

Liquidity Analysis and Non-Performing Assets Management: A Study of Selected Commercial Banks in India

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ABSTRACT:

The Indian banking sector has faced major challenges with the rise in non-performing assets (NPAs). The growth of NPAs has a direct impact on the profitability of banks. Non-performing assets are one of the major concerns of scheduled commercial banks in India. NPAs affect liquidity and profitability, in addition to threatening the quality of assets and survival of banks. The problem of NPAs affects not only banks but also the entire economy. There is a need to reduce NPAs to improve the financial viability of the banking system. An effort is being made in this article to learn the status of gross NPA and net NPA of commercial banks in India. In addition, researchers have investigated the growth rate of NPA of commercial banks in India. Finally, an attempt has been made to analyse the impact of NPA management on the liquidity position of commercial banks in India.

KEYWORDS: Non- Performing Assets, liquidity, profitability, commercial banks, Gross NPA

JEL Codes: E58,G20, G21,G33

1. INTRODUCTION:

The issue of Non-Performing Assets (NPA) is the root cause of the recent global financial crisis, which has been drawing the attention of policymakers and academicians alike. NPA - These three letters strike terror in banking industries and businesses today. In other words, the NPA is like an “elephant in the room” that plagues the Indian Banking system. But now non-performing assets are a key concern for banks in India. Even before Indian banks gear up to meet the Basel III standards, they have to fight the NPA crisis that threatens to strike at its very heart. They are the best indicator of the health of the banking industry. Public sector banks have displayed excellent performance and have beaten the performance of private sector banks in financial operations (ASSOCHAM, India, 2014). However, the only problem of these banks is the increasing level of non-performing assets, year by year. Both the NPAs of the priority sector and those of the non-priority sector are contributing to the total NPAs of public sector banks. Therefore, to improve the efficiency and profitability of banks, NPAs need to be reduced to a manageable level and controlled. A high degree

of NPAs suggests a high probability of a large number of credit defaults that affect the profitability, liquidity, and solvency position of banks. Therefore, having adequate capital is a prerequisite for the revival and sustainability of the banking sector. On the contrary, the use of Basel norms may now be of great importance in keeping Indian banks in line with international standard banks. However, if banks will improve the quality of their assets, recoveries, and higher provisions, then banks will achieve financial sustainability.

OBJECTIVE OF THE STUDY:

1. To study the status of Gross NPA and Net NPA of Commercial Banks of India.
2. To examine the growth rate of NPA of commercial banks in India.
2. To analyse the impact of NPA management on the liquidity position of commercial banks in India.

HYPOTHESIS OF THE STUDY

Within the framework of the above objectives, the following hypotheses are verified during analyses:

1. H_01 : The growth rate of NPA of commercial banks in India does not increase during the period of study.
2. H_02 : There is no impact of Gross NPA on the liquidity position of commercial banks.

THE STATEMENT OF PROBLEM

The sharp increase in NPAs in India has adversely impacted the profitability of the banks. So, there is an urgent need for banks to reduce their stressed assets as well as NPAs and clean up their balance sheets. However, it will create problems in managing assets and becomes a prominent objective especially during a period of economic downturn. Considering the problem, it has an impact on both the capital and liquidity position of the banks. The high amount of NPAs indicates weak financial health and profitability position of banks creates a problem for effective decision making regarding effective management of NPAs. Hence, there is a need for researching this issue.

RESEARCH METHODOLOGY

The researcher has collected data from secondary sources. The sources are like RBI Bulletin, Annual Reports on trend and progress of banking in India published by RBI, Annual Reports of commercial banks, etc. The time-series data has been collected from 2003-04 to 2017-18 for 15 years. In this study, a sample of 05 public sector commercial banks and 03 private sector commercial banks of India has been taken into consideration based on banks with total risk-weighted assets of more than Rs 2000 billion namely Andhra Bank, Bank of India, Punjab National Bank, State Bank of India, UCO Bank, (Public) and Axis Bank, HDFC Bank & ICICI Bank (Private). The majority of the banks are indexed in the Bankex Stock Index which is another cause of sample selection in our study. The data has been analysed with the help of certain standard and appropriate statistical tools such as Correlation, Regression, Analysis of variance (ANOVA), a statistical package like SPSS have been used for testing of data on NPA management.

