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Asset Quality Divergence between Public and Private sector banks - Evidence from sample based Study (2008–2020)

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Abstract

Asset quality of the two dominant banking groups, public and private sector banks in India, is an important parameter to judge and enhance their financial performance and hence the financial stability of the economy. Public sector banks(PSBs) have richly contributed to the growth of priority sectors and promotion of financial inclusion. Private sector banks(PvSBs) have provided the much needed support for industrial and infrastructural growth while enhancing competitiveness in the banking sector. The paper underscores the sharp deterioration in the asset quality of Indian banks during 2008 and 2020 especially after 2015 when the Asset Quality Review (AQR) initiated by RBI led to a spike in the reported Gross Non Performing Assets(GNPA) of banks paving the way for a slew of reforms. The ratio of GNPA to gross advances surged from 2.2 percent in 2008 to 10.3 percent in 2020 for PSBs, it rose from 2.5 percent to 5.5 percent for PvSBs in the same period.
The paper aims to explore these trends, analyse the GNPA ratio of a sample of public and private sector banks and examine divergence in asset quality among the sample banks of the two groups and between the groups. Based on one way ANOVA, the study finds significant variation in the performance across the banks. The study may be beneficial in highlighting the challenges faced by the sample banks and taking corrective action.

Keywords: Asset quality, trends, public sector banks, private sector banks, significant, variation.

1.1 Introduction

The India's commercial banking sector, lifeline of the nation's economy comprises of a unique structure encompassing public, private, foreign, regional-rural, small finance and payment banks propelling economic growth. Their role has been evolving over the decades while adopting digital innovation, structural reforms, and changing customer needs with special focus on mobilising capital, expanding credit and driving financial inclusion. While public sector banks (PSBs) historically dominated the deposit and credit business, driven by a social mandate and wide network, the liberalization policies of the 1990s ushered in new private sector banks (PvSBs) paving the way for higher growth and efficiency in the system. Of the 12 Public sector 21 private sector and 45 foreign banks, 12 small finance banks, 43 Regional Rural Banks as of March 2024, the share of PSBs in the consolidated balance sheet of SCBs is maximum at 55.2 percent as at end of March 2024 followed by PvSBs at 37.5

percent. Together accounting for 92.7 percent of the SCBs balance sheet, public and private sector banks remain the main players of the banking system.

Maintaining the health of the banking sector by strengthening its capital, risk mitigation, efficiency, corporate governance and compliance function is paramount for a robust financial system as well as for a smooth credit flow for economic growth. Asset quality measured by gross non performing assets and net non performing assets are key indicators which need to be monitored to meet the above objectives and the variable has been widely researched. Gross NPA are the sum total of all loan assets that are classified as sub-standard, doubtful and loss assets as per the balance sheet. Net NPA refers to the amount of gross NPA net of provisions for NPA reflecting on the credit quality of loans disbursed. With the birth of prudential norms Gross NPA of banks had risen significantly during the initial years of 1990s. Gross NPA of SCBs at 19.1 per cent in 1994 fell during the period of structural reforms, with average NPA ratio of SCBs identified at 12.8 per cent during 1997-2001 falling to 2.2 percent in 2008 climbing up post that. Post crisis, recession in some sectors especially industrial segments such as power, metal, real estate, cement, textiles etc. started adding to the stress of banks balance sheet. As macro-economic headwinds and internal factors were weakening their asset quality banks, a need for transparent disclosure led to the asset quality review (AQR) undertaken by RBI in 2015 exposing the true asset quality of banks by mandatory recognition of NPAs reclassifying previously restructured loans as NPAs. This was a part of the 4R strategy including recognition, resolution, recapitalization and reforms of the financial system.

As a result the gross NPAs shot up from 56, 500 crores in 2007-08 to 6,11, 609 cr in 2015-16 and further to 10,36,187 in 2017-18(table 1) significantly eroding the profitability of scheduled commercial banks. In fact their return on assets declined from 1.12% in 2007-08 to -0.15% in 2017-18 and return on equity from 16% to -2.8% during 2007-08 and 2017-18. The net NPAs surged from 24,730 cr in 2007-08 to 3,49,814 cr in 2015-16 and to 8,95,601 in 2017-18. Notably, in just the three-year period from 2016 to 2018 an additional ₹6.2 lakh crore was added to the Gross NPAs, underscoring the severity of asset quality deterioration during these years. With gross advances of banks growing at a CAGR of 11.7% over 2007-2023, the gross non-performing assets to the gross advances ratio (GNPA) increased from 2.2 % in 2007-08 to 11.2% in 2017-18 but fell to 3.9 per cent by March 2023 due to aggressive NPA recognition and recovery.

