

A Study on the Impact of Non-Performing Assets on Profitability of Public and Private Sector Banks in India

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Abstract

This study investigates the impact of Non-Performing Assets (NPAs) on the profitability of selected public and private sector banks in India from 2021 to 2025. Focusing on SBI, BOI, HDFC, and ICICI, the research examines Gross and Net NPA trends and their effect on Net Profit and Return on Assets (ROA). The research uses secondary data from bank reports and RBI publications, applying descriptive statistics and correlation analysis. Key findings include strong negative correlations between NPAs and profitability metrics, with public banks showing notable recoveries. The study concludes that efficient NPA management enhances profitability and recommends robust credit appraisal systems, improved recovery processes, and continued regulatory oversight.

Keywords: Non-Performing Assets, Public Sector Banks, Private Sector Banks, Return on Assets, Net Profit, Financial Performance.

1. INTRODUCTION TO INDIAN BANKING SYSTEM

The banking sector is vital for economic growth, mobilizing savings and distributing credit. It ensures depositors' funds are secure and efficient. Banks' presence in India's post-independence development is significant, with Non-Performing Assets impacting asset performance.

2. LITERATURE REVIEW

1. **Rajaraman, Indira & Vasishtha, Garima. (2001). Non-performing loans of PSU banks: Some panel results. National Institute of Public Finance and Policy, Working Papers. 10.2307/4411688.** The paper uses panel regression on data from 27 public sector banks to examine non-performing loans. It identifies two weak banks, Indian Bank and United Bank of India, as those with higher than average NPAs, suggesting that recapitalization with operational restructuring may not be the solution, despite controlling for operating efficiency.
2. **Verma, Pooja & Bhattacharya, Amit & Singh, Gagandeep & Rahman, Afzalur & Kaur, Sukhpreet & Jha, Abhishek & Sarin, Vishal & Bhaskaran, R. & Bhalla, Lalit. (2016). Non-performing assets of public and private sector banks in India - a comparative study. International Journal of Services and Operations Management. 25. 155. 10.1504/IJSOM.2016.10000170.** The study compares the NPAs of public and private sector banks in India over ten years, revealing that public sector banks have a higher percentage of net NPAs to

net advances, while private sector banks have a lower percentage. This indicates that public sector banks need to take steps for loan recovery, such as war footing.

