



A Study on Concentration, Competition and Soundness of Banking System in India

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ABSTRACT

This study examines the concentration, competition and soundness of banking system in India for the period 2018 to 2022. This study covers only few public sector banks in India. This research is used to evaluate the banks performance, competition and stability. This study utilizes the bank’s annual report to collect the data for analysis. In this research correlation and non-performing asset are used to analyze the competition and banks stability. This research use both dependent and independent variables. The dependent variables are Return on Assets and Return on Equity. The independent variable is Net Non-Performing Assets. This study found that the Bank of Baroda need to concentrate on non-performing asset. This research suggests certain measures to control the non-performing assets of the banks. This study’s result may varies based on the period and selection of the banks. This research suggests to make further study to make examine the market growth of the banks.

Keywords: Soundness, Competition, Return on Assets, Return on Equity, Non-Performing Assets.

1. Introduction

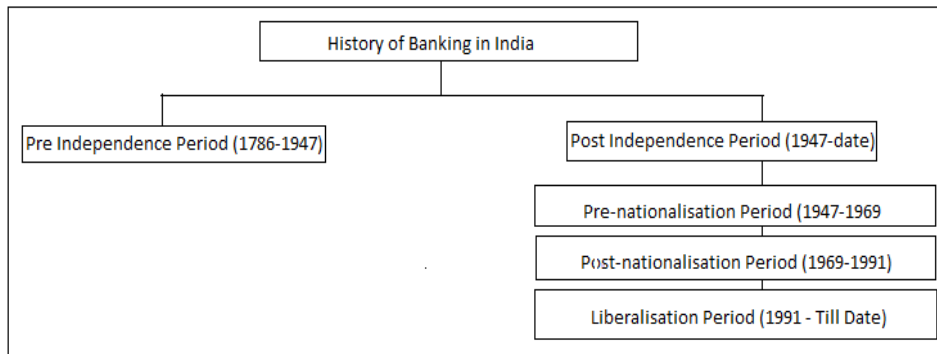
Finance is the life blood of all activities such as trade, commerce, agriculture and industry. A bank is generally understood as an institution which provides fundamental financial services such as accepting deposits and lending loans. Banking sector acts as the backbone of modern business world. The Banking system significantly contributes for the development of any country. Due to the importance in the financial stability of a country, banks are highly regulated in most countries.

The banking sector development can be divided into three phases:

Phase I: The Early Phase which lasted from 1770 to 1969

Phase II: The Nationalisation Phase which lasted from 1969 to 1991

Phase III: The Liberalisation or the Banking Sector Reforms Phase which began in 1991 and continues to flourish till date



The Indian banking sector is controlled and regulated by Reserve Bank of India (RBI). The financial and economic conditions in the country are far superior to any other country in the world by the help of RBI policies and provisions. The India banking system consists of 12 public sector banks, 22 private sector banks, 46 foreign banks, 56 regional rural banks, 1485 urban cooperative banks and 96000 rural cooperative banks.

In 2020-2022, bank assets across sectors increased. Total assets across the banking sector (including public and private sector banks) increased to US\$ 2.67 trillion in 2022. In 2022, total assets in the public and private banking sectors were US\$ 1,594.51 billion and US\$ 925.05 billion, respectively. The study deals with only few public sector banks and the study covers the period from 2018-2022.

2. Statement of Problem:

In India the banks are required to retain certain percentage of their deposits as liquid cash and they prefer to deposit this liquid cash with the RBI. The percentage of the deposits that should be kept aside by banks is called Cash Reserve Ratio (CRR). Also, the banks are required to maintain a minimum ratio of their time liabilities and Net Demand in the form of liquid assets like gold, cash and government securities. The ratio of time liabilities and liquid assets in demand is called Statutory Liquidity Ratio (SLR). The Return on assets and equity of the banks get affected by the non-performing assets which will show the risk of the banks.

Now a days banks face the problem of NPAs i.e., Non-Performing Assets. A NPA is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days. The non-performing assets will affect the cash flow in the banks. This will affect the profitability of the banks. The banks are classified into public sector banks, private sector banks, foreign banks, regional rural banks, cooperative banks. Hence, the banks face the problem of competition.

