

Non-Performing Assets in Indian Banking Sector: An Analytical and Comparative Study of Selected Public and Private Sector Banks

Prof. Manoj Kumar Agarwal

Principal

NAS College, Meerut

Email: agarwal.manoj73@rediffmail.com

Ms. Preeti

Research Scholar

Department of Commerce

Chaudhary Charan Singh University

Meerut

Email: preetisingh75037@gmail.com

Abstract

Non-Performing Assets have become a serious issue in the Indian banking industry. As the NPAs is one of the major indicators of a bank's performance. The high proportion of non-performing assets in Indian banks is simply a reflection of the industry's and trade's overall health. To strengthen the financial health of the banking sector, it is vital to reduce the level of NPAs. The objectives of the study are to Analyse the trend of NPAs and their influence on Indian banks' operations; the pattern and magnitude of NPAs in selected Public and Private sector banks; and the causes contributing to NPAs. The findings indicate that there has been an upward trend in the proportion of NPAs at both private and public sector banks. In 2010, gross non-performing assets (NPAs) as a percentage of total loans given by SBI, Punjab National Bank, ICICI Bank, and Axis Bank were 3.05 percent, 1.79 percent, 4.47 percent, and 1.11 percent, respectively. These percentages increase up to 6.15 percent, 14.21 percent, 1.94 percent, and 4.52 percent in 2020, respectively. In terms of managing non-performing assets (NPAs), Punjab National Bank is the worst performer compared to other peer banks. However, evidence shows that private sector banks, even though not effectively, at least better manage their NPAs than public sector banks.

Keywords

Non-Performing asset (NPAs), Gross NPAs, Public Sector banks (PSB) and Private Sector Banks.

Reference to this paper should be made as follows:

**Prof. Manoj Kumar Agarwal,
Ms. Preeti**

Non-Performing Assets in Indian Banking Sector: An Analytical and Comparative Study of Selected Public and Private Sector Banks
Vol. XIII, No.1
Article No.13,
pp. 091-104

Similarity Check: 1%

<https://anubooks.com/jgv-vol-xiii-no-1-jan.-june-2022/>

DOI : <https://doi.org/10.31995/jgv.2022.v13i01.013>

Introduction

Banks play a prominent role in financial intermediation in emerging economies, along with additional responsibility for achieving the social goals of the government as well as establishing the intrinsic link between the development of the economy, and improving the overall health of the banking sector. The financial crisis of recent times highlighted the value of a stable banking system and also highlighted how important it is for banks to be properly supervised and monitored because this can have an impact on their effectiveness, productivity, results, and profitability.

As the banking industry in India is so important to the whole economy, As the banking industry in India is so important to the economy, it must be well-capitalized. A well-functioning financial industry relies on sound banking practices. It is imperative to employ objective financial measurements to discover early warning signals for banks' financial crises in light of the ongoing global financial crisis (GFC). The quality of a bank's assets is a key factor in determining its overall health. This study focuses on the bank's loan portfolio, efficiency, and credit administration systems. Risky loans are an important part of a bank's assets, which puts it at a disadvantage. In addition, financial asset off-balance-sheet elements such as capital leases, capital loans, and banks' property all have an impact on banks' asset quality. Banks are concerned about the quality of loans since they generate revenue for the institution.

The number of non-performing loans (NPAs) has increased significantly during the past few years. The number of banks with non-performing assets (NPAs) is increasing around the world, and this has a negative influence on interest rates and lending costs, which in turn undermines the confidence of all parties involved: borrowers, lenders, and depositors. Increased rate interest would have an immediate impact on infrastructure and industrial projects that require loans, and they would also have a negative impact on the bank's ability to create credit and generate revenue. The non-recovery of loans has a direct impact on the financial health of an economy, which in turn affects credit formation. As a result, a bank's efficiency will be determined by how well it controls and minimize its NPAs. Monitoring NPAs and performance evaluations are critical for banking, as this is one of the major indicators of a bank's overall efficiency. Therefore, the impact of NPAs in determining the banking system's efficiency and profitability must be examined. As with the increasing need for finances, the country's financial system is heavily reliant on banks, which hold a substantial chunk of total financial resources. India has a large number of public sector banks with a higher level of non-performing assets (NPAs)

than that other developing countries. (Bawa et al.,2017) found that the gross non-performing assets (NPAs) in Indian banks are three times greater than the gross non-performing assets (NPAs) in other emerging nations like China, Mexico, and Brazil 2017. The NPAs in the Indian banking industry have a significant impact on the financial system's performance and decision-making (Fujii et al., 2014).

