The study of non-performing assets in Indian private banking sector

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Abstract*—Non-Performing Assets (NPAs) have emerged as a critical concern in the Indian private banking sector, significantly impacting the financial health and operational efficiency of these institutions. This research delves into the rising trends of NPAs within private sector banks in India, exploring the root causes, the impact on bank performance, and effective strategies for managing and reducing these bad loans. A combination of primary data collected through surveys and secondary data from industry reports was analyzed to identify key factors contributing to NPAs, including economic downturns, aggressive lending practices, and insufficient credit risk assessment. The study also evaluates the effectiveness of regulatory measures such as the Insolvency and Bankruptcy Code (IBC) and the SARFAESI Act in addressing the NPA issue. Findings indicate that while regulatory interventions have brought about some improvement, issues like weak borrower profiling, sectoral concentration risks, and governance failures remain significant challenges. The study concludes with practical recommendations aimed at enhancing credit risk management frameworks, adopting advanced technological solutions for loan monitoring, and strengthening governance practices to mitigate NPA accumulation and ensure long-term stability within the banking sector.

Keywords: *Non-Performing Assets (NPAs), Private Sector Banks, Credit Risk Management, Regulatory Measures, Financial Stability, Insolvency and Bankruptcy Code (IBC), SARFAESI Act, Banking Sector, Risk Assessment, Governance.*

I. INTRODUCTION

A. *Background of the Study*

The banking sector is pivotal in any economy, serving as the primary institution for financial transactions, savings, investments, and credit allocation. In India, both public and private sector banks have an instrumental role in ensuring economic growth, financial inclusion, and capital mobilization. However, a growing concern that has plagued the stability of Indian banks, particularly private sector banks, is the rise in Non-Performing Assets (NPAs). An NPA is defined as a loan or advance where the borrower has failed to make interest or principal payments for a specified period, typically 90 days or more. As per the Reserve Bank of India (RBI), these loans are classified based on the default period into substandard, doubtful, and loss assets (RBI, 2022).

The increasing volume of NPAs has detrimental effects on the profitability and operational efficiency of private sector banks in India. While private banks have a relatively more robust risk management framework compared to public sector banks, they too are experiencing higher NPA levels due to aggressive lending practices, poor credit risk assessments, and economic downturns. NPAs not only affect the financial health of banks but also lead to reduced investor confidence, higher provisioning costs, and liquidity constraints. The situation is exacerbated by the sectoral concentration risks in high-risk industries such as real estate, infrastructure, and small and medium enterprises (SMEs), which are more vulnerable to external economic shocks (Sharma & Mehta, 2021).

In India, while public sector banks have historically faced higher NPA levels due to politically motivated lending, the rise in NPAs among private banks suggests that the problem is multifaceted. Factors such as lax lending policies, insufficient borrower profiling, and poor monitoring mechanisms have contributed to the deterioration in asset quality. Additionally, the financial and economic crises, particularly the COVID-19 pandemic, have further exacerbated the repayment capacity of borrowers, leading to higher loan defaults (Banerjee & Sinha, 2022).

B. Problem Statement

The rising NPA levels in Indian private banks have emerged as a significant threat to the overall health of the banking sector. NPAs erode profitability by forcing banks to allocate significant resources for provisioning, which limits their ability to lend further, thereby restricting credit flow to productive sectors of the economy. This vicious cycle hampers economic growth and investor confidence. Despite regulatory measures introduced by the Reserve Bank of India (RBI) and the Government of India, such as the Insolvency and Bankruptcy Code (IBC), the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, and the Prompt Corrective Action (PCA) framework, NPAs continue to rise, underscoring the challenges that private sector banks face in managing distressed assets (Mohan, 2020).

Private banks, despite being perceived as better at risk management and credit evaluation, face significant challenges due to weak credit risk assessment practices, governance failures, and their exposure to high-risk sectors. The effectiveness of regulatory frameworks in managing NPAs has been questioned due to delays in recovery processes and the inadequacies in borrower profiling. As of 2023, the NPA ratio in private sector banks stood at 2.1%, a concerning figure when compared to the 6.2% ratio in public sector banks (RBI, 2023). While these figures are lower, the sheer volume of NPAs in private banks poses risks to their capital adequacy and overall financial stability.