The asset quality of PSBs started weakening post 2010 when its GNPA ratio overtook private sector banks' increasing at a rate higher than that of PvSBs. The CAGR in gross NPA of PSBs was higher at 29% compared to 22% for PvSBs during 2008-2020 and contributed to 75 percent to total NPAs.

Table 1: Volume of NPAs (Rs. Crore)

Year	All SCBs		Public sector banks		Private sector Banks	
(end March)	Gross NPAs	Net NPAs	Gross NPAs	N et NPAs	Gross NPAs	N et NPAs
2007-08	56500	24730	40500	17836	13000	6387
2008-09	69300	31564	45000	21155	17000	8571
2009-10	84700	39127	59900	29643	17600	7777
2010-11	97900	41799	74700	36055	18200	5332

2011-12	142000	65205	117300	59391	18500	5701
2012-13	193200	98693	164500	90037	20800	7994
2013-14	263021	142656	227264	130635	24190	8862
2014-15	322926	175841	278468	159951	33700	14128
2015-16	611609	349814	539956	320376	55853	26677
2016-17	790268	433121	684732	383089	91915	47780
2017-18	1036187	520838	895601	454473	125863	64380
2018-19	933609	355076	739541	285123	180872	67309
2019-20	896082	289531	678317	230918	205848	55746

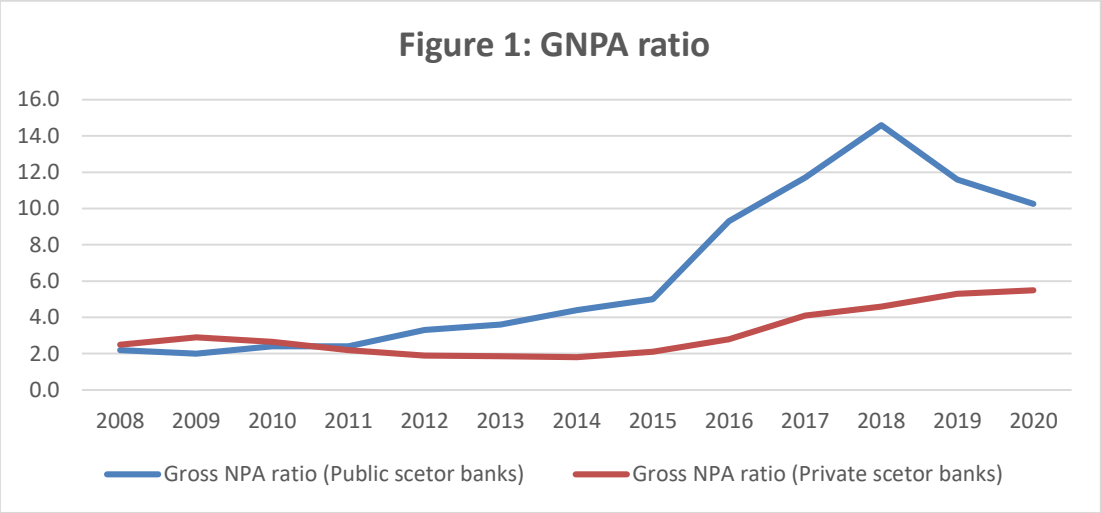
Source: Statistical tables relating to banks in India(RBI)

Gross NPAs of Public Sector Banks (PSBs) shot up from ₹40,500 crore in 2008 to ₹6.78 lakh crore in 2020, reflecting an alarming 16.7 times increase over the period. Between 2009 and 2018, Gross NPAs of PSBs increased at an average annual rate of ₹0.86 lakh crore. However, this trend reversed during 2018–2020, with average annual reductions amounting to ₹1.08 lakh crore. Their GNPA ratio surged from 2.2% in 2008 to 10.3% in 2020 and from 2.5% in 2008 to a peak of 5.5% in 2020 for PSB and PvSBs respectively (figure 1). Gross NPAs of PvSBs surged from ₹0.13 lakh crore in 2008 to ₹2.05 lakh crore in 2020—increasing by a multiple of more than sixteen. On average, they grew by ₹0.16 lakh crore annually, with the highest annual surge of ₹5.5 lakh crore recorded in 2017–18. There were however banks with much asset quality poorer within the two groups hence a sample study is undertaken to compare the difference in GNPA ratio among the sample selected on the basis of high gross NPAs from the existing banks during 2008-2020.

