European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Non-Performing Assets in Public Sector Banks, Private Sector Banks, and Foreign Banks: A Comparative Study

[1]Sanjukta Mohanty, [2]Dr. Shakti Ranjan Mohapatra, [3]Dr. Leesa Mohanty

Research Scholar, Biju Patnaik University of Technology
sanjuktamohanty7@gmail.com
Dean, Biju Patnaik University Of Technology, Rourkela, India
shakti.r.mohapatra@gmail.com
Assistant Professor, Xavier School of Commerce, Bhubaneswar
leesa.mohanty@gmail.com

Abstract:

The role of the banking sector in a nation's economic progress is of paramount importance. Evaluating the asset quality stands as a critical yardstick for assessing bank performance. Over the past two decades, the issue of Non-Performing Assets (NPAs) has emerged as a significant challenge, posing complexities for banks. The handling of NPAs by public, private sector banks and foreign has garnered notable attention. This article investigates into a study of the contemporary NPA trends within India's public, private sector banks and foreign banks during different phases of the banking sector which include the period prior to global financial crises, post global financial crises period, and banking merger and consolidation period. The study involves a comparative analysis of NPAs using descriptive statistics. A Panel data analysis is used to find the different macro-economic and bank specific factors contributing to the observed distinctions and explore the strategies harnessed for the effective management of these assets.

Key Words: Gross NPAs, Net NPAs, Gross NPA ratio, Public Sector Banks, Private Sector Banks and Foreign Banks.

Introduction:

The growth of an economy relies heavily on a robust, flourishing, and enduring banking system. Its failure could cast negative repercussions on numerous sectors and dimensions of the economy. The landscape of the banking industry underwent a profound transformation following the initial phase of economic liberalization in 1991, which consequently impacted credit management practices. Prior to 1991, the Indian banking sector did not accord asset quality the same level of prominence. Post-liberalization, both Public Sector Banks (PSBs) and private sector banks in India have played instrumental roles across various domains, encompassing agriculture, small-scale industries, trade and commerce enhancement, infrastructure development, and the creation of employment prospects. This shift is driven by the surge in Non-Performing Assets (NPAs), which has emerged as a prominent apprehension for banks operating within India.

NPAs are loans or advances that a borrower has not repaid for a specified period, typically 90 days. These assets do not generate income for the bank and can adversely affect its financial stability. Banks categorize NPAs into sub-standard, doubtful, and loss assets based on the degree of repayment uncertainty.

In its most recent iteration of the Financial Stability Report, the Reserve Bank of India highlighted that the net non-performing assets (NPAs) ratio for scheduled commercial banks has reached a decade-low of 3.9% as of March 2023. Notably, the gross and net NPA ratios have demonstrated a significant reduction, declining from their peak levels of 11.5% and 6.1% in March 2018 to 3.9% and 1.0% in March 2023, respectively. Impressively, the net non-performing assets have plummeted to 1%, marking their lowest point in 15 years; a milestone last observed in 2008. Despite the disruptive impact of the Covid-19 pandemic on businesses, this positive transformation can be attributed to the lessons learned by both banks and regulators from previous experiences. The government and RBI have implemented a series of comprehensive measures to facilitate the recovery and reduction of NPAs. As a result, the gross NPAs of PSBs have decreased from Rs 8.96 lakh crore as of March 31, 2018, to Rs 4.28 lakh crore as of March 31, 2023 (Mishra, 2023). The amount recovered from loans that were previously written off in public sector banks (PSBs) was Rs 1.18 lakh crore in FY18, which saw a decline to Rs 0.91 lakh crore in FY22 and further reduced to Rs 0.84 lakh crore (Rererve bank of India, provisional data) in FY23. According to provisional data from the Reserve Bank of India, private sector banks wrote off net loans amounting to Rs.

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

73,803 crore in the fiscal year 2022-23. The net write-off as a percentage of the initial gross loans and advances in private sector banks stood at 1.25% in FY 2017-18 and increased to 1.57% in FY 2022-23. In contrast, for public sector banks during the same period, it was 2% in FY 2017-18 and decreased to 1.12% in FY 2022-23 (Business Today, August 9, 2023). Despite comprehensive measures implemented by the government and RBI to recover and reduce NPAs, commercial banks in India still find them insufficient. Therefore a detail study is needed to look at the present trend of NPAs in Public sector, private sector and foreign banks to see the current status and give some suggestions to improve the future status of these banks in NPAs recovery.

Comparing Public Sector, Private Sector & Foreign Banks:

Public sector banks (PSBs) are owned and operated by the government, while private sector banks are owned by private shareholders. Historically, PSBs have played a significant role in driving financial inclusion and supporting developmental initiatives. However, their lending practices have often been influenced by social and political considerations, leading to higher NPAs. Private sector banks, being profit-driven entities, tend to have more focused lending criteria and risk assessment mechanisms.

