International Journal of Economic Practices and Theories (IJEPT)
ISSN: 2247-7225
Volume 2026, Issue 1

Effects of Non-Performing Assets (NPAS) On the Profitability of Indian Banks

Dr. Salma Begum

Associate Professor, Faculty of Management Studies, CMS Business School, JAIN (Deemed-to-be University), Bengaluru, Karnataka, India

Himanshu Khandelwal

MBA, 2024-26, Student, Faculty of Management Studies, CMS Business School, JAIN (Deemed-to-be University), Bengaluru, Karnataka, India

Abstract

One of the primary problems linked to the profitability and financial stability of the Indian banks is associated with non-performing assets or NPA. Rising amounts of stressed assets weigh on interest income, heighten the need to provision, and have a detrimental impact on general financial performance. The present empirical research examines the influence of the non-performance of the assets on the profitability of specific Indian banks and whether the relationship between the two different institutions in the public and private sectors is different. The study is founded on a panel data set of the six large Indian banks, 2016-2025, which included three state-owned banks (State Bank of India, Punjab National Bank, and Bank of Baroda) and three privately owned banks (HDFC Bank, ICICI Bank, and Axis Bank). Although the Gross Non-Performing Asset (GNPA) ratio indicates a decline in asset quality, Net Interest Margin (NIM) provides a measure of profitability. This study makes use of trend analysis, correlation analysis, multiple regression with an interaction term, and descriptive statistics. The findings demonstrate that NPAs unquestionably have a detrimental effect on bank profitability. The relationship between GNPA and NIM is strongly negative [-]0.744. Also, the regression findings indicate that an increase of one percentage point of GNPA in the case of banks in the private sector decreases Net Interest Margin on average by 0.1003 percentage points. The interaction of the statistically significant coefficient ($p = 0.0139$) indicates that the ownership structures influence the impact on non-performing assets (NPAs) on profitability. The research concludes that declining quality of assets affects the profitability and that the effects are more substantial in the case of a public and a private sector bank.

Keywords: Panel data analysis, bank profitability, non-performing assets, net interest margin, and the Indian banking industry

1. Introduction

By distributing credit to productive industries and mobilising savings, the banking sector in India makes a substantial contribution to economic expansion. In India, commercial banks promote trade growth, industrial development, infrastructure finance, and consumption expansion. Therefore, investment activity, market confidence, and the whole growth process are all strongly impacted by the stability and performance of banks. One of the most crucial indicators used to evaluate the stability of banks is still the quantity of non-performing assets (NPAs).

NPAs are loans for which debtors have missed payments for a predetermined amount of time. Banks must increase their provisions against potential losses if loans cease to generate the anticipated interest income. This reduces the number of new loans and profitability. The NPA problem in India became more severe even after aggressive loan growth between 2008 and 2014, especially in the business and infrastructure segments. The Asset Quality Review (AQR) by the Reserve Bank of India forced banks to recognize hitherto mislaid stressed assets, leading to an alarming increase in reported non-performing asset (NPA) levels, particularly in government sector banks.

In a bid to ease the situation, subsequent changes in legislation were made, including but not limited to the Insolvency and Bankruptcy Code (IBC), recapitalisation plans, and increased recovery procedures. Simultaneously, the COVID-19 pandemic

dropped credit quality and the ability of borrowers to repay loans, which led to an increase in stress. The period of 2016 through 2025 serves as a critical guide for analyzing the relationship between non-performing assets (NPAs) and profitability, as it spans most of the time, much of the asset identification, crisis peak, policy response, and recovery.

NPAs can affect the profitability of a bank differently based on the ownership structure. Public sector banks are usually subject to a setback of issues such as limitations of governance, lending commitments due to policy considerations, and other factors. And the reverse is also true; banks in the private sector tend to maintain a tighter monitoring system, a more performance-based management approach, and politicians on a credit-appraisal basis. Due to these structural differences, ownership-based comparisons are of analytical value.

The research discussed in the present paper experimentally studies the effect of non-performing assets on the profitability of specific banks in India, regardless of whether the relationship dissimilarity of the banks in the two sectors is more powerful between public and private banks.

Literature Review

To herald the completion of an investigation on the influence of the non-performing assets on the profitability of the Indian banks, the literature review presented in this paper summarises previous research studies.

2.1 NPAs and Profitability

Many studies have examined the direct effect that NPAs exert on profitability. In their research on a handful of Indian state-owned banks, Prasanth Kiran and Jones (2016) observed that there was a rather significant inverse relationship between increasing non-performing assets (NPAs) and increasing profitability. They found that the lower interest income dramatically decreased profitability, as well as an increase in provisioning requirements.

A statistical relationship between the level of increasing non-performing assets (NPA) and the declining profitability indicators, such as net profit and net interest margin, was statistically observed by Nachimuthu and Veni (2019) in a study of a small sample of public and private sector banks. They also found that banks in the public sector carried a slightly higher NPA burden.

Greater NPAs of both the State Bank of India and ICICI Bank increased the negative effect on profitability and liquidity in Swathi and Sridhar (2020), though this effect was more severe in the public sector bank.

2.2 Ownership-Based Differences

Agarwala and Agarwala (2019) also discovered that in the comparison of the nature of growth between non-performing assets (NPAs) of the two kinds of banks, lenders in the private sector maintained better quality of assets. They claimed that because of the lack of proper procedures to control and recover, state sector banks were under additional asset pressure.

