to Advances between the two banks during this period. Therefore, based on the mean values, the NPAs of SBI and ICICI Bank do not show a significant difference.

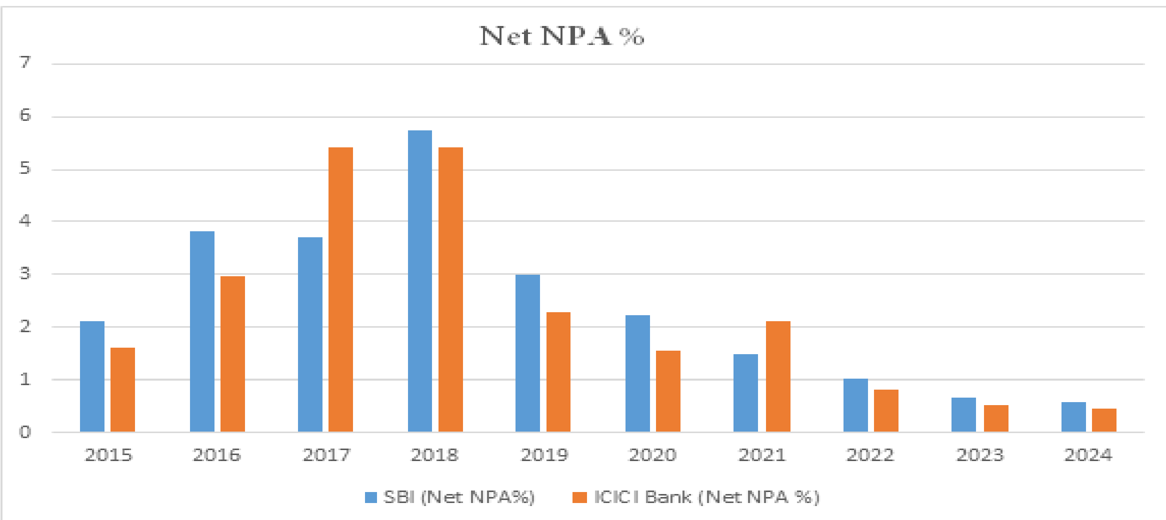
Graph No.1: Shows a comparative chart of Gross NPA % of SBI & ICICI Bank



Interpretation:

From 2015 to 2024, both SBI and ICICI Bank experienced a peak in Gross NPA (%) around 2018**,** indicating financial distress and asset quality deterioration. SBI consistently had a higher Gross NPA (%) than ICICI Bank, except in 2015 and 2016 when both banks had similar levels. After 2018, Gross NPA (%) declined steadily for both banks, reflecting stronger risk management, improved loan recovery, and stricter banking regulations. By 2022-2024, Gross NPA levels reached historical lows, suggesting better credit evaluation, reduced defaults, and financial stability. The overall trend highlights an initial phase of rising NPAs, a peak in 2018, and a significant improvement post-2019, with SBI and ICICI Bank showing better asset quality and financial discipline in recent years.