RBI took numerous measures such as the revised prompt corrective action (PCA) framework in 2017 imposed on 12 banks and restrictions on lending, dividend-distribution, and branch expansion, apart from requirement of higher provisions gross NPAs fell significantly to 5,71,546 cr and net NPAs to 1,35,333cr in 2022-23. Insolvency and Bankruptcy Code (IBC) was implemented with a focus on time-bound resolution and creditor-centric approach. Project Sashakt (July 2018) aimed at accelerating the resolution of large assets in public sector banks with its five-pronged strategy strengthening its credit discipline and recovery of bad loans within a deadline. To improve the performance and efficiency of PSBs, EASE (Enhanced Access and Service Excellence) was launched in 2018 having prudent lending and stressed assets management as one of its objectives. EASE aims to introduce new-age reforms in PSBs to improve asset quality, profitability, customer service and digital lending. PSBs were monitored for adherence to risk-based pricing and data -driven risk-scoring mechanism for critical appraisal of high value loans. The slippage ratio (fresh accretion of NPAs to total standard assets) was arrested by setting up dedicated units for prevention and recovery in large value loans.

Substantial recapitalisation of US $42 billion was also undertaken by the government during 2017-2022 to support banks in this period. Consolidation of banks were undertaken resulting in reducing 27 public sector banks in March 2017 to12 public sector banks in 2020. Indradhanush scheme aimed at revamping PSBs by way of capital infusion and governance reforms to gradually strengthen their balance sheet.

The paper aims to analyze the NPAs of a sample of public and private sector banks and also examine significant difference(if any) in their asset quality, as a group and as an entity in their own groups during 2008-2020. The following sections deal with review of literature, methodology, hypotheses, findings and conclusion.



Source- author's calculation based on RBI's data

1.2 Literature Review

The focus on asset quality the banking sector of the economy has ensured that it has received significant academic attention. Analysing the trends of NPAs over 2005-2018, Batra V(2020) finds the average NPAs of public sector banks to be the highest at 5.14%, followed by those of foreign banks (3.20%) and lowest by Private banks at 1.28% with the trend shifting upwards after 2010 spiking in 2016. The study also reports a significant difference in NPAs of public sector banks compared to private banks. The new generation private sector banks changed the banking space in India introducing online banking and varied financial services. Measuring the performance of the new generation private banks in India using the CAMEL model approach during 2015-19, Biswas S(2020) ranked Bandhan Bank as the most efficient, followed by HDFC Bank while IDBI Bank was placed last. The banks had a mean NNPA ratio of 1.37% and return on net worth of 9.17%.

Asset quality of banks may affect the technical efficiency of banks, hence Dar A (2021) examined this employing data envelopment analysis(DEA), Malmquist productivity index and stochastic frontier analysis(SFA)in the banking sector for the period 2014–2020. A significant and negative impact of NPAs on the constant returns to scale (CRS) efficiency scores was reported. Private sector banks were found to have higher mean and median scale efficiency as compared to the public sector counterparts and their mean CRS efficiency score was higher by 8%. The average technical efficiency of public sector banks over the analysis period stood at 0.836 while private sector banks fared better with the score of 0.912. SFA scores obtained from considering log of investments shows that the technical efficiency scores of the banks in India fell from 0.96 to 0.89 over the period 2014–2017 and then after 2018 it started rising. On similar lines, Mukta M(2016)in a sample study found PvSBs to be operating at higher level of efficiency compared with PSBs during 2009-2010 and 2012-2013. The study advocates higher focus on quality loans to maximise its efficiency. Bank of Maharashtra, Central Bank of India, Indian Overseas Bank and Dena Bank among PSBs and Development Credit Bank, IndusInd Bank, Punjab and Sind Bank and Catholic Syrian Bank among PvSBs were found to be the most inefficient banks.