Public sector banks (PSBs) experienced a noteworthy decrease in their Gross Non-Performing Assets (GNPA) ratio, descending from a pinnacle of 14.1% in FY18 to 7.3% in FY22. Similarly, private sector banks displayed enhancement, achieving a reduction in their GNPA ratio from 4.6% in FY18 to 3.8% in FY22. Notably, the Net Non-Performing Assets (NNPA) figures for both PSBs and private banks remained below the credit cost for FY23, standing at 1.23% and 0.6%, respectively. For Foreign banks the GNPA ratio also decreased from 3.8% in financial year 18 to 2.9% in FY22. In the fiscal year 2022, Indian public sector banks disclosed a combined net non-performing asset (NPA) figure exceeding 1.5 trillion Indian rupees, marking a notable reduction from the 2.8 trillion Indian rupees reported in fiscal year 2019. Despite the decline in gross NPAs for public sector banks, foreign banks operating in India witnessed an uptick in their net NPAs, rising from just under 29 billion rupees in fiscal year 2021 to surpassing 30 billion rupees in 2022.

Factors Influencing NPA Levels in Public, Private Sector and foreign Banks:

1. **Lending Practices:** Public sector banks might face pressure to lend to priority sectors, often at the cost of stringent due diligence. Private sector banks and foreign banks typically have more robust credit appraisal processes.

2. **Wilful Default:** It refers to a deliberate and intentional failure on the part of a borrower or a company to repay a loan or meet its financial obligations to a bank or financial institution, despite having the financial capacity to do so. Borrowers turn into wilful defaulters by taking undue advantage of weak governance structures such as ineffective functioning of the economic, legal and political institutions of the country. A substantial number of wilful defaulters are financed largely by government-owned banks than private-sector banks and foreign banks (M & N, 2020).

3. **Risk Management:** Private sector banks usually employ advanced risk management techniques, including credit scoring models and stress tests, to identify potential defaults early.

4. **Governance and Autonomy:** Private sector banks and foreign banks have greater autonomy in decision-making, allowing them to swiftly address NPAs. PSBs, on the other hand, might face bureaucratic hurdles.

5. **Customer Relationships:** PSBs might be lenient with delinquent borrowers due to political or social considerations, leading to higher NPAs. Private sector banks and foreign tend to be more assertive in loan recovery.

6. **Technological Infrastructure:** Private banks and foreign banks often invest more in digital infrastructure, enabling them to streamline operations, reduce processing times, and enhance customer experience.

7. **Market Competition:** Private sector banks face intense competition, driving them to maintain healthier loan portfolios to attract investors and customers.

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Literature Review:

The matter of Non-Performing Assets (NPAs) has emerged as a significant source of worry for both lenders and policymakers. Numerous studies have been conducted to comprehend the factors leading to the increase of NPAs in different sectors of banks, strategies to address the problem at an early stage, and the reforms implemented to mitigate the accumulation of NPAs. Das & Dey(2019), identifies the factors responsible for generation of NPAs in Indian banking Industry. Using multiple linear regression technique the study found that non priority sector lending has a higher contribution in NPAs than priority sector lending. Also, gross domestic product, cash reserve ratio, repo rate, exchange rate, inflation, provision, taxation, fiscal deficit have significant contribution in generation of NPAs. M & N(2020) studied wilful default as the major reason of increasing trend in non performing assets in public sector banks in India. The study found a large number of wilful defaulter are from private limited companies financed by public sector banks due to weak governance structures such as ineffective functioning of the economic, legal and political institutions of the country.

The trend of NPAs in different categories of banks are rising from last two decades. Javheri & Gawali (2020), studied the trend and differences in NPAs of selected public sector banks and private sector bank. The data of 10 year has been analysed using ANOVA and found that Public sector banks are more adversely affected than Private sector banks. Goyal & Kaur(2011), examines the magnitude and trend of NPAs in major three categories of banks, Public sector banks, Private sector banks and Foreign banks. As per the study the position of NPAs in the private banks and foreign banks are improving over time.Mishra et al. (2019) conducted an analysis of Non-Performing Assets (NPAs) in Indian banks. They utilized panel data regression models to identify the primary factors influencing NPAs. Additionally, their study assessed the extent of the NPA issue, comparing public banks to private banks to understand the relative severity.

Ruban & Murugesan (2023), examines the management of non-performing asssets in both public and private sector banks in India, pinpointing key contributors to the issue of NPAs. These include factors like poor credit appraisal, insufficient loan monitoring, and economic downturns. Moreover, the study delves into the tactics and systems adopted by banks to address and recoup their NPAs, including approaches like restructuring, securitization, and asset reconstruction. The outcomes highlight that public sector banks confront more pronounced obstacles in NPA management due to their heightened exposure to sectors like agriculture and small business. Ultimately, the study underscores the necessity for banks to adopt a proactive stance in NPA management, emphasizing enhancements in credit assessment, risk management, and loan recovery mechanisms.

Bajaj et al.(2020), made a comparison between public sector and private sector banks in term of their asset quality. It focuses on NPAs of both public and private sector banks, their rate of recovery and their determinants like collateral, operational inefficiency, GDP growth rate etc. It shows that the priority sector loan has significant differences in determining NPA across banks despite them having sufficient collateral. The negative relationship between collateral and recovery, especially for private sector banks, signifies low recovery for ill-liquid collateral. This study may recommend that a bank with high net interest margin (NIM), high proportion of secured and liquid collateral, and sufficient mix of long- and short-duration loans in line with bank's asset-liability policy can manage their portfolio well. Miyan(2017), conduct a comparative analysis of the NPA levels and returns on assets between public sector banks (PSU banks) and private sector banks. The study covers a five-year period, spanning from 2011-12 to 2015-16. Various performance metrics have been taken into account, including Gross NPA percentage, Net NPA percentage, return on assets percentage, as well as the growth percentages of Net NPA and return on assets. It suggested performance of public sector banks are lower in compare to private sector banks. Jasrotia & Agarwal (2019), recommended that the level of NPAs in India's public sector banks is considerably higher when compared to private banks, creating a potential risk to the stability of the Indian financial system.