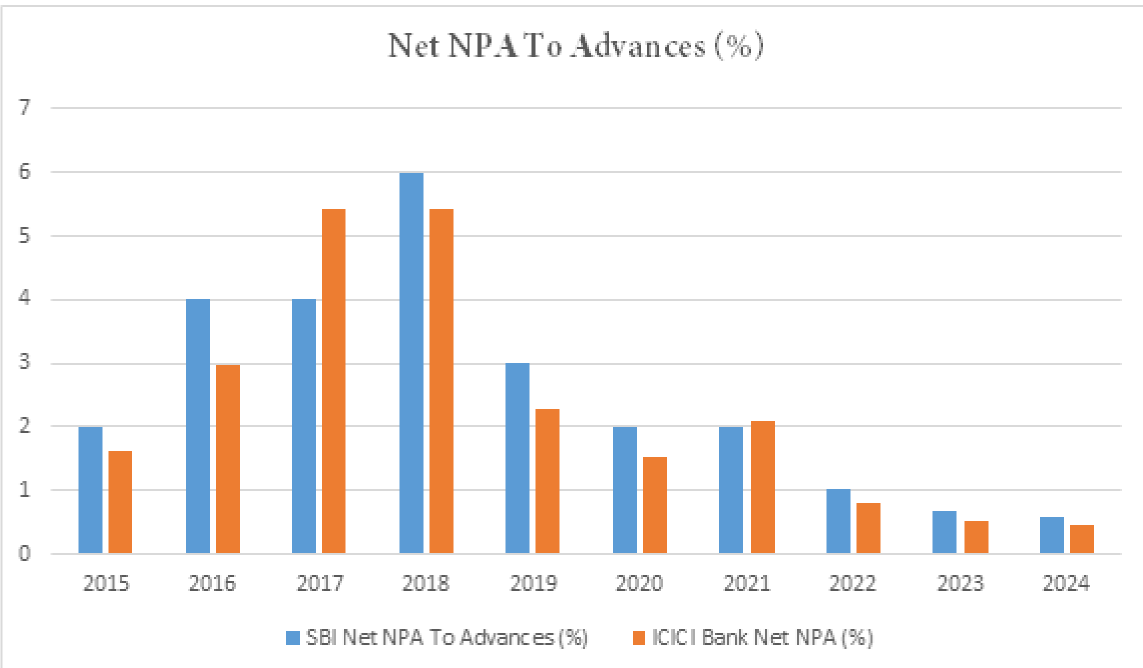
Graph No.2: Shows a comparative chart of Net NPA % of SBI & ICICI Bank



Interpretation:

From 2015 to 2024, both SBI and ICICI Bank experienced a peak in Net NPA (%) around 2018, signalling financial stress and rising non-performing assets. However, post-2018, both banks saw a steady decline in Net NPA (%), indicating improved asset quality and better risk management. ICICI Bank initially had lower NPAs than SBI (2015-2017), but its Net NPA spiked in 2018, aligning with SBI's levels. After 2019, ICICI Bank's recovery was faster**,** reflecting stronger asset recovery and risk control measures. By 2022-2024, both banks reached historically low NPAs, showing effective credit risk management and financial stability. The narrowing gap between their Net NPA percentages suggests SBI has also strengthened its asset quality. The 2018 peak likely reflects broader economic challenges, while the post-2018 decline highlights stricter banking regulations, better recovery strategies, and improved financial health for both banks.

Graph No.2: Shows a comparative chart of Net NPA to Advance % of SBI & ICICI Bank



Interpretation:

The Net NPA to Advances (%) for SBI and ICICI Bank peaked in 2018, highlighting financial stress and rising bad loans. ICICI Bank had lower NPAs than SBI in the initial years (2015-2016), but both banks saw a sharp increase leading up to 2018. After this peak, a consistent decline is observed, reflecting improved asset quality, better risk management, and effective recovery strategies. By 2022-2024, Net NPA levels are at historic lows, suggesting stronger credit policies, enhanced loan monitoring, and financial stability. The trend signifies a challenging period until 2018, followed by a significant improvement in loan quality and banking discipline post-2019.

4.2 Objective Two : To compare the different strategies adopted by SBI & ICICI Bank for managing as well as reducing NPA.

Over the past decade, SBI and ICICI Bank have faced significant challenges in managing Non-Performing Assets (NPAs) due to various macroeconomic and sectoral factors. From 2015 to 2018, both banks witnessed a sharp increase in NPAs, primarily due to corporate loan defaults, poor credit risk management in sectors like infrastructure and power, and economic slowdowns. SBI, being a public sector bank, had a broader exposure to stressed sectors, leading to a peak GNPA of nearly 9.85% in 2018. On the other hand, ICICI Bank, being a private sector bank, managed to keep its NPA levels slightly lower but still faced a GNPA peak of 8.76% in 2018 due to defaults in large corporate accounts.

