A study of Credit Risk Management of selected Private Sector Banks of India

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The primary source of income for banks is credit interest earned by them. In the present situation, the Non-Performing Asset of Public Sector banks are significant obstacles for the Indian government, and the government needs to siphon additional funds time and again to run public sector banks; simultaneously, private sector banks are doing great with movement towards secured advances. However, gross NPAs are increasing in private-sector banks. Therefore, studying the credit risk management used by private sector banks is necessary. This study will help us find the causes of profit in private sector banks and examine bank's financial future based on bank's methodology to manage credit risk.

Key words: Private Sector Banks, Credit Risk Management, Non-Performing Assets, HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, South Indian Bank, Karnataka Bank, Laxmi Vilas Bank

1. Introduction

Banks are the main lifeline of the Indian Economy, but out of 21 Public Sector Banks, more than 50 % are running in losses due to increasing non-performing assets; to improve Public Sector Banks condition government has to pump additional money into Public Sector Banks. At the same time, Private sector banks are doing well, and more than 80% of Private sector banks are in profit in the last decade. All Private Sector Banks generate around 90% of the total profit through credit interest earned. Credit is the primary source of interest income; hence, Credit risk is the most important for any bank, and Credit Risk Management is necessary to examine bank futures.

A few private sector banks like HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank are the oldest private sector banks and have been doing well for a long. These banks are also facing non – performing asset issues like public sector banks in India, but they are managing it well. Therefore, studying the credit risk management of these seven banks is essential to prepare a general credit risk model for all private sector banks.

2. Literature Review

Ray R and Divakaran P (2018) studied on Risk Management in Indian Banking Sector and Role of RBI. The researchers revealed that Private Sector Banks must follow guideline of RBI to reduce NPA with compliance of KYC norms and strengthening retail banking services.

Jain P, Sharma S and Somani R (2017) studied on Retail Credit Risk Management of commercial banks in India with special reference to private sector bank. The researchers found out that default clients are the major problem for Private Sector Banks in India and RBI is providing constant guideline to reduce NPAs.

Adu-Gyamfi M (2016) studied on The Bankruptcy of Lehman Brothers: Causes, Effects and Lessons Learnt. The researcher concluded that the world finest bank Lehman brother was collapsed due to weakness in risk management strategy implementation due to which US economy was almost collapsed in 2008.

Saeed M S and Zahid N (2016) studied on the impact of Credit risk on profitability performance of commercial banks. The researchers found out that out of various risks involve in banks, Credit Risk is the most common and dangerous which have positive associations with Bank profitability means lower Rate of Interest and Higher Credit lending expand Bank profitability.

Research Gap:

Credit Risk Management tools influence a bank's non-performing assets and profitability. However, to date, no research has been done on credit risk management along with credit portfolio analysis of Private Sector Banks, so the researchers attempted to bridge the gap by studying the credit risk management of private sector banks.

3. Research Methodology

Problem Statement:

Based on the discussion above, the research problem identified is "***To study of Credit Risk Management of selected Private Sector Banks of India".***

Objective of the Study:

4. To understand various credit risk related ratio of Private Sector Banks.

5. To analyse Private Sector Banks advances based on security.
6. To explore the evolution in Private Sector Banks credit risk taking.
7. To analyze the movement of non-performing assets of Private Sector Banks.

Research Design:
The researchers have used exploratory type research design to explore insights of the research problem.

Sampling Method:
The researchers have used Quota Sampling Method.

Sampling Unit:
All 22 Private Sector Banks has been considered as sampling unit.

Sample Size:
The researcher has considered 7 Private Sector Banks as mentioned below:

8. HDFC Bank
9. Axis Bank
10. ICICI Bank
11. IndusInd Bank (IB)
12. South Indian Bank (SIB)
13. Karnataka Bank (KB)
14. Laxmi Vilas Bank (LVB)

Data collection:
The researchers have used secondary data i.e. financial statements of Private Sector Banks. The period for the study considered is 10 years from FY (Financial Year) 2008-09 to FY (Financial Year) 2017-18; however, some of the data is available only for four years.

Rationale/Significance of the Study:
This study will provide information regarding credit risk related ratio, advances based on security, the credit risk involved in various credit facilities, the evolution in credit risk-taking, the movement of non-performing assets, and credit risk exposures of Public and Private Sector Banks in comparative manners in comparison to GDP growth. This will provide useful information to all Indian commercial Banks, the RBI, and the Government of India regarding the overall banking scenario in a comparative manner in terms of credit risk.

4. Data Analysis & Interpretation

The data is scrutinized in a descriptive, multi-dimensional approach to highlight several aspects of credit risk management at Private Sector Banks.