Review of Literature

The Trend of Non-performing Assets (NPAs)

Several studies have been conducted on this topic. These studies capture the trends and patterns in NPAs over a while and found significant differences in different bank groups across India. (Ibrahim, 2019) studied the non-performing assets in Indian commercial banks. The study investigated that banks were facing the problem of NPAs for a long time, for this bank needs to be very careful while giving loans to the borrowers. Non-performing assets have been the major cause of nuisance in the Indian banking system. The study emphasized the conceptual framework of non-performing assets in the banking sector, it further discussed and analyzed the trend of NPAs in public, private, and foreign banks. This study also examined the remedies taken by the government and banks to avoid future NPAs. To analyze the data various statistical tools have been used by the researcher such as descriptive statistics, ANOVA single factor test with the help of excel sheets and SPSS software. The study found that both gross advances and gross NPAs were high in scheduled commercial banks, showing a steep increase from 2.3 in 2007-08 to 9.3 in 2016-17 and the results concluded that the Foreign banks were better performers than other banking sectors.

Likewise, (Sengupta & Vardhan, 2017) made a comparative analysis of the banking crisis in the late 1990s with the 2008 global financial crisis and described the macroeconomic and banking environment, degree, and the nature of the crisis and also discussed the policy responses that have been undertaken by the government. The findings of the study suggested that banks should be made a list of all defaulters in public who have had their loans written off by the banks and punish those who did not pay their dues so that others will not do the same. The study also states that there was a need for restructuring agricultural loans to benefit farmers and recommended that a committee has to be formed to decide on the recovery process in cases of loans issued to big corporate houses by different banks. Banks need to be able to identify stress in their assets early and classify them as special mention accounts based on the duration of repayment delay. Banks need to clean up their balance sheets and form a Joint Lender's Forum to discuss the issue as a party. The stronger the institutional, legal climate and micro-level prudence the easier banks

would be able to expand loans with fewer worries about accruing NPAs. (Raj et al., 2018) analyzed the growth pattern of NPAs in India in the last four years, concentrating on the State Bank of India and ICICI Bank. The study compared the total sum of advances, income, net profits, and gross losses for SBI and ICICI Bank and tested for a linear relationship between net profit and net NPAs in both banks during the analysis. The study concluded that NPAs management for any bank in the banking industry was a challenge. After the analysis of statistics for the past years, it was found that in terms of liquidity the banks were facing the utmost challenge as far as NPAs have increased, and profitability has gone down. The SBI holds a bigger amount of lost assets than the ICICI Bank, SBI was more susceptible to giving up the income as it made more loans to the general population. As in the case of ICICI Bank, the analysis revealed that there was no significant benefit or loss has been announced but the NPAs were compensated against the earnings of the bank. In the case of SBI, the condition was even worse because losses have risen as NPAs have continued to increase. The main objective of the (Agarwala & Agarwala, 2019) study was to look at the contribution made by the different groups of banks individually to the non-performing assets (NPAs) in the banking industry by analyzing its growth pattern from 2010 to 2017. Further, the study made an effort to find out the effects of different bank groups (namely State bank of India and its associate's bank, nationalized banks, and private banks individually) in the banking industry. The findings of the study concluded that due to high-interest rates on loans banks need to do a harsh pull on their business and this was leading to slow growth of the economy. RBI was going ahead with very tough rules to monitor the rising level of NPAs in the Indian banks' portfolios. The Insolvency and Bankruptcy Code 2016 was being used to recover properties of those creditors whose cases have been lodged with the National Company Law Tribunal (NCLT).

Objectives

- To analyze the trend of NPAs in selected Public and Private sector banks of India.
- To Highlight the NPA's position on selected Public and Private Bank.
- To Assess the comparative position of NPA in selected Public & Private sector banks.
- To Assess the variation of NPA ratio in selected Public & Private sector banks.