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LIMITATIONS OF THE STUDY

The research study is based on various limitations and the study is not free from exceptions to the phenomenon.

1. Only Indian public and private banks have been included in the sample; foreign banks are not included in this study.
2. The study is limited to 08 selected commercial banks (05 public sectors and 03 private sector banks) only. Many other banks are not taken into consideration for the study.
3. The period taken for the study is fixed for 15 years from 2003-2004 to 2017-2018. The study can be extended to more periods for better accuracy.
4. An attempt has been made to review extensive literature to conduct the study. However, some important studies may be excluded due to the wide range and availability.
5. This study is based on secondary data. Primary data is not used in this study. Secondary data has its limitations.

2. REVIEW OF LITERATURE:

The review of literature is an important part of scientific research. It enables the researcher to understand different aspects of the study or the problems to be investigated. It is of utmost importance in any research as it explains the necessity of the current research initiatives. The problems and management of non-performing assets (NPA) in commercial banks and the impact of NPA management on the liquidity position of selected commercial banks are debated in many academic kinds of literature across the world. On this background, various authorities/authors/researchers have contributed to the literature on the subject.

Sahoo (1999) in his article titled "Rating of Banks on NPA Management" the author has come up with the suggestion to allocate several marks variable from parameter to the parameter and aggregate sum up of marks will place their health of the organisation on a scale of range between A+ (excellent) to F grade (Very poor). This is indeed a very nice and quality judgmental formula. Such an exercise would not only prove to be an effective tool for the management of NPA but the same way improve liquidity, profitability, cleanness in the balance sheet and ultimately place the organization in the pink of health. **Baslas and Bansal (2001)** in their study on banking sector reforms found that the level of NPA is a contentious issue and a vital parameter in the analysis of the financial health of the banking industry. Public sector banks account for a higher level of NPA as they hold a higher share in lending, but contrary to general perception, the ratio of gross NPA to total advances and total assets has come down. **Mishra (2003)** revealed the high rise in gross and net NPA of the banking sector in the recent past as the exponential rate giving an indication, that the ongoing recession was taking a heavy toll on corporate audit discipline. This was further supported by the recovery climate, legal system, approach of the lenders towards lending, and many other factors. Despite myriad problems and existing setup, banks had to perform well and achieve the target for NPA reduction affixed as per international standard. **Kumar (2005)** in his article, "Non-Performing Assets in Indian Banks" studied that the banking sector of India is facing a lot of problems due to NPAs. The public sectors banks have more amounts of NPAs compared to private sector banks. To