3. **Sengupta, Rajeswari & Vardhan, Harsa. (2017). Non-performing assets in Indian banks this time it is different. 52. 85-95.** The Indian banking sector has experienced two consecutive crises in the past two decades, one in the late 1990s and another in the aftermath of the 2008 Global Financial Crisis. The analysis discusses policy responses, lessons learned, and suggestions for future crisis adaptation to minimize real economy impact.
4. **Masood, R. Z., & Pervez, A. (2019). Non-Performing Assets in Indian Banks: A Comparative Study. Journal of Advances and Scholarly Researches in Allied Education, 16(4), 1001–1006. ISSN 2230-7540.** Non-performing assets (NPAs) have been rising swiftly in India, especially in Public Sector Banks, which has been affecting the profitability of the banking sector. NPAs affect the credit lending capacity of banks, resulting in lower profits. As the banking sector is the backbone of the economy, rising NPAs are a threat to India's economic stability. This paper attempts to understand NPAs and the reasons behind their increase. It compares the Gross NPA, growth rate of Gross NPA, and Return on Assets (ROA) across Public Sector Banks, Private Sector Banks, and Foreign Banks in India.
5. **Kadiwala, Abidhusain & Rasikbhai, Dr. (2020). SECTOR-WISE COMPARATIVE ANALYSIS OF NON-PERFORMING ASSETS OF SELECTED PRIVATE SECTOR AND PUBLIC SECTOR BANKS OF INDIA. 8. 1882-1888.** The Indian banking industry faces challenges due to non-performing assets. A study comparing public and private sector banks from 2015 to 2019 found that private sector banks have better debt coverage efficiency. However, public sector banks face heavy NPAs, requiring government and regulatory authorities to control NPAs.
6. **Wadhwa, Ritu & Ramaswamy, Kartik. (2020). Impact of NPA on Profitability of Banks. International Journal of Engineering Technology and Management Sciences. 4. 1-8. 10.46647/ijetms.2020.v04i03.001.** The Indian economy relies heavily on banks for various needs, including loans for housing and farming. However, Non-Performing Assets (NPAs) have negatively impacted economic growth. This research examines the impact of NPAs on bank profits and suggests effective management strategies. The study used RBI data from 2014-2015 to 2018-2019, analyzing correlation and multiple regression analysis.
7. **Mohanty, Sagarika. (2021). Comparative Study of Non -Non-Non-Performing Assets (NPAs) in Selected Public Sector Banks and Private Sector Banks in India.** To know the NPAs of selected public and private sector banks in India and their comparison with key parameters. Such as Gross NPAs, Net NPAs, ROA, Net Profit, etc. Also, know the relationship between the profitability with NPAs of Banks.
8. **Agarwal, Shaffali. (2022). AN ANALYTICAL STUDY ON NON-PERFORMING ASSETS IN PRIVATE SECTOR BANKS.** Since 1991, India's banking reforms have focused on establishing a stable and efficient banking industry. However, the deteriorating asset quality in public sector banks is putting the sector, regulators, and the Indian economy under strain. This research investigates the impact of non-performing assets (NPA) on bank profitability and assesses bank soundness, asset quality, stability, and competence. It found that total income and gross NPA have a positive relationship in the banking business, while total profit and gross NPA have a negative relationship.
9. **Kumar, Harish & Bansal, Anchal. (2022). A comparative study of Non-Performing Assets**

(NPAs) of selected public and private sector banks in India. The banking sector is crucial for economic development, and non-performing assets (NPAs) are a key indicator of its health. In India, NPAs impact liquidity, solvency, and profitability. A study comparing public and private sector banks found that public sector banks have higher NPAs than private sector banks. Bank of India has the highest average NPAs, while HDFC Bank and YES Bank have the lowest.

10. **Sahoo, Manoj & Bano, Shabana & Shakya, Anurag & Kumari, Neha & Singh, Ishwer & Bansal, Somya. (2023). Impact of NPA Management on Profitability Analysis of Indian Commercial Banks. 10.5123/inj.2023.4.in103.** The study examines the relationship between Non-Performing Assets (NPAs) management and Indian commercial bank profitability. It reveals that effective NPA management directly impacts profitability metrics like Return on Assets and Return on Equity. The findings suggest that efficient NPA management enhances profitability, enhancing financial resilience and contributing to economic growth.
11. **Kumar, Sushil. (2024). NON-PERFORMING ASSETS IN INDIAN PUBLIC SECTOR BANKS: TREND AND IMPACT ON PROFITABILITY. ANVESHAK-International Journal of Management. 54. 135-144.** NPA has been a well-known hurdle for the growth of the banking sector for decades. NPA in recent years has become a serious threat to the Indian financial system and economic stability. The asset quality review mechanism conducted by RBI governor Raghuram Rajan was the turning point for Indian banks to dig out NPA from the balance sheets of banks. Government-owned banks have shown a large amount of NPA in recent years and rising NPA is also impacting the profitability of the banks. In order to minimize the fresh NPA, it is important to understand the trend of NPA and further its impact on profitability.
12. **Balyan, Sneha & Singh, Netra. (2024). Analyzing the Influence of Non-Performing Assets: A Comparative Study between SBI and HDFC. KINERJA. 28. 270-287. 10.24002/kinerja.v28i2.9110.** This paper analyzes the impact of non-performing assets (NPAs) on the financial performance of HDFC and SBI. It reveals that SBI's NPA ratio is higher than HDFC's, affecting profitability negatively. The findings could help SBI improve its credit policy and credit business processes for different customer segments.

