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Cause and Effect Relationship among Indicators of Credit Risk and Profatibility (An Analytical Study of Indian Public Sector Banks)

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Abstract – Credit risk is a standout amongst the most critical risks that banks confront, taking into account that giving credit is the fundamental capacity of business banks. In India, banks have assumed a vital job in economic growth and development. Since the 1970s, public sector banks (PSBs) have been in the cutting edge of assembling assets from far flung rural areas just as broadening banking services in the remotest parts of the nation. The financial performance of a bank is regularly estimated as the accomplishment of the bank regarding profitability position, benefit quality, consumer loyalty and other significant angles. The pressure of social plan has to a great extent been carried by PSBs with no pay. Accordingly, in the interest of keeping up credibility of PSBs which represent almost 70 percent of banking movement in the nation, the administration is supported in recapitalizing the PSBs consistently. The main aim of this paper is to characterize the impacts and cause relationship between the indicators of credit risk and profitability. Be that as it may, there is have to attempt look into on developing suitable standards, granular, for assessing performance of various banks working in India without smothering stream of credit to successful sectors.

Keywords: Credit Risk, Profitability, Public Banks, Cause and Effect, Performance, Capital

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1. INTRODUCTION

Financial sector disappointments and banking sector shortcomings have initiated policy creators to devise judicious risk the board component. Against this scenery, Basel Capital Adequacy standards, initially considered amid 1988, realized expansive understanding among G-10 central banks for applying Common Minimum Capital Standards to their banking enterprises. Such norms are gone for putting all banks on an equivalent balance regarding capital sufficiency in order to advance wellbeing and soundness in banking. Keeping in view the reality of credit risk and need to oversee fittingly the equivalent, RBI on the over the ground issued rules on Credit Risk Management on October 12, 2002. These rules centered that the banks should give credit risk prime consideration and should set up an advance policy to be cleared by their boards that covers the system for estimation, monitoring and control of credit risk. Basel Committee has proposed Standardized Approaches, Foundation Internal Rating Based Approach and Advanced Internal Rating Based Approach for credit risk capital charge figuring. Banks assume an essential role inside the economic development of a nation. A bank might be a financial mediator that acknowledges stores and channels them into loaning exercises. It assumes a dynamic role in the showcasing of ongoing kind of stores and advances plans. Banking sector assumes a basic role inside the financial soundness of a country. The banking sector is that the essential constituent of the financial framework, that is straightforwardly associated with the nation's economy. The banking arrangement of India alternatives an expansive system of bank branches, giving a few sorts of financial services to the general population.

1.1 Credit Risk

Credit Risk is characteristic for banking and it is as old as banking itself. Credit risk is characterized as the likelihood of losses related with decrease in the credit quality of borrowers or counterparties. In a bank's portfolio, losses come from out and out default because of failure or reluctance of a client or counterparty to meet responsibilities in connection to loaning, trading, settlement and other financial exchanges. On the other hand, losses result from decrease in portfolio esteem emerging from real or saw decay in credit quality. Credit risk exudes from a bank's dealings with an individual, corporate, bank, financial organization or a sovereign.

1.2 Profitability

Significant banking changes have been presented by the Reserve Bank of India (RBI) to enhance the strength, health, performance and profitability of the banking business. These changes and changes were planned to enhance the quality of direction, make healthy challenge, and productive working of banking industry. Changes and advancement in financial and banking sectors made furious challenge, innovation enhancement, worldwide reconciliation and development of new banking items. It is sensible to expect that every one of these progressions more likely than not had some effect on banks' profitability and performance. Consequently, understanding basic factors that impact banks' profitability is fundamental, for the administrations of the banks as well as for different stakeholders, for example, the shareholders, store holders, employees, customers, Governments of India, and RBI. The determinants of bank performance have expected the more noteworthy interest of research in banking area as a rule and factors that decide the profitability of banks specifically.

1.3 Issues of Pressure on Profitability

The issue of pressure on productivity was experienced amid 1993-95 as uncovered from the losses caused to banking sector. With nonstop development in number of branches and labor, push on social and rural banking, coordinated sector loaning, support of higher reserve proportions, waiver of advances under concessions, reimbursement default by large industrial corporates and different borrowers, and so forth had their telling effect in the profitability of the banks. Further, with the presentation of prudential standards, made powerful from March end 1993, asset report of a greater part of the business banks had reflected gigantic losses. So as to enhance financial health of these banks, the Government gave a portion of half breed capital and consequently these banks were made to sign a notice of comprehension with RBI.