Agarwal, Arora, Kashiramka, and Jain (2021) utilized the Random Effects panel regression model on Indian Scheduled Commercial Banks and found that NPAs had a strong effect on such measures of profitability as Return on Equity and Net Interest Margin. The report also established that the deterioration in asset quality affected the public sector banks more.

Pawar, Doke, and Jape (2022) discovered that NPAs had an inverse relationship with profitability in a sample of both types of banks (both public and private), where negative impacts were more evident among the institutions in the public sector. Their findings proved the viability of the idea that private banks possessed better techniques of NPA management.

2.3 Determinants and Management of NPAs

Pandey, Tilak, and Deokar (2013) found that unreasonable credit appraisal, illogical monitoring, and macroeconomic pressure had the greatest role to play in the growth of non-performing assets (NPAs) among Indian banks. Sen and Chakraborty (2018) demonstrated that macroeconomic factors and bank-specific factors

affected NPA levels dissimilarly, with the banks that were in the public sector being more prone to a decrease in the quality of assets.

Bardhan and Mukherjee (2016) revealed that greater profitability and adequacy in capital bases minimized future non-performing assets (NPAs) to support the bad-management hypothesis and that bad management practices augmented the morale of asset quality. In addition, Sahoo and Nayak (2024) postulated that, through lessening NPA liabilities, aggressive surveillance, in-depth credit analysis, and better recovery approaches enhance profitability.

2.4 Private Sector and Comparative Evidence

A study of a small number of private sector banks in India revealed that rising NPAs have a significant negative effect on the profitability of the banks (Mehta and Malhotra, 2014). Also, they have demonstrated that increased NPA in the priority sector portfolios strained the profitability more, indicating that ineffective asset quality directly restricts the possibilities to earn profits.

Jha and Singh (2020) reviewed some public and private sector banks and discovered that there was a high negative correlation between soaring non-performing assets (NPAs) and profitability indices, such as net profit, and the ratio between net interest margin and the profitability of an organization. They found that higher loss of profits occurred in public sector banks owing to their relatively high NPA levels, although both classes of ownership experienced the blow.

2.5 Macroeconomic and Cyclical Dimensions

Goel (2018) studied the dynamic trend of the non-performing assets (NPAs) of the Indian banks and determined that the ineffective macroeconomic environment greatly contributed to the decrease in the quality of assets. The process of analysis has shown the existence of a high correlation between NPA movements and multiple business-cycle indicators, which should reflect that the environment of a negative trend in the economy exposes credit stresses and disrupts the functioning of the banking industry.

Dahal (2023) discovered a statistically significant inverse association between NPAs and profitability, despite being based on commercial banks in Nepal. The analysis corroborated the broader assertion that banking performance in comparable financial systems is negatively impacted by falling asset quality, especially when combined with inadequate credit appraisal and lax oversight.

2.6 Institutional Reforms and Asset Quality

Rajput, Arora, and Kaur (2012) To boost asset profitability and quality, stricter laws, technical advancements, and comprehensive monitoring systems were needed, as reported by a study on the management for non-performing assets (NPAs) within Indian public sector banks. In order to reduce stressed assets, their study emphasized the necessity of pre-sanction appraisal and post-disbursement monitoring.

Agarwal (2025). Reforms, including the Insolvency and Bankruptcy Code, SARFAESI Act, recapitalisation measures, and NARCL, contributed to a rapid drop in gross non-performing assets (NPAs) following the crisis years, according to an analysis of the causes and resolution mechanisms of NPAs in the Indian banking sector. However, in the survey, it was discovered that the public sector banks continued to record a relatively higher rating in the NPA, and this indicated that there were still issues structurally.

Research Gap

That non-performing assets hurt the profitability of banks, and that asset quality pressure on the banking sector is more evidently a problem in the public sector than in the private sector, is presently demonstrated by the literature on the subject. This relationship has been studied in several different perspectives by past researchers, such as direct effect on the profitability, differences in the ownership, macroeconomic aspects, credit risk management decisions, and institutional reforms. Yet there are still some major places to be filled.

To start with, the fact that most prior studies have only focused on public sector-based banks due to general comparisons of bank groups only limits the framework of a comprehensive understanding of the influence of

NPAs on profitability in terms of the diversity of ownership at the industry level. Second, much of the content revolves around the times preceding serious structural changes, such as the Asset Quality Review (AQR), Insolvency and Bankruptcy Code (IBC), and the recovery period in the aftermath of COVID. This leads to an inadequate capture of the entire cycle of stress awareness, crisis peak, and subsequent improvement.

Third, only a small number of studies explicitly employ an interaction-based empirical model to investigate if the marginal impact on non-performing assets (NPAs) for profitability differs significantly across ownership forms, despite the fact that many studies compare both private and public banks. Most studies indicate that public banks have higher non-performing assets (NPAs), yet they do not specifically examine whether the profitability sensitivity of NPAs varies structurally between public and private sector banks.

Lastly, a small amount of recent research integrates ownership impacts and new regulatory developments into a single cohesive framework while using Net Interest Margin as the main profitability variable. Consequently, an updated empirical study at the bank level that uses current panel data, it is necessary to look into the ownership-based variable impact of NPAs upon profitability. To bridge this gap, the current work uses an interaction regression approach to analyse a subset of Indian banks from 2016 to 2025.

