



Bad Loans: An Empirical Analysis of Nationalized Banks in India

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Abstract

“If you don’t have some bad loans you are not in business”. It is a famous quote by Mr. Paul Volcker. Well, it is true but everything in excess always causes trouble same is in the case of banks too. Our banking system is in a serious state finding every possible way to reduce the roadblocks hindering the growth of our economy i.e., non-performing loans. The present study analyzed the performance of public sector banks from the year 2014-15 to 2018-19 on the basis of Return on Assets, Credit-Deposit ratio, Loan maturity and Priority Sector Advances. The simple linear regression analysis has been applied in order to check the statistical impact of predictor variables on the response variable i.e. Net Non-Performing Assets ratio. The study is an approach to understand the relation between the selected independent variables and the dependent variables and suggest ideas to check the rise in bad loans swallowing the progress of our banking system.

Keywords: Return on Assets, Credit-Deposit Ratio, Loan Maturity, Net Non-Performing Assets Ratio

Introduction

Be it Nirav Modi - PNB Scam, huge loan waivers, Yes Bank - corporate governance issue, IL & FS problem, bank mergers, COVID - 19 broke out, Silicon Valley Bank blew - up case or global economic slowdown, the Indian banking system remained unaffected. But what troubles till date is the never ending piling up of bad loans; thus becoming non-performing assets. That raises questions on rampant rise of wilful defaults, diligent credit appraisal, unchecked lending patterns, inevitable loan frauds and stringent monitoring standards. The Reserve Bank of India report says that on the basis of net non-performing assets from the year 2014-15 to

2018-19, public sector banks shown a massive upturned (2.9% to 4.8%) in comparison to private sector banks (0.9% to 2.0%) and foreign banks (0.5% to 0.5%). The current paper tries to investigate the factors responsible for the rise in non-performing loans of public sector banks in India by using the panel data analysis. The predictor / independent variables used in the study are credit-deposit ratio, priority sector advances, loan maturity, return on assets and where the net non-performing assets considered as explained / response variable. The following table will show the exact description of variables used in the paper.

Table 1: Details of Variables used in the paper

SYMBOLS	VARIABLES	EXPLANATION
NNPAR	Net Non-Performing Assets	Net NPA to Net Advances
CDR	Credit-Deposit Ratio	Total loans to Total Deposits
ROA	Return on Assets	Net Income / Average Assets
PSA	Priority sector advances	Priority sector advances to Total Advances
LM	Loan Maturity	Term loans / Total Advances

Source: The author

NNPAR- It is equal to Gross Non-Performing Assets (GNPAR) minus provision for unpaid or doubtful debts and divided by the Net Advances. Non-Performing Assets refers to the borrowings as well as advances that are on the verge of becoming default because of principal or interest payment has been overdue for a period of ninety days.

ROA – It is computed by dividing Net Income or Profit After Tax by Average Total Assets. It reflects how efficient the company's assets are enhancing the business revenue.

CREDIT-DEPOSIT RATIO - This ratio conveys how much of each rupee of deposit is going towards credit markets. A higher growth in credit deposit ratio suggests credit growth is rising quickly, which could lead to excessive risks and leveraging on the borrower's side. In case of banks, it could imply that there will be a rise in NPAs when economic cycle reverses. This ratio serves as a useful measure to understand the systemic risks in the economy. Credit -Deposit Ratio = (Total bank credit)/Aggregate Deposits (Demand + Time Deposits).

PSA - As per the RBI, Priority sector advances 'constitute lending to those sectors of the economy which may not get timely and adequate credit in the absence of this special dispensation.' Priority sector comprises agriculture, micro and small enterprises, education, housing, export credit and advances to weaker sections. Domestic commercial banks and foreign banks with a network of 20 and more branches are required to lend 40% of their total disbursement to the priority sector. Also, foreign banks with less than 20 branches are required to lend 32% of their total disbursement to the priority sector.

TERM LOANS - Term loans are immediate, up front financing sources for local and small businesses that extend over a long time. These loans are long-term debts raised by companies that come with a schedule for payments and interests paid in installments at fixed or floating rates. However, these loans are not granted to businesses without sound financial statements and promise of creditworthiness.