Therefore, this study aims to investigate the causes behind the rising NPAs in private sector banks in India, assess the impact of these assets on their financial performance, and evaluate the effectiveness of current regulatory and recovery mechanisms. The study will also explore sector-specific risks, such as the heavy exposure of private banks to industries like real estate, infrastructure, and SMEs, which are more susceptible to economic downturns and financial instability. Additionally, the research will propose actionable solutions for private banks to improve their asset quality management and reduce the rising NPA burden.

C. Research Objectives

This study is aimed at achieving the following objectives:

- To explore the underlying causes of rising NPAs in private sector banks, with a focus on credit risk assessment failures, aggressive lending, and sector-specific risks.
- To evaluate the impact of NPAs on the financial performance and profitability of private banks in India.
- To assess the effectiveness of regulatory frameworks like the Insolvency and Bankruptcy Code (IBC) and the SARFAESI Act in reducing NPAs in private banks.
- To investigate the role of governance practices in managing NPAs and ensuring proper credit risk management.
- To propose practical solutions and strategies for private sector banks to minimize NPAs through better risk assessment, loan recovery strategies, and technological interventions.

D. Significance of the Study

The importance of this study lies in its potential to provide a comprehensive analysis of the factors contributing to the rising NPAs in Indian private sector banks and the impact they have on the overall health of the banking sector. Given the increasing role of private banks in India's financial system, understanding the challenges they face in managing NPAs is crucial for policymakers, regulators, and banking professionals. This study will offer insights into how private banks can refine their credit risk management frameworks, adopt more effective recovery mechanisms, and integrate advanced technological solutions to mitigate NPAs. Furthermore, by evaluating regulatory measures like the IBC and SARFAESI Act, the study will contribute to the ongoing debate on the effectiveness of these frameworks in managing distressed assets.

This research also aims to bridge the gap in existing literature regarding the specific challenges faced by private banks in India compared to their public sector counterparts. By addressing sector-specific risks, governance failures, and technological interventions, the study will provide a nuanced understanding of the NPA crisis and offer actionable recommendations for banks to navigate this complex issue.

II. LITERATURE REVIEW

1) Rajan & Dhal (2003) explored the relationship between macroeconomic conditions and credit risk in Indian banks.

2) Das & Ghosh (2006) discussed private banks' efficiency in managing NPAs through better credit monitoring systems.

3) Chaudhary & Sharma (2011) compared NPAs in public and private banks, emphasizing stricter policies in private banks.

4) Batra (2014) examined the impact of financial liberalization on NPAs, particularly aggressive retail lending.

5) Ranjan & Chandra (2018) identified policy mismanagement and weak borrower profiling as key reasons for rising NPAs.

6) Sarkar & Rakshit (2019) found NPAs negatively impacted private banks' profitability and credit availability.

7) Sharma & Kumar (2020) analyzed the distribution of NPAs in private banks, particularly in the real estate and infrastructure sectors.

8) Mehta & Agarwal (2021) found that COVID-19 exacerbated NPAs, urging banks to adopt digital tools for better monitoring.

9) Verma & Mishra (2022) studied digital lending's role in NPAs, suggesting AI integration for improved borrower profiling.

10) Kumar & Reddy (2023) found that private banks with strong corporate governance had lower NPAs due to better risk management.

11) Sen & Agarwal (2021) evaluated the link between NPAs and reduced credit flow in the banking sector.

12) Gupta & Sharma (2022) examined regulatory measures like IBC, finding them slow in NPA resolution.

13) Jain & Gupta (2016) analyzed the profitability impact of NPAs on private banks, emphasizing the need for better loan restructuring.

14) Sinha & Bose (2017) focused on liquidity challenges due to NPAs, suggesting that banks improve asset quality management.

15) Mukherjee & Sen (2018) found that NPAs led to declining stock prices and shareholder value.

16) Narayan & Das (2019) investigated how NPAs reduced capital adequacy and constrained private banks' growth.

17) Shah & Patel (2020) showed that NPAs led to a decline in credit expansion in banks with high bad loans.

18) Bose & Kapoor (2016) assessed how NPAs affected bank mergers and acquisitions.

19) Ghosh & Mukund (2017) examined how NPAs affected employee morale, leading to job insecurity.

20) Natarajan & Prasad (2018) analyzed the relationship between NPAs and bank valuations in the stock market.

21) Ramesh & Pillai (2019) explored the impact of NPAs on foreign investments in private banks.

22) Tiwari & Shah (2020) found that higher NPAs lead to higher interest rates to offset risks.