3. Objectives of the Study

1. to examine the pattern of non-performing assets in a few public and private Indian banks.
2. to investigate how NPAs affect profitability as determined by net interest margin.
3. to assess how NPAs affect both the private and public sectors banks' profitability differently.
4. To assess the effect of major regulatory and economic shocks on the NPA–profitability relationship.

4. Research Methodology

1. Data

Secondary data including official Reserve Bank of India statistics publications including published annual reports of specific banks form the basis of the study.

2. Sample

For analysis, six commercial banks in India were chosen. ‘State Bank of India, Punjab National Bank, and Bank of Baroda’ are the public sector banks. The private sector banks include Axis Bank, ICICI Bank, and HDFC Bank. These banks have been selected due to their size, accessibility to information, and category of ownership.

3. Period of Study

The analysis spans the years 2016 through 2025.

4. Variables

- **Dependent Variable:** Net Interest Margin (NIM)
- **Independent Variable:** Gross NPA Ratio (GNPA)
- **Dummy Variable:** Bank Type (0 = Private, 1 = Public)
- **Interaction Term:** GNPA × Bank Type

5. Statistical Methods

The research uses descriptive statistics, which include trend analysis, correlation analysis, and multiple regression analysis.

5. Hypothesis

H0: Non-Performing Assets do not produce any significant change in profitability between the public and the private sector banks.

H1: The adverse effect of Non-Performing Assets on the profitability is considerably worse among the banks in the private sector than in the public sector.

Analysis

The empirical analysis commences with the descriptive statistics so that the project can analyse how the GNPA and NIM are distributed among the chosen banks.

Table 1: Descriptive Statistics of GNPA

Bank	Mean	Std. Dev.	Min	Max
BOB	7.597	3.253521	2.26	12
AXIS	3.555	1.825811	1.28	7
ICICI	4.686	2.806269	0.00	9
HDFC	1.069	0.115451	1.00	1.33
PNB	11.842	4.201111	3.95	18
SBI	5.481	2.746010	1.82	11

The above figures clearly indicate the role played by ownership in the quality of assets. The largest average GNPA of Punjab National Bank was 11.842% and, the State Bank of India had 5.481%, and Bank of Baroda had 7.597%. But HDFC Bank still had the lowest average GNPA ratio of 1.069%. These values reveal that the stressed assets of the public sector banks were more in the course of the study period.

Table 2: Descriptive Statistics of NIM

Bank	Mean	Std. Dev.	Min	Max
BOB	2.396	0.308875	1.89	2.83
AXIS	3.009	0.257738	2.69	3.37
ICICI	3.242	0.477280	2.61	3.97
HDFC	3.586	0.291931	3.00	3.89
PNB	2.246	0.173274	1.94	2.56
SBI	2.430	0.127515	2.16	2.62

The trend in profitability is inverted. The average NIM was higher in the private sector banks than in the public sector. HDFC Bank recorded the highest average NIM at 3.586 per cent, followed by ICICI Bank with 3.242 per cent, Axis Bank with 3.009 per cent, and PNB with 2.246 per cent.

Trend Analysis

Table 3: Trend Analysis of GNPA

Year	Private Banks	Public Banks	Grand Total
2016	3.0000	10.0000	6.5000
2017	5.0000	10.0000	7.5000
2018	2.6667	13.6667	8.1667
2019	4.3333	11.3333	7.8333
2020	4.0000	9.6667	6.8333
2021	4.3333	9.3333	6.8333
2022	2.6067	7.6567	5.1317
2023	2.0033	5.1033	3.5533
2024	1.6433	3.6300	2.6367
2025	1.4467	2.6767	2.0617

The GNPA trend indicated that the levels of stressed assets rose in the public sector banks throughout the study period, as it continued reporting. The peak of the NPA issue in the selected sample was reached in 2018, with the average GNPA ratio in the public banks being 13.67%. The difficulty also showed in the case of the private banks, although on a much lesser scale. After 2019, both the GNPA ratios of ownership groups began to decline, which portrays the impact of recovery efforts, fixing balance sheets, and regulatory interventions.

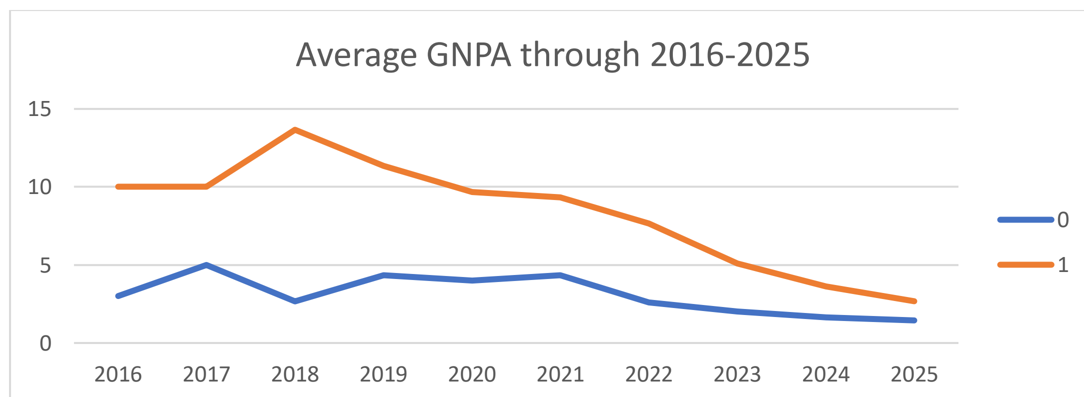

Fig 1: Trend Analysis of GNPA

The figure indicates that the average GNPA of public sector banks (1) was uniformly significantly higher compared to the average GNPA of the private sector banks (0) in the years 2016 through 2025. The highest GNPA of the NPA problem was reached in 2018, when the GNPA of public banks was approximately 13.7%, as compared to the relatively low GNPA of the private banks. After 2018, GNPA progressively declined for all groups due to improved recovery plans and government support. By 2025, both groups show a notable decrease in stressed assets, and public banks continue to outperform private banks. Overall, the pattern shows that public sector banks experienced greater asset quality stress, although both groups saw notable improvements over time.

