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A Study of NPAs and Its Impact on the Profitability of Selected Indian Public Sector Banks

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Abstract:

Banking Sector plays a very important role for the economic development of the country. The problem of NPA is becoming very severe for the Indian banking sector as well as for the economy of the country. As per the prudential norms of RBI, an asset is said to be non-performing if the interest and/ or the principal amount remain unpaid for a period of 90 days or more. The main aim of the study is to examine the trends of NPAs and to analyze its impact on the profitability of selected Indian public sector banks. Seven public sector banks are selected and data have been analyzed through descriptive statistics, graphs, multiple regression analysis and one way ANOVA for the time period of ten years [2009-10 to 2018-19]. Return on Assets [ROA] and Return on Equity [ROE] are taken as dependent variables and GNPA, PCR, CAR, Size and LTDR are taken as independent variables for the regression analysis. The study revealed that the NPAs show the increasing trends during the time period of the study. It is also concluded that GNPA has significant negative impact on the profitability of sampled banks. PCR and CAR have also significant influence on the ROA and ROE of the selected banks.

Key Words: Non-Performing Assets, Profitability, Public Sector Banks, Multiple Regression Analysis, ANOVA etc.

Introduction

Banking sector plays a vital role for economic development of any country. The efficient and effective performance of banking industry over a period of time represents the financial stability of any nation. The extent to which a bank extends credit to the public for productive activities accelerates the pace of a nation's economic growth and its long-term sustainability. (Srivastava, 2016)

Credit Risk Management is one of the important parts of the loan process in the business of banking. Credit Risk is the current and prospective risk to earnings or capital that will arise by the failure of the borrower to meet the terms of any contract with the bank. (Gizaw, Kebede, & Selvaraj, 2015)

The primary of function of the bank is to accept the deposits from those who have surplus funds and to lend it's to the needy person for the various purposes. (Funso, Kolade, & Ojo, 2012)When banks grant loans, they expect the customers to repay the principal amount and interest at an agreed date. A credit facility is said to be performing if the payment of both principal and interest are up to date in accordance with agreed repayment terms. Thus, the Non-Performing Assets represents the defaults in repayment of principal and/or interest amount.

(RBI, 2001)An asset including a leased asset becomes non-performing when it ceases to generate income for the banks. A non-performing asset [NPA] was defined as a credit facility in respect of which interest and/ or installments of principal amount has remained 'past due' for a specified period of time. The specified period was reduced in a phased manner.

Year ending on 31st March	*Specified Period*
1993	Four Quarter
1994	Three Quarter
1995 Onwards	Two Quarter

An amount due under any credit facility is treated as 'past due' when it has not been paid within the 30 days from the due date. With effect from 31st March, 2001, a non-performing asset [NPA] shall be an advance where,

- Interest and/ or installment of principal remain overdue for a period of more than 90 days in respect of Term Loan.
- The account remains 'out of order' for a period of more than 90 days in respect of overdraft/ cash credit.
- The bills remain overdue for a period of more than 90 days in the case of bills purchased and discounted.
- Interest and/or installment of principal remains overdue for two harvest seasons but for a period not exceeding two half years in the case of an advance granted for agricultural purposes, and
- Any amount to be received remains overdue for the period of more than 90 days in respect of other accounts.

1. Review of Literature:

(Gnawali, 2018) examined the effect of non-performing assets [NPAs] on the profitability of Nepalese commercial banks. The study covered the period of 2010 to 2017 for 3 government banks and 10 non government banks. He used the regression model analysis for the purpose of the study. The study concluded that there is negative impact of NPAs on the return on assets of the selected

Nepalese banks. The result showed that higher the portion non-performing loan (NPL), Non-performing to total loan (NPLTL) and bank size lower would be the profitability of the Nepalese government banks.

(Bhattarai, 2016)**)** in his research paper examined the effects of non-performing loans on the profitability of Nepalese commercial banks using pooled data of fourteen commercial banks with 77 observations. He collected the data for the period of six year and analyzed them by using multiple regression model. The results showed that bank size has significant positive effect on bank's profitability i.e. ROA and ROE whereas cost per loan has significant effect only on ROA. While, GDP growth rate has significant positive effect on shareholder's return (ROE) only. The study concluded that the profitability of Nepalese commercial bank is influenced by non-performing loan ratio and other variables like cost per loan asset and GDP growth rate.

