IMPACT OF NON-PERFORMING ASSETS (NPAS), INTEREST INCOME AND AGE OF THE BANKS ON FINANCIAL PERFORMANCE IN INDIAN BANKS

Brajaballav Pal[1], Sanjib Das[2]

[1]Associate Professor, Department of Commerce, Vidyasagar University, Paschim Medinipur,
West Bengal, India, Email: pal.brajaballav@gmail.com
[2]Research Scholar, Department of Commerce, Vidyasagar University, Paschim Medinipur,
West Bengal, India, Email: sanjibdas.egra@gmail.com

Abstract: The purpose of the study is to examine the impact of NPAs, interest income and age of the Indian banks on financial performance of selected public and private-sector banks. The data have been collected from the official website of RBI on the basis of market capitalization of listed public and private sector banks in India. Panel data regression model has been applied for the study period ranging from 2010 to 2018 to examine the impact on financial performances of Indian banks. For the purpose of the study, we have considered nine banks from each sector both public and private sectors. Findings of the study reveal that there is significant positive impact of Interest Income and Age of the banks over financial performance of Indian banking sector. But, GNPA has significant negative impact on Financial Performance. However, if we consider sector wise, results exhibit differently. In case of Public Sector Banks, GNPA and Interest Income have significant impact on financial performance. GNPA and Age of the banks have significant impact on performances in case of private sector banks.

Key words: Financial performances: NPAs, ROA, Interest Income.

SECTION-I

INTRODUCTION

The Banking Industry is the backbone of an economy. The health of the banking industry largely depends on the quality of assets held by it. The deterioration of the asset quality of the Indian banking sector in recent years is a cause of concern as it indicates growing stress in the banking system. The failure of the banking sector in any country may have an adverse impact on other sectors. It must be on a sound footing as it constitutes an important link in various socio-economic activities. A strong banking sector is important for flourishing economy. At present, the core financial problem of banks is NPA. The ratio of Gross Non-Performing Assets (GNPA) to gross advances of the PSBs was as high as 13.5 per cent as of September, 2017. On the

other side, the financial health of the Private Sector Banks is found to be comparatively in a better shape. However, in recent years, there has been substantial growth of bad loans in the private sector banks. The growing incidence of bad loans has serious implications for the banking sector and the economy. In India, the definition of NPAs has changed over time. According to the Narasimham Committee Report (1991), an asset is classified as a Non-Performing Asset (NPA) if interests or installments of principal due remain unpaid for more than 180 days. Subsequently, this period was reduced, and from March 1995 onwards the assets for which the interest remained unpaid for 90 days are considered as NPAs.

Non-Performing Assets (NPA) has emerged since over a long period as an alarming threat to the Indian Banking Industry. NPA arises due to various factors like default, fraudulent practices, advances without

security, diversion of funds. There are many internal factors, namely, inefficient management, inappropriate technology, labour problems, marketing failure, etc. and external factors like a recession in the economy, infrastructural problems, price rise, delay in release of sanctioned limits by banks, delays in settlements of payments by government, natural calamities, etc. (Uppal & Juneja, 2012).

With the gradual increase of Non-Performing Assets, Banks are forced to lower the interest rates on the deposit and on advances likely to pay higher interest rates on advances. Such Non-Performing Asset reduces the confidence level of the investors, which significantly impact the share price of the banks. In this situation, banks are required to stop payment of dividend to the shareholders, which was not inconsistent with the interest of the investors. The poor performance of the banks due to increases in Non-Performing Assets not only lowers the sentiments of the investors, but the banks also lose the faith of the public that directly affects the deposits into the bank. In this context, RBI has recommended a few measures for curbing with the problem of NPA. Now, bank is recovering their losses by levying charges on those operations which were free of cost, namely, withdrawal limit from ATM, withdrawal number of times, cash deposits in other branches, internet transaction charges, etc. In this context, it is the right time to re-examine the impact of NPA and interest income and efficiencies on Return on Assets.