The factors responsible for rise in NPAs of banks can be categorised as macro-economic factors and bank specific factors. Many studies has conducted to analyse both these factors and its impact on rise in NPAs in banking sector around the world. Amuakwa and Boakye(2015) examine the determinants of NPLs and its impact on bank's income in the banking industry in Ghana. The study found both bank specific variables and macro-economic variables mostly affects the Non-Performing Loans of large banks where as only bank specific variable affects the NPLs of small banks. Owonye & Obonofiemro (2022), studied the determinants of non-performing loans (NPLs) in the Nigeria banking industry between the periods of

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

2011-2020. The study has taken ten deposit money banks listed in Nigeria Stock Exchange to find out the relationship between different bank specific variables like bank age, bank size, capital adequacy, profitability, and total loans to total assets impacting NPLs.

A detailed literature review is conducted on rising trend of NPAs in banking sector with respect to public sector, private sector and foreign banks. The factors contributing the scenario and the strategies to manage the NPAs in different banks . The swelling NPAs seems to be worsening with passage of time creating a need to study more into this issue.

Research Gap:

Thus, an overview of the above literature shows that there are quite a few studies in the field of comparative study of non-performing assets in the banking industry. However, there are no studies that look at the data till 2022, which is important and pertinent because the major piling up has been taking place after 2011 in the aftermath of the financial crisis of 2008. Again very few studies focuses on comparing public sector banks, private sector banks and foreign banks with respect to different phases of Indian Banking sector like pre-global financial crises period, post-global financial crises period and during banking merger and consolidation period. Therefore the major focus of the paper is not only to compare the difference in NPAs in public sector banks, private sector banks and foreign banks but also to make a comparison of these three types of banks during pre-global financial cries period, post-global financial crises period and banking merger and consolidation period. This is done to identify that banking sector, which have been contributing more to the NPA menace in the banking space during these three periods, and the various factors responsible for the rising NPA trends in that sector. Hence, the article is not only relevant but also addresses a contemporary issue like NPAs in different categories of banks. This research contributes novel insights to the field of banking literature by understanding the positions of banks in a better way.

Objectives:

1. To study the trend and magnitude NPAs in public sector, private sector and foreign banks.
2. To compare the level of NPAs of public sector banks with private sector banks and foreign banks and find out the reason contributing to the scenario.
3. To suggest few measures to improve the NPA level of public sector banks, private sector banks and foreign banks.

Research Design:

For this present study, all private sector banks, public sector banks (both nationalised banks and SBI and its associates) and foreign banks operating in India have been considered. The analysis is based on data for the period 2005-2022. The data is based on secondary sources collected from the RBI website and World bank. Descriptive statistics is found out to compare the trend of NPAs in Public sector, private sector and foreign banks. A panel data analysis is used to analyse different factors contributing the rise in NPAs level in different categories of banks.

Data Analysis:

The Gross NPAs ratios (Gross NPAs/ Total Advances) of different categories of banks are compared from year 2004-05 to 2021-21. The details are shown in the following table and figure.

Table 1:

Gross NPAs Ratios of Banks			
Year	**Public Sector**	**Private Sector**	**Foreign Banks**
2022	7.3	3.8	2.9
2021	9.1	4.9	2.4
2020	10.3	5.5	2.3
2019	11.6	5.3	3.0

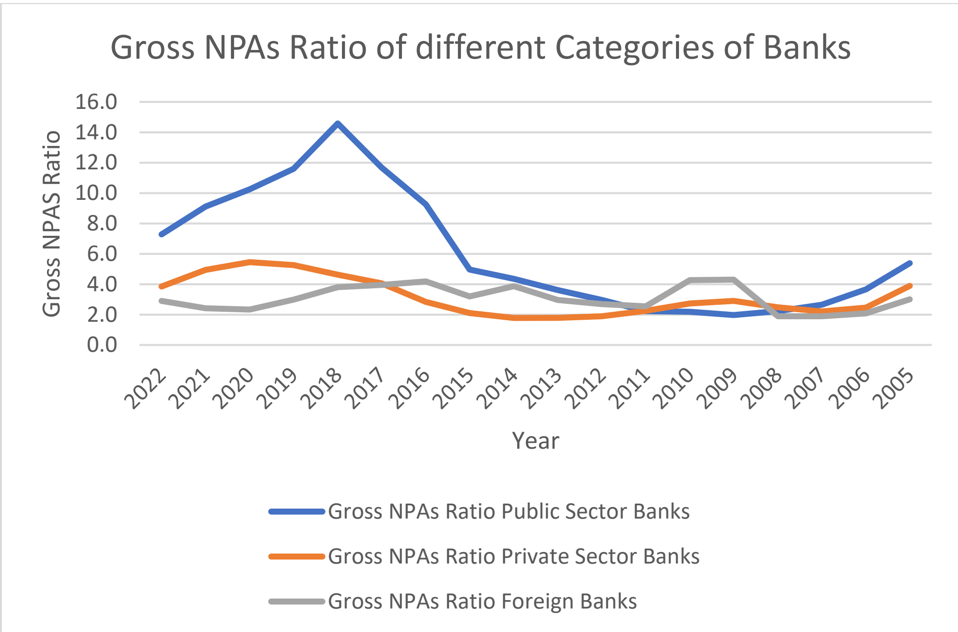
European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

