

## CHAPTER I

### INTRODUCTION

#### **1.1 Background of the Study**

A credit risk is the risk of default on a debt that may arise from a borrower failing to make required payments. Credit risk is one of the most significant risks that banks face, considering that granting credit is one of the main sources of income in commercial banks. The management of the credit risk related to that credit affects the profitability of the banks Li & Zou (2014). The importance of credit risk management in banks is due to its ability in affecting the banks' financial performance, existence and growth.

Credit risk management in the banking sector is important not only because of the Global Financial Crisis (GFC) experienced in recent years but also due to its greater impact on bank's financial performance, growth and survival. After global financial crisis of 2007-2008, the credit portfolio management function has become most crucial functions of the bank and financial institutions. The Basel III, third installment of Basel accord was developed after crisis to strengthen bank capital requirements by increasing bank liquidity and decreasing bank leverage that encourages banks to measure credit risk of bank's portfolios. The Basel committee also raises an issue concerning the application of the risk weights used in the capital adequacy framework to determine exposure to risk assets for the purpose of determining large credit exposure (Morris, 2001).

Credit loans is one of the key sources of income of commercial banks, therefore managing the risk related to credit greatly impacts the bank's profitability. Credit risk management can be defined as identification, measurement, monitoring and control of credit risk arising from the possibility of default in loan payment. Banks today are the largest financial institutions around the world, with branches and subsidiaries throughout everyone's life. There are plenty of differentiations between types of banks. And much of this differentiation rests in the products and services that banks offer (Howells, 2008). For instance, commercial banks hold deposits bundling them together as loans, operating payments mechanism, etc.

Kargi (2011) argues that credit risk management maximizes banks' risk adjusted rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of credit risk management on banks' profitability. Furthermore, bank's profitability is inversely influenced by the level of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Campbell (2007) argued that, credit risk is the risk of loss due to debtor's nonpayment of a loan or other lines of credit (either the principal or interest or both). Banks bear risk on behalf of deposit or especially in globalization and liberalization environment. Hence, appropriate and effective risk management systems become vital to manage all banking risks, ensuring stability and growth of the banks as financial intermediaries. Therefore, 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.

Harvey (2012) defined financial institutions as "enterprise such as a bank whose primary business and function is to collect money from the public and invest it in financial assets such as stocks and bonds, loans and mortgages, leases, and insurance policies". There are two exquisite examples of depository and non-depository financial institutions. For the purpose of this study, emphasis is laid on commercial banks as a key example of financial institution. In any economy, commercial banks are main financial intermediaries so, they consider as the main supplier of credit to corporate sectors and the household. They accept deposits and provide financial security to their customers. This is so because keeping physical cash at home or in a wallet could lead to loss due to theft or accidents, not to mention the loss of possible income from interest.

Credit risk is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risk (Gieseche, 2004). It is a risk of financial loss if a borrower or counterparty fails to honor commitments under an agreement and any such failure has an adverse effect on the financial performance of the bank. Credit risk is one of significant risks of banks by the nature of their activities. Through effective

management of credit risk exposure banks not only support the viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation of capital in the economy.

Coyle (2000) defined credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. It arises mainly from direct lending and certain off-balance sheet products such as guarantees, letters of credits, foreign exchange, forward contracts and derivatives and also from the bank's holding of assets in the form of debt securities. It may take the form of delivery or settlement risk. It is critical to bank survival or failure because banks traditionally earn their huge profits from interest on their risk exposures. The management of credit risk is a critical component of a comprehensive approach to risk management and is essential to the long-term success of a commercial bank.

In Nepal, a major proportion of the financial sector's total assets are held by commercial banks. Like banks in other countries, the major function of commercial banks is to extend credit and it is with this function that banks are able to increase their profits. However, it is important to note that banks differ from each other in various ways such as in their objectives, products, as well as to the services they provide. Further, in their day to day activities, banks face number of risks.

Kolapo (2012) categorized some of the major risks that banks face as: credit risk, liquidity risk, interest rate risk, mismatch risk, market liquidity risk, market risk, and foreign exchange risk. These risks will be briefly discussed in the later section. Amongst these many risks faced by banks, credit risk plays a significant role on its financial performance as a large chunk of banks income is earned from the loans provided to their customers in the form of interest income

Commercial banks are enterprises that manage risks. They hold deposits, bind them together as loans, and operate payment mechanisms and so on. From the very beginning, they are always exposed to different types of risks that are inseparable from each other. In recent years, with the rapid development and expansion of the financial securities markets, the banking industry worldwide has become increasingly complex. Thus, the ability and level of comprehensive risk management have become the basic requirement

for the steady operation and sustainable development of commercial banks. Also, the banks' attitudes and exposures to risk has become more complicated and prone to institutional failures that can lead to the collapse of the entire economic systems of the country in which they operate. Commercial banks in almost all countries are subject to many regulations in order to stabilize the economy. A strong credit risk management avoids significant drawbacks and increase banks financial performance. Good financial performance rewards shareholders for their investments. The default of a small number of customers may result in a very large loss for the bank. This will then encourage additional investment and bring economic growth. In contrast, poor banking performance can lead to banking failure and crisis which may have a negative consequence on economic growth.

Risk management is a discipline at the core of every enterprise and encompasses all activities that affect its risk profile. However, this function needs not be uniform across all financial institutions. Risk management practices considered suitable for one institution may be inadequate for another. The definition of a sound or adequate risk management system is ever changing, as new technology accommodates innovation and better information and as market efficiency grows. Each financial institution should put in place a comprehensive risk management program tailored to its needs and the circumstances under which it operates.

## **1.2 Statement of the Problem and Research Questions**

Major problem of the banking sector in Nepal is the Credit Risk. Poor lending practices, which are indicated by poor financial analysis of borrowers, inadequate or substandard collateral and improper portfolio analysis, poor tracking of credit and intention of borrowers to default have resulted in the high amount of Non-Performing Loan of major commercial banks.

The degree of possible risk in the banking sector is of major concern to the various stakeholders including the top management who operates the banking activities, depositors whose funds are being used and regulatory bodies who are responsible for the protection of banking system. The commercial banks operating in Nepal have faced difficulties over the past years for multiple reasons. The major reasons identified were

relaxed credit standards and poor portfolio risk management. Most of the commercial banks in Nepal are evidenced to have approved loans without proper examinations which may lead to increase in a number of loan defaults and non-performing loans.

In addition, it is contended that the existing credit risk management procedures are inadequate to handle the existing credit risk challenges in Nepal. Nevertheless, in recent years, the central bank of Nepal has introduced policies to improve bank performance and has taken measures to minimize the negative effect of lending and this is done by increasing capital requirement for banks and facilitating the merger of financial institutions to build resilient and robust financial system. In a country where the financial sector is dominated by the commercial banks, any failure in the sector has an immense implication on the economic growth of the country. Thus, there is need for the Nepalese banking industry to ensure that effective strategies are being implemented to minimize risk as well as maximize financial and market returns.

The study has tried to answer the following research questions:

1. What are the indicators of credit risk management in Nepalese Commercial bank?
2. What is the impact of credit risk management on profitability of commercial banks in Nepal?

### **1.3 Purpose of the Study**

The overall purpose of this research is to investigate how credit risk management has impact on the profitability of commercial banks of Nepal. Thus, the general objective of this study is to assess the role of risk management on financial performance of commercial bank in Nepal. Specifically;

1. To identify the indicators of credit risk management of Nepalese commercial banks.
2. To examine the impact of credit risk management on profitability of commercial banks in Nepal.

### **1.4 Significance of the Study**

The success of any organization is largely dependent on how properly the organization can manage the risk. Banking sector involves several risks, which need to be handled

promptly for the survival and growth. As this research is made mainly to analyze the credit risks and their management in reference to NRB directives and measures, it provides valuable insight to different stakeholders about the major problems of banks and bank's action for its management. The key stakeholders who are largely facilitated by this research includes,

1. Commercial banks are highly benefited by this research. This research identifies their current credit risk management styles, NRB guidelines on credit risk management and organization of basic compliance of such guidelines etc. Further, the banks are able to know not only the current performance but also the idea about their strength and weaknesses.

2. Individuals who have keen interest in Nepalese economy and banking sector are also benefited. This research provides an insight into the organizational credit risk management patterns within the standards set by NRB.

3. Policymakers are also benefited as this paper identifies the problems in credit risk management and identifies the need for formulation of new policies or amendment of old policies.

4. Investors, depositors, borrowers also know about the credit risks with banks to carry out business.

### **1.5 Limitation of the Study**

The main limitations of the study in terms of its scope, methods and assumptions are as follows:

1. Financial sector of Nepal includes commercial banks, development banks, finance companies, micro-finance financial institutions, savings and credit cooperatives and non-government organizations which are all licensed by Nepal Rastra Bank (Central bank of Nepal). However, this research is limited only to the study of commercial banks of Nepal and ignores the other types of financial institutions. The reason as to why commercial banks are chosen for this study is that they have guidelines to follow and are monitored regularly by the central bank of Nepal. They also hold the most part of the assets of the sector.

2. This research includes data on Nepalese commercial banks only for the period 2014 to 2018 which is 5 year's financial period. The time frame includes the data on bank's performance after the implementation of policies that is geared towards the improvement of the standard of Nepalese commercial banks.

3. The study is highly constrained to the researcher due to the fact that there is not a ready data available to the subject matter. Another case in point is the fact that the busy schedules of commercial bank has made the study very cumbersome in that going for relevant information or data to aid the study would be stressful, and also due to the confidentiality clauses of the commercial bank, data needed is not readily available.

4. Insufficient research article and literature review to this subject matter in Nepalese context is also one of the limitations for this research.

### **1.6 Organization of the Study**

The study comprises of three main sections: preliminary section, body of the report and supplementary section. The preliminary section consists of title page, certification and declaration of authenticity, acknowledgements, table of contents and list of tables, list of figures, abbreviations and abstract. The body of the report has-been further divided into five sections: introduction, related literature and theoretical framework, research methodology, data presentation and analysis and summary, conclusion and implications. The final section of the report comprises of references and appendix.

**Chapter 1** introduction section under body of study consists of background of the study, problem statement and research questions, objective of the study, limitations and organization of the study.

**Chapter 2** literature review section deals with the findings of previous researches related for the current study. Different research work related to credit risk management and their impacts have been discussed in order to prepare a base for the study. Further the chapter consists of conceptual framework defining each dependent and independent variables based on previous literature.

**Chapter 3** discusses research methodology used for the study. It comprises of research design, population and sample, sources of data, instrumentation, data analysis and software used.

**Chapter 4** is analysis and result of the study. It compromises of various tables, figures intended to answer the purpose and research questions of the research.

Finally, **Chapter 5** deals with summary part, conclusions and implications of the study. Under, the summary part the overall findings of the research are discussed in brief. At last, conclusions and implication are drawn out.

References and appendices have been given at the end of the study.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

In this chapter, the conceptual review is first presented followed by the review of various related articles, books, research paper, journals and previous thesis similar to the research topic. The succeeding section of this chapter then presents the theoretical framework and research gap pertinent to the research to better understand the factors that may influence banks profitability.

#### **2.1 Conceptual Review**

##### **2.1.1 Risk management and Banks Performance**

Banks are established with various objectives. These could either be to influence banks performance, enhancing profitability or increasing shareholders return and are often accomplished at the cost of increased risk. Risk-taking is an inherent component of banking and achieving either of these objectives is a reward for successfully managing risk.

Soyemi (2014) observed that the greater the risk, the higher the return, hence, the business must strike a trade-off between the two. In addition, risk management in banking impacts significantly on economic growth of the nation and business development. Inefficient management of risk by banks may not only prevent banks from achieving its objectives but can also lead to bankruptcy. Therefore, banking activities are always involved with various kinds of risk. Risks are considered warranted when they are understandable, measurable and controllable and within a banks capacity to willingly resist its adverse effect (NRB, 2010). Sound risk management enables bank management to take risks knowingly, reduce risks when appropriate, and prepare for the risk that cannot be predicted. If successfully carried out it benefits the banks by increasing efficiency and profitability, attracting more customers and staying in line with the guidelines. The need for efficient management of risk in the banking sector is in order to avoid possible losses, avoid bankruptcy, provide benefit for shareholders and depositors, and enhance profitability. Therefore, efficient management of risk by banks has influence on their accounting performance.