develop the position of profitability and competency, the problem of NPAs should be addressed. The concept of zero amounts of NPAs is a myth. But to maintain the global standard, Indian banks can go for competition with foreign banks. **Karunakar (2008)** in his article, “Are non - Performing Assets Gloomy or Greedy from Indian Perspective?” has discussed various issues like risk management in business, cause of the low level of profit coming out of NPAs, how disparity arises between the financial sector and banks. They found that the mechanism of risk management and suitable credit appraisal system is the only solution to mitigate the problem of NPAs. Further, they suggest that NPAs should be avoided at the final stage of credit appraisal. **Saluja and Lal (2010)** in their comparative analysis of NPAs in different groups of commercial banks in India, examine the status and trends of NPAs in commercial banks, group-wise as well as sector-wise with a data set from 2004-05 to 2008-09 by comparing the performance of public sector banks, private sector banks and foreign banks in India. The study observes that NPAs reduce the profitability of banks, weaken their financial health, and erode their solvency. **Abel (2011)** examined the asset quality and identified the major determinants of bank asset quality in an era of regulation-induced industry consolidation, in a case study on the Nigerian banking sector. The study selected panel data from 19 out of a total of 25 banks operating in Nigeria. A multivariate constant-coefficient regression model is adopted as the estimation technique. Based on the analysis, it is found that deterioration in asset quality and increased credit crisis in the Nigerian banking industry between the periods 2004 and 2008 were exacerbated by the inability of banks to optimally use their huge asset capacity to enhance their earnings profiles. The results showed excess liquidity syndrome and relatively huge capital bases fuelled reckless lending by banks, and that increase in the level of unsecured credits in banks' portfolios ironically helped to mitigate the level of NPA. **Jayasree and Radhika (2011)** in their study examined the sector-wise comparison of NPA for the period 2004-05 to 2008-09. The analysis highlighted higher levels of NPA in new private sector banks and foreign banks. The analysis supported the findings that the NPA hurt net profit. The significance of this study is in its finding that prudential norms and RBI guidelines, securitizations, and changes in the law have a positive impact on the asset quality of banks. **Olweny and Shipho (2011)** examined the impact of bank-specific factors like capital adequacy, asset quality, liquidity, and operational cost efficiency, and income diversification on the profitability of commercial banks in Kenya. The study used financial statements of 38 Kenyan banks for the period 2002-08 and applied the regression method to evaluate the objectives. The results of the study showed that all bank-specific factors had a statistically significant impact on profitability, while none of the market factors had a significant impact. Based on the findings of the study, the authors recommended policies that would encourage revenue diversification, reduce operational costs, minimize credit risk and encourage banks to minimize their liquidity holdings. **Bhuyan and Rath (2013)** revealed that the high trend in NPA is increasing year to year. Gross NPA to gross advances ratio is also increasing in PSBs. But in the case of the private sector and foreign banks, it is declining. And if we take the overall NPA to advance ratio, it is increasing. Various steps like DRT (Debt Recovery Tribunal) and SARFAESI Act have been approved by the central government to reduce the level of NPA. The NPAs level of our banks is still high as compared to international standards. The Indian banks should take care to ensure that they give loans to creditworthy customers as prevention is always better than cure. **Arora and Ostwal (2014)** analyze the classification and comparison of loan assets of public and private sector banks. The study concluded that NPAs are still a threat to banks and financial institutions. Further, public-sector banks have a higher level of NPAs in comparison to Private sector banks. **Patel (2017)** studied

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the GNPA ratio is at 9.6% and the stressed advances ratio at 12% as of March 2017. Almost 86.5% of the Public sector banks are the worst hit in this alarming scenario as the chunk of bad loans is due to the large corporate borrowers with aggregate exposure of Rs.5 crores or above. To resolve this issue the Government and regulators are playing key roles to restructure the capital of the banking sectors, reorganize recoveries from different channels at the cost of present cost and pains for the desired end game.

3. STATUS OF GROSS NPA AND NET NPA OF COMMERCIAL BANKS OF INDIA

The Reserve Bank of India states that, compared to other Asian countries and the US, the Gross NPAs figures in India seems more alarming than the Net NPA figure (Prasad and Veena: 2011). Presently, Gross NPAs of Foreign Banks is Rs79700 Million, Gross Advances is Rs 2689674 million and Gross NPAs to Gross Advances Ratio is 2.96%. It has been found that Gross NPAs percentage showing decreasing pattern till the year 2006. As per the data, in public sector banks the gross NPA was 11.09% in 2001-02, 9.36 % in 2002-03, 7.80 % in 2003-04, 5.50% in 2004-2005, 3.60% in 2005-06 and 2.70 % in 2006-07. As per the data, the gross NPA of private bank was 9.64% in 2001-02, 8.08 % in 2002-03, 5.85 % in 2003-04, 6.00% in 2004-2005, 4.40% in 2005-06 and 3.10% in 2006-07. Thereafter it was more or less remain constant from the year 2007 to 2012 in both Public as well as Private Banking Sector respectively (2% - 3%), whereas the Net NPAs percentage in Public and Private Sector Banks showing more or less decreasing pattern throughout a decade i.e. from 2001 to 2012 (5.82% to 0.60%) as per Reserve Bank of India (RBI), 2014 report.