The State Bank of India, as a Public Sector Bank (PSB), faced significant NPAs due to exposure to large corporate loans and MSMEs. SBI's strategies focused on resolution through legal measures, restructuring, and digital tracking.

SBI Strategy	**Implementation**	**Impact**
Early Warning System	Introduced SMA categorization & AI-based alerts	Improved early detection
SARFAESI Act Usage	Used SARFAESI Act to seize assets of defaulters	Faster legal resolutions
IBC (2016)	Took stressed assets to NCLT for resolution	₹30,000 Cr recovered by 2020
Sale to ARCs	Sold NPAs to Asset Reconstruction Companies	Offloaded bad loans
One-time Settlements (OTS)	Encouraged borrowers to repay with discounts	Recovery improved
Digital Tracking & AI Monitoring	Used AI to track loan defaults	Improved collection efficiency

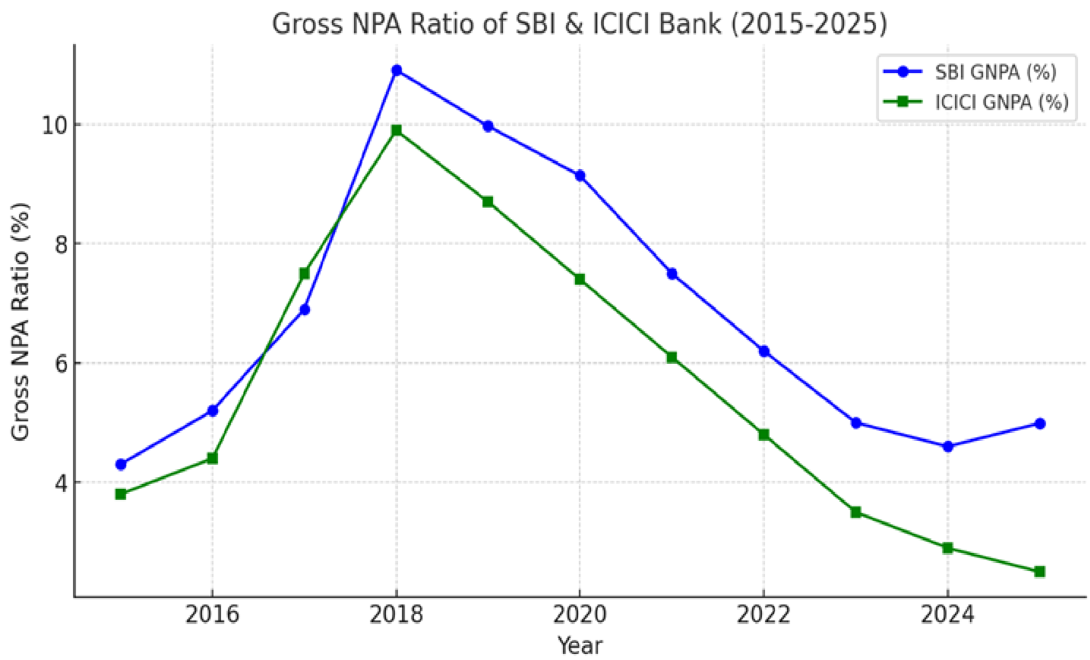
ICICI Bank, being a Private Sector Bank (PVB), adopted a proactive approach with risk-based pricing, AI-powered monitoring, and securitization of bad loans.