Year	Private Banks	Public Banks	Grand Total
2016	3.3433	2.2000	2.7717
2017	3.2133	2.1000	2.6567
2018	3.0200	2.0833	2.5517
2019	3.1267	2.3233	2.7250
2020	3.1467	2.3133	2.7300
2021	3.2667	2.4467	2.8567
2022	3.2167	2.3833	2.8000
2023	3.5667	2.6000	3.0833
2024	3.4467	2.6533	3.0500
2025	3.4433	2.4700	2.9567

Due to the NIM trend, private banks have remained more profitable than their public counterparts. Both groups experienced a reduction in NIM during the AQR period of 2016 to 2018, reflecting the pressure on profitability occasioned by the recognition of the stressed assets and the increase in the provisioning requirement. The improvement in profitability was gradual after 2019, and it was still clear that private banks enjoyed a clear advantage.

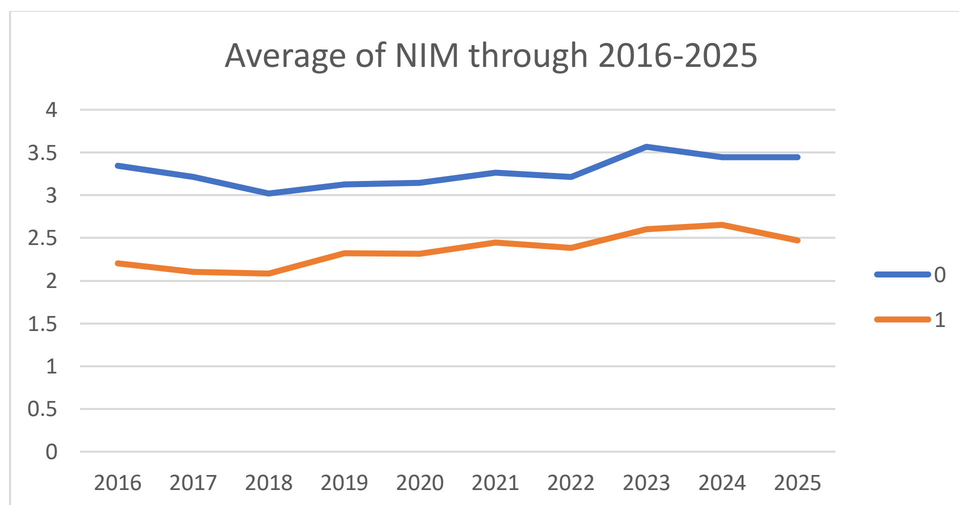

Fig 2: Trend Analysis of NIM

Between 2016 and 2025, the graph reflects that Net Interest Margins lent out by the Banks in the private sector registered 0, and that the Banks in the public sector registered 1, which was always increasing as well. These two groups recorded a slight decline in NIM between 2016 and 2018, which may be attributed to the pressure of assessing the quality of assets more rigorously and more provisioning in the AQR period. However, NIM continued to rise steadily in either ownership group after 2018, a positive sign that lending profitability and efficiency were turning around. While public banks likewise improved but stayed at a lower level over that time,

private banks attained their greatest NIM in 2023. Private banks were more effective at producing interest income from earning assets, as indicated by the difference between the two lines.

Overall, the pattern shows that private sector banks outperformed public sector banks in terms of profitability, whereas public sector banks progressed more slowly over time.

Correlation Analysis

The correlation coefficient between GNPA and NIM is:

−0.74404314

This value indicates a strong negative connection between profitability and non-performing assets. Net Interest Margin often decreases when GNPA rises. This is in line with the theoretical prediction that declining asset quality lowers bank profitability by raising credit costs and decreasing interest revenue.

Regression Analysis

Table 4: Regression Statistics

Regression Statistics	Value
Multiple R	0.882778157
R Square	0.779297274
Adjusted R-Square	0.767473914
Standard Error	0.279559631
Observations	60

The regression findings show that the model has an significant explanatory capacity while looking at the relationship between NPAs and profitability. The Multiple R value of 0.8828 indicates a significant connection between the observed and expected values of Net Interest Margin. The R-squared value of 0.7793 indicates that the independent variables in the model explain around 77.93% of the variation in profitability. The Adjusted R Square of 0.7675, that takes into consideration the number of predictors included, further supports the model's strength.

The Standard Error of 0.2796 indicates that the model's prediction error is relatively low, indicating a strong fit. Since the model is based on 60 observations, the dataset for the analysis is adequate. When taken as a whole, these numbers show that the regression model is reliable and suitable for explaining how non-performing assets (NPAs) impact bank profitability.

