

IMPACT OF CREDIT RISK ON PROFITABILITY OF NEPALESE COMMERCIAL BANKS

1. Background of the Study

Financial institution plays an important role to flourish an economy. The growth of any economy is highly determined by the development of banking industry. Banks have significant influence in shaping the trend of an economy. Banking industry has been recognized as the most critical agencies in a financial system. Banking industry provides market transparency; perform risk transfer and risk management functions and deals with complex financial instruments and markets which help to flourish economy of any country. Among these financial institutions the role of commercial bank is of high importance. These commercial bank acts as an intermediate between surplus units and deficit units of funds following the directives of central bank under the given legal system. Banks make a profit by intermediating between depositors and borrowers (Acaravci & Calmi, 2013). It is of high importance that commercial bank thrive in any situations of an economy. In order to protect commercial bank, it became mandatory for central bank to supervise commercial bank through directives and qualitative measure.

As financial intermediary, banks play a crucial role in operation of economy. It mobilizes the funds from one sector of economy to another thus facilitating the balanced economic development. The effectiveness of the banking system is channeling funds from surplus to deficit sectors is often determined by examining the spread between lending and deposit rates and by assessing the degree of operational efficiency of the banking industry (Taci and Zampieri, 1998). A high spread acts as an impediment to the expansion of financial intermediation necessary for growth and development of an economy. It is often argued that the higher the spread, the higher would be the cost of credit to the borrowers for any given deposit rate. Alternatively, a high spread could mean unusually low deposit rates discouraging savings and limiting resources available to finance bank credit (Mujeri and Younus, 2009).

Researchers show that the efficiency of financial intermediation can affect economic growth. Crucially, it affects the net return to savings and the gross return to investment. The spread between these two returns mirrors bank interest margins, in addition to transaction costs and taxes borne directly by savers and investors. Thus bank interest spreads could be interpreted as an indicator of the efficiency of the banking system. It

plays a fundamental role as it reflects the efficiency of credit allocation process and the profitability of the bank (Maudos and Guevara, 2004). Commercial bank is the critical part of financial system in the growth and the development of economic sector of a nation (Dhanabhakya & Kavitha, 2012). Banks are using different strategies for maximizing their profitability. In this process commercial bank's promotes investment by financing productive business opportunities, mobilizing saving, efficiently allocation of resources and makes trade of goods and services easy (Khrawish, 2011). It is necessary to know the factors that affect the profitability of the bank. This enhances great achievement in bank profitability and efficiency.

Profitability is a measure of firm's efficiency (Khan & Jain, 1998). It is also a control measure of the earning power of firms as well as well as bank's operation efficiency. Weston & Copeland (1998) described profitability as net result of a large number of policies and decisions. Profitability is also an indicator of bank's competitive position and a measure of firm's efficiency. It reflects the quality of management. Banks constantly change their strategies to improve the profitability. In recent time managers, investors and analysts have raised considerable interest on the factors that determines the bank profitability. At the macro level, a sound and profitability banking sector is necessary to survive from negative shocks and contribute to the stability of the financial system.

2. Problem Statement

Understanding the credit risk is very crucial for determining the bank's profitability. It serves as an indicator of efficiency in the financial sector and reflects the cost of intermediation that the bank incurs. Researchers have been conducted in the quest of finding the credit risk management. In Nepal, there are few studies regarding credit risk management.

For instance; Bhattarai (2015) has examined the effect of credit risk on performance of Nepalese commercial banks. The pooled data of 14 commercial banks for the period 2010 to 2015 have been analyzed using regression model. The regression results revealed that 'nonperforming loan ratio' has negative effect on bank performance whereas 'cost per loan assets' has positive effect on bank performance. In addition to credit risk indicators, bank size has positive effect on bank performance. Capital adequacy ratio and cash reserve are not considered as the influencing variables on bank performance. This study concludes that there is significant relationship between bank performance and credit risk indicators.

