

## **Impact of Non-Performing Assets (NPAs) on Financial Performance of Indian banking Sector**

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### **Abstract**

The purpose of this paper is to analytically examine the relationship between NPAs and financial performance (ROA) of selected public and private-sector banks. The data has been taken from the banks official websites, on the basis of market capitalization of listed public and private sector banks in India. Panel data regression model has been applied from 2013- 2017 to examine the impact of non-performing assets on financial performance of public and private sectors banks. Findings of the study reveals that there is significant and positive impact of GNPA over financial performance of Indian banking sector. Similarly the impact of NNPA on financial performance of Indian banking sectors having the same impact as GNPA. Overall the study found positive and significant impact of NPAs on the financial performance of banks. The present study develops the capacity for previous examinations related with non-performing assets and suggests the public and private sector banks to give attention on NNPA and GNPA of banks which influence the financial performance of both banking sectors. This study broadens the literature by examine the overall impact of NPAs on the financial performance of banks.

**Keywords:** Financial performance, NPAs, Profitability, ROA

### **Introduction**

Financial system of any economy plays important role in its economic development, and financial system comprises financial institutions. India is one of the largest countries in south Asia with massive financial system institutional and channel/ instruments. Nonperforming assets not only disturbs the profitability of banks but also spoil the asset quality of banks and leads to very difficult for bank survival (Narula and Singhla, 2014). Non-performing of asset of banks is one of the essential clue which is used for measurement of performance of the banks. NPAs have a direct impact on banks profitability (Joseph and Prakash, 2014). Banks profitability has exercised as the financial statements ratios return on assets (ROA) and return on equity (ROE). Other profitability measures include net interest income which is dividing by the average earning assets. NPAs flash the performance of banks. a huge level of nonperforming assets prefer high chances of a large number of defaulters that influence the profitability and net capital of banks also cuts down the value of assets. The NPA growth includes the essential of provisions which mark down the profits and

shareholders' value (Khanna, 2012). Nonperforming assets are an compulsory burden for banking industry. The good performance of banks depends upon the managing of NPAs and observes them within the tolerance level. Hence, to change the curve of NPAs, there is only one tactic than an effective monitoring and management policy should be projected and carried out which subsidize by proper, appropriate reforms. Similarly, Munniappan (2003) propounded that every situation of the operation of the banking sector, be it risk management, human resource development, nonperforming assets management, customer service, profitability has to go through the radical change to align with universally best practices.

In India, the banking sector has been facing serious complications of rising NPAs. The non-performing of assets in Indian banks are increasing due to outward as well as inward factors. The extreme external causes lead to rise in non-performing assets and uncontrollable by banking sector. They are like sickness of industries, natural calamities, poor recovery procedure, and willful defaulters etc. The extreme internal causes which lead to rise in NPAs and manageable by banking sector are poor lending decisions, improper technology, poor analysis of SWOT, scanty credit appraisal structure and managerial scarcity.

The paper has been divided in different set of sections; the second section covered the literature review part where all the previous literature related with Non-performing of assets has been covered. The third part of this paper covered the objectives and research methods which is a crucial part of the study where research methods play an important role to advocate the objectives of the study. The fifth part displays the important findings of the study. The final part presents the summary and conclusion.

### **Review of Literature**

Approaches are developed to describe, forecast and learn the fact, the boundaries of the severe assumptions. The theoretical structure suggests and explains the theory which helps in outline the research problem under the study. A structure of theoretical concept continued definition and related theories, philosophy that is used special for study (Sekaran, 2003). The various theories used in this study is related with NPAs and the impact of NPAs on the performance of banks, Non-performing assets develop negative impact on banking financial performance. Matter of NPAs and its impact on decrease of financial performance of banks and quality of assets was not sincerely examined in Indian banking sector before 1991. Urjit (2003) found on the issue of bad loans and increasing level of non-performing assets in commercial banks in post reform time. It was noticed that useful lending practices of loans should be practised by banks and authorities. Bamoriya (2013) used multiple regression technique to examine the impact of selected vital financial heads on NPA of scheduled commercial banks. There is significant impact between total assets and total deposits on NPAs where as there is no impact between total advance and net interest income on NPAs. Various studies have been carried out to examine the profitability and performances of banking system. Chaudhary (2012) with the help of CAMEL

model investigated the performance of selected public and private banks in India. Pod Pira and Weill (2008) concluded that factors which are selected by banks like performance, credit growth, capitalization and cost efficiency have an impact on the rising of non-performing of loans.

