# NPA Analysis of Public Sector Banks using Inferential Statistical Tools and Ranking Analysis for the Preceding Five Financial Years

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## ABSTRACT

**Purpose:** *The level of non-performing assets (NPAs) best indicates the soundness of the banking sector of a country. The purpose of this study is an effort to look into the consistency of all Indian public sector banks across five preceding financial years and among the banks using inferential statistical tools and ranking analysis cutting across 5 preceding financial years and cutting across all the public sector banks and thereby draw inferences about the Gross NPAs of all the Indian public sector banks.*

**Methodology:** *All the 12 public sector banks at present have been considered for the purpose of the study. The analysis is based on secondary data collected from the Reserve Bank of India website, money control and other concerned websites. The mean scores and Co-efficient of Variation have been used as primary inferential statistical tools and standard deviation as an ancillary tool. Further, refinement of the result is done by comparing the growth of gross NPAs cutting across the years under consideration also cutting across the all the banks under consideration.*

**Design/Analysis:** *The research is exploratory research and has employed secondary data for the purpose of analysis. The Population Size N=12(Total Number of Public Sector Banks at present) and sample size n=12 it implies that 100% of population is selected as samples. The methodology is that, Gross NPA ratio data from the Master Table is taken and analysis is done for all the banks year wise using mean score and standard deviation and subsequently calculating coefficient of variation. further ranking table is prepared for gross NPA ratio. subsequently the analysis is done using the between the banks in the same manner is done year wise and ranking is done.*

**Results:** *The research result highlighted that from 2020 to 2024 in a span of 5 financial years, pertaining to all the banks under consideration, the mean scores of Gross NPAs are coming down. therefore, it can be inferred that the NPA levels are decreasing in all the banks over a period of last 5 financial years, which is a good sign. The research reveals that from 2020 to 2024, in a span of 5 financial years, pertaining to all the banks under consideration, the Standard Deviation of Gross NPAs are coming down, therefore, it can be inferred that the Risk factor of NPAs are decreasing in all the banks over a period of last 5 financial years, which is a good sign. As far as individual banks are concerned banks like State Bank of India, Bank of Maharashtra and Punjab National Bank are the top performers in the effective management of Gross* NPAs.

**Originality/Value:** *The research is interesting as the study period follows the NPA management towards which by and large everyone are curious. There is no such previous study that has looked at the perspective inferential statistical tools and ranking analysis point of view. The research is valuable from two angles. Firstly, it brings to light the consistency of NPA management of the public sector banks cutting across 5 preceding financial years.*

*Secondly, the analysis is done cutting across the different public sector banks also based on the secondary data which has not been used in any research so far.*

**Type of Paper:** *The research article is exploratory where in a serious effort is made to explore about the Gross NPA management of public sector banks in India.*

**Keywords:** Non-Performing Assets (NPAs), Gross NPAs, Indian Public Sector Banks, Inferential Statistical Tools, Ranking Analysis

## 1. INTRODUCTION :

Financial sector reform in India has progressed rapidly on aspects like interest rate regulation, reduction in reserve requirements, barriers to entry, prudential norms and risk-based supervision (Dadhich, M, Rao, et al. (2023) [1]). But progress on the structural institutional aspects has been much slower and is a cause for concern. The sheltering of weak institutions while liberalizing operational rules of the game is making implementation of operational changes difficult and ineffective. Changes required to tackle the NPA problem would have to span the entire gamut of judiciary, polity and the bureaucracy to be truly effective (Wadhwa R.& Ramaswamy K. (2020). [2]). After nationalization, initial mandate that banks were given was to expand their branch network, increase in savings rate and extend credit to rural and SSI sectors this mandate has been achieved. Admirably, since early 90s the focus has shifted towards improving quality of assets and better risk management. The 'directed' lending approach has given way to more market driven practices. The Narasimhan committee has recommended prudential norms on income recognition, asset classification and provisioning (Dharmananda M.& Ganesh A. (2019). [3]). In a change from the past, income recognition is now not on accrual basis but when it is actually received. The problem India faces is not lack of strict prudential norms but the problem for mounting up of NPAs is attributable to the following factors (Haralayya, B. (2021). [4]).

(1) The legal impediments and time-consuming nature of asset disposal process.
(2) Postponement of the problem in order to report higher earnings.
(3) Manipulation of debtors using political influence.