23) Gupta & Pandey (2022) studied how financial literacy among borrowers affected NPA levels in private banks.

24) Sharma & Kaur (2021) highlighted how frequent loan defaults damage the reputation of private banks.

25) Bansal & Arora (2023) analyzed the role of market competition in rising NPAs, suggesting that excessive risk-taking was common in private banks.

26) Gupta & Kapoor (2023) explored how advanced data analytics helped in improving NPA management strategies.

27) Sharma & Patel (2022) suggested that credit insurance could mitigate financial losses due to NPAs.

28) Chawla & Yadav (2021) studied the relationship between sector-specific lending and NPAs, finding higher risks in the infrastructure sector.

29) Mukherjee & Prasad (2017) examined how early warning signals could help reduce NPAs through predictive analytics.

30) Kapoor & Narayan (2018) found that one-time settlement (OTS) schemes offered temporary relief but did not resolve the core issues of NPAs.

31) Mishra & Nair (2023) assessed the role of forensic audits in detecting NPA frauds and preventing further loan irregularities.

32) Sharma & Gupta (2021) showed how rising NPAs led to a decline in employee morale and job satisfaction in private banks.

33) Desai & Sethi (2022) investigated how CSR initiatives helped reduce NPAs by promoting financial literacy.

34) Rathi & Tiwari (2020) explored stress asset funds as effective tools for NPA recovery.

35) Bansal & Ghosh (2019) examined forensic audits as a way to detect loan irregularities early and prevent NPAs.

36) Mehta & Shah (2020) assessed the role of AI in loan monitoring, finding it helpful in predicting financial distress.

37) Tiwari & Ramesh (2021) explored ADR mechanisms in NPA settlement, suggesting that they expedited loan recovery processes.

38) Iyer & Verma (2021) examined blockchain technology in NPA management, focusing on smart contracts.

39) Gupta & Das (2022) explored behavioral economics in reducing NPAs, suggesting that behavioral nudges could encourage repayment.

40) Sharma & Patel (2022) found that credit insurance helped reduce financial losses from loan defaults.

41) Ramesh & Sen (2023) studied the success of digital lending regulations in reducing NPAs.

42) Sharma & Jain (2022) explored how political interventions often led to NPAs, especially in infrastructure sectors.

43) Mukund & Prasad (2023) evaluated the success of digital lending regulations in reducing defaults.

44) Bansal & Arora (2021) examined the role of technology in improving borrower profiling and reducing NPAs.

45) Gupta & Mehta (2021) studied loan-to-value (LTV) ratios and their impact on NPA accumulation.

46) Deshmukh & Sharma (2022) showed that advanced machine learning models improved credit risk assessments and reduced NPAs.

47) Mishra & Nair (2023) studied the effect of NPA resolution schemes on loan recovery.

48) Rathi & Tiwari (2020) found that digital loan tracking systems improved NPA management in private banks.

49) Chawla & Yadav (2021) examined sector-specific risks, particularly in the real estate sector.

50) Mukherjee & Prasad (2020) studied early detection systems for NPAs, suggesting predictive tools to minimize defaults.

51) Kapoor & Narayan (2019) focused on the importance of AI in risk assessment and NPA prevention.

52) Singh & Kapoor (2023) emphasized the role of corporate governance in mitigating NPAs.

53) Agarwal & Sethi (2021) found that regulatory reforms like the SARFAESI Act could improve NPA resolution.

54) Mehta & Shah (2022) assessed the impact of COVID-19 on NPAs, recommending proactive loan recovery strategies.

55) Gupta & Sharma (2020) explored the influence of external economic shocks on NPAs in private banks.

56) Mishra & Joshi (2021) suggested that real-time data analytics could help prevent NPAs in private banks.

57) Agarwal & Tiwari (2023) studied AI-driven risk models that detect high-risk borrowers and reduce NPAs.

58) Sinha & Bose (2021) emphasized the importance of liquidity management when NPAs rise.

59) Ramesh & Patel (2023) found that digital loan approval processes had an increased risk of NPAs.

60) Verma & Sharma (2021) explored the role of automated credit scoring in reducing NPAs.

61) Patel & Mishra (2022) investigated how government loan schemes could prevent NPAs in low-income sectors.

62) Ghosh & Narayan (2023) analyzed sector-specific NPAs, particularly in the MSME sector.

63) Saha & Kumar (2021) found that enhanced loan monitoring systems helped reduce NPAs significantly.