ICICI Bank Strategy	**Implementation**	**Impact**
AI-Based Risk Assessment	Used Machine Learning (ML) for loan monitoring	Reduced fresh NPAs
Granular Retail Loan Focus	Shifted focus from Corporate to Retail lending	Minimized large defaults
Higher Provisioning Coverage Ratio (PCR)	Increased provisions for NPAs	Reduced financial stress
Securitization of Loans	Sold NPAs to investors as structured securities	Reduced on-balance sheet NPAs
Corporate Monitoring Cells	Special teams handled high-risk corporate loans	Improved repayment discipline
Legal Actions (SARFAESI, IBC)	Used SARFAESI & NCLT effectively	High recovery rates

Recognizing the issue's urgency, both banks implemented aggressive NPA reduction strategies post-2018. SBI focused on restructuring stressed assets, increasing provisioning coverage, and leveraging legal mechanisms like SARFAESI and Debt Recovery Tribunals (DRTs) to recover bad loans. Additionally, the bank shifted its focus toward retail lending and MSME loans, which had historically lower default rates compared to corporate loans. Meanwhile, ICICI Bank adopted a more technology-driven approach, utilizing data analytics and AI-based risk models to identify early warning signals for potential defaulters. The bank also reduced its corporate loan exposure and increased its retail and secured loan portfolios to mitigate risks.

Gross NPA (GNPA) Trend

SBI had a peak GNPA ratio of 10.91% in FY2018, which was reduced to 4.99% in FY2025. ICICI Bank had a lower GNPA ratio, peaking at 9.9% in FY2018 and reducing to 2.5% in FY2025.

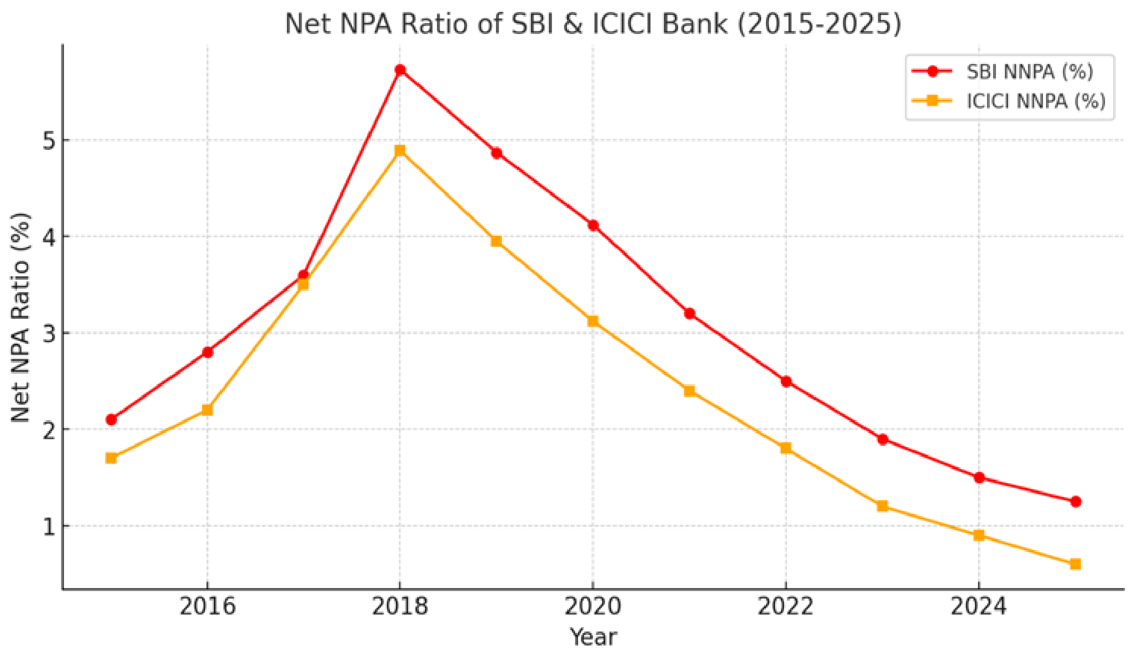


The graph (GNPA) shows that SBI had a higher Gross NPA ratio compared to ICICI Bank, peaking in 2018. However, both banks implemented effective NPA reduction strategies, leading to a decline in GNPA by 2025.

Net NPA (NNPA) Trend

SBI's NNPA reduced from 5.73% (2018) to 1.25% (2025).