3. RESEARCH DESIGN

PROBLEM STATEMENT

Indian banks face challenges in managing Non-Performing Assets (NPAs), negatively impacting profitability and operating performance. Public sector banks often have higher NPA levels. This study aims to examine the relative effect of Gross and Net NPAs on profitability metrics and asset quality relationships between 2021-2025.

SIGNIFICANCE OF THE STUDY

The study examines the impact of asset quality on profitability metrics in the Indian banking sector, focusing on public and private banks. It provides insights into effective NPA management, risk mitigation strategies, and the importance of a strong credit appraisal system.

OBJECTIVES OF THE STUDY

- To analyze and compare the trends in Gross NPAs of selected public sector banks (SBI, BOI) and private sector banks (HDFC, ICICI) during the period 2021–2025.

- To evaluate the relationship between Net NPAs and Net Profit of the selected banks to assess how asset quality influences profitability.
- To examine the impact of Net NPA percentage on Return on Assets (ROA) for public and private banks, indicating the effect of asset stress on operational efficiency.
- To determine the degree of correlation between NPAs and profitability indicators (Net Profit, ROA) in public vs. private sector banks.

LIMITATIONS OF THE PROJECT

- Study focuses on four banks: SBI, BOI, HDFC, ICICI.
- Five-year period (2021-2025) excluded from changes.
- Data for 2025 may not be available, requiring projections or interim data.
- Focuses on internal measures, not macroeconomic factors.
- Relies on quantitative information, neglecting qualitative aspects like management policy, risk-taking culture, and client behavior.

SCOPE OF THE STUDY

The study examines the impact of Non-Performing Assets (NPAs) on the profitability of Indian banks like SBI, BOI, HDFC, and ICICI from 2021 to 2025, focusing on secondary quantitative data.

RESEARCH METHODOLOGY:

The study uses a quantitative, descriptive, and analytical research design to analyze trends in NPAs and profitability over a fixed period, identifying patterns, differences, and correlations across selected banks.

POPULATION & SAMPLE: SBI, BOI, HDFC, ICICI (2021–2025)

SAMPLING TECHNIQUE: Purposive sampling

DATA COLLECTION METHODS

- **Type of Data:** Secondary Data only.
- **Sources of Data:**

The Reserve Bank of India (RBI) provides annual reports and databases for banks like SBI, BOI, HDFC, and ICICI, along with financial statements available on official bank websites.

ANALYSIS: Descriptive statistics, correlation analysis

4. Analysis and FINDINGS:

ANALYSIS – 1 (%Gross NPA of selected Public and Private Sector Banks in India from 2021 to 2025)

TABLE-1

YEAR	PUBLIC SECTOR BANKS		PRIVATE SECTOR BANKS	
	% GROSS NPA		% GROSS NPA	
	SBI	BOI	HDFC	ICICI
2021	4.98	14	1.32	5

2022	3.97	10	1.17	4
2023	2.78	7	1.12	3
2024	2.24	4.98	1.24	2.16
2025	1.82	3.27	1.33	1.67
MEAN	3.158	7.85	1.236	3.166

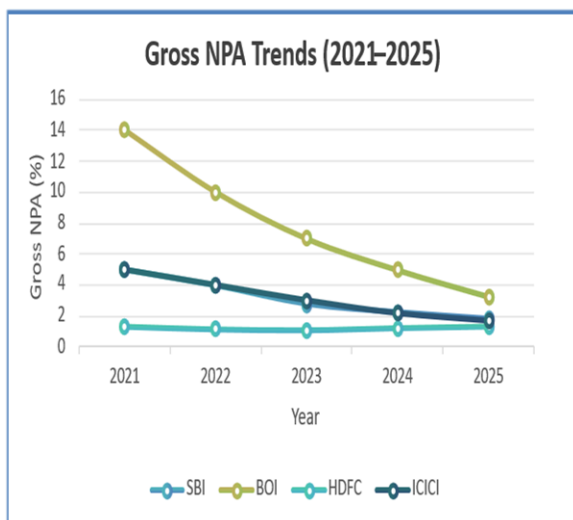


Chart 1.2: chart representing gross npa trends of sbi, boi, hdfc, and icici.