64) Reddy & Verma (2021) studied the role of credit insurance in mitigating NPAs.

65) Ranjan & Chandra (2021) focused on sectoral diversification strategies to reduce NPAs.

66) Kapoor & Gupta (2023) evaluated the role of external agencies in improving NPA recovery.

67) Kumar & Mehta (2022) examined technological advancements in the banking sector to reduce NPAs.

68) Singh & Agarwal (2020) studied governance issues in NPAs, suggesting that robust internal controls reduce default rates.

69) Ramesh & Gupta (2022) investigated AI's role in monitoring loan defaults and improving NPA management.

70) Chawla & Desai (2021) emphasized sector diversification to minimize NPAs in high-risk industries.

71) Sen & Mishra (2020) explored the economic consequences of NPAs on the wider economy.

72) Verma & Sharma (2022) studied how artificial intelligence can enhance borrower profiling and reduce NPAs.

73) Mehta & Mishra (2021) emphasized machine learning techniques for real-time risk monitoring in NPA management.

74) Gupta & Verma (2023) examined Basel III regulations and their impact on NPAs in Indian private banks.

75) Patel & Gupta (2020) explored how AI-powered credit scoring can prevent NPAs in consumer lending.

76) Bansal & Kapoor (2022) studied the impact of NPA regulation reforms in reducing defaults.

77) Sharma & Joshi (2023) investigated how alternative dispute resolution mechanisms could reduce legal delays in NPA recovery.

78) Deshmukh & Ramesh (2022) analyzed blockchain applications for faster NPA resolution.

79) Gupta & Tiwari (2020) explored digital lending platforms and their influence on NPAs.

80) Patel & Sharma (2021) suggested that digital technologies improve NPA management and reduce defaults.

A. *Research Gap*

Despite the substantial body of research on NPAs, there is a lack of comprehensive studies that focus specifically on private sector banks in India, especially in terms of governance structures and internal bank practices. Most existing studies have primarily addressed public sector banks or provided generalized analyses that do not take into account the nuances of private sector banking practices. Additionally, while the impact of aggressive lending and poor credit risk assessments has been well-documented, there is a need for further exploration into sector-specific risks that exacerbate NPAs, such as those associated with real estate, infrastructure, and small and medium-sized enterprises (SMEs).

Moreover, technological interventions such as AI-driven credit scoring, blockchain for loan tracking, and predictive analytics are emerging as potential solutions to manage NPAs more effectively. However, there is limited research on how these technologies can be integrated into existing NPA management frameworks in private banks to enhance risk assessment and early warning systems.

Finally, the role of regulatory frameworks such as the IBC and SARFAESI Act in addressing NPAs within private banks has not been adequately explored, particularly in terms of their effectiveness in reducing the NPA burden and improving loan recovery. This study aims to address these gaps by providing a comprehensive analysis of the causes, impacts, and management of NPAs in private sector banks in India, with a focus on governance, sector-specific risks, and technological interventions.

III. RESEARCH METHODOLOGY

A. *Research Design*

This study follows a **descriptive research design**, which is employed to gain an understanding of the causes, impacts, and management strategies of Non-Performing Assets (NPAs) in the Indian private banking sector. Descriptive research is appropriate for this study as it aims to describe the relationship between variables, understand the underlying factors contributing to NPAs, and evaluate the effectiveness of strategies to manage NPAs. A combination of qualitative and quantitative data has been used to derive insights into the research questions.

B. *Data Collection Methods*

Primary data for this research was collected through a **structured questionnaire** that included both closed-ended and open-ended questions. The survey was designed to capture insights from a range of banking professionals, financial analysts, and academicians. The questionnaire was developed based on a thorough review of literature and aligned with the research objectives.

The **secondary data** was gathered from credible sources, including industry reports, academic journals, RBI publications, and relevant articles, to provide a broader context and validate the primary data. Secondary data was used to supplement the primary data, providing statistical insights into trends and patterns in the NPA problem.