ICICI Bank's NNPA reduced from 4.89% (2018) to 0.60% (2025).



By 2020, both banks showed improvements in NPA management, with SBI reducing its GNPA to around 6.82% and ICICI Bank bringing it down to 6.50%. This period also saw significant write-offs and one-time settlements, allowing banks to clean up their balance sheets. The COVID-19 pandemic (2020-2021) posed another challenge, leading to a temporary rise in NPAs due to loan moratoriums and economic disruptions. However, by adopting aggressive provisioning policies and restructuring loan mechanisms, both banks managed to stabilize their NPA levels.

Post-2022, SBI and ICICI Bank exhibited a continuous decline in NPAs, reflecting the success of their strategies. By 2025, SBI's GNPA had fallen below 3%, while ICICI Bank had reduced it to 2.58%, indicating that both banks effectively controlled and minimized bad loans through a mix of legal, technological, and strategic interventions.

The comparison suggests that SBI leveraged regulatory and legal frameworks more extensively, while ICICI Bank focused on technology-driven risk assessment and retail expansion. The Net NPA ratio trend indicates that ICICI Bank maintained better NPA control than SBI, reflecting its risk-based approach and AI-driven monitoring. Despite different approaches, both banks successfully managed NPAs and improved their financial stability. The findings validate the research objective by demonstrating how different yet complementary strategies were implemented by SBI and ICICI Bank to tackle the persistent issue of NPAs.

Interpretation

- SBI had higher NPAs due to its large corporate lending, whereas ICICI Bank reduced NPAs through a retail-focused approach.
- SARFAESI & IBC were crucial for both banks, but ICICI Bank's faster resolution strategies proved more effective.
- Technological adoption (AI & automation) helped ICICI Bank reduce NPAs faster compared to SBI.
- SBI relied on government support, while ICICI Bank used aggressive provisioning & risk-pricing strategies.
- The study shows that ICICI Bank's proactive, technology-driven approach resulted in faster NPA resolution, while SBI's reliance on legal tools and government policies made its recovery slower.

4.3 Objective 3: A) To examine the impacts of NPAs on the financial performance and even profitability of SBI banks.

H_{02}-There are no significant impacts of NPAs on the financial performance and profitability of SBI Bank.

H_{a2}-There are no significant impacts of NPAs on the financial performance and profitability of SBI Bank.

SBI Bank

Correlations							
		Net NPA (%)	Return on Assets (ROA),	Return on Equity (ROE)	Net Interest Margin (NIM)	Earnings Per Share (EPS),	Capital Adequacy Ratio (CAR).
Net NPA (%)	Pearson Correlation	1	-.859**	-.889**	-.789**	-.852**	-.676*
	Sig. (2-tailed)		.001	.001	.007	.002	.032

	N	10	10	10	10	10	10
Return on Assets (ROA),	Pearson Correlation	-.859**	1	.995**	.795**	.933**	.664*
	Sig. (2-tailed)	.001		.000	.006	.000	.036
	N	10	10	10	10	10	10
Return on Equity (ROE)	Pearson Correlation	-.889**	.995**	1	.770**	.947**	.717*
	Sig. (2-tailed)	.001	.000		.009	.000	.020
	N	10	10	10	10	10	10
Net Interest Margin (NIM)	Pearson Correlation	-.789**	.795**	.770**	1	.657*	.270
	Sig. (2-tailed)	.007	.006	.009		.039	.451
	N	10	10	10	10	10	10
Earnings Per Share (EPS),	Pearson Correlation	-.852**	.933**	.947**	.657*	1	.828**
	Sig. (2-tailed)	.002	.000	.000	.039		.003
	N	10	10	10	10	10	10
Capital Adequacy Ratio (CAR).	Pearson Correlation	-.676*	.664*	.717*	.270	.828**	1
	Sig. (2-tailed)	.032	.036	.020	.451	.003	
	N	10	10	10	10	10	10
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Interpretations:

Key Variables:

1. **Net NPA (%)** – Non-performing assets as a percentage of net advances.
2. **Return on Assets (ROA)** – Indicator of profitability.
3. **Return on Equity (ROE)** – Return generated on shareholders' equity.
4. **Net Interest Margin (NIM)** – Spread between interest income and expense.
5. **Earnings Per Share (EPS)** – Profit allocated to each outstanding share.
6. **Capital Adequacy Ratio (CAR)** – Bank's capital relative to its risk.