Table 5: ANOVA and Coefficients

Variable	Coefficient	Std. Error	t Stat	p-value
Intercept	3.59035682	0.082283468	43.63399968	6.28835E-45
GNPA%	-0.100329802	0.020797087	-4.824223769	1.12017E-05
Bank Type	-0.903588485	0.137390567	-6.576786935	1.72723E-08
GNPA × Bank Type	0.060670693	0.023878977	2.540757678	0.013859975

Model ANOVA:

F = 65.91165748 Significance F = 2.27172E-18

The regression results validate the statistical significance of the model. Higher NPAs lower profitability since the GNPA coefficient is negative and substantial. Additionally, the bank type coefficient is substantial and negative, demonstrating that, when all other variables are held constant, public sector banks possess a lower NIM than private sector banks. The positive and substantial interaction term suggests that different ownership categories are affected differently by GNPA's impact on profitability.

For private banks, the effect of GNPA on NIM is **−0.1003**. For public banks, the effect is:

−0.100329802 + 0.060670693 = **−0.039659109**

This demonstrates that, in the chosen sample, the negative marginal effect of non-performing assets (NPAs) on profitability is greater in private sector banks then in public sector banks.

6. Findings

1. Public sector banks reported substantially higher GNPA levels than private sector banks during the study period.
2. The Net Interest Margins of banks in the private sector were higher than those of banks in the public sector.
3. The NIM and GNPA are correlated inversely (-0.744).
4. The regression equation is statistically effective and accounts for 77.93 percent of the change in profitability.
5. An increase in GNPA by 1 percentage point decreases NIM by an average of 0.1003 percentage points in private banks.
6. The differences in ownership on the NPA-profitability relationship are supported by the statistical significance of the interaction term.
7. The adverse effect of NPAs on profitability is more pronounced in banks in the private sector than in banks in the selected sample in the public sector.

7. Conclusion

The effect of non-performing assets on the profitability of specific Indian banks was examined in the work, and the main issue to be determined was whether the relationship between them is different between the institutions belonging to the government and the privatized sector. Interaction-based multiple regression model, trend analysis, correlation analysis, and descriptive statistics utilizing panel data of six big banks in the years 2016-2025 were made part of the inquiry. The empirical findings are quite clear that non-performing assets still play a major role in the determination of bank profitability in India.

The study holds that the increasing non-performing assets (NPAs) adversely affect the profitability in terms of net interest margin, which is statistically significant. According to the correlation research conducted, the Gross NPA ratio had a close negative correlation with the NIM, and it implies that the worsening of the quality of assets has a direct negative impact on the capacity of banks to generate revenue. This conclusion was further supported by the regulatory model, according to which a one percentage point rise in GNPA lowers profitability by a significant amount. These results support the main theoretical assertion that stressed assets reduce the interest revenue, increase the pressure on provisioning, and worsen the performance of the bank.

An ownership-based analysis is one of the major contributions of this study. The data given on descriptive and trend forms indicated that all the banks in the public sector experienced a higher load of NPA in the study period, with a peak in 2017-2018 when the stress was more significant. On the other hand, the banks in the private sector never had low net interest margins or failed to make a good profit. The interaction regression results, however, exhibit even more important and more complicated findings: the marginal contributions of increasing NPAs to profitability in private sector banks were significant and higher compared to the aggregate NPAs in public banks.

What this means is that ownership influences both the quality of stressed assets and the level at which profitability responds to a reduction in the quality of assets.

According to the results, the asset quality stress poses varying levels of gain to the financial performances of banks operating in the public and private sectors. The overall performance of the private banks is better, but their overall profitability drops by a higher percentage as the amount of non-performing assets (NPAs) increases.

It seems that the public sector banks, in their turn, run at much lower profitability, with an even greater pressure on asset quality. The point of difference matters as it changes the debate away from one about reporting on the group with the largest number of non-performing assets (NPAs) to the sensitivity of profitability to the deteriorating quality of assets.

The analysis also includes major economic and regulatory developments that have taken place during the period of the study. Institutional reforms and regulatory interventions have been shown to influence the relationship between NPA and profitability significantly, with this clearly shown by the steady decrease in NPA rates since the adoption of the Insolvency and Bankruptcy Code and the dramatic increase in NPA rates during the asset quality review and the stability experienced during the post-COVID recovery step. Identity, recovery, and balance sheet repair reforms seem to have had a positive effect on the well-being of the banking system, as can be observed through the steady rise in the GNPA and the trend in NIM after the reforms.

Comprehensively, the study concludes that ownership structure has major impacts on profitability and the non-performing balance sheet of Indian banks. The conclusions highlight the significance of improved credit evaluation tools, uninterrupted monitoring of loan portfolios, effective recovery strategies, and immediate regulatory response in ensuring financial stability. The article adds contemporary evidence in the literature and offers a finer understanding of how the diminishing quality of assets affects different types of Indian banks using both the current panel data and through an interaction-based empirical model.