(Kedia, 2016) analyzed the determinants of profitability of Indian Public Sector banks. The purpose of the study was to determine the factors affecting the profitability of PSBs of India. Data had been collected for the time period of 8 years i.e. from 2006 to 2013 and analysed by multiple regression. He found out that only two independent variables i.e. credit deposit ratio and net interest income affect the net profitability of Indian public sector banks in a major way. He also found out that credit deposit has largest effect on net profits while operating expense has the least impacts on net profits.

(Miyan, 2017) in his research paper conducted comparative study of NPA factor and return on asset of PSU bank and private sector for the period of five years i.e. from 2011-12 to 2015-16. The main objective of the study was to analyze the trends of NPA of PSU banks and private banks. The study concluded that the NPAs show downward trend during the period of study but NPAs of public sector banks are still higher than private sector banks. The ROA have also downward trends but this is much lower in PSU banks as compared to private banks. The t-test showed that the results are not significant.

(Singh, 2015) analyzed the performance of credit management in Indian commercial banks. Twelve public sector and twelve private sector banks were selected. The aim of the study was to examine the impact level of credit risk management towards the profitability of selected Indian commercial banks. For this purpose he used multiple regression models by taking 11 years ROA, NPA and CAR from each selected banks. The secondary data collection method was used and data were collected for the period of eleven years i.e. from 2003 to 2013. The study indicated that there was significant positive inverse relationship return on asset and non-performing asset ratio. The study also concluded

that banks with higher interest income had lower non-performing assets.

2. Research Methodology

❖ Objectives of the Study:

- To analyze the trends of NPAs of the selected public sector banks in India.
- To examine the impact of NPAs of the selected public sector banks in India.
- To check whether there is significant difference between GNPA of the selected banks in India.

❖ Research Design:

The present study is based on descriptive research design.

❖ Sampling Method and Sample Size:

Simple random sampling method is used for the purpose of the study. The study consists of seven public sectors banks in India namely, Bank of India (BOI), Bank of Maharastra (BOM), Canara Bank, Corporation Bank, Punjab National Bank (PNB), State Bank of India (SBI), and Union Bank of India (UBI).

❖ Time period of the Study:

The present study covers the time period of ten years i.e. from the year 2009-10 to 2018-19.

❖ Source of Data:

The study is based on secondary data. Data have been collected from the journals, articles, annual reports of the banks, websites etc.

❖ Tools and Techniques:

Data have been analyzed through the descriptive statistics like mean, standard deviation, graphs and multiple regression analysis.

❖ Hypothesis of the study:

H_{01}: There is no significant influence of NPAs on the profitability of selected banks in India.

H_{02}: There is no significant difference between GNPAs of the selected banks in India.

❖ Specification of the Multiple Regression Model:

$$ROAit = \alpha + b1GNPAit + b2PCRit + b3CARit + b4Sizeit + b5LTDRit + \in$$

$$ROEit = \alpha + b1GNPAit + b2PCRit + b3CARit + b4Sizeit + b5LTDRit + \in$$

Where,

$ROA = Return\ on\ Assets,$

$ROE = Return\ on\ Equity,$

$\alpha = constant,$

$b1, b2, b3 \ldots\ldots b5 = coefficients$

$GNPA = Gross\ NPA\ Ratio$

$PCR = Provision\ Coverage\ Ratio$

$CAR = Capital\ Adequacy\ Ratio$

$LTDR = Long\ Term\ Deposit\ Ratio$

$Size = Natural\ Log\ of\ Total\ Assets$

$\in = error\ term$

3. Data Analysis and Interpretation:

❖ Trend Analysis:

To examine the trend analysis of Gross NPAs and Net NPAs of the selected public sector banks, descriptive statistics, tabulation and line chart have been used.

