# An Empirical Study on Non-Performing Assets of Public Sector Banks in India

Neesha, Research Scholar, Department of Business Administration, Mangalore University, Mangalagangothri- 574199

**Abstract:**

Non-performing assets are the key indicators of credit risk. NPAs affect liquidity, profitability, and quality of assets held by banks. In India, recently, NPAs have become a primary concern for banks. Sound credit management is a prerequisite for banks' stability and profitability. This paper identifies the role of Non-Performing Assets in banks' credit risks. The Public Sector banks' data for the analysis has been collected from individual banks and the Reserve Bank of India (RBI) website. This study uses key asset performance indicators Gross NPA to Advances, Net NPA to Advances, Gross NPA to Total Assets, Net NPA to Assets, Provisions to NPA, and Advances and Assets to evaluate and compare the banks' performance. The findings indicate that some banks in recent years have reduced their Gross and Net NPAs to Advances and Total Assets, this improvement is primarily due to banks' strict adherence to regulatory oversight and prudential norms set by the Reserve Bank of India (RBI). Indian Overseas Bank recorded the highest rankings across all Non-Performing Asset (NPA) and provisioning ratios in our analysis. To improve banks' efficiency and profitability, the NPAs need to be controlled.

Keywords: NPA, credit risk, public sector bank, private sector bank, RBI prudential norms

**Introduction**

Banks are essential to the advancement of an economy. Over fifty percent of the Indian financial sector consists of banks. The banking sector in India is transforming into a strong, robust, and dynamic system capable of discharging its functions effectively without burdening the government. Any crisis or downturn in the banking sector adversely affects the country's economic growth.

The liberalization framework in India exposed banks to increased competition, effective resource allocation to deliver the best financial services to clients, and the creation of new, innovative goods and services that improve customers' lives. In times of post-reform period, RBI and government initiatives resulted in the smooth and resilient development of the banking sector. These initiatives supported building bank capacity for lending, expanding operations, and increasing revenue and profit. Conversely, it has raised non-performing assets at accelerated rates, affecting institutions' financial stability. Despite the RBI guidelines benefitting banks, a rise in willful defaulters has worsened the problem, particularly for public sector banks. Every bank should take preventive measures and cautious steps, such as verifying the solvency of a customer before granting a loan or advance before issuing any loans.

Banks' primary source of income is interest collection from borrowers. Loan recovery is crucial for banks' growth, profitability, and liquidity and affects economic growth. Banks with troubled loans are exposed to operational and credit risks.

In this study, we compared the growth of non-performing assets with advances and assets that determine the direction of non-performing assets. Similarly, it determines NPAs in different categories that help identify a bank's creditworthiness and collects information on a provision related to NPAs. Well-organized and consistent activities must be adopted to reduce non-performing assets. Non-performing asset reduction strategies can be applied after understanding the deficiencies in the current banking system.

**Review of Literature**

(Ghosh & Saggar, 1998) examined the narrow banking in India and stated that non-performing assets are high but improved credit risk management skills of banks have helped them reduce NPA over time. The study observed that narrow banking may expose weak banks to immense market and interest rate risks and thus make them vulnerable to risks arising from macro-economic shocks. **(Rajeev & Mahesh, 2003)** examined the influence of financial and economic factors on public sector banks' nonperforming loans. They found that terms of credit variables had a significant influence on the NPA levels of banks in the presence of bank size and macroeconomic shocks. Further, they discovered that appropriate credit culture and lending policy designed by economic and financial factors create credit terms that help reduce nonperforming loans. **(Rajeev & Mahesh, 2010)**examined the trends of NPA in the Indian context and found that public sector banks, which function with more or less welfare motives, have recorded a reduction in NPAs compared to their counterparts in the private sector. Further, they found that NPAs in the priority sector are higher than those in the non-priority sector.

**(Lu & Kuo, 2006)** analysed the default probability of banks in Taiwan and used the Markov Chain model to measure the default probability for bank loans. The study found that banks had indifferent default probability whether they participated in financial holding companies or not. They concluded that the Markov chain model is helpful in banks' estimation of credit risk and the credit review process of financial institutions.**(Chaudhary & Sharma, 2011)** found that increased competition, advancement in information technology, and less restrictive government regulations have led public sector banks to compete more effectively with private sector and foreign banks. The study suggested that implementing efficient MIS and well-trained staff in handling advances are some of the measures to be undertaken to reduce the NPA limit.