REFERENCE:

1. Prasanth Kiran, K., & Jones, T. M. (2016). *Effect of non-performing assets on the profitability of banks – A selective study*. International Journal of Business and General Management, 5(2),53–60.
2. https://www.researchgate.net/profile/Mary-Jones-31/publication/340633871_EFFECT_OF_NON_PERFORMING_ASSETS_ON_THE_PROFITABILITY_OF_BANKS_-A_SELECTIVE_STUDY/links/5e9607e44585150839db6df8/EFFECT-OF-NON-PERFORMING-ASSETS-ON-THE-PROFITABILITY-OF-BANKS-A-SELECTIVE-STUDY.pdf
3. Nachimuthu, K., & Veni, M. (2019). *Impact of non-performing assets on the profitability of Indian scheduled commercial banks*. African Journal of Business Management, 13(4), 128–137. https://doi.org/10.5897/AJBM2018.8721
4. https://journalbackups.lon1.digitaloceanspaces.com/uploads/main/article/9cf53dc60095.pdf
5. Swathi, M. S., & Sridhar, K. (2020). *Impact of non-performing assets on profitability: A comparative study of SBI and ICICI Bank*. International Journal of Multidisciplinary Educational Research, 9(5). (Exact page range pending).
6. https://ijmer.s3.amazonaws.com/pdf/volume9/volume9-issue5(5)-2020.pdf#page=54
7. Agarwala, V., & Agarwala, N. (2019). *A critical review of non-performing assets in the Indian banking industry*. Rajagiri Management Journal, 13(2), 12–23. https://doi.org/10.1108/RAMJ-08-2019-0010
8. https://www.emerald.com/ramj/article-pdf/13/2/12/2292742/ramj-08-2019-0010.pdf
9. Agarwal, P., Arora, D., Kashiramka, S., & Jain, P. K. (2021). *The impact of non-performing assets on bank performance under the Basel regime – Empirical evidence from India*. Journal of Commerce & Accounting Research, 10(3), 36–45.
10. https://d1wqtxts1xzle7.cloudfront.net/89416639/THE_IMPACT_OF_NON_PERFORMING_ASSETS_ON_BANK-libre.pdf?1660041265=&response-content-disposition=inline%3B+filename%3DTHE_IMPACT_OF_NON_PERFORMING_ASSETS_ON_B.pdf&Expires=1771684809&Signature=SBDrrtU58eLnhtmLv4aprSy-HWkfzpOT1~hx4sqSjY2Q4cyd9tgXbMhY0j~Gd28yX~iJqzDehvOEQRDCk2cG4mp3In2N2W5R8A36Y

yq9MP3fvDEX4od4S1eYmBFEwtIkg9~Y5BpKa~dAD7iT3Cxf3Jz2MM~IhQCLbD6gQS7YR1OItvf9OF0wHHrKSfdtVVpUmme0BWVMTmGIrBDog13dExc1P-TYC07237~fCjDvGFQuXs276s-MAvR1XcE1j7n654d6GQ2Og0zYCKnatWPKxMcCZfJ~sx~C3SFh8TtFiljmck7GwToEx-YvjGrNHPedh8OHfsCxwHjeBQT0t4VQCg__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

11. Pandey, S. J., Tilak, V. G., & Deokar, B. (2013). *Non-performing assets of Indian banks: Phases and dimensions*.
12. https://d1wqtxts1xzle7.cloudfront.net/31895167/NonPerforming_Assets_of_Indian_Banks-libre.pdf?1391475021=&response-content-disposition=inline%3B+filename%3DNon_Performing_Assets_of_Indian_Banks.pdf&Expires=1771684967&Signature=DWcFGch6Pjb1DAZGH4PPLG-aMCr9W~O0CznVfjmQh8FEY39XMzPYAXfMjdCgilVsKkyULZllqq6NpV6hoGTyGS1aIRl41pWyht4vRlHMmSoSX1W6QesWR1yJ38aXN-L5FBv7c6TvOmS9u4bJeJhxGPJRlALhf~nWeY8LuPiFzGnwbH1E~p6-Sq4uOrgj7ShJl6UlBzkXIP8q2wImqwwAa2IQuBvjTQVtKVmL-idNXy-BLRiskbT4vH1Plh1KQtbq5hjLjo5SZDHeaQvXPFXu7t3MDo62Jc6jlqoUsuJLb719eHDTOcVIaxeAqh4ZPRWahCoAWGhkVO7sycg9oU4ZTA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
13. Nikam, S. (2024). *Assessing the relationship between non-performing assets (NPAs) and the profitability of banks in India* (MPRA Paper No. 121624). Munich Personal RePEc Archive.
14. https://mpra.ub.uni-muenchen.de/121624/1/MPRA_paper_121624.pdf
15. Chauhan, S. S. (2013). *Performance of non-performing assets (NPA) in Indian commercial banks*. International Journal of Management and IT.
16. https://d1wqtxts1xzle7.cloudfront.net/31960564/NPA_Study_imp-libre.pdf?1391525804=&response-content-disposition=inline%3B+filename%3DPERFORMANCE_OF_NON_PERFORMING_ASSETS_NPA.pdf&Expires=1771685309&Signature=PRmzvsJdQfP-DzMLDeec1nYKd1kO78ZXUnSVABSac4qQowgb1FUNN79z~wB5n5fEEurXgGq3USS-SzyMSoKnGc9vFc1BkTNGnuYEBZEJ6jSuG5amSU4sEhe-gP5NNMx55hw9EnJnxLdZ90R8EtnMCEuUQ1czPusi5KnHvHdM6iE6PN3ErKr6RPf4x6Lph0wYnY14zRHR0ExF~pvHu~zUcfXuMgPy-0BM0u4d7y5eEUQvYNyhHWqJJEoSFR5rgk79bThwB6WBmtXPliI8HL~8e6oDiYgl1MDduka2-gFMrsyqo9tauff-xN7LQ2XotmGIUdfAmuQWJ2gqYgAJqWrQnw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
17. Sen, S., & Chakraborty, M. (2018). *Factors contributing to non-performing assets in India: An empirical analysis*. Journal of Knowledge Development, 63.
18. https://d1wqtxts1xzle7.cloudfront.net/63830692/JKD-63-2018-SUROJIT-RPM20200704-10501-1vjrp41-libre.pdf?1593926655=&response-content-disposition=inline%3B+filename%3DFactors_Contributing_to_Non_Performing_A.pdf&Expires=1771685491&Signature=dkm~N1J2cLTYMz5SK0xLTIUQTCF189AFP5VfLvLp2P30u1y7nLXJviwqLxCva5kaLSdDguUsNW-8mVR8jG94WQhRBjFEO-5wNbVxD-jBOHUWkidc9AWu2xSCTbguQfw3vhbbh435pUBiAxOCNuKszWl6dQxRIdxgqhGa1NOMgS5EW3j-W2BaeFw~TaaycupRc3NnTx4jiWxSk9RbVzcvpRl5Un23mnWHSFMhzJIYjfVyJvLl9jVRJAvY5mHshkGiVnR7aCZaUiO2dnjEq6CzxuJqlUCOo1SBMeznlDJ8uEQ~IvVLnXTgWPTbNeAcC-Q6sTREgxipasqpE8Ok2NVmQw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
19. Dahal, P. (2023). *Impact of non-performing assets on profitability: A panel regression analysis of commercial banks in Nepal*. Global Journal of Commerce and Management Perspective, 12(4). https://doi.org/10.35248/2319-7285.23.12.047
20. https://www.researchgate.net/profile/Pramod-Dahal-2/publication/379000097_Impact_of_Non-Performing_Assets_on_Profitability_A_Panel_Regression_Analysis_of_Commercial_Banks_in_Nepal/links/65f530a1c05fd2688018d285/Impact-of-Non-Performing-Assets-on-Profitability-A-Panel-Regression-Analysis-of-Commercial-Banks-in-Nepal.pdf