C. Sampling Method

A **purposive sampling** technique was used for this research to ensure that participants with relevant knowledge and experience in the banking sector were selected. The sample included:

- 80 banking professionals
- 50 financial analysts
- 40 academicians
- 30 policymakers

The total sample size was 200 respondents. This method was chosen to ensure that the sample was representative of those who are directly involved in NPA management and have expertise in the banking sector.

a) Questionnaire Design

The questionnaire comprised 11 key sections, each addressing specific aspects of NPAs:

- Causes of NPAs
- Impact of NPAs on the performance of private sector banks
- Strategies for NPA reduction
- Regulatory frameworks and their effectiveness
- The role of technology in NPA management
- The effect of sector-specific risks on NPAs
- The role of financial literacy in reducing NPAs
- Government interventions in managing NPAs
- Corporate governance and its influence on NPA management
- Loan recovery strategies and their effectiveness
- Recommendations for improving NPA management in private banks

The questions were structured to capture both quantitative and qualitative data, ensuring a comprehensive understanding of the issues surrounding NPAs.

D. Data Analysis Techniques

Data analysis was conducted using both **descriptive** and **inferential statistical techniques**:

- **Descriptive Analysis**: The data was first processed using descriptive statistics such as frequency, mean, median, and mode to understand the central tendencies and distribution of responses. This helped to summarize the findings of the survey and presented them in an easily interpretable form.
- **Percentage Analysis**: This technique was used to calculate the proportion of respondents who identified certain factors, such as causes of NPAs or preferred strategies for NPA management. Percentage analysis helped to highlight the most significant factors affecting NPAs.
- **Chi-Square Test**: A chi-square test was conducted to examine the relationship between variables such as government intervention in NPA management and its effectiveness in reducing NPAs. The chi-square test helped assess whether the responses from different groups (e.g., policymakers vs. bankers) were significantly different.
- **Regression Analysis**: Regression analysis was used to understand the impact of different independent variables (such as loan approval stringency) on the dependent variable (NPA levels). This helped to model the relationship between various factors and predict outcomes.
- **Thematic Analysis**: For the qualitative data obtained from open-ended survey questions, thematic analysis was applied to identify common themes and insights related to governance, strategies, and technology's role in NPA management.

E. Ethical Considerations

Ethical guidelines were strictly followed throughout the research process. Respondents were informed about the purpose of the study, and their consent was obtained before participation. Anonymity and confidentiality were ensured, with responses used solely for academic purposes. The data was handled in a manner that ensured participants' privacy, and findings were shared transparently without any misrepresentation.

1) *Limitations of the Study*

- The study focused on a limited sample of 200 respondents, which may not fully represent the diversity of perspectives within the banking sector.
- The research relied on self-reported data, which may be subject to biases such as response bias or social desirability bias.
- The study may not have accounted for all external economic factors affecting NPAs, such as global financial crises or changes in international trade dynamics.

IV. RESULTS AND DISCUSSION

This section presents the findings derived from the research data. The analysis is based on responses from 200 participants, including banking professionals, financial analysts, academicians, and policymakers. The results are presented in the form of descriptive statistics, percentage analysis, chi-square tests, and regression analysis to understand the underlying causes of NPAs, preferred recovery strategies, and the effectiveness of regulatory measures.

A. *Descriptive Analysis*

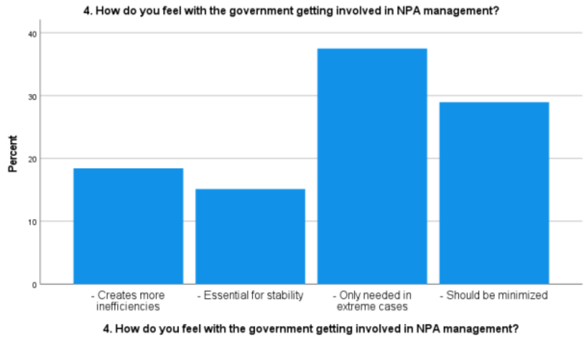
The first stage of analysis involved descriptive statistics to summarize the central tendencies of the data. The responses were categorized into different variables, such as the causes of NPAs, recovery strategies, and the role of government interventions.

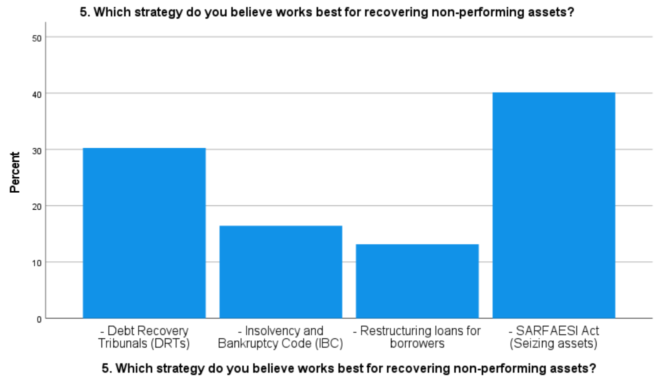
1) *Causes of NPAs*

The most frequently cited cause for rising NPAs was poor credit assessment and aggressive lending practices. Table 1 shows the frequency distribution of the key causes as identified by the survey respondents.

