

**Title of the Research paper:** A study on credit risks variables and their impact on profitability of the Scheduled Commercial Banks in India from 2009-10 to 2016-17.

**Name of the Faculty:** Dr. (Prof.) R. Ganesan, Dr. Dharendra Kumar, AIMS, Pune

### **Abstract**

The Indian Banking sector from 2004-05 to 2008-09 lend aggressively to different sectors of the economy in order to take advantage of a robust economic growth. The slowing of the world economy afterwards and its impact on the Indian economy led to slowing of different sectors. This not only led to huge losses for the big corporate houses which created a spillover effect on the balance sheets of the Indian banking sectors also. Thus it created twin balance sheets problem. This research paper is an attempt by the researcher to understand the important credit risks profile of the banks and its impact on profitability.

Keywords: Spillover effect, twin balance sheet, economy etc.

### **1. Introduction**

A strong banking sector is important for flourishing economy. The failure of the banking sector has an adverse impact on other sectors. In the recent years the high level of NPA's has been major cause of concern for Indian economy. A high level of NPA's indicates high probability of a large number of credit defaults that affect the profitability and net worth of the banks and also erodes the quality of the assets. Gross non performing advances (GNPA) of SCBs as a proportion of gross advances increased to 5.1 percent from 4.6 per cent between March and September 2015. PSBs had the highest level of stressed assets (gross plus restructured assets) at 14.0 per cent of the total, followed by private sector banks (PVB) at 4.6 percent and foreign banks (FB) at 3.4 per cent at end-September 2015. The contribution of five sub-sectors, namely mining, iron and steel, textiles, infrastructure and aviation (which together accounted for 24.2 per cent of the total advances of SCBs as of June 2015) to the total stressed advances was 53.0 percent. The performance of these sectors and their impact on the asset quality of banks continue to be a cause for concern in India.

### **2. Objectives of the Study**

- a. To study the structure of Indian Banking sector.
- b. To examine the risks profile of scheduled commercial banks in India
- c. To study the different credit risks variables and their impact on profitability indicators i.e. ROA and ROE during the period of study.

### **3. Research Methodology**

The specific research design selected for this study is descriptive research design. Descriptive study is undertaken in many circumstances when there is interest in knowledge. The study purports to present facts concerning the nature and status of current banking sector, their associated risks and their impact on performance and profitability of the banks. The study has been conducted considering the regulator, the

banks and various businesses point of view. The secondary data has been collected and analysed. The population of the study comprises of all the scheduled commercial banks in India and the data pertaining to all the scheduled commercial banks has been studied leaving no scope for sampling. The period of the study has been from 2009-10 to 2016-17.

The following multiple regression model is used for the analysis of impact of various factors on the profitability and performance of the selected banks.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7$$

#### 4. Data Analysis and Interpretation

**a) Purpose:** To study if priority sector lending to total advances, gross NPA, Net NPA, Net NPA as % of total Assets predict Return on Assets (ROA).

**Statistical test:** Step wise multiple regression analysis

H<sub>0</sub>: Priority sector lending to total advances, gross NPA, Net NPA, Net NPA as % of total assets, are not the predictors of Return on Assets (ROA).

H<sub>1</sub>: Priority sector lending to total advances, gross NPA, Net NPA, net NPA as a % of total assets are significant predictors of Return on Assets (ROA).

Level of significance  $\alpha = 0.05$

#### Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Net NPA as a % of net advances		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: ROA

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.888 <sup>a</sup>	.789	.754	.16140

a. Predictors: (Constant), Net NPA as a % of net advances

#### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.584	1	.584	22.427	.003 <sup>b</sup>

Residual	.156	6	.026	
Total	.740	7		

a. Dependent Variable: ROA

b. Predictors: (Constant), Net NPA as a % of net advances

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.233	.109		11.272	.000
	Net NPA as a % of net advances	-.182	.038	-.888	-4.736	.003

**Coefficients<sup>a</sup>**

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Net NPA as a % of net advances	1.000	1.000

a. Dependent Variable: ROA

**Excluded Variables<sup>a</sup>**

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Net NPA as a % total assets	.135 <sup>b</sup>	.499	.639	.218	.553
	Gross NPA as % of Gross advances	2.638 <sup>b</sup>	1.249	.267	.488	.007
	Priority sector advances to total advances	.130 <sup>b</sup>	.620	.562	.267	.889

**Excluded Variables<sup>a</sup>**

Model		Collinearity Statistics	
		VIF	Minimum Tolerance
1	Net NPA as a % total assets	1.810 <sup>b</sup>	.553

Gross NPA as % of Gross advances	138.663 <sup>b</sup>	.007
Priority sector advances to total advances	1.125 <sup>b</sup>	.889

a. Dependent Variable: ROA

b. Predictors in the Model: (Constant), Net NPA as a % of net advances

**Collinearity Diagnostics<sup>a</sup>**

Mode	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Net NPA as a % of net advances
1	1	1.853	1.000	.07	.07
	2	.147	3.554	.93	

a. Dependent Variable: ROA

**Interpretation:** The Model Summary presents the R-Square and Adjusted R-Square values for each step along with the amount of R Square Change. The model summary shows that R= .888, R Square = 0.789 (78.9% of the variance in ROA is accounted for ratio of priority sector to total advances, net NPA to total assets, Gross NPA, Net NPA).

