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IMPACT OF NON PERFORMING ASSETS ON PROFITABILITY OF COMMERCIAL BANKS

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ABSTRACT- Indian banking sector is fairly dominated by public sector banks and private sector banks. Due to heavy competition and advanced technology, Banking institutions are trying to improve their profitability and productivity which is important to survive in an economy. The present study has been done to assess the impact of Non Performing Assets on profitability of Public Sector Banks and Private Sector Banks. Secondary data has been used. The sample consists of 10 banks each from public and private sector banks on the basis of size. The research concludes that NPAs affects the profitability of public and private sector banks. As the level of NPAs increasing profitability of banks has been decreasing. NPAs shown insignificant impact on interest income to total assets of public and private sector banks. Net interest margin of public and private sector banks has been also affected by increasing rate of NPAs.

Keywords: Non Performing Assets, Public Sector Banks and Private Sector Banks

I. INTRODUCTION

NPAs have always deterred growth and profitability of banks. Banks always try to reduce level of NPAs by implementing various strategies. Allocation of loans is always seen as a benchmark for growth of a bank and in the process of loan allocation many a times banks allocate loans to such borrowers who do not repay loans at due dates, hence result into NPAs. As interest on allocated loans is one of the most significant sources of regular income for the banks but banks lose this income on such bad loans which directly hamper profitability. Banks lose interest as well as repayment of principal amount. Indian banking sector is fairly dominated by public sector banks and private sector banks. Due to heavy competition and advanced technology, Banking institutions are trying to improve their profitability and productivity which is important to survive in an economy. The future of banks would be depends upon their capability to build up sound assets in a present competition. Competition may be key elements which affecting the public sector banks and private sector banks in the future. Due to reforms, there is a need to increase profitability but also to decrease NPAs of banking institution (Rao, 2001). Thus, huge amount of NPAs may disturb the profitability and can harm the growth of Indian commercial banks. However, the association between profitability and NPAs is more ambiguous. If profitability reflects the management of quality asset of the firm's, then this might show that the bank will make fewer NPAs. Further, profitability flows into retained earnings and this make sound capital position of banking institutions. Alternately, greater profitability may reflect more riskiness and therefore, higher NPAs may be found in banks (Bhattarai, 2016).

II. REVIEW OF LITERATURE

Ranjan et al. (2003), explored the NPAs in commercial banks' of India. Three major sets of economic and financial determinants are bank size, terms of credit which encouraged risk preferences and macroeconomic factors were studied by the author. The results of panel regression models suggested that credit variables had crucial impact on NPAs of the Banks. On the other hand, macro-economic factors favorably led to lowering the NPAs.**Wu et al. (2003),** examined association between performing loans, real estate prices and the banking system. It also analysed determinants which disturb the ratio of non-performing loans to total loans. It was detected that a higher ratio of corporate loans to individual loans results in a lower proportion of NPAs, although, a lower percentage of real estate lending rate as compared to the primary lending rate leads to a higher percentage of NPAs. The study found that level of NPAs affects profitability of Bank as well as price performance of the real estate markets. **Khemraj et al. (2004)**, ascertained elements of NPAs in the Guyanese banking sector. The study indicated that whenever there was an appreciation in the local currency non-performing asset portfolios of commercial banks were likely to be higher. Results of the study showed that GDP growth was inversely related to non-performing loans and suggested that if there is any improvement in the real economy then it translates into lowering NPAs. The study found that real effective exchange rate (REER) had a significant impact on NPAs. It was also found that all those banks which charge relatively higher rate of interest and lent excessively were likely to incur higher levels of NPAs. **Bhakare(2010),** made an attempt to study inter sectoral comparison of NPAs of private sector banks and urban cooperative banks in Maharashtra State. The study concluded that private sector banks have higher standard assets as compared to Co- operative sector banks. It means the quality of standard assets possessed by private sector was better than Co- operative sector banks. **Kabra (2010)**, analysed the sensitivity of non-performing loans to macroeconomic factors and bank specific factors. The study used regression analysis and a panel data and taken data for 10 years that ranges from 1998-99 to 2008-09 to scrutinize association between non-performing loans and macroeconomic variables and bank specific variables. The study found that both bank specific factors and macroeconomic factors showed their impact on the loan portfolios of Indian banks. The study further revealed that commercial banks should also pay more attention to various factors while sanctioning loans. The above reviews indicate that although large studies have been done on various aspects of Banks. But no worthwhile research has been done on assessing the impact of non performing assets on profitability of commercial banks. This study is an attempt to fill this gap.