From last two decades, hundreds of research is being conducted in this issue but the results of the researches are still contradictory with each other. Some research concluded that bank specific variables and credit risk plays significant role in bank's profitability whereas some concluded insignificant and some founds bank specific and credit risks to have negative relation with profitability. However the degree of the impact is different in different countries. This study addresses how credit risk affects banks 'financial performance and the findings would serve as the basis to provide policy measures useful to the various authorities on how to tackle the effect of credit risk in order to enhance the quality of banks' risky assets. Thus this study intends to describe the following main question in the context of Nepal. The present study attempts to deal with following issues:

- What is the relationship between non-performing loan ratio, cash reserve ratio, dividend payout ratio, capital adequacy ratio and profitability of BOK and NIBL?
- What is the relationship between GDP growth rate, inflation and profitability of BOK and NIBL?

3. Objectives of the Study

The general objective of the study is to examine the impact of credit risks on profitability of Nepalese commercial banks.

The specific objectives of the study are as follows:

- To examine the relationship between non-performing loan ratio, cash reserve ratio, dividend payout ratio, capital adequacy ratio and profitability of BOK and NIBL.
- To assess the relationship between GDP growth rate, inflation and profitability of BOK and NIBL.

4. Research Hypothesis

The following hypothesis have been formulated and tested for empirical verification. Based on theoretical predictions, hypotheses are written as follows:

H01: There is no significant relationship between cash reserve ratio and ROA.

H02: There is no significant relationship between non-performing loan ratio and ROA.

H03: There is no significant relationship between capital adequacy ratio and ROA.

H04: There is no significant relationship between dividend payout ratio and ROA.

H05: There is no significant relationship between GDP growth rate and ROA.

H06: There is no significant relationship between inflation and ROA.

5. Rational of the Study

Credit risk is one of the significant risks faced by banks and financial institutions and it has higher influence in the performance of banks and financial institutions. Therefore, credit risk management is an important area of banks that should be considered in order to reduce or minimize the default rate of customers and help banks to prosper as top bank generating higher loans and profit. Credit risk has been foremost variable for banks letdown. A few BFIs went into liquidation whereas a number of BFIs have been facing prompt corrective actions due to erosion of capital on account of Credit Risks and Operational Risks (Nepal Banking Institute, 2015). Therefore, the primary significance of this study is to ascertain the impact of credit risks on profitability of commercial Banks. The result obtained so far on this issue in different countries of the world and Nepal is controversial. The research finding can help to analyze the factors that provide basis for determining profitability after credit risk management of commercial bank in Nepal. The research findings will also be useful to academia by assisting lecturers, students, instructors and other future researchers to approach the subject matter with deeper understanding as well as serving as a source of reference.

6. Limitations of the Study

The major limitations of this study are as follows:

- The study has incorporated only six independent variables, the horizon of the study could be increased by increasing the number of independent variables like gross domestic product growth rate, money power, management quality, credit risk etc. and only two variable ie. ROA and ROE has been taken as a proxy of profitability.
- This paper has taken secondary data from the official source of Nepal Rastra Bank. Thus, the findings of this paper depend on the consistency of the data.
- Generalization of this study can be made only in Nepal not applicable for other countries because the other countries are contextually different from Nepal from the economic perspective

-

7. Conceptual Review

The theoretical review about credit risk management cope with credit risk transfer (CRT), credit portfolio modeling (CPM) and advance credit management (ACM) and it have been reviewed under as follows;