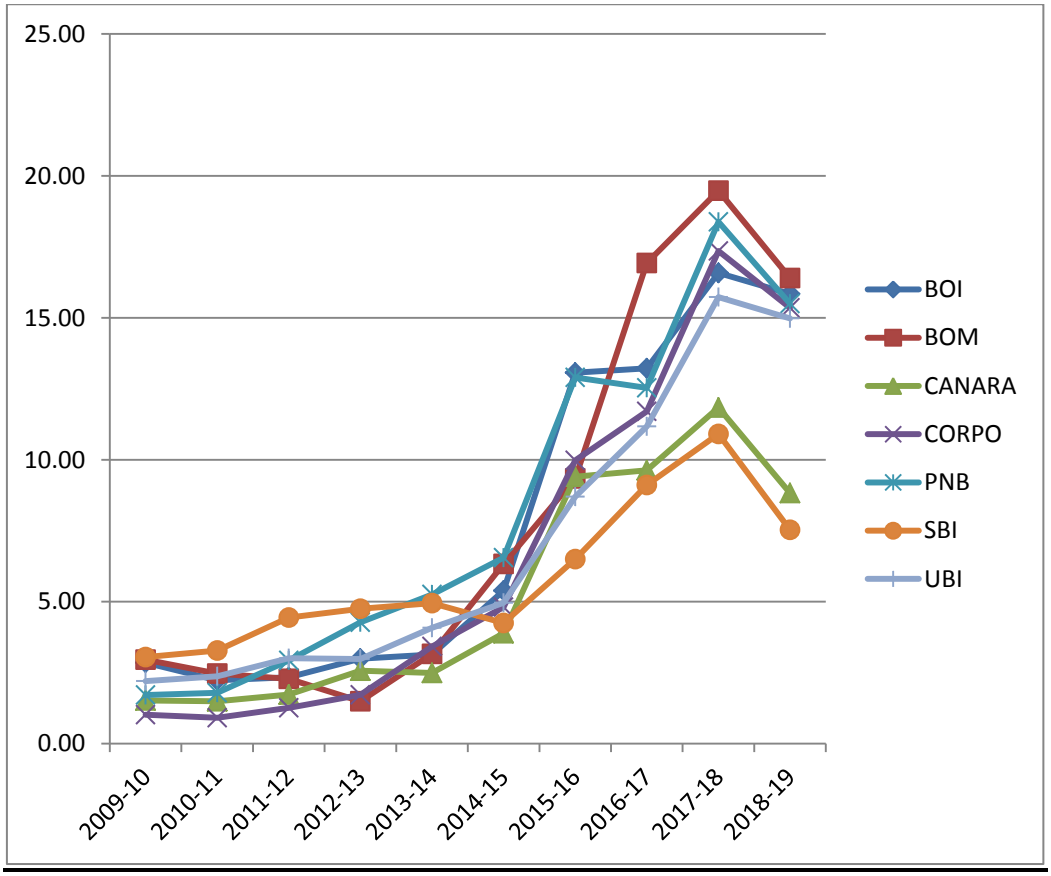
TABLE 4.1: GROSS NPA RATIO OF SELECTED PUBLIC SECTOR BANKS

YEAR	BOI	BOM	CANARA	CORPO	PNB	SBI	UBI
2009-10	2.85	2.96	1.52	1.02	1.71	3.05	2.20
2010-11	2.23	2.47	1.49	0.91	1.79	3.28	2.37
2011-12	2.34	2.28	1.73	1.26	2.93	4.44	3.01
2012-13	2.99	1.49	2.57	1.72	4.27	4.75	2.98
2013-14	3.14	3.16	2.49	3.42	5.25	4.95	4.08
2014-15	5.39	6.33	3.89	4.81	6.55	4.25	4.96
2015-16	13.07	9.34	9.40	9.98	12.90	6.50	8.70
2016-17	13.22	16.93	9.63	11.70	12.53	9.11	11.17
2017-18	16.58	19.48	11.84	17.35	18.38	10.91	15.73

2018-19	15.84	16.40	8.83	15.35	15.50	7.53	14.98
MEAN	7.77	8.08	5.34	6.75	8.18	5.88	7.02
SD	6.10	7.00	4.08	6.31	6.11	2.59	5.26
RANK	**5**	**6**	**1**	**3**	**7**	**2**	**4**

(Source: collected from published annual reports)

Fig. 4.1: GNPA RATIO OFSELECTED PUBLIC SECTOR BANKS



The above table and chart shows trends of GNPA ratio of selected public sector banks in India over a period ten years. It is observed that almost all the selected banks have mix trends during the period of the study. However, in the year 2018-19 the gross NPA of all the selected banks is declined. The mean and standard deviation is also calculated to make comparative analysis. Ranks are given on the basis of means. The bank which has least average of GNPA gets the first rank and vice versa. The bank which gets the first rank is more efficient in managing its NPAs. From the above table it is seen that the Canara bank is having least

average of GNPA and therefore it is ranked first. While, SBI has the highest average of GNPA and it gets the last rank which indicates the poor performance of the banks in managing non-performing assets.