1.4 Public Sector

Public sector banks are the ones in which the government includes a noteworthy holding. These can be additionally characterized into: a) State Bank of India b) Nationalized banks c) Co-operative sector banks. The State bank of India, (SBI) is that the main bank of public sector in India though the Punjab National Bank (PNB) is that the second largest public sector banks in India and assumes an essential role inside the development of Indian economic framework.

The financial performance of a bank is regularly estimated as the accomplishment of the bank regarding profitability position, benefit quality, consumer loyalty and other significant angles. As of late, Public sector banks rule business banking in India and subsequently the investigation uncovers that bank customers have a great deal of trust in public sector banks when contrasted with private sector banks. In any case, things have changed; at present, banks are known for specialized and financial changes.

1.5 Challenges of the Public Sector Banks (PSBs) In India

The enhancement of operational and conveyance productivity of commercial banks has dependably been an issue for Government of India (GOI) in conference with RBI. Throughout the years, such as Banking Commission (1972) under the Chairmanship of R.G. Saraiya and in 1976 under the chairmanship of Manubhai Shah and the Committee for the working of PSBs (1978) under the Chairmanship of James S. Raj have proposed structural changes towards this target. Notwithstanding, the economic ascent of 1990s brought forth the new economic full scale level reasoning to enhance the economic health of the Indian economy. Financial sector changes, especially banking sector, provided new stable and healthy guidance to the Indian economy. Under the routine of Liberalization, Privatization and Globalization (LPG), some public sector banks are as yet confronting intense issues as their survival has turned out to be extremely troublesome in the focused world.

1.6 Measuring the Performance of Public Sector Banks

In an administration industry like banking, it is beyond the realm of imagination to expect to gauge physical yield without clear definition. Nonetheless, the vast majority of the measures that are utilized to study banks' performance can be deciphered all the more accurately as estimating the banks effectiveness target as opposed to specifically estimating their productivity. The dimension of effectiveness of banks is generally estimated at the dimension of branches and employees, which are the two imperative wheels on which banking industry moves.

Thinking about the national needs, association of banks in rural areas and development plans and tremendous framework created as far as branches and labor assets, it is thought suitable to survey the productivity of banks regarding the performance at the dimension of branches and employees. Further, the measure of banks differ generally; thus it is increasingly significant to study the performance of parameters showing proficiency at the dimension of branch and representative.

So as to gauge proficiency at the branch and employees level, the accompanying parameters are utilized: (1) Business per Branch, (2) Operating costs per Branch, (3) Profit per Branch, (4) Business per Employee, (5) Establishment costs per Employee, and (6) Profit per Employee. The study in this manner estimates productivity of a bank at the dimension of operational units, i e., branch and worker, The proficiency of each branch and representative as far as averages of markers can be contrasted with survey the general performance of various banks and bank groups

2. REVIEW OF LITERATURE

Hosna, Manzura and Juanjuan (2009) - determined credit risk management and profitability of commercial banks in Sweden over the time of years 2000-2008. Profit for value was utilized as profitability pointer while non-performing loan proportion and capital sufficiency proportion were utilized as credit risk management markers. The study uncovered that credit management has impact on profitability of the example banks however it differs crosswise over banks.

Kithinji (2010) - analyzed the connection between credit risk management and profitability of commercial banks in Kenya from the period 2004 to 2008 utilizing regression investigation. The autonomous factors indicated by the creator incorporate the measure of credit and non-performing loans, while the needy variable utilized is an arrival on complete resources. As opposed to the finding of different examinations, the consequences of this study demonstrates that there is no connection between bank profit and the measure of credit and dimension of non-performing loans. This implies the bulk of banks' profitability isn't affected by the measure of credit and non-performing loan. Thus, the creator recommends for commercial banks expecting to upgrade profitability to concentrate on variables other than the measure of credit and non-performing loans.