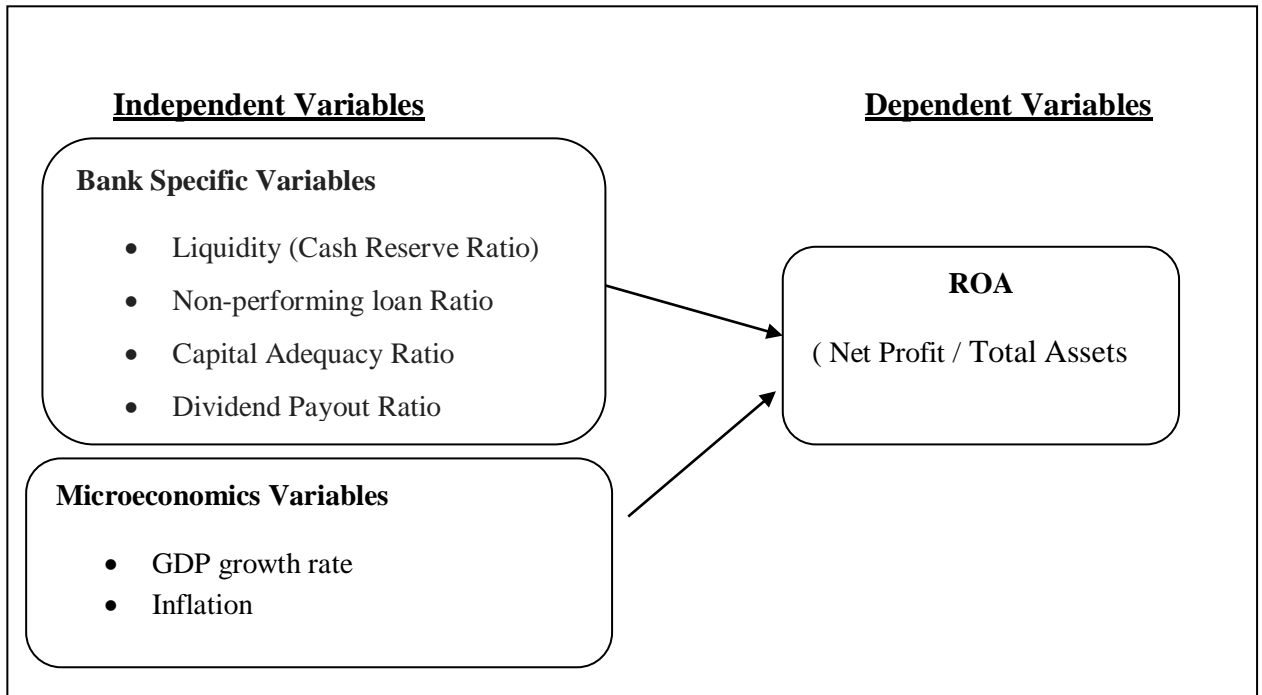


Figure 1: Conceptual Framework

Credit Risk Transfer

Partony and Skeel (2006) stated ‘Credit derivatives encourage banks to lend more than the other wise would, at lower rates, to riskier borrowers. Banks with credit derivatives lack incentive to keep a close watch on borrowers. Because credit derivatives leave borrowers unmonitored, they fuel the credit expansion. And, as Charles Kindle Berger, the late financial historian, noted, unmonitored expansion of credit precipitates the manias that lead to market panics and crashes. The second tool is called credit risk transfer (CRT). It costs CRT to implement A bank originally has a balance sheet total of 2, it can grant two loans. With CRT, it can sell a fraction of these loans, and use the receipts to grant new loans. One could think of the securitization of loans, or the use of credit derivatives in order to recycle regulatory capital. Let us assume, however, that this process cannot be driven ad infinitum. For concreteness, assume that the bank sells 50% of each loan, and grants two more loans, of which again it sells 50%. The balance sheet total is then again 2. The same allocation would be obtained from initially granting two loans, then securitizing and selling 50% of each, and then using the receipts to buy securitized loans from another bank. CRT is thus a way to diversify.

7.1 Review of Previous Studies

Ahmed, Takeda and Shawn (1998) had found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in Loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely.

Mekasha (2001) had investigated credit risk management and its impact performance on Ethiopian Commercial Banks. The researcher used 10 years panel data from the selected commercial banks for the study to examine the relationship between ROA and loan provision, non-performing loans and total assets. The study revealed that there is a significant relationship between bank performance and credit risk management.

Ahmad and Ariff (2007) have examined the key determinants of credit risk of commercial banks on emerging economy banking systems compared with the developed economies, The authors found that regulation is important for banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant banks in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk , The authors further asserted that credit risk in emerging economy banks is higher than that in developed economies.