TABLE 4.2: NNPA RATIO OF SELECTED PUBLIC SECTOR BANKS

YEAR	BOI	BOM	CANARA	CORPO	PNB	SBI	UBI
2009-10	1.31	1.64	1.06	0.31	0.53	1.72	0.81
2010-11	0.91	1.32	1.10	0.46	0.85	1.63	1.19
2011-12	1.47	0.84	1.46	0.37	1.52	1.82	1.70
2012-13	2.06	0.52	2.18	1.19	2.35	2.10	1.61
2013-14	2.00	2.03	1.98	2.32	2.85	2.57	2.30
2014-15	3.36	4.19	2.65	3.08	4.06	2.12	2.71
2015-16	7.79	6.35	6.42	6.53	8.61	3.81	5.25
2016-17	6.90	11.76	6.33	8.33	7.81	5.19	6.57
2017-18	8.26	11.24	7.48	11.74	11.24	5.73	8.42
2018-19	5.61	5.52	5.37	5.71	6.56	3.01	6.80
MEAN	3.97	4.54	3.60	4.00	4.64	2.97	3.74
SD	2.88	4.17	2.50	3.93	3.69	1.47	2.76
RANK	**4**	**6**	**2**	**5**	**7**	**1**	**3**

(Source: collected from published annual reports)

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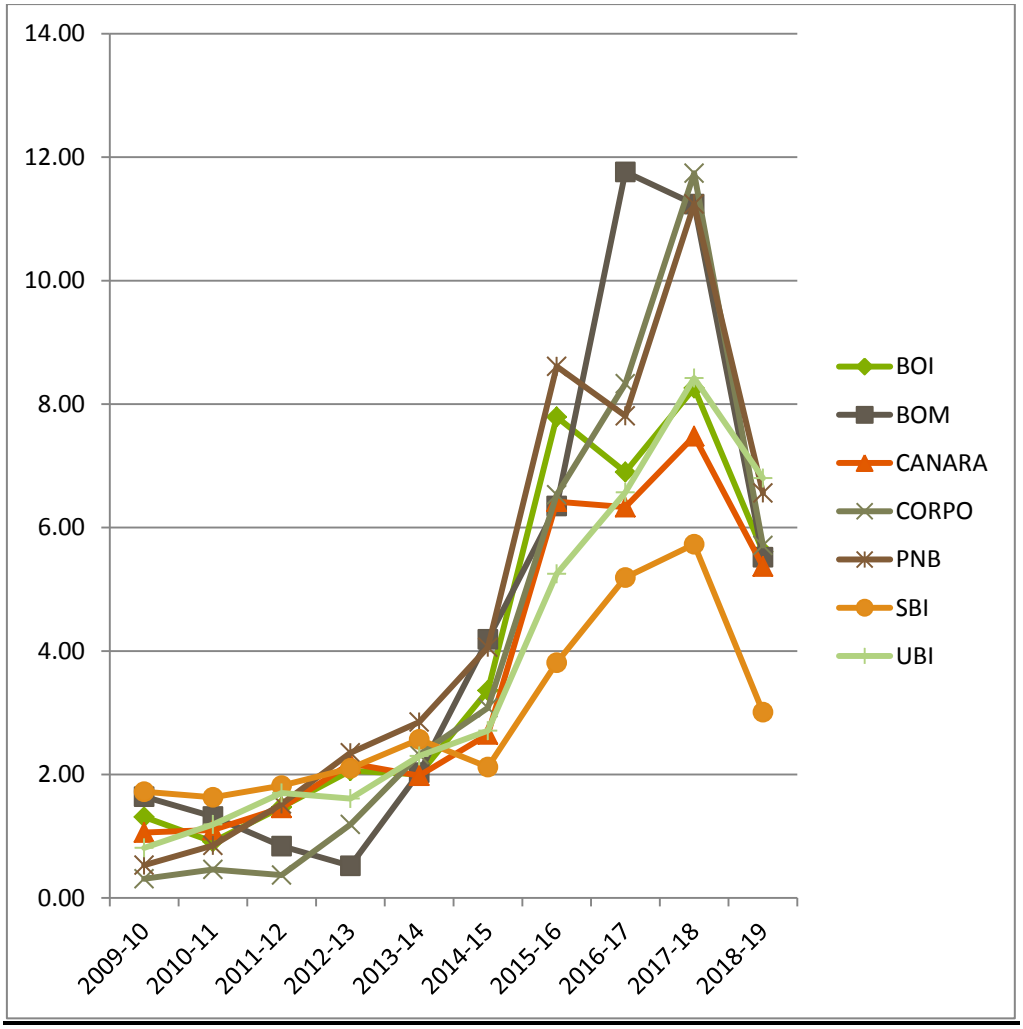
Fig. 4.1.2: NNPA RATIO OFSELECTED PUBLIC SECTOR BANKS