Patidar (2012) examined the impact of priority sector lending on the total non-performing assets of banks. Multiple regression model and ratio analysis have been used. The result reveals that there is significant impact of priority sector lending on total non-performing of assets of public sector banks. Along with this impact of priority sector lending in case of private sector banks was not significant. Swamy (2013) used panel data regression technique to analyze the determinants of assets quality and profitability of banks for the year 1997 to 2009. The study shows that priority sector credit and NPAs are not significant. Similarly, Haron (2004) found that there is significant relationship between capital and return on asset. Also found that bank size has significant impact on ROA. In another similar research conducted by Abree and Mendes (2000) found that there is positive similarity between the loans and the profitability of banks. Likewise Bashir and Hassan (2003); Staikouras and Wood (2003) found that the higher loan ratio has a negative impact on profit of banks.

### **Research Gap**

Many studies have been conducted on analysis of Non-Performing Assets (NPAs) and the impact NPAs on the performance of banks. This study examines the impact of NPAs on the financial performance measured by ROA and age is taken as control variable. The present study is also differs from the previous studies on the basis of current data. Along with that study displays the results of overall impact of NPAs on a sector wise individually.

### **Objective of the Study**

To examine the relationship between NPAs and financial performance (ROA) of selected public and private sector banks.

### **Hypothesis of the Study**

Null Hypotheses:

$H_{01}$ : There is no significant relationship between NPAs and the financial performance (ROA) of public and private sector banks.

### **Research Methodology**

#### **Sources of Data Collection**

The present study is empirical in nature. Data is collected from the official website of banks, annual reports, journals, magazines, newspaper etc. With the help of judgmental sampling, five banks from each public and private sector were selected.

**Sample Size**

The sample consist the top 10 Indian public and private sector banks which have been selected for the study on basis of their market capitalization. Five Public Sector Banks, i.e., State Bank of India, Punjab National Bank, Bank of Baroda, IDBI Bank and Central Bank of India where as Private Sector Banks includes HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank and IndusInd Bank.

**Period of the Study**

The present study is based on secondary data and the data for the period of five years, i.e., 2013-2017 were taken to examine the impact of banks financial performance in context of NPA for selected public and private sector banks.

**Statistical Techniques**

The collected data analyze have been applied by the appropriate statistical techniques Panel Regression Model.

Mathematically the equation of panel regression model is as follows:

$$Y = a + b_1x_1 + \mu \dots \dots \dots (i)$$

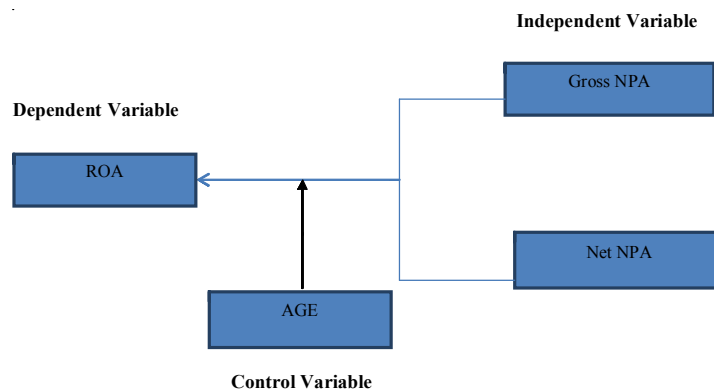
$$Y = a + b_2x_2 + \mu \dots \dots \dots (ii)$$

$$Y = a + b_3x_3 + \mu \dots \dots \dots (iii)$$

Where, Y= ROA (Return on Assets)

a= constant term; b1, b2 & b3 = Regression coefficients for the respective variables, X1 = GNPA Ratio, x2 = NNPA Ratio, & x3 = AGE; ì = Error Term

Here, Y (i.e. ROA) is the dependent variable, while x1, x2 & x3 are independent variables.