**Table No-1
Gross and Net NPA of Scheduled Commercial Banks of India
(Amount in Billion Rupees)**

Year	Gross Advance	Gross NPA Amount	As Percentage of Gross Advances	Net Advance	Net NPA Amount	As Percentage of Net Advances
2003-04	9001.66	648.12	7.2	8712.85	243.96	2.8
2005-06	15457.3	517.53	3.3	15168.11	185.43	1.2
2006-07	20074.13	505.17	2.5	19812.37	202.8	1.0
2007-08	25034.31	566.06	2.3	24769.36	247.3	1.0
2008-09	30246.52	699.54	2.3	29999.24	315.64	1.1
2009-10	32620.79	817.18	2.5	34967.2	391.27	1.1
2010-11	39959.82	939.97	2.4	42974.87	417.99	1.0
2011-12	46488.08	1369.68	2.9	50735.59	652.05	1.3
2012-13	59718.2	1927.69	3.2	58797.73	986.93	1.7
2013-14	68757.48	2630.15	3.8	67352.13	1426.56	2.1
2014-15	75606.66	3229.16	4.3	73881.6	1758.41	2.4
2015-16	81711.14	6116.07	7.5	78964.67	3498.14	4.4
2016-17	84767.05	7902.68	9.3	81161.97	4330.1	5.3

2017-18	92662.09	10656.14	11.5	86197.09	5344.22	6.2
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Source: dbie.rbi.org.in (2018)

The percentage of Gross NPA of total assets was 10.4% during 2001-02, 8.8 % in 2002-03, 7.2% in 2003-04, 5.2% in 2004-05, 3.3% 2005-06 and 2.5% in 2006-07 and after that this rate was decreased till 2008-09. But from 2009-10 this rate continuously increased year by year and during 2012-13 this rate was 3.23%. On the other hand, the rate of Net NPA during 2001-02 was 5.5%, 4.03% in 2002-03, 2.8% in 2003-04, 2.0% in 2004-05, 1.2% in 2005-06 and after that this rate was decreased year by year up to 2008-09 but from 2009-10 this rate was increased year by year and during 2012-13 this rate was 1.7% of net advance and 1.0% of total assets. However, the data (Table no -1) shows that overall Gross NPA is increasing than Net NPA. This is not a good sign from banking industries and suitable steps should be taken by banking and financial institution as early as possible to control the NPA.

Table No: 2

Growth in Gross and Net NPA of Commercial Banks of India

(Amount in Billion Rupees)

Year	Gross NPA Amount	Annual Growth Rate (%)	Net NPA Amount	Annual Growth Rate (%)
2003-04	648.12		243.96	
2005-06	517.53	-20.14	185.43	-23.99
2006-07	505.17	-2.38	202.8	9.36
2007-08	566.06	12.05	247.3	21.94
2008-09	699.54	23.58	315.64	27.63
2009-10	817.18	16.81	391.27	23.96
2010-11	939.97	15.02	417.99	6.82
2011-12	1369.68	45.71	652.05	55.99
2012-13	1927.69	40.74	986.93	51.35
2013-14	2630.15	36.44	1426.56	44.54
2014-15	3229.16	22.77	1758.41	23.26
2015-16	6116.07	89.40	3498.14	98.93
2016-17	7902.68	29.21	4330.1	23.78
2017-18	10656.14	34.84	5344.22	23.42
	AAGR	22.93%	AAGR	25.80%
r	0.96			

Sources: i) Annual Reports and Balance Sheets of Scheduled Commercial Banks, Various Issues. ii) The ratios that are not available are calculated

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It can be viewed from the table that the annual growth rate of gross NPA in 2005-06 is -20.14% and registered an increasing growth rate of 34.84% in the year 2017-18. On the other hand, the net NPA of the order of Rs 243.96 billion in 2003-04 and finally settled down at 5344.22 billion registering a growth rate of 23.42% in the year 2017-18. Further analysis reveals that over the years under review, the average annual rate of growth in gross NPAs experienced at 22.93% and the average annual growth rate in net NPAs of scheduled commercial banks stood at 25.80%. The correlation between the annual average growth rate (AAGR) of gross NPA and net NPA is 0.96. Hence, it can be concluded that the H_0 : The growth rate of NPA of commercial banks in India has increased during the period of study.

4. LIQUIDITY ANALYSIS

Liquidity analysis of the Indian commercial banks is measured through four various ratios: Liquid assets to demand deposits, liquid assets to total assets, demand deposits to total deposits, and advances to deposits. A good liquidity ratio of 1:1 is recommended, but not necessarily a minimum.