Objective of the Study:

- ❖ To analyse the soundness of the selected public sector bank.
- ❖ To measure the competition between selected public sector banks.
- ❖ To analyse the parameters that influence the efficiency of banks.

3. Review of Literature

Roland Mwesigwa Banya, Nicholas Biekpe (2017) in their study “Bank competition and economic growth: Empirical evidence from selected frontier African countries” they tested the hypothesis that competitiveness in commercial banking is linked to economic growth from 2005 to 2012. The authors used the Boone indicator & panel data model to estimate competitiveness of banking markets in ten frontier countries in Africa. From the results of Boone indicator suggested that, to a greater extent, banks in the countries studied have a competitive banking sector. The results of the panel data estimation support the hypothesis that banking sector competition impacts positively on economic growth.

Busani Moyo (2018) in their research paper “An analysis of competition, efficiency and soundness in the South African banking sector” his main aim was to investigate the relationship between competition, efficiency and soundness in the South African banking sector from the period 2004–2015. He used the bank level data, Z score, Boone indicator as tools and Deposits & loans, return on assets & equity as variables. He concluded that bank soundness, competition using the Boone indicator is negatively related to the Z score, implying that competition enhances bank soundness and these results supported the prudent and efficient management hypothesis.

Alau Zhanbolatova, Sayabek Ziyadin, Kairat Zhumanov and Almagul Jumabekova (2018) in their study “Relationship between bank competition and stability: the case of the UK” they aimed to investigate the relationship between bank competition and stability in the UK. The analysis has been done on a large sample of UK banks for the period 2004–2014. The research strategy to be used in the study involves Z-score as financial stability index and using the Lerner index and HHI index as a measure of the competition and variables that are included in the research are control variables of the non-performing loans to gross loans (NPL) ratio and Return on Average Assets (ROAA) to measure financial stability. They found that in some cases a U-shaped relationship exists between bank competition and stability. Therefore, they concluded that in order to protect the bank from different risk exposures a moderate level of bank competition is needed.

Zhiheng Li, Shuangzhe Liu, Fanda Meng and Milind Sathye (2019) in their study “Competition in the Indian Banking Sector: A Panel Data Approach” they analysed the competition level of overall banking sector in India and mainly within the groups of banks: foreign owned, public sector & private sector between the period of 2005-08. They used the Panzar & Rosse H statistic with variables like gross revenue(gr), input factor(wi), firm specific control factor(cf). By using Panzar&Rosse method they found that the overall competition in the Indian banking sector is strong, although there is difference in ownership of banks.

Binny, Narinder Singh Malik (2019) in their research paper “The Competition and Market Structure Indian Banking Sector” they evaluated the level of competition and market structure of Indian banking sector because of the entry of foreign banks and privatization of state-owned banks over the period 2000 to 2015 of 68 banks. They used tools like panzar and rosse model, concentration ratio and the herfindahl hirschman index (HHI) which was used by most of the researchers in analysing the banking system. Unit price of labour, unit price of capital and unit price of funds are used as variables in the study. They concluded with the help of panzar and rosse model shows that banks are earning profits under monopolistic competition.

Ulik Hertina Wuni Astuti, Putu Mahardika Adi Saputra (2019) in their study “Efficiency and Competition in Banking Industry: Case for ASEAN-5 Countries” they analysed the level of the efficiency and competition (market structure) of ASEAN-5 banking industry with the help of methods like Stochastic Frontier Analysis and Adjusted Lerner Index from 2005 until 2016. The variables of the study consist of the variable of input, variable of output, profit, and marginal cost. The result they revealed is that on average, the efficiency and the competition level of banks in ASEAN-5 countries are found to be relatively high. The competition in ASEAN-5 banking industry could be classified as monopolistic where each bank competes by diversifying their products or segments.

Parveen Chauhan (2019) in his research “Concentration and efficiency of Indian banking sector: Determinants and causal relationship” he attempted to analyse the Indian banking sector using Granger-Causality test from 1992 to 2011 by taking a sample of 51 commercial banks to reform the deregulation in the Indian financial sector, particularly in banking sector is expected to contribute to dramatic changes in the banking sector.