**Richard Evelyn (2011)** examined the factors contributing to the creation of non-performing loans in commercial banks in Tanzania and strategies employed to overcome NPLs. The study identified borrowers' lack of integrity and transparency, particularly diversion of funds to other purposes than agreed-upon ones, as the significant cause of NPLs. Further, the research highlighted weak credit analysis by bank officers as a critical factor contributing to loan defaults**.(Arora, 2012)** examined the link between the size of the bank and Credit risk management (CRM) strategies followed by the banks in India. The author classified the banks into small, medium, and large banks based on their value of advances. The authors found a significant association between the size of the bank and the CRM strategies at the transaction level. Further, irrespective of size, sampled banks followed a mix of the credit risk avoidance, risk mitigation and credit risk control approach, commonly reflected in the CRM strategies.

**(Singh, 2013)** studied the performance of banks in terms of their NPAs. She found that public sector banks have higher NPAs than private sector banks, affecting profitability and liquidity position of banks.**(Srivastava & Gupta, 2013)** discovered that improving asset quality reduces NPA percentage. Further the authors reported that NPAs were increased in public sector banks, which necessitated the banks' taking timely actions to increase the performing assets.

**(Sikdar & Makkad, 2013)** scrutinized the credit risk based on the current bank non-performing assets (NPAs) and the steps needed to address this issue. They suggested that the bank should implement organizational restructuring, improvements in managerial efficiency, and skill upgrades for creditworthiness assessment. Banks have to initiate a time-bound strategic approach to reduce NPAs.**(Satpal A, 2014)**discovered that NPAs are comparatively higher in public-sector banks than in private-sector banks. The author highlighted that the government has taken several measures to overcome the NPA problem, but still, there is scope for improvement. Further, the study suggested that banks speed up their recovery process and the government reduce mandatory lending to priority sectors to reduce or overcome the NPA problem**.(Das & Uppal, 2021)** highlighted that the profitability of Indian commercial banks is adversely affected by rising non-performing advances (NPAs) and increased operating costs. In contrast, non-interest income, interest income, capital adequacy, and GDP growth positively impacted bank profitability. The study emphasised that higher NPAs reduce interest earnings and increase recovery costs. Further, the authors suggested that banks must implement effective strategies to minimise NPAs and optimise operational efficiency to enhance profitability.

## Objectives of the Study

1. To analyse the nature, extent, and impact of NPAs in public sector banks using key financial indicators.

## Research Methodology

The present study examines the nature, extent, and impact of non-performing assets in Indian public sector banks from 2012 to 2021. The study collected the required data for analysis from the financial reports of public sector banks and the Reserve Bank of India (RBI) database. We analyse key financial indicators such as Gross NPA to Gross Advances, Net NPA to Net Advances, Priority Sector Advances, Gross NPA to Total Assets, Net NPA to Total Assets, and Provision NPA to Assets. For data analysis, the study employs ratio analysis to measure NPA trends and descriptive statistics (such as arithmetic mean and standard deviation) to interpret the variations among selected banks to provide insight into the financial health of public sector banks.

## Analysis and Interpretation

The assessment of the NPA status of certain public sector banks is performed utilising several ratios, including Gross NPA to Advances, Net NPA to Advances, and Gross NPA to Total Assets, among others. The ratio analysis sheds light on the quality of assets possessed by the banks. It offers insights into the prevalence of non-performing loans and their effect on the institutions' overall financial stability.

**Gross Non-Performing Assets to Advances**

This ratio measures the bank's asset quality and credit risk. A lower ratio is considered better for banks as it shows better asset quality and stronger loan recovery mechanisms.