Capital Adequacy Ratio:
The Capital Adequacy Ratio, also known as the capital to risk-weighted assets ratio, determines a bank’s financial strength with the help of its capital and assets. It is effective for the financial system's stability and protects depositors.

$$Capital\ Adequacy\ Ratio = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Asset}}$$

Where,
Tier 1 Capital (equity capital): Capital that is able to absorb losses and does not require bank to cease its operations.
Tier 2 Capital: Capital that cushions losses when the company is winding up, due to this it provides less protection to depositors and creditors.
Risk-weighted Assets is the weighted sum of the bank’s credit exposures including appearing and non-appearing on the bank's balance sheet. Risk-weighted Assets are measured using the Basel Committee guidance for assets of each credit rating slab.

The capital Adequacy Ratio permits security and diminishes the dangers of the investors. The banks must pursue a few rules known as the Basel Committee's direction. As per Basel III rules, 11.5% is the base acknowledged Capital Adequacy Ratio.

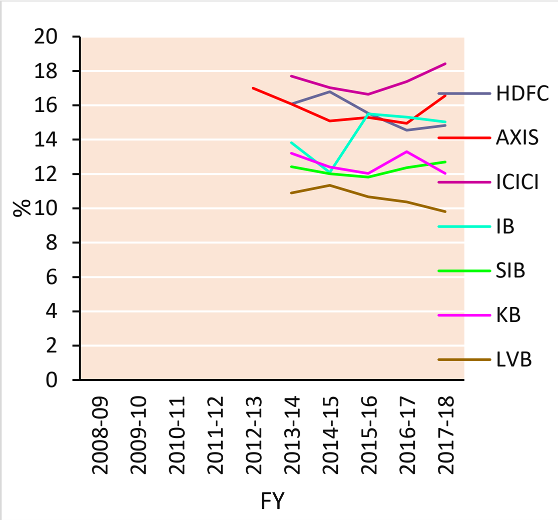

Figure 1 *Capital Adequacy Ratio (Basel III)*

Figure 1 shows that Capital Adequacy Ratio in Private Sector Banks is more significant than 11.5% to satisfy Basel III standards, except low in Laxmi Vilas Bank.

Provision Coverage Ratio:

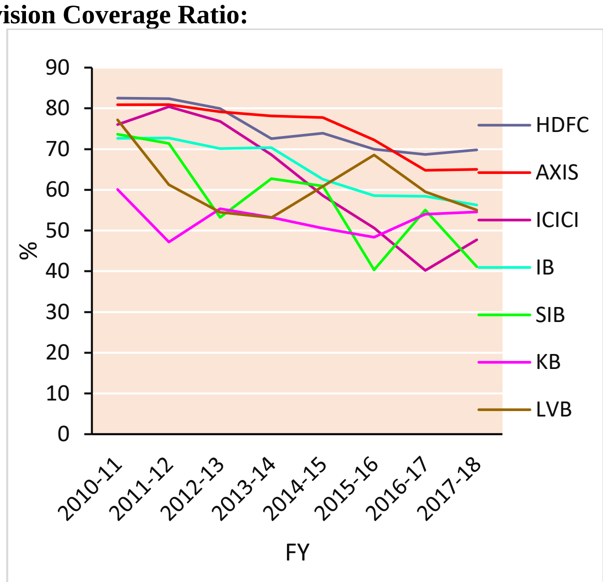

Figure 2 *Provision coverage ratio*

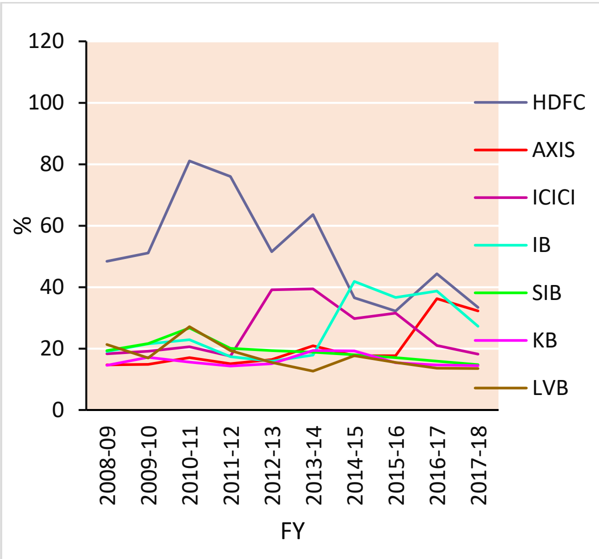

Figure 3 *% of Provision against Income*

The extent of Provisioning to Non-Performing Asset (NPA) is known as the Provision Coverage Ratio. This proportion shows the arrangement of assets the bank needs to keep aside to cover proposed advance misfortunes.

The Banks make the arrangement based on IRAC standards, i.e., Income Recognition and Asset Classification. The pay produced during the financial year (FY) is considered for the Provisioning of advance. Along these lines, the expansion in the arrangement for the advances is directly connected with the bank's benefit.