A perverse effect of the slow legal process is that banks are shying away from risks by investing a greater than required proportion of their assets in the form of sovereign debt paper. The problem of NPAs are universal and apart from India, the countries like China, Japan, Korea, and Thailand had acute problem of NPAs.

**Conceptual Backdrop:** The loans and advances given by the banks are one of the important assets which are shown in the balance sheet of any banking company. The volume of credit extended by banks speaks for its strength in terms of assets they are having, which is an important yardstick in measuring the banks performance. On the basis of performance, the loan assets can be classified as:

(1) **Performing Assets:** these are the assets that is gaining profit to the bank on the credits extended by bank to the people who are regularly paying their Equated monthly instalments (EMI).

(2) **Non-Performing Assets (NPA):** NPA s can be defined as "A loan is said to be NPA if interest or instalment is remaining unpaid in a loan account for a period of two quarters or more than that on the date of balance sheet ".

**NPAs are further classified into:**

(a) **Potential NPA:** they are assets which can gain profits or recovered over a period of time by using some legal actions

(b) **Non potential NPA:** they are the assets which cannot earn profits or cannot be recovered over a period of time even after using some initial legal actions.

**Concept of NPA:** A loan asset becomes non performing when it ceases to generate income to banks. These NPAs gave well-defined credit weakness that jeopardised the liquidation of debts and may be characterized by distinct possibilities that a particular co-op bank will sustain some loss. Such loan assets carry more than normal risks attached to business and are under threat of loss as recoverability of dues is in doubt.

**NPA STATUS FOR DIFFERENT CREDIT FACILITIES:**

The RBI has given the guidelines to decide as to when a performing asset becomes a non performing one. They are as below:

(1) **TERM LOANS**: A term loan is to be treated as NPA as on the balance sheet date if the interest or loan instalment remains 'overdue' for a period of more than 90 days.
**Overdue:** any amount due to bank under any credit facility is overdue if it is not paid on the due date fixed by bank.
**Due date :** due date is the monthly / quarter / half yearly date fixed or stipulated in the loan sanction letter for repayments of loan instalments and / or interests regularly.

(2) **CASH CREDIT AND OVER DRAFTS:** A running account such as cash credit or overdraft is said to be treated as NPA, if the account remains out of order for a period of more than 90 days as on balance sheet date.
**Out of order:** An account is treated as out of order if any of the following conditions are satisfied:
(1) The outstanding balance remains continuously excess of the sanctioned limit of drawing power.
(2) In cases where outstanding balance in the principal operating account is less than the sanctioned limit or drawing power, but there are no credits continuously for 90 days as on the date of balance sheet or credits are not enough to cover the interest debited during the same period.

**BILLS PURCHASED AND DISCOUNTED:** the bills purchased and discounted accounts are to be treated as NPA if the bill remains overdue for a period of more than 90 days as on the balance sheet date. Due date of the bills purchased / discounted should be ascertained as per the accepted norms.

**AGRICULTURAL ADVANCES:** an agricultural advance can be treated as NPA in the following two ways:

(1) A loan granted for short duration crops will be treated as NPA, if the instalment of principal or interest thereon remains overdue for two crop reasons.
(2) A loan granted for long duration crops will be treated as NPA, if the instalment of principal or interest thereon remains overdue for one crop season.

The public sector banks are 12 in number as of today. The public sector banks in India are the most trusted among the Indian citizens. It is believed that the Indian public sector banks are the most reliable banks and they are said to be at the helm in the banking operations (Dadhich, M, Rao, et al. (2021). [5]). Public sector banks of India are the main mobilizers of credit injectivity both in rural, semi urban and urban India. even though there is tough competitive atmosphere ushered in by private banks, cooperative banks and international banks (Dhar S., & Bakshi A. (2015). [6]), public sector banks have retained the trust of the general public in India. even though the public sector banks have gone under mergers and their numbers are shrunken (Kadanda, D., & Raj, K. (2018). [7]), they are believed to be one of the most trust worthy banking companies in India, as it a 'public sector' organization which has a Government Backup (Singh, A. (2015). [8]). Off late public sector banks have upgraded themselves in the various fields such as technical, efficient man power, speedy redressal of grievances, etc.