Research Methodology

The abovementioned investigation indicates that existing studies are mainly concentrated on PSBs and their comparison with private and foreign banks.

However, the present study has concentrated on the comparison of NPAs between public and private sector banks. The banks that were chosen for this research are some of the well-known in each of their respective sectors, and they include:

- Public Sector: State bank of India (SBI) & Punjab National Bank (PNB)
- Private Sector: AXIS Bank & ICICI Banks

This study used secondary data to compile this report, including the “CMIE PROWESS IQ database”, “Trend & Progress of Banking in India,” statistics tables on Indian banks, and reports on currency and finance from the annual report of the “Reserve Bank of India.” Articles and publications related to NPA published in different business journals, magazines, newspapers, and periodicals were reviewed and data available on the internet and other sources have also been utilized. Major guidelines released by RBI from time to time were explored in depth. In addition, this study examined the quality of banks’ assets and also made recommendations for banks to reduce their NPAs.

The data were analyzed and interpreted using measures such as averages, financial ratios, and percentages to evaluate the various features of non-performing assets (NPAs) in selected public and private sector banks of India, in light of the aforementioned objectives. The present study covers the period of 2001-02 to 2020-2021, to study the variation in the NPA ratio.

Data Analysis and Interpretation

Table No. 1 Net Profit (In Cr.)

Year	Axis Bank Ltd.	ICICI Bank Ltd.	Punjab National Bank	State Bank of India
2001-2002	134.14	258.3	562.39	2431.62
2002-2003	192.19	1206.18	842.2	3105
2003-2004	278.31	1637.11	1108.69	3681
2004-2005	334.58	2005.2	1410.12	4304.52
2005-2006	485.08	2540.07	1439.31	4406.67
2006-2007	659.03	3110.22	1540.08	4541.31
2007-2008	1071.03	4157.73	2048.76	6729.12
2008-2009	1815.36	3758.13	3090.88	9121.23
2009-2010	2514.53	4024.98	3905.36	9166.05
2010-2011	3388.49	5151.38	4433.5	8264.52
2011-2012	4242.21	6465.26	4884.2	11707.29
2012-2013	5179.43	8325.47	4747.67	14104.98

2013-2014	6217.67	9810.48	3342.57	10891.17
2014-2015	7357.82	11175.35	3061.58	13101.57
2015-2016	8223.66	9726.29	-3974.4	9950.65
2016-2017	3679.28	9801.09	1324.8	10484.1
2017-2018	275.68	6777.42	-12282.82	-6547.45
2018-2019	4676.61	3363.3	-9975.49	862.23
2019-2020	1627.22	7930.81	336.19	14488.11
2020-2021	6588.5	16192.68	2021.62	20410.47
Average	2947.041	5870.8725	693.3605	7760.208

(Source: <https://dbie.rbi.org.in>)

