IMPACT OF CREDIT RISK ON PROFITABILITY: A STUDY OF INDIAN PUBLIC SECTOR BANKS

Prof. Sultan Singh
Dean and Chairperson, Deptt. of Business Administration
Chaudhary Devi Lal University, Sirsa

Deepak Kumar Sharma
Research Scholar, Deptt. of Business Administration
Chaudhary Devi Lal University, Sirsa

ABSTRACT

Credit risk is one of the most significant risks that banks face, considering that granting credit is the main function of commercial banks, which further affects their profitability of the banks. The present study is conducted to examine the impact of credit risk on profitability of twenty six public sector banks. Secondary have been collected from journals, websites, Reports of Reserve Bank of India and Indian Banks' Association for the period of six years *i.e*., from 2011 to 2016. PASW 18.0 software is used for data analysis to perform Multiple Regression. The results show that there is a significant and positive relationship between ROA and CAR, LPNPL, whereas ROA and NPLR have negative relationship. Credit risk predicts 55.7 percent of the Return on Assets, which indicates that there is a significant impact of CAR, NPLR, LPNPL on ROA. Among the credit risk indicators, NPLR is the single most important predictor of the bank's profitability, whereas CAR and LPNPL are not the significant predictors of their profitability. Hence, the banks should focus on credit risk management to reduce non-performing loans and attain maximum profitability.

Keywords: Credit risk, Non-performing assets, CAR, LPNPL and ROA.

INTRODUCTION

Banks are playing very important role in the economic growth of the country (*Ali et al., 2011*). Largely a sound and profitable banking system is in a better position to tolerate negative distress and contribute more significantly to the growth of the financial system (*Aburime, 2009*). Credit risk is one of the most significant risks that banks face, considering that granting credit is the main source of income in commercial banks, which further affects their profitability. Credit quality is a basic

indicator of any bank's financial reliability and health. Poor credit or loan quality contributes a lot to bank failures (*Boahene, et al, 2012*). Banks are increasingly facing credit risk in various financial instruments other than loans, including acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and extension of commitments and guarantees, and the settlement of transactions *(Basel, 2000)*. The Basel Committee on Banking Supervision (2000) highlighted that the major causes of serious problems among banks continue to be directly related to relaxed credit standards for borrowers and counterparties, and to poor loan portfolio risk management. Therefore, the proper management of credit risk is important for the survival and growth of financial institutions (*Singh, 2000*).

REVIEW OF LITERTURE

Chen and Kao (2012) investigated the productivity change based on the factors of credit risk by following Malmquist Productivity Index (MPI) approach and calculated efficiency scores based on data envelopment analysis (DEA). It is found that different groups of banks should have different strategies of credit risk management to survive in the changing environment. **Poudel (2012)** explored the parameters pertinent to credit risk management as it affects banks' financial performance and found that all these parameters have an contrary impact on banks' financial performance. However the default rate is the most predictor of bank financial performance. It was recommended that banks should design and formulate strategies to minimize the exposure of the banks to credit risk and enhance profitability. **Vincent and David (2012)** examined the effects of credit policy on bank performance using data of selected commercial banks. The results of the study indicated that the Rwanda's commercial banks are getting vibrant and tend to increase their accounts, to attract more customers and ameliorate their financial indices, thereby maximizing their profits. **Taiwo and Taiwo (2013)** evaluated the impact of credit risk management on the profitability of selected commercial banks in Nigeria using econometric analysis method on annual time series data of ten banks over the period of 2006 to 2012. It is found that credit risk management has a significant impact on the profitability of these banks. Therefore, management need to be careful in setting up a credit policy that might not affects profitability negatively and also know how credit policy affects the operation of their banks to ensure judicious utilization of deposits. **Rufai (2013)** assessed the efficacy of credit risk management on banks' performance and examined the relationship between interest income and bad debt of the Union Bank. The study concluded that credit risk affects the performance of Union Bank and to maintain high interest income, attention needs to be given to credit risk management especially regarding the lending policies of the bank. The study recommended that bank should ensure that loans given out to customers should be adequately reviewed from time to time to assess the level of its risk and such loan should be backed by collateral security. **Megeid (2013)** examined the impact of bank's

