

The impact of credit risk management on financial performance of commercial banks in Nepal

Ravi Prakash Sharma Poudel

PhD Student

Business School

University of New England

Australia

Phone no.+61-2-67732728

Email: rpoudel@une.edu.au

Abstract

This study try to explore various parameters pertinent to credit risk management as it affect banks' financial performance. Such parameters covered in the study were; default rate, cost per loan assets and capital adequacy ratio. Financial report of 31 banks were used to analyze for eleven years (2001-2011) comparing the profitability ratio to default rate, cost of per loan assets and capital adequacy ratio which was presented in descriptive, correlation and regression was used to analyze the data. The study revealed that all these parameters have an inverse impact on banks' financial performance; however, the default rate is the most predictor of bank financial performance. The recommendation is to advice banks to design and formulate strategies that will not only minimize the exposure of the banks to credit risk but will enhance profitability.

Keywords: Performance, return of assets, default rate, cost per loans, capital adequacy ratio, banks.

1. Introduction

The health of the financial system has important role in the country (Das & Ghosh, 2007) as its failure can disrupt economic development of the country. Financial performance is company's ability to generate new resources, from day-to-day operation over a given period of time and it is gauged by net income and cash from operation. The financial performance measure can be divided into traditional measures and market based measures (Aktan & Bulut, 2008). During the 1980's and 1990's when the financial and banking crises became worldwide, new risk management banking techniques emerged. To be able to manage the different types of risk one has to define them before on can manage them. The risks that are most applicable to banks risk are: credit risk, interest rate risk, liquidity risk, market risk, foreign exchange risk and solvency risk. Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources (Appa, 1996) whereas credit risk is the risk of loss due to debtor's non-payment of a loan or other line of credit (either the principal or interest or both) (Campbell, 2007). Default rate is the possibility that a borrower will default, by failing to repay principal and interest in a timely manner. A bank is a commercial or state institution that provides financial services, including issuing money in various forms, receiving deposits of money, lending money and processing transactions and the creating of credit (Campbell, 2007).

Credit risk management is very important to banks as it is an integral part of the loan process. It maximizes bank risk, adjusted risk rate of return by maintaining credit risk exposure with view to shielding the bank from the adverse effects of credit risk. Bank is investing a lot of funds in credit risk management modeling.

The case in point is the Basel II accord. There is need to investigate whether this investment in credit risk management is viable to the banks. This study therefore seeks to investigate the impact of credit risk management on a bank's financial performance in Nepal. The general objectives of the study were to establish the impact of credit risk management on the financial performance of banks. The specific objectives were: to establish the impact of default rate on performance; to establish the impact of debt collection on performance and; to establish the impact of cost per loan assets on performance.

Various studies Acharya (2003), Demetriades & Luintel (1996), Ferrari, Jaffrin, & Shrestha (2007), Khanal (2007), Pokhrel (2006) and Shrestha (2005) related to financial and banking sector services, policies, liberalization and development has been done in the country. To the best of my knowledge, no in-depth studies have been conducted to investigate the impact of credit risk management in the banks' performance in Nepal. This research intends to fill a gap in research as the first in-depth study in effective credit risk management.

2. Literature Review

In commercial lending, commercial banking plays a dominant role (Allen & Gale, 2004). In many countries, commercial banks routinely perform investment banking activities by providing new debt to their customers (Gande, 2008). The credit creation process works smoothly when funds are transferred from ultimate savers to borrower (Bernanke, 1993). There are many potential sources of risk, including liquidity risk, credit risk, interest rate risk, market risk, foreign exchange risk and political risks (Campbell, 2007). However, credit risk is the biggest risk faced by banks and financial intermediaries (Gray, Cassidy, & RBA., 1997). The indicators of credit risk include the level of bad loans (Non-performing loans), problem loans or provision for loan losses (Jiménez & Saurina, 2006). Credit risk is the risk that a loan which has been granted by a bank, will not be either partially repaid on time or fully (Campbell, 2007), and where there is a risk of customer or counterparty default (Gray, et al., 1997).

Prior to financial sector deregulation, banks were highly motivated to grant credit facility to clients who could easily express their creditworthiness (Bryant, 1999). Deregulation offered the opportunity to meet the demands for credit across a wide range of borrowers. Large amount of bad credit, as a result of boom-time advances in the 1980's, caused the banks to be too cautious in extending credit (Boyd, 1993; Bryant, 1999). Credit risk management processes enforce the banks to establish a clear process in for approving new credit as well as for the extension to existing credit. These processes also follow monitoring with particular care, and other appropriate steps are taken to control or mitigate the risk of connected lending (Basel, 1999).