The above table and chart shows the net NPA ratio of selected public sector banks for a period of ten years i.e. from the year2009-10 to the year 2018-19. From the chart it is observed that all the selected banks is having mix trends of NNPA during the time period of the study. The mean and standard deviation is calculated and also rank is given on the basis of mean. Least mean indicates the good performance of the bank in managing its NPAs. From the table 4.1.2 it can be seen that the SBI bank has the lowest average of NNPA so it gets the first rank while, PNB is having highest average of NNPA which indicates lack of efficiency in managing NPAs.

- **One Way ANOVA:**

To test whether there exist any significant difference between GNPA of selected public sector banks

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One Way ANOVA is done.

TABLE 4.3. ANOVA OF GNPA RATIO OF SELECTED PUBLIC BANKS

ANOVA

GNPA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72.369	6	12.061	0.394	0.880
Within Groups	1929.637	63	30.629		
Total	2002.005	69			

(Source: Computed in excel by the researcher)

The above table shows the result of ANOVA of GNPA ratio of selected public sector banks in India. The calculated value is 0.3937 and p value is 0.880. So here p value is greater than 0.05 which means the nu hypothesis is accepted. So there is no significant difference between GNPA ratios of selected public secto banks.

❖ **Multiple Regression Analysis:**

In order to examine the impacts of NPAs on the profitability of sampled banks, multiple regression analys has been done with the help of SPSS software.

❖ **Analysis of Model – 1**

TABLE 4.4: CORRELATION MATRIX

Variable	ROA	GNPA	PCR	CAR	SIZE	LTDR
ROA	1.00					
GNPA	-0.854* (0.000)	1.00				

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PCR	0.017 (0.443)	-0.186 (0.061)	1.00			
CAR	0.438* (0.000)	-0.378* (0.01)	0.435* (0.000)	1.00		
SIZE	-0.009 (0.471)	0.121 (0.159)	0.034 (0.391)	0.167 (0.083)	1.00	
LTDR	0.448* (0.000)	-0.419* (0.000)	-0.115 (0.171)	0.044 (0.360)	0.072 (0.277)	1.00

(*significant at 5% level of significance)

The above table indicates Pearson Correlation Matrix. From the above table it is seen that GNPA has significant negative relationship with ROA. While CAR and LTDR has significant positive relationship with ROA. Further GNPA and ROA are highly correlated with each other. There is moderate correlation between CAR and ROA as well as LTDR and ROA. Moreover, CAR is significant negatively correlated with GNPA and significant positively correlated with PCR. There is significant negative correlation between LTDR and GNPA.

TABLE 4.5: Regression Analysis

Variables	Coefficients	Std. Errors	T value	P value	Tolerance	VIF
Constant	-0.916	1.120	-0.818	0.417		
GNPA	-0.134*	0.012	-11.177	0.000	0.643	1.555
PCR	-0.022*	0.006	-3.455	0.001	0.784	1.275
CAR	0.163*	0.049	3.316	0.002	0.676	1.479

SIZE	0.046	0.055	0.837	0.406	0.904	1.106
LTDR	0.012	0.010	1.274	0.207	0.760	1.315
R Square	0.799*					
P value	0.00					
Durbin – Watson	2.323					

(* significant at 5% level of significant)

- ***Estimated Model:***

$$ROA = -0.916 - 0.134GNPA - 0.022PCR + 0.163CAR + 0.046SIZE + 0.012LTDR$$

From the above estimated model it can be seen that GNPA and PCR has significant negative impact on ROA while, CAR has significant positive impact on ROA. Size and LTDR do not have significant impact on it. The tolerance and VIF of all independent variables are within the limits so there is no problem of multicollinearity. CAR and GNPA are major contributor in the determination of ROA. The value of R Square is 0.799 which means that 79.90% variation in ROA is explained by all these independent variables and hence the model is to be considered as good. The p value of R square is 0.00 which less than the level of significance which indicates the R square is statistically significant. The value of Durbin Watson is almost 2 which show that there is no autocorrelation.