Aparna Bhatia, Megha Mahendru (2019) in their study “Financial Efficiency Evaluation of Indian Scheduled Commercial Banks” they analysed and evaluated cost, revenue and profit efficiency scores of Indian scheduled commercial banks (SCBs) in India during 1991–1992 till 2012–2013 by the application of data envelopment analysis (DEA). They used Profit, Revenue and Cost with Time Dummy as Independent Variable. They concluded that Indian SCBs have profit, revenue and cost efficiency of less than 1 during both the reformatory as well as post reformatory era depicting those banks are not able to maximize their revenues and minimize their costs simultaneously in order to enhance their net effect.

Tom Jacob, Rincy Raphael (2019) in their paper “Efficiency of Public and Private Banks in India: An Empirical Analysis” they analysed the efficiency of Indian banks is the first step in understanding the banks’ performance. DEA (Data Envelopment Analysis) is the tool which used for the efficiency calculation of Indian banks. They concluded that massive transformation to not only become as efficient as their private sector counterparts but have also improved their core competencies to their advantage.

Bijoy Rakshit, Samaresh Bardhan (2020) in their study “Does Bank Competition Enhance or Hinder Financial Stability? Evidence from Indian Banking” they empirically investigated the impact of bank competition on financial stability in India. They used dynamic panel model to examine whether an increase in bank competition hinders financial stability of commercial banks in India over the period 1996 to 2016. To make effective use of the dynamic panel model they used three dependent variables such as Z-index as an inverse measure of overall bank risk, the ratio of non-performing loans to total loans (NPLs) to denote the loan portfolio risk and equity to total assets (E/TA) for the bank’s capitalizations level. In their study reveal that in India, a higher degree of bank competition is positively associated with the prevalence of non-performing loans. They also recommended a few policy implications for Indian banking to enhance stability and suggestions for the successful implementation of the competition policies.

Juan Carlos Cuestas, Yannick Lucotte and Nicolas Reigl (2020) in their research paper “Banking sector concentration, competition and financial stability: the case of the Baltic countries” empirically assessed the potential nonlinear relationship between competition and bank risk for a sample of commercial banks in the Baltic countries over the period 2000-2014 with the help of two alternative indexes, the Lerner index and the market share. They used Return on equity as variables. They found an inverse U-shaped relationship between competition and financial stability. This then means that above a certain threshold, the lack of competition is likely to exacerbate the individual risk-taking behaviour of banks, and could be detrimental to the stability of the banking sector in the Baltic countries.

Madina Turusbekova, Kuandyk Dauylbaev, Gulbakhyt Kaliyeva, Jelena Titko, and Konstantins Kozlovskis (2020) in their paper “Competition and stability in the banking sector of Kazakhstan” examined the relationship between competition and stability in the Kazakh banking sector using quarterly bank level data of private commercial banks without any specific period. The methods applied to achieve the established goal is a multiple regression analysis, Lerner index and Boone indicator, Herfindahl-Hirschman Index (HHI) and concentration ratio CR5 with the help of certain variables such as bank stability as a dependent variable and proxied by risk index. They revealed that there is no statistically significant relationship between the values of Lerner index and Boone indicator estimated for Kazakh banking sector.

Tastaftiyan Risfandy, Amine Tarazi and Irwan Trinugroho (2020) in their study “Competition in dual markets: Implications for banking system stability” they investigated whether Islamic and conventional banks’ stability is differently impacted by competition in dual markets where the two bank types operate alongside each other. Using a sample of 123 Islamic and 647 conventional banks from 29 countries for a period between 2010 and 2018 with economic freedom index as a tool. The variables used by them is Dependent variable: z-score, independent variables: concentration ratio and efficiency-adjusted Lerner index. Their findings shows that competition erodes stability for conventional banks case but not for Islamic banks. Focusing on the extent of religious penetration, they found that deeper penetration alters the negative impact of competition on stability.