Table 1. Gross Non-Performing Assets to Advances

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 1.5 | 2.43 | 2.99 | 3.79 | 10.6 | 11.1 | 13.2 | 10.3 | 10.1 | 9.43 | **7.54** | **4.11** |
| **BOI** | 2.6 | 3.21 | 3.47 | 5.52 | 13.9 | 14.2 | 18.3 | 17.8 | 16.7 | 15.5 | **11.10** | **6.22** |
| **BOM** | 0.5 | 0.33 | 1.32 | 2.82 | 4.24 | 7.04 | 6.16 | 2.77 | 2.45 | 1.29 | **2.89** | **2.17** |
| **CB** | 1.7 | 2.58 | 2.51 | 3.95 | 9.74 | 10 | 12.4 | 9.17 | 8.57 | 9.43 | **7.01** | **3.69** |
| **CBI** | 4.9 | 4.91 | 6.48 | 6.29 | 12.6 | 19.5 | 24.4 | 22.1 | 21.6 | 18.7 | **14.14** | **7.52** |
| **IB** | 2 | 3.37 | 3.73 | 4.5 | 6.84 | 7.72 | 7.65 | 7.36 | 7.15 | 10.6 | **6.09** | **2.46** |
| **IOB** | 2.7 | 4.12 | 5.12 | 8.68 | 18.7 | 25 | 28.8 | 25.2 | 16.4 | 12.8 | **14.75** | **9.06** |
| **PSB** | 1.6 | 2.98 | 4.46 | 4.82 | 6.61 | 10.8 | 11.7 | 12.4 | 15.2 | 15.3 | **8.59** | **4.83** |
| **PNB** | 2.9 | 4.36 | 5.4 | 6.75 | 13.5 | 13.2 | 20 | 17.1 | 15.6 | 15.5 | **11.43** | **5.72** |
| **SBI** | 4.5 | 4.89 | 5.09 | 4.36 | 6.7 | 7.15 | 11.5 | 7.9 | 6.41 | 5.15 | **6.37** | **2.07** |
| **UCO** | 3.5 | 5.55 | 4.42 | 6.96 | 16.6 | 18.8 | 28.4 | 30.1 | 19.1 | 10.2 | **14.36** | **9.27** |
| **UB** | 3 | 3.03 | 4.17 | 5.09 | 9.04 | 11.8 | 17.1 | 16.4 | 15.6 | 15.2 | **10.04** | **5.56** |

Source: RBI and Author's computation

As per the average value, the Indian Overseas Bank has the highest mean Gross NPA to Advance ratio of 14.75, followed by UCO Bank and Central Bank with 14.36 and 14.14, while the Bank of Maharashtra has the lowest mean Gross NPA to Advance ratio of 2.90. The higher average ratio indicates that these banks must adopt the necessary measures and procedures to overcome the NPA problem.

A high standard deviation reflects more significant variability and suggest higher volatility and less predictability in performance. Based on the standard deviation value, the non-performing assets of UCO Bank has the highest volatility, i.e., 9.27, whereas the State Bank of India has the lowest standard deviation, i.e., 2.07.

The Gross NPA to Advances ratio for all banks increased from 2012 to 2018, indicating a deterioration in asset quality. However, from 2019 onwards, the ratio declined for most banks, except for Indian Bank and Punjab & Sindh Bank. UCO Bank recorded the highest Gross NPA to Advances ratio in 2019 at 30.01%, while the Bank of Maharashtra had the lowest ratio in 2013 at 0.33%.

**Net Non-Performing Assets to Advances**

Net NPA are those assets for which interest is overdue for more than 90 days as per guidelines of the Reserve Bank of India and against which no provision has been made by the bank.

Table2. Net Non-Performing Assets to Advances

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 0.53 | 1.27 | 1.52 | 1.88 | 5.05 | 4.71 | 5.49 | 3.32 | 3.12 | 3.08 | **3.00** | **1.61** |
| **BOI** | 1.54 | 2.08 | 2.07 | 3.36 | 7.79 | 6.9 | 8.26 | 5.6 | 3.88 | 3.35 | **4.48** | **2.35** |
| **BOM** | 0.83 | 0.52 | 2.03 | 4.18 | 6.35 | 11.8 | 11.2 | 5.51 | 4.77 | 2.48 | **4.97** | **3.74** |
| **CB** | 1.45 | 2.17 | 1.98 | 2.64 | 6.41 | 6.32 | 7.47 | 5.36 | 4.22 | 3.82 | **4.18** | **2.02** |
| **CBI** | 3.11 | 2.9 | 3.75 | 3.61 | 7.35 | 10.2 | 11.1 | 7.73 | 7.63 | 5.77 | **6.31** | **2.81** |
| **IB** | 1.32 | 2.25 | 2.26 | 2.5 | 4.19 | 4.39 | 3.8 | 3.74 | 3.12 | 3.37 | **3.09** | **0.94** |
| **IOB** | 1.35 | 2.51 | 3.21 | 5.71 | 11.9 | 14.1 | 15.4 | 10.8 | 5.44 | 3.58 | **7.40** | **4.90** |
| **PSB** | 1.18 | 2.15 | 3.35 | 3.54 | 4.61 | 7.49 | 6.92 | 7.21 | 8.01 | 4.03 | **4.85** | **2.29** |
| **PNB** | 1.51 | 2.34 | 2.83 | 4.04 | 8.59 | 7.79 | 11.2 | 6.55 | 5.76 | 5.72 | **5.64** | **2.89** |
| **SBI** | 1.82 | 2.09 | 2.57 | 2.12 | 3.81 | 3.7 | 5.72 | 3.01 | 2.23 | 1.5 | **2.86** | **1.20** |
| **UCO** | 1.95 | 3.17 | 2.37 | 4.29 | 9.08 | 8.94 | 13.1 | 9.71 | 5.44 | 3.94 | **6.20** | **3.56** |
| **UB** | 1.7 | 1.61 | 2.33 | 2.7 | 5.24 | 6.57 | 8.42 | 6.84 | 5.49 | 4.61 | **4.55** | **2.25** |