For the purpose of the study, we have organized the whole paper into Five Sections: Section I includes Introduction. The rest of this paper is organized as follows: Section II contains an overview of the existing literature, research gap, objectives and hypotheses. Section III describes the variables, research framework, basic models and methodology used for this study. Section IV presents and discusses the analysis and findings of the study and Section V provides a conclusion.

SECTION II

REVIEW OF LITERATURE

For the purpose of the study, we have reviewed some literatures. A few of them are mentioned below.

At the very early stage of nationalization of banks, there is a positive relation between bank loans and profitability of the banks (Abreu and Mendes, 2003). But with the growing economic activities along with the passage of time, loans and advances of the banks are transforming into the bad loans or NPAs. Such NPAs affects profitability, liquidity and solvency position of banks by affecting its operational efficiency. Banks should have serious look on NPAs, since it may affect the growth and survival of banks (Michael et al.; 2006). In a study by Podpiera et al. (2005) identified that factors like performance, credit growth, capitalization and cost efficiency have an impact on the rising of non-performing of loans. Prerna Bamoriya and Rajendra Jain (2013) in their study concluded that the Total Assets and Total Deposits had significant impact on NPAs whereas Total Advances and Net Interest Income had no significant impact. Dr. M. Syed Ibrahim and Dr. Rangasamy Thangavelu (2014) examined in their study that the commercial banks have significantly improved their working performance in the areas of NPAs and banks should handled NPAs in such a manner that would not ruin the financial positions and affect the image of the banks. S. Poornima (2013) suggests in his study that banker should constantly monitor the borrowers in order to ensure that the amount sanctioned is utilized properly and the banker should get both the formal and informal reports about the goodwill of the customer.

Zahoor, Ahmed. & Jagadeeshwaran, M. (2013) in their study examined that NPA is a severe problem faced by the banking industry. They also identified the various causes for NPAs are willful defaults, improper processing of loan proposals, poor monitoring, etc. Goyal, N., Agrawal, R. &. Aggarwal, R. (2016) conducted a study and measured the effect of every sector of priority sector lending on NPA for public and private banks from 2001 to 2013. They concluded that the priority sector lending has a significant impact on NPA in case of both public banks and private banks, but public banks NPA was more affected by the priority sector lending as compared to the private banks. Tandon et al. (2017) focuses on banks' specific, macroeconomic determinants of the non-performing loans and their impact on the banking profitability. They selected 35 public and private sector banks for the period 2007 -2016 and used multivariate analysis to find out the result. Their study mentioned that NPA management of Public Sector Banks requires more attention to increase their profitability and performance. Banerjee and Mitra (2018), in their study mentioned that NPA have a direct

influence on the profitability, liquidity and solvency of the bank. Growing NPA has seen one of the major problems of the Indian Banking System.

RESEARCH GAP

Based on the review of existing literature, it is found that most of the studies are concerned with the impact assessment of NPAs on Profitability. Some studies are conducted for the determination of non-performing assets. But, there are small numbers of studies that consider the impact of interest income on return on assets. Moreover, a few studies conducted in India deal with Panel Data Analysis.

OBJECTIVE OF THE STUDY

The main objective of the study is to find out the impact of NPAs on Financial Performance of the banking sector. The specific objectives are:

i. To examine the impact of NPAs on Public Sector Banks;

ii To examine the impact of NPAs on Private Sector Banks;

iii. To examine the impact of NPAs on both Public and Private Sector Banks.

HYPOTHESIS OF THE STUDY

The following hypotheses have been considered in the present study:

H_{01}: There is no significant impact of NPAs on Public Sector Banks.

H_{A1}: There is significant impact of NPAs on Public Sector Banks.

H_{02}: There is no significant impact of NPAs on Private Sector Banks.

H_{A2}: There is significant impact of NPAs on Private Sector Banks.

H_{03}: There is no significant impact of NPAs on both Public and Private Sector Banks.