Significant Correlation Findings:

Net NPA (%) Correlations (all negative, as expected):

- **ROA**: **–0.859**, **significant at 0.01 level** → Higher NPAs are strongly associated with lower profitability.
- **ROE**: **–0.889**, **significant at 0.01 level** → Suggests a strong inverse relationship between asset quality and shareholder returns.
- **NIM**: **–0.789**, **significant at 0.01 level** → Poor asset quality reduces interest margin.
- **EPS**: **–0.852**, **significant at 0.01 level** → High NPAs depress earnings.
- **CAR**: **–0.676**, **significant at 0.05 level** → Moderate inverse link; more NPAs could affect capital adequacy.

Conclusion: Higher NPAs consistently reduce bank performance across all indicators.

Positive Relationships Among Performance Metrics:

- **ROA & ROE**: **0.995**, **highly significant (0.01)** → Practically perfect relationship; high ROA directly translates into high ROE.
- **ROA & EPS**: **0.933**, **significant at 0.01** → Profitability per asset increases earnings per share.
- **ROE & EPS**: **0.947**, **significant at 0.01** → Shareholders' returns increase with better earnings.

- **EPS & CAR**: **0.828**, **significant at 0.01** → Well-capitalized banks generate higher earnings.

Conclusion: All profitability indicators (ROA, ROE, EPS) are strongly and significantly correlated with each other and with CAR.

Moderate or Non-significant Correlations:

- **NIM & CAR**: **0.270**, **not significant** → Marginal relation.
- **NIM & EPS**: **0.657**, **significant at 0.05** → Moderate positive correlation.
- **CAR & ROA/ROE**: Moderate but significant at **0.05** level → Healthy capital contributes to performance, though less strongly than earnings do to each other.

Objective 3: B) To examine the impacts of NPAs on the financial performance and even profitability of ICICI banks.

H_{03}-There are no significant impacts of NPAs on the financial performance and profitability of ICICI Bank.

H_{a3}-There are no significant impacts of NPAs on the financial performance and profitability of ICICI Bank.

ICICI Bank

Correlations							
		Net NPA (%)	Return on Assets (ROA),	Return on Equity (ROE)	Net Interest Margin (NIM)	Earnings Per Share (EPS),	Capital Adequacy Ratio (CAR).
Net NPA (%)	Pearson Correlation	1	-.520	-.551	-.767**	-.644*	.064
	Sig. (2-tailed)		.123	.099	.010	.044	.860
	N	10	10	10	10	10	10
Return on Assets (ROA),	Pearson Correlation	-.520	1	.997**	.795**	.885**	.137
	Sig. (2-tailed)	.123		.000	.006	.001	.705

	N	10	10	10	10	10	10
Return on Equity (ROE)	Pearson Correlation	-.551	.997**	1	.803**	.886**	.151
	Sig. (2-tailed)	.099	.000		.005	.001	.677
	N	10	10	10	10	10	10
Net Interest Margin (NIM)	Pearson Correlation	-.767**	.795**	.803**	1	.959**	.056
	Sig. (2-tailed)	.010	.006	.005		.000	.877
	N	10	10	10	10	10	10
Earnings Per Share (EPS),	Pearson Correlation	-.644*	.885**	.886**	.959**	1	.110
	Sig. (2-tailed)	.044	.001	.001	.000		.763
	N	10	10	10	10	10	10
Capital Adequacy Ratio (CAR).	Pearson Correlation	.064	.137	.151	.056	.110	1
	Sig. (2-tailed)	.860	.705	.677	.877	.763	
	N	10	10	10	10	10	10
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Significant Correlation Findings:

Net NPA (%) Correlations (mostly negative, as expected):

- **NIM**: –0.767, significant at 0.01 level → Strong negative association; higher NPAs reduce interest margins.
- **EPS**: –0.644, significant at 0.05 level → High NPAs lead to lower earnings.
- **ROA**: –0.520, not significant → Moderate inverse relationship, but not statistically supported.