Source: RBI and Author’s computation

As per the average value, the Indian Overseas Bank has the highest mean Net NPA to Total Advance ratio of 7.41, followed by the Central Bank (6.31) and UCO (6.20), while the State Bank of India has the lowest mean Gross NPA to Total Advance ratio of 2.86. The higher average ratio shows that these banks' asset quality is weak, and they must adopt the required measures and practices to reduce their NPA levels. Based on volatility, the non-performing asset of the Indian Overseas Bank has the highest volatility, 4.90, whereas the Indian Bank has the lowest standard deviation, 0.94.

The Net NPA to Advances ratio for all public sector banks increased consistently until 2018, reaching its peak that year. Indian Overseas Bank recorded the highest Net NPA to Advances ratio at 15.39% in 2018 before experiencing a decline. In contrast, the Bank of Maharashtra had the lowest ratio at 0.52% in 2013. It is observed that there is a deterioration in the quality of advances during the first seven years of the study period. However, in the subsequent three years (2019–2021), banks improved, with a noticeable decline in non-performing loans, reflecting better asset quality and improved risk management practices.

**Gross Non-Performing Assets to Total Assets**

The gross NPA to total assets ratio serves as an indicator of the overall quality of the bank's total assets. Hence, this ratio reveals how much of total assets are non-productive. A higher ratio reflects a bad investment in the bank's assets.

Table 3. Gross Non-Performing Assets to Total Assets

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOB | 0.99 | 1.45 | 1.8 | 2.27 | 6.03 | 6.14 | 7.84 | 6.17 | 5.99 | 5.77 | 4.45 | 2.38 |
| BOI | 1.68 | 2.05 | 2.24 | 3.58 | 8.17 | 8.3 | 10.22 | 9.7 | 9.36 | 7.78 | 6.31 | 3.31 |
| BOM | 1.42 | 0.97 | 2.09 | 4.38 | 6.45 | 10.8 | 11.79 | 9.31 | 7.19 | 3.95 | 5.84 | 3.7 |
| CB | 1.07 | 1.51 | 1.53 | 2.37 | 5.72 | 5.86 | 7.69 | 5.64 | 5.11 | 5.22 | 4.18 | 2.21 |
| CBI | 3.16 | 3.15 | 3.97 | 3.8 | 7.43 | 8.17 | 11.68 | 9.78 | 9.14 | 7.92 | 6.83 | 2.92 |
| IB | 1.3 | 2.18 | 2.43 | 2.94 | 4.33 | 4.52 | 4.74 | 4.76 | 4.57 | 6.14 | 3.8 | 1.42 |
| IOB | 1.78 | 2.7 | 3.28 | 5.22 | 10.94 | 14.2 | 15.39 | 13.35 | 7.63 | 5.95 | 8.05 | 4.81 |
| PSB | 1.04 | 1.9 | 2.7 | 3.15 | 4.12 | 6.51 | 6.85 | 7.89 | 8.83 | 8.44 | 5.15 | 2.74 |
| PNB | 1.9 | 2.81 | 3.43 | 4.25 | 8.36 | 7.68 | 11.31 | 10.12 | 8.84 | 8.28 | 6.7 | 3.14 |
| SBI | 2.97 | 3.26 | 3.43 | 2.76 | 4.16 | 4.15 | 6.46 | 4.69 | 3.77 | 2.78 | 3.85 | 1.06 |
| UCO | 2.26 | 3.58 | 2.76 | 4.17 | 8.53 | 9.74 | 14.13 | 12.96 | 8.17 | 4.48 | 7.08 | 4.05 |
| UB | 2.07 | 2.02 | 2.7 | 3.41 | 5.97 | 7.44 | 10.12 | 9.86 | 8.91 | 8.37 | 6.09 | 3.11 |

Source: Author's computation

As per the average value, the Indian overseas bank has the highest mean Gross NPA to Total Asset ratio of 8.05, followed by UCO and Central Bank (7.08 & 6.83), while the Indian bank has the lowest mean Gross NPA to Total Asset ratio of 3.80. A higher ratio reflects a bad investment in the bank's assets.