Reporting the trend of NPAs in selected Public & Private Sector banks namely SBI, PNB, ICICI and HDFC Bank during 2011-18, Chander K(2019) finds the highest GNPA ratio of

PNB at 18.38% to be the highest in 2017-18 with also the highest mean while HDFC bank had the lowest mean GNPA. It also reported significant difference in both GNPA as well as NNPA (GNPA net of provisions) ratio between selected Public and Private Sector Banks. Taking a sample of three public and private sector banks, Javheri (2022) reports that HDFC Bank had the lowest GNPA ratio during 2011-2020 while SBI had the lowest since 2016 and Bank of Baroda before 2016 among the public sector banks. NPAs of ICICI Bank and PNB were higher than their counterparts and significant difference was identified between the GNPA ratios of public and private sector banks. In a sample study conducted by Ghosh D(2022) taking five public and private sector banks, SBI and Bank of Baroda were found to have negative correlation of above 0.8 between Net NPA and profitability.

Comparing the asset portfolios of public and private sector banking groups in India, Chary(2021) identify a significant difference in their standard assets, sub-standard assets as wells as doubtful assets as a percentage of their total advances. However no significant difference existed in loss assets as a percentage of advances of both types of banks. The study concludes that the performance of private sector banks group is comparatively better than that of public sector banks as regards maintaining lower levels of NPAs and making adequate provisions.

Examining the financial implications of slippage, provisioning and write-offs on the profitability of three groups of Scheduled Commercial Banks (SCBs), from 2007-08 to 2018-19, Gowda(2021) find the highest negative correlation between Standard assets ratio and slippage ratio in the case of PSBs. The study also indicates very high positive correlation between GNPAs and provisioning for PSBs and PVSBs. Very high negative correlation between fresh accretion to NPAs and the amount of profit as well as between provisioning and profit was found for PSBs. The CAGR of ROE was negative in all cases and was negatively related to slippage ratio in case pf PSBs.

The Covid 19 pandemic while adversely affecting the growth of the economy significantly reduced the financial stability too. For a sample of private and public banks, Vijayalakshmi P(2022) conduct a study during 2016-20 finding higher NPAs as well as standard deviations of NPAs among PSBs. SBI and ICICI bank had the poorest asset quality among the public and private sector banks respectively.

1.3 Research methodology

The study is based on gross NPA as a percent of gross of five selected public and private sector banks, collected from Report on Trends and Progress of Banking in India given in its various issues and compiled. The study covers annual data of asset quality using GNPA ratio as indicators during the post financial crisis period of 2008 to 2020. The period under this sample study is considered till 2020 since the onset of the pandemic impacted the performance of banks for a short period and could introduce distortions. The sample consists of ten banks—five PSBs, namely, State Bank of India (SBI), Bank of Baroda (BOB) and Punjab National Bank (PNB), Bank of India, Canara Bank and five private sector banks, namely, HDFC Bank, Kotak Mahindra Bank and ICICI Bank, Indusind Bank and Axis Bank with high NPAs (figure 2 and 3).

