JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

COMPARATIVE STUDY OF THE IMPACT OF NON- PERFORMING ASSETS ON PROFITABILITY

[1]Dr. Haresh B. Vaishnani, [2] Beena S. Sheth,

[1]Assistant Professor, [2]Phd Scholar
[1]Smt. M.T. Dhamsania Commerce and BBA College, Rajkot)
[2]Saurashtra University

Abstract: The reforms in the banking sector have significantly transformed the structure and operations of banks in India. While these reforms have been instrumental in fostering the growth of the banking industry, they have also given rise to a pressing issue: the proliferation of non-performing assets (NPAs). Typically, NPAs are viewed as detrimental to the profitability of banks, but it is essential to investigate this assumption through a statistical lens. The aim of this research is to evaluate and compare the impact of NPAs on the profitability of different categories of banks. To accomplish this, extensive data has been gathered over a substantial period of six years, spanning from 2018-19 to 2023-24. This data encompasses a variety of profitability metrics as well as information regarding NPAs. By employing statistical analysis, the research seeks to determine how NPAs affect the profitability of various groups, specifically comparing public sector banks to private sector banks. This comparative analysis will provide a clearer understanding of the relationship between NPAs and banking profitability in the current economic landscape.

IndexTerms - Net NPA to net advances, Public sector banks, private sector banks, Profitability, ROA

I. INTRODUCTION

The Indian banking sector has experienced considerable transformation over the past few decades, particularly following the economic liberalization reforms of the 1990s, along with subsequent regulatory enhancements. These adjustments aimed at bolstering financial stability, enhancing operational efficiency, and increasing the competitiveness of banks. However, amidst this growth and modernization, the sector continues to confront enduring challenges, most notably the accumulation of non-performing assets (NPAs).

Non-performing assets signify loans or advances for which the principal or interest payment is overdue for a specified period, typically 90 days. Elevated levels of NPAs are frequently perceived as indicators of declining asset quality and are believed to exert a direct adverse effect on the profitability and sustainability of financial institutions. As NPAs escalate, they diminish interest income, raise provisioning requirements, and undermine investor confidence, ultimately impacting the financial performance of banks.

This paper aims to examine the relationship between NPAs and profitability within the Indian banking sector. Specifically, it investigates the influence of the Net NPA to Net Advances ratio, a pivotal indicator of asset quality, on Return on Assets (ROA), which serves as a critical measure of profitability. Although several studies have underscored the negative effect of NPAs on profitability, a comprehensive understanding of the extent and nature of this relationship necessitates empirical analysis.

To achieve these objectives, the study utilizes a panel dataset encompassing both public and private sector banks over a six-year period from 2018–19 to 2023–24. By employing linear regression analysis, the research endeavours to quantify the impact of asset quality on profitability and to determine whether the relationship varies across ownership structures.

This investigation is particularly pertinent in light of recent initiatives by regulators and policymakers aimed at reducing NPAs and enhancing the operational health of banks. A deeper understanding of the profitability

implications associated with NPAs can significantly aid stakeholders in formulating more effective credit risk management strategies and strategic planning frameworks.

II. Literature review:

The relationship between non-performing assets (NPAs) and the profitability of banks has been widely explored in the Indian context, especially in light of the post-liberalization reforms and the recurring credit quality concerns faced by banks.

Aggarwal and Mittal (2012) conducted a comparative analysis of public and private sector banks in India to evaluate their operational performance in managing NPAs. Their study highlighted the efficiency gaps between the two categories of banks, suggesting that private banks often faced higher levels of NPAs due to riskier lending patterns, while public banks demonstrated relatively better NPA control mechanisms.

Siraj and Pillai (2012) analyzed the movement of NPAs over time and examined their correlation with key banking indicators such as advances and deposits. Their findings confirmed that, despite various regulatory efforts by the Reserve Bank of India and commercial banks, NPAs continued to pose a significant challenge to the sector, raising concerns about the overall effectiveness of credit risk management practices.

In a similar vein, Pandey and Kaur (2012) found a positive correlation between advances and NPAs, particularly in the private banking segment. Their study suggested that the rise in NPAs among private sector banks could be attributed to aggressive lending practices, especially in high-risk segments such as real estate and personal loans. Interestingly, they observed that public sector banks were relatively more disciplined in NPA management.