## 2. REVIEW OF LITERATURES :

(1) O. P. Gupta and Neetu Dongre (2024) [9]: "Impact of NPA on the profitability of selected public sector banks", undertook research about NPAs by employing the key indicators of NPA such as Gross NPA, Net NPA and Return on Assets from the year 2018-19 to 2022 -23 and found out that mounting NPAs of public sector banks are jeopardising their profitability and hence bringing down return on assets.
(2) Kaur B., Kaur R. and Sood (2023) [10]: "Impact of NPAs on the profitability of the Indian Banking sector" undertook research with respect to NPA analysis considering some of the nationalised banks as well as private sector banks. In their research, they have analysed the data using Kolmogorov Smirnov test to check the normality of data between the two groups and found out that NPAs are higher in Public Sector Banks as compared to Private sector banks and loss arising from NPA affects the profitability of banks.
(3) Y Maheshwari and Raghunath Reddy (2022) [11]: "non-performing assets in Indian banking sector - A study on literature review "undertook research on a massive scale on how many research scholars have undertaken research on non-performing assets. In their research they have considered the literature reviews of the past 2 decades and has indicated that more than 150 research scholars have undertaken the NPA related research.

(4) Ruzuta shah and H. A. Hasan (2021) [12]: 'STUDY ON NPA OF SELECTED BANKS' undertook research on evaluating NPA s of 3 banks on convenience sampling and analysed their NPA s from the financial 2015-16 to 2018-19. They have analysed the NPA s using line diagrams and subsequently have drawn inferences.
(5) Vini Infanta, A. and Lohasowmiya (2021) [13]: "A COMPARITIVE STUDY ON NPAs OF SELECTED PUBLIC AND PRIVATE SECTOR BANKS" undertook research considering the NPA s of 4 public sector banks and 4 private sector banks. The research scholars have used secondary data and they have analysed the data using line diagrams and bar diagrams and have inferred that NPA s growth have a direct impact on the performance of banks.
(6) Bhadrappa Haralaiah (2021) [14]: "Study on non-performing assets of public sector banks" undertook research on the non-performing assets of public sector banks by taking a sample size of only 6 banks from 2001 to 2012. He has used trend movements to evaluate his data and has indicated the annual and percentage of NPAs of banks.
(7) Das, J. K. and Surojit Dey (2019) [15]: "non-performing assets of public and private sector banks in India – An empirical study undertook research on the priority and non-priority sectors of certain public sector and private sector banks using simple bar diagrams and line diagrams and have found out that a strong correlation is existing between NPAs and GDP growth.
(8) Kumar Sharma chaudhary, Devi D, Kumar Sharma D, Kaur R (2021): "Relationship between credit risk management and profitability performance of Indian Public Sector Banks" undertook research using descriptive statistics such as ANOVA, correlation analysis and multiple regressions and they opined that banks profitability performance was inversely affected by Non-Performing Loans that could expose them to large amount of volatility and global financial crisis
(9) Qaiser Sultana (2019) [17]: "A study on gross NPA and net NPA of Canara Bank" undertook research on the Gross and net NPA s of Canara bank only from 2014 to 2018 and using multiple bar diagrams for data interpretation manifests that the Gross and Net NPAs of Canara bank is fluctuating in the years of study.
(10) Pradhan R K (2021): "Negative impact of NPA on Indian Economy: An Analysis" undertook research to study the role of banking sector after liberalisation. He found out that after 2008, Indian public sector banks are facing lot of political pressures and undue influence on them in disbursing credits, and opined that this phenomenon may leave a negative impact on the Indian economy.

## 3. RESEARCH GAP :

The research gap is very apparent from the nascent review of literatures. The research pertaining to ALL THE NATIONALISED BANKS FOR THE PRECEDING 5 FINANCIAL YEARS CONSIDERING THE INFERENTIAL STATISTICAL TOOLS is totally absent and hence this apparent research gap paves the path for undertaking the above-mentioned research.

## 4. RELEVANT EXPLANATIONS AND FORMULAE :

(1) Gross NPA stands for the Gross Non-Performing Assets. Gross NPA is the term used by commercial banks that refer to the sum of any unpaid debt, the loan assets that haven't been repaid by the borrowers within the ninety-day period. The gross NPA ratio is calculated by dividing the total gross Non-Performing Assets by the total assets. A high gross NPA ratio indicates that a bank has a large number of loans that are not being repaid. This can be a sign of financial problems for the bank and therefore the banks would always want to pull down the Gross NPA ratio as much as possible.
Gross Non-Performing Asset Ratio = Total Gross NPAs / Total Assets.
(2) One comprehensive tool of inferential statistics is used, i.e., Coefficient of Variation which will speak about the consistency of the numbers. Higher is the coefficient of variation, lesser is the consistency and it can be inferred that it is a bad indicator. Further Coefficient of variation employs two important inferential statistical tools in it, namely Mean value and Standard Deviation. Based on the Coefficient of Variation, one can draw most accurate statistical inferences about the consistency of the data sets undertaken under our study.
(3) Coefficient of Variation = (Standard Deviation/Mean value) *100.