Aduda and Gitonga (2011) - investigated the connection between credit risk management and profitability of thirty commercial banks in Kenya utilizing both primary and secondary data. Primary data was gathered through a poll while secondary data was acquired from bank's yearly report and financial explanations from 2000 to 2009. The creators utilized non-performing loan proportion as an independent variable speaking to credit risk management and ROE as a dependent variable as a proportion of bank profitability. The technique utilized in this study is regression examination. The reactions from the poll demonstrate that profitability proportions significantly influence credit risk management. Also, the discoveries from regression investigation demonstrate that NPLR is adversely related and factually noteworthy to ROE. The study infers that credit risk management affects profitability at a sensible dimension in the example commercial banks of Kenya.

Tetteh (2012) - sound credit-giving is a standout amongst the most fundamental standards which strengthen financial institutions in their financial standing. This researcher focused on that, sound credit giving builds up credit restrains just as create credit allowing process for endorsing new credits. Credit has an essential influence in the economic growth and development of a nation. These roles credit plays can be arranged into two: it empowers the exchange of assets to where it will be most adequately and proficiently utilized and also, credit streamlines the utilization of cash or coin cash as giving of credit has a multiplier impact on the volume of money or coin available for use. The giving out of credit experiences a chain of procedures known as the Lending cycle.

Charles and Kenneth (2013) - led a study on the effect of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria for the time of 2004-2009. Profit for resource was utilized as a dependent variable and loan loss arrangement, loans and advances, non-performing loans and capital adequacy proportion as independent factors. The study has appeared sound credit risk management and capital adequacy affected decidedly on bank's financial performance except for loans and advances which was found to negatively affect the bank's financial performance.

3. OBJECTIVES OF THE STUDY

1. To describe the concept of profitability and credit risk on Public sector banks of India.

2. To investigate the issues of pressure on profitability and challenges of public sector banks.

3. To Measuring the Performance of Banks and their indicators.

4. To experiment the cause and effects relationship among three indicators of credit risk and one pointer of profitability.

5. To evaluate the significance and positive relationship among ROA, and CAR and LPNPL.

4. RESEARCH METHODOLOGY

4.1 Research Design

The research design for the present study is descriptive in nature, which is utilized to discover the cause and affects relationship between the different indicators of credit risk the executives and profitability.

4.2 Sample size

The present study have taken 26 public sector banks (20 nationalized banks and 06 SBI and its Associates) as an example and secured a time of 06 years for example from 2011-16.

4.3 Sources of data collection

Secondary have been gathered from journals, websites, Reports of Reserve Bank of India, Reports and different publications of Indian Bank's

Association and Annual Reports of the chose banks just as Center for Monitoring the Indian Economy (CMIE) Prowess online database.

4.4 Hypothesis of the Study

H1: There is no significance influence of credit risk on profitability of Public Sector banks.

4.5 Variables for the study

To accomplish the objective, the relationship among three indicators of credit risk and one pointer of profitability is examined as under.

Table 1: Variable and Method

Variables	Variable Name	Method
Independent Variables (Credit Risk)	CAR	Total Capital/RWAs
	NPLR	Non-Performing Loans/Total Loans
	LP/ NPL	Loan Provisions/ Non-Performing Loans
Dependent Variable (Profitability)	Return on Assets	Net Income/ Total Assets

4.6 Specification of Model

$$ROA_{i,t} = \beta_0 + \beta_1 \text{ x } CAR_{\ i,t} + \beta_2 \text{ x } NPLR_{\ i,t} + \beta_3 \text{ x } LPNPL_{\ i,t} + e_{i,t}$$

Where:

ROA = Return on Assets of i^{th} bank in year t

CAR = Capital Adequacy Ratio at time t

NPLR = Non Performing Loans to Total Loans at time t LPNPL = Loan Provisions to Non-Performing Loans at time t β_0 = Intercept (Constant) β_1, β_2, β_3, β_4, β_5 = the slope represents the degree with which bank's profitability changes as the independent variable changes by one unit variable.

$e_{i,t}$ = error component

This model estimates the effect of the credit risk on profitability of public sector banks. Pointer of profitability i.e., Return on Assets is utilized as the dependent factors. Indicators of Credit risk, Capital Adequacy Ratio i.e., Non-Performing Loans Ratio and Loan Provisions to Non-Performing Loans are utilized as dependent factors.