Kavitha (2012) focused on the profitability implications of NPAs for public sector banks and concluded that the accumulation of doubtful assets significantly affected their financial performance. Her research pointed out that NPAs not only erode profitability but also impact overall productivity and efficiency in the public banking system.

Siraj and Pillai (2011) further investigated the impact of the global financial crisis (2007–2009) on Indian banks and observed a considerable deterioration in asset quality and profitability during the crisis period. Their findings underscored the vulnerability of Indian banks to external economic shocks, despite the regulatory reforms aimed at improving their resilience.

Misra and Dhal (2010) provided a broader macroeconomic perspective by identifying key drivers of NPAs in public sector banks. Their panel regression analysis revealed that credit terms, bank-specific operational indicators, and cyclical economic factors significantly influenced the accumulation of NPAs. They emphasized the need for more prudent credit appraisal mechanisms and risk-sensitive lending policies.

Bidani (2002) emphasized the adverse consequences of NPAs on the stability and profitability of Indian banks. The study highlighted how NPAs result in loss of interest income and necessitate loan write-offs, thereby severely hampering banks' financial soundness. It advocated for stronger NPA recovery frameworks and internal risk controls.

Collectively, these studies reinforce the notion that NPAs have a direct and detrimental impact on bank profitability. However, they also highlight the complex interplay of internal and external factors influencing NPA trends and profitability outcomes. The present study builds on this foundation by specifically examining the relationship between the Net NPA to Net Advances ratio and Return on Assets (ROA) using regression analysis, thereby contributing to the empirical understanding of how asset quality affects profitability in Indian banks.

Objectives of study:

- ✓ To examine the trend of Net NPA to Net Advances Ratio and Return on Assets (ROA)
- ✓ To assess the impact of Net NPA to Net Advances Ratio on the profitability of banks
- ✓ To compare the effect of NPAs on profitability between public sector and private sector banks

III. Research Methodology and Data Analysis

To achieve the objectives of this study, data related to asset quality and profitability of selected banks have been collected for a period of **six financial years**, from **2018–19 to 2023–24**. The focus is on understanding how the **Net NPA to Net Advances Ratio** affects **Return on Assets (ROA)** in both public and private sector banks.

3.1 Nature and Source of Data

The study is based entirely on **secondary data**, collected from:

- Annual reports of individual banks,
- Reports published by the Reserve Bank of India (RBI),
- Statistical tables and financial statements from authenticated sources such as CMIE Prowess and bank websites.

3.2 Sample Selection

The study includes **ten scheduled commercial banks**:

- **Five public sector banks**: (e.g., State Bank of India, Canara Bank, Bank of Maharashtra, Union Bank of India, Punjab National Bank)
- **Five private sector banks**: (e.g., ICICI Bank, HDFC Bank, Axis Bank, IndusInd Bank, IDFC First Bank)

These banks were selected using purposive sampling based on their size, data availability, and relevance to the Indian banking sector.

3.3 Variables Used

- **Independent Variable (X):** Net NPA to Net Advances Ratio

Net interest Margin

- **Dependent Variable (Y):** Return on Assets (ROA)

These variables have been chosen to represent credit quality (Net NPA) and income efficiency (NIM).

3.4 Statistical Tools and Techniques

To examine the impact of multiple factors on bank profitability, the study employs the **Multiple Linear Regression Model**. The regression equation used is:

$ROA = \alpha + \beta_1 (\text{Net NPA Ratio}) + \beta_2 (\text{NIM}) + \varepsilon$

Where:

- Y: Return on Assets (ROA)
- α: Constant term (intercept)
- β: Regression coefficient (slope)
- X: Net NPA to Net Advances Ratio
- X_2 NIM

3.5 Comparative Analysis

The regression analysis is applied separately for public and private sector banks to compare the magnitude and direction of the impact of Net NPAs on profitability (ROA). This enables a deeper understanding of how asset quality influences performance in different ownership structures within the banking sector.

IV Hypothesis of the Study

H_0: There is no statistically significant relationship between Net NPA to Net Advances Ratio, Provision Coverage Ratio (PCR), and Net Interest Margin (NIM) and Return on Assets (ROA) of banks.