Syed Raziuddin Ahmad & Muhammad Nauman Khan (2021) conducted a study “Efficiency Measurement of Indian Banking Industry: An Empirical Comparative Analysis” they measured and compared the performance of 32 Indian banks, 21 public banks, and 11 private banks, at two tiers during the period of 2008–2018. They used the Data Envelope Analysis (DEA) method to analyse the efficiency of banking system. They used deposits, assets, and capital as input variables. From the results, they portray a mixed trend in various elements of efficiency. They revealed that with the common pledge to expand market share and performance, public and private banks have been improving and covering the highest efficiency level.

Pradip Bhuyan (2022) in his study “Concentration, Competition and Soundness of the Banking System in India” he examined certain important aspects of concentration, competition and soundness of banks during the period from 1994-95 to 2019-20. Bhuyan used Herfindahl-Hirschman Index method to analyse the banking concentration and competition by using variables like TR was total income, sum of IR and other income. In his paper he found an inverted U-shaped relationship between the market power of a bank and its soundness. A non-linear relationship was found between the market share of a bank and its soundness underlining an optimal threshold level of market share for a given bank. The paper also suggested that the Indian banking system did not have a high degree of concentration, and it broadly suggested a monopolistic competitive structure during the period under study.

4. Research Methodology:

DATA COLLECTION:

Data collection is the process of collecting and analysing information on relevant variables in a predetermined, methodical way so that one can respond to specific research questions, test hypotheses, and assess results.

Data collection is of two types:

- Primary data
- Secondary data

SECONDARY DATA:

In this study, mainly secondary data is collected. The data has been obtained from the following sources

- ✓ Published Annual Report of the selected banks for the year 2018 to 2022.
- ✓ Publications in Reserve Bank of India's official website.
- ✓ Websites of the selected banks.
- ✓ Other related financial websites.

Banks Selected for this Study:

S.NO	Bank Name
1	State Bank of India
2	Punjab National Bank
3	Bank of Baroda
4	Canara Bank
5	Union Bank of India

TOOLS AND TECHNIQUES:

The statistical analysis technique is selected to analyse the performance of Public Sector Banks under the study. The following techniques has been used in the study

- Correlation
- Non-Performing Assets Analysis

CORRELATION:

The name correlation suggests the relationship between two variables as their Co-relation. The correlation coefficient is the measurement of correlation. To see how the two sets of data are connected, we make use of this formula. The linear dependency between the data set is done by the Pearson Correlation coefficient. It is also known as the Pearson product-moment correlation coefficient. The value of the Pearson correlation coefficient product is between -1 to +1. When the correlation coefficient comes down to zero, then the data is said to be not related. While, if we are getting the value of +1, then the data are positively correlated and -1 has a negative correlation.

The Pearson correlation coefficient is denoted by the letter "r". The formula for Pearson correlation coefficient r is given by:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where,

r = Pearson correlation coefficient

x = Independent Variable

y = Dependent Variable

n = Total number of values.

NON-PERFORMING ASSETS ANALYSIS:*Non-Performing Assets:*

Banks earn profits from the interest paid by the borrowers on the loan. Thus, the loan amount and interest paid by the borrowers on that loan act as an asset for the banks. The banks provide every borrower with a payback period on or before which the borrower has to pay back the principal amount along with the interests to the bank. But when the borrower is unable to pay back the principal amount and interest then it becomes a Non-Performing Asset (NPA) for the Bank.

5. Analysis and Interpretation:**5.1 Correlation:****Non-Performing Assets with Return on Assets:**

Table No 5.1.1 showing the value of NNPA and ROA:

NNPA with ROA										
Banks / Years	SBI		PNB		BOB		CB		UIB	
	NNPA	ROA	NNPA	ROA	NNPA	ROA	NNPA	ROA	NNPA	ROA
2018	5.73	-0.19	11.24	-1.60	5.49	-0.34	7.48	-0.75	8.42	-1.07
2019	3.01	0.02	6.56	-1.25	3.33	0.06	5.37	0.06	6.85	-0.59
2020	2.23	0.38	5.78	0.04	3.13	0.06	4.22	-0.32	5.49	-0.53
2021	1.50	0.48	5.73	0.15	3.09	0.07	3.82	0.23	4.62	0.27
2022	1.02	0.67	4.80	0.26	1.72	0.60	2.65	0.48	3.68	0.47

Table 5.1.2 showing the Correlation of NNPA with ROA:

VARIABLES	BANKS	CORRELATION
NNPA with ROA	SBI	-0.94
	PNB	-0.84
	BOB	-0.96
	CB	-0.87
	UIB	-0.95

Interpretation:

Table clearly defined that there is an adverse relationship between the Net Non-Performing Assets and Return on Assets of all the selected public sector banks. Net NPA (NNPA) is the amount remaining after deducting doubtful and unpaid debts from the GNPA. It is the actual loss suffered by the bank. When NNPA increases the ROA of bank will decrease. Therefore, the table shows a negative Correlation between these two variables. By analysing the table, the correlation value shows that the Bank of Baroda has more risk when compared to the other banks because the Net Non-Performing assets value does not vary much during study period. On the other hand, Punjab National have less risk when compared to other banks in the study because the bank Non-Performing Assets decreased from 11.24 in 2018 to 4.80 in 2022.

Non-Performing Assets with Return on Equity:

Table No 5.1.3 showing the value of NNPA and ROE:

NNPA with ROE										
Banks / Years	SBI		PNB		BOB		CB		UIB	
	NNPA	ROE	NNPA	ROE	NNPA	ROE	NNPA	ROE	NNPA	ROE
2018	5.73	-3.21	11.24	-29.54	5.49	-5.81	7.48	-12.19	8.42	-21.39
2019	3.01	0.39	6.56	-23.24	3.33	0.97	5.37	0.97	6.85	-11.43
2020	2.23	6.4	5.78	0.63	3.13	0.84	4.22	-5.92	5.49	-9.62
2021	1.50	8.4	5.73	2.29	3.09	1.11	3.82	4.62	4.62	4.68
2022	1.02	11.9	4.80	3.71	1.72	8.93	2.65	9.09	3.68	7.75

Table No 5.1.4 showing the Correlation of NNPA with ROE:

VARIABLES	BANK	CORRELATION
NNPA with ROE	SBI	-0.94
	PNB	-0.84
	BOB	-0.97
	CB	-0.86
	UIB	-0.96

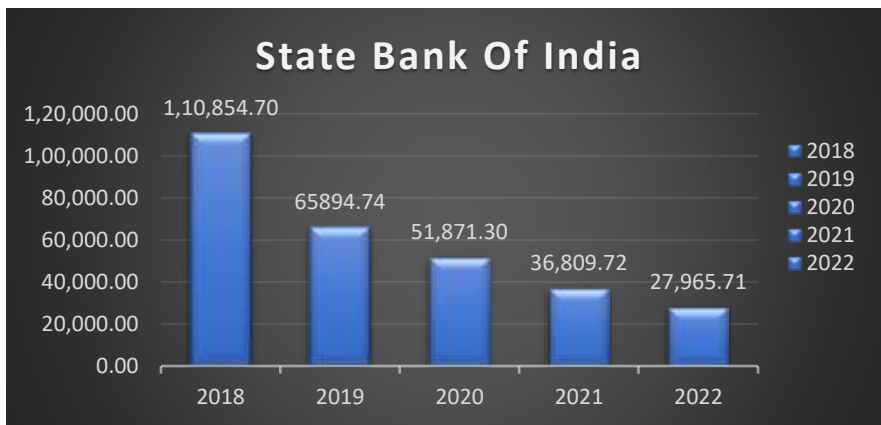
Interpretation:

Table conveys that these two variables i.e., Net Non-Performing Assets and Return on Equity also have an adverse relationship. If the value of NNPA increases the value of ROE declines and vice versa. Net NPA (NNPA) is the amount remaining after deducting doubtful and unpaid debts from the GNPA. It is the actual loss suffered by the bank. Likewise, NNPA and ROA these two variables also have a negative correlation. The Correlation value of Bank of Baroda was -0.97, this shows the bank has a risk in their investing activities because the NNPA affects the profits of the banks then the banks cannot manage their investing activities. On the other hand, the Punjab National Bank shows less risk when compared to other banks in the study because of the same reason i.e., decrease in the value of NNPA during the period of study.