Credit granting procedure and control systems are necessary for the assessment of loan application, which then guarantees a bank's total loan portfolio as per the bank's overall integrity (Boyd, 1993). It is necessary to establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of bank credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, a basic element for effective credit risk management (Basel, 1999). Credit scoring procedures, assessment of negative events probabilities, and the consequent losses given these negative migrations or default events, are all important factors involved in credit risk management systems (Altman, Caouette, & Narayanan, 1998). Most studies have been inclined to focus on the problems of developing an effective method for the disposal of these bad debts, rather than for the provision of a regulatory and legal framework for their prevention and control (Campbell, 2007).

According to (Cuthberston & Nitzsche, 2003) risk management technology has been renovated over the last decade. The swiftness of information flow and the complexity of the international financial markets qualify

banks to recognize, evaluate, manage and mitigate risk in a way that was just not possible ten years ago. The most current credit modelling software in place is Basel II Accord. This accord has positively been a substance in leading the drive towards building applicable credit risk modelling and capital adequacy requirements. Banks will have to decide what their risk enthusiasm is, how to assign their resources optimally and how to compete in market. Generally in competitive market, a bank trade off the risk which allows much more competent risk transfer and portfolio optimization. However, for all these activities, banks must have a good knowledge about risk management, pricing of loan on competitive market, marginal risk adjusted contribution, monitoring of economic capital (Cuthberston & Nitzsche, 2003).

The banks very frequently suffer from poor lending practice (Koford & Tschoegl, 1999). Monitoring, and other appropriate steps, are necessary to control or mitigate the risk of connected lending when it goes to companies or individuals (Basel, 1999). Therefore, the Nepal Rastra Bank (NRB) i.e. central bank, has issued guidelines which attention to general principles that are prepared for governing the implementation of more detailed lending procedures and practices within the banks. The NRB has issued some criteria, such as the credit assessment of borrowers (macro-economic factors and firm specific analysis), the purpose of credit, track records, repayment capacity, liquidity status of collateral for new credit, as well as the renewal and expansion of existing credit (NRB, 2010). It is mandatory for a bank to prepare Credit Policies Guidelines (CPG) for making investment and lending decisions and which reflect a bank tolerance for credit risk. Prior to consent to a credit facility, the bank should make an assessment of risk profile of its customers, such as of their business, and which can be done through the credit procedure (NRB, 2010).

Benedikt, Ian, Judit, & Wolf (2007) studied the credit risk management policies for ten banks in the United States and found that advance credit risk management techniques (proxies by at least one collateralized loan) help permanent to achieve their target in loan level. The findings confirm the general efficiency- enhancing implications of new risk management techniques in a world with frictions suggested in the theoretical literature.

The study conducted by Macaulay (1988) in the United States and found credit risk management is best practice in bank and above 90% of the bank in country have adopted the best practice. Inadequate credit policies are still the main source of serious problem in the banking industry as result effective credit risk management has gained an increased focus in recent years. The main role of an effective credit risk management policy must be to maximize a bank's risk adjusted rate of return by maintaining credit exposure within acceptable limits. Moreover, banks need to manage credit risk in the entire portfolio as well as the risk in individual credits transactions.

Private Banks are more serious to implement effective credit risk management practice than state owned banks. A study conducted by Kuo & Enders (2004) of credit risk management policies for state banks in China and found that mushrooming of the financial market; the state owned commercial banks in China are faced with the unprecedented challenges and tough for them to compete with foreign bank unless they make some thoughtful change. In this thoughtful change, the reform of credit risk management is a major step that determines whether the state owned commercial banks in China would survive the challenges or not.

Research however faults some of the credit risk management policies in place The broad framework and detailed guidance for credit risk assessment and management is provided by the Basel New Capital Accord which is now widely followed internationally (Campbell, 2007). Most countries are implementing the 'better wait' and gradual approaches, in the face of huge challenges posed by Basel II. Significant number of countries has it in mind to suspend execution of Basel II or decide on simple approaches for determining credit risk (Gottschalk, 2007).