4.7 Statistical tools used in this study

Various Regression is employed to survey the impact of credit risk on the profitability of public sector banks by utilizing PASW software 18.0 form

5. RESULTS AND DISCUSSION

Table 2: Correlations between the Variables

		ROA	CAR	NPLR	LPNPL
Pearson Correlation	**ROA**	1.000			
	CAR	0.480	1.000		
	NPLR	-0.714	-0.442	1.000	
	LPNPL	0.365	0.292	-0.312	1.000
Sig. (1-tailed)	**ROA**	.			
	CAR	0.007*			
	NPLR	0.000*	0.012*	.	
	LPNPL	0.033*	0.074	0.060	.

Source: RBI, Note: *Significant at 5 percent level.

Table 2 demonstrates the coefficient of correlation of the needy and dependent variables, in which ROA is dependent variable and CAR, NPLR and LPNPL are dependent variables. ROA and NPLR have negative relationship, while there is a huge and positive relationship among ROA, and CAR and LPNPL at 5 percent level of Significance.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
1	0.747[a]	0.557	0.497	0.164	2.054	9.234	0.000*

a. Predictors: (Constant), CAR, NPLR, LPNPL;
b. Dependent Variable: ROA

Source: RBI, Note: *Significant at 5 percent level.

Table 3 demonstrates the model summary, in which the estimation of r square is 0.557 which shows that dependent variables are anticipated to the dimension of 55.7 percent to the needy variable for example ROA. The estimation of the Durbin-Watson test shows that there is no autocorrelation between the variables. The consequences of the ANOVA demonstrate that there is a statistical critical model R2, which shows that there is a huge effect of CAR, NPLR, LPNPL (dependent variables) on ROA (subordinate variable). Along these lines, It is concluded that there is no significant influence of credit risk on profitability of Public Sector banks. Hence it is stated that H1 is rejected.

Table 4: Coefficients of ROA

Model		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)		0.044	0.966		
	CAR	0.180	1.120	0.275	0.779	1.284
	NPLR	-0.595	-3.676	0.001*	0.768	1.302
	LPNPL	0.127	0.834	0.413	0.873	1.145

Source: RBI, **Note:** *Significant at 5 percent level.

The coefficients of ROA and Collinearity statistics present the estimation of Tolerance and VIF (Variance

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inflation factor) are appeared Table 4, which demonstrates that Model have not disregarded the multi-collinearity supposition. Institutionalized beta Standard are utilized to think about the commitment of every dependent variable to foresee the wards variable. The institutionalized beta coefficient is negative inferring an opposite relationship between the needy variable and the dependent variables. The largest beta esteem for example 0.595 for NPLR and beta esteem for example 0.180 for CAR demonstrate that these variables makes most grounded one of a kind commitment to clarify the dependent variables, when the difference clarified by every single other variable.

The consequences of t-test show that the dependent variables (CAR and LPNPL) sign esteem is more prominent than 0.05, along these lines it is inferred that every one of the variables (aside from NPLR) are not making a critical remarkable commitment to the forecast of the needy variable.

6. CONCLUSION

To finish up, banking assumes a critical role in economic growth and development. In India, PSBs have been in the important edge of manufacturing assets from far flung rural areas just as broadening banking services in the rural parts of the nation. The pressure of social plan has largely been carried by PSBs with no remuneration. Accordingly, in the interest of keeping up credibility of PSBs which represent about 70 percent of banking movement in the nation, the government is supported in recapitalizing the PSBs normally. Nonetheless, there is have to embrace research on developing proper standards, granular, for assessing performance of various banks operating in India without smothering stream of credit to profitable sectors. The study uncovered that there is noteworthy positive relationship among ROA and CAR, LPNPL, though ROA and NPLR have huge negative relationship. The dependent variables (Credit Risk Variable) have anticipated 55.7 percent to the needy variable i.e., ROA, It likewise demonstrates that there is a critical effect of CAR, NPLR, LPNPL on ROA. Credit risk the executives is pivotal on the bank profitability since it have a critical relationship with bank profitability and contributes up to 55.7 percent. Among the credit risk the executive's indicators, NPLR is the absolute most vital indicator of the bank profitability, though CAR and LPNPL are not noteworthy indicators of bank profitability. Consequently, the banks are encouraged to put more accentuation on credit risk the board to lessen credit risk as non-performing loans and achieve greatest profitability.

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