The researcher referred to the table coefficient to examine the contribution of predictors to the model. From the model it is observed that net NPA as a % of net advances is the significant predictors of return on assets. Thus the null hypothesis is rejected ( $P < 0.05$ ) considering net NPA to net advances. However the null hypothesis considering the variables as gross NPA, net NPA to total assets, priority sector lending is accepted and hence are not the predictors of Return on Assets (ROA).

To examine the predictive ability of net NPA to net advances on ROA, T- test is considered and  $T = -4.736$ . Since T Test is significant; the regression equation can be presented as follows:

$ROA = 1.233, -.182$  (net NPA to net advances). This indicates that the net NPA to net advances and ROA are inversely related. The tolerance value is more than 0.1 and VIF is less than 10, hence collinearity is a not a problem with regression.

**b) Purpose:** To study if priority sector lending to total advances, gross NPA, Net NPA, Net NPA as % of total Assets predict Return on Equity (ROE).

**Statistical test:** Step wise multiple regression analysis

H<sub>0</sub>: Priority sector lending to total advances, gross NPA, Net NPA, Net NPA as % of total assets, are not the predictors of Return on Equity (ROE).

H<sub>1</sub>: Priority sector lending to total advances, gross NPA, Net NPA, net NPA as a % of total assets are significant predictors of Return on Equity (ROE).

Level of significance  $\alpha = 0.05$

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Net NPA as a % of net advances		Stepwise (Criteria: Probability-of-F-to-enter $\leq$ .050, Probability-of-F-to-remove $\geq$ .100).

a. Dependent Variable: ROE

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945 <sup>a</sup>	.892	.874	1.66530

a. Predictors: (Constant), Net NPA as a % of net advances

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	137.887	1	137.887	49.721	.000 <sup>b</sup>
	Residual	16.639	6	2.773		
	Total	154.527	7			

a. Dependent Variable: ROE

b. Predictors: (Constant), Net NPA as a % of net advances

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	17.336	1.129		15.356	.000
	Net NPA as a % of net advances	-2.801	.397	-.945	-7.051	.000

**Coefficients<sup>a</sup>**

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Net NPA as a % of net advances	1.000	1.000

a. Dependent Variable: ROE

**Excluded Variables<sup>a</sup>**

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Net NPA as a % total assets	.085 <sup>b</sup>	.440	.678	.193	.553
	Gross NPA as % of Gross advances	2.388 <sup>b</sup>	1.758	.139	.618	.007
	Priority sector advances to total advances	.084 <sup>b</sup>	.555	.603	.241	.889

**Excluded Variables<sup>a</sup>**

Model		Collinearity Statistics	
		VIF	Minimum Tolerance
1	Net NPA as a % total assets	1.810 <sup>b</sup>	.553
	Gross NPA as % of Gross advances	138.663 <sup>b</sup>	.007
	Priority sector advances to total advances	1.125 <sup>b</sup>	.889

a. Dependent Variable: ROE

b. Predictors in the Model: (Constant), Net NPA as a % of net advances

**Collinearity Diagnostics<sup>a</sup>**

Mod	Dimensi	Eigenval	Condition	Variance Proportions
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el	on	ue	Index	(Constant)	Net NPA as a % of net advances
1	1	1.853	1.000	.07	.07
	2	.147	3.554	.93	.93

a. Dependent Variable: ROE

**Interpretation:** The Model Summary presents the R-Square and Adjusted R-Square values for each step along with the amount of R Square Change. The model summary shows that R= .945, R Square = 0.892 (89.2% of the variance in ROE is accounted for ratio of priority sector to total advances, net NPA to total assets, Gross NPA, Net NPA).

The researcher referred to the table coefficient to examine the contribution of predictors to the model. From the model it is observed that net NPA as a % of net advances is the significant predictors of return on equity. Thus the null hypothesis is rejected ( $P < 0.05$ ) considering net NPA to net advances. However the null hypothesis considering the variables as gross NPA, net NPA to total assets, priority sector lending is accepted and hence are not the predictors of Return on Equity (ROE).

To examine the predictive ability of net NPA to net advances on ROA, T- test is considered and  $T = -7.051$ . Since T Test is significant; the regression equation can be presented as follows:

$ROE = 17.336 - 2.801$  (net NPA to net advances). This indicates that the net NPA to net advances and ROE are inversely related. The tolerance value is more than 0.1 and VIF is less than 10, hence collinearity is a not a problem with regression.

## 5. Findings and Conclusion

The research findings suggest that amongst all the credit risks variables studied, ratio of net NPA to net advances has a significant predictability on both the profitability indicators i.e. return on assets and return on equity. A higher NPA ratio indicates increasing bad quality of the bank loans. SCBs need to bring down fresh additions to NPA's to improve their quality of their asset portfolio. Thus the major reason why the bank's profitability has been decreased over the years has been their increasing NPA's. The government and the regulator need to bring out regulations so as to early recognition of stressed assets and resolving of the same. The Existing regulations like setting up of Insolvency and Bankruptcy Board of India must be given autonomy in its functioning.

## 6. Limitations of the Study

- Any statistical technique employed has some inherent assumptions, which may or may not distort the references.
- The interpretation of the data can be manipulated in different ways which may be different from the researcher's point of view.
- The analysis of only credit risks and its impact on profitability may not be assessed in totality without studying the other variables and its impact on profitability.

## References

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