H_{A3}: There is significant impact of NPAs on Public and Private Sector Banks.

SECTION III

We have considered the following variables so as to fulfil the objectives of the study.

Variables Used

Sl. No.	Variable	Abbreviation	Measurement
1.	Return on Asset	ROA	PAT/ Total Assets
2.	Gross Non-Performing Assets	Ln_GNPA	GNPA is the total amounts due to borrowers which include principal, interest or any other charges.
3.	Interest Income	Ln_Interest	Interest earned by bank per year
4.	Age of the bank	Ln_Age	Number of years established

In this study, four variables have been considered, viz. GNPA, Interest Income, and Age of the bank and ROA among which the first three are the independent variables, while the last one is the dependent variable.

RESEARCH FRAMEWORK

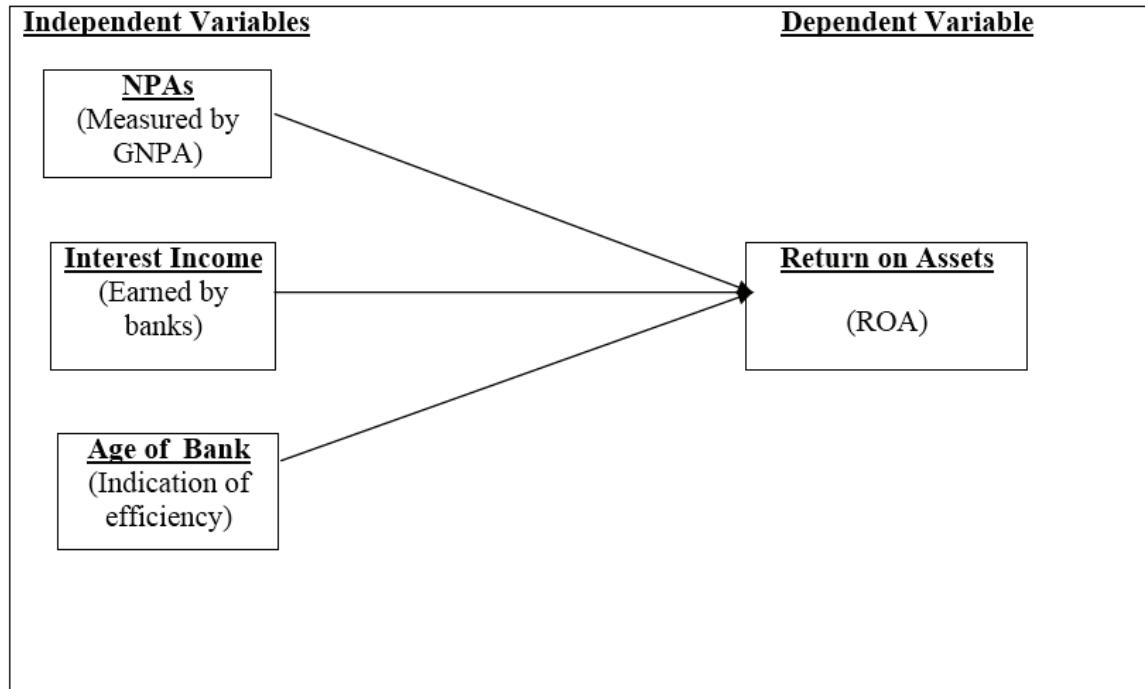A schematic figure of the current research framework is provided below.

Figure: Current research framework

Basic Model of the Study:

ROA = f (GNPA, Interest Income, Age of the bank).

The equation for the fixed effects model: $Y_{it} = \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \alpha_i + u_{it}$

Where, Y_{it} = the return on asset (ROA)

X_{1it} = Gross Non-Performing Assets

X_{2it} = Interest income

X_{3it} = Age of Bank

β_1, β_1 and β_1, are the coefficients

α_i (i=1….n) is the intercept for each entity

u_{it} is the error term

i = different banks

t = time

The equation for the random effects model: $Y_{it} = \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \alpha_i + u_{it} + \varepsilon_{it}$

Where, u_{it} = Between entity error

ε_{it} = Within entity error

RESEARCH METHODOLOGY

Sources of Data

The present study is based on secondary data and data is collected from the official website of RBI, annual reports, journals, newspaper etc. Nine banks from each public and private sector were selected on the basis of judgment sampling.