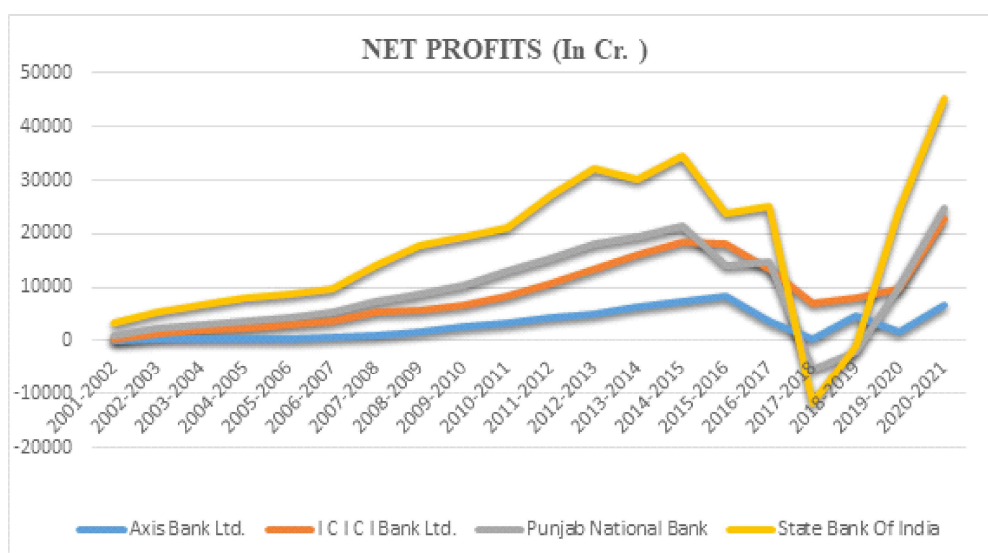
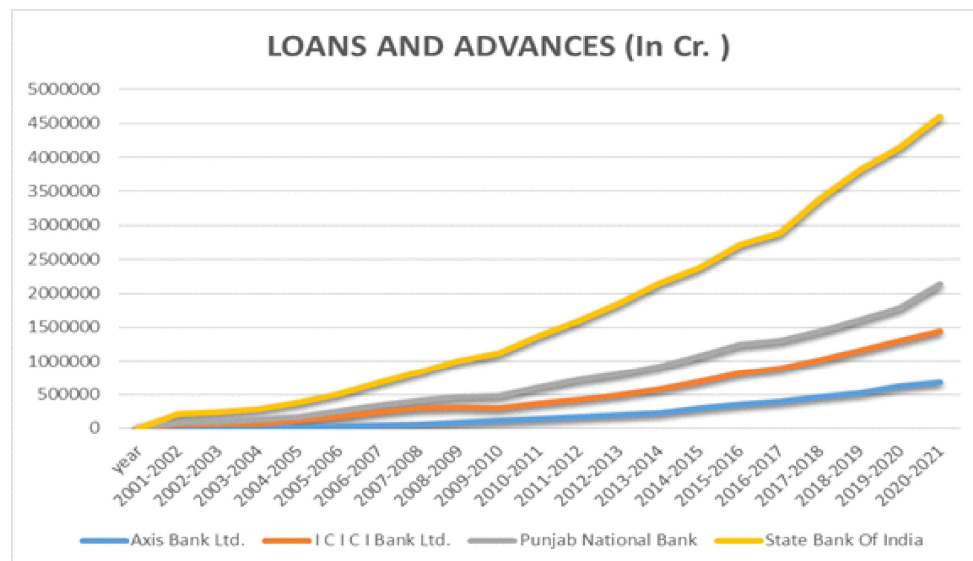


Chart 1

Table No. 2 Total Loan & Advances (In Cr.)

Year	Axis Bank Ltd.	I C I C I Bank Ltd.	Punjab National Bank	State Bank of India
2001-2002	5397.32	48041.81	34808.37	122667.6
2002-2003	7234.77	54711.67	40508.65	139292.98
2003-2004	9445.36	65396.12	47735.3	160528.46
2004-2005	15699.71	95478.57	60736.06	204343.42
2005-2006	22423.7	151561.86	75318.11	262153.6
2006-2007	36980.04	202785.59	97298.16	339488.93

2007-2008	59705.92	232442.84	120764.79	419246.07
2008-2009	81598.81	224611.4	155847.45	546146.02
2009-2010	104405.3	186782.61	188112.95	636305.23
2010-2011	142447.97	221041.29	242976.84	762567.45
2011-2012	169878.04	258210.73	294832.53	875819.72
2012-2013	196993	294946.09	309440.3	1050950.22
2013-2014	230066.76	343834.98	350169.06	1221709.23
2014-2015	296080.39	392076.45	381967.65	1309283.86
2015-2016	355748.82	467621.99	413862.06	1476398.71
2016-2017	390586.59	495179.84	420247.12	1579892.57
2017-2018	462874.46	547026.32	436419.85	1952426.3
2018-2019	524550.95	627016.17	461351.96	2210253.21
2019-2020	619422.41	683572.22	475269.22	2359740.4
2020-2021	671446	772238.36	684021.86	2475521.77
Average	220149.32	318228.85	264584.41	1005236.79

(Source: <https://dbie.rbi.org.in>)**Chart 2****Table No. 3 Gross NPA (In Cr.)**

Year	Axis Bank Ltd.	I C I C I Bank Ltd.	Punjab National Bank	State Bank of India
2001-2002	282.16	5013.03	4139.86	15485.85

