

An Empirical Analysis to Study the Impact of NPAs on Financial Performance of the Public Banks in India.

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Abstract- The issue of Non-Performing Assets (NPAs) in the Indian banking sector has become the subject of much discussion and study. The purpose of the study is an effort to look into the impact of public sector banks NPA's on return on assets and return on equity. The underlying poor assets with banks are seriously hampering the operations and profitability. Increase in NPA has a directly effect on the profitability of the banks. The study will provide empirical evidence in fulfilment to the objectives of the paper. Sample of six public banks has been taken into study. Secondary data has been extracted from the annual reports of the banks for the period 2007-08 to 2017-18. Empirical evidences have been sort down using E-views as a main statistical tool. The study shows the indications that non-performing assets have a significant impact on the profitability of banks and return of the shareholders. Further the study states the percentage of variance being explained by NPA.

Keywords: NPA, ROA, ROE, Total Assets, Public Sector Banks

I. INTRODUCTION

We know that banks and financial institutions in India are facing the problem of inflammatory non-performing assets (NPAs) and the problem is becoming more complex. Some recent steps have been taken to control the situation. In 2002 legislation on securitization and reconstruction of financial assets and realization of collateral was adopted by Parliament. This is an important step to eliminate or reduce NPAs.

Assets are classified as non-performing assets (NPA) if the borrower does not pay the principal and interest for 180 days. However, since 2004, March the borrower will receive default status if the instalments are not paid within 90 days. If the advances or credit facilities granted by the bank to the borrower become invalid, the bank should consider all advances / credit facilities granted to this borrower as non-existent, although there may still be some advances / credit facilities.

Reasons for NPA crisis in Indian Banking Sector:

The origin of the emerging NPA problem is linked to the quality of credit risk management in the respective banks. Appropriate preventive measures must be taken, in particular to establish responsibility before the application of sanctions and to ensure effective monitoring after payment. Affected banks must continuously monitor their loans to identify accounts that may become ineffective.

First, profitability is the standard of any business enterprise, including the banking sector. However, the increase in NPA has a direct impact on the profitability of banks, as banks are legally barred from collecting income in these accounts as well as the banks are obliged to provide these assets as per the Reserve Bank of India (RBI).

In addition, with the increase in public reserves in the banking system, the banking sector cannot afford to borrow from lenders, as the NPA affects the banks' ability to repay.

In addition, the Reserve Bank of India (RBI) has been able to generate additional liquidity in the system through various interest rate reductions and banks are not harnessing these benefits for fear of increasing growth. Non-performing assets.

The expansion of NPAs requires a bank to access additional provisions for losses on its books. Banks allocate more funds to cover expected future losses. This leads to low profitability along with various structural issues. The profitability of a bank is measured by its Return on Assets (RoA), which is the ratio of a bank's net profit to its assets.

Some other reasons for the Non-performing assets were:

- After the nationalization of banks, prudent distribution of credit expenditure became mandatory.
- In view of federal policy, banks have been forced to lend in these areas.
- Agricultural industry people believed that interest-paying loans would be written off by successive governments, so they had little interest in returning the loan.
- SMEs also used credit, but it was unclear whether they had a history of debt repayment.
- Banks did not filter enough securities to cover loans during time bound calls.
- The asset was found to be a low quality asset even if the value of the asset provided was very low.
- Free delivery in "letter of credit" (Congress system) has also contributed to the increase in postal code.
- Delay in prepayment of loans or timely collection by banking officials also contributed to increase in NAP.
- The lack of accountability of the loan sanctioning agent led to a holistic caste approach by the agent recovering the debt.
- Due to pressure from the minister and other politicians, the sanctioned loan for candidates for inadequate positions has also led to non collection of debt.
- Inadequate credit information system and lack of vision to implement credit limits.
- Lack of proper inspection.
- Careless progress towards achieving budget goals.
- Lack of honest corporate culture, insufficient legal provisions regarding foreclosure and bankruptcy.
- Changes in economic / environmental policies.
- Lack of coordination between banks.

Some internal organizational factors that lead to NAP are:

- Expansion, diversification, modernization, implementation of new projects and allocation of funds to support associate companies, downward trend and capital and debt.
- Business failures (product, marketing, etc.), ineffective management, nervous working relationships, improper technology, technical problems, product overview, etc.
- Delays due to recession, lack of input, power shortage, rising prices, accidents, natural disasters and outsourcing problems for other countries.
- Extra time and money during the project implementation phase.
- Government policies such as consumption tax changes and pollution control orders.
- Spontaneous failures, refunds, fraud, embezzlement, dispute between promoters / administrators etc.
- Gaps, such as delays in lifting restrictions by banks and delays in raising government payments / subsidies.