Sample Size

The sample consist the 18 Indian public and private sector banks which have been selected for the study on the basis of their market capitalization.

Period of the Study

The study period has been considered for nine years, i.e., 2010-2018 to examine the impact of NPA for selected public and private sector banks.

Statistical Techniques

For analysis of the nature of the variables we have used descriptive study. We have also conducted Panel Data Analysis both fixed and random effects, to examine the impact of NPAs on performance.

SECTION IV

ANALYSIS AND FINDINGS

Table 1 Descriptive Statistics

Variables	Observations	Mean	Std. Deviation	Min.	Max.
ROA	162	0.8591	0.8747	-2.33	2.02
Ln_GNPA	162	8.4269	1.7281	4.0977	12.3168
Ln_Interest	162	9.8798	0.9996	7.5682	12.3192
Ln_Age	162	3.9588	0.8348	1.9459	4.8383

Source: Authors' own calculation

Table 1 shows that mean value of ROA is 0.8591 and the standard deviation is 0.8747. Ln_GNPA ranges from 4.0977 to 12.3168 with mean value of 8.4269 and it has standard deviation of 1.7281. The mean value of Ln_Interest is 9.8798 and its standard deviation is 0.9996. Ln_Age extends from 1.9459 to 4.8383 and its standard deviation is 0.8348.

Table 2 Correlation Matrix

	ROA	Ln_GNPA	Ln_Interest	Ln_Age
ROA	1.0000			
Ln_GNPA	-0.6214* 0.0000	1.0000		
Ln_Interest	-0.2384* 0.0000	0.8451* 0.0000	1.0000	
Ln_Age	-0.6307* 0.0000	0.4693* 0.0000	0.1892* 0.0159	1.0000

Source: Authors' own calculation

It is seen from Table 2 that ROA has significant negative relation with Ln_GNPA, Ln_Interest and Ln_Age.

Table 3 Regression Results of Public Sector Banks (Dependent Variable: ROA)

Model / Independent Variable	Fixed Effect Model Coefficients (p-value)	Random Effect Model Coefficients (p-value)	Hausman Test Chi² (p-value)	Preferred Model
Constant	11.95 (0.399)	-4.44 (0.020)		
Ln_GNPA	-0.85 (0.000)	-0.95 (0.000)		
Ln_Interest	1.19 (0.000)	1.22 (0.000)	1.68 (0.642)	Random Effect Model (As the p-value of Chi²>0.05)
Ln_Age	-3.48 (0.291)	0.25 (0.421)		
R²	0.81	0.82		
F / Chi²	103.76 (0.000)	331.68 (0.000)		
*Significant at 5% level				
ROA: Return on Assets GNPA: Gross Non-Performing Assets Interest: Interest Income Age: Age of Banks				

Source: Authors' own calculation

Table 3 exhibits the result of Panel Data Analysis under both Fixed and Random effects models. The Hausman Test accepts the Random Effects Model as the expected model for panel data analysis. The p-value (0.000) of the Chi² (331.68) of the random effects model shows that the model is good fit for the study. The value of R² indicates that the model is explaining 82% variation of ROA. The p-values of the Coefficients of Ln_GNPA (-0.95) and Ln_ Interest (1.22) are lying below the significance level 0.05. So, we can reject the null hypotheses and can say that the GNPA and Interest Income have statistically significant effect on ROA. But, GNPA has significant negative impact and Interest Income has significant positive impact on Return on Assets. For every 1% change in the GNPA, the ROA will decrease by 0.95% and for every 1% change in Interest Income; the ROA will increase by 1.22%.