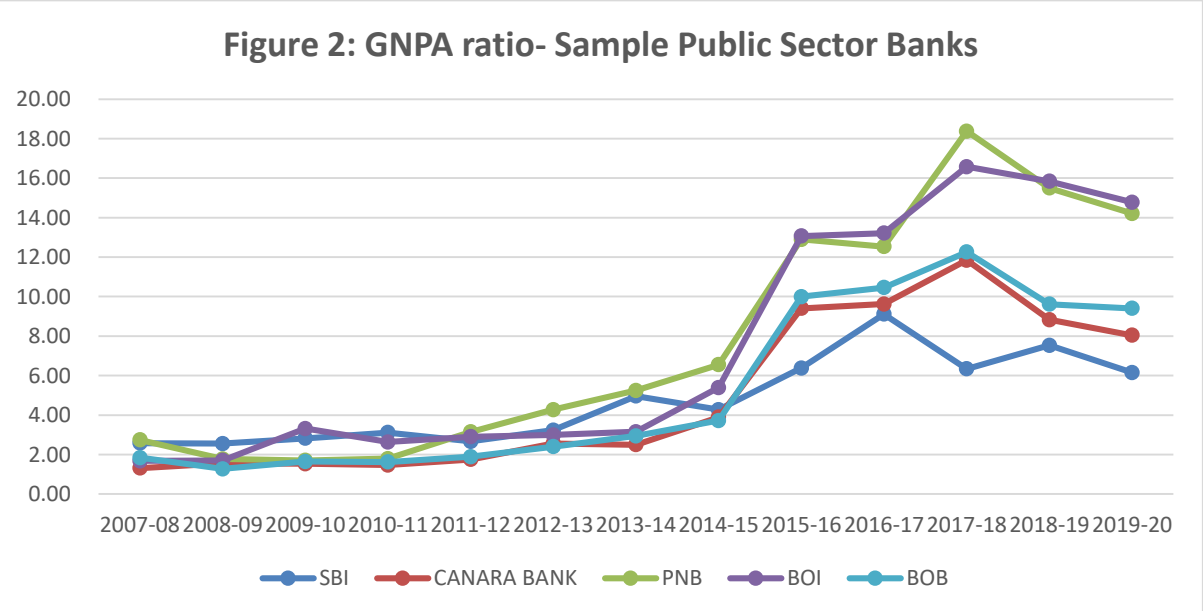
Comparative analysis has been done using mean, standard deviation and growth rates. To ascertain whether there is any significant difference among the mean GNPA ratios of the selected public and private sector banks as two groups as well as among all ten selected banks, one-Way ANOVA (Analysis of Variance) has been employed to compare the means of more than two or more samples assuming the confidence interval of 95%. T test assuming unequal variances has also been used to ascertain whether there is any significant difference between the mean GNPA ratios of the sample public and private sector banks. Based on the objectives following hypothesis are created and examined.

1.4 Hypothesis

H 01:: There is no significant difference in the mean GNPA ratios among the sample public sector banks.
H 02: There is no significant difference in the mean GNPA ratios among the sample private public sector banks.
H 03: There is no significant difference among the sample PSBs and PvSBs with respect to mean GNPA ratio as an indicator Asset Quality.
H 04: There is no significant difference between the mean GNPA ratios of the sample PSBs and PvSBs.

1.5 Results and Discussions

Among the five public sector banks SBI, Canara Bank, PNB, BOI, BOB have been selected for analysis**,** PNB bank had highest mean GNPA ratio of 7.75% followed by Bank of India(7.48%). Both the banks suffered highest deterioration in asset quality and recorded GNPA ratio of 18.38 and 16.58 respectively during 2017-18 above the average of 13 percent for the 5 banks. The average GNPA ratio of the five banks increased from 2 percent in 2008 to a max of 13 percent in 2017-18 reducing to 6 percent in 2019-20. Standard deviation of both these banks was much greater than others within the sample. One way Anova was conducted to determine if there are statistically significant differences among the GNPA ratios of these public sector banks.



Source: Statistical tables relating to banks in India(RBI)

Table 2: Anova results for GNPA ratio of sample PSBs

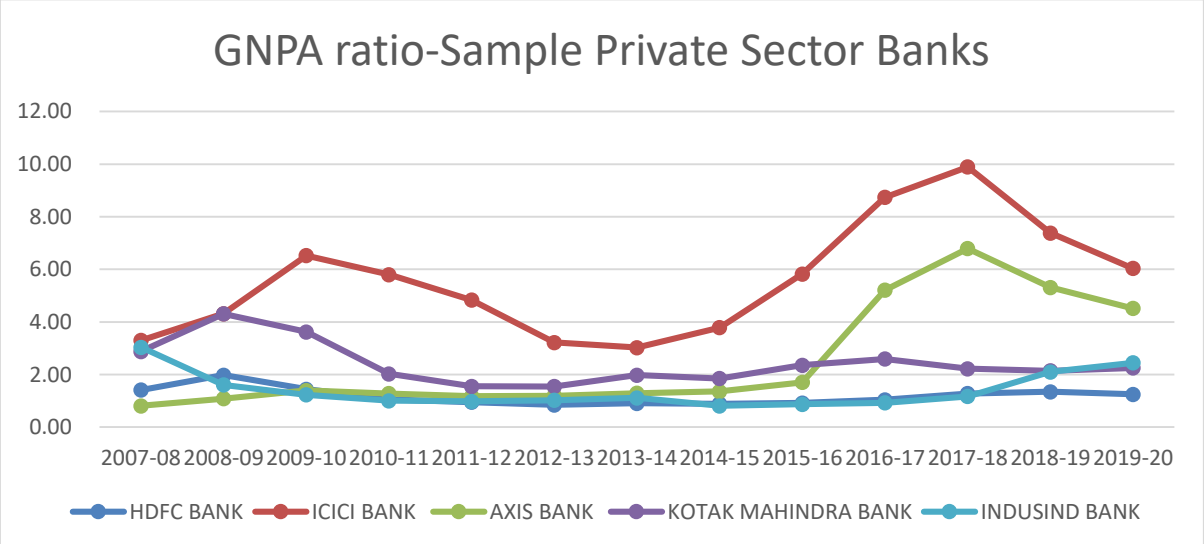
Variance	SS	dof	MS	F	P-value	F(critic)
Groups(between)	109.18	4	27.29	1.22	0.31	2.53
Groups(within)	1337.709	60	22.29			
Total	1446.89	64				