Non-Performing Assets in Indian Banking Sector: An Analytical and Comparative Study of Selected Public and Private Sector Banks

Prof. Manoj Kumar Agarwal, Ms. Preeti

2002-2003	228.93	5027.38	4980.06	13506.07
2003-2004	274.72	3047.59	4670.13	12667.21
2004-2005	311.1	2770.43	3741.34	12455.73
2005-2006	377.95	2222.59	3138.29	9628.14
2006-2007	418.67	4126.06	3390.72	9998.22
2007-2008	494.61	7579.54	3319.3	12837.34
2008-2009	897.77	9649.31	2506.9	15714
2009-2010	1318	9480.65	3214.41	19534.89
2010-2011	1599.42	10034.26	4379.39	25326.29
2011-2012	1806.3	9475.33	8719.62	39676.46
2012-2013	2393.42	9607.75	13465.79	51189.39
2013-2014	3146.41	10505.84	18880.06	61605.35
2014-2015	4110.19	15094.69	25694.86	56725.34
2015-2016	6087.51	26221.25	55818.33	98172.8
2016-2017	21280.48	42159.39	55370.45	112342.99
2017-2018	34248.64	53240.18	86620.05	223427.46
2018-2019	29789.44	45676.04	78472.7	172750.36
2019-2020	30233.82	40829.09	73478.76	149091.85
2020-2021	25314.84	40841.42	104423.42	126389.02
Average	8230.719	17630.091	27921.222	61926.238

(Source: <https://dbie.rbi.org.in>)

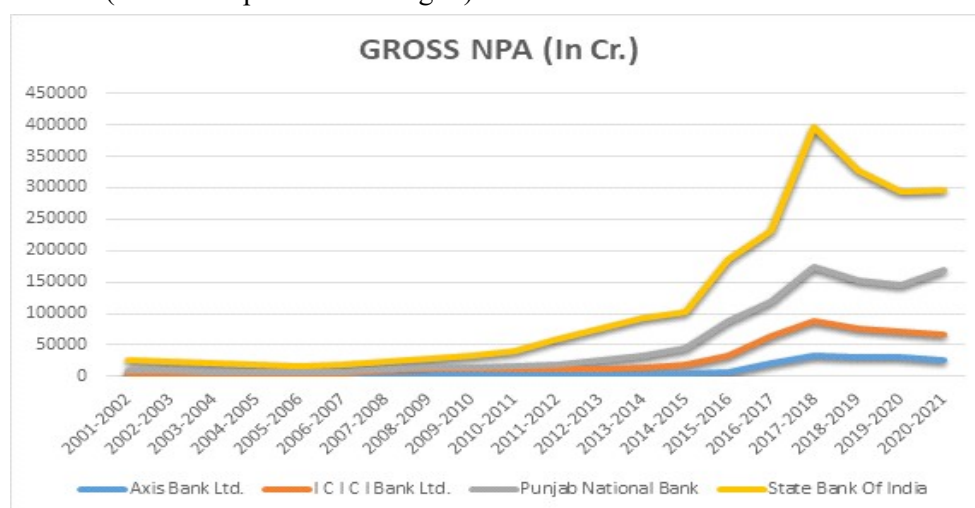


Chart 3

Table No. 4 Gross NPA Ratio

Year	Axis Bank Ltd.	I C I C I Bank Ltd.	Punjab National Bank	State Bank Of India
2001-2002				
2002-2003				
2003-2004				
2004-2005				3.74
2005-2006				2.62
2006-2007			3.45	2.92
2007-2008	0.83		2.74	3.04
2008-2009	1.09	4.32	1.6	2.84
2009-2010	1.25	5.06	1.71	3.05
2010-2011	1.11	4.47	1.79	3.28
2011-2012	1.06	3.62	2.93	4.44
2012-2013	1.2	3.22	4.27	4.75
2013-2014	1.29	3.03	5.25	3.95
2014-2015	1.36	3.78	6.55	4.25
2015-2016	1.71	5.82	12.9	6.5
2016-2017	5.21	8.74	12.53	6.9
2017-2018	6.79	9.9	18.38	10.91
2018-2019	5.31	7.38	15.5	7.53
2019-2020	4.52	1.94	14.21	6.15
2020-2021	3.54	3.42	14.12	4.98
Average	2.590714286	4.976923077	7.862	4.814705882