### **2.1.2 Profitability of Commercial Bank**

In the banking industry, profitability means the bank's ability to generate earnings in comparison to its expenses and incurred costs during a specific period of time. It shows the capacity of the bank to handle associated risk while increasing their capital. It also indicates the effectiveness of management and competitiveness amongst banks. There are various measures to determine banks profitability such as return on capital employed, return on asset, return on equity, net profit margin, cost of income ratio, net interest margin, risk-adjusted return on capital, price-earnings ratio, total share return, return on invested equity and cash flow to assets etc. However, (Brealey, 2012) recommends the important measures of bank profitability to be as return on asset (ROA), return on equity (ROE) and net profit margin.

Profitability is a key factor for commercial banks as one of the major goals of commercial banks is to increase their profitability (Duffie, 2012). All the activities within bank seem to affect their own profitability directly or indirectly. There are several categories to determine bank's profitability in the literature. However, these can broadly be categorized into two groups which are internal determinants and external determinants Staikouras (2011). Internal determinants are influenced by decisions of bank management and policy objectives which is controlled by the management. It reflects the sources and uses of capital in the bank as well as liquidity management and expenses management. External determinants refer to factors outside the bank which is beyond the control of management. This study however will mainly focus on internal determinants as it aims to examine the impact of credit risk management on bank's profitability. However, some credit-related factor like the amount of non-performing loan is beyond the control of management. In addition, some management decisions are influenced by external regulations; hence, some external determinants are also included in the model specification.

### **2.1.3 Bank's Risk Management**

Another important aspect of this study is credit risk management. In this section, a brief introduction of the various types of risks associated with banks and overall risk

management process are presented. The succeeding subsection will discuss these in more detail.

### **2.1.3.1 Bank's Risk**

Risk can be defined as the probability of various outcomes occurring. The various activities performed in a bank are exposed to different types of risk. In the context of banking and risk management, risk can be categorized as: risk that can be managed, risk that can be transferred to others and risk that can be eliminated.

Bessis (2011) has identified and categorized bank risk as credit risk, liquidity risk or funding risk, interest rate risk, mismatch risk, market liquidity or market price risk, market risk, and foreign exchange risk. A brief description of these risks is as follows:

**Credit or default risk:** Credit risk is the most important risk amongst the many types of risks that bank faces which influences bank performance. Credit risk is the situation where the actual return of an investment differs from the expected return. It may represent the possibility of losing the principal amount of investment as well as interest amount accrued on it (Gestel, 2009). Whenever, a borrower, counterparty, or debtor does not honor to pay their debt obligation as their specified contract terms, there arises credit risk to the lender. In banking, credit risk affects the bank's profitability, liquidity position and cash flows factors that are identified as principal causes of bank failure and the greatest threat to the bank performance. Bessis (2011) has further classified credit risk into: default risk, migration risk, exposure risk, counterparty risk, recovery risk, and correlation and concentration risk.

**Liquidity risk or funding risk:** Liquidity risk is the situation whereby the financial institutions have to make payment but the available assets are long-term and can only be converted quickly with the capital loss (Burton, 2015). This situation can arise when depositors withdraw their funds unexpectedly and raising further deposits becomes impossible to do. To avoid such condition, a financial institution can hold highly liquid assets which can then be converted quickly into the required amount of fund to reduce their liquidity risk.

**Interest rate risk:** Interest rate risk for the financial institution is represented by a decline in net interest income. It is the situation where the interest rate will change unexpectedly such that the interest cost exceeds interest revenues. Such condition arises when a financial institution raises deposits through short-term borrowings such as savings deposit or commercial papers and lends long term such as mortgages or bonds. If the interest rate goes up, the cost of short-term liabilities rises quickly than the returns on the long-term assets (Burton, 2015).

**Mismatch risk:** It arises when there is the gap between maturities and interest rate reset dates of assets and liabilities (Bessis, 2011). Mismatch risk implies that there is an interest rate risk as well as liquidity risk. Interest rate risk arises from the difference between short-term deposit rate and long-term lending rate in a given period of time. Similarly, liquidity risk arises when financial institutions fall short of the required funds and the reason for this is a mismatch between maturities times. Banks and financial institutions can avoid such situation by lending in higher rates and borrowing at lower rates.

**Market liquidity or market price risk:** It arises only for those assets which are traded on low volume. For the assets which are highly liquid such as treasury bills or bonds, market liquidity risk does not exist at all.

**Market risk:** It is the risk of possible losses due to adverse movements in market prices such as short-term loss in foreign exchange and long-term loss for derivatives (Bulletin, 1996).

**Foreign exchange risk:** It is a risk that arises when the financial institution holds foreign currencies and incurs losses due to an adverse change in exchange rate between the currencies (Burton, 2015).

Among these risks faced by the banks, credit risk plays a significant role as it influences the profitability of the bank more directly. When the bank does not receive its interest on loan from borrowers the bank losses its interest income resulting in a decline in its profitability. The principal amount is more important in case of default as the invested principal amount is accumulated through a number of depositor's fund. Banks usually

secure its loan amount provided to borrowers with secured mortgages and various recovery options. The loss in principal amount creates an additional burden of recovery and most of the times; the bank does not receive its full amount of default which directly impacts on bank profitability. This study mainly focuses on credit risk in banks and how it influences the commercial banks profitability.

#### **2.1.4 Credit Risk Management**

Credit risk management is a critical component of a comprehensive approach to risk management and is essential for long-term success of commercial banks. Managing credit risk is one of the multi-dimensional tasks and can be done through various approaches. Aduda (2011) define credit risk management as a structured approach to manage uncertainties through risk assessment; mitigate risk using managerial resources; strategies development such as transferring risk to another party, avoiding risk, reducing the negative effect of the risk, accepting some or all of the consequences of particular risk. Similarly, (Bielecki, 2013) explain credit risk management can be done through hedging of default able claims, integration of risks and portfolio management.

Santomero and Babbel (1997) have outlined the basic principles of managing credit risk as:

- (i) Standard setting and financial reporting
- (ii) Underwriting authority and loan limits
- (iii) Investment guidelines or strategies and
- (iv) Incentive Schemes

To summarize, a good credit risk management avoids important drawbacks like lack of credit discipline, credit concentrations, aggressive underwriting and products at inadequate prices (Gestel, 2009).

#### **2.1.5 Credit risk management strategies in Commercial banks**

Credit risk management strategies point to those functions used by banks to avoid or mitigate the negative impact of credit risk. Where an effective credit risk management

framework is in place, it ensures that the banks will enhance profitability and ensure survival. Afriyieb (2011) indicates that credit risk situation of a bank can be exacerbated by inadequate institutional capacity, inefficient credit guidelines, inefficient board of directors, low capital adequacy ratios and liquidity, compulsory quota lending as a result of government interference and lack of proper supervision by the central bank. In respect to this, efficient and effective risk management is a very important for banks to improve their performance and reduce the negative effect of the risks. Credit Derivatives is a strategy that provides banks with an approach which does not require them to adjust their loan portfolio. Credit derivatives for banks provide a new source of fee income and provide banks with the opportunity to reduce their regulatory capital. Recent innovations in credit derivatives markets have improved lenders' ability to transfer credit risk to other institutions while maintaining their relationships with borrowers. Another type of strategy is credit securitization.

Credit securitization is the transfer of credit risk to insurance company this eliminate the bank from monitoring the borrower and fear of the serious impact of classified property. This approach insures the lending activity of banks. Similar to credit securitization is compliance Basel Accord. Basel Accord is known as a set of international regulations that guide banks' operations to ensure safety and stability. It was introduced in 1988 in Switzerland. Compliance with Basel the agreement means the ability to identify, generate, track and report risk data in an integrated manner and creates the opportunity to improve risk management processes in banks. The new Basel Capital Accord places banks in charge of adopting sound internal credit risk management practices to estimate their capital adequacy requirements. In addition, there is a strategy of adoption of sound internal lending policy. Adoption of a sound internal lending policy is a set of rules and regulations that guide banks in the disbursement of loans to clients. Rigorous adherence to the lending policy is no doubt the most effective and safest way of managing credit risk. In the same vein, credit bureau could help commercial banks in credit risk management. Credit office is an institution that collects information and sells this information to banks with respect to the borrower's loan file. The office grants a credit score called individual borrower statistics which makes it easy for banks to make an immediate lending decision.

## 2.2 Review of Previous Works

A thorough review of literature has been carried out to examine the impact of risk management on profitability in several dimensions. As this study is focused on credit risk management in banking, the review mainly concentrated on the studies related to the analyses of the impact of credit risk management on bank's profitability in the context of various countries.

Poudel (2018) aimed at investigating the impact of credit risk on profitability of commercial banks in Nepal. The study used One way Fixed Effect Model (FEM) of panel data analysis. The study found that credit risk has the significant negative impact on profitability, solvency ratio, interest spread rate and inflation have the insignificant negative impact on profitability. Capital adequacy ratio, total assets and GDP growth have the significant positive impact on profitability.

Okeke (2018) aimed at investigating the impact of credit risk management on the performance of deposit money banks in Nigeria using five banks that had highest asset base. The study used Ex-post facto research design to analysis data using dataset for the period 2000–2014 collated from the annual reports and financial statement of the selected deposit money banks. The findings revealed that credit risk management had a positive and significant impact on total loans and advances, the return on asset and return on equity of the deposit money banks.

Fragouli (2018) studied the impact of credit risk management practices on the financial performance of Commercial Banks in Saudi Arab using descriptive survey research design. The findings revealed that Saudi Commercial Banks engage in credit risk management practices to combat and avoid credit risks.

Kishori and Sheeba (2017) aimed at investigating various factors that influence credit risk and also aimed at investigating the impact of credit risk on the profitability of the bank. The secondary data was collected from the annual reports of the State Bank of India for twenty years (1996-1997 to 2015-2016). The data was analyzed using multiple regressions. The result showed that credit risk has a significant, negative impact on profitability. Moreover, State Bank of India has been facing credit risk due to inefficient

credit risk management. So, it was advised to improve credit risk management practices. State Bank of India can minimize the credit risk by reducing the non-performing assets and managing the leverage properly.

Hamza (2017) has examined the impact of credit risk management on the performance of commercial banks of Pakistan. The study used Pooled Regression analysis for data analysis and found that credit risk management is inversely associated with bank performance.

Malla (2017) has analyzed Credit Portfolio Management in Nepalese Commercial Banks aiming to know loan portfolio management of Nepalese BAFIA, to examine the effect of the loan portfolio management in bank's performance and also to examine the factors influencing loan portfolio management using both qualitative and quantitative methods. This study found that selected commercial banks have managed their loan portfolio as per the standard parameter of NRB directives 2073.

Khan and Ali (2016) aimed at investigating the relationship between liquidity and profitability of commercial banks in Pakistan. The main objective of the study was to find the nature of relationship and the strength of relationship exists between the variables. Correlation and regression are used respectively to find the nature of the relationship and extent of relationship between dependent and independent variables. Secondary data was used for analysis that was extracted from the last five years (2008-2014) annual accounts of Habib Bank Limited. After conducting correlation and regression analysis it was found that there as significant positive relationship between liquidity with profitability of the banks. Since, the data of the banking sector was used; hence the results cannot be generalized to other sectors.

Ebenezer and Omar (2016) investigated the effect of credit risk on profitability of commercial banks in Nigeria. Total 8 commercial banks were selected for the study, from the period 2011-2014. A panel data analysis was used as a major tool to analyze the data. The result revealed that there is a negative and significant relationship between non-performing loan ratio and the profitability; negative and insignificant relationship between debts to total assets ratio and profitability, and a positive and insignificant

relationship between debts to equity ratio and profitability of banks during the period of study.

Ndoka and Islami (2016) studied the relationship between credit risk management and profitability of 16 commercial banks in Albania from 2005 to 2015 using a regression model. The independent variables used are non-performing loan ratio and capital adequacy ratio. Again the dependent variables used are ROA and ROE. The overall findings of this study show that there exists a correlation between credit risk management of commercial banks in Albania and their profitability, meaning that an efficient credit risk management leads to higher profitability. Based on these findings, the authors recommend that commercial banks of Albania focus on managing credit risk especially on the control and monitor of non-performing loans.

Million Gizaw (2015) has examined the impact of credit risk on profitability performance of commercial banks in Ethiopia using descriptive statics and panel data regression model. The results showed that credit risk measures: non-performing loan, loan loss provision and capital adequacy have significant impact on profitability performance.