2018	14.6	4.6	3.8
2017	11.7	4.1	4.0
2016	9.3	2.8	4.2
2015	5.0	2.1	3.2
2014	4.4	1.8	3.9
2013	3.6	1.8	3.0
2012	3.0	1.9	2.7
2011	2.2	2.2	2.5
2010	2.2	2.7	4.3
2009	2.0	2.9	4.3
2008	2.2	2.5	1.9
2007	2.7	2.2	1.9
2006	3.7	2.5	2.1
2005	5.4	3.9	3.0

Source: RBI, Statistical tables relating to banks in India

The above table shows the gross non-performing assets (GNPAs) ratio of public sector, private sector and foreign banks from FY 2005 to FY 2022. We observed that the GNPAs ratio of public sector banks are in a sharp rising trend from 2015 to 2019 and after that it is showing a declining trend till FY22. The GNPAs ratio of public sector banks is high in comparison to private sector banks and foreign banks. The Figure-1 shows the trend of GNPAs ratios of different categories of banks.

Figure-1



The above figure shows the Gross NPAs ratios in public sector, private sector and foreign banks. It shows the Gross NPAs of public sector banks showing a higher trend in comparison to private sector banks and foreign banks.

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Table 2:

Movement of Non-Performing Assets (NPAs) of Scheduled Commercial Banks (GNPAs to NNPAs Scenario)

Particulars	Gross NPAs					Net NPAs	
	Opening Balance	Addition during the Year	Reduction during the Year	Write-off during the Year	Closing Balance	Opening Balance	Closing Balance
PUBLIC SECTOR BANKS	688063.56	251210.74	95897.52	148927.04	694449.75	292700.17	264341.72
PRIVATE SECTOR BANKS	61873.82	45192.43	20510.94	17648.00	68907.31	23121.33	23874.04
FOREIGN BANKS	8140.90	5752.35	3250.09	1806.90	8836.27	1908.46	2037.24

Source: compiled by the author

The above table shows the Gross NPAs w.r.t Net NPAs in three different banking sector i.e. public, private and foreign banks. Gross NPAs in public sector bank is high and then coming private sector banks NPA. Lowest NPA is coming in Foreign banks. Similar is the situation in Net NPAs. Always NPAs in public sector banks is coming high in comparison with private sector banks. There is no NPAs in foreign banks. This reveals NPA management is good in foreign banks.

Table 3:

Bank Group-Wise Classification of Loan Assets of Scheduled Commercial Banks (Amount is Rupees in Crore)

Bank Group/ Year	Particulars	Public Sector Banks	Private Sector Banks	Foreign Banks	Small Finance Banks	All Scheduled Commercial Banks
Standard Advances	Amount	6892048.10	4520990.57	462298.57	133092.29	12008429.54
	Percentage (%)	92.7	96.2	97.1	95.1	94.2
Sub-Standard Advances	Amount	77406.18	41880.04	3648.95	5038.53	127973.70
	Percentage (%)	1.0	0.9	0.8	3.6	1.0
Doubtful Advances	Amount	341247.18	85538.97	7952.99	1833.45	436572.59
	Percentage (%)	4.6	1.8	1.7	1.3	3.4
Loss Advances	Amount	122304.86	53323.11	2184.24	38.67	177850.88
	Percentage (%)	1.6	1.1	0.5	0.0	1.4
Gross NPAs	Amount	540958.23	180742.11	13786.18	6910.65	742397.17
	Percentage (%)	7.3	3.8	2.9	4.9	5.8
Total Advances		7433006.32	4701732.69	476084.75	140002.94	12750826.71

Source: compiled by the author

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Table 3 shows the classification of assets of public sector, private sector and foreign banks as on 31st March 2022. From the classification of loans and advances of all banking sectors, it is observed that the gross NPAs of public sector banks are higher among all categories of banking sector. Again it is also observed that the doubtful advances and loss advances of public sector banks are again higher in comparison to other banks. The foreign banks are able to manage its assets more effectively than private sector and public sector banks as its percentage of standard advances are more in comparison to public and private sector banks.

Table 4:

Descriptive analysis of Gross NPAs and Net NPS in different phases of Indian Banking Sector.