21. Mehta, L., & Malhotra, M. (2014). *Empirical analysis of non-performing assets related to private banks of India*. International Journal of Management Excellence, 3(1), 386–391. https://doi.org/10.17722/ijme.v3i1.128
22. https://techmindresearch.org/index.php/ijme/article/view/128
23. Rao, G. S., Chand, K. P., & Purushotham, J. (2020). *Causes and effects of non-performing assets in the banking sector*.
24. https://www.researchgate.net/profile/Syamala-Gudala-2/publication/346445809_Causes_and_Effects_of_Non-Performing_Assets_in_the_Banking_Sector/links/5fc2863592851c933f6da336/Causes-and-Effects-of-Non-Performing-Assets-in-the-Banking-Sector.pdf
25. Agarwal, M. (2025). Non-performing assets in Indian banking: Causes, consequences, and remedial measures. *Journal of Advances in Developmental Research*, 16(1), 1–8. https://www.ijaidr.com/papers/2025/1/1251.pdf
26. Pawar, R., Doke, V., & Jape, S. (2022). *A study of the impact of non-performing assets on the profitability of Indian public and private banks in India*. *Srujan* (February issue), Dr. V. N. Bedekar Institute of Management Studies, ISSN 2456-4079.
27. https://vnbrims.org/uploads/copy-1759483006-srujan-2023.pdf#page=49
28. Goel, P. (2018). Cyclicality of non-performing assets: Evidence from the Indian banking industry. *Journal of Commerce & Accounting Research, 7*(3), 13–19
29. https://d1wqtxts1xzle7.cloudfront.net/60718269/425-03-JCAR20190927-24544-ly54dp-libre.pdf?1569572851=&response-content-disposition=inline%3B+filename%3DCYCLICALITY_OF_NON_PERFORMING_ASSETS_EVI.pdf&Expires=1771687689&Signature=VrV4cHuAvjWWfSVSFtHrlFqXdjdNycoLyUexWZDwsSAMjPtrrtI0SBS6HonRPyaFlZfvgekKi8FIs1Hb0pqpR50qc4LGgs38ZHYiLFZMQCU9w143EYQLCO4cY9k571pV2Gg~JMpRA4rZmIp~K9~~TRN7qosduHlbl3210FeyB401m2D1Pxj9Bi3B~VPSKLlHbgGcdC5BVR8ZyUpxPhRPf73Rm5sS3thmzuPea8~w0I~HToAeoqx~ThG2tU9ug-jb5b1tV~kObJ0oixnItrjZ4TB2Po84fAn~uzmkGkx262AfnfN3dkaiNkl7VwPFUNtoTmrbYYWy8IMHJUy7YolSCw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
30. https://d1wqtxts1xzle7.cloudfront.net/73940741/IJMRA_MIE925-libre.pdf?1635687445=&response-content-disposition=inline%3B+filename%3DIJMRA_MIE.pdf&Expires=1771687711&Signature=cu4DtBQyh736xADZoLAIJ0qM2NbWzFFhNfeQy-8aNaD3CAsa4bjUXtHT06ehKr5cBolG2OdDCfq~Qqwet-SE4BdaCeisiD~tXJUbiyxigRXu5mH2QmOxEUazjh7at-qulf14Cgc-~-tmlRN2AF36fb97cC9khINzjf0pYjlieG0lxibBmWxNMvy4mNCJu4q9Y2tbrsGlLf~NJSl1fb9QrgpFfhXpRQLux63QfFjoaOruVWrah--R99vid5J11p-yeu0b6YSofeKmFNUk~VamtnTGVLliWdA2l9U1UIRQICcsH-aulPVhKE~nMBn4FQiuMUyVniue1IsFPWNIfvCyzg__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
31. Bardhan, S., & Mukherjee, V. (2016). *Bank-specific determinants of nonperforming assets of Indian banks*. International Economics and Economic Policy, 13, 483–498. https://doi.org/10.1007/s10368-016-0344-4
32. https://link.springer.com/article/10.1007/s10368-016-0344-4
33. Ibrahim, M. S., & Thangavelu, R. (2014). *A study on the composition of non-performing assets of scheduled commercial banks in India*. Journal of Finance and Bank Management, 2(1), 31–48.
34. https://d1wqtxts1xzle7.cloudfront.net/54573404/Recently_Published_Paper-March_2014-NPA-libre.pdf?1506689179=&response-content-disposition=inline%3B+filename%3DA_Study_on_the_Composition_of_Non_Perfor.pdf&Expires=1771688938&Signature=Z4FwV0~2aCfYYLu92xojnlZKCGYy3kTVjGqgM6ritEA0sZLyPR7MiUzbpanDX9XlK8TfmXaN1bpFJZ4HBGNStYl5oafwSu8R0RF2a7~UNxviLedbeyjZmCc3LX1~K-Vwf1fBIFaSfA50kcVZn6Gkk7fP2QiUWkAKc~jPjd28qyv4N3wVG68e76ePgykof2J3U-bu2WWqxlJf4f~e6ArG8cbcCTLaYsKfGng6p7usU2lFs95-x5VxoBbKSdkShHOG6Y5BaLlZYNkQth9Rok1kNY0d97v-Hi5qDb5rNZM3GO7MzgJcDHz1MjGikIPI-NCbF2wsGl-6rr7Cw3GTzG2mNw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