Alshatti (2015) has examined the effect of credit risk management on financial performance of the Jordanian commercial banks during the period 2005-2013 using capital adequacy ratio, credit interest/credit facilities ratio, provision for facilities loss/net facilities ratio, leverage ratio and non-performing loans/gross loans ratio as independent variables. The dependent variables represent the profitability measured by ROA and ROE. The author concludes that all the credit risk management indicators used in the study have significant effect on the financial performance of the Jordanian commercial banks.

Noman et al. (2015) conducted an empirical study with the aims to find the effect of credit risk on profitability of the banking sectors of Bangladesh. The study used an unbalanced panel data and 172 observations from 18 private commercial banks from 2003 to 2013. The study found a negative and significant effect of credit risk on profitability. The analysis also found a negative and significant effect of capital adequacy ratio on profitability.

Kodithuwakku (2015) has analyzed the impact of credit risk management on the performance of the commercial banks in Sri Lanka by using both primary and secondary data. The return on assets (ROA) is used as performance indicator and loan provision to total loan (LP/TL), loan provision to non-performing loans (LP/NPL), loan provision to total assets (LP/TA) and non-performing loans/ total loans (NPL/TL) were used as indicators of credit risk. The result shows that non-performing loans and provisions have an adverse impact on the profitability.

Ugoani (2015) has examined the relationship of poor credit risk management and bank failures in Nigeria using survey research design. The results from the Chi-square statistics revealed that weak corporate governance accelerates bank failures and the credit risk management function is to the greatest extent the most diverse and complex activity in banking business. The author concludes that poor credit risk management influences bank failures.

Tekalagn Getahun (2015) aimed at investigating the relationship between credit risk management and its impact on performance of commercial banks in Ethiopia using descriptive statistics and panel data Regression model by using SPSS software version 22. The findings reveal that there is strong relationship between credit risk management and commercial bank performance in Ethiopia.

Sampath (2015) examined the impact of Credit Risk on financial performance of Sri Lankan commercial bank with a special reference to systematically important banks with an objective to assess the level of credit risk of commercial banks in terms of NPL and to investigate the impact of credit risk on the financial performance of commercial banks using secondary data. Multiple Regression analysis was used to analyze the data. The results of the analysis states that both NPLR and CAR have negative and relatively significant effect on ROE, with NPLR having higher significant effect on ROE in comparison to CAR.

Bhattarai (2014) examined the effect of credit risk on the performance of Nepalese commercial banks using pooled data of 14 commercial banks of Nepal for the period of 2010 to 2015 totaling to 77 observations. The 77 observations include capital adequacy ratio, non-performing loan ratio, cost per loan assets, cash reserve ratio and bank size as

an independent variable and return on assets as a dependent variable. Regression analysis was used to assess the data. The findings of the study showed that the commercial banks under consideration have been practicing poor credit risk management. This was further evidenced by the negative effect of non-performing loan ratio on bank performance and the positive effect of cost per loan assets on bank performance. In contrast to other studies, the author found that capital adequacy ratio and cash reserve have no influence on bank performance. Since there is a significant relationship between credit risk and bank performance, the author suggests that the banks establish proper credit risk management strategies by conducting sound credit evaluation procedure before granting loans to customers.

Li and Zou (2014) investigated the relationship between credit risk management and profitability of commercial banks in Europe from 2007 to 2012. The authors collected data from the largest 47 commercial banks in Europe and analyzed them using multivariate regression analysis. The study used capital adequacy ratio and non-performing loan ratio as proxies for credit risk management, and ROA and ROE as proxies for profitability. The overall findings of this study show that credit risk management has a positive effect on the profitability of commercial banks in Europe, meaning that the better the credit risk management, the higher is the profitability of commercial bank.

Zubairi and Ahson (2014) investigated the linkage between current risk management practices and profitability of five Islamic banks in Pakistan with an objective to find out linkage between current risk management practices and profitability of five Islamic banks in Pakistan during the period 2007-2013. Primary (survey questionnaire) and secondary data (annual reports) and pooled regression analysis was used to analyze the data. The study found that risk management has a significantly negative impact on profitability during the period 2007-2013. Ejoh (2014) examined the impact of credit risk and liquidity risk management on the profitability of deposit money held by banks in Nigeria with an objective to evaluate the impact of credit risk and liquidity risk management on the profitability. Descriptive statistics and Correlation analysis were used as data analysis

tools. The findings of this study showed that there is a significant relationship between bank liquidity and profitability of deposit money among Nigerian banks.

Abdelrahim (2013) in an attempt to investigate the determinants, challenges and drivers of developing the effectiveness of credit risk management of Saudi Banks' have used descriptive and analytical methods. In the said study, CAMEL independent variables were specified to be: capital adequacy ratio, assets quality, management soundness and earnings of credit facility, liquidity, and bank size. The findings of this study show that liquidity has a significant strong impact on the effectiveness of credit risk management of Saudi Banks, whereas, bank size has a negative impact on the effectiveness of credit risk management of Saudi Banks. On the other hand, the other variables like capital adequacy, assets quality, management soundness and earning were found to have an insignificant impact on the effectiveness of credit risk management of Saudi Arabian banks.

Moreover, Abdelrahim (2013) has identified various challenges regarding the effectiveness of credit risk management that are of vital importance to Saudi banks. They include: low quality of assets, inadequate training, weak corporate governance, lack of credit diversification, granting credit ceiling exceeding customer's repayment capacity, absence of risk premium on risky loans, priority of loan guarantees at expense of customer repayment capacity, absence of analysis of customer's financial position, corruption of some credit officers and priority of profit at expense of credit safety. To alleviate these challenges, he recommends for Saudi Arabian banks to have a comprehensive strategy for managing credit risk, to strengthen the role of credit risk committee, to implement Basel III accord, and to adopt available sophisticated technique to mitigate credit risk.

Kaaya (2013) has analyzed the relationship between credit risk and bank performance of commercial banks in Tanzania with an objective to examine the relationship between credit risk and bank performance. Regression analysis was main tool for data analysis. The overall findings of this study showed that credit risk indicators used in this study have a negative correlation with bank performance.

Poudel (2012) has examined the impact of credit risk management on the financial performance of commercial banks in Nepal using the financial report of 31 banks for

eleven years (2001-2011). The methods of data analysis in the study were descriptive, correlation and multiple regressions. The financial performance indicator used in the study was return on assets (ROA). The predictors of the bank's financial performance used in the study were: default rate, cost per loan assets and capital adequacy ratio. The author asserts that all these parameters have an inverse impact on banks financial performance. However, among the risk management indicators, default rate (NPLR) is the single most influencing predictor of bank financial performance in Nepal whereas cost per loan assets is not significant predictors of bank performance. The author concludes that credit risk management is crucial on the bank performance since it have a significant relationship with bank performance.

Table 2.1 *Summary of literature review*

<b>Source</b>	<b>Topic</b>	<b>Objective</b>	<b>Methods</b>	<b>Findings</b>
Poudel (2018)	Impact of credit risk on profitability of commercial banks in Nepal.	To examine the impact of credit risk on profitability of the commercial banks in Nepal.	One way Fixed Effect Model (FEM) of panel data analysis.	Credit risk has the significant negative impact on profitability. Solvency ratio, interest spread rate and inflation have the insignificant negative impact on profitability.
Okeke (2018)	Impact of Credit Risk Management on the Performance of Selected Nigerian Banks	To investigate the impact of credit risk management on the performance of deposit money	Ex-post facto research design was adopted using dataset for the period 2000–2014 collated from	The findings reveal that credit risk management had a positive and significant impact on total

		banks in Nigeria using five banks that had highest asset base.	the annual reports and financial statement of the selected deposit money banks.	loans and advances, the return on asset and return on equity of the deposit money banks.
Fragouli (2018)	Risk management and performance: a case study of credit risk management in commercial banks	To investigate the impact of credit risk management practices on the financial performance of Commercial Banks in Saudi Arab.	Descriptive survey research design was adopted.	Findings revealed that Saudi Commercial Banks engage in credit risk management practices to combat and avoid credit risks.
Kishori (2017)	A study on the impact of credit risk on profitability of the bank.	To investigate various factors that influence credit risk and also to investigate the impact of credit risk on the profitability of the bank.	Secondary data using multiple regression analysis.	The result showed that credit risk has a significant negative impact on profitability
Hamza (2017)	Impact of Credit Risk Management on	To analyze the impact of credit risk	Pooled Regression analysis	The findings revealed the fact that credit

	Banks Performance: A Case Study in Pakistan Banks	management on the performance of commercial banks of Pakistan.		risk management is inversely associated with bank performance.
Khan (2016)	Impact of Liquidity on Profitability of Commercial Banks in Pakistan: An Analysis on Banking Sector in Pakistan.	To find the nature of relationship and the strength of relationship exists between the variables.	Correlation and Regression analysis	There was significant positive relationship between liquidity with profitability of the banks.
Ndoka and Islami (2016)	Relationship between credit risk management and profitability of 16 commercial banks in Albania.	To examine the relationship between credit risk management and profitability of 16 commercial banks in Albania.	Regression model and Correlation	The overall findings of this study show that there exists a correlation between credit risk management of commercial banks in Albania and their profitability.
Million Gizaw (2015)	Impact of credit risk on profitability	To empirically examine the impact of credit	Descriptive Statics and Panel data	Results showed that credit risk measures: non-

	performance of commercial banks in Ethiopia.	risk on profitability performance of commercial banks in Ethiopia.	Regression Model	performing loan, loan loss provision and capital adequacy have significant impact on profitability performance.
Alshatti (2015)	The effect of credit risk management on financial performance of the Jordanian commercial banks	To examine the effect of credit risk management on financial performance of the Jordanian commercial banks during the period (2005-2013).	Panel Regression Model	Positive effect of the credit risk indicators of Non-performing loans/Gross loans ratio, negative effect of provision for facilities loss/Net facilities ratio and no effect of the Capital adequacy ratio and the credit interest/Credit facilities ratio.
Noman et al. (2015)	Effect of credit risk on profitability of the banking	To examine the effect of credit risk on profitability of	Unbalanced panel data and 172 observations	The study found a negative and significant

	sectors of Bangladesh	the banking sectors of Bangladesh.	from 18 private commercial banks from 2003 to 2013	effect of credit risk on profitability and significant effect of capital adequacy ratio on profitability.
Kodithuwakku (2015)	Impact of credit risk management on the performance of the commercial banks in Sri Lanka	To evaluate the impact of credit risk management on the performance of the commercial banks in Sri Lanka	Primary and secondary data calculated using SPSS	The result shows that non-performing loans and provisions have an adverse impact on the profitability.
Tekalagn Getahun (2015)	Credit Risk Management and Its Impact on Performance of Commercial Banks: In Case Ethiopia	To investigate the relationship between credit risk management and its impact on performance of commercial banks in Ethiopia.	Descriptive statistics and Panel data Regression model by using SPSS software version 22.	The findings reveal that there is strong relationship between credit risk management and commercial bank performance in Ethiopia.
Sampath (2015)	Impact of Credit Risk on financial	To assess the level of credit risk of	Secondary data using Multiple Regression	The results of the analysis states that both

	performance of Sri Lankan commercial bank: special reference to systematically important banks	commercial banks in terms of NPL. To investigate the impact of credit risk on the financial performance of commercial banks.	analysis	NPLR and CAR have negative and relatively significant effect on ROE, with NPLR having higher significant effect on ROE in comparison to CAR.
Bhattarai (2014)	Effect of credit risk on the performance of Nepalese commercial banks	To examine the impact of credit risk on the performance of Nepalese commercial banks.	Pooled data Regression analysis	The findings of the study showed that the commercial banks under consideration have been practicing poor credit risk management. This was further evidenced by the negative effect of non-performing loan ratio on bank performance and the positive

				effect of cost per loan assets on bank performance.
Li and Zou (2014)	Relationship between credit risk management and profitability of commercial banks in Europe from 2007 to 2012.	To investigate the relationship between credit risk management and profitability of commercial banks in Europe from 2007 to 2012.	Multivariate regression analysis	The overall findings of this study show that credit risk management has a positive effect on the profitability of commercial banks in Europe.
Zubairi and Ahson (2014)	Linkage between current risk management practices and profitability of five Islamic banks in Pakistan	To find out linkage between current risk management practices and profitability of five Islamic banks in Pakistan during the period 2007-2013.	Primary (survey questionnaire) and secondary data (annual reports) and Pooled regression analysis	The study finds that risk management have a significantly negative impact on profitability during the period 2007-2013.
Ejoh (2014)	Impact of credit risk and liquidity risk management on	To evaluate the impact of credit risk and liquidity risk	Descriptive statistics and Correlation analysis	The findings of this study showed that there is a

	the profitability of deposit money held by banks in Nigeria	management on the profitability of deposit money held by banks in Nigeria		significant relationship between bank liquidity and profitability of deposit money among Nigerian banks.
Abdelrahim (2013)	Determinants, challenges and drivers of developing the effectiveness of credit risk management of Saudi Banks’.	To investigate the determinants, challenges and drivers of developing the effectiveness of credit risk management of Saudi Banks’.	Descriptive and analytical methods	The findings of this study show that liquidity has a significant strong impact on the effectiveness of credit risk management of Saudi Banks, whereas, bank size has a negative impact on the effectiveness of credit risk management of Saudi Banks.
Kaaya (2013)	Relationship between credit risk and bank performance of commercial	To examine the relationship between credit risk and bank performance of	Regression analysis	The overall findings of this study show that credit risk indicators used

	banks in Tanzania	commercial banks in Tanzania.		in this study have a negative correlation with bank performance.
Poudel (2012)	The impact of credit risk management on financial performance of commercial banks in Nepal	To explore various parameters pertinent to credit risk management.	Descriptive, Correlation and Regression analysis	Cost of per loan assets and capital adequacy ratio have an inverse impact on banks financial performance however, the default rate is the most predictor of bank financial performance.