(Source: <https://dbie.rbi.org.in>)

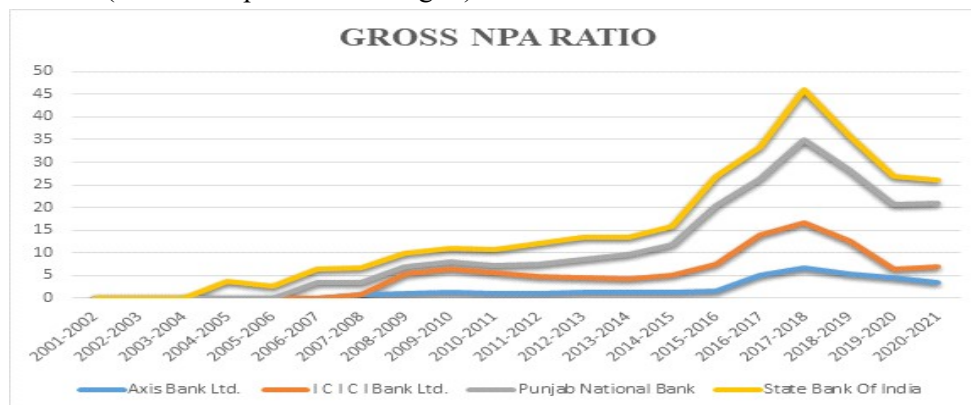


Chart 4

Results and Discussions

A study of four banks has been conducted. Two of them are selected from public-sector banks, while the other two are from private-sector banks. Various data sets have been taken to conduct this research work. To begin with the total loan and advances disbursed by these banks. Furthermore, the Net Profit made by these banks. In addition to this, the gross NPA of these banks.

As seen in Chart 5.1, it is evident that SBI was the bank with the largest net profit in the year 2013, and it decreased in the year 2014 to 10891.17 crore rupees, and then it increased to 13101.57 crores in the following year. After that, profits kept decreasing till the year 2017. However, in the year 2017, SBI suffered a net loss of Rs. -6547 crores, which was a very bad position. Nonetheless, in 2019, SBI began to make a profit again, with a net profit of Rs. 862.23 crores. The same scenario played out with Punjab National Bank, ICICI Bank, and Axis Bank. It was for the very first time in 2016 when Punjab National Bank booked its first loss of Rs. -3974.14 crores, Subsequently the net profit of the other three banks also started decreasing.

In addition, in the year 2018 State Bank of India, the largest public bank in India suffered a loss of Rs. -6547.45 crore and Punjab National Bank continues to be suffered from a net loss of Rs. -12282.82 crores, and -9975.49 crores respectively in the following years. on the other hand, private sector banks somehow managed to make profits, yet none of the banks managed to increase the net profit except for Axis bank, as seen in Chart 5.1 The net profitability of a bank depends on the gross NPAs of the banks and the recovery of the loans advanced by the banks. From Chart 5.2, it has been seen that SBI disbursed the maximum loans since then. In 2018, SBI disbursed a total of Rs. 1952426.3 crores, out of which a net total of 223427.46 crores resulted as NPA, which was doubled from the year 2017, due to which State Bank of India suffered a net loss of Rs. -6547.45 crores, in the following years it started improving its Net profits, which became Rs. 20410.47 crore in the year 2021. Similarly, the data of ICICI Bank, as of 2021 shows that it has loans advanced of Rs. 772238.36 crores out of which around Rs. 40841.42 crore was reported as gross NPA, which is almost 3.42 % of the total loans advanced by the bank, also in the same year, ICICI made a net profit of around Rs. 16192.68 crores. From the data of PNB, it has been observed that in the year 2012, the gross NPA of the bank was almost doubled to Rs. 8719.62 crore from the gross NPA of the year 2011. Similarly, the gross NPA ratio increased from 1.79% to 2.93% in 2012 and hasn't decreased in any of the following years till 2018, and amounted to a 200% increase each year, leading to a gross NPA of

Rs. 86,620.05 crores in the year 2018 with a loss of Rs. -12282.82. Axis Bank is one of the most prominent private sector banks in India, besides that the situation here is not very positive, as its net profit had been increasing till the year 2016.