Sl.	Phases	Banks		Gross NPAS (Rs in Crore)	Net NPAs (Rs in Crore)
1	Bank Mergers and Consolidation	Foreign Banks	Mean	496.92	152.34
		Public Sector Banks		37033.38	14863.86
		Private Sector Banks		7022.59	2417.34
	Pre-Global Financial Crises	Foreign Banks		4821.21	2603.60
		Public Sector Banks		1532.46	557.07
		Private Sector Banks		329.52	151.02
	Post Global Financial Crises	Foreign Banks		304.44	132.73
		Public Sector Banks		991.16	363.80
		Private Sector Banks		99.95	46.45
2	Bank Mergers and Consolidation	Foreign Banks	SD	91.44	51.20
		Public Sector Banks		11035.85	3317.60
		Private Sector Banks		2662.37	624.74
	Pre-Global Financial Crises	Foreign Banks		13.79	14.35
		Public Sector Banks		175.10	42.60
		Private Sector Banks		50.10	26.95
	Post Global Financial Crises	Foreign Banks		99.95	46.45
		Public Sector Banks		3478.35	2077.76
		Private Sector Banks		349.27	171.89

Source: compiled by the author

Table 4 shows the mean and standard deviation of Gross NPAs and Net NPAs of Public sector banks, private sector banks and foreign banks from a period ranging from 2005 to 2022. The entire study is divided into 3 banking periods, Bank Mergers and Consolidation (2015 to 2021), Post-Global Financial Crises (2008-2015), Pre-Global Financial Crises (2005-2008). During the Pre Global financial crises period the mean of Gross NPAs and Net NPAs are higher in Foreign bank, ie,

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Rupees 4821.21crore and Rupees 2603.60 crore respectively than in Public Sector banks (ie, Rupees 1532.46 crore and Rupees 557.07 crore) and private sector banks ie, (Rupees 329.52 crore and Rupees 151.02 crore). The Gross NPAs and Net NPAs of Private Sector banks are lowest i.e, Rupees 329.52 crore and Rupees 151.02 crore respectively. During the Pre-global financial period the private sector banks were performing better than public sector and foreign banks.

During the Post Global financial crises period the mean score of Gross NPAs and Net NPAs are higher in Public Sector banks, ie, Rupees 991.16 crore and Rupees 363.80 crore respectively than in foreign banks (ie, Rupees 304.44 crore and Rupees 132.73 crore) and private sector banks ie, (Rupees 99.95 crore and Rupees 46.45crore).

It is observed in the Bank Merger and Consolidation period that the mean score of Gross NPAs and Net NPAs are higher in Public Sector banks, ie, Rupees 37033.38 crore and Rupees 14863.86 crore respectively than in private sector banks ie, (Rupees 7022.59 crore and Rupees 2417.34 crore) and foreign banks (ie, Rupees 496.92 crore and Rupees 152.34 crore).

Table 5:

Summary of Mean Score of Gross NPAs and Net NPAs

Period	High Mean Score of Gross NPAs and Net NPAs	Low Mean Score	Comparison of Performance of Banks
Bank Mergers and Consolidation	Public Sector Banks	Foreign Banks	Foreign banks are better performer than other banks
Post-Global Financial Crises	Public Sector Banks	Private Sector Banks	Private Sector Banks are better performer than other banks
Pre-Global Financial Crises	Foreign Banks	Private Sector Banks	Private Sector Banks are better performer than other banks

Source: compiled by the author

The Standard deviation is calculated to find out the variation in management of NPAs by all banks during these periods. During Pre Global financial crises period the Standard Deviation of Gross NPAs and Net NPAs of public sector banks ie, 175.10 and 42.60 respectively are higher than in Private Sector banks (ie, 50.10 and 26.95) and Foreign banks ie, (13.79 and 14.35). The SD of Gross NPAs and Net NPAs of foreign banks are lowest than that of private sector banks. From this analysis we can observe that the NPA management of foreign banks are better than that of private sector banks and public sector banks.

During the Post Global financial crises period the Standard Deviation of Gross NPAs and Net NPAs of public sector banks ie, 3478.35 and 2077.76 respectively are higher than in Private Sector banks (ie, 349.27 and 171.89) and Foreign banks ie, (99.95 and 46.45). The SD of Gross NPAs and Net NPAs of foreign banks are lowest than that of private sector banks.

It is seen in the Bank Mergers and Consolidation period the Standard Deviation of Gross NPAs and Net NPAs of public sector banks ie, 11035.85 and 3317.60 respectively are higher than in Private Sector banks (ie, 2662.37 and 624.74) and foreign banks ie, (91.44 and 51.20). The SD of Gross NPAs and Net NPAs of foreign banks are lowest than that of private

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

sector banks. The variation in public sector banks in management of NPAs in this period is high than private sector banks and foreign banks.

Table 6:

Summary of SD of Gross NPAs and Net NPAs

Period	High SD of Gross NPAs and Net NPAs	Low SD of Gross NPAs and Net NPAs	Performance
Bank Mergers and Consolidation	Public Sector Banks	Foreign Banks	Foreign banks are better performer than other banks
Post Global Financial Crises	Public Sector Banks	Foreign Banks	Foreign Banks are better performer than other banks
Pre-Global Financial Crises	Public Sector Banks	Foreign Banks	Foreign Banks are better performer than other banks

Source: compiled by the author

Macro and bank specific factors influencing the present scenario of NPAs in different categories of Banks.

A panel data analysis was conducted to identify the determinants affecting both Gross Non-Performing Assets (GNPA) and Net Non-Performing Assets (NNPA) across all categories of banks, including public sector, private sector, and foreign banks. The Wu-Hausman Test was utilized to determine the more suitable model between the Fixed Effects Model and the Random Effects Model. The results indicate that the fixed effect model is the appropriate choice for this study.