Impact of NPA

- Lenders suffer a lowering of profit margins
- Stress in banking sector causes less money available to fund other projects, therefore, negative impact on the larger national economy.
- Higher interest rates by the banks to maintain the profit margin
- As investments got stuck, it may result in it may result in unemployment.

Operational definitions:

NPA: An asset is classified as a non-performing asset (APN) if the outstanding balance in the form of principal and interest is not paid for a period of 90 days.

Standard assets: This type of asset is not a non-performing asset. In other words, it does not outweigh the general risks associated with trading.

Lower quality assets: It is classified as a non-performing asset for a period not exceeding 18 months.

Doubtful property: A property which remains postcode for a period of more than 18 months is a doubtful asset.

Loss assets: The loss is here identified by the respective banks or by internal auditors or by external auditors or by the inspection of the Reserve Bank of India (RBI).

II. SIGNIFICANCE OF THE STUDY

Indian banking system is dealing with the problem of NPAs as one of the basic and the most frightening problems that had impacted the entire banking system. It hampers not only further availability of credit but deteriorates financial soundness of bank as well.

Profitability: NPAs lead a bank in a position where it stops earning income. Furthermore NPAs put a bank in a situation of higher provisioning compared to standard assets.

Shareholders' Interest: Every shareholder invests money to maximise his wealth in the form of higher dividend and market capitalisation. NPAs in a way erode the value of their investment in which results in dissatisfaction among them.

Impact on Customers: Due to low earning capacity, banks have to lower the interest rate on deposits made by public in saving and any other accounts, this leaves a stain on its credibility.

Maintaining legal reserve requirement: Every business has to go through the phase of survival, profit and growth. Since NPAs has curbed the profitability of the banks, it again forces the banks to slips to the phase of survival due to adequacy of capital held by it. Every bank has to keep certain percentage of its total deposits in the form of CRR & SLR and due to NPAs banks are facing liquidity crisis. As they are left with low funds to deal because it's assets are becoming NPA.

Credit reduction: Lower profitability and reduction in recovery of loans along with interest has a detrimental impact on economy, which might leads to economic slowdown. Non recovery of loans pushes the bank towards credit contraction.

III. REVIEW OF LITERATURES

The NPA problem is a major concern for creditors and policy makers. Numerous studies have been conducted to understand the causes that contribute to increasing NPA, the measures that need to be taken to solve the problem in the early stages, and the reforms that have been implemented to reduce NPA accumulation. (Rajeev & Mahesh, 2010), In their article dealt with NAPs after the global financial crisis. They suggest that general problem identification and self-monitoring can help overcome the problem of NPAs in general. Self help support groups also play an important role in repaying loans. (Gupta, 2012), compares the position of Non Performing Assets and associate banks of the State Bank of India (SBI) and other public sector banks. In their study they suggested that each bank must create a separate rating agency to evaluate creditors' lenders. It also indicates the need for a committee of financial experts to observe and monitor the issue of Non Performing Assets. (Bhaskaran, et al., 2016), compared Non Performing Assets of public and private sector banks over a period of ten years (2004-2013). Their study shows that private sector banks are more successful at lowering LPA Non Performing Assets than public sector banks. The study proposed that banks should adopt a structured policy to manage NPAs, in which NPA prevention is a priority. (Sengupta & Vardhan, 2017), compare two cases of the banking crisis after liberalization - one occurred in 1990. Finally, another raised the NPA, which began after 2008 where the problem of the global financial crisis. Sound Management, active banking rules and a strong legal framework to resolve NPAs can help resolve NPAs. On the other hand, restraint to regulatory framework is also a reason which adversely affects the banking crisis. (Karunakar, Vasuki, & Saravanan, 2008), discussed various factors enhancing Non Performing Assets, their impact on the operations of Indian banks and proposing measures to control the curse of the banking sector. The solution to the accumulation of postcodes is the key to good credit evaluation and risk management techniques. (Sahni & Seth, 2017), study the different reasons for the increase in RAN and its impact on banking operations. The authors mention a series of preventive and curative measures to control NPA. He suggested that an appropriate assessment be made of borrowers' creditworthiness to ensure a quick recovery of loans. (Kumar, 2018), found in his study that NPA has a serious negative impact on the profitability and liquidity of the banking system. He said that if the NPA issues were effectively addressed many microeconomic issues such as poverty, unemployment and imbalances in balance of payments would be mitigated, financial markets would be strengthened, and the image of the Indian banking system would be improved. It may improve the image in international market. (Kumar, Subba Rao, & Kusuma, 2018), conducted an interesting study to explain the main reasons for increasing in NPA. In study they find the root causes of industrial diseases i.e. changes in government policy, poor credit ratings and failures, disadvantages of Intentional Fluids and the Debt Process. (Mittal & Suneja, 2017), analyze NPA levels in the Indian banking sector and the reasons behind NPA growth. While the government has taken steps to reduce the NPA, they suggest that bankers should be interested in using a well-structured NPA management approach. Loan power must be considered after the return of investment in the proposed project and the validity of the customer's credit. (Barge, 2012), confirms that early audits and fund management are still needed. This study explores the use of improved capital, information on creditors' credit history and measures to help lenders develop entrepreneurial capabilities to ensure that assets are not converted into Non-performing assets.