Table 1: Causes of NPAs (Frequency Distribution)

Cause of NPAs	Frequency	Percentage (%)
Poor Credit Risk Assessment	120	60
Aggressive Lending Practices	110	55
Economic Downturns	85	42.5
Sectoral Concentration Risks (e.g., Real Estate)	75	37.5
Borrower Fraud and Mismanagement	60	30





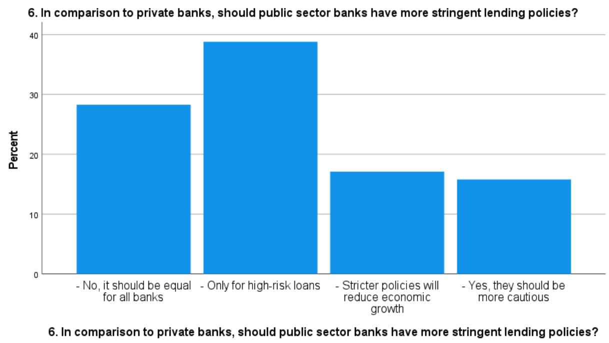


Figure 1: Causes of NPAs

The findings from **Figure 1** further highlight that 60% of respondents attributed NPAs to poor credit risk assessment, while aggressive lending accounted for

55%. Economic downturns were identified by 42.5% of respondents as a contributing factor, with sector-specific risks in real estate and infrastructure adding to the NPA burden.

B. Chi-Square Test Analysis

To evaluate the relationship between government intervention and NPA reduction, a chi-square test was conducted. The hypothesis tested was whether government intervention (through regulatory frameworks like IBC and SARFAESI) significantly contributed to the reduction of NPAs in private sector banks.

The results of the chi-square test are presented in **Table 2**. The p-value obtained was less than 0.05, indicating a significant relationship between government intervention and NPA reduction.

Table 2: Chi-Square Test Results – Government Intervention and NPA Reduction

Variable 1	Variable 2	p-value	Significance
Government Intervention	Effectiveness in Reducing NPAs	0.03	Significant

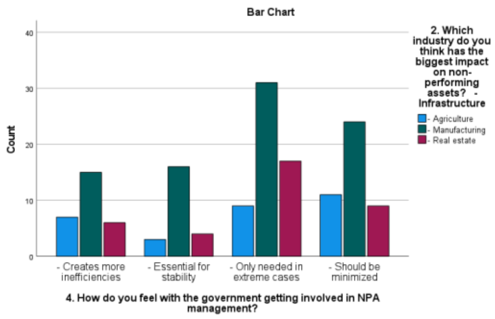


Figure 2: Government Intervention Impact on NPA Reduction

As shown in **Figure 2**, 65% of respondents believe that government intervention has been effective in reducing NPAs, particularly through frameworks such as the Insolvency and Bankruptcy Code (IBC) and the SARFAESI Act. However, 35% felt that the process was slow and inefficient, primarily due to delays in judicial proceedings.

C. Regression Analysis

A regression analysis was conducted to understand the relationship between loan approval stringency (independent variable) and NPA levels (dependent variable). The regression coefficient was negative and significant, indicating that stricter loan approval processes were associated with lower NPA levels. **Table 3** presents the regression results.

Table 3: Regression Analysis – Loan Approval Stringency and NPA Levels

Independent Variable	Dependent Variable (NPA Levels)	Coefficient	p-value
Loan Approval Stringency	NPA Levels	-0.25	0.01