In 2016, Axis Bank made a net profit of Rs. 8223.66 crore, but in the following year, it fell to Rs. 3679.28 crore in 2017, NPA hit Axis Bank too hard, and its profits came down too low to Rs. 275.68 crore with a Gross NPA ratio of 6.79%. In 2018, Axis Bank had a gross NPA of Rs. 6087.51 crore rupees in 2016, which rose 4 times in the year 2017 and further rose to Rs. 30233.82 crore in 2020, but in the following year it came down to Rs. 25314.84 crore which is a positive sign for the bank's asset quality. From the above data, it is evident that Axis Bank had been very efficient in managing NPAs in the starting, but later in the year 2017, the percentage of NPA to Loans advanced was 5.21% which rose to 6.77% in the year 2018. In this scenario, Punjab National Bank has the worst NPA management as the percentage of NPA to the loans advanced was high at the beginning of the study period i.e 2002 after there has been a decrease in Gross NPAs from the year 2008 to 2011. From the year 2012 PNB's Gross NPA ratio starts increasing rapidly, which comes to 18.38% of total loan advanced in the year 2018. ICICI bank has also failed to manage their NPA accounts as their NPA percentage of the loans advanced was 9.9% in the year 2018, while SBI's was 10.91%, which fell to 7.53 %, 6.15%, and 4.98 % respectively for the subsequent years. The same scenario has been followed by other banks, except for PNB. Punjab National Bank is still struggling with the problem of increasing NPAs. Its gross NPA ratio stood at 14.21%, and 14.12% in the years 2020 and 2021, respectively, which is a very bad ratio in comparison to other peer banks.

This increasing percentage of NPA to the loans advanced is very dangerous as it is affecting the profitability of the banks and further reducing the interest rates on deposit accounts. This needs to be controlled or the bank's lending power may also be affected by this increasing trend of NPA.

Conclusions

The banking industry in India has been hampered by a large number of non-performing assets. It has a direct impact on the whole economy, not just on the banking industry. There has been an upward trend in the proportion of non-performing assets (NPAs) to total loans at both private and public sector banks. As with public sector banks, private banks are unable to reduce this ratio, although they're still better at controlling their NPAs than their public sector counterparts. In 2010, gross non-performing assets (NPAs) as a percentage of total loans given by Axis Bank, ICICI Bank, Punjab National Bank, and SBI were 1.25 percent, 5.06 percent, 1.71

percent, and 3.05 percent, respectively. These percentages will rise to 4.52 percent, 1.94 percent, 14.21 percent, and 6.15 percent in 2020, respectively. In terms of managing non-performing assets (NPAs), Punjab National Bank is the worst performer when compared to the State Bank of India, ICICI Bank, and Axis Bank. However, evidence shows that private sector banks, even though not effectively, at least better manage their NPAs than public sector banks. Unlike public sector banks, private banks have been able to generate profits despite the rise in NPAs, despite public sector banks, which have lost billions of rupees.

To put it another way, non-performing assets have a direct and significant impact on bank profitability because the bank's income is often derived from interest earned on the number of loans granted. According to the findings of this study, non-performing assets (NPAs) are more prevalent in public sector banks. Although banks may not be able to achieve zero NPAs, the escalating NPAs must be reduced to resuscitate the banking industry and promote the Indian economy. A fast recovery mechanism will be required by banks to combat this issue. Central banks should modify and reinforce their present loan recovery processes while also introducing new ones. All banks, notably public sector banks, should pay special attention to credit evaluation and monitoring systems, which are two of the most critical procedures. Personal visits may also be conducted to remind defaulters of their obligation to repay their loans. Laws such as the SARFAESI Act and the Bankruptcy & Insolvency Code, introduced by the government, have previously been passed to help banks recover their NPAs.

The government must now implement strict rules to ensure that all defaulters pay back their NPAs. The present study found that NPA isn't an issue for small borrowers; it's an issue for those who owe significant sums of money. As the Indian economy continues to grow at the fastest rate among the world's major economies, this problem of NPA must be resolved quickly or it will have a negative impact on the bank's profitability, which is not good for the country's overall well-being.