Achou and Tenguh (2008) analyzed the 5 years (2001-2005) financial data of Qatar Central Bank. The results of regression model exposed that credit risk management and bank performance have significant relationship. Moreover, findings revealed that the ratio of NPLs/TL has significant negative association with profitability which was measured by return on assets (ROA) and return on equity (ROE).

7.2 Research Gap

Most of the Nepalese commercial banks are found to approve the loans that are not well examined. This may lead to increase the loan defaults and non-performing loans. Thus, the existing procedures for credit risk management are not adequate to compete with the existing financial and economic challenges in Nepal. 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 indicators on a bank's financial performance in Nepal. This study addresses how credit risk affects banks financial performance using a robust sample and the findings would serve as the basis to provide policy measures useful

to the various authorities on how to tackle the effect of credit risk in order to enhance the quality of banks' risky assets.

This study provides empirical evidence in confirming the validity of the theories to assist the bank's management in determining the best credit risk strategies that enhance bank performance. Moreover, the fact that the banking industry in Nepal is still growing and it should ensure that effective strategies are put in place to minimize risk and maximize loan performance at any particular point while in operation. Thus, this study aims to analyze the effect of credit risk on bank performance of commercial banks listed in the Nepalese Stock Exchange.

8. RESEARCH METHODOLOGY

8.1 Research Design

Research Design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variances. Basically, this study based on descriptive and analytical research design for fact finding and comparative analysis of data. it's aims to accurately and systematically describe a population, situation or phenomenon. It can answer what, where, when and how questions with the based on data and calculated results..

8.2 Population and Sample

There are altogether 27 commercial banks functioning all over the country at present, which are taken as a population of this study. In this particular study, convenience sampling has been used. because it is cheap, efficient, and simple to implement. Among 27 commercial banks, for this study only two commercial banks namely; Bank of Katmandu Ltd. and Nepal Investment Bank Ltd. are used as sample.

Table 2: List of Sampled Banks with no. of observations.

<i>S.N.</i>	<i>Name of commercial banks</i>	<i>Abbreviations</i>	<i>Sample Period</i>	<i>No. of Observations</i>
1	Bank of Kathmandu Limited	BOK	2014/15-2018/19	5
2	Nepal Investment Bank Limited	NIBL	2014/15-2018/19	5
<i>Total No. of Observations</i>				<i>10</i>

8.3 Sampling Design

In this particular study, convenience sampling has been used since convenience sampling, also known as availability sampling, is a specific type of non-probability sampling method that relies on data collection from population members which are conveniently available to participate in study. With regard to using data for this study as per availability of data for sampled banks have been selected as well as for convenient the related articles and studies have only been taken into consideration for this particular study.

8.4 Nature and Source of Data

This study is mainly based on secondary data. Secondary data are collected from respective annual report. Similarly articles, journals, bank bulletins, newspaper related to financial performance study, previous research report etc. have also been taken into account while collecting information.

8.5 Instruments of Data Collection

The collected data were recorded in excel sheet then analyze with the help of SPSS 20 version. The method of analysis employed in this study includes descriptive analysis and inferential analysis has been applied. Under descriptive the mean, minimum, maximum and standard deviation has been used to analyze the data. Along with descriptive statistics, a correlation matrix including the variables is also presented. The correlation matrix shows that some of the independent variables are significantly correlated with each other. The regression analysis has been carried out to establish the relationship between dependent and independent variables.

8.6 Methods of Analysis (Financial and Statistical)

Mainly financial methods are applied for the purpose of this study. Appropriate statistical tools are also used. Among them correlation analysis regarded as major one is used for this research. To make the study more specific and reliable, the researcher uses two types of tool for analysis: i) Financial Tools

ii) Statistical Tools

Financial tools

Financial tools are used to examine the financial strength and weakness of the bank. In this study, following financial tools are used:

Table 3: List of variables with formulae

Variables	Notion	Measure
<i>Dependent variables</i>		
Return on Assets (percentage)	ROA	Net income/ Total assets
<i>Independent variables</i>		
Liquidity Ratio	CRR	Cash Reserve Ratio=25% of Total Deposit or Cash Reserve Ratio=1/Deposit Multiplier
Supplementary Capital Ratio	SCR	Tier 2 capital/ Total Risk weighted assets
Core Capital Ratio (percentage)	CCR	Tire 1 Capital/Total risk weighted assets
Non-Performing Loan Ratio(percentage)	NPLR	Non-performing loan/Total amount of outstanding loans in banks
Dividend Payout Ratio	DPR	Total dividend/Net income
GDP Growth Rate	GDPR	GDP2-GDP1/GDP1*100
Inflation rate(percentage)	IR	IR2-IRi Ri * 100

Statistical Tools

A) Descriptive Statistical Tools

Descriptive statistical tools help to find out the trend of financial position of the sample banks. It also analyzes the relationship between variables and helps banks to take appropriate decisions regarding the fulfillment of organization goals. Descriptive analytical tools such as Percentage, Mean (arithmetic), variance and standard deviation have been used in this research.

D) Average/ Mean

Arithmetic mean of a given set of observations is their sum divided by the number of observations. In general , if X1, X2..... Xn are the given N observations, then their arithmetic mean, denoted by \bar{x} is given by,

$$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n} = \frac{\sum x}{n}$$

Where, $\sum x$ = Sum of the observations, and N = Number of Years

II) Standard Deviation

Standard deviation is the square root of the sum of the squares of the deviations measured from the mean. Thus, in the calculation of standard deviation, first the arithmetic average is calculated and the deviation of various items from the arithmetic average are squared. The squared deviations are totaled and the sum is divided by the number of items. The square root of the resulting figure is the standard deviation of the series (Elhance & Agarwal, 1975). The standard deviation is conventionally represented by the Greek letter sigma. If X_1, X_2, \dots, X_n is a set of N observations then, standard deviation is given by,

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$$

$\sum (x - \bar{x})^2$ = Sum of the squares of the deviations measured from mean
 N = Number of Observation

III) Coefficient of Variation (C.V.)

Coefficient of variation is computed for comparing the variability of two distributions. A distribution with smaller C.V. is said to be more homogeneous or uniform or less variable than the other, and the series with greater C.V. is said to be more heterogeneous or more variable

than the other. It is computed as under.

$$C.V. = \frac{\sigma}{\bar{x}} \times 100\%$$

B) Inferential Statistical Tools

Unlike with the data description which have the focus of describing the sample data, while the focus of inferential analysis is on estimation or hypothesis testing, by using sample purely to make inferences about the population. This process is formally known as inferential statistics. There are two major groups of inferential statistics, (1) parametric and (ii) non-parametric. In this research, parametric test such as Correlation Analysis and Regression analysis has been used.

I) Coefficient of correlation (r)

The correlation is a statistical tool which studies the relationship between two variables and correlation analysis involves methods and techniques used for studying and measuring the extent of the relationship between the two variables. Correlation analysis enables to have an idea about the degree and direction of the relationship between the two variables under study. However, it fails to reflect upon the cause and effect relationship between the variables. The coefficient of correlation, denoted by r is computed as under:

$$r = \frac{\sum xy - \frac{\sum x \cdot \sum y}{n}}{\sqrt{\sum x^2 - \frac{(\sum x)^2}{n}} \sqrt{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

II) Regression Analysis

The literal or dictionary meaning of the regression is moving backward or going back or the return to the average value. Regression analysis is the technique of studying how the variations on one series are related to variation in another series. It determines the nature and strength of relationship between two variables. Thus, regression is the estimation of unknown values or prediction of one variable from known values of other variables.

The Regression Model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where,

β_0 = Constant Value

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = Coefficient of Independent Variables

ROA = Return on Assets

CRR = Cash Reserve Ratio

NPLR = Non-performing loan Ratio

CAR = Capital Adequacy Ratio

DPR = Dividend Payout Ratio

GDPR = Gross Domestic Product Growth Rate

IR = Inflation Rate

ϵ = Error Terms