As appeared in Figure 2, the Provision Coverage Ratio is lessened in HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank, around 18.24%, 24.36%, 59.32%, 29.06%, 78.95%, 10.11% and 40.13% independently between FY 2010-11 to FY 2017-18. As shown in Figure 4, % of Provision against income is lessened in HDFC Bank, ICICI Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank, around 44.81%, 0.99%, 31.16%, 1.25%, and 58.22% over-expanded in Axis Bank and IndusInd Bank around 54.43% and 30.18% independently between FY 2008-09 to FY 2017-18. This proposes that Private Sector Banks focus more on regulating credit risk; along these lines, banks have yet to cultivate a more effective game plan against income, and profit isn't impacted.

Advances Based on Security:

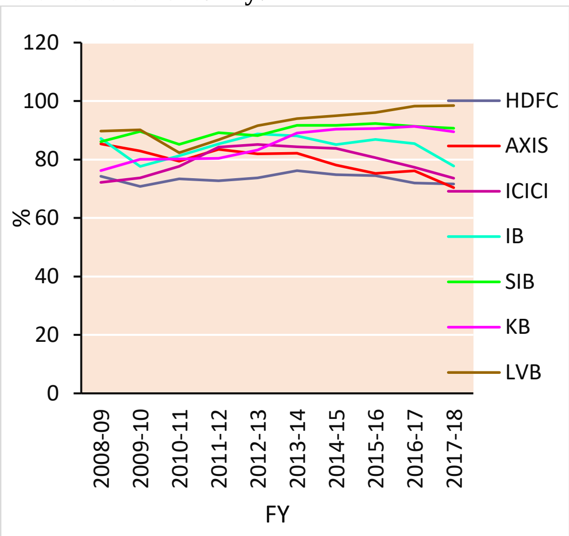

Figure 4 *Advances secured by Tangible Asset*

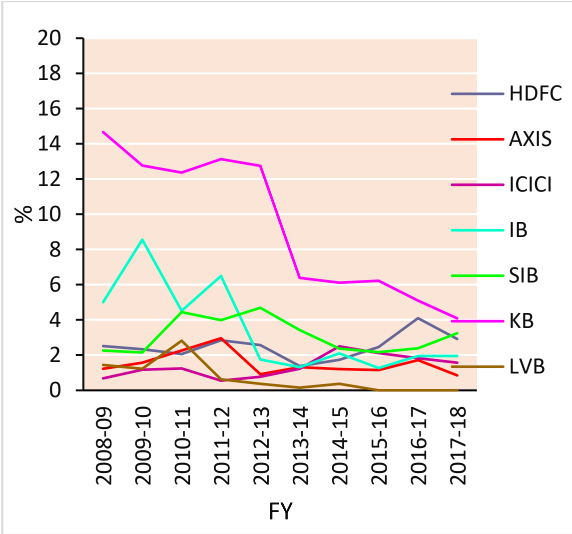

Figure 5 *Advances Covered by Bank/ Government Guarantee*

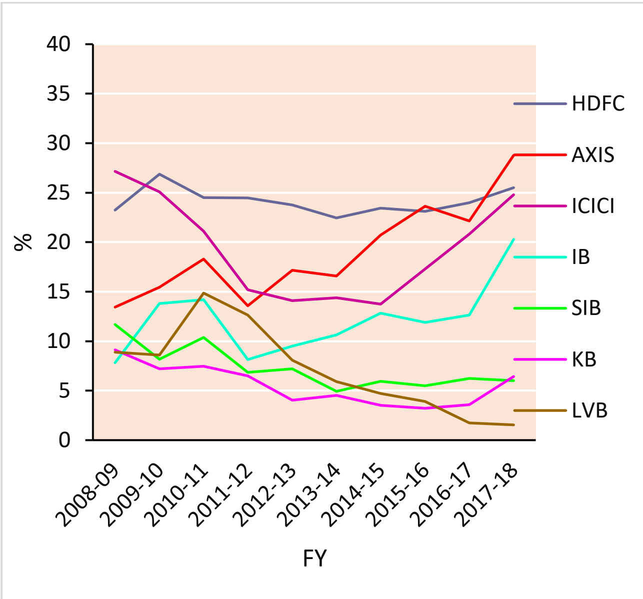

Figure 6 *Unsecured Advances*

Credit Risk is always concerned with the Bank's advances; in this way, the assurance from advances is critical to diminish risk. Banks have a diverse arrangement of advances, among which some advances are secured with Tangible Asset like housing loans, mortgage loans, etc., some advances are secured with Bank/government guarantee, and some advances are unsecured like personal loans, education loans without the mortgage, etc. with unsecured advances more Credit Risk is connected.

