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RISING LEVEL OF STRESSED ASSETS IN PUBLIC SECTOR BANKS AND THEIR IMPACT ON THE BANKS' STABILITY IN INDIA

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Abstract

According to the International Monetary Fund's (IMF) Global Financial Stability Report, 36.9 per cent of India's total debt is at risk, which is among the highest in the emerging economies while India's banks have only 7.9 per cent loss absorbing buffer, which is among the lowest. Bad loans of the banking system have risen alarmingly in the fiscal year 2015. The gross Non-Performing Assets (NPAs), for Public Sector Banks (PSBs), as on March 2015, stood at 5.17 per cent while the stressed assets ratio stood at 13.2 per cent, nearly 230 basis points more than that for the banking system. PSBs have been reeling under pressure, due to the rising number of defaults, affecting their bottom line. As a result, there is a substantial increase in the need for a Corporate Debt Restructuring (CDR) mechanism, to streamline their loans. The sharp increase in stressed assets has adversely affected the profitability of the banks. The annual return on assets has come down from 1.09 per cent, during 2010-11, to 0.78 per cent, during 2014-15. Considering the effect it has on both capital and liquidity position of the bank, there is an urgent need for banks to reduce their stressed assets and clean up their balance sheets. To test the hypotheses, multivariate regression was employed. Findings indicated a negative relationship between stressed assets and profitability.

Keywords: *Public Sector Banks, Profitability, Corporate Debt Restructuring, Stressed Assets (SA), Non- Performing Assets, Return on Assets (ROA)*

JEL Code: *G21, G34, E587.*

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1. Introduction

Balance sheets of the Indian banks, have been weighed down, with high levels of impaired loans, which is expected to impact their ability to extend credit to the productive sectors of the economy, thereby hurting the pick- up in private Capex. The PSBs, which account for over 70% of the banking system in India, are faced with problems regarding their profitability, asset quality, capital position and governance despite several measures taken to de-stress the sector. Considering deteriorating capital adequacy ratio of PSBs, it is necessary to inject capital into these banks. PSBs might find it difficult to raise capital, from the market, without improving their performance.

In **RBI's Financial Stability Report (2016),** the Governor had expressed confidence that the country's financial system is stable, despite the banking sector facing significant challenges. As per the Report, the gross non-performing assets of PSBs rose to 7.6%, in March 2016 and net NPAs, by 4.6%. It is necessary that PSBs stop accumulating further losses and register a decline in their NPA levels. Slowdown in industrial growth and high level of unutilized capacity, lead to a decline in credit off take and banks ability to lend may emerge as a challenge, when the economy takes off and there is demand for credit. **CRISIL Report (2016)** downgraded its ratings, on the debt instruments of eight PSBs. The reason for downgrade in the ratings, driven by asset quality problems of PSBs, would remain acute even in FY-2017. The resultant impact, on profitability and capitalization, can further dent the credit profile in the medium term. Stress in the corporate loan book of PSBs, is expected to result in their weak assets, ballooning to 7.1 lakh crore, by 31st March 2017 (11.3% of total loan book), from around 4 lakh crore, as on 31st March 2015 (7.2% of the loan book). Banking system has migrated to the Marginal Cost of fund based Lending Rate (MCLR) regime, with effect from 1st April 2016. With the proportion of zero income-generating bad assets, in the loan books of PSBs rising, Net Interest Margin (NIM) would continue to be under pressure, in the short term.

Despite proper credit appraisal and proper structuring of loans, there are slippages in the asset quality, especially when the economic cycles turn worse. Once a weak account is identified, banks need to consider various remedial actions. One of the remedial options is restructuring. The objective of restructuring is to preserve the economic value of viable entities, affected by certain internal and external factors and minimize the losses to the creditors and other stakeholders.