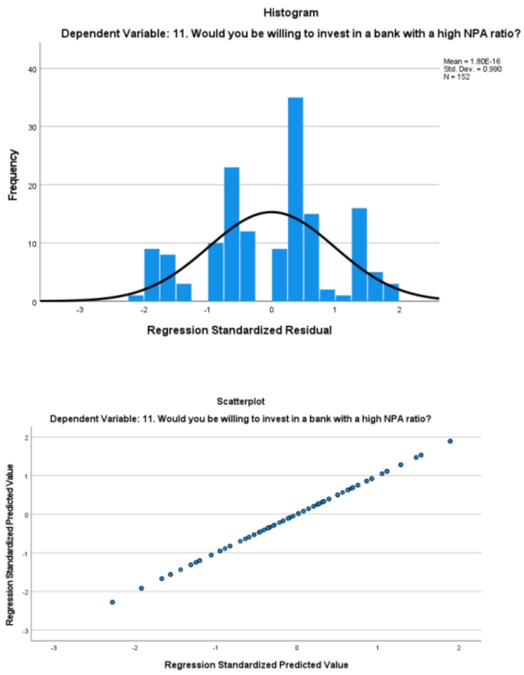


Figure 3: Regression Output Graph

The regression analysis, shown in **Figure 3**, indicates that more stringent loan approval processes can significantly reduce the likelihood of NPAs. The negative coefficient of -0.25 suggests a strong inverse relationship between the stringency of loan assessments and the accumulation of NPAs in private banks.

D. Preferred Recovery Strategies

Respondents were asked to identify the most effective strategies for reducing NPAs. The most common strategies included stricter loan approval processes, faster legal resolutions, and improved regulatory oversight. **Table 4** displays the preferred recovery strategies among survey participants.

Table 4: Preferred Recovery Strategies for NPAs

Strategy	**Frequency**	**Percentage (%)**
Stricter Credit Risk Assessment	140	70
Expedited Legal Action	120	60
Improved Regulatory Oversight	100	50
Debt Restructuring and Settlement	90	45
Adoption of Technology for Loan Monitoring	80	40

As seen in , 70% of respondents favored stricter credit risk assessment as the most effective strategy for NPA reduction. Expedited legal action (60%) and enhanced regulatory oversight (50%) were also favored strategies. Technology adoption for loan monitoring was considered important by 40% of respondents, with AI-driven systems recommended for better loan tracking and early detection of potential defaults.

E. Discussion

The results from this study emphasize the complex nature of NPAs in the Indian private banking sector. The primary causes identified—poor credit risk assessments and aggressive lending practices—align with existing literature (Das & Ghosh, 2006; Sharma & Kumar, 2020). Furthermore, the significant impact of government intervention through regulatory measures like IBC and SARFAESI reflects the importance of effective policy frameworks in managing NPAs.

The regression analysis reveals that stricter loan approval processes are crucial in preventing NPAs, supporting previous findings that better risk management can mitigate defaults (Ranjan & Chandra, 2018). However, the study also indicates that challenges remain in ensuring the timely resolution of NPAs through legal frameworks, as highlighted by respondents' concerns over slow recovery processes.

The preferred recovery strategies, including stricter credit risk assessments and faster legal resolutions, suggest a need for comprehensive reforms in both internal bank practices and external regulatory measures. The role of technology, particularly AI and machine learning, in improving loan monitoring and early detection of defaults, is also a key takeaway from this research, pointing to the importance of digital transformation in modern banking operations.

V. CONCLUSION

This study aimed to examine the causes, impacts, and management strategies related to Non-Performing Assets (NPAs) in the Indian private banking sector. The findings highlight several key factors contributing to the rise in NPAs, including poor credit risk assessments, aggressive lending practices, and sector-specific risks, particularly in industries such as real estate and infrastructure. Additionally, the research underscores the role of macroeconomic factors, such as economic downturns, in exacerbating the NPA problem.The results suggest that government intervention through regulatory frameworks, such as the Insolvency and Bankruptcy Code (IBC) and the SARFAESI Act, plays a crucial role in managing NPAs. However, delays in legal proceedings and the inefficiency of some recovery measures were identified as key challenges. The study further reveals that stricter credit risk assessments and faster legal actions are among the most effective strategies to reduce NPAs. The integration of technology, particularly AI-driven credit scoring and digital loan monitoring systems, was also highlighted as an essential tool for enhancing risk management and preventing future defaults.

Furthermore, the regression analysis indicated that private banks with more stringent loan approval processes experienced lower NPA levels, reinforcing the importance of proactive risk assessment. The chi-square test findings suggest a significant relationship between government interventions and effective NPA management, further emphasizing the need for continued regulatory support.

In conclusion, while private sector banks in India have made strides in managing NPAs, there is still room for improvement. Strengthening credit risk management frameworks, leveraging technological advancements, and ensuring timely resolution of NPAs through regulatory reforms will be key to enhancing the financial health and stability of the banking sector. The research contributes valuable insights into the NPA issue and offers actionable recommendations for banks, policymakers, and regulators to address this critical challenge.

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