As showed up in Figure 4, ICICI Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank have extended advances secured by Tangible Asset around 1.97%, 5.17%, 14.82%, and 8.92% independently between FY 2008-09 to FY 2017-18 to decrease credit risk over lessened in HDFC Bank, Axis Bank and IndusInd Bank around 3.73%, 21.27% and 12.10% independently between FY 2008-09 to FY 2017-18. As reflected in Figure 5, Advances Covered by Bank/Government Guarantees are expanded in HDFC Bank, ICICI Bank, and South Indian Bank by around 13.40%, 56.96%, and 30.15% independently over lessened in Axis Bank, IndusInd Bank, and Karnataka Bank around 43.53%, 155.61% and 258.68% independently between FY 2008-09 to FY 2017-18. No Advances have been given that are covered by Bank/Government Guarantees in FY 2017-18 by Laxmi Vilas Bank. As Shown in Figure 6, ICICI Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank have reduced Unsecured Advances by around 9.52%, 94.67%, 41.67%, and 477.27% independently between FY 2008-09 to FY 2017-18 to decrease credit risk over expanded in HDFC Bank, Axis Bank and IndusInd Bank around 8.94%, 53.28% and 61.44% independently between FY 2008-09 to FY 2017-18.

Bank Credit Risk Taking Evolution:

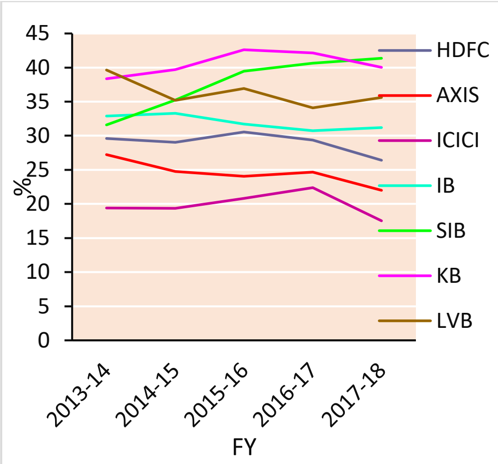

Figure 7 *Priority Sector Advances*

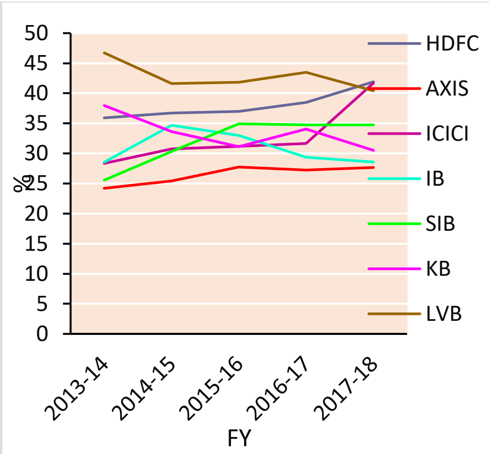

Figure 8 *Agriculture and Allied Activities (Priority sector)*

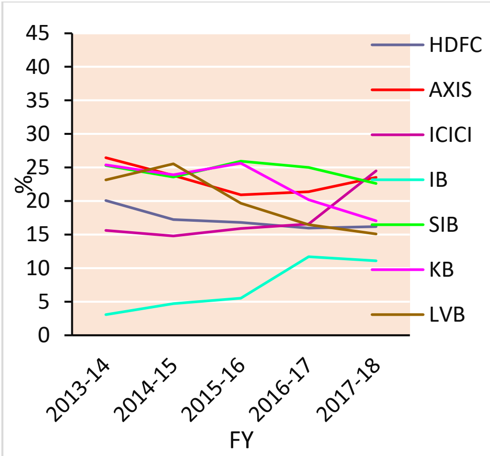

Figure 9 *Advances to Industries Sector (Priority sector)*

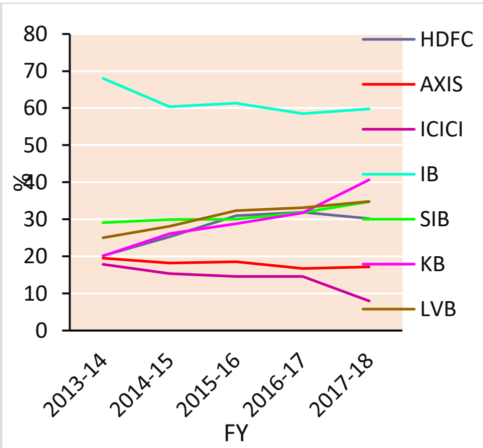

Figure 10 *Services (Priority sector)*

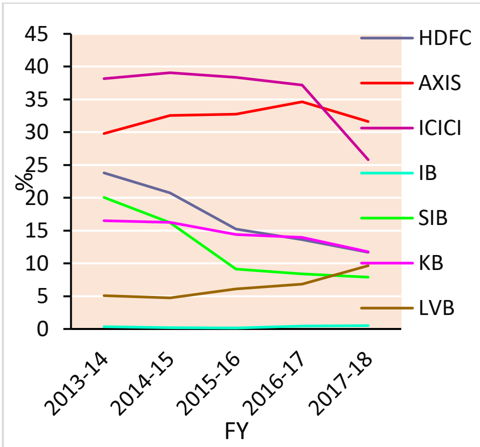

Figure 11 *Personal loans (Priority sector)*

The credit Risk Management strategy of any bank reflects the credit risk-taking of any bank. As reflected in Figure 7, Overall Priority sector advances are lessened in HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, and Laxmi Vilas Bank around 12.40%, 23.77%, 10.72%, 5.48%, and 11.35% independently between FY 2013-14 to FY 2017-18 as Private Sector Banks do not need to achieve government financial inclusion goal over extended in South Indian Bank and Karnataka Bank around 23.63% and 4.17% independently between FY 2013-14 to FY 2017-18.