2. Review of Literature

Empirical studies, conducted on the subject in the past, have concluded that there is direct relationship between stressed assets management and profitability of banks. **Antje Brunner and Jan Pieter Krahnen (2001)** stated that the multiple lending is widespread among medium-sized firms in Germany and that explicit coordination, by way of pool/consortium, among these lenders, starting at the onset of financial distress, is very common. **Balabubramanium (2012)** concluded that CDR, as an institutional mechanism, supports the large, viable accounts judiciously and preserves the values of large exposures of banks. **Espen Eckbo and Karin Thorburn (2013)** concluded that asset sales are resorted, as a way of generating cash, when the firm is financially constrained. Capital adequacy influences the profitability of banks positively and PSBs appear to lag behind their private counter parts, in stressed assets management. There has been a significant improvement in the profitability of firms and hence the need of CDR route, with timeline, is justified for firms in stress, due to externalities. **Mostak Ahamed and Sushanta Mallick (2014)** pointed out that banks should increase provisioning, on existing

restructured loans gradually, otherwise any substantial losses might lead them to exhaust capital base at a point where insolvency or illiquidity would be inevitable. **Anant Khandelwal (2015),** in the study, concluded that financial market worldwide, will definitely be prone to business cycles as well as sudden economic aberrations and it is next to impossible, to come up with a policy, that can predict ways of preventing the unpredictable. **Charan Singh and Jagvinder Singh Brar (2016)** stated that there has been a substantial rise in stressed assets, mainly in PSBs. However, this should not be too worrisome because India has a record of accomplishment of recovering from difficult asset position.

3. Statement of the Problem

The **Reserve Bank of India,** in its **Financial Stability Report (2016),** noted that the macro stress test suggests that under the baseline scenario, the gross NPA may rise to 8.5 per cent, by March 2017. If the macro situation deteriorates in the future, the gross NPA ratio may increase further, to 9.3 per cent, by March 2017. There was 80% jump in gross bad loans in 2015-16. The stress, in the banking sector, mirrors the stress in the corporate sector, to revive credit growth. The aim of the study is to provide stakeholders, with accurate information, regarding the management of stressed assets by PSBs, with its impact on their profitability.

4. Need of the Study

Rising level of stressed assets, in Public Sector Banks, has not only adversely affected profitability but also solvency of these banks. A section of the stakeholders consider CDR, as a solution, for impaired assets, although contrarians feel that it is nothing but throwing good money after bad money. The issue is whether not fulfilling the commitment by corporate, is a problem of liquidity and cash flow or is it the much deeper issue of viability. In this context, there is a need to carry out in depth study, to make a modest attempt to deliberate, on stressed assets management and its impact on PSBs' profitability.

5. Objective of the Study

Stressed assets comprise of gross NPA and standard restructured assets. The main purpose of the study is to investigate, if there is a relationship between stressed assets and profitability of PSBs in India. It is aimed to investigate whether the relationship is stable or fluctuating.

6. Hypotheses of the study

The indicators, selected to identify the relationship between stressed assets and profitability of PSBs, were Return on Equity (ROE), Return on Assets, CDR Ratio (CDRR), natural log of business size and Solvency Ratio (SR). All these have led to the following hypotheses:

NH-1: There is no correlation amongst CDRR, SR and ROE of PSBs.

NH-2: There is no correlation amongst CDRR, SR and ROA of scheduled commercial banks.

NH-3: The correlation amongst CDRR, SR and ROE is not fluctuating over time.

NH-4: The correlation amongst CDRR, SR and ROA is not fluctuating overtime.

7. Methodology of the Study

In the present study, return on equity and return on assets were considered as determinants of profitability. CDR ratio and solvency ratio were considered as determinants of stressed assets management. Four hypotheses were formulated, which were related to the study. A series of statistical tests were performed, to test if there was relationship. Other statistical tests were performed to investigate if the relationship was stable or not.

7.1 Sample Selection

There are 29 PSBs in India out of which 10 PSBs were selected, to test the hypotheses.

The selection was done, based on their asset size, in all the three categories viz. large (business size >5,00,000 crore), medium (business size >3,00,000 crore and <5,00,000 crore) and small banks (business size <= 3,00,000 crore).

7.2 Source of Data

Data for the study were collected from secondary sources that included CDR Cell, RBI database, Default Study Reports of Credit Rating Agencies, Capitoline database and IBA websites **(Table - 1)**.

7.3 Period of the study

The period of the study was three financial years' viz., FY 2013 to FY 2015.

7.4 Tools used

StataMP 14 and statistical tool were used in this study, for the analysis of correlation and regression.