LIQUID ASSETS TO DEMAND DEPOSITS RATIO

Liquid assets to demand deposits are calculated at the rate of assets matured within one year and liabilities to be settled over the same period (Moore, 2009). This proposes to capture financial and credit imbalances and to show how that bank can deal with short-term liquidity without having to deal with a liquidity problem.

Table No: 3

Liquid Asset to Demand Deposit Ratio of Commercial Banks

SL. N.	Bank Name	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	AVG
1	ANB	1.16	1.38	1.67	1.1	1.29	1.01	1.66	1.46	1.36	0.96	1.25	0.82	1.18	2.04	1.53	1.30
2	BOI	1.47	1.23	1.55	1.86	1.42	1.73	1.97	2.21	1.93	2.7	2.84	3.55	4.21	3.38	3.24	2.20
3	PNB	0.89	0.89	1.48	0.95	1.06	1.14	0.99	1.11	1.01	0.9	1.43	1.66	2.03	1.92	2.36	1.27
4	SBI	0.87	0.69	0.66	0.63	0.69	0.94	0.7	0.94	0.98	1.01	1.17	1.24	1.19	0.86	1.00	0.94
5	UCO	1.22	1.65	0.83	1.14	1.4	1.48	0.91	2.21	1.68	0.47	0.59	0.83	0.9	1.55	1.52	1.19
6	AXB	NA	NA	0.46	0.61	0.62	0.6	0.47	0.58	0.35	0.42	0.58	0.64	0.52	0.57	0.45	0.40
7	HDB	0.41	0.42	0.47	0.46	0.51	0.62	0.8	0.64	0.46	0.52	0.64	0.49	0.44	0.42	0.4	0.53
8	ICI	1.1	1.0	1.03	1.7	1.5	1.3	1.2	0.9	1.0	1.1	0.9	0.8	1.0	1.0	0.9	1.3

	B	7	1		4	4	9	5	8	4	2	6	5	1	0	4	8
	AV	0.8	0.9	1.01	1.0	1.0	1.1	1.0	1.2	1.1	1.0	1.1	1.2	1.4	1.4	1.4	1.1
	G	9			6	6	1	9	6		1	8	6	3	6	3	5

Source: Result Computed from Annual Reports of Commercial Banks from 2004-2018

Table number 03, represents the liquid assets to demand deposits ratio of commercial banks in India. It shows that the industry average for liquid assets to demand deposits ratio during 2003-04 to 2017-18 is 1.15. The Bank of India (2.20) has the highest liquidity ratio followed by ICICI Bank (1.38), Andhra Bank (1.30), and Punjab National Bank (1.27). There is a shortage of liquidity in new private sector banks as they have a low liquidity ratio. Axis bank (0.40) takes place at the last position followed by HDFC Bank (0.53). State Bank of India (0.94) lies below and UCO bank (1.19) is nearer to the industry average ratio (1.15). The high value of liquidity ratio is considered as the inefficiency of the banks to manage the liquidity. Bank of India, Andhra Bank, Punjab National Bank, and ICICI Bank are required to reduce their liquidity as it badly affects the profitability of the banks. Based on table no 3, it is found that public sector banks have a surplus of liquidity while liquidity is scarce in private sector banks and the State bank of India.

LIQUID ASSETS TO TOTAL ASSETS RATIO

The ratio of liquid assets to total assets indicates the overall liquidity position of the bank. Liquid assets to total assets indicate the liquidity shock absorption capability of a bank (Vodova, 2011). It follows the cash management of the bank reflecting the proportion of the cash and cash equivalent to the total assets. Higher the ratio, better the liquidity position of the banks but excess amounts of cash may be viewed as inefficient management.

Table No: 4

Liquid Assets to Total Assets Ratio of Commercial Banks

Sl. No.	Bank Name	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	AVG
1	ANB	0.1	0.11	0.13	0.08	0.1	0.08	0.12	0.1	0.07	0.04	0.05	0.04	0.04	0.07	0.06	0.08
2	BOI	0.14	0.08	0.1	0.12	0.1	0.1	0.11	0.11	0.09	0.12	0.1	0.12	0.16	0.15	0.15	0.12
3	PNB	0.09	0.09	0.17	0.1	0.09	0.09	0.08	0.08	0.06	0.05	0.08	0.09	0.11	0.12	0.12	0.09
4	SBI	0.11	0.09	0.09	0.09	0.09	0.11	0.08	0.1	0.07	0.05	0.05	1.24	0.07	0.04	0.05	0.16