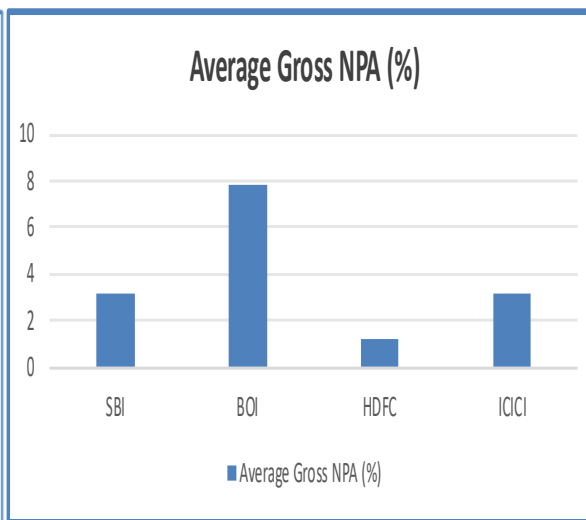


Chart 1.3: chart representing average gross npa % off sbi, boi, hdfc, and icici

INTERPRETATION:

HDFC maintains a low NPA rate of 1.24%, indicating outstanding asset quality management. ICICI shows significant improvement from 5% to 1.67%, reducing NPA by 66.6%. BOI shows a significant turnaround from 14% to 3.27%, demonstrating significant progress. SBI's steady decline from 4.98% to 1.82% demonstrates consistent progress. Sector average improvement from 6.3% to 2.0% indicates systemic asset quality strengthening. Persistent gap between public and private sector banks suggests private banks maintain healthier loan portfolios.

ANALYSIS – 2 (% Net NPA of selected Public and Private Sector Banks in India from 2021 to 2025)

TABLE - 2

YEAR	PUBLIC SECTOR BANKS		PRIVATE SECTOR BANKS	
	% NET NPA		% NET NPA	
	SBI	BOI	HDFC	ICICI
2021	1.5	3.35	0.4	1.14
2022	1.02	2.34	0.32	0.76
2023	0.67	1.66	0.27	0.48

2024	0.57	1.22	0.33	0.42
2025	0.47	0.82	0.43	0.39
MEAN	0.846	1.878	0.35	0.638

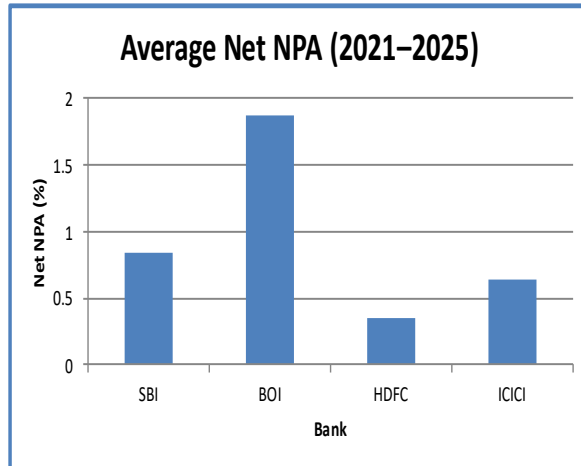


Chart 2.2: chart representing net npa trends of public [sbi and boi] and private [hdfc and icici] sector banks

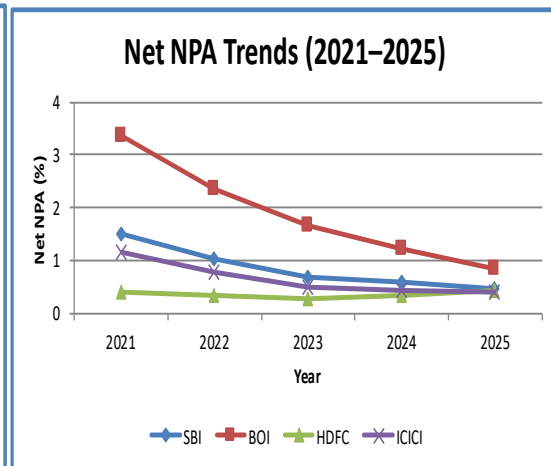


Chart 2.3: chart representing average net npa of public [sbi and boi] and private [hdfc and icici] sector banks