35. Jha, S., & Singh, P. (2020). *Impact of non-performing assets on profitability: A study of selected private and public sector banks in India*.
36. https://www.researchgate.net/profile/Srirang-Jha-3/publication/348478030_Impact_of_Non-Performing_Assets_on_Profitability_A_Study_of_Selected_Private_and_Public_Sector_Banks_in_India/links/6000737345851553a041afc0/Impact-of-Non-Performing-Assets-on-Profitability-A-Study-of-Selected-Private-and-Public-Sector-Banks-in-India.pdf
37. Sahoo, M., & Nayak, R. (2024). *Impact of NPA management on profitability: Analysis of Indian commercial banks*.
38. https://www.researchgate.net/profile/Manoj-Sahoo-8/publication/380028150_Impact_of_NPA_Management_on_Profitability_Analysis_of_Indian_Commercial_Banks/links/6627e78139e7641c0be350c5/Impact-of-NPA-Management-on-Profitability-Analysis-of-Indian-Commercial-Banks.pdf
39. Halvadia, N. B., Halvadia, S., & Purohit, R. (2022). Using Text Mining to Identify Key Dimensions of Service Quality for the Indian Public Sector Banks' Mobile Banking Apps. Research Square (Research Square). https://doi.org/10.21203/rs.3.rs-1536236/v1
40. https://www.moneycontrol.com/financials/punjabnationalbank/balance-sheetVI/PNB05#PNB05
41. https://www.moneycontrol.com/financials/punjabnationalbank/ratiosVI/PNB05#PNB05
42. https://www.moneycontrol.com/financials/punjabnationalbank/profit-lossVI/PNB05#PNB05
43. https://www.moneycontrol.com/financials/statebankindia/balance-sheetVI/SBI#SBI
44. https://www.moneycontrol.com/financials/statebankindia/profit-lossVI/SBI#SBI
45. https://www.moneycontrol.com/financials/statebankindia/ratiosVI/SBI#SBI
46. https://www.moneycontrol.com/financials/bankbaroda/balance-sheetVI/BOB#BOB
47. https://www.moneycontrol.com/financials/bankofbaroda/profit-lossVI/BOB#BOB
48. https://www.moneycontrol.com/financials/bankofbaroda/ratiosVI/BOB#BOB
49. https://www.moneycontrol.com/financials/hdfcbank/balance-sheetVI/HDF01#HDF01
50. https://www.moneycontrol.com/financials/hdfcbank/profit-lossVI/HDF01#HDF01
51. https://www.moneycontrol.com/financials/hdfcbank/ratiosVI/HDF01#HDF01
52. https://www.moneycontrol.com/financials/icicibank/balance-sheetVI/ICI02#ICI02
53. https://www.moneycontrol.com/financials/icicibank/profit-lossVI/ICI02#ICI02
54. https://www.moneycontrol.com/financials/icicibank/ratiosVI/ICI02#ICI02
55. https://www.moneycontrol.com/financials/axisbank/balance-sheetVI/AB16#AB16
56. https://www.moneycontrol.com/financials/axisbank/profit-lossVI/AB16#AB16
57. https://www.moneycontrol.com/financials/axisbank/ratiosVI/AB16#AB16
58. https://data.rbi.org.in/DBIE/#/dbie/reports/Statistics/Financial%20Sector/Banking%20-%20Performance%20Indicators