**Figure 1. Conceptual framework of the study**

Source: Authors

Shows in the table 1 financial ratios that can impact the ROA (depended variable) are identified as independent variable.

**Table 1. List of Dependent and Independent Variables**

Symbol	Name of Variable	Calculation Method
ROA	Return on Assets	Net Profit/Total Assets
GNPA	Gross Non-Performing Assets	Gross NPAs/Gross Advance
NNPA	Net Non-Performing Assets	Gross NPAs-Provisions/Gross Advance-Provisions
ABE	Age	Current year-Established year

**Source:** Authors

### Data Analysis

**Gross NPAs:** Gross NPAs are the sum total of all loan assets that are classified as NPAs as per RBI guidelines as on Balance Sheet date. Gross NPAs are the amount outstanding in the borrower account in books of the bank other than the interest which has been recorded and not debited to the borrower account. It can be calculated with the help of following ratio:

Gross NPAs Ratio = Gross NPAs/Gross Advance

**Table 2. Gross NPA of Public and Private Sector Banks (In Cr.)**

Year	Public sector Banks					Private sector Banks				
	SBI	PNB	BOB	IDBI	Central Bank	HDFC	ICICI	AXIS	Kotak M Bank	Indusind Bank
2013	4.75	4.27	2.40	3.22	4.80	0.97	3.22	1.06	1.55	1.03
2014	4.95	5.25	2.94	4.90	6.27	1.00	3.03	1.22	1.98	1.12
2015	4.25	6.55	3.72	5.88	6.09	0.90	3.78	1.34	1.85	0.81
2016	6.50	12.90	9.99	10.98	11.95	0.94	5.21	1.67	2.36	0.87
2017	6.90	12.53	10.46	21.25	17.81	1.05	7.89	5.04	2.59	0.93

**Source:** Author Calculation from the Annual reports of the banks website

Table 2 shows the Gross NPA of selected public and private sector banks for the period 2013-2017. In the year 2013, the value of GNPA of SBI bank was 4.75 and in 2017, it was 6.90. In 2017, the value of GNPA is high in comparison with previous year. In the year 2013, GNPA of PNB was 4.27 and it was raise to 12.53 in 2017 which shows that GNPA are three times increasing. In the year 2013, GNPA of BOB was 2.40 and in 2017, it was 10.46. In 2017 the value of GNPA is five times high in comparison with previous year. In the year 2013, the value of GNPA of IDBI was 3.22 and in 2017, it was 21.25. In 2017, the value of GNPA is seven times high in comparison with previous year. In the year 2013, GNPA of Central bank was 4.80 and in 2017, it was 17.81. In 2017, the value of GNPA is four times high in comparison with previous year.

Again in table no. 2 shows the result of HDFC for the year 2013 where GNPA are 0.97 and in 2017, it was 1.05, the value of GNPA is high in comparison with previous years. In the year 2013, GNPA of ICICI was 3.22 and in 2017 it was 7.89,

the value of GNPA is 2.45 times high in comparison with previous years. In the year 2013, the value of GNPA of AXIS bank was 1.06 and in 2017, it was 5.04. In 2017, the value of GNPA is five times high in comparison with previous year. In the year 2013, the GNPA of Kotak Mahindra bank was 1.55 and in 2017, it was 2.59 which are higher in 2017. In the year 2013, GNPA of Indusind bank was 1.03 and in 2017, it was 0.93 but in 2014 it was 1.12 which was very high.

**Net NPAs:** Net NPAs are the amount of Gross NPAs less interest debited to borrower and not recovered and not recognized as income and kept in interest suspense. Net NPAs shows the actual burden of banks. It can be calculated by following: **Net NPAs= Gross NPAs-**

### Provisions/Gross Advances-Provisions

**Table 3. Net NPA of Public and Private Sector Banks (In Cr.)**

Year	Public Sector Banks					Private Sector Banks				
	SBI	PNB	BOB	IDBI	Central Bank	HDFC	ICICI	AXIS	Kotak M Bank	Indusind Bank
2013	2.10	2.35	1.28	1.58	2.90	0.20	0.77	0.32	0.64	0.31
2014	2.57	2.85	1.52	2.48	3.75	0.30	0.97	0.40	1.08	0.33
2015	2.12	4.06	1.89	2.88	3.61	0.20	1.61	0.44	0.92	0.31
2016	3.81	8.61	5.06	6.78	7.36	0.28	2.67	0.70	1.06	0.36
2017	3.71	7.81	4.72	13.21	10.20	0.33	4.89	2.11	1.26	0.39