## 5. OBJECTIVES OF THE RESEARCH :

(1) To undertake comprehensive NPA analysis of all the 12 public sector banks for the 5 preceding years i.e. financial years ending on March 2020, 2021, 2022, 2023, 2024 using inferential statistical tool i.e., Mean scores, Standard Deviations and Coefficient of Variation.
(2) To subsequently draw the inferences on the analysed data and give suggestions and recommendations if necessary.

## 6. LIMITATIONS OF THE RESEARCH :

(1) The hurdle of scaling of nationalised banks is not taken into consideration, i. e., capital adequacy ratio of various banks are ignored.

## 7. RESEARCH DESIGN :

Research Type: Exploratory
Data Type : Secondary Data
Nature of Data: Quantitative
Population Size: 12
Sample Size: 12
Platforms of Data Analysis: Inferential Statistics and Ranking Analysis
Tools Used: Mean Scores and Co efficient of variation (Primary tools), Standard Deviation (Ancillary Tool)
Methodology: The Gross NPA ratio data from the Master Table is taken and analysis is done for ALL THE BANKS YEAR WISE USING MEAN SCORE AND STANDARD DEVIATION AND SUBSEQUENTLY CALCULATING COEFFICIENT OF VARIATION. FURTHER RANKING TABLE IS PREPARED FOR GROSS NPA RATIO. SUBSEQUENTLY THE ANALYSIS IS DONE USING THE COEFFICIENT OF VARIATION BETWEEN THE BANKS YEAR WISE AND RANKING IS DONE

## DATA SETS:

**Table 1:** Master Table showing the Gross NPA ratio of all the public sector Banks of India for the preceding 5 financial years

| **Bank→** | **Canara Bank** | | | | | **Union Bank of India** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| years→ | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 8.00 | 9.00 | 8.00 | 5.00 | 4.23 | 15.0 | 14.0 | 14.0 | 11.0 | 7.53 |
| Bank | State Bank of India | | | | | Punjab National Bank | | | | |
| Years | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 6.00 | 5.00 | 4.00 | 2.78 | 2.24 | 14.00 | 14.00 | 12.00 | 9.00 | 5.73 |
| Bank | Bank of Maharashtra | | | | | Indian Overseas Bank | | | | |
| years | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 13.00 | 7.00 | 4.00 | 2.00 | 1.88 | 15.00 | 12.00 | 10.00 | 7.00 | 3.10 |
| Bank | Bank Of India | | | | | Bank of Baroda | | | | |
| Years | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 15.00 | 14.00 | 10.00 | 7.00 | 4.98 | 9.00 | 9.00 | 7.00 | 4.00 | 2.92 |
| Bank | Central Bank of India | | | | | Indian Bank | | | | |
| Year | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 19.00 | 17.00 | 15.00 | 8.00 | 4.50 | 7.00 | 7.00 | 10.00 | 8.00 | 6.00 |
| Bank | UCO Bank | | | | | Punjab and Sind Bank | | | | |
| year | 2020 | 21 | 22 | 23 | 24 | 2020 | 21 | 22 | 23 | 24 |
| Gross NPA (%) | 17.00 | 10.00 | 8.00 | 5.00 | 3.46 | 14.00 | 14.00 | 12.00 | 7.00 | 5.43 |