Objective of the study

To assess the impact of Non Performing Assets on profitability of Public Sector Banks and Private Sector Banks.

III. Research Methodology

To achieve the objectives of present research, secondary data has been used. Secondary data has been compiled from various reports of the RBI, Trend and Progress Report of Banking in India, Statistical tables relating to banks in India, annual reports of selected banks, RBI bulletins, RBI annual reports, RBI Reports on bank statistical returns of scheduled commercial banks in India to assess the impact of Non Performing Assets on profitability of Public Sector Banks and Private Sector Banks . The sample consists of 10 banks each from public and private sector banks on the basis of size. The sample has been selected by applying quartile deviation and three banks chosen from upper quartile, four banks from middle quartile and three banks from lower quartile. The study has enquired into the impact of NPAs on profitability of sampled public and private banks for the period 2001-02 to 2013-14 and profitability ratios as dependent variables have taken like ratio of interest income to total asset, ratio of net interest margin to total asset, return on assets, return on equity . Data have been analysed with Panel Data Regression. The present study also looked into the matter that whether there is any difference of degree of impact of NPAs on profitability between public sector banks and private sector banks. To study the effect of NPAs on Profitability of Banks various regression models used are as under:

Model I

$$\text{Ratio of interest income to total Asset}_{it} = \alpha_1 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{it}$$

Model II

$$\text{Ratio of Net Interest Margin to Total Assets}_{it} = \alpha_1 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{it}$$

Model III

$$\text{Return on Assets}_{it} = \alpha_1 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{it}$$

Model IV

$$\text{Return on Equity}_{it} = \alpha_1 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{it}$$

Ratio of Interest Income to Total Asset: The NII is the difference between the interest income and the interest expenses and it is calculated by dividing interest earned with total assets. To analyse impact of NPAs on public sector banks, ratio of interest income to total asset in Table 1 and impact of NPAs on private sector banks, ratio of interest income to total asset shown in Table 2.

Table: 1

Analysis of Impact of NPAs on Ratio of Interest Income to Total Asset of Public Sector Banks

Dependent Variable : Ratio of Interest Income to Total Asset of Public Sector Bank			
Independent Variables	**Coefficient**	**t**	**P>t**
GNPA to GA	-.006497	0.06	0.952
NNPA to NA	.0082335	0.06	0.951
GNPA to TA	-.3814943	1.36	0.175
NNPA to TA	.1443321	0.98	0.331
Constant	6.739987	17.77	0.000
R^2	0.1097		
Adjusted R^2	0.0812		
F	4.00		
Prob > F	0.0005		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 1 depicts the impact of depicted factors have been measured on interest income to total assets. Analysis shows that the listed factors have caused variation of 10 per cent as value of R^2 stands at 0.1097. The analysis through t-test showed that insignificant and negative impact has been noticed of GNPA to GA and GNPA to TA independent variables on dependent variable.

Table: 2

Analysis of Impact of NPAs on Ratio of Interest Income to Total Asset of Private Sector Banks

Dependent Variable : Ratio of Interest Income to Total Asset of Private Sector Bank			
Independent Variables	**Coefficient**	**t**	**P>t**
GNPA to GA	.1039378	0.50	0.617
NNPA to NA	.099654	0.19	0.850
GNPA to TA	.1944461	0.17	0.867
NNPA to TA	.2469055	1.13	0.262
Constant	8.355433	33.54	0.000
R^2	0.0158		
Adjusted R^2	0.0157		
F	0.50		
Prob > F	0.7349		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 2 demonstrate the impact of depicted factors have been measured on interest income to total assets. Analysis shows that the designated factors have caused variation of only 1 per cent as value of R^2 stands at 0.0158. The analysis through t-test showed that insignificant and positive impact has been noticed of all independent variables on dependent variable. Above analysis shows that independent variables among public and private sector banks have been shown insignificant impact on dependent variables. In case of private sector banks due to independent variables, impact of variation with one per cent only on dependent variable on the other hand, same variation found at rate of 10 per cent in case of public sector banks.

Ratio of Net Interest Margin to Total Asset: Net Interest Income / Total Assets. Net interest margin is the net interest income divided by average interest earning assets. To analyse impact of NPAs on public sector banks, ratio of net interest margin to total asset in Table 3 and impact of NPAs on private sector banks, ratio of net interest margin to total asset Table 4.