### 2.3 Conceptual Framework

The research is based upon the analysis and interpretation of dependent variables Return on Assets (ROA) and Return on Equity (ROE) and independent variables Capital Adequacy Ratio (CAR), Non- Performing Loan Ratio (NPLR) Coverage Ratio (CR), Cash Reserve Ratio (CRR) and Interest Spread Rate (ISR). The study also sought to examine effect of management of credit risk practices on perceived performance. Independent variables will be risk identification, risk appraisal, risk control and risk monitoring while the dependent variable will be perceived performance.

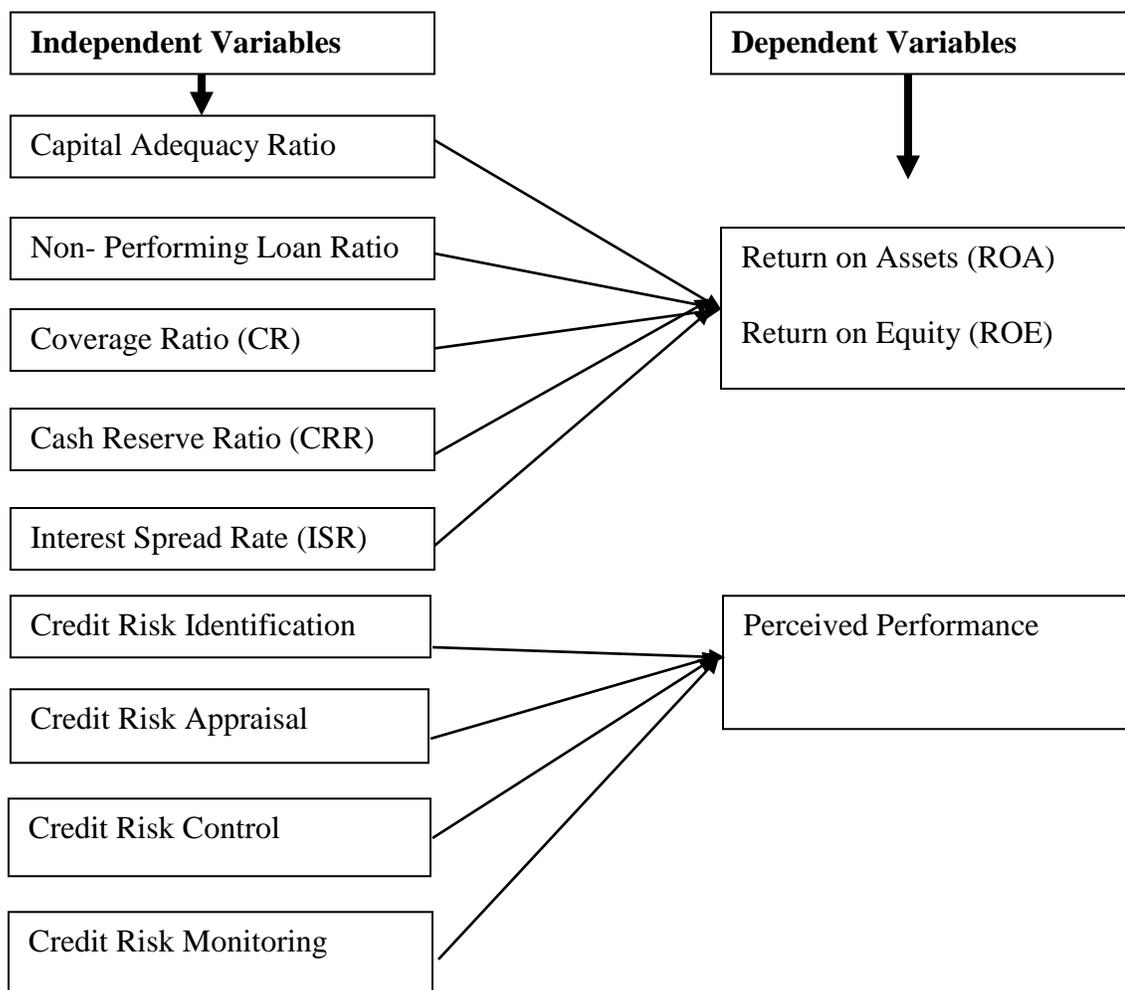


Figure 2.1 *Conceptual framework of determinants of Credit Risk Management and practices*

This theoretical framework has been developed based on study done by Poudel (2018) Bhattarai (2014) and (Evelyn, 2016).

### 2.3.1 Dependent Variables

The value of dependent variable is derived from the value of other variables. Sekraran (2012) dependent variable is the one on which the researcher have primary interest. The researcher tries to predict, describe or explain its variability. Return on Assets (ROA) and Return on Equity (ROE) are the dependent variable for the current study.

### 2.3.1.1 Return on Assets (ROA)

ROA measures the profit earned per dollar of assets and reflect how well bank management uses the bank's real investments resources to generate profits. For banks with similar business risk profiles, ROA is a useful statistic for comparing the profitability of banks because it avoids distortions that are introduced by differences in financial leverage. Return on assets (ROA) is a comprehensive measure of overall bank performance from an accounting perspective. It seems more suitable for comparing the banks in the same industry than other measures of performance. Thus, return on assets (ROA) is chosen as the performance measure for this study. It shows the effectiveness of management in the utilization of the assets of a commercial bank. For banks with similar risk profiles, ROA is a useful static for comparing bank profitability as it avoids distortions produced by differences in financial leverage. ROA is expressed as,

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

### 2.3.1.2 Return on Equity (ROE)

Return on Equity (ROE) is the ratio of net income to total equity capital which measures the return to shareholders on their equity. It measures how well the management is utilizing the shareholder's invested money to generate profit. ROE is one of the most important measures for evaluating efficiency and profitability of bank's management based on the equity that shareholders have contributed to the bank. Generally, a bank with higher ROE has a tendency to be able to generate more return to their shareholders. The higher the bank's ROE compared to its competitors, the better the bank is. Therefore, the stockholders of the banks always prefer higher ROE however this could sometimes be a threat to the bank (Saunders & Cornett, 2011) because an increase ROE implies that net income is increasing faster relative to total equity. The equation for ROE is written as,

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders Equity}}$$

### 2.3.2 Independent Variables

Independent variable is the one which influences the dependent variables in either positive or negative way. In this study, Capital Adequacy Ratio (CAR), Non- Performing

Loan Ratio (NPLR) Coverage Ratio (CR), Cash Reserve Ratio (CRR), Interest Spread Rate (ISR) and Inflation (INF) are independent variables.

### **2.3.2.1 Capital Adequacy Ratio (CAR)**

This is an independent variable for the determination of the performance and is considered as the core measure of a bank's financial strength from a regulator's point of view. Capital requirement (capital adequacy) is the amount of capital a bank or other financial institution has to hold as required by its financial regulator. This helps to ensure that institutions are not involving in or holding investments that amplify the risk of default. In addition, to guarantee that financial institutions have enough capital to sustain operating losses while honoring withdrawals. It is a measure of the amount of bank's capital expressed as a percentage of its risk weighted exposure. The equation for capital adequacy ratio (CAR) is given by:

$$\text{CAR} = \frac{\text{Capital Fund}}{\text{Risk Weighted Assets}}$$

### **2.3.2.2 Non- Performing Loan Ratio (NPLR)**

Non-performing loans ratio (NPLR) reflects the bank's credit quality and is considered as an indicator of credit risk management. Non-performing loan also known as credit risk represents the chance of losing investment or routine receivable installments. More specifically, credit risk is the ratio between total amount of nonperforming loan and total loan. The non-performing loan includes all loans overdue on principal or interest payment or both for more than 90 day. Non-performing loan comprises of substandard, doubtful, and virtual loss and loss, and are categorized as per their degree of collection difficulty. However, if the borrower starts making payment again on a non-performing loan, it becomes a performing loan, even though the borrower has not repaid the entire unpaid amount. The equation for Non-performing loan ratio (NPLR) is expressed as:

$$\text{NPLR} = \frac{\text{Non Performing Loan}}{\text{Total Loan}}$$

### 2.3.2.3 Coverage Ratio (CR)

Coverage ratio is an important factor in evaluating the bank's performance as it is related to the interest income which is the main source of income of the financial sector, especially the banking sector. It is influenced by factors that affect interest rates such as the type of assets and liabilities held by the bank as well as monetary policy changes (Saunders, 1981). It can be measured by calculating the ratio of bank's interest income to total gross loans. Coverage ratio (CR) though not previously used by other studies is hypothesized to be positively related to ROA as knowing that CR increases in interest income is increasing more than the increases in loans. The equation for coverage ratio (CR) is given by:

$$CR = \frac{\text{Interest income on loans}}{\text{Average Gross Loan}}$$

### 2.3.2.4 Cash Reserve Ratio (CRR)

Cash reserve ratio is one of the control variable used in analyzing effect of credit risk on the performance of banks. Traditionally, cash reserve ratio (CRR) has been one of the monetary tools in the hands of the central bank. Cash reserve ratio (CRR) is a specified minimum fraction of the total deposits of customers which commercial banks have to hold as reserves with the central bank. By changing CRR, the central bank can control the amount of liquidity. If the reserve requirement is raised, banks will have less money to loan out and this effectively reduces the amount of capital in the economy, therefore lowering the money supply. It will mean less money for investment and spending, and would stunt the growth of the economy. It would also mean that banks earn less interest and expect that their profitability may decline. Moreover, cash reserve requirement does not earn any income for the commercial banks and thus, may be viewed as a drain on the profitability of banks. The equation for cash reserve ratio (CRR) is given by:

$$CRR = \frac{\text{Reserve requirements with central bank}}{\text{Total deposits of customers}}$$

### 2.3.2.5 Interest Spread Rate (ISR)

Interest is the major source of income for the financial institution. Interest spread is interest rate spread between average interests received and average interest paid. The

fluctuation of interest rates creates interest risk to the financial institutions. Interest rate risk has significant implications on borrowing cost of the borrowers, returns of the investors, and profitability of the banks. The greater the spread, the more profitable the financial institution is likely to be; and the lower the spread, the less profitable the institution is likely to be. Thus, there is a close relationship between interest spread and profitability of the banks. Musah (2018) confirmed that there is a positive and statistically significant association between interest rate spread and bank profitability.

## **2.4 Research Gap**

As discussed earlier, Nepalese commercial banks have faced difficulties over the past years mostly due to relaxed credit standard and poor portfolio risk management. A thorough review of the literature indicates that only a very few study has been undertaken on bank risk management and bank performance in the context of Nepalese commercial banks. One of the study was done by Yuga Raj Bhattarai, a Ph.D. scholar at Tribhuvan University, Nepal in the year 2014 entitled “Effect of credit risk on the performance of Nepalese commercial banks” and by Ravi Prakash Sharma Poudel, a Ph.D. student of business school at University of New England, Australia with a thesis entitled “The impact of credit risk management on financial performance of commercial banks in Nepal” in the year 2012.