:Source: Author's computation

According to the results of Anova F value is 1.22 (lesser than F crit 2.53) and p value of 0.31 is greater than 0.05, we fail to reject the null hypothesis(table 2). Thus, the null hypothesis is accepted based on this evidence to say that at 5 percent confidence level that there is statistically no significant difference in mean GNPA ratios of the sample PSBs during 2008-2020.

Among the five private sector banks in the sample ICICI bank had highest mean GNPA ratio of 5.59% followed by Axis bank of 2.55%. Both the banks suffered highest deterioration in asset quality and recorded GNPA ratio of 9.9 and 6.8 respectively during 2017-18 above the average of 4.3 percent. In comparison with the 5 sample public sector banks the average GNPA of public sector banks was more than 2.3 times of private sector banks. The average GNPA ratio of the selected banks increased from 2.3 percent in 2008 to a maximum of 4.3percent in 2017-18 reducing to 3.3 percent in 2019-20. The trend is similar to the sample banks of public sector banks. Standard deviation of ICICI bank and Axis bank was also much greater than others within the sample.

Figure 3



Source: Statistical tables relating to banks in India(RBI)

Table 3: Anova results for GNPA ratio of sample PvSBs

Variance	SS	dof	MS	F	P-value	F(critic)
Groups(between)	161.28	4	40.32	19.75	0.00	2.53
Groups(within)	122.47	60	2.04			
Total	283.75	64				

Source: Author's computation

The results show that F value of 19.75 is greater than F crit 2.52 and P value is lesser than 0.05(table 3) so we reject the null hypothesis. Thus there is statistically significant difference in mean GNPA ratios of the sample private sector banks during 2008-2020.

The mean GNPA ratio of the selected banks of PSBs and PvSBs varies between 1.2 percent to 7.8 percent(table 4) with PNB and BOI having the highest mean GNPA ratio and HDFC Bank and IndusInd Bank with the lowest. While the former belonged to PSBs the latter belong to PvSBs and had lower variance. One way Anova was conducted to determine if there is statistically significant difference in the mean GNPA ratio among the selected banks of the two groups.

Table 4: Anova results for GNPA ratio of sample PSBs and PvSBs.

Groups	Count	Sum	Average	Variance
SBI	13	61.7	4.7	4.7
CANARA BANK	13	64.3	4.9	15.4
PUNJAB NATIONAL BANK	13	100.8	7.8	36.5
BANK OF INDIA	13	97.3	7.5	36.8
BANK OF BARODA	13	69.0	5.3	18.0
HDFC BANK LTD.	13	15.3	1.2	0.1
ICICI BANK LIMITED	13	72.7	5.6	4.6
AXIS BANK LIMITED	13	33.1	2.5	4.3
KOTAK MAHINDRA BANK LTD.	13	31.4	2.4	0.6
INDUSIND BANK LTD	13	18.4	1.4	0.5

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	650.57	9.00	72.29	5.94	0.00	1.96
Within Groups	1460.18	120.00	12.17			
Total	2110.75	129.00				

Source: Author's computation

The results show that F value of 5.94 is greater than F crit 1.96 and P value is lesser than 0.05 so we reject the null hypothesis. Thus there is statistically significant difference in mean GNPA ratios of the sample public and private sector banks during 2008-2020.