IV. RESEARCH OBJECTIVES

The main objectives of the paper are

- To ascertain the effect of Non-performing assets on financial performance of the selected public banks.
- To ascertain the effect of Non-performing assets on shareholders returns of the selected public banks.
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V. RESEARCH METHODOLOGY

- a. *Type of Study:* The study is empirical in nature.
- b. *Sample:* In present study, six public banks have been selected on the basis of their net worth as in year 2019. The six banks are Bank of Baroda, Central Bank of India, State bank of India, Punjab National Bank, Bank of India, Canara Bank. The study period is consisting of eleven years i.e. from year 2007-08 to 2017-18 for the ascertainment of research objective. Six companies for eleven years' study period involve 66 observations.
- c. *Method of Data Collection:* The data used for research is secondary data type which has been extracted from the annual reports of respective public banks. Further the data and information has been extracted from the concerned banks and RBI websites.
- d. *Variables Studied and their detailed definition:* The variables taken for the study are Return on Assets (ROA), Return on Equity (ROE), Total Assets (TA) and Non-Performing Assets (NPA). The Total Assets (TA) is used as a control variable. Here in this paper ROA and ROE are dependent variables and NPA is independent variable. Each dependent variable will be studied separately with independent variable under distinct model.
- e. *Hypotheses*

H_{01}	There is no significant impact of Non-performing assets on returns on equity.
H_{02}	There is no significant impact of Non-performing assets on returns on assets.

- f. *Statistical Tools Used:* For performing analysis, panel data regression has been used. The observations are consisting of six public banks across eleven-year study period, therefore panel data regression will produce a better picture. The statistical packages used while performing statistical analysis are EViews-9 (majorly), SPSS-20 and MS-excel.

VI. ANALYSES & INTERPRETATION

The analyses part begins with the basic statistics giving information's regarding the behaviour and characteristics of the said variables followed by the main statistical analyses of panel data regression for testing the abovementioned hypotheses.

1. *Basic Statistics*

In order to apply any statistical analysis some basic statistics needs to be perform before it, for ascertaining the basic properties of the data. Figure 1 and Table 1 represent the results of analysis of basic statistics graphically and statistically.