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5	UCO	0.1	0.12	0.05	0.08	0.09	0.1	0.06	0.1	0.08	0.06	0.06	0.09	0.07	0.07	0.06	0.08
6	AXIS	NA	NA	0.07	0.09	0.11	0.1	0.08	0.09	0.05	0.06	0.07	0.07	0.06	0.08	0.06	0.07
7	HDB	0.09	0.09	0.09	0.1	0.11	0.1	0.13	0.11	0.06	0.06	0.08	0.06	0.05	0.05	0.1	0.09
8	ICIB	0.07	0.08	0.07	0.11	0.1	0.08	0.11	0.08	0.08	0.07	0.06	0.06	0.08	0.09	0.09	0.08
	AVG	0.09	0.08	0.10	0.10	0.10	0.10	0.10	0.10	0.07	0.06	0.07	0.22	0.08	0.08	0.09	0.10

Source: Result Computed from Annual Reports of Commercial Banks from 2004-2018

Table number 2 depicts that the State Bank of India (0.16) has the highest liquidity assets as a proportion of total assets followed by Bank of India (0.12). AXIS Bank has a low proportion of liquid assets (0.07) followed by ICICI Bank (0.08), UCO bank (0.08), and Andhra bank (0.08). Out of 8 Indian commercial banks, 6 banks have low liquidity as compared to the average liquidity ratio of all banks. It means most of the banks of our study are not maintaining high liquidity to meet unexpected cash payments except SBI and BOI. Table number 2 concludes that cash management of neither the public sector nor the private sector banks are managing their liquidity better during 2003-04 to 2017-18.

DEMAND DEPOSITS TO TOTAL DEPOSITS RATIO

The demand deposits to total deposits ratio specify the prerequisite of the bank to retain cash ready to pay the deposits payable on demand. The higher ratio enhances the ability of the bank to pay its liabilities as and when they are demanded (Goyal, 2008). Table number 3 shows that the demand deposits to total deposits ratio range from 0.06 to 0.22 which indicates that there is much disparity in this ratio of commercial banks during the period of study.

Table No: 5

Demand Deposits to Total Deposits Ratio of Commercial Banks

Sl. No.	Bank Name	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	AVG
1	ANB	0.1	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.06	0.05	0.05	0.06	0.04	0.04	0.04	0.07
2	BOI	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.04	0.04	0.04	0.05	0.05	0.06
3	PNB	0.11	0.12	0.14	0.12	0.11	0.09	0.1	0.09	0.08	0.07	0.06	0.06	0.06	0.07	0.06	0.09
4	SBI	0.16	0.15	0.18	0.19	0.18	0.15	0.15	0.14	0.09	0.09	0.06	0.06	0.06	0.07	0.07	0.12
5	UC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0

	O	9	8	7	8	7	7	7	5	5	4	2	2	9	5	5	8
6	AX B	NA	NA	0.2	0.1 9	0.2 3	0.2 1	0.2 3	0.2	0.1 8	0.1 9	0.1 7	0.1 7	0.1 7	0.2	0.2 1	0.1 7
7	HD B	0.2 9	0.2 9	0.2 6	0.2 9	0.2 9	0.2	0.2 2	0.2 2	0.1 8	0.1 7	0.1 6	0.1 6	0.1 6	0.1 7	0.1 7	0.2 2
8	ICI B	0.1 1	0.1 3	0.1	0.0 9	0.1	0.1	0.1 5	0.1 5	0.1 4	0.1 2	0.1 3	0.1 3	0.1 3	0.1 5	0.1 5	0.1 3
	AV G	0.1 0	0.1 2	0.1 4	0.1 4	0.1 4	0.1 2	0.1 4	0.1 0	0.1 1	0.1 1	0.1 0	0.1 0	0.1 0	0.1 0	0.1 0	0.1 1

Source: Results are calculated from Annual Reports of Banks from 2004-2018

The HDFC (0.22) bank has the highest demand deposits to total deposits ratio followed by AXIS bank (0.17) and ICICI bank (0.13). It indicates that private sector banks have more liabilities that are payable on demand. This requires more cash maintenance by these banks. Bank of India (0.06), Andhra Bank (0.07), UCO Bank (0.08), Punjab National Bank (0.09), and lastly State Bank of India (0.12) have the lowest demand deposits. Increments in liquidity of private sector banks reveal the more improvement of these banks in managing their liquidity in the banking system of India. Table number 5 confirms that liabilities payable on demand are high in private sector banks as compared to public sector banks.