3. Methodology

The research design used for the study was a descriptive research design that basically involve obtaining information concerning the current status of phenomena to describe, "What exist" with respect to variables or condition in a situation (Gardner, Dixie, & S.C., 2004). The population of interest was the thirty one banks that operate in Nepal. The study covered the banks operating in Nepal; thirty one banks were involved in the study. The study covered the period from 2001 to 2011 because this was the period that the banking industry has undergone various change.

Secondary data was used for the study. The data was analyzed by calculating the profitability for each year for the period of study, trend analysis was done by comparing the profitability ratio to default rate, cost per loan assets and capital adequacy ratio. Further, the ratio was analyzed using regression statistical tool run using SPSS program version twenty.

3.1 Definition of Variables

The return on assets (ROA) is a ratio that measures company earnings before interest & taxes (EBIT) against its total net assets. The ratio is considered an indicator of how efficient a company is using its assets to generate before contractual obligation must be paid. It is calculated as: $ROA = EBIT / \text{Total Assets}$. Return on assets gives a sign of the capital strength of the banking industry, which will depend on the industry; banks that require large initial investment will generally have lower return on assets (Appa, 1996).

Default rate (DR) is the term for a practice in the financial services industry for a particular lender to change the terms of a loan from the normal terms to the default terms that is, the terms and rates given to those who have missed payments on loan (Appa, 1996). DR ratio can be calculated as $DR \text{ Ratio} = \text{Non Performing Loans} / \text{Total loan}$

Cost per loan asset (CLA) is the average cost per loan advanced to customer in monetary term. Purpose of this is to indicate efficiency in distributing loans to customers (Appa, 1996). CLA ratio can be calculated as: $CLA \text{ Ratio} = \text{Total Operating Cost} / \text{Total amount of loans}$.

Capital Adequacy Ratio (CAR) is a measure of the amount of bank's capital expressed as a percentage of its risk weighted credit exposure. CAR can be calculated: $CAR = \text{Capital fund} / \text{Risk Weighted Assets}$

3.2 Model Specification

The econometric model used in the study (which was in line with what is mostly found in the literature) is given as:

$$Y = \beta_0 + \beta F_{it} + e_{it}$$

Where, Y is the dependent variable. β_0 is constant, β is the coefficient of explanatory variable, F_{it} is the explanatory variable and e_{it} is the error term (assumed to have zero mean and independent across time period).

By adopting the economic model as in equation above specifically to this study, equation 2 below evolves.

$$\text{Performance (ROA)} = \beta_0 + \beta_1 DR + \beta_2 CLA + \beta_3 CAR + e_{it}$$

4. Findings

Table 1 presents some descriptive statistics for the variable used in this study. The mean ROA is 0.86%, the minimum -18.92% and maximum 18.04%. On the average, the default rate is 7.63% and minimum and maximum is 0% and 60.47% respectively. Regarding the cost per loan assets, the average is 8.57% where minimum and maximum is 1.46% and 31.99% respectively. The mean of capital adequacy ratio is 10.38% and bears minimum and maximum -55.54% and 133.80% respectively.

The Pearson's correlation matrices in Table 2 indicate that the degree of correlation between each pair of independent variable is low which suggest the absence of multicollinearity problem in the models (Bryman & Cramer, 2001). All the test for significance were done at 90% confidence level, this means that all the above test must have p-value less or equal to 0.10 for the test to be significant. Table 2 shows that there is a significant relationship between the dependent variable and independent variables. It shows that there is significant relationship between dependent variable i.e. return on assets and all independent variable i.e. default rate, cost per loan assets and capital adequacy ratio. This finding therefore indicates that all the risk management indicators have direct relationship with performance.

Table 5 contains the beta coefficients of the three independent variables. The beta coefficients are indicators of the predictive powers of the individual variables. The entire beta coefficient is negative implying an inverse relationship between the dependent variable and the independent variables. Thus a unit changes in default rate, cost per loan assets and capital adequacy ratio result to an inverse change in performance the extent of 56%, 4.8% and 25.2%.

Observation of t-test for the default rate (-7.695 and Capital adequacy ratio (-3.439) indicates that there is significant negative relationship between dependent variable (return on assets) and independent variable (default rate and capital adequacy ratio). The result show that there is negative relationship between return on assets and cost per loan assets however, the relation is not statistically significant which indicates that there is no any relationship between cost per loan assets and performance.