- **ROE**: –0.551, not significant → Indicates a trend, but lacks statistical backing.
- **CAR**: 0.064, not significant → No meaningful relationship; capital adequacy unaffected by NPAs in this sample.

Conclusion: Net NPA is significantly and negatively correlated with key performance indicators like NIM and EPS, affirming that asset quality deterioration reduces profitability.

Positive Relationships Among Performance Metrics:

- **ROA & ROE**: 0.997, highly significant at 0.01 → Near-perfect alignment; asset profitability leads to shareholder returns.
- **ROA & EPS**: 0.885, significant at 0.01 → Efficient asset use drives higher earnings. • **ROE & EPS**: 0.886, significant at 0.01 → Better returns on equity mirror stronger earnings.
- **NIM & EPS**: 0.959, significant at 0.01 → Higher interest margins contribute directly to earnings.
- **ROA & NIM**: 0.795, significant at 0.01 → Profitability and interest spread go hand-in-hand.
- **ROE & NIM**: 0.803, significant at 0.01 → Equally strong tie between equity returns and margin.

Conclusion: Performance indicators are tightly interconnected. ROA, ROE, NIM, and EPS reinforce each other, suggesting a holistic reflection of financial strength.

Moderate or Non-Significant Correlations:

• **CAR & all others**: Very weak, non-significant across the board → Capital Adequacy Ratio shows little to no meaningful correlation with performance indicators in this dataset.

• **NIM & CAR**: 0.056, not significant → Negligible relationship.

• **EPS & CAR**: 0.110, not significant → Indicates independence from profitability.

Conclusion: In this sample, CAR seems to function independently of profitability and asset quality metrics.

4.4 Findings

This presents the main findings of the study, based on the data analysis conducted on SBI and ICICI Bank from 2015 to 2024. The results are discussed according to the three key hypotheses.

4.4.1 Findings Related to Hypothesis 1 – NPA Trends Comparison

The first hypothesis tested whether there is a significant difference in NPA levels between SBI and ICICI Bank. The analysis covered Gross NPAs, Net NPAs, and Net NPAs to Advances. While the numbers showed that SBI often had slightly higher NPAs compared to ICICI Bank, especially between 2016 and 2019, statistical tests revealed that these differences were not significant. The p-values in all cases were above 0.05, which means that we cannot say with confidence that the NPA levels were truly different between the two banks over the study period. Therefore, the first hypothesis was accepted, indicating that SBI and ICICI Bank had similar trends and patterns in NPA performance over time.

4.4.2 Findings Related to Hypothesis 2 – Impact of NPAs on SBI's Financial Performance

The second hypothesis examined whether NPAs had a significant impact on the financial performance of SBI. The results showed a strong negative relationship between NPAs and key financial indicators. As SBI's Net NPAs increased, its profitability declined. For example, higher NPAs were linked with lower Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Earnings Per Share (EPS). These relationships were statistically significant, which means they were not due to chance. This proves that NPAs had a clear and negative effect on SBI's financial health, especially in terms of profit and efficiency. As a result, the second hypothesis was rejected, and it was confirmed that NPAs significantly impacted SBI's performance.