8. Analysis of Data

The study formulated four hypotheses and to test these hypotheses, the researchers had conducted two regression analyses.

8. 1 Multivariate regression analysis

The regression analysis tests the statistical strength of the model as hypothesized. A multivariate regression coefficient indicates change in dependent variable associated with one unit increase in one independent variable, holding other independent variables constant. Based on all the information above, the following regressions were performed.

$$ROE_t = \alpha + CDRR_t + SR_t + LNTBS_t$$

$$ROA_t = \alpha + CDRR_t + SR_t + LNTBS_t$$

Where, ROE_t is the return on equity at time t; ROA_t is the return on asset at time t; $CDRR_t$ is the CDR to advances ratio at time t; SR_t is the solvency ratio at time t; $LNTBS_t$ is the natural log of business size of banks. R^2 is the coefficient of determination.

8.2 Multi-Colinearity Test

Table-2 and Table-3 display the result for multi-colinearity test. Multi-colinearity is a situation where the explanatory variables are nearly linear dependent. The highest correlation is 0.5758 between business size LNTBS and ROE. However, it is always preferable to have an absolute value larger than 0.8 to be enough to cause multi-colinearity.

8.3 Testing of Hypotheses

Testing of Null Hypothesis-1

The first regression analysis was performed to test for the first hypothesis.

$$ROE_t = \beta_0 + \beta_1 \times CDRR_t + \beta_2 \times SR_t + \beta_3 \times LNTBS_t$$

Hypothesis-1 tested the correlation between CDRR, SR and ROE of PSBs. **Table-4** shows the result of regression-1. The p-value, for CDRR was 0.3749 and for SR, it was 0.7601. Since the p-values of CDRR and SR were greater than 0.05, the study did not propose to reject both the first part and second part of null hypothesis-1, that "there is no correlation between CDRR and ROE" and "there is no correlation between SR and ROE. Hence **NH-1** was accepted.

Testing of Null Hypothesis-2

The second regression analysis was performed, to test the second hypothesis.

$$ROA_t = \beta_0 + \beta_1 \times CDRR_t + \beta_2 \times SR_t + \beta_3 \times LNTBS_t$$

Hypothesis-2 tested the correlation between CDRR and SR and ROA of scheduled commercial banks. **Table-5** shows the result of regression-2. The p-value for CDRR was 0.5581 and for SR, it was 0.5899. As the p-value of CDRR was greater than 0.05, the first part of null hypothesis-2, that "there is no correlation between CDRR and ROA", could not be rejected. Further, the p-value for SR was greater than 0.05, which implied that the second part of null hypothesis-2, that "there is no correlation

between SR and ROA", also could not be rejected. Hence **NH-2** was accepted.

Testing of Null Hypothesis-3

To test the stability of those relationships, the study conducted regression analyses. The time horizon was divided into three years and each sub-period covered one-year's observations.

$$ROE_1 = \beta_0 + \beta_1 \times CDRR_1 + \beta_2 \times SR_1 + \beta_3 \times LNTBS_1$$

$$ROE_2 = \beta_0 + \beta_1 \times CDRR_2 + \beta_2 \times SR_2 + \beta_3 \times LNTBS_2$$

$$ROE_3 = \beta_0 + \beta_1 \times CDRR_3 + \beta_2 \times SR_3 + \beta_3 \times LNTBS_3$$

The correlation coefficients, for the three sub-periods (CDRR, SR and ROE), are presented in the **Table-6**. From the correlation coefficients of CDRR and SR, it was obvious that relationships between CDRR and ROE and between SR and ROE were never constant. It was observed that the correlation coefficients of CDRR and SR did not record obvious pattern. Regarding p-values for those correlation coefficients for CDRR, each value was a number larger than 0.05, during the period under reference and it indicated insignificant relationship. The p-values for SR were less than 0.05 in FY 2014 and greater than 0.05 in FYs 2013 and 2015. In other words, the relationship between CDRR, SR and ROE was not stable. Hence, **NH-3** was rejected.