Table 4 Regression Results of Private Sector Banks (Dependent Variable: ROA)

Model / Independent Variable	Fixed Effect Model Coefficients (p-value)	Random Effect Model Coefficients (p-value)	Hausman Test Chi² (p-value)	Preferred Model
Constant	-2.40 (0.061)	-0.44 (0.607)	15.00 (0.001)	Fixed Effect Model (As the p-value of Chi²<0.05)
Ln_GNPA	-0.54 (0.000)	-0.38 (0.000)		
Ln_Interest	0.22 (0.341)	0.55 (0.000)		
Ln_Age	1.67 (0.044)	-0.16 (0.079)		
R²	0.40	0.36		
F / Chi²	15.94 (0.000)	61.11 (0.000)		
*Significant at 5% level				
ROA: Return on Assets GNPA: Gross Non-Performing Assets Interest: Interest Income Age: Age of Banks				

Source: Authors' own calculation

Table 4 shows the result of Panel Data Analysis under both Fixed and Random effects models. The Hausman Test accepts the Fixed Effects Model as the expected model for panel data analysis. The p-value (0.000) of the F-statistics (15.94) of the fixed effects model shows that the model is good fit for the study. The value of R² indicates that the model is explaining 40 % variation of ROA. The p-values of the Coefficients of Ln_GNPA (-0.54) and Ln_Age (1.67) are lying below the significance level 0.05. So, we can reject the null hypotheses and can say that the GNPA and Age of the bank have statistically significant effect on ROA. But, GNPA has significant negative impact and Age of the bank has significant positive impact on Return on Assets. For every 1% change in the GNPA, the ROA will decrease by 0.54% and for every 1% change in age; the ROA will increase by 1.67%.

Table 5 Regression Results of both Public and Private Sector Banks (Dependent Variable: ROA)

Model / Independent Variable	Fixed Effect Model Coefficients (p-value)	Random Effect Model Coefficients (p-value)	Hausman Test Chi² (p-value)	Preferred Model
Constant	-4.24 (0.002)	-1.15 (0.114)	23.34 (0.000)	Fixed Effect Model (As the p-value of Chi²<0.05)
Ln_GNPA	-0.75 (0.000)	-0.72 (0.000)		
Ln_Interest	0.63 (0.000)	0.87 (0.000)		
Ln_Age	1.31 (0.014)	-0.12 (0.208)		
R²	0.64	0.62		
F / Chi²	86.42 (0.000)	291.53 (0.000)		
[*]Significant at 5% level				
ROA: Return on Assets GNPA: Gross Non-Performing Assets Interest: Interest Income Age: Age of Banks				

Source: Authors' own calculation

Table 5 displays the result of Panel Data Analysis under both Fixed and Random effects models. The Hausman Test accepts the Fixed Effects Model as the expected model for panel data analysis. The p-value (0.000) of the F-statistics (86.42) of the fixed effects model shows that the model is good fit for the study. The value of R^2 indicates that the model is explaining 64 % variation of ROA. The p-values of the Coefficients of Ln_GNPA (-0.75), Ln_Interest (0.63) and Ln_Age (1.31) are lying below the significance level 0.05. So, we can reject the null hypotheses and can say that the GNPA, Interest Income and Age of the bank have statistically significant effect on ROA. But, Interest Income and Age of the bank have significant positive impact and GNPA has significant negative impact on Return on Assets. For every 1% change in the GNPA, the ROA will decrease by 0.75% and for every 1% change in interest income and age; the ROA will increase by 0.63% and 1.31% respectively.

SECTION V

CONCLUSION

We have dealt with impact of Interest Income, Gross Non-performing Assets and Age of the banks on ROA in hypothesis no. 1 (for public sector banks). From the analysis of results, we may conclude that GNPA and Interest Income have significant impact on ROA. But Age of the banks has no significant impact on ROA. This may be due to the non-expertise and non-enthusiastic in their activity. However, GNPA has significant negative impact; this may due to increase in the non-performing assets result into decreasing of ROA and Interest Income has significant positive impact on ROA. In case of private sector banks (Hypothesis no. 2), we may conclude that GNPA and Age of banks have significant impact on ROA. But, Interest Income has no significant impact on ROA. Here GNPA has significant negative impact and Age of the bank has significant positive impact on ROA; this may be due to the expertise and wholehearted in their activity.