Based on volatility, the non-performing assets of the Indian overseas bank have the highest volatility, 4.81, and the State Bank of India has the lowest, 1.06.

It is evident that over the previous ten years, these banks' gross NPA to total assets ratio has increased significantly. In 2018, the ratio increased across the board for all banks. As we can see, the ratio is less in 2012, 2013, and 2014. The ratio was lower in 2012, 2013, and 2014 than in recent years. Indian Overseas Bank will have a high ratio when we compare the ratios of all banks, especially after 2017. However, after 2020, the ratio decreased in all banks. It demonstrates the public sector banks' improved performance after 2020. Thus, there has been a significant decline in the quality of asset investments in recent years.

**Net NPA to Total Asset ratio**

A high level of NPAs suggests a high probability of a large number of credit defaults, which affect banks' profitability and net worth and wear down assets' value.

**Table 4. Net Non-Performing Assets to Total Assets**

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 0.34 | 0.76 | 0.91 | 1.12 | 2.89 | 2.6 | 3.26 | 1.99 | 1.86 | 1.88 | **1.77** | **0.92** |
| **BOI** | 0.99 | 1.33 | 1.34 | 2.18 | 4.59 | 4.04 | 4.62 | 3.05 | 2.17 | 1.68 | **2.6** | **1.32** |
| **BOM** | 0.51 | 0.33 | 1.32 | 2.82 | 4.24 | 7.04 | 6.16 | 2.77 | 2.45 | 1.29 | **2.9** | **2.17** |
| **CB** | 0.9 | 1.28 | 1.21 | 1.59 | 3.76 | 3.71 | 4.62 | 3.3 | 2.52 | 2.11 | **2.5** | **1.22** |
| **CBI** | 2 | 1.86 | 2.29 | 2.18 | 4.33 | 4.26 | 5.32 | 3.42 | 3.23 | 2.44 | **3.14** | **1.12** |
| **IB** | 0.84 | 1.46 | 1.47 | 1.63 | 2.66 | 2.56 | 2.35 | 2.42 | 1.99 | 1.96 | **1.94** | **0.55** |
| **IOB** | 0.86 | 1.64 | 2.05 | 3.43 | 7 | 7.99 | 8.22 | 5.74 | 2.53 | 1.67 | **4.12** | **2.70** |
| **PSB** | 0.75 | 1.37 | 2.03 | 2.31 | 2.87 | 4.52 | 4.05 | 4.58 | 4.66 | 2.22 | **2.94** | **1.36** |
| **PNB** | 0.97 | 1.51 | 1.8 | 2.55 | 5.3 | 4.53 | 6.35 | 3.87 | 3.27 | 3.06 | **3.33** | **1.63** |
| **SBI** | 1.18 | 1.4 | 1.73 | 1.34 | 2.36 | 2.15 | 3.2 | 1.79 | 1.31 | 0.81 | **1.73** | **0.66** |
| **UCO** | 1.25 | 2.04 | 1.48 | 2.57 | 4.67 | 4.62 | 6.51 | 4.18 | 2.33 | 1.73 | **3.14** | **1.66** |
| **UB** | 1.15 | 1.07 | 1.5 | 1.81 | 3.46 | 4.15 | 4.99 | 4.11 | 3.14 | 2.54 | **2.8** | **1.32** |

Source: Author’s computation

As per the average value, the Indian Overseas Bank has the highest mean Net NPA to Total Asset ratio of 4.12, followed by Punjab National Bank, Central Bank, and UCO (3.33 and 3.14, respectively), while the State Bank of India has the lowest mean Net NPA to Total Asset ratio of 1.73. A higher ratio reflects a bad investment in the bank's assets. Based on volatility, the non-performing asset of Indian Overseas Bank has the highest, 2.70, whereas Indian Bank has the lowest, 0.55.

Observations show that the net NPA to total assets of all public sector banks increased up to 2018 and peaked in 2018, and then it started to decline. Indian Overseas banks will have a high ratio when we compare the ratios of all banks, especially in 2018. After 2020, the ratio decreased in all banks. It demonstrates that public sector banks improved their performance after 2020. Thus, there has been a significant decline in the quality of asset investments in recent years.