Bhattarai (2014) has considered only 14 commercial banks of Nepal and considered only three factors. He recommended that a further study be undertaken taking into account other factors which he also identified. Similarly, Poudel (2012) has considered very few variables and also recommended that further research incorporating more explanatory variables.

Following the suggestions of Bhattarai (2014) and Poudel (2012) this study has incorporated more explanatory variables. The identification of additional variables is the outcomes of a thorough literature review (presented in chapter 2). Moreover, the study has included larger sample of commercial banks as compared to previous studies. In additional, the research includes data after the implementation of policies regarding the credit standard of commercial banks of Nepal. But all the previous researches in Nepal had not incorporated all these variables to examine the impact of credit risk management

and profitability in banking industry which can be seen as a research gap. So this study will be fruitful to the interest from scholars, students, teachers, civil society, businessmen and government as well as for policy makers.

## **CHAPTER III**

### **METHODOLOGY**

In this chapter, research methods of the study are presented. This chapter begins with the research design of the study followed by the population and sample, data collection, data collection techniques, validity test, reliability test, data analysis and software used.

#### **3.1 Research Design**

The research design used in this study is descriptive and causal comparative research design, which is used to deal with the issues relating to profitability associated with the commercial banks operated in Nepal. To describe the components of credit risk management descriptive research design is used. Similarly, casual comparative research designs used to determine the impact of independent variables (Capital Adequacy Ratio (CAR), Non- Performing Loan Ratio (NPLR) Coverage Ratio (CR), Cash Reserve Ratio (CRR) and Interest Spread Rate (ISR)) on dependent variables (ROA and ROE).

#### **3.2 Population and Sample**

For this study all 28 commercial banks (Until November 2017) operating in Nepal are the total population. Top level and middle level management were taken as total population and the employees of credit risk department were taken as the sample for this research. Sample is a sub set or some part of the larger population. The purpose of sampling is to reduce expenses in terms of money, effort and time. The convenience method of sampling is used to select banks for study. The data is collected through 50 questionnaire distributed to all the sample banks. The sample banks are taken based on the number of branches operating in Nepal and growth of the banks.

Survey questions were manually distributed at different banks in Kathmandu Valley to generate responses from varied response group. In this study, the participants were approached as they enter the banking hall for business and they agreed to participate in answering the questions on the questionnaire.

### **3.3 Sources of Data**

Both primary sources and secondary sources of data were used to collect and analyze the impact of credit risk management on banks profitability.

#### **3.3.1 Primary Sources of data Collection**

The research is based on the primary source of data for research questions. For the purpose of primary data the questionnaire method was used to collect the data. The respondents were requested to fill the questionnaire and were made fully aware about for what purpose the research was being carried out and the main objective of the study. This method of collecting data made a better understanding regarding credit risk management and profitability of banking industry in Nepal. The questionnaire were distributed and collected during any flexible time of respondent and researcher.

#### **3.3.2 Secondary Sources of data collection**

The overall study is based on the secondary sources of data. All the commercial banks operated in Nepali economy were considered as the total population. Total 28 commercial banks are operating until 31st January, 2018. Out of them, 5 commercial banks were selected as sample, which consists more than 17.85 percent of total population. The secondary data has been acquired from various sources such as; Annual report published by commercial banks, financial report published by Nepal Stock Exchange, [Http://www.Nepalstock.com](http://www.Nepalstock.com) (website), Economic report published by Nepal Rastra Bank, Annual report of SEBON, Newspaper, journals, magazines etc.

### **3.4 Data Collection and Processing Procedure**

Primary data sources include observations, experiments, social surveys like questionnaires and interviews. Questionnaire methods are used in this research to get information from the respondents. In order to conduct the study, structured questionnaire were used. A research questionnaire containing carefully framed questions was used to collect data for the study.

The secondary data has been collected from published materials which has been viewed in various spots like books, reports, journals, websites, online, library, NEPSE, SEBON

etc. The relevant data has been presented in meaningful tables and figures which have helped to find out the conclusion from the available data.

### 3.5 Validity Test

Prior to study, a pilot test was conducted to validate the reliability of questionnaire developed to carry out this study. As a pilot sample, 15 respondents were asked to fill the questionnaire. Then the response was mainly analyzed using SPSS software to test whether the study tools were valid or not. The questionnaire used was distributed randomly to the banks. Feedback and reviews received from them as well as expert's opinion were incorporated and questionnaire was adjusted accordingly.

### 3.6 Reliability Test

In this study, Cronbach's Alpha is used to measure the reliability of the various items.

Table 3.1 *Reliability Analysis*

<b>Variable</b>	<b>No. of items</b>	<b>Cronbach's Alpha</b>
Credit Risk Identification	5	0.882
Credit Risk Appraisal	5	0.755
Credit Risk Control	5	0.850
Credit Risk Monitoring	6	0.767
Perceived Performance	6	0.836

Table 3.1 shows that credit risk identification, appraisal, control, monitoring and perceived performance yielded alpha coefficients of 0.882, 0.755, 0.850, 0.767 and 0.836 respectively. This indicates that the questionnaire was reliable since all the alpha values were above 0.7 as recommended by Bryman & Bell (2007) that the Cronbach alpha coefficient of 0.7 and above is a clear indication of reliability.

### 3.7 Data analysis tools and techniques

For the collected data to be easily understood by the common man, it needs to be analyzed. Quantitative techniques were used to analyze the data. After receiving

questionnaires from the respondents, the responses were edited, classified, coded and tabulated to analyze quantitative data using statistical package for social science (SPSS).

In this section of the study, the results from the secondary data for profitability in Nepalese commercial banks have been presented. Different statistical and econometric models such as descriptive statistics, correlation matrix and regression analysis were used as the major tools for the analysis.

### **3.7.1 Descriptive Statistics of the Variables**

The descriptive statistics of the variables used in the study for the bank specific variables as well as macroeconomic variables have been presented and analyzed in this section of the study. The descriptive statistics used in the study consists of mean, standard deviation, number of observations, minimum and maximum values.

### **3.7.2 Correlation Analysis**

In this section of analysis, the bivariate correlation coefficient between different pairs of research variables has been analyzed. The Pearson correlation coefficients were calculated to examine the nature and direction of the relationship between the dependent variable i.e. ROE and ROA and the independent variables such as; Capital Adequacy Ratio (CAR), Non- Performing Loan Ratio (NPLR) Coverage Ratio (CR), Cash Reserve Ratio (CRR) and Interest Spread Rate (ISR).

### **3.7.3 Regression Analysis**

To examine the impact of credit risk management and profitability, regression model was used. The model is specified as:

For ROA

$$Y = \beta_0 + \beta_1 \text{CAR}_{it} + \beta_2 \text{NPLR}_{it} + \beta_3 \text{CR}_{it} + \beta_4 \text{CRR}_{it} + \beta_5 \text{ISR}_{it} + \text{eit}$$

For ROE

$$Y = \beta_0 + \beta_1 \text{CAR}_{it} + \beta_2 \text{NPLR}_{it} + \beta_3 \text{CR}_{it} + \beta_4 \text{CRR}_{it} + \beta_5 \text{ISR}_{it} + \text{eit}$$

Where,

- Y = profitability (ROA) and (ROE)
- CAR<sub>it</sub> = Capital adequacy ratio of ith bank in year t
- NPLR<sub>it</sub> = Non-performing loan ratio of ith bank in year t
- CR<sub>it</sub> = Coverage ratio of ith bank in year t
- CRR<sub>it</sub> = Cash reserve ratio of ith bank in year t
- ISR<sub>it</sub> = Interest spread rate of ith bank in year t
- e<sub>it</sub> = error component
- $\beta_0$  = the intercept (constant)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = the slope which represents the degree with which bank profitability changes as the independent variable change by one unit variable

### 3.8 Software Used

The responses collected from the distribution of questionnaire were entered in Microsoft Office Excel 2013 and IBM SPSS V 23. After that data were analyzed, interpreted and was presented in the written format using Microsoft Office Word 2013.

## CHAPTER IV

### RESULTS

This chapter has been organized to present the result, analysis and interpret them accordingly. Its main objective is to present data and facts and interpret them. Data collected from various sources were classified and tabulated as requirement of the study and in accordance to the nature of collected data. Different types of financial and statistical tools are used in this chapter. In this chapter data from both the sources primary and secondary are analyzed and explained in a systematic manner and are tabulated in a prescribed format.

#### **4.1 Descriptive analysis of Primary data**

The descriptive statistics of the variables used in the study for the bank specific variables as well as macroeconomic variables have been presented and analyzed in this section of the study.

In this study, mean is used as a central tendency and standard deviation as measures of variability of different variables like credit risk identification, credit risk appraisal, credit risk control and credit risk monitoring. The higher mean value means more respondent agrees to those variables which could have greater impact and lower standard deviation means low risk is associated to that variable which could have greater impact.

When analyzing the mean and standard deviation of variables, it is important to take note that a significantly large value of standard deviation means that the data being tested is far away from the mean whereas a smaller value means that the tested variables are closer to the mean. In this study, five scale of measurement is taken for each statement (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

### 4.1.1 Credit Risk Identification

Table 4.1 *Descriptive Statistics of Credit Risk Identification*

<b>Statements</b>	<b>N</b>	<b>Test Scale</b>	<b>Mean</b>	<b>Std. Deviation</b>
Comprehensive analysis of present and future risks	50	3	4.17	0.628
The bank finds it difficult to prioritize its main risks	50	3	3.96	0.687
Identification of credit risk sources	50	3	4.15	0.686
Reviewing of the credit risk environment	50	3	4.14	0.744
Analysis of all business operations and support services	50	3	3.99	0.741

*Source: Field Survey*

All the values reported in Table 4.1 indicate that there is a very little variance between responses given by banks. The overall mean of all responses is 4.08. However, the average response of each item shows different values and varies between 3.96 and 4.17. The first item of the risk identification has the highest mean (4.17), in which the participants have been asked to give their feedback if the banks have successfully identified their potential risks in response to their declared aim and objectives. The high mean reveals that the selected banks have adopted a compressive and systematic risk identification mechanism. Conversely, the second item has the lowest mean (3.96), which indicates that the selected banks face difficulties to prioritize their key risks in Nepal.

Likewise, the highest standard deviation is 0.744 for the factor “Reviewing of the credit risk environment” which shows that high risk is associated with this particular factor among the factors of Credit Risk Identification. Similarly, the lowest standard deviation is 0.628 for the factor “Comprehensive analysis of present and future risks” which represents it has low risk associated among the factors of Credit Risk Identification.

### 4.1.2 Credit Risk Appraisal

Table 4.2 *Descriptive Statistics of Credit Risk Appraisal*

<b>Statements</b>	<b>N</b>	<b>Test Scale</b>	<b>Mean</b>	<b>Std. deviation</b>
Review of credit history of the member or borrower	50	3	4.18	0.717
Analysis of credit risk based decisions	50	3	4.08	0.750
Analysis of all business operations and support services	50	3	3.89	0.839
Screening of clients before advancing credit	50	3	3.84	0.829
Credit risk information sharing	50	3	3.70	0.901
Weighing and prioritizing risk events and clients	50	3	3.66	0.916

*Source: Field Survey*

As presented in table 4.2, the highest score of mean is for “Review of credit history of the member or borrower” with mean score value of 4.18. It means that the particular factor is most agreed among the component of credit risk appraisal. Similarly, the lowest mean score is 3.66 for the statement “Weighing and prioritizing risk events and clients” which shows that the most of the respondents agrees less compared to other statements.

Likewise, the highest standard deviation is 0.916 for the factor “Weighing and prioritizing risk events and clients” which shows that high risk is associated with this particular factor among the factors of Credit Risk Appraisal. Similarly, the lowest standard deviation is 0.717 for the factor “Review of credit history of the member or borrower” which represents it has low risk associated among the factors of Credit Risk Appraisal.

### 4.1.3 Credit Risk Control

Table 4.3 *Descriptive Statistics of Credit Risk Control*

<b>Statements</b>	<b>N</b>	<b>Test Scale</b>	<b>Mean</b>	<b>Std. Deviation</b>
Training bank staff on risk control	50	3	4.12	0.987
Ascertaining the value of collateral	50	3	3.74	1.033
Secure loan banking system	50	3	3.62	1.081
Ensuring the loan is used for intended purpose	50	3	3.56	1.281
Penalties upon default	50	3	3.30	1.321

*Source: Field Survey*

As presented in table 4.3, the highest score of mean is for “Training bank staff on risk control” with mean score value of 4.12. It means that the particular factor is most agreed among the component of credit risk control. Similarly, the lowest mean score is 3.30 for the statement “Penalties upon default” which shows that the most of the respondents agrees less compared to other statements.