ADVANCES TO DEPOSITS RATIO

Advances to Deposits ratio is calculated by taking gross loans divided by total deposits. It measures the level to which deposits have financed loan portfolios which are considered illiquid assets (Aspachs et al. 2005). The higher the ratio, the lower is the liquidity of the bank. ICICI Bank (0.95) has the highest illiquidity ratio followed by HDFC Bank (0.74) and Bank of India (0.72) as shown in table no 6.

Table No: 6

Advances to Deposits Ratio of Commercial Banks

Sl · No	Bank	200 3- 04	200 4- 05	200 5- 06	200 6- 07	200 7- 08	200 8- 09	200 9- 10	201 0- 11	201 1- 12	201 2- 13	201 3- 14	201 4- 15	201 5- 16	201 6- 17	201 7- 18	AV G
1	AN B	0.5 6	0.6 3	0.6 5	0.6 7	0.6 9	0.7 4	0.7 2	0.7 7	0.0 7	0.7 9	0.7 5	0.8 1	0.7 5	0.7 7	0.7 1	0.6 7
2	BO I	0.6 4	0.7	0.6 9	0.7	0.7 5	0.7 5	0.7 3	0.7 1	0.7 8	0.7 5	0.7 7	0.7 5	0.7	0.6 7	0.6 5	0.7 2
3	PN B	0.5 3	0.5 8	0.6 2	0.6 9	0.7 1	0.7 3	0.7 4	0.7 7	0.7 7	0.7 8	0.7 7	0.7 5	0.7 4	0.6 7	0.6 7	0.7 0
4	SBI	0.4 9	0.5 5	0.6 8	0.7 7	0.7 7	0.7 3	0.7 8	0.8 1	0.8 1	0.8 6	0.6 5	0.6 3	0.6 4	0.7 6	0.7 1	0.7 1
5	UC O	0.5 2	0.5 5	0.6 8	0.7 2	0.6 8	0.6 8	0.6 7	0.6 8	0.7 5	0.7 3	0.7 4	0.6 8	0.6	0.5 9	0.5 9	0.6 6
6	AX	NA	NA	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.6

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	B			5	2	8	9	3	5	7	7	1	7	4		6	7	
7	HD	0.5		0.6	0.6	0.6	0.6	0.7	0.7	0.7		0.8	0.8	0.8	0.8	0.8	0.8	0.7
	B	8	0.7	2	8	2	9	5	6	9	0.8	2	1	5	6	3	4	
8	ICI	0.9	0.9	0.8	0.8	0.9	0.9	0.8	0.9	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.9	
	B	1	1	8	4	2	9	9	5	9	9	2	7	3	4	1	5	
	AV	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7		0.7	0.7	0.7	0.7	0.7	0.7	
	G	2	7	7	1	2	5	5	7	1	0.8	9	9	8	6	5	2	

Source: Results are calculated from Annual Reports of Banks from 2004-2018

The UCO Bank (0.66) has the lowest advances to deposits ratio followed by Andhra Bank (0.67) and Axis Bank (0.67). In the case of the State Bank of India (0.71) and Punjab National Bank (0.70) is just nearer to the industry average ratio (0.72). The results of the present study are concluded with the study of Ibrahim (2011) that Indian commercial banks have an increasing trend in advances to deposits ratio during the study period.

Lastly, we can conclude that liquidity management of public sector banks is better as compared to private sector banks. Some of the private sector banks have high liquidity (in the form of excess cash and cash equivalent) while some public sector banks are highly illiquid (in the form of huge long-term deposits). Based on the preceding tables (3, 4, 5, and 6) it is found that not much disparity is found in the cash management of the State bank of India during the period of study.