Testing of Null Hypothesis-4

According to the results, under Hypothesis-3 and Hypothesis-4, it was concluded, that there was correlation between CDRR and ROA and between SR and ROA of PSBs.

$$ROA_1 = \beta_0 + \beta_1 \times CDRR_1 + \beta_2 \times SR_1 + \beta_3 \times LNTBS_1$$

$$ROA_2 = \beta_0 + \beta_1 \times CDRR_2 + \beta_2 \times SR_2 + \beta_3 \times LNTBS_2$$

$$ROA_3 = \beta_0 + \beta_1 \times CDRR_3 + \beta_2 \times SR_3 + \beta_3 \times LNTBS_3$$

Table-7 presents the results of three regressions (CDRR, SR and ROA). From the Table, it was evident that CDRR recorded negative correlation with ROA and SR recorded negative correlation with ROA. The correlation coefficient of CDRR and SR for ROA demonstrated a more stable trend than for ROE, indicating a higher stability of the relationship. Regarding p-values for those correlation coefficients for CDRR, these values were greater than 0.05, indicating insignificant relationship. In other words, the relationship between CDRR, SR and ROA was more stable. Hence **NH-4** was rejected.

9. Findings of the Study

The study discussed negative relationship between SR and ROE and between SR and ROA. Higher SR may wipe off the net worth of PSBs, in case they had to provide for net NPAs. Further, the findings of the trend, for the relationships, demonstrated a fluctuating relationship between all the four variables. This could be due to the effect of rise in stressed assets, during the period and profitability was influenced by more economic factors. Combined with the findings from the two determinants (CDRR and SR) for stressed assets management, positive relationship was observed between stressed assets management and profitability of public sector banks.

10. Conclusion

The Public Sector Banks (PSBs) have contributed significantly, to expand the outreach of Indian banking sector geographically and provide credit support to the infrastructural needs of the country. Bad loans/NPAs of PSBs ballooned to four lakh crore or 1.5 times of market capitalization of these banks, at the end of 3rd quarter of FY 2016. RBI, Government and other authorities have initiated various steps, in the direction of governance, accountability and responsibility. Since resources of the banking

sector are precious and limited, the restructuring process is a tool, for assisting distressed sections of the economy, to tide over difficulties, which are temporary in nature and due to circumstances beyond their control. Since, restructuring is justified for the larger benefit of the economy and the society, it is imperative that it is available to all classes of borrowers and made available in a timely, non-discriminate manner. This will be possible only with the development of necessary structures, systems and processes, to adhere to the above objectives.

11. Limitations of the Study

The study revealed that the relationship between CDRR and ROE and SR and ROA was not significant. This could be due to the imperfect theoretical prediction of the relationship between CDRR and banks' profitability. The imperfection of the model modification could be another reason for the lack of significant relationships. Over-reliance, on quantitative models, may grossly underestimate risks and it is necessary to use expert judgement, in dealing with stress estimation and management.

12. Scope for Further Research

The focus of the study was on stressed assets management and profitability of public sector banks. The biggest worry, at this moment, for public sector banks is capital infusion. In addition, medium and small public sector banks, which have lower credit ratings, will find it difficult to raise money through bonds because of limited investor appetite. On the distressed assets front, steps taken to help public sector banks to manage growing non-performing assets, may stretch their capital requirement as well. Further study can focus on several macroeconomic variables such as GDP per capita to control economic development and business cycle of the economy. In addition, profitability is only one aspect of banks' financial performance. Exploring the other aspects of financial performance is also an interesting extension of this study.

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Table-1: Cases referred to CDR Cell and Status thereof as on 31/12/2015

Year		FY 2012-13		FY 2013-14		FY 2014-15		Cumulative Position	
Sr. No	Particulars	No.	CDR Exposure	No.	CDR Exposure	No.	CDR Exposure	No.	CDR Exposure
1	Referred	129	91947	101	131998	33	44014	655	474002
2	Rejected	22	12485	30	28740	3	4784	125	70998
3	Live Cases	84	68875	67	99476	30	39230	530	403004
4	Exited Successfully	0	0	0	0	0	0	86	62217
5	Failed & Exited	23	10137	4	3782	0	0	202	83552
6	CDR Approval (%)	65.12%	74.91%	66.34%	75.36%	90.91%	89.13%	80.92%	85.02%
7	CDR Success (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.23%	15.44%
8	CDR Failure (%)	27.38%	14.72%	5.97%	3.80%	0.00%	0.00%	38.11%	20.73%

Source: CRISIL Report (2016).