Variables used in the study:

Table 7:

Bank specific factors

Different Performance Ratios	**Symbols**	**Indicators**
Gross Non-Performing Assets	GNPA	As per RBI standard, the Gross NPA is the summation of all loan assets that are categorised as NPA. It measure of the overall quality of the bank's loan book.
Net Non-Performing Assets	NNPA	This is the amount that results after deducting provision for unpaid debts from GNPA. It measures the overall quality of banks loan book.
Return on Equity	ROE	Measures profitability in relation to shareholders equity
Return on Advances	ROAD	Measures Profitability in terms of interest income from average advances.
Return on Investment	ROI	Measures Profitability and efficiency of an investment

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Ratio of priority sector advances to total advances	PRAA	lending to agriculture and the weaker sections and it is adversely related to profitability of banks
Ratio of secured advances to total advances	SAA	It indicates size of the bank. Higher is the ratio higher is the banks profitability
Ratio of net interest income to total assets (Net Interest Margin)	NIM	Profitability and growth Higher is the ratio higher is the banks profitability
Ratio of operating profits to total assets	ROPTA	Profit from principal business Higher is the ratio higher is the banks profitability

Source: compiled by the author

Table-8:

Macro-economic Factors

Factors		**Role**
GDP at Market Price	GDP	It measures monetary value of all final goods and services produced and sold in the national territory during a given period of time. It is the indicator of size of the economy and its performance. Higher GDP indicate a growing economy and increasing role of banks.
Inflation Rate	IR	It measures the rate of increase in general price level over a given period of time. As inflation increases the interest rates of banks, the cost of funds of investors rises and it will affect the performance of the bank.
Nominal Effective Exchange Rate (NEER)	NEER	It evaluates the value of one currency in relation to the weighted average of numerous other currencies. Increase in NEER indicates high international trade as domestic currency appreciate and growth in economy results growth of banking operations.
Rate of growth of bank credit	RGBC	Bank credit grows with rise in interest rate and demand for bank loans.
Real Interest Rate	RIR	It represents the actual cost of a loan. It is return on saving after inflation. It is the rate of interest which is adjusted with inflation rate. It gauges the proportional rise in purchasing power that the lender experiences as the loan is repaid with interest. Positive interest rate motivate people to save more today.

Source: compiled by the author

The panel regression analysis is run using the above variables. The GNPA and NNPA is taken as the dependent variable and the other macro and micro factors influencing the GNPA and NNPA is taken as the independent variable for analysis. The panel is created using the above factors for all Public sector banks, private sector banks and foreign banks from a period ranging 18 years from 2004-05 to 2021-22. The descriptive statistics of the variables is given in Table-9. Thes result of the panel data regression is given in table-10.

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Table-9

Descriptive Statistics of Individual Variables

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**N**	**Mean**	**sd**	**min**	**max**
Year	1,535	2,014	5.119	2,005	2,022
GNPA (Gross Non-Performing Assets)	1,535	4,713	14,749	0	2,23,427
NNPA (Net Non-Performing Assets)	1,535	2,009	6,302	-5.743	1,10,855
NNPAA (Ratio of Net Non-Performing Assets to total assets)	1,535	1.988	4.5	-0.05	98.79
PRAA (Ratio of priority sector advances to total advances)	1,535	33.5	17.77	0	100
SAA(Ratio of secured advances to total advances)	1,535	68.54	30.37	0	100
NIM (Net Interest Margin)	1,535	3.096	1.309	-1.23	10.46
ROPTA (Ratio of operating profits to total assets)	1,535	2.335	2.471	-13.36	31.58
ROE (Return on Equity)	1,535	6.117	15.21	-294.9	31.62
ROAD (Return on Advances)	1,535	8.852	3.069	0	38.83
ROI (Return on Investment)	1,535	7.063	2.261	0	54.43
GDP (Gross Domestic Product at Market Price)	1,535	6.217	3.346	-6.6	8.68
IR (Inflation Rate)	1,535	6.596	2.623	3.328	11.99
NEER (Nominal Effective Exchange Rate)	1,535	104.8	29.55	0	138.8
RGBC (Rate of growth of bank credit)	1,535	16.07	8.563	5.58	36.95
RIR (Real Interest Rate)	1,535	4.097	2.53	-1.984	7.556

Source: compiled by the author

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

Table-10

Result of Panel Data Analysis

VARIABLES	GNPA	NNPA
PRAA (Ratio of priority sector advances to total advances)	-4.071	0.0298***
	(20.39)	(0.00886)
SAA (Ratio of secured advances to total advances)	38.89**	0.0330***
	(17.23)	(0.00749)
NIM (Net Interest Margin)	452.8	-0.0234
	(286.5)	(0.124)
ROPTA (Ratio of operating profits to total assets)	292.1**	-0.108*
	(129.4)	(0.0562)
ROE (Return on Equity)	-204.2***	-0.0785***
	(22.33)	(0.00970)
ROAD(Return on Advances)	-145.5	-0.00926
	(110.3)	(0.0479)
ROI(Return on Investment)	-64.56	-0.0489
	(135.8)	(0.0590)
GDP (Gross Domestic Product at Market Price)	-140.6*	0.0615*
	(76.13)	(0.0331)
IR (Inflation Rate)	-1,021***	-0.0384
	(123.4)	(0.0536)
NEER (Nominal Effective Exchange Rate)	10.64	-0.00852**
	(8.581)	(0.00373)
RGBC (Rate of growth of bank credit)	-380.0***	-0.0138
	(34.62)	(0.0150)
RIR (Real Interest Rate)	-482.1***	0.154***
	(115.8)	(0.0503)
Constant	17,668***	0.31