**Source:** Author Calculation from the Annual reports of the banks website

Table 3 shows the value of Net NPA of selected public and private sector banks for the period 2013-2017. In the year 2013, the value of NNPA of SBI was 2.10 and in 2017, it was 3.71 but in 2016 was very high which were 3.81. NNPA of PNB in the year 2013 was 2.35 and in 2017, it was 7.81 in the year 2016 NNPA was 8.61 which is very high among all the years. NNPA of BOB in 2016 was very high which was 5.06. In 2013 were 1.28, and in 2017 it were 4.72. The value of NNPA of IDBI in the year 2013 was 1.58 and in 2017, it was 13.21 which were more in 2017. Similarly, NNPA of Central bank in the year 2013 was 2.90 which further increased to 10.20 again which was very much high in comparison with previous year. In HDFC the NNPA are 0.20 in the year 2013 where as it increased to 0.33 in the year 2017. In ICICI the NNPA are 0.77 in the year 2013, whereas it increased to 4.89 in the year 2017. In the year 2013, the value of NNPA of AXIS was 0.32 and in 2017, it was 2.11. In 2017, the value of NNPA is very much high in comparison with previous year. In the year 2013, NNPA of Kotak Mahindra was 0.64 and it was raise to 1.26 in 2017 which shows that NNPA are continuously increasing. The value of NNPA of Indusind in the year 2013 was 0.31 and in 2017, it was 0.39 which are higher in 2017 in comparison with previous year.

Therefore interpretation shows that from 2013 to 2017 there is a constant increase in NNPA in public and private sector banks.

**ROA:** Return on Asset represents efficiency in asset utilization and shows how much net income is generated out of assets. It indicates the ability of bank management to generate profits by utilizing the available assets of the banks.

Thus, if the ratio of ROA is high, it indicates that it is better performance in order to generate profit (Jayakkodiand Rengarajan, 2016)

**Table 4. ROA of Public and Private Sector Banks (In Cr.)**

Year	Public Sector Banks					Private Sector Banks				
	SBI	PNB	BOB	IDBI	Central Bank	HDFC	ICICI	AXIS	Kotak M Bank	Indusind Bank
2013	0.91	1.00	0.90	-0.69	0.44	1.90	1.70	1.70	1.81	1.63
2014	0.65	0.64	0.75	-0.38	-0.47	2.00	1.78	1.78	1.80	1.81
2015	0.76	0.53	0.49	-0.27	0.21	2.00	1.86	1.83	1.98	1.90
2016	0.46	-0.61	-0.78	-1.07	-0.48	1.92	1.49	1.72	1.19	1.91
2017	0.41	0.19	0.20	-1.38	-0.80	1.88	1.10	0.65	1.73	1.86

**Source:** Author Calculation from the Annual reports of banks website

Table 4 shows the value of ROA of selected public and private sector banks for the period 2013-2017. In the year 2013, the value of ROA of SBI was 0.91 and in 2017, it was 0.41. In 2017, the value of ROA is very low in comparison with previous year. In the year 2013, the value of ROA of PNB was 1.00 and in 2017, it was 0.19, but in the year 2016 it was -0.61 which is very low among all the years. Similarly in the year 2013 ROA of BOB was 0.90, but in 2016 again it shows that the ROA are very low with having -0.78. In the year 2013, the value of ROA of IDBI was -0.69 and in 2017, it was -1.38, but in 2015 it was -0.27 which is very low among all the years. In the year 2013, the value of ROA of Central bank was 0.44 and in 2017, it was -0.80. In 2017, the value of ROA is very low in comparison with previous years. In the year 2013 the ROA of HDFC was 1.90 and in 2017, it was 1.88. In 2017, the value of ROA is very low. In the year 2013 the ROA of ICICI was 1.70 and in 2017, it was 1.10. In 2017, the value of ROA is very low in comparison with previous years. ROA of AXIS was 1.70 and in 2017, it was 0.65. In 2017, the value of ROA is very low. The value of ROA of Kotak Mahindra in the year 2013 was 1.81 and in 2017, it was 1.73 but in the year 2016 it was 1.19 which is very low among all the years. In the year 2013, ROA of Indusind bank was 1.63 and in 2017, it was 1.86 but in the year 2013 it was 1.63 which is very low among all the years.