As appeared in Figure 8, Agriculture and allied activities as priority sector advances are expanded HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, and South Indian Bank around 14.29%, 12.41%, 32.03%, 0.14%, and 26.43% independently over lessened in Karnataka Bank and Laxmi Vilas Bank around 24.45% and 15.61% between FY 2013-14 to FY 2017-18. As reflected in Figure 9, Advances to the industries sector eligible as priority sector lending is lessened in HDFC Bank, Axis Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 24.03%, 12.50%, 11.80%, 48.77%, and 53.24% independently between FY 2013-14 to FY 2017-18 due maximum NPA gain in priority sector due to this sector over expanded in ICICI Bank and IndusInd Bank around 36.28% and 72.25% independently between FY 2013-14 to FY 2017-18.

As appeared in figure 10, Services (Priority sector) advances expanded in HDFC Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 33.13%, 16.23%, 50.46%, and 28.14% independently between FY 2013-14 to FY 2017-18 as housing loan under Rs.28 lacs in the metropolitan center and 20 lacs in other center belonged to this category cover 100 % security over lessened in Axis Bank, ICICI Bank and IndusInd Bank around 13.61%, 123.81 and 13.76% independently between FY 2013-14 to FY 2017-18. As reflected in Figure 11, Personal loans (Priority sector) is lessened in HDFC Bank, ICICI Bank, South Indian Bank, and Karnataka Bank around 103.59%, 47.93%, 153.92%, and 40.27% independently over expanded in Axis Bank, IndusInd Bank and Laxmi Vilas Bank around 5.85%, 33.33% and 47.15% alone between FY 2013-14 to FY 2017-18.

As shown in Figure 12, overall Non-Priority sector advances are expanded in HDFC Bank, Axis Bank, ICICI Bank, and IndusInd Bank around 4.32%, 6.71%, 2.28%, and 2.49% independently over lessened in South Indian Bank, Karnataka Bank and Laxmi Vilas Bank around 16.66%, 2.78% and 6.27% alone between FY 2013-14 to FY 2017-18.

As appeared in Figure 13, Agriculture and allied activities (Non-Priority sector) advances are expanded in HDFC Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 93.42%, 100.00%, 100.00%, and 100.00% independently between FY 2013-14 to FY 2017-18. No Advances have been given under Agriculture and allied activities (Non-Priority sector) advances in FY 2017-18 by Axis Bank, ICICI Bank, and IndusInd Bank. As shown in Figure 14, Advances to the industries sector eligible as non-priority sector lending is lessened in HDFC Bank, Axis Bank, ICICI Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 3.98%, 25.52%, 38.03%, 39.37%, 72.67% and 50.87% independently between FY 2013-14 to FY 2017-18 by considering NPA growth in this sector advances over expanded in IndusInd Bank around 5.93% between FY 2013-14 to FY 2017-18.