Likewise, the highest standard deviation is 1.321 for the factor “Penalties upon default” which shows that high risk is associated with this particular factor among the factors of Credit Risk Control. Similarly, the lowest standard deviation is 0.987 for the factor “Training bank staff on risk control” which represents it has low risk associated among the factors of Credit Risk Control.

#### 4.1.4 Credit Risk Monitoring

Table 4.4 *Descriptive Statistics of Credit Risk Monitoring*

<b>Statements</b>	<b>N</b>	<b>Test Scale</b>	<b>Mean</b>	<b>Std. deviation</b>
Continuous monitoring of cash flows of borrower	50	3	3.00	1.142
Constant contact with borrowers	50	3	3.36	1.126
Review of clients loan repayment pattern	50	3	3.42	1.035
Supporting distressed borrowers	50	3	3.70	0.974
Frequent loan classification/provisioning	50	3	3.74	0.828
Revising credit risk control and appraisal measures	50	3	3.78	0.827

*Source: Field Survey*

As presented in table 4.4, the highest score of mean is for “Revising credit risk control and appraisal measures” with mean score value of 3.78. It means that the particular factor is most agreed among the component of credit risk monitoring. Similarly, the lowest mean score is 3.00 for the statement “Continuous monitoring of cash flows of borrower” which shows that the most of the respondents agrees less compared to other statements. Likewise, the highest standard deviation is 1.142 for the factor “Continuous monitoring of cash flows of borrower” which shows that high risk is associated with this particular factor among the factors of Credit Risk Monitoring. Similarly, the lowest standard deviation is 0.827 for the factor “Revising credit risk control and appraisal measures” which represents it has low risk associated among the factors of Credit Risk Monitoring.

#### 4.1.5 Perceived Performance

Table 4.5 *Descriptive Statistics of Perceived Performance*

<b>Statements</b>	<b>N</b>	<b>Test Scale</b>	<b>Mean</b>	<b>Std. deviation</b>
Ensures that the risk management is established throughout the whole organization	50	3	3.47	1.063
It helps to assess risks according to their importance	50	3	3.18	1.458
Risk identification assists the management to develop risk management strategy to allocate resources efficiency	50	3	3.72	0.905
Credit risk management has increased Profitability	50	3	3.70	0.953
Credit risk management has increased Productivity	50	3	3.58	0.990
Credit risk management has increased Efficiency	50	3	3.94	0.766

*Source: Field Survey*

As presented in table 4.5, the highest score of mean is for “Credit risk management has increased Efficiency” with mean score value of 3.94. It means that the particular factor is most agreed among the component of performance. Similarly, the lowest mean score is 3.18 for the statement “It helps to assess risks according to their importance” which shows that the most of the respondents agrees less compared to other statements.

Likewise, the highest standard deviation is 1.458 for the factor “It helps to assess risks according to their importance” which shows that high risk is associated with this particular factor among the factors of Performance. Similarly, the lowest standard deviation is 0.766 for the factor “Credit risk management has increased Efficiency” which represents it has low risk associated among the factors of perceived performance.

#### 4.1.6 Summary of Descriptive Statistics

Table 4.6 *Descriptive Statistics Summary*

<b>Credit Risk Practices</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Perceived Performance	50	4.89	0.715
Credit Risk Identification	50	4.68	0.839
Credit Risk Appraisal	50	4.57	0.740
Credit Risk Control	50	4.45	0.861
Credit Risk Monitoring	50	4.73	0.788

*Source: Research Findings and results are drawn from SPSS-23*

Table 4.6 results shows that, average perceived performance of the banking sector in Nepal is 4.89 with a standard deviation of 0.715. The results also shows that mean usage of credit risk identification, credit risk appraisal, credit risk control and credit risk monitoring practices is 4.68, 4.57, 4.45 and 4.73 respectively.

#### 4.2 Correlation Analysis

This section presents correlation results of management of credit risk practices and perceived performance in Nepal.

Table 4.7 *Correlation analysis*

	Performance	Credit Risk Identification	Credit Risk Appraisal	Credit Risk Control	Credit Risk Monitoring
Perceived Performance	1				
Credit Risk Identification	0.367	1			
Credit Risk Appraisal	0.013	-0.302	1		
Credit Risk Control	0.046	0.056	-0.060	1	
Credit Risk Monitoring	0.126	0.013	-0.156	0.168	1

*Correlation is significant at 0.05 levels (2-tailed)*

In an effort to analyze the nature of the correlation between the dependent and the independent variables. Pearson correlation analysis has been computed. The correlation matrix that is shown in Table 4.7 provides some insights into the independent variables that are significantly correlated to the dependent variable performance. The results reveal that there is strong positive relationship between credit risk identification and performance that means credit risk identification increases banks performance. Also there is significantly positive relationship between the credit risk monitoring and bank's performance. The results reveal that as credit risk monitoring is done it automatically increases bank's performance. Likely, there is also positive and significant correlation between credit risk appraisal and credit risk control meaning that the relationship is strong. This shows the existence of a positive correlation between financial performance and management of credit risk practices.

### 4.3 Regression Analysis

Results on regression comprise of the model summary, Analysis of variance (ANOVA) and a summary of the regression coefficients. Linear regression analysis was done to find out the impact of Credit Risk Management practices on perceived performance of private commercial banks of Nepal.

Table 4.8 *Analysis of the Regression Result between CRI, CRA, CRC and CRM with Perceived Performance*

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.521	0.271	0.186	0.200176

a. Predictors: (Constant), CRI, CRA, CRC and CRM

b. Dependent Variable: Perceived Performance

The table 4.8 shows R value is 0.521 which suggest that there is positive association between Credit Risk Identification, Credit Risk Appraisal, Credit Risk Control, Credit Risk Monitoring and Perceived Performance. R<sup>2</sup> value is 0.271. The adjusted R<sup>2</sup> is 0.186 which means 18.6% of the total variation in perceived performance is explained by independent variable Credit Risk Identification, Credit Risk Appraisal, Credit Risk Control; Credit Risk Monitoring whereas 81.4% is explained by other variables.

Table 4.9 ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	0.507	4	0.127	3.165	0.026
Residual	1.362	34	0.040		
Total	1.869	38			

a. Dependent Variable: Perceived Performance

b. Predictors: (Constant), CRI, CRA, CRC and CRM

ANOVA results on table 4.9 indicates that, the relation between management of credit risk practices and the perceived performance is significant since calculated P-value is 0.026, which is less as compared to significance value of 0.05.

Table 4.10 *Coefficients*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.945	0.371		-1.871	0.070
1 CRI	0.185	0.076	0.375	2.435	0.020
CRA	0.042	0.088	0.074	0.478	0.021
CRC	-0.034	0.079	0.065	-0.430	0.018
CRM	0.191	0.073	0.392	2.616	0.013

a. Dependent Variable: Perceived Performance

In table 4.10 it shows that credit risk monitoring ( $\beta = 0.191$ ,  $t = 2.616$  and  $P < 0.05$ ) have the highest influence on perceived performance, whereas credit risk control ( $\beta = -0.034$ ,  $t = -0.430$  and  $P < 0.05$ ) have significant low impacts on perceived performance. Thus, it can be concluded that the Credit Risk practices of Nepalese commercial banks positively influence on perceived performance. Similarly there is existence of a positive ( $\beta = 0.185$ )

and significant relation between credit risk identification and the perceived performance in financial perspective. The results also show the existence of a positive ( $\beta = 0.042$ ) but insignificant relation between credit risk appraisal and perceived performance of commercial banks.

#### 4.4 Descriptive Statistics of the variables

The descriptive statistics of the variables used in this study for the bank specific variables have been presented and analyzed in this section of the study. The descriptive statistics used in the study consists of mean, standard deviation, minimum and maximum values.

Table 4.11 *Descriptive Statistics of the variables*

<b>Variables</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
ROA	0.90	1.46	1.8852	0.689
ROE	-190.57	193.70	18.8172	30.67
CAR	13.6596	40.52	8.82	14.15
NPL	0.7996	20.320	1.596	2.313
CRR	5.3	33.020	13.242	8.14
CR	0	14.27	11.14	0.037
ISR	0.4	7.75	4.4812	1.02

Source: *Annual report of sample banks and results are drawn from SPSS-23*

Table 4.11 presents the descriptive statistics of variables for the bank specific variables associated with all 5 banks for the period 2014/15 to 2018/19. ROE and ROA is the measure of profitability and CAR, NPL, CR, CRR and ISR appears as control variable for credit risk.

The result shows that the average value of the bank performance (ROA) is 1.8852% indicating that during the period 2014-2019, on average, the total assets of sample commercial banks in Nepal generate 1.8852% return. The standard deviation of the ROA is 0.689%, which shows the lack of substantial variation. The average profitability (ROE) in Nepali commercial banks is 18.8172%, which ranges from minimum -190.57% to maximum 193.70% with standard deviation 30.67%.

The non-performing loan ratio among the commercial banks in Nepali is varied from 0.7996% to 20.320% with the mean and standard deviation 1.596% and 2.313% respectively which indicates a high volatility among the bank's ability in credit risk management. There is also low variation among the banks in coverage ratio which is evident from low standard deviation of coverage ratio which is 0.037.

The minimum capital adequacy ratio is 13.6596% that is higher than regulatory requirement of 11% which is the evidence of the compliance of sample banks regarding Nepal Rastra Bank's Directives. Moreover, Table 4.1 shows that the minimum observation of cash reserve ratio is 5.3% which is higher than regulatory requirement of 4.5% which can be taken as compliance of banks regarding Nepal Rastra Bank's Unified Directives. In the same way, the average interest spread rate obtained by Nepalese commercial banks is 4.4812% with minimum and maximum of 0.4% and 7.75% respectively which is slightly higher than regulatory requirement of 4.4% which is compliance regarding Nepal Rastra Bank's Directives.

#### 4.5 Correlation Analysis of the variables

Table 4.12 *Correlation between ROA and ROE with CAR, NPL, CRR, CR and ISR*

Independent Variables	Dependent Variables	
	ROA	ROE
CAR	0.436625	-0.89342
NPL	-0.8362	0.738268
CRR	-0.89187	0.815208
CR	0.125846	0.065726
ISR	0.194665	-0.12023

Table 4.12 shows that the correlations between different variables. Table shows the correlation between independent and dependent variable i.e. independent variable included CAR, NPL, CRR, CR and ISR and dependent variables included ROA and ROE.

The correlation between ROA and CAR is positive i.e.0.436625. This means that the correlation between CAR and ROA is slightly positive correlation. The correlation between ROA and NPL is negative i.e. -0.8362. This means that the correlation between NPL and ROA is perfectly negative correlation. The correlation between ROA and CRR is negative i.e. -0.89187. This means that the correlation between CRR and ROA is perfectly negative correlation. The correlation between ROA and CR is positive i.e. 0.125846. This means that the correlation between CR and ROA is slightly positive correlation. The correlation between ROA and ISR is positive i.e. 0.194665. This means that the correlation between ISR and ROA is slightly positive correlation.

The correlation between ROE and CAR is negative i.e. -0.89342. This means that the correlation between CAR and ROE is highly negative correlation. The correlation between ROE and NPL is positive i.e. 0.738268. This means that the correlation between NPL and ROE is perfectly positive correlation. The correlation between ROE and CRR is positive i.e. 0.815208. This means that the correlation between CRR and ROE is perfectly positive correlation. The correlation between ROE and CR is positive i.e. 0.065726. This means that the correlation between CR and ROE is slightly positive correlation. The correlation between ROE and ISR is negative i.e. -0.12023. This means that the correlation between ISR and ROE is slightly negative correlation.

#### 4.6 Regression Analysis of the Variables

Regression results are found through the ordinary least square technique

##### 4.6.1 Analysis of the regression results between CAR and ROA

Table 4.13 *Analysis of the Regression Result between CAR and ROA*

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.929	0.863	0.817	1.5336978

a. Predictors: (Constant), CAR

b. Dependent Variable: ROA

The table 4.13 shows R value is 0.929 which suggest that there is positive association between ROA and CAR. R<sup>2</sup> value is 0.863. The adjusted R<sup>2</sup> is 0.817 which means 81.7%

of the total variation in ROA is explained by independent variable (CAR) where as 18.3% is explained by other variables.