INTERPRETATION:

All banks maintained net NPA levels below 2%, indicating successful asset quality management. HDFC leads with an average of 0.35%, demonstrating world-class provisioning and recovery mechanisms. BOI and SBI showed significant transformations, reducing net NPAs by 75.5% and 68.7% respectively. ICICI's consistent decline from 1.14% to 0.39% demonstrates private sector efficiency in post-provision asset quality. The sector-wise gap narrows, with public banks improving recovery and provisioning capabilities. The trend toward sub-1% net NPAs indicates a mature banking system with robust risk management frameworks and effective regulatory oversight.

ANALYSIS -3 (Correlation between Net NPA and Net Profit of public sector banks in India from 2021 to 2025)

TABLE-3

YEAR	SBI		BOI	
	NET PROFIT (in cr)	NET NPA (in cr)	NET PROFIT (in cr)	NET NPA (in cr)
2021	20410.47	36809.72	2160.03	12262.03
2022	31675.98	27965.71	3404.7	9851.93
2023	50232.45	21466.64	4022.94	8053.61
2024	61076.62	21051.08	6317.92	6845.25
2025	70900.63	19666.92	9219.02	5358.49

MEAN	46859.23	25392.014	5024.922	8474.262
CORRELATION	-0.9342		-0.9304	

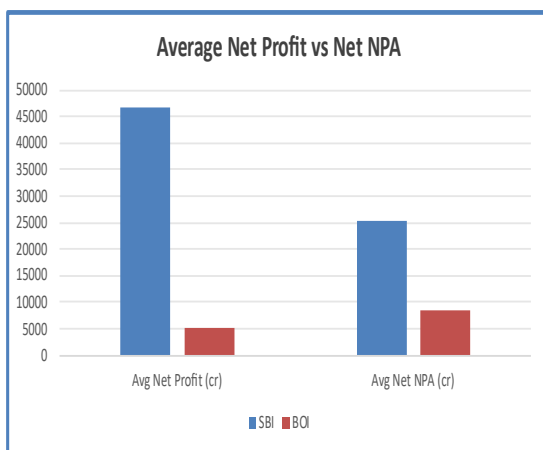


Chart 3.1: "chart representing average net profit and net npa of sbi and boi from (2021-2025) "

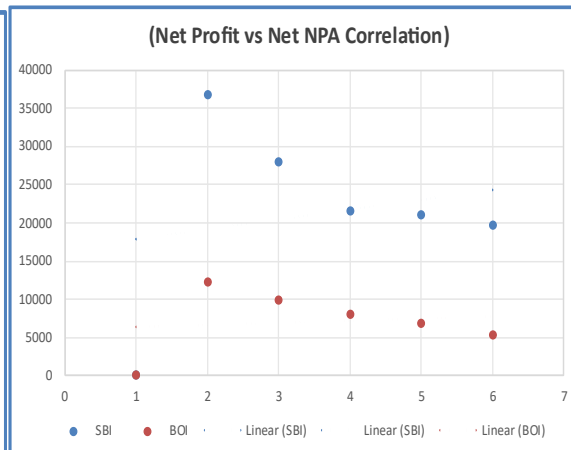


Chart 3.2: "chart representing correlation between net profit and net npa of sbi and boi from (2021-2025)

INTERPRETATION:

Significant inverse relationship between net profits and net NPAs for SBI and BOI. SBI showed superior scale with average profits of ₹46,859 crores, while BOI maintained higher NPAs. Both banks showed extraordinary profit growth trajectories, with SBI achieving 247.4% growth and BOI achieving 326.8% surge. Both institutions achieved substantial NPA reductions, indicating effective asset quality management. Strong negative correlations suggest successful implementation of recovery mechanisms, better risk assessment, and operational efficiency improvements. BOI showed impressive relative performance despite its smaller scale.