References

1. Agarwala, V., Agarwala, N. (2019). A critical review of non-performing assets in the Indian banking industry. *Rajagiri Management Journal*. 13(2). Pg. 12–23. <https://doi.org/10.1108/ramj-08-2019-0010>
2. Bawa, J. K., Goyal, V., Mitra, S. K., Basu, S. (2019). An analysis of NPAs of Indian banks: Using a comprehensive framework of 31 financial ratios. *IIMB Management Review*. 31(1). Pg. 51–62. <https://doi.org/10.1016/j.iimb.2018.08.004>

3. Bhattacharyya, A., Lovell, C. A. K., Sahay, P. (1997). The impact of liberalization on the productive efficiency of Indian commercial banks. *European Journal of Operational Research*. 98(2). Pg. 332–345. [https://doi.org/10.1016/S0377-2217\(96\)00351-7](https://doi.org/10.1016/S0377-2217(96)00351-7)
4. Dawar, G., Goyal, S. (2012). Ownership Structure & Risk in Indian Banks: a Comparison of Private and Public Banks. *International Journal of Management & Information Technology*. 1(1). Pg. 7–12. <https://doi.org/10.24297/ijmit.v1i1.145>
5. Ehsan, S., Javid, A. Y. (2018). Bank ownership structure, regulations and risk-taking: evidence from commercial banks in Pakistan. *Portuguese Economic Journal*. 17(3). Pg. 185–209. <https://doi.org/10.1007/s10258-018-0147-3>
6. Fujii, H., Managi, S., Matousek, R. (2014). Indian bank efficiency and productivity changes with undesirable outputs: A disaggregated approach. *Journal of Banking and Finance*. 38(1). Pg. 41–50. <https://doi.org/10.1016/j.jbankfin.2013.09.022>
7. Gaur, D., Mohapatra, D. R. (2020). The nexus of economic growth, priority sector lending and non-performing assets: case of Indian banking sector. *South Asian Journal of Business Studies*. <https://doi.org/10.1108/SAJBS-01-2020-0010>
8. Gupta, C. R. (2014). An Analysis of Indian Public Sector Banks Using Camel Approach. *IOSR Journal of Business and Management*. 16(1). Pg. 94–102. <https://doi.org/10.9790/487x-161494102>
9. Ibrahim, M. S. (2019). Trend of Non-performing Assets (NPAS) of Indian Commercial Banks-An Analysis. *International Journal of Advances in Management and Economics*. 8(5). Pg. 01–07. <https://doi.org/10.31270/ijame/v08/i05/2019/1>
10. Joseph, L, A., Prakash, M. (2014). A Study on Analyzing the Trend of NPA Level in Private Sector Banks and Public Sector Banks. *International Journal of Scientific and Research Publications*. 4(7). Pg. 1–9.
11. Kapoor, B., Kumar, R. (2019). A Study of Non Performing Assets of Public Sector Banks in India. *IME Journal*. 13(2). Pg. 106. <https://doi.org/10.5958/2582-1245.2019.00002.2>
12. Mishra, A. K., Jain, S., Abid, M. (2020). Non-performing assets and its determinants in the Indian banking system: An empirical analysis using dynamic panel data models. *International Journal of Finance and Economics*. 1. Pg. 1–15. <https://doi.org/10.1002/ijfe.2102>

13. Ray, S. C., Das, A. (2010). Distribution of cost and profit efficiency: Evidence from Indian banking. *European Journal of Operational Research*. 201(1). Pg. **297–307**. <https://doi.org/10.1016/j.ejor.2009.02.030>
14. Senthil Arasu, B., Sridevi, P., Nageswari, P., Ramya, R. (2019). A Study on Analysis of Non-Performing Assets and its Impact on Profitability. *International Journal of Scientific Research in Multidisciplinary Studies*. 5(6). Pg. **1–10**. www.moneycontrol.com.
15. Shanmugam, K. R., Das, A. (2004). Efficiency of Indian commercial banks during the reform period. *Applied Financial Economics*. 14(9). Pg. **681–686**. <https://doi.org/10.1080/0960310042000233458>
16. <https://dbie.rbi.org.in>
17. <https://www.rbi.org.in>