**Table 5. Age of Public and Private Sector Banks**

Year	Public Sector Banks					Private Sector Banks				
	SBI	PNB	BOB	IDBI	Central Bank	HDFC	ICICI	AXIS	Kotak M Bank	Indusind Bank
2013	58	119	105	49	102	19	19	20	28	19
2014	59	120	106	50	103	20	20	21	29	20
2015	60	121	107	51	104	21	21	22	30	21
2016	61	122	108	52	105	22	22	23	31	22
2017	62	123	109	53	106	23	23	24	32	23

**Source:** Author Calculation from the Annual reports of banks website

AGE refers to the total number of years that a bank has been in operation will be used to capture the age of the bank (Paul Kibathi Kagecha, 2014). Ample amount of empirical research has been generated to illustrate the importance of age in firm's performance. (Beck, Kunt and Maksimovic, 2005) found that older institution performance worse than new entry institution. This results were

validate by (Hsiu-Ling, 2007) who found that the older the bank, the worse the ROA.

### Findings

Table 6 shows the descriptive analysis of public and private sector banks. In public sector banks, the mean value of ROA is 0.0644. Minimum and maximum value of ROA is -1.380 and 1.00 with Standard deviation is 0.693. In private sector banks, the mean value is 1.719, whereas standard deviation 0.313, minimum and maximum value is 0.650 and 2.000. There are the value of ROA and their mean, minimum, maximum and S.D in private sector banks is greater than public sector banks. Same is above the value of GNPA, NNPA and AGE is greater than private sector banks. The Z-value of all the banks variables for Skewness and Kurtosis are more than 1.96. Except ROA (both banks) and AGE public banks.

**Table 6. Descriptive Statistics for Bank Variables**

Public banks	Variable	Mean	Minimum	Maximum	Std.Dev.	Skewness	Kurtosis
	ROA	0.0644	-1.3800	1.0000	0.6932	-0.4463	1.9564
	GNPA	7.6604	2.4000	21.2500	4.7347	1.3493	4.2363
	NNPA	4.3684	1.2800	13.2100	3.0173	1.3984	4.2980
	AGE	88.6000	49.0000	123.0000	28.3842	-0.3036	1.3329
Private banks							
	ROA	1.7192	0.6500	2.0000	0.3139	-2.0767	6.9743
	GNPA	2.1364	0.8100	7.8900	1.7444	1.8503	6.0283
	NNPA	0.9140	0.2000	4.8900	1.0358	2.5828	9.9305
	AGE	23.0000	19.0000	32.0000	3.8729	1.1638	3.1134

Source: Panel Regression Output by Authors.

The adjusted R square value of the following table 7 is 0.7566, which means that 75.66% variations of the dependent variable (ROA), due to the independent variable (GNPA, NNPA and AGE). Coefficient of determination (R-square) value is 0.8276, which display the highest percentage value that the independent variables describe 82.7% differences of ROA. There is a strong relationship between independent variable and dependent variable. In private sector banks, the adjusted R square value is 0.8151, which means that 81.51% variations of the dependent variable (ROA), due to the independent variable (GNPA, NNPA, and AGE). Coefficient of determination (R-square) value is 0.8690, which is a strong relation between independent variable and dependent variable. F statistics of public sector banks is 11.66, and Private sector banks consists the value of 16.11 are significant at 0.05 level for both banks. It is clearly shows the variation of independent and dependent variables. P value of both banks is 0.000 which is less than 0.05 also display the relationship of NPAs and profitability is significant at 5 % level of significance. The value obtained by Durbin- Watson tests are by public sector banks is 2.72, and in private sector, the value is 3.30 which show that the value from both sector are around 3. (As a rule of thumb values of  $1.5 < d < 2.5$  show that there is auto-correlation in the data).