#### 4.6.2 Analysis of the regression results between NPL and ROA

Table 4.14 *Analysis of the Regression Result between NPL and ROA*

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.836	0.699	0.599	0.085378

a. Predictors: (Constant), NPL

b. Dependent Variable: ROA

The table 4.14 shows R value is 0.836 which suggest that there is positive association between ROA and NPL.  $R^2$  value is 0.699. The adjusted  $R^2$  is 0.599 which means 59.9% of the total variation in ROA is explained by independent variable (NPL) where as 40.1% is explained by other variables.

#### 4.6.3 Analysis of the regression results between CRR and ROA

Table 4.15 *Analysis of the Regression Result between CRR and ROA*

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.892	0.795	0.727	0.070412

a. Predictors: (Constant), CRR

b. Dependent Variable: ROA

The table 4.15 shows R value is 0.892 which suggest that there is positive association between ROA and CRR.  $R^2$  value is 0.795. The adjusted  $R^2$  is 0.727 which means 72.7% of the total variation in ROA is explained by independent variable (CRR) where as 27.3% is explained by other variables.

#### 4.6.4 Analysis of the regression results between CR and ROA

Table 4.16 *Analysis of the Regression Result between CR and ROA*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.825	0.681	0.575	1.2087856

a. Predictors: (Constant), CR

b. Dependent Variable: ROA

The table 4.16 shows R value is 0.825 which suggest that there is positive association between ROA and CR.  $R^2$  value is 0.681. The adjusted  $R^2$  is 0.575 which means 57.5% of the total variation in ROA is explained by independent variable (CR) where as 42.5% is explained by other variables.

#### 4.6.5 Analysis of the regression results between ISR and ROA

Table 4.17 *Analysis of the Regression Result between ISR and ROA*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.244	0.059	0.217	0.91422

a. Predictors: (Constant), ISR

b. Dependent Variable: ROA

The table 4.17 shows R value is 0.244 which suggest that there is low degree positive association between ROA and ISR.  $R^2$  value is 0.059. The adjusted  $R^2$  is 0.217 which means 21.7% of the total variation in ROA is explained by independent variable (ISR) whereas 78.3% is explained by other variables.

#### 4.6.6 Analysis of the regression results between CAR and ROE

Table 4.18 *Analysis of the Regression Result between CAR and ROE*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.893	0.798	0.731	0.764494

a. Predictors: (Constant), CAR

b. Dependent Variable: ROE

The table 4.18 shows R value is 0.893 which suggest that there is positive association between ROE and CAR.  $R^2$  value is 0.798. The adjusted  $R^2$  is 0.731 which means 73.1% of the total variation in ROE is explained by independent variable (CAR) where as 26.9% is explained by other variables.

#### 4.6.7 Analysis of the regression results between NPL and ROE

Table 4.19 *Analysis of the Regression Result between NPL and ROE*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.758	0.575	0.562	0.39768

a. Predictors: (Constant), NPL

b. Dependent Variable: ROE

The table 4.19 shows R value is 0.758 which suggest that there is positive association between ROE and NPL.  $R^2$  value is 0.575. The adjusted  $R^2$  is 0.562 which means 56.2% of the total variation in ROE is explained by independent variable (NPL) where as 43.8% is explained by other variables.

#### 4.6.8 Analysis of the regression results between CRR and ROE

Table 4.20 *Analysis of the Regression Result between CRR and ROE*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.815	0.665	0.553	0.985641

a. Predictors: (Constant), CRR

b. Dependent Variable: ROE

The table 4.20 shows R value is 0.815 which suggest that there is positive association between ROE and CRR.  $R^2$  value is 0.665. The adjusted  $R^2$  is 0.553 which means 55.3% of the total variation in ROE is explained by independent variable (CRR) where as 44.7% is explained by other variables.

#### 4.6.9 Analysis of the regression results between CR and ROE

Table 4.21 *Analysis of the Regression Result between CR and ROE*

##### *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.925	0.856	0.803	0.547

a. Predictors: (Constant), CR

b. Dependent Variable: ROE

The table 4.21 shows R value is 0.925 which suggest that there is positive association between ROE and CR.  $R^2$  value is 0.856. The adjusted  $R^2$  is 0.803 which means 80.3% of the total variation in ROE is explained by independent variable (CR) where as 19.7% is explained by other variables.

#### 4.6.10 Analysis of the regression results between ISR and ROE

Table 4.22 Analysis of the Regression Result between ISR and ROE

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.738	0.545	0.393	1.147892

a. Predictors: (Constant), ISR

b. Dependent Variable: ROE

The table 4.22 shows R value is 0.738 which suggest that there is positive association between ROE and ISR.  $R^2$  value is 0.545. The adjusted  $R^2$  is 0.393 which means 39.3% of the total variation in ROE is explained by independent variable (ISR) whereas 60.7% is explained by other variables.

#### 4.7 Major Findings

1. The study found a significant positive relationship between credit risk identification and the perceived performance of commercial banks. This means that a unit increase in credit risk identification increases commercial banks perceived performance by 0.185 units thus there is a direct relationship between credit risk identification and perceived performance of commercial banks in Nepal.
2. The study found a positive relationship between credit risk appraisal and perceived performance of commercial banks. This means that increase in credit risk appraisal increases perceived performance of commercial banks by 0.042 units thus credit risk appraisal positively affects perceived performance of commercial banks in Nepal.
3. The study also found a negative insignificant relationship between credit risk control and perceived performances of commercial banks in Nepal. This means the usage of credit risk control practices negatively affects perceived performance of commercial banks by 0.034 units thus there is an inverse relationship between credit risk control perceived performance of commercial banks in Nepal.
4. The study found a significant positive relationship between credit risk monitoring and the perceived performance of commercial banks. This means that a unit increase in credit risk monitoring increases commercial banks perceived performance by 0.191 units thus

there is a direct relationship between credit risk monitoring and perceived performance of commercial banks in Nepal.

5. The correlation between ROA and CAR is positive i.e. 0.436625. This means that the correlation between CAR and ROA is slightly positive correlation. The correlation between ROA and NPL is negative i.e. -0.8362. This means that the correlation between NPL and ROA is perfectly negative correlation. The correlation between ROA and CRR is negative i.e. -0.89187. This means that the correlation between CRR and ROA is perfectly negative correlation. The correlation between ROA and CR is positive i.e. 0.125846. This means that the correlation between CR and ROA is slightly positive correlation. The correlation between ROA and ISR is positive i.e. 0.194665. This means that the correlation between ISR and ROA is slightly positive correlation.

6. The correlation between ROE and CAR is negative i.e. -0.89342. This means that the correlation between CAR and ROE is highly negative correlation. The correlation between ROE and NPL is positive i.e. 0.738268. This means that the correlation between NPL and ROE is perfectly positive correlation. The correlation between ROE and CRR is positive i.e. 0.815208. This means that the correlation between CRR and ROE is perfectly positive correlation. The correlation between ROE and CR is positive i.e. 0.065726. This means that the correlation between CR and ROE is slightly positive correlation. The correlation between ROE and ISR is negative i.e. -0.12023. This means that the correlation between ISR and ROE is slightly negative correlation.

7. Result of regression between CAR, NPL, CRR, CR, ISR and ROA shows there is significant relationship between them and all of them are well justified

8. Result of regression between CAR, NPL, CRR, CR, ISR and ROE shows there is significant relationship between them and all of them are well justified.

9. The overall findings of the study indicate that the commercial banks of Nepal have a good credit risk management practices which are evidenced by the significant result for CAR, NPL, CRR, CR and ISR.

10. The overall result showed that credit risk management is an important predictor of bank financial performance, hence indicating that the success of bank in terms of profitability depends on risk management.

## 4.8 Discussion

The main purpose of this study was to examine the impact of credit risk management on profitability of commercial banks in Nepal and also to assess the impact of credit risk practices on perceived performance of commercial banks in Nepal. The major finding of this study shows that there is significantly relationship between Credit Risk Management and the profitability. The study result shows significance result between CAR, NPL and ROE similar to the result of Poudel (2018). The results shows that lower economic growth, higher inflation and higher interest rate are associated with higher non-performing loan and credit risk is affected by bank-specific variables such as bank size, performance (ROA) and solvency by Marijana et al. (2013) and this study shows trend of ROA and Credit Risk Management Factors in selected banks is fluctuation, due to the internal and external factors that affect the status of Credit Risk Management in Banks. The finding confirms with expectation and the finding of Ogboi (2013) but contrary to that of Poudel (2012). In addition, from most of other studies reviewed there were mixed results and were unable to establish a relationship between CAR and bank profitability.

The above findings conform to the finding by Makori (2015) who established that credit appraisal procedures; credit monitoring and debt collection procedures credit risk governance systems had a positive effect on the financial profitability. The findings are also similar to those of Sufi (2015) who found a positive significant effect on performance of the loan, whereas the credit policy and the control of credit risk have insignificant but positive effect on the loan performance. (Mutua, 2015) also found a significant relation between bank's performance and management of credit risk in terms of risk identification, monitoring and credit sanctions and concluded that better management of credit risk leads to a great performance of the bank. The correlation between loan performance and credit standards was established to be positive and statistically significant but the study focused on credit risk management practices on loan performance and not financial performance. So, there is different result with different topic under Credit Risk Management but this study included almost part of Credit Risk Management.

## **CHAPTER V**

### **CONCLUSIONS**

This chapter presents discussion, conclusion and implications that could be drawn from the study. It is divided into three sections. In first section, the results are discussed, in second section conclusion of the study are drawn and finally, in the last section, the implications are drawn.

#### **5.1 Conclusions**

In chapter 1, the significance of the study and the purpose of the research were presented and discussed. As specified earlier, the primary aim of the study is to examine the impact of credit risk management on the profitability of commercial banks of Nepal. The various studies on the topic reviewed in the context of developed and developing countries were presented in chapter 2. Based on the review, appropriate variables were selected to be included in the analysis. Each of the variables was then defined and the rationale of choosing them was put forward. The calculation formula and the expected sign were also discussed. However, two independent variables which have not been used in previous studies were added in the finale models. As dependent variables indicating profitability of commercial banks, ROA and ROE were selected as these were the most popular variables in the literature. Explanatory variables include: CAR, NPL, CRR, CR and ISR representing credit risk management. The profitability of the commercial banks is measured in terms of return on equity and return on assets and is regressed on bank specific variables such as non-performing loan ratio (NPL), capital adequacy ratio, cash reserve ratio, coverage ratio and interest spread.

The analyses revealed that capital adequacy ratio (CAR) has a positive and statistically significant impact on bank profitability of Nepalese commercial banks. Coverage ratio (CR) is found to have a strong significant positive relationship with the profitability of Nepalese commercial bank. The finding is consistent with theory. CR is one of the two variables introduced in this study as it has not been used in other studies before. The analyses revealed that NPL and CRR have a statistically significant negative impact on

financial performance of Nepalese commercial banks. Interest spread rates (ISR) have the significant less impact on profitability as compared to others variables.

The findings of the study revealed a significant positive relationship between credit risk identification and credit risk monitoring and the perceived performance of commercial banks. The study therefore concludes that that credit risk identification and credit risk monitoring significantly and positively affects perceived performance of commercial banks in Nepal.

The result reveals that there is strong positive relationship between credit risk identification and performance that means credit risk identification increases banks performance. Also there is significantly positive relationship between the credit risk monitoring and bank's performance. The results reveal that as credit risk monitoring is done it automatically increases bank's performance. Likely, there is also positive and significant correlation between credit risk appraisal and credit risk control meaning that the relationship is strong. This shows the existence of a positive correlation between financial performance and management of credit risk practices. To analyze the data different tools has been used such as statistical tool like coefficient of correlation, regression etc. and data include from 2014-2018 year. This study is based on both primary and secondary data.

## **5.2 Implications**

### **5.2.1 Theoretical and Practical Implications**

As the findings of the study have revealed, risk management has a significant contribution to banks performance. It is recommended for banks to emphasize more on risk management. In general, banks need to maintain an optimum level of CAR (or as per regulatory requirement) so that they will not have difficulty in meeting their financial obligations, protect their depositor's investment and thus promotes the stability of the financial system. Also, Nepalese banks are to be made aware that bank performance is also influenced by its size. Larger banks tend to achieve higher profits as they differentiate their products and are also able to diversify their risk to operate in less competitive market.