credit risk management on improving the liquidity performance of eight Egyptian commercial banks for the period 2004-2010. It was found that significant and positive relationship between effective credit risk management and improving liquidity levels in Egypt commercial banks. **Charles and Kenneth (2013)** examined the impact of credit risk management and capital adequacy on banks financial performance in Nigeria. The study resulted that sound credit risk management and capital adequacy impacted positively on bank's financial performance with the exception of loans and advances which were found to have a negative impact on banks' profitability during the period under study. It recommended that Nigerian banks should institute appropriate credit risk management strategies by conducting rigorous credit appraisal before loan disbursement and adequate attention be paid to enhance Tier-I Capital of Nigerian banks. **Tamara and Dorota (2014)** investigated the capital, risk and liquidity decisions of the U.S. commercial banks during the period 2001 to 2009. They found that the banks should adjust their capital, liquidity and risk in the regular and distress times. Rate of liquidity and risk adjustment are mostly higher during the crisis, indicating that banks were inclined to reach desired levels of liquidity and risk much faster during the crisis than pre-crisis period. While the rate of capital adjustment are lower during the crisis, showing that banks faced difficulties in changing capital ratios to desired levels during the financial turmoil. **Kodithuwakku (2015)** examined the impact of credit risk management on the performance of commercial banks of Sri Lanka. The study found that non-performing loans and provisions have an adverse impact on the profitability and recommended that the banks should implement effective tools and techniques to reduce the credit risk. **Lalon (2015)** analyzed the impact of credit risk management on financial performance of bank. The study acknowledged the efficiency in managing credit risk of Bangladeshi Banks and provides conclusive reference for analyzing how credit risk management practices helps to increase profitability and long-term sustainability of commercial banks. **Gizaw, Kebede and Sujata, (2015)** examined the influence of credit risk on profitability of eight commercial banks in Ethiopia for the period of 2003 to 2014 and found that the credit risk measured by non-performing loans, loan loss provisions and capital adequacy have significant impact on the profitability measured by ROA of eight commercial banks in Ethiopia. The foregoing review of literature discloses that no intensive efforts were made to study the impact of credit risk on the profitability of Indian commercial banks. Therefore, the present study entitled **"*Impact of Credit Risk on Profitability: A Study of Indian Public Sector Banks*"** is undertaken to fill the gap in the existing literature.

RESEARCH OBJECTIVE

The objective of the study is to examine the impact of credit risk on profitability of Public Sector banks.

Research Hypothesis

H_{01}:   There is no significance impact of credit risk on profitability of Public Sector banks.

Research Methodology

The research design for the present study is explanatory in nature, which is used to find the cause and effects relationship between the various indicators of credit risk management and profitability. The present study have taken 26 public sector banks (20 nationalized banks and 06 SBI and its Associates) as a sample and covered a period of 06 years *i.e.* from 2011-16. Secondary have been collected from journals, websites, Reports of Reserve Bank of India, Reports and other publications of Indian Bank's Association and Annual Reports of the selected banks as well as Centre for Monitoring the Indian Economy (CMIE) Prowess online database. Multiple Regression is employed to assess the effect of credit risk on the profitability of public sector banks by using PASW software 18.0 version.

Variables for the study

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

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

Model Specification

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

Where:

ROA	= Return on Assets of ith 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)
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	= 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 measures the impact of the credit risk on profitability of public sector banks. Indicator of profitability *i.e.*, Return on Assets is used as the dependent variables. Indicators of Credit risk, Capital Adequacy Ratio *i.e.*, Non Performing Loans Ratio and Loan Provisions to Non-Performing Loans are used as independent variables.

RESULTS AND DISCUSSION

Table 1 shows the coefficient of correlation of the dependent and independent variables, in which ROA is dependent variable and CAR, NPLR and LPNPL are independent variables. ROA and NPLR

have negative relationship, whereas there is a significant and positive relationship between ROA, and CAR and LPNPL at 5 percent level of significance.

Table 1: 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 shows the model summary, in which the value of r square is 0.557 which indicates that independent variables are predicted to the level of 55.7 percent to the dependent variable i.e. ROA. The value of the Durbin-Watson test indicates that there is no autocorrelation between the variables. The results of the ANOVA show that there is a statistically significant model R^2, which indicates that there is a significant impact of CAR, NPLR, LPNPL (independent variables) on ROA (dependent variable). Therefore, the null hypothesis *i.e.* there is no significance impact of credit risk on profitability of Public Sector banks **(H_{01})** is rejected.

Table 2: 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.

The coefficients of ROA and Collinearity statistics present the value of Tolerance and VIF (Variance inflation factor) are shown in Table 3, which indicates that Model have not violated the multicollinearity assumption *(Pallant, p.158, 2011)*. Standardized beta values are used to compare the contribution of each independent variable to predict the dependents variable. The standardized beta coefficient is negative implying an inverse relationship between the dependent variable and the independent variables. The largest beta value *i.e.* 0.595 for NPLR and beta value *i.e.* 0.180 for CAR indicate that these variables makes strongest unique contribution to explain the dependent variables, when the variance explained by all other variables.

Table 3: Coefficients of ROA

Model		Standardized Coefficients			Collinearity Statistics	
		Beta	t	Sig.	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 results of t-test indicate that the independent variables (CAR and LPNPL) sign value is greater than 0.05, therefore it is concluded that all the variables (except NPLR) are not making a significant unique contribution to the prediction of the dependent variable.