Source : www.moneycontrol.com

## 8. DATA ANALYSIS:

**Table 2(A):** Table showing calculation of Ranking of Gross NPA (%) of Banks **BETWEEN THE YEARS (2020-22)**

| Year → | 2020 | | 2021 | | 2022 | |
|---|---|---|---|---|---|---|
| Bank ↓ | Gross NPA(%) | Rank | Gross NPA(%) | Rank | Gross NPA(%) | Rank |
| Canara Bank | 8 | 3 | 9 | 3 | 8 | 3 |
| Union Bank of India | 15 | 7 | 14 | 6 | 14 | 6 |
| State Bank of India | 6 | 1 | 5 | 1 | 4 | 1 |
| Punjab National Bank | 14 | 6 | 14 | 6 | 12 | 5 |
| Bank of Maharashtra | 13 | 5 | 7 | 2 | 4 | 1 |
| Indian Overseas Bank | 15 | 7 | 12 | 5 | 10 | 4 |
| Bank of India | 15 | 7 | 14 | 6 | 10 | 4 |
| Bank of Baroda | 9 | 4 | 9 | 3 | 7 | 2 |
| Central Bank of India | 19 | 9 | 17 | 7 | 15 | 7 |
| Indian Bank | 7 | 2 | 7 | 2 | 10 | 4 |
| UCO Bank | 17 | 8 | 10 | 4 | 8 | 3 |
| Punjab and Sind Bank | 14 | 6 | 14 | 6 | 12 | 5 |
| Mean value | 12.66 | - | 11.00 | - | 9.50 | - |
| Standard Deviation | 4.16 | - | 3.69 | - | 3.50 | - |
| Coefficient of Variation | 32.85 | - | 33.54 | - | 36.84 | - |

Source : Table No.1

**Table 2(B):** Table showing calculation of Ranking of Gross NPA(%) of Banks along with Rankings **BETWEEN THE YEARS (2023 & 24)**

| Year → | 2023 | | 2024 | |
|---|---|---|---|---|
| Bank ↓ | Gross NPA (%) | Rank | Gross NPA (%) | Rank |
| Canara Bank | 5 | 4 | 4.23 | 6 |
| Union Bank of India | 11 | 7 | 7.53 | 12 |

| | | | | |
|---|---|---|---|---|
| State Bank of India | 2.78 | 2 | 2.24 | 2 |
| Punjab National Bank | 9 | 7 | 5.73 | 10 |
| Bank of Maharashtra | 2 | 1 | 1.88 | 1 |
| Indian Overseas Bank | 7 | 5 | 3.1 | 4 |
| Bank of India | 7 | 5 | 4.98 | 8 |
| Bank of Baroda | 4 | 3 | 2.92 | 3 |
| Central Bank of India | 8 | 6 | 4.5 | 7 |
| Indian Bank | 8 | 6 | 6 | 11 |
| UCO Bank | 5 | 4 | 3.46 | 5 |
| Punjab and Sind Bank | 7 | 5 | 5.43 | 9 |
| Mean value | 6.31 | - | 4.33 | - |
| Standard Deviation | 2.63 | - | 1.68 | - |
| Coefficient of Variation | 41.67 | - | 38.79 | - |

Source: Table No.1

Notes to Calculations:
(1) Mean Value for the year 2020 is the average of the numbers 8, 15, 6, 14,13,15,15, 9, 19, 7, 17, and 14 and similarly for the other years.
(2) Standard Deviation of the year 2020 is the Standard Deviation of the numbers 8, 15, 6, 14, 13, 15, 15, 9, 19 ,7, 17 and 14 and similarly for the other years.
(3) Coefficient of Variation is calculated for the year 2020 is calculated using the formula defined above and similarly for the other years
(4) Ranking is done on the Rule- Higher Gross NPA, Least Rank, and lower Gross NPA, top rank cut across all the years

**Table 3(A):** Table showing calculation of Ranking of Gross NPA (%) of Banks along with Rankings BETWEEN THE BANKS

| **Year →** | **2020** | | **2021** | | **2022** | | **2023** | | **2024** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Bank ↓** | **Gross NPA (%)** | **Rank** | **Gross NPA (%)** | **Rank** | **Gross NPA (%)** | **Rank** | **Gross NPA (%)** | **Rank** | **Gross NPA (%)** | **Rank** |
| CB | 8 | 3 | 9 | 4 | 8 | 3 | 5 | 2 | 4.23 | 1 |
| UBI | 15 | 4 | 14 | 3 | 14 | 3 | 11 | 2 | 7.53 | 1 |
| SBI | 6 | 5 | 5 | 4 | 4 | 3 | 2.78 | 2 | 2.24 | 1 |
| PNB | 14 | 4 | 14 | 4 | 12 | 3 | 9 | 2 | 5.73 | 1 |
| BOM | 13 | 5 | 7 | 4 | 4 | 3 | 2 | 2 | 1.88 | 1 |
| IOB | 15 | 5 | 12 | 4 | 10 | 3 | 7 | 2 | 3.1 | 1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BOI | 15 | 5 | 14 | 4 | 10 | 3 | 7 | 2 | 4.98 | 1 |
| BOB | 9 | 4 | 9 | 4 | 7 | 3 | 4 | 2 | 2.92 | 1 |
| CBI | 19 | 5 | 17 | 4 | 15 | 3 | 8 | 2 | 4.5 | 1 |
| IB | 7 | 3 | 7 | 3 | 10 | 4 | 8 | 2 | 6 | 1 |
| UCO | 17 | 5 | 10 | 4 | 8 | 3 | 5 | 2 | 3.46 | 1 |
| PSB | 14 | 4 | 14 | 4 | 12 | 3 | 7 | 2 | 5.43 | 1 |