ANALYSIS – 4 (Correlation between Net NPA and Net Profit of private sector banks in India from 2021 to 2025)

TABLE-4

YEAR	HDFC		ICICI	
	NET PROFIT (in cr)	NET NPA (in cr)	NET PROFIT (in cr)	NET NPA (in cr)
2021	31116.53	4554.82	16192.68	9117.66
2022	36961.36	4407.68	23339.49	6960.89
2023	44108.7	4368.43	31896.5	5155.07
2024	60812.28	8091.74	40888.27	5377.79
2025	67347.36	11320.43	47226.99	5589.41
MEAN	48069.246	6548.62	31908.786	6440.164

CORRELATION	0.9254	-0.8284
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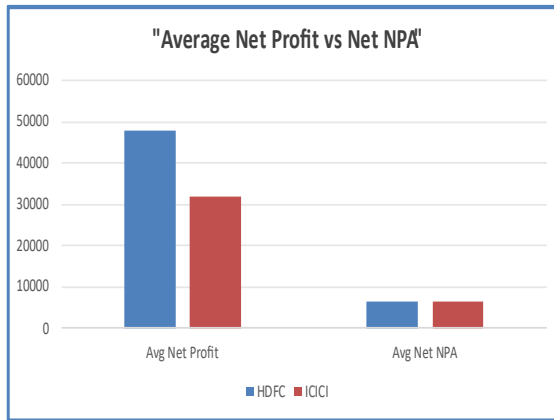


Chart 4.1: "chart representing average net profit and net npa of hdfc and icici from (2021-2025) "

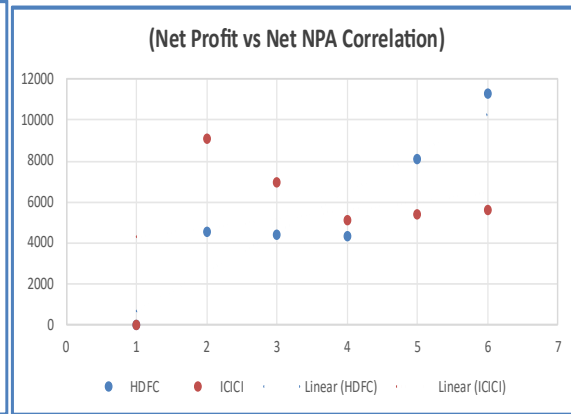


Chart 4.2: "chart representing correlation between net profit and net npa of hdfc and icici from (2021-2025) "

INTERPRETATION:

HDFC shows a strong positive correlation (0.9254), while ICICI shows a robust negative correlation (-0.8284). HDFC has superior average profits of ₹48,069 crores, while ICICI has ₹31,909 crores. Both banks show comparable average NPA levels of around ₹6,500 crores. ICICI shows 191.7% profit growth and a 38.7% NPA reduction, indicating exceptional asset quality management and operational efficiency. HDFC's 148.5% increase in NPAs and 116.4% increase in profits may indicate a decline in asset quality. ICICI's negative correlation reflects traditional banking wisdom, while HDFC's positive correlation may signal aggressive growth strategies with elevated risk exposure.

ANALYSIS – 5 (Correlation between Return on Assets (ROA) % and Net NPA % of selected public sector banks in India from 2021 to 2025)

TABLE-5

YEAR	PUBLIC SECTOR BANKS			
	SBI		BOI	
	ROA %	NET NPA %	ROA %	NET NPA %
2021	0.45	1.5	0.29	3.35
2022	0.63	1.02	0.46	2.34
2023	0.91	0.67	0.49	1.66
2024	0.98	0.57	0.69	1.22
2025	1.06	0.47	0.88	0.82
MEAN	0.806	0.846	0.562	1.878
CORRELATION	-0.99		-0.94	