European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
DOI: https://doi.org/10.52783/eel.v13i5.725
http://eelet.org.uk

	(1,994)	(0.866)
Observations	1535	1535
R-squared	0.209	0.123

***** p<0.01, ** p<0.05, * p<0.1**

Source: compiled by the author

The panel regression result found that few factors are highly impacting the GNPA and NNPA of all banks, while few factors moderately impacting the non-performing assets of banks and some factors are having very less impact on NPAs of banks. Few factors also do not impact the growth of GNPAs and NNPAS. The Return on Equity and Real Interest Rate are highly influencing both GNPA and NNPA. Besides Return on Equity and Real Interest Rate the GNPA of all commercial banks are also highly influenced by factors like Inflation Rate and Rate of growth of bank credit. The GNPA is moderately influenced by ratio of secured advances to total advances and ratio of operating profit to total assets. It is also observed that the GDP growth of an economy which is the indicator of size of the economy and its performance is having very less impact of GNPA of banks. The ratio of Net interest income to total assets do not have any impact on GNPA of all banks. From the various factors influencing the GNPA, return on equity(-204.2) is having inverse relationship with GNPA of banks. Rate of growth of bank credit, inflation rate and real interest rate all are negatively related to GNPA. With the rise in bank credit the GNPA dercreases as the demand for bank loan rises. Similarly with the moderately increase in inflation rate the GNPA will fall as there will be high growth of the economy. The real interest rate is the inflation adjusted rate which is the actual cost of the loan. From the analysis it is observed that with the rise in real interest rate the GNPA fall and vice versa.

Similarly if we analyse the impact of the macro and bank-specific factors on NNPA of banks we can see the NNPA is mostly influenced by Return on Equity, Real Interest Rate, ratio of priority sector advances to total advances and ratio of secured advances to total advances. The Priority sector advance to total advances(0.0298) and ratio of secured advances to total advances(0.0330) has a positive impact on NNPA of banks. With the increase in priority sector advances and secured advances the NNPA of banks increases and vice versa. With the rise in Real interest rate(0.154), the NNPA also increases. It is also observed that the increase in NNPA leads to decrease in return on equity as the profitability of banks decreases. The NNPA is inversely and moderately influenced by Nominal Effective exchange rate(-0.00852). The NNPA is least influenced by ratio of operating profit to total assets(inversely) and GDP growth rate (directly) of the economy. The ratio of net interest income to total assets has an insignificant effect on banks' NNPA.

It is also observed that all the macro factors are have an inverse relationship with GNPA. Among all macro factors the inflation rate is highly impacting the GNPAs of Banks. This suggest that in growing economy with a high to moderate inflation increasing the performance of banks by reducing their gross non-performing assets. Real interest rate is also having a high impact on both GNPA and NNPA. It is also found that GDP growth rate is having very less or insignificant impact on both GNPA and NNPA.

Among the bank specific factors, the profitability factors like return on advances, return on investment, do not have any impact on banks GNPAs and NNPAs. The priority sector advances to total advances and the ratio of secured advances to total advances are having a positive impact on NNPA of banks. With the rise in priority sector advances the non-performing assets of banks are rising. Therefore banks should need to be very careful while granting the loans and advances to priority sectors of the economy.

Strategies to Manage NPAs:

1. **Early Intervention:** Public, foreign and private sector banks are increasingly focusing on early detection of stress in loan accounts through regular monitoring and data analysis.

2. **Restructuring and Recovery:** Banks offer loan restructuring options to borrowers facing genuine financial hardships. Private sector banks might be more diligent in ensuring that only deserving cases receive such benefits.

3. **Asset Quality Review (AQR):** Regulators periodically conduct AQRs to assess the true extent of NPAs. These reviews encourage transparency and prompt corrective actions.

4. **Credit Monitoring Groups (CMGs):** PSBs have started forming CMGs to track large loans and prevent potential defaults.

5. **Use of Technology:** All categories of banks are investing in digital platforms for loan processing, customer communication, and risk assessment. AI and data analytics help in predicting and managing NPAs.

6. **Skill Enhancement:** Training employees to assess credit risk effectively and manage stressed assets is crucial for minimizing NPAs.

7. **Merger & Consolidation:** The Indian economy necessitates a robust banking system with ample lending capacity to facilitate corporate expansion and support economic growth through suitable financial backing. It can be possible through banking merger and consolidation which will result better customer relationship management, retention and delivery. If these three are managed properly, it will lead to reduce NPAs of banks (Sahil Singh Jasrotia, 2019).

8. **Distinguishing social sector lending from corporate lending**: Because of extensive government oversight, public sector banks are compelled to execute the government's social sector lending initiatives. For instance, these banks are obligated to allocate 40% of their assets to priority sector lending (PSL), which is often deemed unprofitable by many banks. Consequently, it is advisable for the government to establish a distinct entity under its control exclusively for Agricultural and Social Sector lending. More strict actions need to be taken by banks for corporate lending by creating a separate unit for it (AK Mishra, 2021).