Figure 1 Graphical presentation of the variables

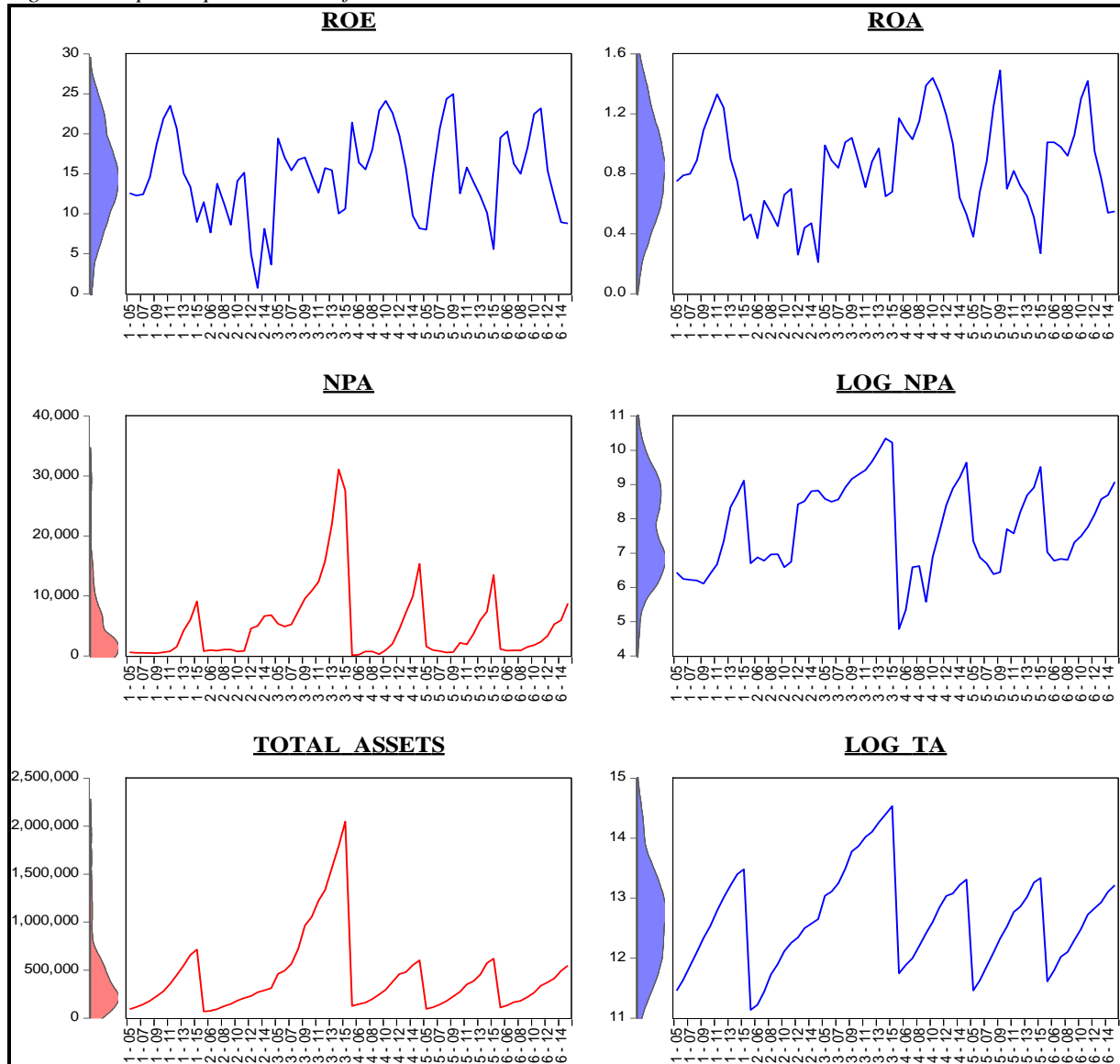


Figure 1 depicts various variables and the distribution of observations. The above figure also shows in support with statistics that ROE and ROA are normally distributed but NPA and total assets (TA¹) are not normally distributed. So for making NPA and TA stationary, the log of the same variables has been taken and transformed into new variable i.e. LOG_NPA² and LOG_TA³. After transformation of LOG_NPA and LOG_TA are found normally distributed. Further study is being carried using LOG_NPA and LOG_TA variables instead of NPA and TA. The small graph laid on Y-axis of the main graph shows the kernel density estimation which has smoothened the probability density of mentioned variables. The normality of the variable can be seen from the kernel density estimation. The two graph marked in red colour are not normally distributed.

Table 1 Basic Statistics of the variables

Statistic	Series	ROE	ROA	NPA	LOG_NPA	TOTAL_ASSET	LOG_TA
Mean		14.79201	0.846364	4856.485	7.742901	428478.4	12.63861
Trimmed Mean		14.92129	0.908100	3946.320	7.744584	373867.12	12.61762
Median		15.04250	0.860000	1992.000	7.596616	293064	12.58807

¹TA = Total Assets

²LOG_NPA = NPA variable has been transformed into a new variable after taking its log.

³LOG_TA = Transformed into a new variable by taking Log of variable Total assets.