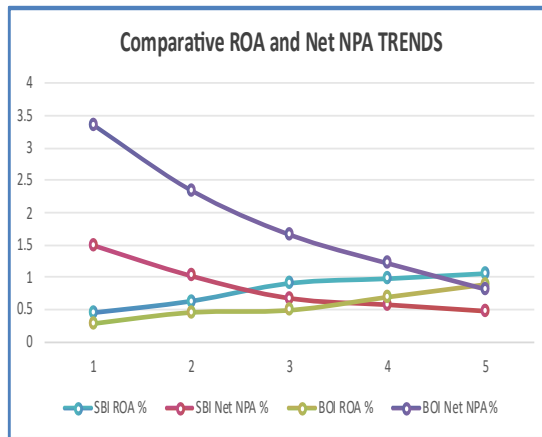


Chart 5.1: "chart representing comparative trend lines of return on asset (roa) and net npa of sbi and boi banks from (2021-2025) "

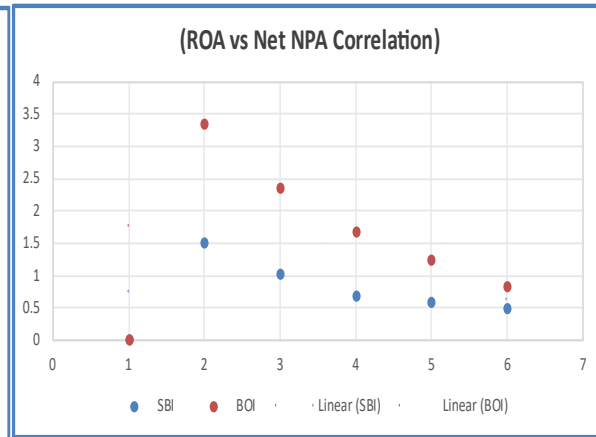


Chart 5.2: "chart representing correlation between roa and net npa of sbi and boi banks from (2021-2025) "

INTERPRETATION:

SBI outperforms BOI with an average ROA of 0.806%, demonstrating improved asset quality driving profitability. BOI maintains a lower average Net NPA at 0.846% compared to 1.878%. SBI recorded a 135.6% ROA improvement with a 68.7% NPA reduction. BOI showed a dramatic 203.4% ROA growth with a 75.5% NPA reduction. Both banks have successfully aligned profitability with prudent risk management, indicating a significant recovery in India's public sector banking health.

ANALYSIS - 6 (Correlation between Return on Assets (ROA) and Net NPA % of selected Private Sector Banks in India from 2021 to 2025)

TABLE-6

YEAR	PRIVATE SECTOR BANKS			
	HDFC		ICICI	
	ROA %	NET NPA %	ROA %	NET NPA %
2021	1.78	0.4	1.31	1.14
2022	1.78	0.32	1.65	0.76
2023	1.78	0.27	2.01	0.48
2024	1.68	0.33	2.18	0.42
2025	1.72	0.43	2.22	0.39
MEAN	1.748	0.35	1.874	0.638
CORRELATION	-0.24		-0.99	