Table: 3

Analysis of Impact of NPAs on Ratio of Net Interest Margin to Total Asset of Public Sector Banks

Dependent Variable : Ratio of Net Interest Margin of Public Sector Bank			
Independent Variables	**Coefficient**	**T**	**P>t**
GNPA to GA	-.0460443	1.13	0.260
NNPA to NA	-.0506148	1.02	0.312
GNPA to TA	.18301	2.01	0.044*
NNPA to TA	-.0569013	1.02	0.308

Constant	2.42312	17.01	0.000
R^2	0.1045		
Adjusted R^2	0.0759		
F	4.00		
Prob > F	0.0005		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 3 presents the impact of depicted factors has been measured on net interest margin. Analysis shows that the listed factors have caused variation of 10 per cent as value of R^2 stands at 0.1045. The analysis through t-test showed that significant and positive impact has been noticed in GNPA to TA on Net Interest Margin to Total Asset (Sharma and Rathore, 2016; $R^2 = 0.020$; Rachdi, 2013).

Table: 4

Analysis of Impact of NPAs on Ratio of Net Interest Margin of Private Sector Banks

Dependent Variable : Ratio of Net Interest Margin of Private Sector Bank			
Independent Variables	**Coefficient**	**t**	**P>t**
GNPA to GA	.0524745	1.11	0.269
NNPA to NA	-.0650209	1.44	0.153
GNPA to TA	.1429806	2.00	0.05*
NNPA to TA	-.1585622	1.41	0.160
Constant	3.082066	27.23	0.000
R^2	0.1447		
Adjusted R^2	0.1173		
F	5.28		
Prob > F	0.0006		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 4 displays the impact of depicted factors has been measured on net interest margin to total assets. Analysis shows that the listed factors have caused variation of 14 per cent as value of R^2 stands at 0.1447. The analysis through t-test showed that significant and positive impact has been noticed of GNPA to TA on Net Interest Margin (Sharma and Rathore, 2016; $R^2 = 0.020$; Rachdi, 2013).Above analysis shows that independent variables among public and private sector banks has shown significant impact on dependent variables. In case of private sector banks due to independent variables, impact of variation with 14 per cent on dependent variable on the other hand, same variation found at rate of 10 per cent in case of public sector banks.

Return on Assets: Return on Assets (ROA) is a profitability ratio which indicates the net profit (net income) generated on total assets. It is calculated as (Profit after tax/Av. Total assets)*100. To analyse impact of NPAs on public sector banks, return on assets in Table 5 and impact of NPAs on private sector banks, return on assets Table 6

Table: 5

Analysis of Impact of NPAs on Return on Asset of Public Sector Banks

Dependent Variable : Return on Assets of Public Sector Bank			
Independent Variables	**Coefficient**	**T**	**P>t**
GNPA to GA	-.007093	0.37	0.715
NNPA to NA	-.0093921	0.39	0.694
GNPA to TA	-.0484899	0.97	0.335
NNPA to TA	.0273235	1.03	0.305
Constant	1.068866	15.72	0.000
R^2	0.1287		
Adjusted R^2	0.0916		
F	4.25		
Prob > F	0.0029		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 5 shows the impact of depicted factors has been measured on return on asset. Analysis shows that the listed factors have caused variation of 12 per cent as value of R^2 stands at 0.1287. The analysis through t-test showed that insignificant impact has been noticed of all independent variables on return on assets. ROA was found to be negatively associated to NPAs (Dimitrios et al.2016; curak et al. 2013; Prasanna et al.2016; $R^2 = 0.370$; Singh and Sharma; 2016).

Table: 6

Analysis of Impact of NPAs on Return on Asset of Private Sector Banks

Dependent Variable : Return on Assets of Private Sector Bank			
Independent Variables	**Coefficient**	**t**	**P>t**
GNPA to GA	- .118493	2.71	0.008*
NNPA to NA	-.0159513	0.38	0.704
GNPA to TA	-.140633	1.72	0.088
NNPA to TA	-.3519003	3.39	0.001*
Constant	1.477469	14.10	0.000
R^2	0.2633		
Adjusted R^2	0.2397		
F	11.17		
Prob > F	0.0000		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 6 revealed the impact of depicted factors have been measured on return on asset. Analysis shows that listed factors have caused variation of 26 per cent as value of R^2 stands at 0.2633. The analysis through t-test showed that significant and negative impact has been noticed of independent variables GNPA to GA and NNPA to TA on dependent variable, return on assets. Results analysed that NPAs badly affect the profitability of private sector banks. ROA was found to be negatively associated to NPAs (Dimitrios et al.2016; curak et al. 2013; Prasanna et al.2016; $R^2 = 0.370$; Singh and Sharma; 2016). Model has been found fit as F value is 11.17.