5. Conclusion and Recommendations

The general objectives of the study was to establish the impact of credit risk management on financial performance of banks and specific objectives were to establish impact of default rate, cost per loan assets on bank financial performance. The result of the showed that credit risk management is an important predictor of bank financial performance thus success of bank performance depends on risk management. The study results also showed that default rate as one of the risk management indicators is a major predictor of the bank financial performance to the extent of 56% and followed by capital adequacy ratio at 25%. Credit risk management is crucial on the bank performance since it have a significant relationship with bank performance and contributes up to 22.6% of the bank performance. Among the risk management indicators, default rate management is the single most important predictor of the bank performance whereas cost per loan assets is not significant predictors of bank performance.

Since risk management in general has very significant contribution to bank performance, the banks are advised to put more emphasis on risk management. In order to reduce risk on loans and achieve maximum performance the banks need to allocate more funds to default rate management and try to maintain just optimum level of capital adequacy. Based on the study other factors not studied in this research has a very significant contribution of 77.4% to bank performance therefore require further research to efficiently manage the credit risk hence improve bank financial performance.

Reference

- Acharya, M. (2003). Development of the Financial System and Its Impact on Poverty Alleviation in Nepal *Economic Review, Occassional Paper, Nepal Rastra Bank* 15.
- Aktan, B., & Bulut, C. (2008). Financial Performance Impacts of Corporate Entrepreneurship in Emergin Markets: A Case study of Turkey. *European Journal of Economics, Finance and Administrative Science*(12), 69-79.
- Allen, F., & Gale, D. (2004). Financial intermediaries and markets. *Econometrica*, 72(4), 1023-1061.

- Altman, E., Caouette, J., & Narayanan, P. (1998). Credit-risk Measurement and Management: the ironic challenge in the next decade. *Financial Analysts Journal*, 54(1), 7-11.
- Appa, R. (1996). *The Monetary and Financial System*. London Bonkers Books Ltd. 3rd Edition
- Basel. (1999). Principles for the management of credit risk *Consultive paper issued by Basel Committee on Banking Supervision, Basel*.
- Benedikt, G., Ian, M., Judit, V. C., & Wolf, W. (2007). Bank Behaviour with access to credit risk transfer markets. *Research Discussion Papers, 4, Bank of Finland*.
- Bernanke, B. (1993). Credit in the Macroeconomy. *Quarterly Review - Federal Reserve Bank of New York*, 18, 50-50.
- Boyd, A. (1993). How the industry has changed since deregulation. *Personal Investment*, 11(8), 85-86.
- Bryant, K. (1999). *The Integration of Qualitative Factors into Expert System for Evaluating Agricultural Loans* Paper presented at the Australasian Conference on Information System.
- Bryman, A., & Cramer, D. (2001). *Quantitative data analysis with SPSS release 10 for Windows: a guide for social scientists*: Psychology Press.
- Campbell, A. (2007). Bank insolvency and the problem of nonperforming loans. *Journal of Banking Regulation*, 9(1), 25-45.
- Cuthberston, K., & Nitzsche, D. (2003). Long Rates, Risk Premia and the Over-Reaction/Hypothesis. *Economic Modelling* 20, 413-435.
- Das, A., & Ghosh, S. (2007). Determinants of Credit Risk in Indian State-owned Banks: An Empirical Investigation. *Economic Issue-Stoke and Trent*, 12(2), 27-46.
- Demetriades, P., & Luintel, K. (1996). Banking sector policies and financial development in Nepal. *Oxford Bulletin of Economics and Statistics*, 58(2), 355-372.
- Ferrari, A., Jaffrin, G., & Shrestha, S. (2007). *Access to financial services in Nepal*: World Bank Publications.
- Gande, A. (2008). Commercial Banks in Investment Banking. In V. T. Anjan & W. A. B. Arnoud (Eds.), *Handbook of Financial Intermediation and Banking* (pp. 163-188). San Diego: Elsevier.
- Gardner, M. J., Dixie, L. M., & S.C., E. (2004). *Managing Financial Institutions. An assets liability approach*. New York: The Dryden Press, A division of Harcourt College
- Gottschalk, R. (2007). Basel II implementation in developing countries and effects on SME development.
- Gray, B., Cassidy, C., & RBA (1997). *Credit risk in banking : proceedings of a conference at H.C. Coombs Centre for Financial Studies, 1-2 May 1997*. [Melbourne?]: Reserve Bank of Australia, Bank Supervision Dept.
- Jiménez, G., & Saurina, J. (2006). Credit cycles, credit risk, and prudential regulation. *International Journal of Central Banking*, 2(2), 65-98.
- Khanal, S. (2007). Banking and insurance services liberalization and development in Bangladesh, Nepal and Malaysia : A comparative analysis. *Working Papers. Federal Reserve Bank of Atlanta*.
- Koford, K., & Tschoegl, A. (1999). Problems of bank lending in Bulgaria: Information asymmetry and institutional learning. *MOCT-MOST: Economic Policy in Transitional Economies*, 9(2), 123-152.
- Kuo, S. H., & Enders, W. (2004). The Term Structure of Japanese Interest Rate: The equilibrium spread with asymmetric dynamics. *The Japanese and International Economics*, 18, 84-98.
- Macaulay, F. R. (1988). Some theoretical problems suggested by the movements of interest rate, bond yields, and stock prices in the United States since 1856., *New York, NBER*.
- NRB (2010). Risk Management Guidelines. *Bank Supervision Department, Nepal Rastra Bank, Baluwatar, Kathmandu Nepal*.
- Pokhrel, D. R. (2006). Banking System Development in Nepal : A Comparative Analysis. *Osaka Sangyo University Journal of Economics*, 7(2), 215-256.
- Shrestha, M. (2005). Financial Liberalisation in Nepal, . *PHD thesis, School of Economics and Information System, University of Wollongong*.