Review of Literature

Beck, Jakubik, and Piloiu (2015) revealed the fact that real GDP growth, share prices, exchange rate and lending rates put significant impact on the non-performing loans across seventy-five countries during the last decade. Messai and Jouini (2013) were of

the opinion that bank profitability and GDP growth rate have negative relationship with loans. In addition, NPAs has changed in line with unemployment rate in three countries i.e., Italy, Greece and Spain from the year 2003-04 to 2007-08. Curak, Pepur, and Poposki (2013) viewed the macroeconomic variables affecting NPLs are lower economic growth, higher inflation and elevated interest rates. They also cited the bank size, return on assets and solvency are stimulating credit risk in South Eastern European banking. Erdinc and Abazi's (2014) studied the factors responsible for huge NPLs are classified into macroeconomic and bank specific. The former includes real GDP growth, inflation and credit growth rate whereas the latter includes profitability and interest rate. Kjosevski and Petkovski (2017) studied that the return on assets and return on equity along with domestic private sector credit, GDP growth, unemployment and inflation affects the NPLs of twenty-seven Baltics banks from the year 2004-05 to 2013-14. Ghosh (2015), examined that bank profits, GDP and real personal income growth rates lessen the non-performing loans. On the other hand, inflation, capitalization US public debt etc., expands the NPLs. Ha and Hang (2016) reviewed variables affecting NPL of Vietnamese commercial banks like economic growth, inflation, liquidity, credit growth etc., Louzis, Vouldis, and Metaxas (2012) used panel data analysis to determine factors responsible for NPLs i.e., GDP, unemployment, interest rates, public debt etc., Shingjergji (2013) studied the macroeconomic variables affecting the non-performing loans in Albanian banking system. Vithessonthi (2016) suggested credit growth and NPLs don't affect the profits of eighty-two commercial banks in Japan rather the large banks who influences the effects of credit growth on NPLs. Chavan and Gambacorta (2016) revealed that loan growth, interest rate and economic growth affects the non-performing loans. Dhar and Bakshi (2015) noticed the NPAs of govt owned banks from 2000-01 to 2004-05 and suggested that net interest margin and return on assets lead to huge bad assets. Misra and Dhal (2010) has scrutinized the notable impact on NPLs because of bank variables like interest rate, maturity and collateral values. Bittu & Dwivedi (2012) noticed that bank performance has an indirect relationship with NPAs and direct

relation with capital adequacy ratio. Ramesh Kandela (2019) used panel data regression analysis to determine that credit-deposit ratio, loan maturity and return on assets have negative association with NNPA. In addition, priority sector advances, collateral values and non-interest income put not much influence on NNPA in context of public sector banks from the period 2009-10 to 2016-17.

Objectives of the study

1. To critically examine the impact of Return on Assets on the Net Non-Performing assets of Public Sector Banks in India.
2. To investigate the effects of Credit-Deposit ratio of Public Sector Banks in India.
3. To analyze the outcome of Term loans and the Priority sector advances being related to Net Non-Performing Assets of Public Sector Banks in India.

Scope of the Study

The public sector banks control a larger market share of Indian banking industry and their performance affects the economy directly, hence the present study is confined to evaluate the results of twenty-one government owned banks. The period of study has been from financial year (FY) 2014-15 to 2018-19. Such time frame has been selected to understand the impact of the variables chosen, for analysis under the Basel III norms being adopted in most of the banks in India. Moreover, the period beyond FY 2018-19 has not been considered as bank mergers occurred which will affect the flow of data analysis in the paper. Reconsidering the banks after merger would have been a little difficult to compare among the banks and further in the process of analysis.

Methodology

1. Research design- The current work is a descriptive study based on an analytical research design.
2. Hypothesis of the study- Keeping in view the objectives of the study, the following null hypotheses has been developed.

H₁: There is no significant impact of Return on Assets on the Net Non-Performing assets of Public Sector Banks in India.