Above examination shows that independent variables of public sector banks shown insignificant impact on profitability of public sector banks. On the other hand, gross NPAs to gross advances and net NPAs to total assets have a highest impact on profitability of private sector banks comparatively so NPAs affects the profitability of private sector banks.

Return on Equity: return on equity (ROE) is a ratio relating net profit (net income) to shareholders' equity which refers to share capital reserves and surplus. It is calculated by applying this formulae Profit after tax divided by (total equity + total equity at the end of previous year)/2}*100. To analyse impact of NPAs on public sector banks, return on equity in Table 7 and impact of NPAs on private sector banks, return on equity in Table 8.

Table: 7

Analysis of Impact of NPAs on Return on Equity of Public Sector Banks

Dependent Variable : Return on Equity of Public Sector Bank			
Independent Variables	**Coefficient**	**t**	**P>t**
GNPA to GA	.250358	0.66	0.006
NNPA to NA	-.2702382	0.58	0.561
GNPA to TA	-.7997962	0.82	0.414
NNPA to TA	-.8042076	1.56	0.122
Constant	20.11882	15.20	0.000
R^2	0.0755		
Adjusted R^2	0.0459		
F	2.55		
Prob > F	0.0424		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 7 indicates the impact of depicted factors have been measured on return on equity. Analysis shows that the listed factors have caused variation of 7 per cent as value of R^2 stands at 0.0755. The analysis through t-test showed negative and insignificant impact has been noticed of all GNPA to GA on return on equity (Dimitrios et al.2016; curak et al. 2013; Prasanna et al.2016; $R^2 = 0.370$; Singh and Sharma; 2016).

Table: 8

Analysis of Impact of NPAs on Return on Equity of Private Sector Banks

Dependent Variable : Return on Equity of Private Sector Bank			
Independent Variables	**Coefficient**	**T**	**P>t**
GNPA to GA	-1.018741	1.37	0.174
NNPA to NA	1.007791	1.41	0.161
GNPA to TA	-3.772922	2.71	0.008*
NNPA to TA	4.731114	2.67	0.008*
Constant	19.26427	10.79	0.000
R^2	0.1600		
Adjusted R^2	0.1332		
F	5.95		
Prob > F	0.0002		

Notes: * denotes value significant at 5 % level , GNPA to GA is ratio of gross NPAs to gross advances, NNPA to NA is ratio of net NPAs to net advances, GNPA to TA is ratio of gross NPAs to total assets, NNPA to TA is ratio of net NPAs to total assets.

Table 8 demonstrate the impact of depicted factors have been measured on return on asset. Analysis shows that the listed factors have caused variation of 16 per cent as value of R^2 stands at 0.1600. The analysis through t-test showed that significant and negative impact has been noticed of independent variables GNPA to TA on dependent variable return on equity and NNPA to TA have shown positive and significant impact on return on equity. Results analysed that NPAs badly affect the profitability of private sector banks. ROE, were found to be negatively associated to NPAs (Dimitrios et al.2016; curak et al. 2013; Prasanna et al.2016; R^2 = 0.370; Singh and Sharma; 2016).Model has been found fit as F value is5.95.

Above examination shows that independent variables of public sector banks shown insignificant impact on profitability of public sector banks. On the other hand, Gross NPAs to total assets and Net NPAs to total assets have a highest impact on profitability of private sector banks comparatively. Overall observation depicted that NPAs affects the profitability of public and private sector banks. As the level of NPAs increasing profitability of banks has been decreasing. NPAs shown insignificant impact on interest income to total assets of public and private sector banks. Net interest margin of public and private sector banks has been also affected by increasing rate of NPAs. A bank with strong profitability is less likely to contribute in risky activities, such as sanctioning unsafe loans. As analysis depicts that return on equity and return on asset are significantly associated with NPAs.

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