Source: Table No.1

Notes to Calculations:
(1) Ranking is done on the basis of Rule - Higher Gross NPA, Least Rank, and lower Gross NPA, top rank, cut across all the banks.
(2) for Canara Bank (CB) out of the Gross NPAs of 8, 9 ,8 ,5 and 4.23 and 4.23 is the least Gross NPA and hence Rank 1, 5 is the next highest Gross NPA and hence Rank 2, 8 is the next highest Gross NPA and hence Rank 3, 9 is the next highest Gross NPA and hence Rank 4 and similar procedure is adopted for the remaining banks.

**Table 3(B):** Table showing calculation of Mean value and Standard Deviation and Coefficient of Variation of Gross NPA (%) of Banks

| **Statistical Tools →** | **Mean** | **Standard Deviation** | **Coefficient of Variation** |
|---|---|---|---|
| **Banks ↓** | | | |
| CB | 6.84 | 2.09 | 30.55 |
| UBI | 12.30 | 3.06 | 24.87 |
| SBI | 04.00 | 1.54 | 38.50 |
| PNB | 10.94 | 3.56 | 32.54 |
| BOM | 5.57 | 4.63 | 83.12 |
| IOB | 9.42 | 4.58 | 48.61 |
| BOI | 10.19 | 4.33 | 42.49 |
| BOB | 06.38 | 2.81 | 44.04 |
| CBI | 12.70 | 6.19 | 48.74 |
| IB | 7.60 | 1.56 | 20.56 |
| UCO | 8.69 | 5.29 | 60.87 |
| PSB | 10.48 | 4.03 | 38.45 |

Source: Table No.1

Notes to Calculations:
(1) Mean Value for Canara Bank is the average of the numbers 8, 9 ,8,5 and 4.23 and similarly for the other banks
(2) Standard Deviation of Canara Bank is the Standard Deviation of the numbers 8, 9,8,5 and 4.23 and similarly for the other banks.
(3) Coefficient of Variation is calculated for the Canara Bank is calculated using the formula defined above and similarly for the other banks.

**Note:** CB-Canara Bank, UBI-Union Bank of India, SBI-State Bank of India, PNB-Punjab National Bank, BOM-Bank of Maharashtra, IOB-Indian Overseas Bank, BOI-Bank of India, BOB-Bank of Baroda, CBI-Central Bank of India, IB-Indian Bank, UCO-Bank, PSB-Punjab, and Sind Bank.

## 9. FINDINGS :

(1) it is found that that from 2020 to 2024 in **a span of 5preceding financial years**, pertaining to all the banks under consideration, the mean scores of Gross NPAs are coming down. therefore, it can be inferred that the NPA levels are decreasing in all the banks over a period of last 5 financial years, which is a good sign.
(2) It is found that from 2020 to 2024 in **a span of 5 preceding financial years**, pertaining to all the banks under consideration, the Standard Deviation of Gross NPAs are coming down. therefore, it can be inferred that the Risk factor of NPAs are decreasing in all the banks over a period of last 5 financial years, which is a good sign.
(3) it is found that from 2020 to 2024 in a span of 5preceding financial years, pertaining to all the banks under consideration, the Co-efficient of Variation is fluctuating and 2020 is the year in which the coefficient of variation is the least which implies that the NPA management in the year 2020 was the best by all the banks.
(4) It is found that from 2020 to 2024 in a span of 5 financial years, **when the individual banks are taken into consideration** the following table shows the consolidated rankings by taking into consideration two inferential statistical tools i e mean scores and standard deviation and co-efficient of variation.