H₂: There is no significant effect of Credit-Deposit Ratio on the Net Non-Performing assets of Public Sector Banks in India.

H₃: There is no significant effect of Priority sector advances on the Net Non-Performing assets of Public Sector Banks in India.

H₄: There is no significant effect of Term loans on the Net Non-Performing assets of Public Sector Banks in India.

1. **Sampling-** The study has taken into account all the public sector banks in India.
2. **Data Collection-** Secondary sources of data has been completely relied upon for the research like journals, newspapers, Statistics published by Reserve Bank of India, Annual reports of concerned banks, Trend and Progress of India reports etc.
3. **Statistical tools used-** Linear regression analysis have been used for the purpose of analysis and interpretation.

The following regression model has been applied to determine the determinants of bad loans of public sector banks in India.

$$NNPA_{it} = \alpha_{it} + \beta_1 CAR_{it} + \beta_2 ROA_{it} + \beta_3 CDR_{it} + \beta_4 PSA_{it} + \beta_5 LM_{it} + \beta_6 OPEX_{it} + \mu_u$$

Where $i = 1, \dots, 21$ is the individual bank index; $t = 1, \dots, 5$ is the time index; α_{it} = intercept; β_1 to β_6 are coefficients for the independent variables; μ_u = error term.

Table 2:

Particulars	NNPA	CDR	ROA	PSA	LM
Mean	6.81	72.26	-0.51	41.46	59.56
Standard Error	0.48	1.36	0.12	2.26	6.25
Median	6.59	73.48	-0.50	40.68	51.71
Standard Deviation	2.19	6.25	0.57	10.37	28.63
Sample Variance	4.82	39.06	0.32	107.62	819.72
Kurtosis	-0.37	-0.05	0.27	10.03	15.82
Skewness	0.37	-0.51	-0.32	2.61	3.79
Range	7.86	24.26	2.31	53.21	140.35
Minimum	3.68	57.58	-1.86	26.96	36.87
Maximum	11.54	81.85	0.44	80.18	177.22
Sum	142.99	1517.36	-10.64	870.66	1250.70
Count	21.00	21.00	21.00	21.00	21.00

Confidence Level(95.0%)	1.00	2.84	0.26	4.72	13.03
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Source: The author

The above table shows mean of Credit-Deposit ratio (72.26%) is higher than others depicting rise in credit growth thus leads to more risk and then becoming non-performing assets. Though the count or number of

observations is twenty-one (21) but figures represented under each variable is the average of five years of each bank making the count to one hundred and five (105) can be understood by the following table.

Table 3:

Bank Name	NNPA	CDR	ROA	PSA	LM
Allahabad Bank	6.5860	78.614	-1.122	37.646	49.044
Andhra Bank	5.8640	79.218	-0.362	43.422	44.468
Bank Of Baroda	4.0980	78.432	-0.076	30.664	45.268
Bank Of India	6.3840	69.214	-0.532	26.962	46.550
Bank Of Maharashtra	7.812	74.096	-0.84	39.324	52.118
Canara Bank	5.65	73.482	-0.092	38.822	54.91
Central Bank Of India	8	63.088	-0.876	44.188	51.714
Corporation Bank	7.078	67.176	-0.906	45.83	56.94
Dena Bank	8.195	67.02	-0.6975	42.795	50.2275
IDBI Bank	9.934	73.932	-1.862	32.64	69.556
Indian Bank	3.73	75.732	0.444	38.888	48.74
Indian Overseas Bank	11.54	65.722	-1.204	47.358	45.82
Oriental Bank Of Commerce	7.082	73.478	-0.49	42.854	53.112
Punjab And Sind Bank	5.966	71.816	-0.098	38.03	61.808
Punjab National Bank	7.656	70.65	-0.548	37.724	36.87
State Bank Of India	3.676	76.83	0.276	80.176	177.22
Syndicate Bank	4.806	80.872	-0.356	32.368	78.554
UCO Bank	9.03	66.054	-1.048	41.806	47.756
Union Bank Of India	5.96	81.848	-0.138	40.874	50.61
United Bank Of India	10.088	57.584	-0.498	47.612	66.384
Vijaya Bank	3.8525	72.5025	0.385	40.675	63.0325

Source: The author

In the following table, the highlighted figures create a possibility of multicollinearity. It is the presence of exact linear relationship between any or all independent variables in the regression model. Pearson correlation matrix has been

applied to test the multicollinearity problem among the explanatory variables. It can be seen that the correlation coefficient between the predictor variables is not above 0.8. Hence, there is no multicollinearity problem in the study.