**Provision to Non-Performing Assets**

The Provision to gross NPA ratio indicates the extent to which the provisions against the gross NPA have been made in the financial books of the bank. A higher ratio means the bank is more conservative in reporting the profits of the banks.

Table 5. Provision to Non- Performing Assets

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 35.13 | 38.42 | 24.71 | 23.28 | 34.56 | 18.74 | 25.46 | 25.52 | 23.8 | 18.21 | **26.79** | **6.58** |
| **BOI** | 31.29 | 40.02 | 30.82 | 23.55 | 28.27 | 22.42 | 24.21 | 25.99 | 23.42 | 11.69 | **26.17** | **6.97** |
| **BOM** | 51.92 | 51.49 | 26.36 | 22.01 | 20.53 | 22.96 | 29.62 | 47.15 | 24.29 | 28.45 | **32.48** | **11.94** |
| **CB** | 32.09 | 29.72 | 28.2 | 28.91 | 30.36 | 21.74 | 31.35 | 32.43 | 28.76 | 23.5 | **28.71** | **3.35** |
| **CBI** | 18.9 | 16.05 | 28.62 | 17.36 | 21.62 | 22.8 | 27.65 | 34.08 | 12.97 | 17.51 | **21.76** | **6.25** |
| **IB** | 41.11 | 26.72 | 25.3 | 22.72 | 27.16 | 21.05 | 28.96 | 27.07 | 30.64 | 19.03 | **26.98** | **5.80** |
| **IOB** | 37.5 | 33.27 | 24.5 | 23.65 | 24.45 | 19.79 | 31.25 | 29.58 | 56.1 | 24.15 | **30.43** | **9.94** |
| **PSB** | 8 | 16.62 | 20.41 | 14.22 | 19.83 | 17.57 | 22.44 | 24.38 | 26.06 | 29.11 | **19.87** | **5.83** |
| **PNB** | 27.55 | 24.77 | 23.92 | 31.05 | 33.08 | 22.94 | 28.22 | 31.13 | 19.68 | 16.33 | **25.87** | **5.08** |
| **SBI** | 28.96 | 20.81 | 23.5 | 30.82 | 30.43 | 29.29 | 31.94 | 31.61 | 28.83 | 21.57 | **27.78** | **3.98** |
| **UCO** | 19.57 | 25.09 | 22.2 | 18.27 | 30.36 | 19.95 | 24.75 | 28.64 | 31.86 | 24.31 | **24.51** | **4.42** |
| **UB** | 27.72 | 24.63 | 22.02 | 19.46 | 19.25 | 17.89 | 27.34 | 23.46 | 18.95 | 15.14 | **21.59** | **3.95** |

Source: Author's computation

As per the average value, the Bank of Maharashtra has the highest mean provision-to-gross NPA ratio of 32.48, followed by Indian Overseas Bank (30.43), while Punjab and Sindh Bank has the lowest mean provision-to-gross NPA of 19.87. A higher ratio means the bank is more conservative in reporting the bank's profits. Based on volatility, the provision for the gross NPA of the Bank of Maharashtra is high, at 11.94, whereas Canara Bank has the lowest, at 3.35.

**Provision to Total Assets**

A provision is an amount set aside from a bank's profit to cover an expected liability or to recover non-performing assets, even though the specific amount is unknown.

**Table 6. Provision to Total Assets**

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 0.35 | 0.56 | 0.44 | 0.52 | 2.08 | 1.15 | 1.99 | 1.57 | 1.42 | 1.05 | **1.12** | **0.61** |
| **BOI** | 0.52 | 0.82 | 0.69 | 0.84 | 2.31 | 1.86 | 2.47 | 2.52 | 2.19 | 0.91 | **1.52** | **0.78** |
| **BOM** | 0.73 | 0.5 | 0.55 | 0.96 | 1.32 | 2.47 | 3.49 | 4.39 | 1.74 | 1.12 | **1.73** | **1.26** |
| **CB** | 0.34 | 0.45 | 0.43 | 0.68 | 1.73 | 1.27 | 2.41 | 1.83 | 1.47 | 1.22 | **1.19** | **0.66** |
| **CBI** | 0.59 | 0.5 | 1.13 | 0.66 | 1.6 | 1.86 | 3.23 | 3.33 | 1.18 | 1.38 | **1.55** | **0.96** |
| **IB** | 0.53 | 0.58 | 0.61 | 0.66 | 1.17 | 0.95 | 1.37 | 1.29 | 1.4 | 1.16 | **0.98** | **0.33** |
| **IOB** | 0.66 | 0.89 | 0.8 | 1.23 | 2.67 | 2.81 | 4.81 | 3.95 | 4.28 | 1.43 | **2.36** | **1.49** |
| **PSB** | 0.08 | 0.31 | 0.55 | 0.44 | 0.81 | 1.14 | 1.53 | 1.92 | 2.3 | 2.45 | **1.16** | **0.81** |
| **PNB** | 0.52 | 0.69 | 0.82 | 1.32 | 2.76 | 1.76 | 3.19 | 3.15 | 1.74 | 1.35 | **1.73** | **0.94** |
| **SBI** | 0.86 | 0.68 | 0.8 | 0.85 | 1.26 | 1.21 | 2.06 | 1.48 | 1.08 | 0.6 | **1.09** | **0.42** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **UCO** | 0.44 | 0.9 | 0.61 | 0.76 | 2.59 | 1.94 | 3.5 | 3.71 | 2.6 | 1.08 | **1.82** | **1.16** |
| **UB** | 0.57 | 0.49 | 0.59 | 0.66 | 1.15 | 1.33 | 2.76 | 2.31 | 1.68 | 1.26 | **1.29** | **0.74** |