**Table 7. Model Summary and ANOVA**

Measures	R <sup>2</sup>	Adjusted R <sup>2</sup>	F value	P value	Durbin Watson
<b>Public banks</b>	0.8276	0.7566	11.6605	0.0000	2.7209
<b>Private banks</b>	0.8690	0.8151	16.1196	0.0000	3.3048

\*Predictors: (constant), GNPA, NNPA, AGE

\*\*Dependent variable: ROA

**Table 8. Hausman Test**

	Test Summary	Chi-sq	Chi-sq-d.f	Probability
<b>Public banks</b>	Cross-section random	14.3338	3	0.0025
<b>Private banks</b>	Cross-section random	7.9248	3	0.0476

Table 8 shows the Hausman test was applied to check which among fixed and random effect is suitable for our data. Hausman test shows that public and private sector banks probability value is (<0.05) significant results which means null hypothesis is rejected and it describes that fixed effect panel is suitable for our data.

**Table 9. Fixed Effect Panel Estimation**

Public banks	Variable	Coefficient	Std.Error	T- statistic	probability
	Constant	6.0269	7.5320	0.8001	0.4346
	GNPA	-0.0003	0.1189	-0.0026	0.9979
	NNPA	-0.1088	0.1836	-0.5925	0.5613
	AGE	-0.0619	0.0871	-0.7106	0.4869
<b>Private banks</b>	Constant	2.1391	0.5210	4.1055	0.0007
	GNPA	-0.5125	0.0871	-5.8840	0.0000
	NNPA	0.4375	0.1246	3.5107	0.0027
	AGE	0.0119	0.0237	0.5042	0.6206

\*Dependent variable: ROA

Panel Regression Equation fitted was:

$$ROA = (6.0269) - 0.0003 (X_{GNPA}) - 0.1088 (X_{NNPA}) - 0.0619 (X_{AGE}) \dots\dots\dots (i)$$

$$ROA = (2.1391) - 0.5125 (X_{GNPA}) + 0.4375 (X_{NNPA}) + 0.0119 (X_{AGE}) \dots\dots\dots (ii)$$

Equation 1 explains the impact of NPAs on the financial performance of public sector banks measured by Return on Assets (ROA) and Equation 2 explain the impact of NPAs on the financial performance of private sector banks measured by Return on Assets (ROA).

Table: 9 where the significant value of private sector banks, three ratios (ROA, GNPA, and NNPA) is less than 0.05. As a result null hypotheses ( $H_0$ ) are rejected. But in contrast the significant value of AGE is more than 0.05; as a result, null hypotheses ( $H_0$ ) are accepted. The significant value of public sector banks, four

ratios (ROA, GNPA, NNPA, AGE) are more than 0.05; as a result, null hypotheses ( $H_0$ ) are accepted.

The study found significant and positive impact of GNPA and NNPA on financial performance (ROA) of public sector banks. However, GNPA and NNPA have no significant impact on the financial performance (ROA) of private sector banks. Age has no significant relation with firm's profitability in both public and private sector banks.

### Conclusion

The study examines the impact of NPAs on the financial performance of public and private sector banks which covers the period of 2013 to 2017. Though the study [has not been about what the reason is behind in NPAs growth happen. Rather it has been an investigation about the persuasiveness of hypothesis in the literature part. The study focused on the role of variables which fluctuates the financial performance of public and private sector banks. All the variables present in the study describes and explained the problem of loan losses. The analysis of data is based upon panel regression model approach. Overall the result states that public and private sector banks should give proper attention towards the variables which is sensitive to private sector. The study found significant and positive impact of GNPA and NNPA on financial performance (ROA) of public sector banks. However GNPA and NNPA have no significant impact on the financial performance (ROA) of private sector banks. Age has no significant relation with banks profitability in both public and private sector banks. Also, we have limited our sample for the present study to banks in public and private sector banks. One may include more banks along with foreign banks also to extend the scope of the study. In the part of future research researcher may include macro and micro variable also. More over future studies could include the data of other developed countries in their research work. Despite above limitations of the study the analysis may support in finding the key financial performance of banks that describes the variables of GNPA and NNPA banks are both the sector should watch these factors regularly are influencing financial performance of banks to deal with the NPAs issue.

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