Scope of further research:

A comparative study on NPAs in public, private, and foreign banks is a substantial research topic that can be further expanded and explored. Here are some areas of further study and research:

1. **Impact of Technology and Digital Transformation on NPAs**: Assess how the adoption of technology, including digital banking and AI-based risk assessment, affects NPAs in different types of banks. This is particularly relevant in the context of evolving financial services.
2. **Credit Risk Assessment Models:** Analyse the credit risk assessment models used by public, private, and foreign banks. Explore the accuracy and effectiveness of these models in predicting and managing NPAs.
3. **Stress Testing and Scenario Analysis:** Evaluate how banks from different categories perform in stress tests and scenario analyses, which help assess their resilience in adverse economic conditions.
4. **Impact of COVID-19**: Assess the impact of the COVID-19 pandemic on NPAs in each category of banks, as this event has created unique challenges for the banking industry.
5. **Comparative Case Studies:** A study can be made on a few selected banks from public sector, private sector and foreign banks to understand their NPA management strategies and outcomes of each category of banks.

Practical Implications:

A comparative study on NPAs in public, private, and foreign banks can have several practical implications for various stakeholders, including policymakers, bank management, investors, and regulators. The study found that the public sector banks are having a higher gross NPAs ratio than private and foreign banks. Therefor public sector banks need to be more careful in the initial stage of granting loans and advances. It may lead to more responsible lending practices and more stringent loan approval criteria to reduce NPAs. These banks also need development and adoption of more sophisticated risk assessment tools and technologies that help banks better predict and manage NPAs. Not only the public sector banks but also the private sector banks and foreign banks need to follow different NPA recovery strategies to effectively manage their NPA issues.

Conclusion:

The comparative study of NPAs in public and private sector banks highlights the multifaceted nature of the issue. While public sector banks contribute to financial inclusion and social development, they often face challenges related to governance, political interference, and leniency towards borrowers. On the other hand, private sector banks, driven by profitability and competition, have established more robust risk management practices. Striking a balance between these approaches while emphasizing technological innovation and skill development will be crucial in maintaining a healthy banking system with manageable NPAs. Regulatory reforms, greater autonomy, and continuous training can contribute to achieving this balance. Foreign banks frequently adhere to international best practices in banking and follow global standards in risk management and corporate governance. These practices promote a healthier loan portfolio. It's important to note that while foreign banks often have lower NPA levels, this is a generalization, and there can be exceptions. NPAs can vary widely among individual foreign banks based on their specific strategies, the regions they operate in, and their portfolio mix. Additionally, economic conditions, regulatory changes, and global financial crises can also impact NPA levels in foreign banks, just as they do in domestic banks.

References:

1. Agarwala, V., & Agarwala, N. (2019). *A critical review of non-performing assets in the Indian banking industry*. Rajagiri Management Journal.
2. Amuakwa-Mensah and F Boakye-Adjei A (2015). *Determinants of non-performing loans in Ghana banking industry,* Int.J. Computational Economics and Econometrics.5(1).
3. Bajaj, R. V., Sanati, G., & Lodha, C. (2021). *Impact Assessment Study of NPAs and Rate of Recovery: Are Private Sector Banks in India Better off?* Global Business Review. 0972150920980305.
4. Das, J. K., & Dey, S. (2019). *Factors contributing to non-performing assets in India: an empirical study*. Review of professional management, *16*(2), 62-70.
5. Dhanwani, S. K. (2014). *Recent trends in Indian Banking industry*. ABHINAV, National monthly refereed journal of research in commerce & management, (3)
6. Goyal, A., & Kaur, H. (2011). *Management of non performing assets-study of private sector and foreign banks in India*. Alok Goyal et al./Elixir Fin, 31, 1914-1921.
7. Jasrotia, S. S., & Agarwal, T. (2021). *Consolidation of Indian PSU banks and the way forward*. Journal of Public Affairs, 21(1), e2133.
8. Javheri, J., & Gawali, R. (2022). *A study on NPAs of selected private & public sector banks in India*. Indian Journal of Finance and Banking, 9(1), 129-139.
9. M Jayadev & N Padma (2020), *Wilful defaulters of Indian banks: A first cut analysis*. IIMB Management Review., 32(2), 129-142.
10. Mishra, A. K., Jain, S., & Abid, M. (2021). *Non-performing assets and its determinants in the Indian banking system: An empirical analysis using dynamic panel data models*. International Journal of Finance & Economics, 26(4), 5948-5962.
11. Miyan, M. (2017). *A Comparative Statistical Approach towards NPA of PSU and Private Sector Banks in India*. International Journal of Advanced Research in Computer Science, 8(1).
12. Owonye, B., & Obonofiemro, G. (2022). *Determinants of Non-Performing Loans in the Nigeria Banking Industry*. International Journal of Management & Entrepreneurship Research, 4(11), 428-440.
13. Ruban A. Hendry & Murugesan S. V. (2023), *Management of Non-Performing Assets of Public and Private Sector Banks in India: An empirical study*, HUMANITIES AND SOCIAL SCIENCE STUDIES Peer-Reviewed, Bi-annual, Interdisciplinary UGC CARE List Journal,12(1).