As per the average value, Indian Overseas Bank has the highest mean provision to total asset ratio of 2.36, followed by UCO Bank (1.82), while Indian Bank has the lowest mean provision to total asset of 0.98.

Standard deviation measures the volatility of provisions made to the total assets of public sector banks. Based on volatility, the provision for the total assets of Indian Overseas Bank is high, at 1.49, whereas Indian Bank has the lowest, at 0.33.

**Provision to Total Advances**

When a corporation classifies advances as doubtful and guarantees them, it only makes provisions for the balance over the guaranteed amount.

**Table 7. Provision to Total Advances**

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 0.54 | 0.93 | 0.73 | 0.88 | 3.65 | 2.08 | 3.36 | 2.62 | 2.39 | 1.71 | **1.89** | **1.06** |
| **BOI** | 0.81 | 1.28 | 1.07 | 1.3 | 3.92 | 3.18 | 4.42 | 4.62 | 3.9 | 1.8 | **2.63** | **1.44** |
| **BOM** | 1.2 | 0.77 | 0.84 | 1.42 | 1.98 | 4.13 | 6.36 | 8.74 | 3.39 | 2.16 | **3.1** | **2.50** |
| **CB** | 0.55 | 0.76 | 0.7 | 1.14 | 2.95 | 2.17 | 3.89 | 2.97 | 2.46 | 2.21 | **1.99** | **1.08** |
| **CBI** | 0.93 | 0.78 | 1.85 | 1.09 | 2.72 | 4.45 | 6.73 | 7.52 | 2.79 | 3.27 | **3.22** | **2.24** |
| **IB** | 0.84 | 0.9 | 0.94 | 1.02 | 1.85 | 1.62 | 2.218 | 1.99 | 2.19 | 2.01 | **1.56** | **0.54** |
| **IOB** | 1.04 | 1.37 | 1.25 | 2.05 | 4.56 | 4.94 | 9 | 7.45 | 9.2 | 3.08 | **4.4** | **3.02** |
| **PSB** | 0.13 | 0.49 | 0.91 | 0.68 | 1.31 | 1.89 | 2.63 | 3.03 | 3.96 | 4.45 | **1.95** | **1.43** |
| **PNB** | 0.81 | 1.08 | 1.29 | 2.09 | 4.47 | 3.02 | 5.63 | 5.33 | 3.06 | 2.53 | **2.94** | **1.64** |
| **SBI** | 1.32 | 1.01 | 1.19 | 1.34 | 2.04 | 2.09 | 3.68 | 2.49 | 1.84 | 1.11 | **1.82** | **0.78** |
| **UCO** | 0.69 | 1.39 | 0.98 | 1.27 | 5.04 | 3.75 | 7.03 | 8.62 | 6.07 | 2.47 | **3.74** | **2.68** |
| **UB** | 0.84 | 0.74 | 0.91 | 0.99 | 1.74 | 2.1 | 4.67 | 3.85 | 2.95 | 2.3 | **2.11** | **1.29** |

Source : Author's computation

As per the average value, the Indian overseas bank has the highest mean provision to total advances ratio of 4.40, followed by UCO Bank and Central Bank (3.74 & 3.22), while the Indian bank has the lowest mean provision to total advances ratio of 1.56. A higher ratio reflects the higher provision made by the banks. Based on standard deviation, the provision to Total advances of Indian Overseas Bank is high, at 3.02, whereas Indian Bank has the lowest, at 0.54.