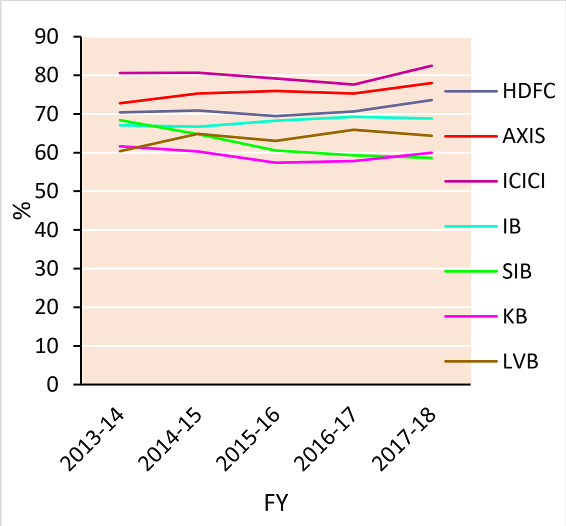

Figure 12 *Non-Priority Sector Advances*

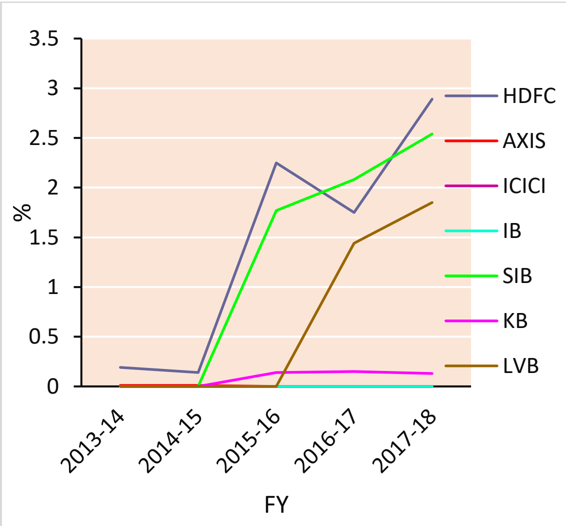

Figure 13 *Agriculture and Allied Activities (Non-Priority Sector)*

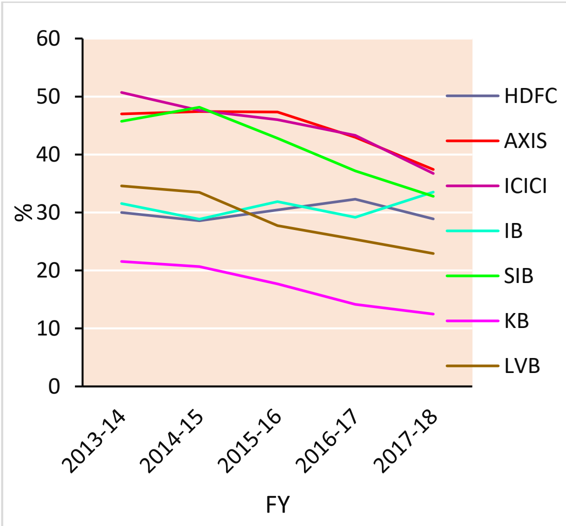

Figure 14 *Advances to Industries Sector (Non-Priority Sector)*

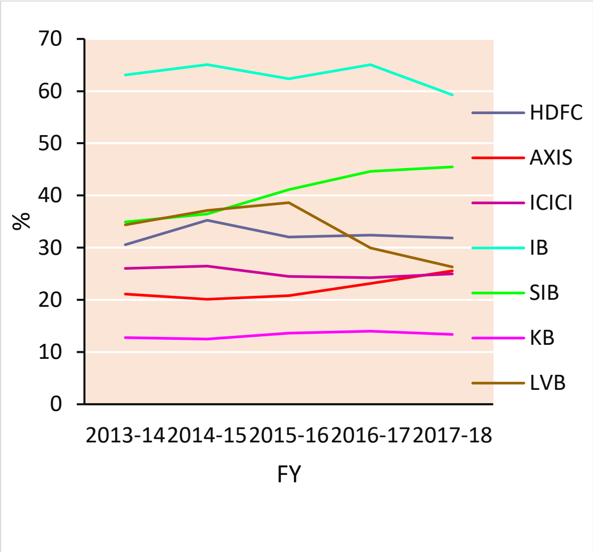

Figure 15 *Services (Non-Priority Sector)*

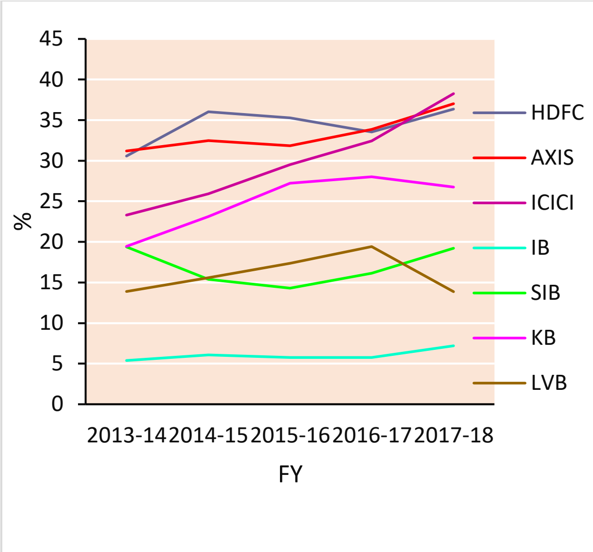

Figure 16 *Personal Loans (Non-Priority Sector)*

As reflected in figure 15, Services (Non-Priority sector) advances expanded in HDFC Bank, Axis Bank, South Indian Bank, and Karnataka Bank around 4.11%, 17.45%, 23.19%, and 4.77% independently between FY 2013-14 to FY 2017-18 as NPA declined in this sector over lessened in ICICI Bank, IndusInd Bank and Laxmi Vilas Bank around 3.95%, 6.41% and 30.55% independently between FY 2013-14 to FY 2017-18. As shown in Figure 16, Personal loans (Non-Priority sector) expanded in HDFC Bank, Axis Bank, ICICI Bank, IndusInd Bank, and Karnataka Bank around 15.92%, 15.72%, 39.10%, 25.14%, and 27.26% over lessened in South Indian Bank and Laxmi Vilas Bank around 0.94% and 0.07% independently between FY 2013-14 to FY 2017-18.