CONCLUSION

The study revealed that there is significant positive relationship between ROA and CAR, LPNPL, whereas ROA and NPLR have significant negative relationship. The independent variables (Credit Risk Variable) have predicted 55.7 percent to the dependent variable *i.e.,* ROA, It also indicates that there is a significant impact of CAR, NPLR, LPNPL on ROA. Credit risk management is crucial on the bank profitability since it have a significant relationship with bank profitability and contributes up to 55.7 percent. Among the credit risk management indicators, NPLR is the single most important predictor of the bank profitability, whereas CAR and LPNPL are not significant predictors of bank profitability. Hence, the banks are advised to put more emphasis on credit risk management to reduce credit risk as non-performing loans and attain maximum profitability.

REFERENCES

- Aburime, U. T. (2009). Impact of political affiliation on bank profitability in Nigeria. African Journal of Accounting, Economics, Finance and Banking Research, 4(4), 61-75.

- Ahmad, N. H. & Ariff, M. (2007). Multi-country study of bank credit risk determinants. International Journal of Banking and Finance, 5(1).

- Ali, K.; Akhtar, M. F. & Ahmed, H. Z. (2011). Bank-specific and macroeconomic indicators of profitability: Empirical evidence from the commercial banks of Pakistan. International Journal of Business and Social Science, 2(6), 235-242.

- Basel Committee on Banking Supervision, (2000). Principles for the management of credit risk. 1-26. Accessed from http://www.bis.org/publ/bcbs75.pdf.

- Basel Committee on Banking Supervision, (2015). History of the Basel committee. Retrieved on June 23, 2016, from http://www.bis.org/bcbs/history.pdf

- Boahene, S. H.; Dasah, J. & Agyei, S. K. (2012). Credit risk and profitability of selected banks in Ghana. Research Journal of Finance and Accounting, 3(7), 6-14.

- Charles, O. & Kenneth, U. O. (2013). Impact of Credit Risk Management and Capital Adequacy on the Financial Performance of Commercial Banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking.* 2(3), 703-717.

- Chen, Kuan-Chung & Kao, Che-Han, (2012). Measurement of Credit Risk Efficiency and Productivity Change for Commercial Banks in Taiwan. *Journal of Information, Technology and Society.* 1-18.

- Gizaw, M., Kebede, M., & Selvaraj, S. (2015). The Impact of Credit Risk on Profitability Performance of Commercial Banks in Ethiopia. *African Journal of Business Management*, 9(2), 59-66.

- Kodithuwakku, S. (2015). Impact of Credit Risk Management on the Performance of Commercial Banks in Sri Lanka. *International Journal of Scientific Research and Innovative Technology.* 2(7), 24-29.

- Lalon, R. M. (2015). Credit Risk Management (CRM) Practices in Commercial Banks of Bangladesh: A Study on Basic Bank Ltd. *International Journal of Economics, Finance and Management Sciences. 3*(2), 78-90.

- Megeid, N. S. A. (2013). The Impact of Effective Credit Risk Management on Commercial Banks Liquidity Performance: Case of Egypt. *International Journal of Accounting and Financial Management Research. 3*(2). 13-32.

- Pallant, J. (2011). SPSS Survival Manual. Australia: Allen & Unwin. Accessed from www.allenandunwin.com/spss

- Poudel, R. P. S. (2012). The Impact of Credit Risk Management on Financial Performance of Commercial Banks in Nepal. *International Journal of Arts and Commerce. 1*(5), 9-15, October.

- Rufai, A. S. (2013). Efficacy of Credit Risk Management on the Performance of Banks in Nigeria A Study of Union Bank PLC (2006-2010). *Global Journal of Management and Business Research Administration and Management. 13*(4), 1-12.

- Singh, A., (2013). Credit Risk Management in Indian Commercial Banks. *International Journal of Marketing, Financial Services & Management Research. 2*(7), 47-51.

- Taiwo, A. M. & Taiwo, A. S. (2013). Credit Management Spur Higher Profitability? Evidence from Nigerian Banking Sector. *Journal of Applied Economics and Business. 1*(2), 46-53.

- Tamara, K. & Dorota, K. (2014). The Relationship between Capital, Liquidity and Risk in Commercial Banks. The 9th Young Economists' Seminar to the 20th DEC. Croatian National Bank, Accessed from http://www.hnb.hr/dub-konf/20-konferencija/yes/yes-kochubey-kowalczyk.pdf on 21/09/15.

- Vincent, B. & David, N. (2012). The effects of credit policy on bank performance: Evidence from selected Rwandan Commercial banks. *Rwanda Journal: Social Science*, 26(B), 116-119.

- Rufo, Mendoza & John, P. R. Rivera (2017). The Effect of Credit Risk and Capital Adequacy on the Profitability of Rural banks in the Philippines. *Scientific Annals of Economics and Business*. 64 (1), 83-96.

© **Associated Asia Research Foundation (AARF)**

A Monthly Double-Blind Peer Reviewed Refereed Open Access International e-Journal - Included in the International Serial Directories.

Page | 287