Non-Performing Assets, Capital Adequacy and Bank Profitability: A Study of Selected Indian Commercial Banks

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Abstract

The recent performance of banking stocks followed by dismal quarterly results in India is being seen to be the result of banks poor management of their assets. Increasing level of NPAs are being a cause of concern for investors as well as the managers. In this context, this paper attempts to study 12 commercial banks in India and their GNPA, NPA and Capital Adequacy and measure each of these variables' impact on the return on assets of these banks. The study concludes by saying, GNPA and NNPA do not have any impact on the ROA of commercial banks, whereas, CAR has a statistically significant, but, negligible quantum of impact on the ROA.

Key Words: NPA, CAR, Commercial Banks, Banking Sector

JEL CODE: G21

Introduction

A Non-Performing Asset (NPA) is a classification used by financial institutions that refer to loans that are in jeopardy of default. NPAs are problematic for financial institutions since they depend on interest payments for income. Economic pressure can lead to an increase in NPAs and often results in massive write downs. This is a very serious issue which India is facing currently and is having an adverse effect on the Indian economy as whole. For any nation the banking sector plays a vital role. Non-Performing Assets affect the banking sector adversely, which leads in disruption in the functions of the banking sector. A Non-Performing Asset (NPA) is a classification used by financial institutions that refer to loans that are in jeopardy of default. NPAs are problematic for financial institutions since they depend on interest payments for income. Economic pressure can lead to an increase in NPAs and often results in massive write downs. This is a very serious issue which India is facing currently and is having an adverse effect on the Indian economy as whole. The survival of any bank depends on the income generated by the optimum use of assets. This is of course, after paying all the costs, such as cost of funds, administrative costs. Currently the NPAs in India are very high and vigorous efforts like internal control, credit risk management are been taken to improve this situation. The banking sector has taken this problem seriously and apart from all these measures, the borrowers are also being educated so that the risk of default comes down.

Literature Review

Singh (Singh, 2016) studied NPA of Indian commercial banks in a descriptive manner and demonstrated that the funds locked in the form of NPAs were directly impacting the profitability. Singh also inferred that the public sector banks were flooded with NPAs in comparison to private and foreign banks. As per his observation Indian banks have a higher percentage of NPA compared to foreign banks. Das and Dutta (Das & Dutta, 2014) analysed the net NPA data of 26 public sector banks for a period of 6 years ranging from

2008 to 2013 using ANOVA concluded that irrespective individual characteristics of public sector banks, when it comes to NPA level, all the banks behave similarly. Narula and Singhla (Narula & Singla, 2014) have conducted a case study on the empirical; data of a public sector bank to find out whether the theoretical view of decline in NPA being essential for enhanced profitability. They found that the profits of the banks have increased despite the increasing NPAs.

Objectives of the Study

The objectives of the study are as below:

- To study the relationship between Non Performing Assets and Return on Assets of selected commercial banks.
- To analyse the NPA management efficiency of selected listed commercial banks.

Research Methodology

The study can be classified as an empirical study with case study approach. Sample is selected using judgmental sampling. The sample comprises of listed commercial banks forming a part of Nifty Banking Index.

✓ Sample size will be 12 banks.

✓ The data relating to financials of the banks, like the NPA and other relevantg ratios are collected RBI annual publications.

✓ The time period data for the study covers a period between 2007 and 2015 ranging over 9 years.

✓ A correlation and multiple regression analysis is carried out to achieve the above stated objectives. The same is being conducted using MS-Excel Data Analysis Toolpack.

✓ Hypotheses of the study are presented below:

H_0: ROA of Indian Banks do not depend on Gross Non Performing Assets, Net Non Performing Assets and Capital Adequacy Ratio.

H_1: ROA of Indian banks depend on Gross Non-Performing Assets, Net Non-Performing Assets and Capital Adequacy Ratio.

- The above hypothesis are tested using the below model :

$$\mathbf{y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3}$$

Where,

y = Dependent variable Return on Assets

α = Intercept or constant

β_1 = Slope of the line x_1

β_2 = Slope of the line x_2

β_3 = Slope of the line x_3

x_1 = Independent variable Gross Non Performing Assets

x_2 = Independent variable Non Performing Assets

x_3 = Independent variable Capital Adequacy Ratio

Data Analysis and Interpretation

Below tables give the data used for analysis is presented below. All the numbers are in Rs. Lakhs

Data for years 2007, 2008 and 2009:

	2007			2008			2009		
Symbol	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**
AXISBANK	41867	26633	11.57	49461	24829	13.73	89048	32713	13.69
BANKBARODA	209214	50167	11.8	1981138	49355	8.49	184293	45115	14.05
BANKINDIA	210049	63203	11.58	193092	59198	8.81	247088	62821	13.01
CANBK	149343	92697	13.5	127262	89903	13.25	216797	150725	14.1
FEDERALBNK	45080	6505	13.43	46859	4320	22.46	58954	6812	20.22
HDFCBANK	65776	20289	13.08	90697	29852	13.6	198392	62762	15.69
ICICIBANK	412606	199204	11.69	757954	349055	13.97	964931	455394	15.53
INDUSINDBK	34273	27375	12.54	39231	29102	11.91	25502	17913	12.55
KOTAKBANK	27755	21680	13.46	45308	27616	18.65	73071	39684	20.01
PNB	339072	72562	12.29	331930	75378	13.46	276746	26385	14.03
SBIN	999822	525772	12.34	1283734	742433	13.54	1634564	955202	14.25
YESBANK	0	0	13.4	1057	846	13.6	8493	4116	16.6

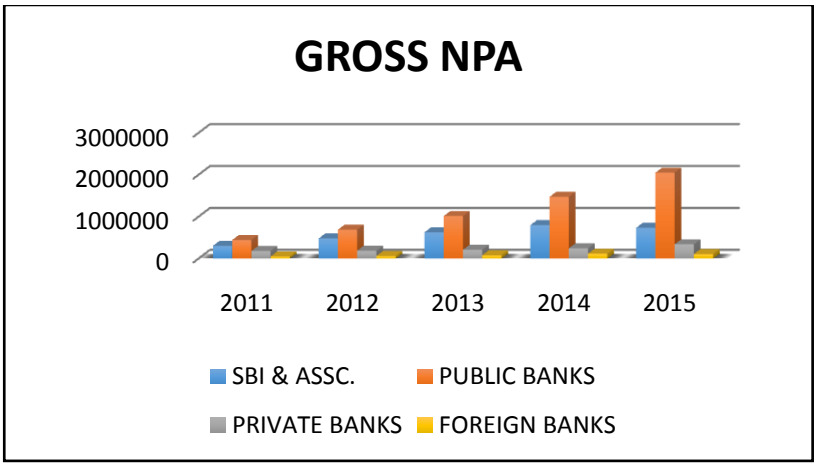
Data for years 2010, 2011 and 2012:

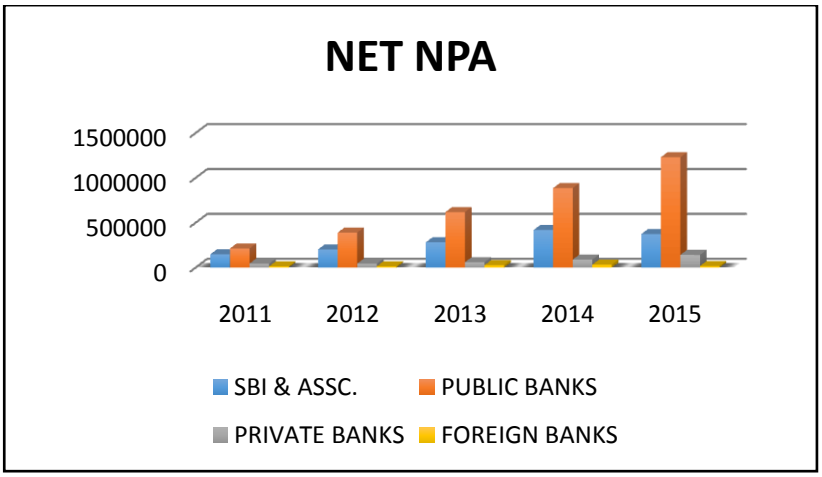
	2010			2011			2012		
Symbol	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**
AXISBANK	131800	41900	15.8	15994	4104	12.65	18063	4726	12.83
BANKBARODA	240069	60232	14.36	31525	7909	14.52	44648	15436	12.57
BANKINDIA	488265	220745	12.94	48116	19450	12.17	58940	36564	15.41
CANBK	259031	179970	13.43	30892	23299	15.38	40318	33863	16.64
FEDERALBNK	82097	12879	18.36	11483	1907	16.79	13008	1990	13.76
HDFCBANK	181676	39205	17.44	16943	2964	16.22	19994	2523	12.4
ICICIBANK	948065	384111	19.41	100343	24074	19.54	94753	18608	13
INDUSINDBK	25547	10183	15.33	2659	728	15.89	3471	947	11.51
KOTAKBANK	76734	36025	18.35	6035	2112	19.92	6142	2374	13.26
PNB	321441	98169	14.16	43794	20386	12.42	87196	44542	13.1
SBIN	1953489	1087017	13.39	253263	123469	11.98	396765	158189	13.86
YESBANK	6020	1299	20.6	805	92	16.5	839	175	13.06

Data for years 2013, 2014 and 2015:

	2013			2014			2015		
Symbol	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**	**GNPA**	**NNPA**	**CAR**
AXISBANK	23934	7041	17	31464	10246	16.07	41102	13167	12.07
BANKBARODA	79826	41920	13.3	118759	60348	12.28	162614	80695	12.61
BANKINDIA	87653	59473	11.02	118686	74172	9.97	221932	137747	10.73
CANBK	62602	52781	12.4	75702	59655	10.63	130400	87401	10.56
FEDERALBNK	15540	4319	14.73	10874	3216	15.14	10577	3733	15.46
HDFCBANK	23346	4690	16.8	29893	8200	16.07	34384	8963	16.79
ICICIBANK	96078	22306	18.74	105058	32980	17.7	150947	62555	17.02
INDUSINDBK	4578	1368	15.36	6208	1841	13.83	5629	2105	12.09
KOTAKBANK	7581	3114	16.05	10594	5736	18.83	12372	6091	17.17
PNB	134658	72365	12.72	188801	99170	11.52	256949	153965	12.21
SBIN	511894	219565	12.92	616054	310961	12.44	567253	275906	12
YESBANK	943	70	18.3	1749	261	14.4	3134	877	15.6

We have also presented the trend of growth in GNPA and NNPA in bar graphs for broader conclusions and the same are presented below:





As we can see from the above graphs, that the Gross as well as the Net Non- Performing Assets have increased over the years. The NPAs of the banks from the public sector hold majority of the share as compared to State Banks and Associates, Private sector banks and foreign banks.

Model Testing

Regression analysis is carried out using Ms-Excel Data Analysis package and the same is presented below:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.558682206
R Square	0.312125807
Adjusted R Square	0.292283282
Standard Error	0.354139132
Observations	108

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	5.91836626	1.972789	15.7301457	1.65947E-08
Residual	104	13.04311059	0.125415		
Total	107	18.96147685			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.224658459	0.19781653	1.135691	0.25869632	-0.167619143	0.61693606	-0.1676191	0.61693606
X Variable 1	3.54059E-08	1.84662E-07	0.191733	0.84832486	-3.30786E-07	4.016E-07	-3.308E-07	4.016E-07
X Variable 2	-6.84528E-07	3.82118E-07	-1.7914	0.07613698	-1.44228E-06	7.3227E-08	-1.442E-06	7.3227E-08
X Variable 3	0.07385507	0.013229312	5.582684	1.9001E-07	0.047620847	0.10008929	0.04762085	0.10008929

From the above regression analysis, we can infer that,

- ✓ The DV and IV are positively correlated. The multiple R (correlation coefficient) is 0.6 which suggests that Return on Assets (RoA) is positively correlated with the Gross NPA, Net NPA and Capital Adequacy Ratio (CAR).
- ✓ The externalities not covered by the DVs in our model are significantly high. The coefficient of determination- r^2 is 0.31, signifying that the selected three variables Gross NPA, Net NPA and CAR explain around 31% of the variation in RoA.
- ✓ The relationship between IV and DV in the model being tested is not a result of random process. The significance F statistic (ANOVA) is less than zero and proves that the model being tested is a good fit.
- ✓ Gross NPA is not a significant influencer for ROA. The regression coefficient (β_1) of variable Gross NPA is almost equal to zero with a P value of more than 0.05. Therefore, this output is statistically not significant.
- ✓ Net NPA of Indian banks are also not significant factors influencing the asset performance of the respective banks. The regression coefficient of (β_2) of variable Net NPA is almost equal to zero with a P value of more than 0.05. Therefore, this output is statistically not significant.

- ✓ CAR is statistically significant with a positive impact on the ROA of Indian banks. The regression coefficient (β_3) of Capital Adequacy Ratio is 0.07 with a P value of less than 0.05 suggests that CAR has a positive impact on Return on Assets of the selected banks and the data is statistically significant with a confidence level of 95%.
- ✓ Continuing the above inferences we reject the null hypothesis. –" ROA of Indian Banks do not depend on Gross Non-Performing Assets, Net Non-Performing Assets and Capital Adequacy Ratio"
- ✓ Therefore, the predictive model would be as below: $\mathbf{y = 0.22 + 0x_1 + 0x_2 + 0.07x_3}$

Conclusion

The objective of this study was to study the relationship of ROA of Indian commercial banks with their respective NPAs and capital adequacy. Based on the statistical analysis we conclude that NPAs per se do not significantly affect the profitability and asset utilization efficiency of these banks, whereas capital adequacy ratio is related to profitability, but the impact is ignorable.

References

1. Das, S., & Dutta, A. (2014). A Study on NPA of Public Sector Banks in India. IOSR Journal of Business and Management , 75-83.
2. Desai, V. (2007). Indian Banking: Nature and Problems. Himalaya Publishing House.
3. Khan, M. Y. (2013). Indian Financial System. McGraw Hill.
4. Narula, S., & Singla, M. (2014). Empirical Study on Non Performing Assets of Bank. International Journal of Advance Research in Computer Science and Management Studies, 194-199.
5. Singh, V. R. (2016). A Study of Non-Performing Assets of Commercial Banks and it's Recovery in India. Annual Research Journal of SCMS, Pune, 110-125.
6. Uppal, R. K., & Kaur, R. (2007). Banking in the New Millenium. Mahamaya Publications