Movement of NPAs:

To identify the effect of Credit Risk Management tools used by Private Sector Banks over the years, it's essential to find out the movement of NPAs.

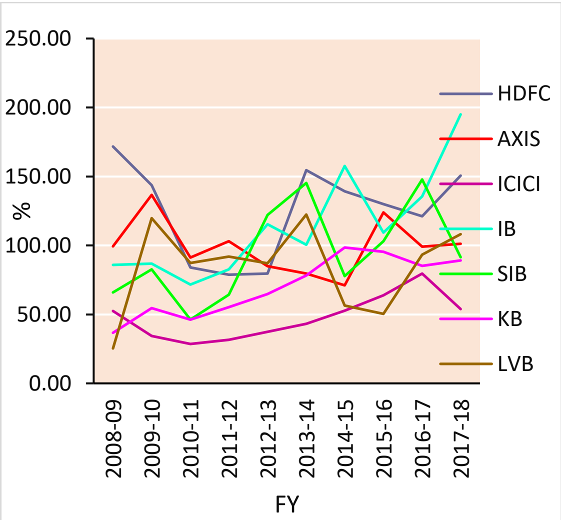

Figure 17 *% Of Gross NPA Add during the Year*

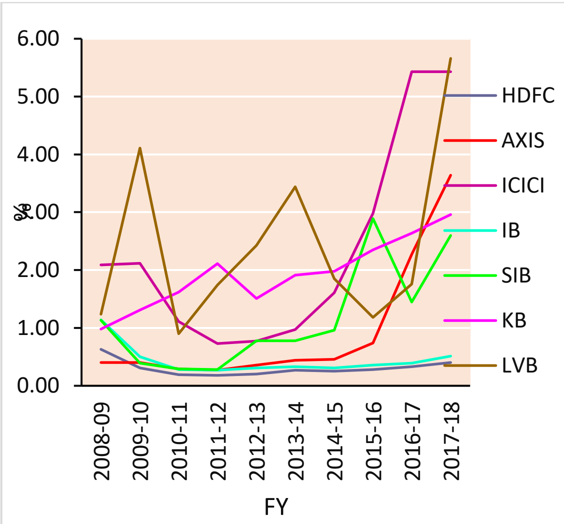

Figure 18 *Net NPA to Net Advances*

As reflected in Figure 17, gross NPA added during the year is expanded in Axis Bank, ICICI Bank, IndusInd Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 1.66%, 2.42%, 55.95%, 27.94%, 58.92% and 76.59% independently over lessened in HDFC Bank around 14.03% between FY 2008-09 to FY 2017-18 that means that overall Private Sector Banks Credit Risk Management model is not working correctly (except HDFC Bank). Also, as shown in Figure 18, Net NPA to Net Advances is expanded in Axis Bank, ICICI Bank, South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank around 89.01%, 61.51%, 56.53%, 66.89%, and 78.09% over lessened in HDFC Bank and IndusInd Bank around 57.50% and 123.53% independently between FY 2008-09 to FY 2017-18 that shows that overall Private Sector Banks have huge past NPA burden which is increasing Private Sector Banks Net NPA to Net Advances ratio.

5. Hypothesis Testing

1. **H0:** There is no impact of priority sector advances on Private Sector Banks non-performing assets.
   H1: There is an impact of priority sector advances on Private Sector Banks non-performing assets.

ANOVA

	df	*SS*	*MS*	*F*	*Sig.*
Regression	1	30682694754246300000 Cr	30682694754246300000 Cr	**96.52**	**0.00**
Residual	33	10490855040529000000 Cr	317904698197847000 Cr		
Total	34	41173549794775300000 Cr			

Where Cr. Means Crore

We reject the null hypothesis because the significant value is less than 0.05. It means there is an impact of priority sector advances on Private Sector Banks non-performing assets.

2. **H0:** There is no impact of provision made for advances on Private Sector Banks profitability.
   H1: There is an impact of provision made for advances on Private Sector Banks profitability.

ANOVA

	df	*SS*	*MS*	*F*	*Sig.*
Regression	1	77824015158122900 Cr	77824015158122900 Cr	**352.82**	**0.00**
Residual	68	14999307968812400 Cr	220578058364889 Cr		
Total	69	92823323126935300 Cr			

Where Cr. Means Crore

We reject the null hypothesis because the significant value is less than 0.05. Thus, it can be inferred that there is an impact of provision made for advances on Private Sector Banks profitability.

3. **H0:** There is no impact of unsecured advances on Private Sector Banks non-performing assets.
   H1: There is an impact of unsecured advances on Private Sector Banks non-performing assets.

ANOVA

	df	*SS*	*MS*	*F*	*Sig.*
Regression	1	914504887810298000 Cr	914504887810298000 Cr	**86.95**	**0.00**
Residual	68	715221058879067000 Cr	10517956748221600 Cr		
Total	69	1629725946689370000 Cr			

Where Cr. Means Crore

We reject the null hypothesis because the significant value is less than 0.05. There is an impact of unsecured advances on Private Sector Banks non-performing assets.