Table-2: Correlation Matrix for the Regression 1 (ROE)

FY 13	LNTBS	CDRR	SA	ROE
LNTBS	1			
CDRR	0.24502	1		
SA	-0.01084	0.31742	1	
ROE	0.49761	0.36347	-0.07937	1
FY 14				
LNTBS	1			
CDRR	0.48653	1		
SA	-0.54523	-0.13487	1	
ROE	0.57579	0.00724	-0.94445	1
FY 15				
LNTBS	1			
CDRR	0.47071	1		
SA	-0.65957	-0.10826	1	
ROE	0.43112	-0.07791	-0.57049	1

Source: Output Data obtained using StataMP 14.0

Table-3: Correlation Matrix for the Regression 2 (ROA)

FY 13	LNTBS	CDRR	SA	ROA
LNTBS	1			
CDRR	0.24502	1		
SA	-0.01084	0.31742	1	
ROA	0.21081	-0.28028	0.00742	1
FY14				
LNTBS	1			
CDRR	0.48653	1		
SA	-0.54523	-0.13487	1	
ROA	0.55134	-0.01799	-0.95606	1
FY15				
LNTBS	1			
CDRR	0.47071	1		
SA	-0.65957	-0.10826	1	
ROA	0.29496	-0.21669	-0.48537	1

Source: Output Data obtained using StataMP 14.0

Table-4: Results of Regression 1 (Return on Equity – ROE% - Y axis)

Variable	Coefficient	Standard Error	T stat	P>(t)	95% Confidence Level		R^2
					Lower	Upper	
LNTBS	0.00830	0.00325	2.55689	0.04309	0.00036	0.01624	**0.77652**
CDRR	-0.39601	0.41058	-0.96453	0.37203	-1.40066	0.60863	
SR	-0.07037	0.05283	-1.33223	0.23115	-0.19964	0.05888	
Constant	Zero [Assuming Regression line passes thru' origin]						

Source: Output Data obtained using StataMP 14.0

Table-5: Results of regression 2 (Return on Assets – ROA% - Y axis)

Variable	Coefficient	Standard Error	T stat	P>(t)	95% Confidence Level		R^2
					Lower	Upper	
LNTBS	0.04535	0.01818	2.49357	0.04693	0.00084	0.08985	
CDRR	-1.42577	2.30023	-0.61984	0.55815	-7.05424	4.20269	**0.78320**
SR	-0.48878	0.29596	-1.65154	0.14972	-1.21296	0.23539	
Constant	Zero [Assuming Regression line passes thru' origin]						

Source: Output Data obtained using StataMP 14.0

Table-6: Correlation coefficient for CDRR, SR and ROE across years (p-values are in the brackets)

	FY13	FY14	FY15	Mean	Standard Deviation
CDRR	0.36347 (0.37492)	0.00724 (0.08922)	-0.07791 (0.37203)	7.14%	2.77%
SR	-0.07937 (0.58988)	-0.94445 (0.00015)	-0.57049 (0.14972)	32.46%	21.86%

Source: Output Data obtained using StataMP 14.0

Table-7: Correlation coefficient of CDRR, SR and ROA across years (p-values are in the brackets)

	FY13	FY14	FY15	Mean	Standard Deviation
CRAR	0.123209514 (0.00485146)	0.125697262 (0.00037857)	0.146518374 (0.00065835)	12.87473684	2.270700745
NPAR	-0.212229485 (0.00131175)	-0.154039316 (0.0039738)	-0.174338061 (0.0036232)	3.95	1.494817243

Source: Output Data obtained using StataMP 14.0

Abbreviations Used:

CDR - Corporate Debt Restructuring; CDRR- Corporate Debt Restructuring Ratio;

LNTBS- Natural Log of Business Size; NPAR-Non Performing Assets Ratio;

ROA- Return on Assets; ROE- Return on Equity; SA-Stressed Assets; SR-Solvency Ratio.