According to the above table, the Indian Overseas Bank has the highest ratio in 2018 and 2020, with values of 9.00 and 9.20, respectively. In 2012, the provision-to-total advances ratio at Punjab and Sindh Bank was 0.13, which was lower. The table shows that all public sector banks will have a high provision-to-total advances ratio in 2019. Therefore, we can conclude that all the banks have consistently maintained their provision levels.

**Priority Sector Advances**

In India, the Reserve Bank of India (RBI) mandates that commercial banks allocate a certain proportion of their total lending to identified priority sectors, which include agriculture, Micro and small enterprises, export credit, and others(RBI,2014).

Table 8. Priority Sector Advances

| BANKS | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BOB** | 23.84 | 24.4 | 22.8 | 24.1 | 29.47 | 33.3 | 35 | 31.37 | 32.8 | 35.3 | **29.24** | **4.73** |
| **BOI** | 23.79 | 22.6 | 22.1 | 21.2 | 24.84 | 26.8 | 31.3 | 36.32 | 37.2 | 37.5 | **28.37** | **6.25** |
| **BOM** | 34.24 | 32.8 | 39.2 | 39.7 | 38.56 | 42.3 | 47.44 | 42.85 | 44.8 | 48 | **40.97** | **4.84** |
| **CB** | 28.98 | 32.6 | 32.5 | 35.8 | 44.82 | 46.9 | 48.63 | 46.06 | 47 | 47.7 | **41.1** | **7.26** |
| **CBI** | 27.62 | 29.8 | 38.7 | 40.3 | 45.98 | 56.1 | 52.91 | 56.78 | 52.9 | 56.3 | **45.76** | **10.5** |
| **IB** | 33.24 | 34.5 | 33.7 | 37.6 | 39 | 43.1 | 40.26 | 36.87 | 36.5 | 35.8 | **37.05** | **2.91** |
| **IOB** | 30.03 | 31.8 | 33 | 37 | 42.03 | 45.6 | 52.86 | 56.85 | 62.5 | 58.4 | **45.02** | **11.4** |
| **PSB** | 28.28 | 27.6 | 30.9 | 31.7 | 38.34 | 42.7 | 37.74 | 36.73 | 43.8 | 46.3 | **36.41** | **6.28** |
| **PNB** | 32.64 | 29.5 | 34.4 | 33.3 | 33.76 | 33.4 | 39.14 | 38.98 | 38.6 | 44.2 | **35.8** | **4.1** |
| **SBI** | 28.83 | 25.3 | 23.4 | 22.7 | 23.19 | 22.4 | 24.12 | 25.41 | 23.9 | 24.5 | **24.37** | **1.77** |
| **UCO** | 24.49 | 27.3 | 34.7 | 36.2 | 44.43 | 46.9 | 47.57 | 50.98 | 37.3 | 47.4 | **39.73** | **8.68** |
| **UB** | 23.54 | 27.3 | 34.9 | 34.2 | 32.93 | 35.9 | 43.22 | 45.07 | 43.4 | 47.3 | **36.78** | **7.46** |

Source: RBI

As per the average value, the Central Bank has the highest mean priority sector advance ratio of 45.76, followed by the Indian Overseas Bank (45.02), while the State Bank of India has the lowest mean priority sector advance ratio of 24.37. A higher ratio reflects that it provides maximum advances to the priority sector.

**Conclusions**

The non-performing assets have become a significant cause of concern for the banking sector over the years. The position of NPAs continues to haunt Indian banks and the banking sector for a long time. The Indian banking sector experienced rapid functional changes after the government implemented liberalisation policies in 1991. The present study focused on non-performing assets' existence and their impact on public sector banks' asset quality and earning capacity. It has been observed that Indian Overseas Bank recorded the highest rankings across all Non-Performing Asset (NPA) and provisioning ratios, followed by UCO Bank and Central Bank in our analysis. It is recommended that banks maintain a sufficient level of capital adequacy and profitability to minimise any operational inefficiencies that may arise from non-performing assets (NPAs). The bankers should be more effective in preparing strategies to tackle the risk. Effective management of liquidity risk has the positive result of cutting down on financial losses due to NPAs. The efficiency of management is essential, and regular supervision is required from top management to take measures to stop a bank asset from transforming into a non-performing asset. Strengthening the banking norms, particularly in legal aspects, is required, and powers should be given to bankers to recover the amount from non-performing loans from the guaranteed assets linked to loans.

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