4. **H0:** There is no impact of non-performing assets deduction on Private Sector Banks profitability.
   H1: There is an impact of non-performing assets deduction on Private Sector Banks profitability.

ANOVA

	df	*SS*	*MS*	*F*	*Sig.*
Regression	1	6262999652074870 Cr	6262999652074870 Cr	**53.42**	**0.00**
Residual	68	7971938029752130 Cr	117234382790473 Cr		
Total	69	14234937681827000 Cr			

Where Cr. Means Crore

We reject the null hypothesis because the significant value is less than 0.05. Thus, it can be inferred that non-performing assets deduction has an impact on Private Sector Banks profitability.

5. **H0:** There is no impact of secured advances on Private Sector Banks non-performing assets addition.
   H1: There is an impact of secured advances on Private Sector Banks non-performing assets addition.

ANOVA

	df	*SS*	*MS*	*F*	*Sig.*
Regression	1	11922881660935900000 Cr	11922881660935900000 Cr	**112.47**	**0.00**
Residual	68	7208737251165780000 Cr	106010841928909000 Cr		
Total	69	19131618912101700000 Cr			

Where Cr. Means Crore

We reject the null hypothesis because the significant value is less than 0.05. Thus, it can be inferred that there is an impact of secured advances on Private Sector Banks non-performing assets addition.

6. Findings

The significant findings are as mentioned below:

- Based on BASEL III norms, Private Sector Banks have classified their assets based on risk category, and provision is made for it; even the bank has expanded their capital reserve, which helps the bank to expand Capital Adequacy Ratio.
- The Private Sector Banks are moving towards lessening the provision coverage ratio means the provision against income as Private Sector Banks are more focused on managing credit risk with low provision and higher profit.
- Overall, Private Sector Banks are lessening priority sector advances as Private sector banks do not need to achieve government financial inclusion goals except South Indian Bank and Karnataka Bank, which are doing the reverse. Overall, Private Sector Banks are expanding non-priority sector advances except South Indian Bank, Karnataka Bank, and Laxmi Vilas Bank, which are doing the reverse. In priority sectors, Private Sector Banks are expanding their retail-based service sector advance, which is considered secured advances, except for Axis Bank, ICICI Bank, and IndusInd Bank, which are doing the reverse.
- In Private Sector Banks, the addition of gross NPAs is expanding, except lessening in HDFC Bank means credit risk management methodology is not working in Private Sector Bank still Private Sector Banks are living in huge past NPA burden and expedition in Net NPA to Net Advances except HDFC Bank and IndusInd Bank which are doing the reverse.
- Private Sector Banks are moving their credit portfolio toward securing advances to lessen the possibility of future NPAs. Also, Private Sector Banks have classified credit risk exposure into various categories, mainly dealing with insignificant risk or very low risk and low risk or moderate risk category, and even the bank has made adequate provision for it.

7. Conclusion

Expedition in NPAs is the biggest issue for the Indian banking system, which lessens depositor trust towards the bank, but to follow BASEL III norms, Private Sector Banks are expanding their capital provision and NPAs provision, which will generate confidence in the mind of depositors towards the bank. Most Private Sector Banks have been doing well in recent years, but In Private Sector Banks addition of gross NPA is expanding. To deal with growing NPAs, Private Sector Banks still need to diversify their credit portfolio and move towards secured advances. Private Sector Banks are in profit, but to sustain Private Sector Banks have evaluated feasible solutions/models in the competitive dynamic business world using which bank can finance in all sectors with proper risk assessment rather than avoiding any industry. Private Sector Banks practice credit risk rating systems, risk-based pricing, limit-based pricing, etc.

8. Suggestions

To identify credit risk involved in various credit facilities based on the possibility of NPAs and records, Private Sector Banks have a credit risk management system. Private Sector Banks are not completely diverting credit portfolios toward securing advances to lessen the possibility of future NPAs; this will create problems in the future. Overall, Private Sector Banks are reducing their priority and non-priority sector industrial advances drastically as NPA expands in this sector over the years. However, if advances in such sectors decrease, it will reduce bank's NPAs and lessen bank profitability. To manage a diversified credit portfolio, Private Sector Banks must look for an alternative solution that decreases NPAs and expands profitability.

9. Limitations of the study

1. The researcher has used secondary data for this research only.
2. The researcher has considered a duration of 10 years of financial data of Private Sector Banks, but all the financial data necessary are not available for 10 years. Thus, some analysis has been done using five years of data. Hence, this research results may not be helpful to Private Sector Banks.

10. Scope for Further Research

A similar study can be done for all banks, especially Private Sector Banks, independently to address the problem of NPAs, which has become a headache for Public Sector Banks. An exhaustive study of all banks can help identify and create a suitable credit risk management model for Indian banks.

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