5.2 Non-Performing Assets Analysis:

State Bank of India:

Chart No 5.2.1 showing NPA value of SBI

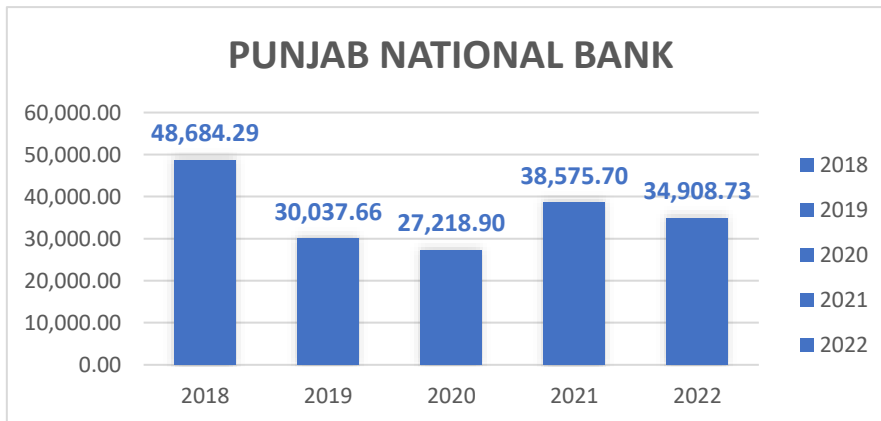


Interpretation:

The chart clearly defines that SBI has more Non-Performing Assets in the year 2018 and value crossed the one lakh crores rupees. The NPA value of SBI are decreased throughout the study period. In 2018 the value is ₹1,10,854.70 crores and it is tumbled to ₹27,965.71 crores in the year 2022. This will show that the concentration of SBI on NPA has reduced its value.

Punjab National Bank:

Chart No 5.2.2 showing NPA value of PNB



Interpretation:

The chart exhibits that the Punjab National Bank's Non-Performing Assets are fluctuating during the study period. The Punjab National Bank has ₹48,684.29 crores in 2018 and it decreased to ₹34,908.73 crores in 2022. During the study period the lowest NPA value is in the year 2020 and the value is ₹27,218.90 crores.

Bank of Baroda:

Chart No 5.2.3 showing NPA value of BOB

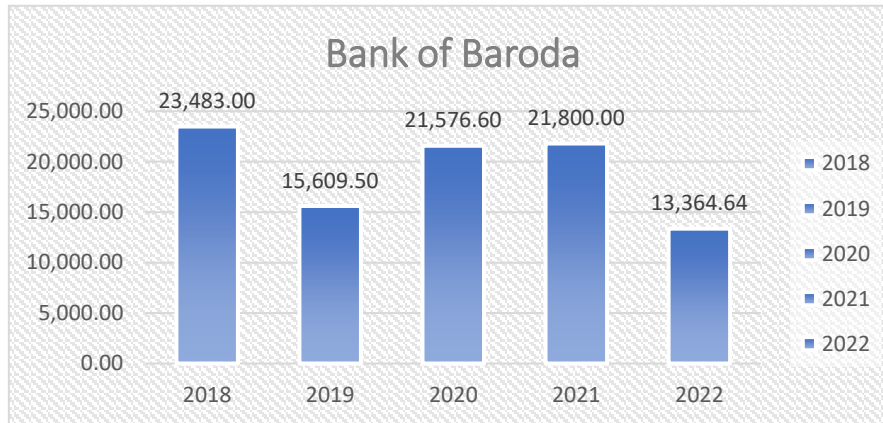
**Interpretation:**

Table conveys that the NPA's of Bank of Baroda also goes up and down during the study period. The highest NPA value is in the year 2018 and the lowest in the year 2022 and the values are ₹23,483 crores and ₹13,364.64 crores respectively. In 2019 the NPA value decreased to nearly ₹15000 crores but it raises again in 2020.