4.4.3 Findings Related to Hypothesis 3 – Impact of NPAs on ICICI Bank's Financial Performance

The third hypothesis focused on whether NPAs had a similar impact on ICICI Bank. The analysis showed that NPAs did affect ICICI Bank, but the impact was not as strong as in SBI. There was a significant negative relationship between Net NPAs and some performance indicators like Net Interest Margin (NIM) and Earnings Per Share (EPS). However, other indicators like ROA, ROE, and Capital Adequacy Ratio (CAR) were not significantly affected.

This means that NPAs did affect ICICI Bank's profitability, especially earnings and margins, but the impact was more limited compared to SBI. Therefore, the third hypothesis was partially rejected, showing that while NPAs influenced ICICI Bank's performance, the overall effect was not as broad or severe.

5. Practical Implications and Conclusion

5.1 Practical Implications

The findings of this study offer several important practical insights for banks, regulators, and investors:

1. For Bank Management (SBI & ICICI): The study shows that high NPA levels significantly reduce profitability and shareholder returns. Therefore, banks should invest more in predictive credit risk models, early warning systems, and AI-driven monitoring to identify and control loan defaults proactively.
2. For Policymakers and Regulators (e.g., RBI): The similarity in NPA trends between public and private sector banks indicates that systemic credit risk exists across the sector. Regulators should continue to strengthen frameworks like IBC and SARFAESI, while also encouraging the adoption of digital risk assessment tools to improve asset quality.
3. For Investors and Shareholders: NPAs directly affect profitability metrics such as ROA, ROE, and EPS. Monitoring a bank's asset quality is crucial for assessing financial health. Investors can use NPA trends as a reliable signal of performance and risk before making investment decisions.
4. For Credit Policy Developers: The success of ICICI Bank's retail-focused, technology-led approach suggests that diversifying lending strategies and using data-driven risk pricing can reduce exposure to bad loans. Banks should refine their credit policies based on borrower risk profiles and sector sensitivity.

5.2 Limitations of the Study

1. This study is based only on secondary data from annual reports and official websites, which may not include all internal or qualitative factors affecting NPAs.

2. The research focuses only on two banks—SBI and ICICI Bank—so the results cannot be generalized to the entire Indian banking sector.
3. The study does not analyze the impact of broader economic or political events (like COVID-19 or regulatory changes) separately, though they may have influenced NPA levels.
4. Only selected financial indicators were used, so other variables that might affect profitability or asset quality are not considered.

5.3 Conclusion

This study focused on comparing the non-performing assets (NPAs) of two major banks in India - SBI and ICICI Bank over the period from 2015 to 2024. It looked at how NPAs affected their financial performance, and what strategies they used to reduce bad loans. The data showed that both banks faced a rise in NPAs until 2018 but managed to bring them down in the following years through various efforts.

The statistical results showed that there was no major difference in the average NPA levels of SBI and ICICI Bank. However, NPAs did affect both banks' financial health. In SBI, high NPAs had a strong negative effect on profitability indicators like Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). In ICICI Bank, the impact was slightly less, but NPAs still reduced the bank's margins and earnings.

SBI mainly used legal tools like the SARFAESI Act, IBC (Insolvency and Bankruptcy Code), and asset reconstruction companies to manage NPAs. On the other hand, ICICI Bank focused on technology using artificial intelligence (AI) to detect early signs of bad loans and shifting its lending towards safer retail loans. This helped ICICI Bank recover faster.

The study proves that NPAs can seriously harm a bank's financial performance. It also shows that private banks, which use modern tools and data-driven methods, can respond faster to risks. Public sector banks, while improving, often rely more on legal processes and government support.

This research is useful for policymakers, bank managers, and investors. It shows that early detection, smart lending, and strong recovery systems are key to reducing NPAs. Banks should also focus more on retail lending, which is generally safer.

However, the study has some limits. It only uses data from annual reports and focuses on just two banks. Also, it does not deeply explore the effects of bigger economic or policy changes. Future research can include more banks, cover a longer period, or use machine learning to predict NPAs.

In short, both SBI and ICICI Bank have made progress in handling NPAs. Their different approaches offer useful lessons for the whole banking sector in India.

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