V. Data Analysis and Interpretation

5.1 Descriptive Statistics

5.1 Table: Descriptive Statistics

Variable	Mean (%)	Standard Deviation	Minimum (%)	Maximum (%)
Return on Assets (ROA)	0.53	1.49	-9.62	5.13
Net NPA to Advances	3.20	5.44	-0.05	98.79
Net Interest Margin (NIM)	3.37	1.83	-1.23	11.44

The descriptive statistics reveal that the average Return on Assets (ROA) among the sampled banks was 0.53%, with a range extending from -9.62% to 5.13%. This variance indicates significant disparities in performance among the institutions. The average Net Non-Performing Assets (NPA) to Net Advances Ratio was recorded at 3.20%; however, the considerable standard deviation and a maximum value of 98.79% suggest that certain banks are experiencing pronounced financial distress. The average Net Interest Margin (NIM) was reported at 3.37%, which reflects a relatively healthy interest spread, although the presence of negative values in some banks points to potential income-related challenges.

5.2 Table: Multiple Regression Results

Variable	Coefficient (β)	Standard Error	t-Statistic	p-Value	Significant?
Intercept	0.875	0.507	1.73	0.090	No
NIM	0.148	0.128	1.15	0.254	No
Net NPA to Net Advances Ratio	-0.322	0.065	-4.95	0.0000069	**Yes**

Model Summary:

- R = 0.6899
- R^2 = 0.476 → The model explains 47.6% of the variation in ROA
- Adjusted R^2 = 0.458
- F-statistic = 25.89 ($p < 0.01$) → Model is statistically significant

5.3 Multiple Regression Results

A multiple regression analysis was performed to assess the impact of the Net Non-Performing Asset (NPA) to Net Advances Ratio and the Net Interest Margin (NIM) on the Return on Assets (ROA) of scheduled commercial banks. The regression model yielded statistically significant results, F (2, 57) = 25.89, $p < 0.001$, indicating that the model accounts for a substantial portion of the variance in ROA (R^2 = 0.476, Adjusted R^2 = 0.458).

Among the independent variables, the Net NPA to Net Advances Ratio demonstrated a negative and statistically significant effect on ROA (β = -0.322, $p < 0.001$), implying that an increase in NPAs is associated with a decrease in profitability. Conversely, the Net Interest Margin (NIM) did not exhibit a statistically significant relationship with ROA (β = 0.148, p = 0.254), suggesting that its independent effect is not robust within this model. Furthermore, the intercept was also found to be statistically insignificant (p = 0.090).

5.4 Interpretation of Results

The findings from the multiple regression model reveal a statistically significant overall relationship between the independent variables—Net NPA to Net Advances Ratio and Net Interest Margin (NIM)—and the dependent variable, Return on Assets (ROA). The model's F-statistic is 25.89, with a p-value below 0.01, suggesting a strong fit. Notably, the independent variables collectively account for approximately 47.6% of the variance in ROA (Adjusted R^2 = 0.458).

Examining the individual predictors reveals important insights:

1. Net NPA to Net Advances Ratio: This variable exhibits a negative and highly significant effect on ROA (β = -0.322, $p < 0.001$). The results indicate that an increase in the ratio of net NPAs correlates with a decrease in the bank's profitability, as indicated by ROA. This aligns with established theories suggesting that higher NPAs diminish interest income, elevate provisioning requirements, and adversely impact overall asset productivity.
2. Net Interest Margin (NIM): While the NIM is positively associated with ROA (β = 0.148), it does not reach statistical significance (p = 0.254). This indicates that, when considering asset quality variables like NPAs, NIM alone does not serve as a robust predictor of ROA. The absence of a strong relationship may arise from differing cost structures or risk management practices among banks.

6. Findings and Discussion

This study provides significant insights regarding the relationship between non-performing assets (NPAs) and profitability within Indian commercial banks. The analysis indicates that the level of net NPAs serves as a crucial determinant of bank profitability. A higher ratio of net NPAs to net advances substantially reduces the return on assets (ROA), thereby underscoring the financial burden imposed by impaired loans on banking institutions.

Furthermore, the finding that the net interest margin (NIM) does not exert a significant influence on ROA may suggest that operating margins alone are inadequate to enhance profitability in the context of declining asset quality. This observation is particularly pertinent in India, where interest spreads are frequently regulated, and banks must operate within strict regulatory frameworks.

These results align with prior literature (e.g., Kavitha 2012; Misra & Dhal 2010; Siraj & Pillai 2012), which has established a robust negative correlation between NPAs and profitability. However, the negligible effect of NIM introduces a new perspective, indicating that profitability is more acutely affected by credit quality than by income efficiency.