Canara Bank:

Chart No 5.2.4 showing NPA value of CB

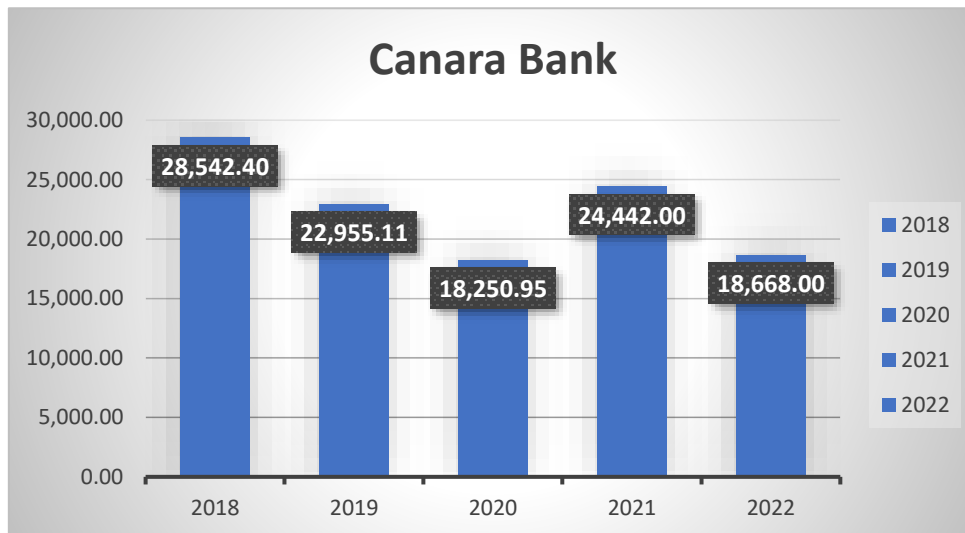
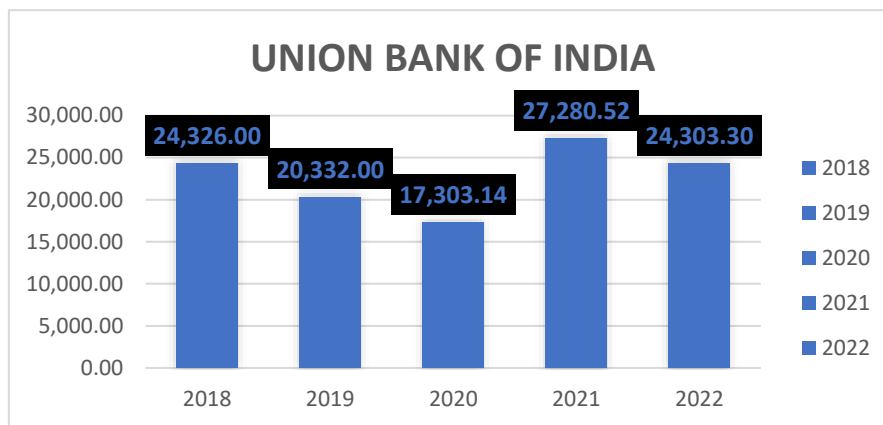
**Interpretation:**

Table reveals that the NPA's of Canara Bank varies during the period 2018 to 2022. The highest NPA value is in the year 2018 and the lowest in the year 2020 and the values are ₹28,542.40 crores and ₹18,250.95 crores respectively. From 2018 to 2020 the value of NPA is decreased then in the year 2021 the value started to increase and again the value is decreased in the year 2022.

Union Bank of India:

Chart No 5.2.5 showing NPA value of UBI



Interpretation:

Table reveals that the NPA's of Union Bank of India changing frequently during the period 2018 to 2022. The highest NPA value is in the year 2021 and the lowest in the year 2020 and the values are ₹27,280.52 crores and ₹17,303.14 crores respectively. The NPA value does not show much difference during the study period because the value of NPA is similar in 2018 and 2022.

6. Findings, Suggestions and Conclusion:

6.1. Findings:

6.1.1. Correlation:

By observing the values of correlation analysis with the help of one independent and two dependent such as Net Non-Performing Assets, Return on Assets and Return on Equity respectively. The Correlation of all the banks shows the value between 0 to -1 during the study period. The Correlation of NNPA with the ROA conveys that there is inverse relationship between these two variables because it shows negative correlation between these two variables. The Negative correlation explains that when NNPA increases the ROA decreases. The Correlation value of Bank of Baroda was -0.96 which was very close to the value of -1. This indicates that Bank of Baroda facing more risk when compared to the other banks during the study period. The Correlation value of Punjab National Bank was -0.84 which is also closest to -1 but Punjab National Bank's value is less when compared with others banks and it indicates that this bank facing less risk than other banks.