**Table 4:** Table showing the consolidated ranks on the basis of mean scores, standard deviation and variations

| | CB | UBI | SBI | PNB | BOM | IOB | BOI | BOB | CBI | IB | UCO | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean Value of Gross NPA (%) | 6.84 | 12.30 | 4.00 | 10.94 | 5.57 | 9.42 | 10.19 | 6.38 | 12.7 | 7.60 | 8.69 | 10.48 |
| Ranks | 4 | 12 | 1 | 10 | 2 | 7 | 8 | 3 | 11 | 5 | 6 | 9 |
| Standard Deviation of Gross NPA (%) | 2.09 | 3.06 | 1.54 | 3.56 | 4.63 | 4.58 | 4.33 | 2.81 | 6.18 | 1.56 | 5.29 | 4.03 |
| Ranks | 3 | 5 | 1 | 6 | 10 | 9 | 8 | 4 | 12 | 2 | 11 | 7 |
| Coefficient of Variation | 30.55 | 24.87 | 38.50 | 32.54 | 83.12 | 48.61 | 42.49 | 44.04 | 48.74 | 20.56 | 60.87 | 38.45 |
| Ranks | 3 | 2 | 6 | 4 | 12 | 9 | 7 | 8 | 10 | 1 | 11 | 5 |

Source: Table No. 3(B)

Taking into consideration the least mean scores of Gross NPA, it is found that SBI is in 1st place, BOM is in 2nd place, BOB is in 3rd place, CB is in 4th place, IB is in 5th place, UCO is in 6th place, IOB is in 7th place, BOI is in 8th place, PSB is in 9th place, PNB is in 10th place, CBI is in 11th place, and UBI is in 12th place.
Taking into consideration the low risk criterion of Gross NPAs i.e., least Standard Deviations of Gross NPA, it is found that SBI is in 1st place, IB is in 2nd place, CB is in 3rd place, BOB is in 4th place, UBI is in 5th place, PNB is in 6th place, IOB is in 7th place, BOI is in 8th place, IOB is in 9th place, BOM is in 10th place, UCO is in 11th place, and CBI is in 12th place.
Taking into consideration the consistency criterion of Gross NPAs, the least Coefficient of Variation is attained by Indian Bank it is in 1st place, UBI is in 2nd place, CB is in 3rd place, PNB is in 4th place, PSB

is in 5th place, SBI is in 6thplace, BOI is in 7th place, BOB is in 8th place, IOB is in 9th place, CBI in 10th place, UCO is in 11th place and BOM in 12th place.

## 10. CONCLUSIONS :

From the findings, taking into consideration the Mean Scores of Gross NPAs, it can be concluded that between the years, i. e., from 2020 to 2024 financial years the gross NPAs of all the public sector banks put together is coming down which is a good sign. It can be said that the public sector banks are doing commendable job as the gross NPAs are diminishing year by year which contributes for the nation's overall financial wellbeing. Taking into consideration the consistency aspect, 2020 is the year in which there was fullest efficient management of NPAs as the Coefficient of Variation is the least and 2023 is the year in which the banks have shown poor performance in the management of Gross NPAs as the Coefficient of Variation is the highest in this year, any how in the year 2024 the consistency in the management of NPAs have improved.

As far as the individual bank's management of Gross NPAs are concerned, cutting across the years, taking into consideration the Mean scores of Gross NPAs, SBI is in 1st place among all the years i.e., their mean scores of Gross NPAs are the lowest. The last place goes to Union Bank of India among all the years i e their mean scores of Gross NPAs are the highest. The Gross NPAs management is up to the mark with regard to Bank of Maharashtra, Bank of Baroda and Canara Bank. The poor performers with regard to the mean scores of Gross NPAs are Central Bank of India, Punjab National Bank and Central Bank of India.

As far as Coefficient of Variation is concerned the top consistent performers in the management of Gross NPAs, 1st place is taken by Indian Bank, second level consistency is with Union Bank of India. the poor performers are maintaining the consistency are Central Bank of India, UCO Bank and Bank of Maharashtra.

## 11. SUGGESTIONS :

(1) All the public sector banks in the forthcoming financial years should try to pull down its mean scores of Gross NPAs and also try to uplift the consistency by pulling down the Coefficient of Variation in the forthcoming financial years.

(2) SBI, being the top performer in the Gross NPAs management should sustain its position during the coming financial years also.

(3) High mean scores of Gross NPAs and higher Coefficient of Variation is an alarm to the poor performers such as Central Bank of India, Bank of Maharashtra and UCO Bank and they should make sincere attempts to pull down their mean scores and Coefficient of Variations and contribute towards the overall nations financial wellbeing.

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