The result of the overall banking sector (considering both public and private sector banks in Hypothesis no. 3) shows that GNPA, Interest Income and Age of the banks have significant impact on ROA. But GNPA has significant negative impact, whereas Interest Income and Age of the banks have significant positive impact.

References

1. Bamoriya, P. & Jain, R. (2013). "NPA and Select Key Financial Heads: an Empirical study of Commercial Banks of India using Multiple Regression Modelling", Journal of Accounting and Management, 3(2).

2. Banerjee, R. & Mitra, R. (2018). "Non-Performing Assets of the Indian Banking System: A Critical Evaluation", Asian Journal of Research in Banking and Finance, 8 (6), 1-16.

3. Goyal, N., Agrawal, R. & Aggarwal, R. (2016). "Two Way Fixed Effect of Priority Sector Lending (Sector Wise) on Non-Performing Assets of Indian Commercial Banks", International Journal of BRIC Business Research (IJBBR), 5(1), February 2016.

4. Ibrahim, M.S. & Thangavelu, R. (2014)." A Study on the Composition of Non-Performing Assets (NPAs) of Scheduled Commercial Banks in India", Journal of Finance and Bank Management, 2(1), 31-48.

5. Kumar, M. & Singh, G. (2012). "Mounting NPAs in Indian commercial banks", International Journal of Transformations in Business Management, 1 (6), 1-6.

6. Mendes, V. & Abreu, M. (2003). "Do Macro-Financial Variables Matter for European Bank Interest Margins and Profitability?", In EcoMod2003- International Conference on Policy Modeling, Global Economic Modeling.

7. Michael, JN., Vasanthi, G, & Selvaraju, R. (2006). "Effect of Non-Performing Assets on Operational Efficiency of Central-Cooperative Banks", Indian Economic Panorama, 16 (3), 33-39.

8. Podpiera, A. & Podpiera, J. (2005). "Deteriorating cost efficiency in commercial banks signals an increasing risk of failure", Working Papers 2005/06, Czech National Bank, Research Department.

9. Poornima, S. (2013). "Non- Performing Assets and its Impact on Performance of Karnataka State Co-Operative Apex Limited", International Journal of Advanced Research in Management (IJARM), 4(2), 11-23.

10. Tandon, D., Chaturvedi, A. & Vidyarthi, H. (2017). "Non-performing assets and profitability of Indian banks: an econometric study", International Journal of Business Competition and Growth, 6 (1), 60-76.

11. Uppal, R. K. & Juneja, A. (2012). "NPAs of Commercial Banks in India: Role of Debt Recovery Channels". Retrieved from https://www.indianjournals.com/ijor.aspx?target=ijor:ajrbem&volume=2&issue=11&article=013.

12. Zahoor, Ahmed. & Prof. Jegadeeshwaran, M. (2013). "Comparative Study on NPA Management of Nationalised Banks", International Journal of Marketing, Financial Services & Management Research, 2(8), 66-78.

Declaration

We are aware of the ethical and plagiarism policy and other rules and regulations of this journal and hereby certify and undertake that we shall abide by the rules and regulations. In case of any wrong, false and misleading information is supplied by us, we shall be responsible for the same.

Authors' contributions: SD has built the concept of the study, designed the study, analyzed and interpreted it and prepared the manuscripts. BP has edited the draft and provided technical support to SD. Both the authors have read carefully and approved the final manuscripts.

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Author details: 1. Department of Commerce, Vidyasagar University, Midnapore, West Bengal 721102, India. 2. Department of Commerce, Vidyasagar University, Midnapore, West Bengal 721102, India.