Likewise, the Correlation of NNPA with the ROE also conveys there is inverse relationship between these two variables because it also shows negative correlation between these two variables. The Negative correlation explains that when NNPA increases the ROE decreases. The Correlation of NNPA with ROE the value of Bank of Baroda was -0.97 which very close to the value of -1. This also indicates that correlation of NNPA with ROE of Bank of Baroda facing more risk when compared to the other banks during the study period. The Correlation of NNPA with ROE value of Punjab National Bank was -0.84 which is also closest to -1 but Punjab National Bank's value is less when compared with others banks and it indicates that this bank facing less risk than other banks.

6.1.3. Non-Performing Assets Analysis:

State Bank of India:

The NPA of State of Bank India was completely declined throughout the study period. It goes down from ₹1,10,854.70 crores in 2018 to ₹27,965.71 crores in 2022. This is because the SBI is more concentrated on the NPA during the study period and they developed a separate department called credit review department.

Punjab National Bank:

The NPA of Punjab National Bank was completely fluctuating throughout the study period. It goes down from ₹48,684.29crores in 2018 to ₹34,908.73crores in 2022. The lowest NPA value during the study is in the year 2020 and the value is ₹27,218.90 crores. The PNB will collect NPAs with the help of recovering agencies.

Bank Of Baroda:

The NPA of Bank of Baroda was completely decreasing during the study period. It goes down from ₹23,483crores in 2018 to ₹13,364.64crores in 2022 and this is the lowest value. The Bank of Baroda was made a guidance and they try to keep credit deposit (CD) ratio at two percentage points higher at the end of the year as compared to the beginning of the year. This will help to reduce their NPA value.

Canara Bank:

The NPA of Canara Bank was tumbled during the study period. It goes down from ₹28,542.40 crores in 2018 to ₹18,668 crores in 2022. The lowest NPA value during the study is in the year 2020 and the value is ₹18,250.95 crores. Reduction in NPAs can be explained by better recoveries. Borrowers who availed the Emergency Credit Line Guarantee Scheme (ECLGS) — a scheme to help borrowers tide over the challenges posed by the pandemic by providing 100 per cent guarantee to lenders — have exhibited good repayment behaviour.

Union Bank of India:

The NPA of Union Bank of India does not any major changes during the study period. It goes down from ₹24,326 crores in 2018 to ₹24,303.30 crores in 2022. The lowest NPA value during the study is in the year 2020 and the value is ₹17,303.14 crores and the highest value in the year 2021, the value is 27,280.52.

6.2. SUGGESTIONS:

- The Bank of Baroda needs to concentrate more on their Net Non-Performing Assets, Return on Assets and Return on Equity. It also requires attention in the Balances with Bank Money at Call and Short Notice.
- The State Bank of India need focus in their fixed assets purchasing and management of fixed assets.
- Both Canara Bank and Union Bank of India have to focus on their fixed assets, other assets, borrowings and other liabilities & provision.
- Union Bank of India need to adopt a various method to control the Non-Performing Assets of the bank.
- To maintain NPA at lesser level, the banks have to make some changes in their lending policies.
- Some of the methods to control the Non-Performing Assets of the banks are
 - ✓ Joint Lenders Forum – 2014.
 - ✓ Mission Indradhanush – 2015.
 - ✓ Asset Quality Review-2015.
 - ✓ Public ARC vs Private ARC-2017.

6.3 CONCLUSION:

It is concluded that the study conveys the concentration, competition and soundness of banking system in India. The study reveals that the risk in profit of Punjab National Bank is low compared to the other banks in the study. On the other hand, Bank of Baroda will face high risk in their profits when compared to the other banks. The banks are highly concentrated on their NPA's. The NPA will affect the value and performance of the banks. The NPA analysis conveys that Bank of Baroda need to take some measures to control it than the other banks in the study. The Overall performance of all the banks was improved during the study period. The concentration on NPA by all the five banks has improved the competition and soundness of the banks.

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