Table 4: The following table is the correlation existing among the independent variables

	NNPA	CDR	ROA	PSA	LM
NNPA	1				
CDR	-0.66329	1			
ROA	-0.81907	0.328332	1		
PSA	-0.07214	-0.11108	0.24272	1	
LM	-0.32595	0.164156	0.297796	0.788574	1

Source: The author

Table 5. The following table showing results of regression model.

	coefficients	standard error	t stat	p-value	Standard deviation
Intercept	13.50	3.27	4.13	0.00	2.19
CDR	-0.13	0.04	-3.35	0.00	6.25
ROA	-2.66	0.40	-6.65	0.00	0.57
PSA	0.06	0.03	1.64	0.12	10.37
LM	-0.02	0.01	-1.68	0.11	28.63

Source: The author

Here, the multiple $R = 0.93$, R Square is 0.87, Adjusted R Square is 0.84, Standard error is 0.90 clearly displaying strong linear relationship between explanatory variables and dependent variable. The Credit-Deposit ratio is having a negative relationship with Net Non-Performing Assets ratio meaning increase dependence on deposits for lending will help understand the systematic risk and make banks more vigilant and thus can minimize the level of bad loans. The Return on Assets share a negative association with Net Non-Performing Assets ratio indicating bank's increase in profits will lead to lessen the burden of bad assets. Such result was confirmed by Bittu and Dwivedi (2012) as well as Kjosevski and Petkovski (2017). Priority Sector Advances share a positive association with Net Non-Performing Assets. Such advances do not have a significant contribution to reduce Bank's NPA as increase in one rupee of PSA will lead to 0.06-rupee increase in NPA. This concept was confirmed by Swamy (2012). Loan maturity and Net Non-Performing Assets share a negative relationship. It indicates that loans having long tenure of maturity leads to minimize the level and impact of bad loans. In addition, such long term loan contracts help build a better relation between banks and borrowers (Misra and Dhal, 2010). Moreover, p-value of Credit-Deposit ratio and Return on Assets is 0.0, clearly indicating that it is highly significant and influences the dependent variable. Whereas the p-value of Priority sector advances and Term loans is 0.12 and 0.11 showing they are insignificant in influencing the responding variable.

Conclusion

The paper tried to come out with certain relevant determinants of bad loans affecting the public sector banks, although there are so many other factors too. The CDR, ROA and LM have a negative association with the NNPA. That implies these four variables exercise significant influence on the non-performing assets of banks. Among them, Return on Assets has an astounding impact on Net Non-Performing Assets. ROA helps in estimating the bank's profitability over its assets and the profits arise due to efficient management of bad loans. There are several issues like lack of professionalism of employees in govt. owned banks and consistent interference of politicians and bureaucrats in bank

management, twin balance sheet problem in banks, excessive dependence on capital infusion, etc., holding up the progress of banks especially the public sector banks in India. The government of India has suggested the creation of **bad bank** for saving the entire banking system from the clutch of bad loans. To what extent the bad loans will be recovered, how to ensure cleaning the balance sheet of banks, how to make banks reach an adequate capital level by mobilizing fresh capital from the market, how to kick start the investment and lending operation of banks, how to curb excessive reliance on recapitalization strategy are emerging issues which needs an immediate attention by the government. It is in the near future the real success of bad bank can be known.

The present article carries certain limitations like not incorporating macroeconomic variables as well as only considering the impact of bad loans on public sector banks where private banks, non-bank financial companies are also grappling with this same issue. Further an extensive study can be made on private banks and other category of banks as well as cross country analysis can be made.

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