Moreover, this reinforces the notion that asset quality transcends mere balance sheet considerations, constituting a critical aspect of profitability. As NPAs increase, banks are compelled to allocate higher provisions, which diminishes their net earnings and consequently impacts their ROA.

7. Conclusion and Suggestions

Conclusion

The study concludes that Net NPA to Net Advances Ratio has a significant and negative effect on Return on Assets (ROA) in Indian commercial banks. The multiple regression model confirms that asset quality plays a dominant role in shaping bank profitability. On the other hand, Net Interest Margin (NIM), while positively associated with ROA, does not significantly influence it in the presence of asset quality indicators.

These findings emphasize the need for banks to focus more on managing credit risk, improving loan recovery mechanisms, and strengthening NPA monitoring systems rather than relying solely on interest-based income.

Suggestions

Based on the results, the following recommendations are proposed:

1. Strengthen NPA Recovery Mechanisms: Banks should intensify recovery efforts under SARFAESI, IBC, and one-time settlement schemes to bring down net NPAs.
2. Improve Credit Appraisal and Monitoring: A rigorous credit evaluation and post-disbursal monitoring process can prevent future NPAs and preserve asset quality.
3. Enhance Risk-Based Pricing: Banks should adopt more sophisticated pricing of loans based on borrower risk, industry outlook, and repayment capacity, not just standard interest spreads.
4. Policy Intervention and Support: Regulators may consider incentivizing banks that show consistent improvement in NPA ratios and offer regulatory relaxation for banks with stable asset quality.
5. Focus on Asset Quality in Profitability Strategy: Banks should integrate asset quality targets into their profitability planning models and performance metrics.

References:

Aggarwal, S., & Mittal, P. (2012). Non-performing assets: Comparative position of public and private sector banks in India. *International Journal of Business and Management Tomorrow*, *2*(1).

Bhavani Prasad, G. V., & Veena, D. (2011). NPAs reduction strategies for commercial banks in India. *International Journal of Management and Business Studies*, *1*(3), 49–53.

Chaudhary, S., & Singh, S. (2012). Impact of reforms on the asset quality in Indian banking. *International Journal of Multidisciplinary Research*, *2*(1), 13–31.

Ghosh, D., & Ghosh, S. (2011). Management of non-performing assets in public sector banks: Evidence from India. *International Conference on Management*, 750–760.

Ibrahim, M. S., & Rangasamy, T. (2014). A study on the composition of non-performing assets of scheduled commercial banks in India. *Journal of Finance and Bank Management*, *2*(1), 31–44. https://doi.org/10.15640/jfbm.v2n1a3

Jhamb, R., & Jhamb, D. (2013). NPAs of nationalized banks of India: A critical review. *International Journal of Current Research and Academic Review*, *1*(4), 17–26.

Misra, B. M., & Dhal, S. C. (2010). Pro-cyclical management of non-performing loans by the Indian public sector banks. *BIS Asian Research Papers*, June. https://www.bis.org/repofficepubl/arpresearch_misra_dhal.pdf

Mor, N., & Sharma, B. (2002). Rooting out non-performing assets. *ICICI Research Centre*, September.

Muniappan, G. P. (2003). Management of challenges in banks. *NIBM Annual Day Lecture*, Pune.

Pandey, V. K., & Kaur, H. (2012). NPA in banking sector: Some correlation evidence. *Asian Journal of Research in Banking and Finance*, *2*(5), 64–73.

Pathrose, P. P. (1998). Profit planning by banks. *IBA Bulletin*, *20*(12), 28–32.

Patidar, S., & Kataria, A. (2012). Analysis of NPAs in priority sector lending: A comparative study between public sector banks and private sector banks of India. *Bauddhik*, *3*(1), 54–68.

Poongavanam, S. (2011). Non-performing assets: Issues, causes and remedial solution. *Asian Journal of Management Research*, *2*(1), 123–132.

Siraj, K. K., & Pillai, P. S. (2011). Asset quality and performance of Indian scheduled commercial banks during global financial crisis. *ResearchGate Working Paper*. https://www.researchgate.net/publication/254450967

Siraj, K. K., & Pillai, P. S. (2012). Study on the performance of NPAs of Indian commercial banks. *Asian Journal of Finance & Accounting*, *4*(1), 117–131. https://doi.org/10.5296/ajfa.v4i1.1522