5. DATA ANALYSIS

The regression analysis has been done for data analysing by taking 15 years of gross NPA and gross liquidity data of selected commercial banks of India with the application of SPSS software. Further, results have been discussed subsequently to conclude the study.

IMPACT ANALYSIS OF GNPA ON LIQUIDITY

The impact analysis has been done to test the hypothesis of the study, for which we have taken regression analysis. The hypothesis of the study is:

H0: There is no impact of GNPA on the liquidity position of commercial banks.

H1: There is an impact of GNPA on the liquidity position of commercial banks.

Table No: 7

Gross NPA and Gross Liquidity of Commercial Banks

(Amount in Crores)

Year	Gross NPA	Gross Liquidity
2003-04	26073.46	71897.00
2004-05	24702.30	80683.81
2005-06	20758.30	116881.37
2006-07	22574.00	148451.95
2007-08	29081.00	166228.03

2008-09	36015.30	206998.58
2009-10	40054.80	233131.03
2010-11	48958.60	275800.22
2011-12	69661.00	254052.68
2012-13	98292.40	305057.76
2013-14	121115.70	372954.90
2014-15	143982.40	431972.86
2015-16	272588.80	499876.65
2016-17	327999.90	527370.98
2017-18	523673.80	553851.27

Source: Data are calculated from Annual Reports of selected Banks (2004-2018)

Table No: 8

Output of Linear Regression of GNPA on Liquidity

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.875 ^a	.766	.748	810788231.984		
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1662803412.205	275473034.703		6.036	.000
	GNPA	9697.996	1487.543	.875	6.519	.000

a. Dependent Variable: Liquidity

ANOVA ^a						
Model		Sum of Squares	D.f	Mean Square	F	Sig.
1	Regression	27940882750115 370000.000	1	279408827501 15370000.000	42.504*	.000 ^b
	Residual	85459082426094 70500.000	13	657377557123 805440.000		
	Total	36486790992724 840000.000	14			

a. Dependent Variable: Liquidity

b. Predictors: (Constant), GNPA

F calculated value=42.504*, F tabulated value= 4.667 at 5% level of significance, d. f.= 14

Source: Data are computed from SPSS

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6. RESULTS AND DISCUSSION

The aforesaid study examines the degree of relationship between two variables that is dependent and independent variables. Liquidity factor is taken to be a dependent variable, whereas gross NPA (GNPA) is an independent variable. Gross NPA is regarded as X as the movement of the former significantly changes the value of liquidity factor over 15 years. Gross NPA does have a significant bearing which can be intended from the following equation. Regression equation line being $Y = a + bX$ states that Y is dependent and X is an independent variable, 'a' is constant and 'b' is beta-coefficient.

The equation is written as:

$$Y = a + bX$$

$$Y = 1662803412.205 + 9697.996X$$

The value of Y will change linearly as the value of X changes. The value of Y will change to the extent of 9697.996 (X), keeping the intercept constant.

From the above table, it is being inferred that multiple R is 0.875 which indicates a high degree of positive correlation between said variables that is Gross NPA and Liquidity. If gross NPA changes, then the liquidity position also varies in a positive linear direction to the extent of 87.5%. The R square value is 0.766 which means that 76.6% of the data supports this particular model which implies if the independent variable (GNPA) changes, then the dependent variable (Gross Liquid) also changes. Further, table no 8 depicts that the null hypothesis is rejected and the alternative hypothesis is accepted as F calculated value (42.503) is more than F tabulated value (4.667). As the null hypothesis is rejected, so it is proved that the impact of NPA management has got a significant bearing on the liquidity ratio.

6. CONCLUSION:

The study found that the growth rate of gross NPA and net NPA of Indian commercial banks is increasing at a positive rate. When the NPA level rises, the cash level is likely to decrease because the borrower cannot repay the interest and principal of the loan. This is likely to cause a temporary cash shortage and the bank will have to approach alternative sources to improve liquidity. The liquidity is represented by the cash-to-deposit ratio and has a negative relationship with NPA. As NPAs decrease, liquidity improves. That is why NPA hurts the liquidity position of banks and the gross NPA harms the liquidity position of banks in India. Finally, we conclude that the banks must concentrate on the successful management of NPA; otherwise, it creates a liquidity crisis for the banks.

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