Maximum	24.97090	1.490000	31096.00	10.34483	2048080	14.53241
Minimum	0.734800	0.210000	119.0000	4.779123	68596.00	11.13599
Std. Dev.	5.438569	0.312147	6279.754	1.286870	404588.7	0.797834
Skewness	-0.134206	0.086493	2.302716	0.047676	2.184901	0.305549
Kurtosis	2.605301	2.327305	8.781878	2.118416	7.893546	2.560973
Jarque-Bera	0.626538	1.326719	150.2603	2.162278	118.3654	1.557014
Probability	0.731053	0.515118	0.000000	0.339209	0.000000	0.459091
Sum	976.2725	55.86000	320528.0	511.0315	28279572	834.1484
Sum Sq. Dev.	1922.572	6.333327	2.56E+09	107.6422	1.06E+13	41.37499
Observations	66	66	66	66	66	66
Sample	2005 - 15	2005 - 15	2005 - 15	2005 - 15	2005 - 15	2005 - 15

The main interpretations which table 1 represents are of mean, trimmed mean, skewness and Jarque-Bera test. The five percent trimmed mean is the improved mean which is an average for 95 percent values after trimming extreme 2.5 percent values from both the ends of upper area and lower area. The trimmed mean helps in producing clearer picture after deleting outliers from both the sides. Here in this case the trimmed mean and simple mean of ROE, ROA, Log_npa and Log_TA are somewhat similar and near which shows the data have not as such significant outliers laid in the observations which need to be taken care of.

The skewness for the variable ROE, ROA, Log_npa and Log_TA are -0.134206, 0.08649, 0.047676 and 0.305549 respectively which is less than ± 1 . The ROE is negatively skewed whereas remaining three variables are positively skewed. Kurtosis for the same variables is 2.605301, 2.327305, 2.118416 and 2.560973 respectively, which is less than three. The rule of thumb suggests that if the value of skewness lies between ± 1 then it is towards symmetric. For kurtosis, if the value is lower than three then the distribution of data is platykurtic (flattened than normal) in nature.

The Jarque-Bera test for ROE, ROA, LOG_NPA and LOG_TA variables signifies that the distribution of data is normally distributed as p-value for all these four variables are more than five percent. NPA and Total assets are non-normally distributed due to which the specified variables have been transformed into new variable after taking its log i.e. LOG_NPA and LOG_TA.

2. Panel Data Regression Analyses

The paper involves study of six public banks which has been selected on the basis of their net worth. The statistical analysis has been performed with the view that every selected public bank is different from each other on the basis of several attributes such as; firm size; customers; technology; availability; etc. The present study has undertaken the panel data regression analysis where cross-section is set to random effect. Hausman test also has been performed for checking the accuracy of random effect model.

2.1 By Keeping ROE as dependent Variable and NPA as an Independent variable.

Table 2 ROE as dependent and LOG_NPA & LOG_TA as independent

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_NPA	-5.417530	1.012879	-5.348646	0.0000
LOG_TA	5.889897	1.216608	4.841244	0.0000
C	34.02875	3.605088	9.439090	0.1306
Weighted Statistics				
R-squared	0.515116		Adj. R-squared	0.499723
F-statistic	33.46398		Durbin-Watson stat	0.890887
Prob.(F-stats)	0.000000			
Correlated Random Effects - Hausman Test				
	Chi-Sq. Stat	Chi-Sq. d.f.	Prob.	
Cross-section random	0.356235	2	0.8368	

The econometric equation is as:

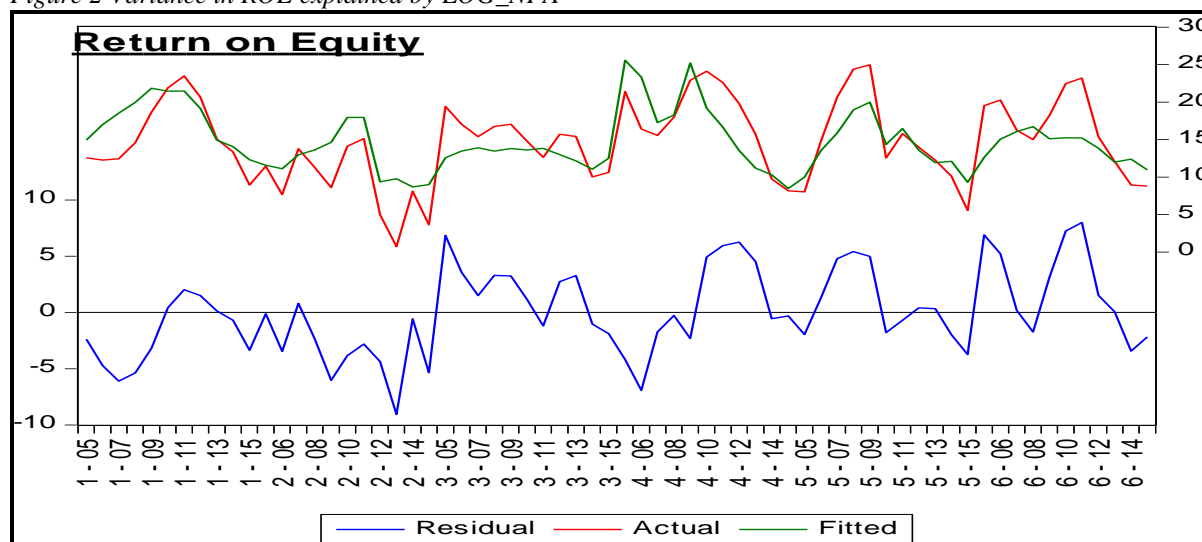
$$\begin{aligned}
 ROE &= \alpha + \beta_1 \text{Log_npa} + \beta_2 \text{Log_ta} + \mu \\
 &= 34.03 + -5.42 + 5.89 + \mu
 \end{aligned}$$

(0.130)(0.000) (0.000)

The Hausman test has been performed to check the consistency and efficiency of cross-section random effect model. The p-value 0.8368 in Hausman test is more than five percent level of significance which leads the paper to accept the null hypotheses i.e. random effect model is more appropriate than fixed effect model for panel regression.

Table 2 shows the negative coefficient of ROE with NPA. The coefficient i.e. -5.4175 found significant for LOG_NPA at one percent level of significance. This indicates that when log_npa increases by one unit then ROE decreases by 5.4175units. The p-value for LOG_NPA is 0.0000 which is significant at one percent level of significance with t-stat (-5.7071). This suggests that independent variable (NPA) here in model have the power to explain the variance in dependent variable (ROE). The p-value for f-stat (32.17268) is 0.0000 which shows that model is a good fit. The Adjusted R-squared for the model indicates that 49.97 percentage of the variance in ROE (DV⁴) can be explained by NPA(IV⁵). The Durbin-Watson for this model is 0.890887 which signifies the presence of autocorrelation among each particular variable across taken study period.

Figure 2 Variance in ROE explained by LOG_NPA



In figure 2 the red and green line shows actual distribution of data and the fitted line through the regression equation respectively. The blue line specifies residuals, of which variance cannot be explained by independent variable. It can be seen in figure that how closely the fitted line is hovering over actual line. The statistical analyses bring out that approx. 50 percent of variation in dependent variable is being explained by independent variable and remaining is by residuals.

2.2 By Keeping ROA as dependent Variable and NPA as an Independent variable.

Table 3 ROA as dependent and LOG_NPA & LOG_TA as independent

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_NPA	-0.304284	0.057328	-5.307728	0.0000
LOG_TA	0.368458	0.062010	5.941896	0.0000
C	-1.454400	0.483694	-3.006856	0.0038
Weighted Statistics				
R-squared	0.526646		Adj. R-squared	0.511619
F-statistic	35.04643		Durbin-Watson stat	0.882408
Prob.(F-stat)	0.000000			
Correlated Random Effects - Hausman Test				
	Chi-Sq. Stat	Chi-Sq. d.f.	Prob.	
Cross-section random	0.567755	2	0.7529	

The econometric equation is as:

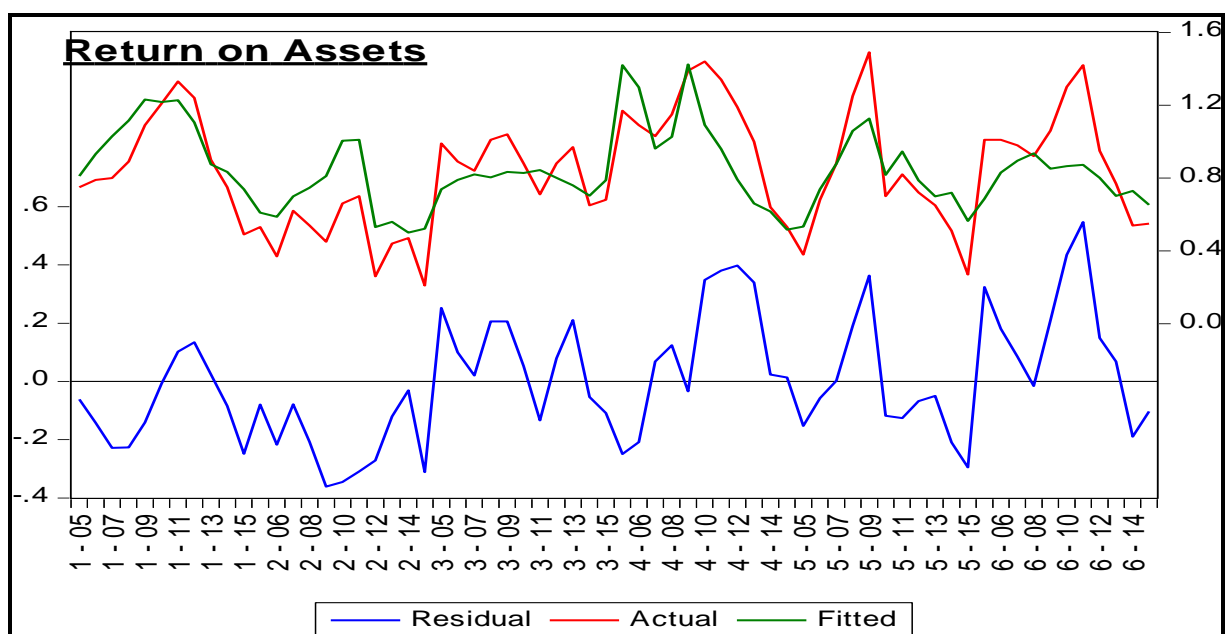
⁴ Dependent Variable
⁵ Independent Variable

$$\begin{aligned}
 ROA &= \alpha + \beta_1 \text{Log_npa} + \beta_2 \text{Log_ta} + \mu \\
 &= -1.45 + -0.30 + 0.37 + \mu \\
 &\quad (0.003) \quad (0.000) \quad (0.000)
 \end{aligned}$$

The statistics related to Hausman test (with Chi-Sq 0.5677, 2, 0.7529) for the cross-section random effect model in table 3 clearly depicts that cross-section random effect is more reliable.

Table 3 expresses that NPA is significantly negatively related with return on assets (ROA) of the selected public banks. LOG_NPA have coefficient of -0.3043(0.0000) which is significant at one percent level of significance. It states, with one-unit increase in LOG_NPA there will be decrease in ROA by 0.3043 unit. The adjusted R-squared (0.5116) in this model indicates the explanation power of NPA, for the variance in ROA i.e. NPA can explain 51.16 percent variance in ROA. The F-stats 35.0464 (0.0000) shows that it is a good fit model. Here in this model also Durbin-Watson stat 0.882408 is very much similar to the previous model, again signifying the existence of autocorrelation among each particular variable's eleven-year study period.

Figure 3 Variance in ROA explained by LOG_NPA



VII. CONCLUSION

From the above study it can be seen that there is a significant impact of non-performing assets on return on equity and return on assets. The expansion of NPAs requires a bank to access additional provisions for losses on its books. Banks allocate more funds to cover expected future losses. This leads to low profitability along with various structural issues. By and large the study illustrates a worrying situation for the banking sector as a whole. NPA has found as having vital role to play in affecting banks profitability and shareholders return. NPA of any bank significantly affect shareholders behaviour in investing and trading with them. The increasing NPA problem is not only confined to any particular bank but its prevailing in the whole banking sector. As a result, the entire sector is in crisis. The sub-standard assets are problem for the banks because it leads to decline in profit so as by making provision against those poor assets. Therefore, it not only affects the profitability of these banks but it also affects the wealth of stakeholders. So it is time for the RBI to enact strict rules to control the growth of these activities also to formulate a strong measures and practice to decrease the rate of poor underlying assets. In recent RBI has given figures indicating in declining of NPA growth rate of Public sectors banks. SBI has performed well among all five banks in managing NPA growth rate. Around 50 percent of variance is being explained by log of NPA in ROA and ROE in the study. Other variables are also there which can be affecting bank's returns significantly. The control and measures needs to be strengthened for non-performing assets, as insufficient borrowing affects the bank's liquidity and banks are told to lend slower, which will ultimately affect the economic growth.

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