- **Analysis of Model-2:**

TABLE 4.6: CORRELATION MATRIX

Variable	ROE	GNPA	PCR	CAR	SIZE	LTDR
ROE	1.00					
GNPA	-0.690* (0.000)	1.00				
PCR	-0.101 (0.202)	-0.186 (0.061)	1.00			

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CAR	0.261* (0.015)	-0.378* (0.01)	0.435* (0.000)	1.00		
SIZE	0.030 (0.402)	0.121 (0.159)	0.034 (0.391)	0.167 (0.083)	1.00	
LTDR	0.360* (0.001)	-0.419* (0.000)	-0.115 (0.171)	0.044 (0.360)	0.072 (0.277)	1.00

(* significant at 5% level of significant)

The above table shows the correlation matrix of model 2. It can be seen that there is significant negative correlation between GNPA and ROE which indicates that if the GNPA increases, the ROE deceases significantly. Size and LTDR have significant positive correlation with ROE. CAR is significant negatively correlated with GNPA and significant positively correlated with PCR. LTDR and GNPA are significant negatively correlated with each other.

TABLE 4.7: Regression Analysis

Variables	**Coefficients**	**Std. Errors**	**T value**	**P value**	**Tolerance**	**VIF**
Constant	10.702	55.587	0.193	0.848		
GNPA	-4.065*	0.596	-6.825	0.000	0.643	1.555
PCR	-0.922*	0.316	-2.920	0.005	0.784	1.275
CAR	2.226	2.438	0.913	0.365	0.676	1.479
SIZE	3.394	2.743	1.237	0.220	0.904	1.106
LTDR	0.088	0.484	0.182	0.856	0.760	1.315
R Square	0.552*					
P value	0.00					

Durbin – Watson	2.069

(* significant at 5% level of significant)

➢ ***Estimated Model:***

$$ROE = 10.702 - 4.065GNPA - 0.922PCR + 2.226CAR + 3.394SIZE + 0.088LTDR$$

From the above estimated model it can be said that GNPA and PCR have negative significant impact on ROE. Rest of the variables doesn't have significant impact on it. GNPA, followed by size is the major contributor in the determination of ROE. The tolerance and VIF of all independent variables are within the limit so there is no problem of multicollinearity. The value of R square is 0.552 which means that around 55.20% variation in ROE is due to all these independent variables. The explanatory power of this model is moderate. The p value of R square is less than α = 0.05 which indicates that R square is statistically significant. The value of Durbin Watson is around two which suggests that there is no autocorrelation.

4. Findings

- The Gross NPAs and Net NPAs of the selected banks show the increasing trends during the time period of the study.
- PNB bank shows the highest average of GNPA ratio while Canara has the lowest average of GNPA ratio.
- Similarly, SBI shows good performance in managing their Net NPAs as it has lowest average of Net NPA ratio. But PNB shows the highest average of Net NPA ratio.
- There is no significant difference between GNPA ratios of the sampled banks.
- GNPA, PCR and CAR have significant impact on the ROA of the selected banks.
- The results of model II reveal that there is significant negative influence of GNPA and PCR on the ROE of the sampled banks.
- Both the model has good explanatory power and also they are statistically significant.

5. Conclusion:

The problem of NPA is becoming severe day by day not only for the banks but also for the economy of the country. Due to NPAs, money is blocked and banks have to keep aside certain amount out of their profits as a provision and therefore NPAs have adverse impact on the liquidity and profitability

of banks. The main aim of the present study is to analyze the trends of NPAs and its impact on the profitability of selected public sector banks in India. The study covers the time period of ten year i.e. from the year 2009-10 to the year 2018-19. The study revealed that the Gross NPAs and Net NPAs show the rising trends during the time period of the study. The reason behind this is that the public sector banks lend more in the priority sectors as compare to private sector banks. From the result of regression analysis it can be observed that the GNPA has significant negative impact on the ROA and ROE of the selected public sector banks in India. It is suggested that bank manager should adopt the modern credit risk management technique and diversify the earning activity of the banks.

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