PSBs as a group had higher mean GNPA ratio of 6.3% compared to 3.08% reported by PvSBs during 2008-2020. The mean GNPA ratio of the sample PSBs(6.05) was also higher than the sample PvSBs(2.63). Until 2010–11, the average Gross Non-Performing Assets (GNPA) ratio of selected PSBs was lower than that of private sector banks. However, from 2011 onwards, PSBs began to exhibit a higher GNPA ratio compared to their private sector counterparts, a trend that persisted through 2020. The divergence was significantly high 2015-18(table 5). To test whether there is any significant difference between the mean GNPA ratio of selected public sector and private sector banks, t- test assuming unequal variance was conducted.

Table 5: Mean GNPA ratios of sample PSBs and PvSBs

GNPA ratio	PSB	PvSB
2007-08	2.03	2.29
2008-09	1.77	2.66
2009-10	2.20	2.84
2010-11	2.13	2.24
2011-12	2.47	1.90
2012-13	3.09	1.57
2013-14	3.76	1.66
2014-15	4.77	1.74
2015-16	10.35	2.34
2016-17	10.99	3.70
2017-18	13.08	4.27
2018-19	11.46	3.66
2019-20	10.52	3.30

Table 6: Result of T-Test: Two Sample for Means

	PSBs	PvSBs
Mean	6.05	2.63
Variance	19.55	0.76
Observations	13.00	13.00
Pearson Correlation	0.76	
Hypothesized Mean Difference	0.00	
df	12.00	
t Stat	3.24	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.78	
P(T<=t) two-tail	0.01	
t Critical two-tail	2.18	

Source: Author's computation

Results of the t test indicate that the mean of the selected PSBs are 2.3 times that of PvSBs with a higher variance level(table 6). The p-value of one-tailed and two-tailed tests both are lower than 0.05 and prove that there is significant difference between the mean GNPA ratios of sample PSBs and PvSBs.

1.6 Conclusion

The paper underscores the sharp deterioration in the asset quality of Indian banks, particularly PSBs between 2008 and 2018 driven mainly by aggressive lending and delayed recognition of stressed assets. Increase in GNPA from 56,500 cr in 2007-08 to 10,36,187 cr in 2017-18, an alarming increase of 1734 percent caused a great deal of concern for financial stability and future credit growth . The Asset Quality Review (AQR) initiated by RBI in 2015 intended to surface hidden NPAs and accelerated the pace of widespread reforms to clean up the balance sheets of banks. While gross NPAs of PSBs increased at an average annual rate of ₹0.86 lakh crore, for PvSBs at a rate much lower by ₹0.16 lakh crore annually during 2009-18. Compound annual growth rate of gross NPA of public sector banks stood higher at 29% compared to 22% for private sector banks during 2008-2020. In 2017-18 out of the top 20 banks with highest gross NPAs, 18 were PSBs and only two were private sector banks.

Reforms involving timely recognition and resolution of bad loans, improving financial strength, operational efficiency and governance of especially PSBs which witnessed steeper rise in GNPA compared to private sector banks reversed this trend. Strategic measures such as strengthening credit management and diversified lending to prevent slippages, maintaining high provisioning to absorb potential losses and enhancing corporate governance in PSBs is recommended. Expediting recovery through Insolvency and bankruptcy code 2016 and rigorous implementation of RBI guidelines will go a long way for effective resolution of stressed assets. Given the heterogeneity in private bank asset quality, mandate sharing of successful risk management practices from top-performing private banks and bank-specific corrective action will aid in improving asset quality.

Comparative variation of asset quality using ANOVA tests provides critical insights into the asset quality trends across the major segments of the Indian banking sector during 2008–2020. The results reveal that no statistically significant difference exists in GNPA ratios among the sample public sector banks. This suggests that public banks, despite rising NPAs during the period, shared broadly similar asset quality performance. In contrast, private sector banks (PvSBs) show a statistically significant difference in asset quality indicating more heterogeneity in asset quality performance among the sample private banks indicating existence of varying risk management practices among them. Furthermore, when comparing the sample of public and private sector banks together, the ANOVA test again shows significant differences reinforcing the structural disparity among the banks. Overall, the findings emphasize that while PSBs moved somewhat uniformly in terms of stressed assets, private banks displayed diverse experiences. The asset quality of public sector banks was found to be much lower than that of their private counterparts. Results of t test suggest significant difference between the mean GNPA ratios of public and private sector banks based on the sample as the asset quality. This reinforces the need for taking necessary action to accelerate the resolution mechanism and implement robust risk management practices.

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