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	229	-18.92%	18.04%	0.8623%	3.40881%
DR	229	0.00%	60.47%	7.6384%	12.60110%
CLA	229	1.46%	31.99%	8.5732%	3.18593%
CAR	229	-55.54%	133.80%	10.3871%	17.76837%
Valid N (listwise)	229				

Table 2

Correlations

		ROA	NPL	CLA	CAR
ROA	Pearson Correlation	1			
	Sig. (1-tailed)				
DR	N	229			
	Pearson Correlation	-.430***	1		
CLA	Sig. (1-tailed)	.000			
	N	229	229		
CAR	Pearson Correlation	-.142**	.326**	1	
	Sig. (1-tailed)	.016	.000		
CAR	N	229	229	229	
	Pearson Correlation	.086*	-.575**	-.349**	1
CAR	Sig. (1-tailed)	.096	.000	.000	
	N	229	229	229	229

***. Correlation is significant at the 0.01 level (1-tailed).

**. Correlation is significant at the 0.05 level (1-tailed).

*. Correlation is significant at the 0.10 level (1-tailed).

Table 3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.475 ^a	.226	.215	3.01974%

a. Predictors: (Constant), CAR, CLA, DR

Table 4

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	597.628	3	199.209	21.846	.000 ^b
	Residual	2051.733	225	9.119		
	Total	2649.362	228			

a. Dependent Variable: ROA

b. Predictors: (Constant), CAR, CLA, DR

Table 5

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.959	.673		4.399	.000
	DR	-.151	.020	-.560	-7.695	.000
	CLA	-.051	.068	-.048	-.752	.453
	CAR	-.048	.014	-.252	-3.439	.001

a. Dependent Variable: ROA

Credit risk and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, 2(2), 31-38. Meslier-Crouzill, C. M., Nys, E., and Sauviat, A., 2012. Contribution of rural banks to regional economic development: Evidence from the Philippines. Poudel, R. P. S., 2012. The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of Arts and Communication*, 1(5), 9-15. Roman, A., and Danuletiu, A. E., 2013. An empirical analysis of the determinants of bank profitability in Romania. *Annales Universitatis Apulensis Series Oeconomica*, 15(2), 580-593. Scott, J. W., and Arias, J. C., 2011. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success to any banking organization. (Heinemann). Financial institutions are just beginning to realize the benefits of credit risk management models. These models are designed to help the risk manager project risk, measure profitability, and reveal new business opportunities (Heinemann). management on a bank's financial performance in Nepal. The general objectives of the study were to establish the impact of credit risk management on the financial performance of banks. The specific objectives were: to establish the impact of default rate on performance; to establish the impact of debt. In this thoughtful change, the reform of credit risk management is a major step that determines whether the state owned commercial banks in China would survive the challenges or not. Research however faults some of the credit risk management policies in place The broad framework and detailed guidance for credit risk assessment and management is provided by the Basel New Capital Accord, which is now widely followed internationally (Campbell, 2007).