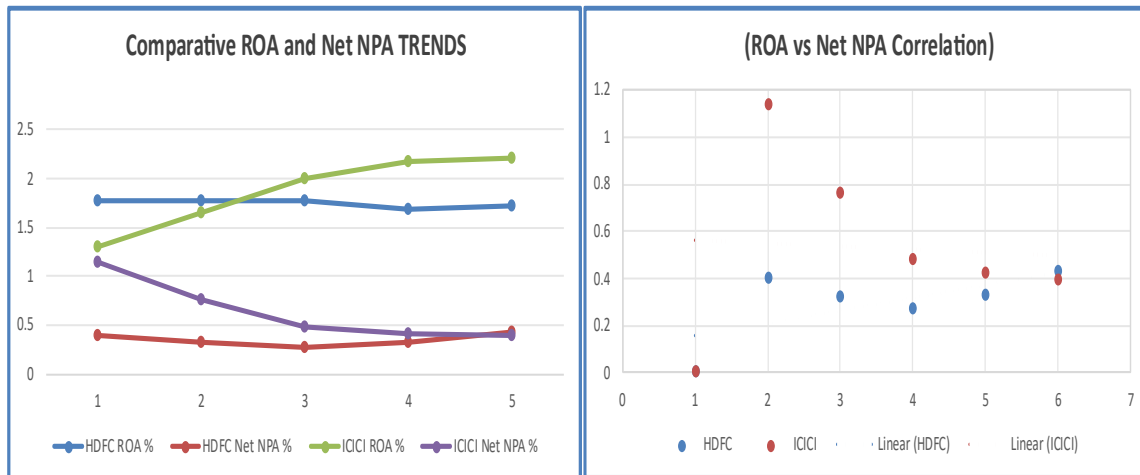


Chart 6.1: "chart representing comparative trend lines of return on asset (roa) and net npa of hdfc and icici bank from (2021-2025) "

Chart 6.2:"chart representing correlation between roa and net npa of hdfc and icici banks from (2021-2025)"

INTERPRETATION:

ICICI shows exceptional growth with a 69.5% ROA improvement and a 65.8% reduction in Net NPA. Strong negative correlation of -0.9877 indicates improved asset quality drives profitability. HDFC maintains a stable but superior baseline ROA averaging 1.748%, with a slight 3.4% decline and 7.5% increase in Net NPA. HDFC's weak correlation of -0.2360 indicates minimal linear relationship between ROA and NPA, indicating different operational dynamics. ICICI's turnaround is among the most successful private sector banking turnarounds, while HDFC's stability indicates mature operations.

5. DISCUSSION

1. GROSS NPA TRENDS:

The analysis of Gross NPAs from 2021 to 2025 shows private sector banks, like HDFC, have superior asset quality compared to public sector banks. The Bank of India showed a strong recovery process.

2. NET NPA TRENDS

Over the past five years, all four banks have shown improvement in Net NPAs, with HDFC leading with 0.35%, ICICI closely following with 0.64%, and public banks like BOI and SBI making significant progress.

3. NET NPA VS NET PROFIT – PUBLIC SECTOR BANKS:

SBI and BOI show a strong inverse relationship between Net NPAs and net profits, with reduced NPAs leading to substantial increases in net profits, indicating effective NPA management directly enhances profitability.

4. NET NPA VS NET PROFIT – PRIVATE SECTOR BANKS:

ICICI Bank's profitability improved as NPAs declined, while HDFC's profit and NPAs increased, possibly due to aggressive growth strategy contributing to rising NPAs despite maintaining profitability.

5. NET NPA % VS ROA – PUBLIC SECTOR BANKS:

Net NPA percentage negatively correlated with Return on Assets (ROA) for SBI and BOI, indicating improved asset quality enhances operational performance, with BOI doubling ROA and SBI improving from 0.45% to 1.06%.

6. NET NPA % VS ROA – PRIVATE SECTOR BANKS:

ICICI Bank's ROA increased from 1.31% to 2.22% due to lower Net NPAs, while HDFC's ROA remained stable despite minor fluctuations, indicating consistent profitability and strong asset quality.

6. CONCLUSION

This study analyzed the impact of Non-Performing Assets (NPAs) on the profitability of Indian public and private sector banks from 2021-2025. Public sector banks, while starting with higher NPAs, showed significant improvement, particularly Bank of India. Private sector banks, like HDFC and ICICI, generally maintained better asset quality, with HDFC showing a correlation between growth and risk exposure, and ICICI demonstrating a model of sustainable banking practices. The study emphasizes the importance of robust NPA management, regulation, and credit practices for the long-term health of the Indian banking sector.

SUGGESTIONS FOR FUTURE RESEARCH:

Future research could expand the scope by including a larger sample of banks across different regions, including cooperative and foreign banks operating in India, to provide a more comprehensive view of the NPA-profitability relationship. Researchers could also incorporate macroeconomic variables like GDP growth, inflation, interest rates, and policy interventions to assess their influence on asset quality.

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