The study further recommends for banks to control and monitor NPL, and keep the level of NPL as low as possible by emphasizing more on the ability to pay back before credit approvals are given, a practice that will enable banks to achieve higher performance. Also, banks need to emphasize on coverage ratio, meaning that banks monitor all the factors related to interest income on loans such as a change in interest rate, quality of loans, and assets and liabilities as they affect bank performance. Further, the banks are recommended not to be highly financed by debt as higher financial leverage will increase liabilities resulting negative effect on financial performance. It is also recommended to balance the bank's capital between shareholder's equity and debt in financing its operations.

The study recommends the management of the Nepalese banks to put more emphasis on credit risk identification since proper identification of risk would help to develop the basis for the other stages of management of credit risk. This study recommends that commercial banks should regularly revise the credit management practices to ensure they do not use redundant management of credit risk practices.

### **5.3 Recommendations for future Researchers**

A suggestion for further research could be performing research on the relationship between financial risk management and financial performance of Nepalese banks focusing on other risk management such as liquidity risk, market risk, or operational risk. Another area of research could be the inclusion of development banks, finance companies, and cooperatives which are successfully operating in the Nepalese market.

This study concentrated on management of credit risk practices in Nepalese commercial banks and not the whole financial sector. The study thus recommends further research on management of credit risk on performance of microfinance banks since they accept deposits and their lending mechanism are almost similar to those of commercial banks.

The study also recommends additional research on effect of management of credit risk on loan default of banks in Nepal. Further, this study recommends an evaluation of management of credit risk practices using qualitative views obtained through interviews to establish an in-depth effect of credit risk management practices on banks performance in financial perspective.

The researcher have taken less number of variables and it can be recommended that the future researcher can take more number of variables to examine the risk management procedures.

The researcher has taken less numbers of sample banks so it can be recommended that the future researcher can take more number of sample banks to go in depth study.

## REFERENCES

- Abdelrahim, K. E. (2013). Effectiveness of credit risk management of Saudi banks in the light of global financial crisis: A Qualitative Study. *Asian Transactions on Basic and Applied Sciences*, 3, 2221-4291.
- Aduda, J. (2011). The relationship between credit risk management and profitability among the commercial banks in Kenya. *Journal of Modern Accounting and Auditing*, 7(9), 034.
- Alshatti, A. S. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations*, 12(1), 338-345.
- Alshatti, A. S. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations*, 12(1-2), 338-345.
- Bessis, J. (2011). Risk management in banking. *The Business and Management Review*, 10(1), 169-181.
- Bhattarai, Y. R. (2014). Effect of credit risk on the performance of nepalese commercial banks. *Journal of Management and Finance*, 1(1), 41-64.
- Brealey, R. A. (2012). *Principles of corporate finance*. (6 ed.). McGraw: Tata McGraw-Hill Education.
- Campbell, A. (2007). Bank insolvency and the problem of nonperforming loans. *Journal of Banking Regulation*, 9(1), 25-45.
- Coyle, B. (2000). Framework for: *credit risk management*. (2 ed). Global Professional Publisher.
- Duffie, D. &. (2012). *Credit risk: pricing, measurement, and management* (3 ed). Princeton Princeton University Press.
- Ebenezer, O. a. (2016). The Empirical Effects of credit risk on profitability on commercial banks: evidences from Nigeria. *International Journal of Science and Research*, 5(8), 1645–1650.

- Ejoh, N. O. (2014). The impact of credit and liquidity risk management on the profitability of deposit money banks in Nigeria. *International Journal Of Economics Commerce and Management*, 2(9).
- Evelyn, K. K. (2016). *Effect of credit risk management practices on financial performance of commercial bank in Kenya*. Nairobi: University of Nairobi.
- Fragouli, M. A. (2018). Risk management and performance: a case study of credit risk management in commercial banks. *The Business and Management Review*, 10(1), 169-181.
- Gestel, T. A. (2009). Credit risk management : basic concepts : financial risk components, rating analysis, models, economic and regulatory capital. *Journal of Banking & Finance*, 7(2), 66-72.
- Gieseche, K. (2004). Credit risk modeling and valuation: an introduction. *Credit Risk: Models and Management*, 5(3), 1-40.
- Hamza, S. M. (2017). Impact of credit risk management on banks performance: A case study in Pakistan banks. *European Journal of Business and Management*, 9(1), 59-62.
- Harvey, C. R. (2012). Risk management and performance: a case study of credit risk management in commercial banks. *The Business and Management Review*, 10(1), 50-62.
- Howells, P. G. (2008). *The economics of money, banking and finance: a European text*. (7 ed). Harlow: Harlow Prentice Hall.
- Kaaya, I. &. (2013). Credit risk and commercial banks performance in Tanzania: A panel data analysis. *Research Journal of Finance and Accounting*, 4(16), 55-62.
- Kargi, H. (2011). Credit risk and the performance of Nigerian banks. *African Journal of Business Management*, 9(2), 59-68.
- Khan & Ali (2016). Impact of liquidity on profitability of commercial banks in Pakistan: An analysis on banking sector in Pakistan. *Global Journal of Management and Business Research: C Finance*, 16(1).

- Kithinji, A. M. (2010). *Credit risk management and profitability of commercial banks in Kenya*. Nairobi, Kenya: School of Business, University of Nairobi.
- 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), 1-6.
- Kolapo, T. F. (2012). Credit risk and commercial banks performance in Neigeria. *Australian journal of business and management research*, 31-38.
- Li, F. & Zou, Y. (2014). *The Impact of credit risk management on profitability of commercial banks: A study of Europe*. Umea School of Business and Economics. Retrieved from <http://www.diva-portal.org>.
- Makori, O. G. (2015). *Effects of credit risk management practices on profitability of deposit taking sacco's in Nairobi County*. Kenya: Management University of Africa.
- Malla, B. K. (2017). Credit portfolio management in nepalese commercial banks. *The Journal of Nepalese Bussiness Studies*, 10(1), 101-108.
- Million Gizaw, M. K. (2015). Impact of credit risk on profitability performance of commercial banks in Ethiopia. *African Journal of Business Management*, 9(2), 59-66.
- Morris, J. (2001). Diversification in the credit portfolio:An overview of country practices. *IMF Working Paper*, 5(1), 53.
- Musah, A. A. (2018). The Impact of interest rate spread on bank profitability in Ghana. *European Journal of Business, Economics and Accountancy*, 6(1), 27-39.
- Mutua, J. M. (2015). Effect of mitigating credit risk on performance of commercial banks in Kenya: A case of Chuka Town. *European Journal of Business and Social Sciences*, 4(7), 113 – 125 .
- Ndoka, S. &. (2016). The Impact of credit risk management in the profitability of Albanian commercial banks during the period 2005-2015. *European Journal of Sustainable Development*, 5(3), 445.

- Noman, A. P. (2015). The effect of credit risk on the banking profitability: A case of Bangladesh. *Global Journal of Management and Business Research: Finance*, 15(3).
- NRB. (2010). *Risk Management Guidelines*. Kathmandu: Bank Supervision Department, Nepal Rastra Bank.
- Ogboi, C. &. (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.
- Okeke, E. C. (2018). Impact of credit risk management on the performance of selected Nigerian banks. *International Journal of Economics and Financial Issues*, 8(2), 287-297. Retrieved from [www.econjournals.com](http://www.econjournals.com)
- Poudel, R. P. (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.
- Poudel, S. R. (2018). Impact of credit risk on profitability of commercial banks in Nepal. *Journal of Applied and Advanced Research*, 3(6), 161-168.
- Sampath, D. G. (2015). *Impact Of credit risk management On Sri Lankan commercial banks*. Belihuloya, Sri Lanka: Department of Accountancy & Finance, Faculty of Management Studies, Sabaragamuwa University of Sri Lanka.
- Santomero, A. M. (1997). Financial risk management by insurers: an analysis of the process. *Journal of risk and insurance*, 231-270.
- Sheeba & Kishori (2017). A study on the impact of credit risk on profitability of the bank. *International Journal of Science Research and Technology*, 3(1), 37-45.
- Soyemi, K. A. (2014). Risk management practices and financial performance: evidence from the Nigerian deposit money banks (DMBs). *The Business & Management Review*, 4(4), 345.
- Staikouras, C. K. (2011). The determinants of European banks profitability. *International Business & Economics Research Journal (IBER)*, 3(6).

- Sufi, F. A. (2015). Credit risk management and loan performance: empirical investigation of micro finance banks of Pakistan. *International Journal of Economics and Financial Issues*, 5(2), 574-579.
- Tekalagn Getahun, L. A. (2015). Credit risk management and its impact on performance of commercial banks: In of Case Ethiopia. *Research Journal of Finance and Accounting*, 6(24), 53-63.
- Ugoani, J. N. (2015). Poor credit risk management and bank failures in Nigeria. *International Journal of Economics and Business Administration*, 1(1), 17-24.



Semi-annually ( )

Annually ( )

Others specify (Mention) ( )

3. Does your bank use 'Derivatives' (credit default swap) to manage Credit Risk?

Yes ( ) No ( )

### Section B: Credit Risk Identification

4. To what extent does your organization undertake the below credit risk identification strategies to ensure that credit risk identification is well done to prevent it from failing in its obligations and meeting its objectives?

**1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree.**

	1	2	3	4	5
Comprehensive analysis of present and future risks					
Quantification of the organizations risk profile					
Identification of credit risk sources					
Reviewing of the credit risk environment					
Analysis of all business operations and support Services					

### Section C: Credit Risk Appraisal

5. To what extent does your organization undertake the following credit risk analysis strategies to ensure that credit risk appraisal is properly done to prevent it from failing in its obligations and meeting its objectives?

**1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree.**

	1	2	3	4	5
Review of credit history of the member or borrower					
Analysis of credit risk based decisions					
Screening of clients before advancing credit					
Credit risk information sharing					
Weighing and prioritizing risk events and clients					

#### **Section D: Credit Risk Control**

6. To what extent does your organization undertake the following credit risk control measures to ensure that credit risk control is well done to prevent it from failing in its obligations and meeting its objectives?

**1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree.**

	1	2	3	4	5
Training bank staff on risk control					
Ascertaining the value of collateral					
Secure loan banking system					
Ensuring the loan is used for intended purpose					
Penalties upon default					

#### **Section E: Credit Risk Monitoring**

7. To what extent does your organization undertake the following credit risk monitoring measures to ensure that credit risk monitoring is properly done to prevent it from failing in its obligations and meeting its objectives?

**1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree.**

	1	2	3	4	5
Continuous monitoring of cash flows of borrower					
Constant contact with borrowers					
Review of clients loan repayment pattern					
Supporting distressed borrowers					
Frequent loan classification/provisioning					
Revising credit risk control and appraisal measures					

### Section F: Perceived Performance

8. To what extent do you agree with the following statement about the importance of risk identification in credit risk management? Rate using scale 1 to 5 where **1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree.**

	1	2	3	4	5
Ensures that the risk management is established throughout the whole organization					
It helps to assess risks according to their importance					
Risk identification assists the management to develop risk management strategy to allocate resources efficiency					
Credit risk management has increased Profitability					
Credit risk management has increased Productivity					
Credit risk management has increased Efficiency					

### Appendix-2: Financial Ratios

<b>SIDDHARTHA BANK LIMITED</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
Capital Adequacy Ratio	11.29%	11.19%	13.16%	12.43%	12.56%
Non-Performing Loan	1.80%	1.41%	1.15%	1.05%	0.75%
Cash Reserve Ratio	5.66%	5.61%	11.80%	17.22%	9.20%
Coverage Ratio	76.71%	77.55%	76.71%	74.23%	76.85%
Interest Spread Rate	4.35%	4.37%	3.37%	4.58%	4.07%
Return on Assets (ROA)	1.51%	1.67%	1.56%	1.70%	2.02%
Return on Equity (ROE)	20.29%	19.91%	14.30%	16.42%	20.29%

<b>NABIL BANK LIMITED</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
Capital Adequacy Ratio	11.57%	11.73%	12.84%	13.00%	12.71%
Non-Performing Loan	1.82%	1.14%	0.80%	0.55%	0.74%
Cash Reserve Ratio	3.020%	4.90%	8.60%	9.32%	11.32%
Coverage Ratio	64.43%	73.84%	79.75%	74.68%	72.90%
Interest Spread Rate	4.56%	4.98%	5.33%	5.05%	4.43%
Return on Assets (ROA)	2.89%	2.06%	2.32%	2.69%	2.61%
Return on Equity (ROE)	27.97%	22.73%	25.61%	22.41%	20.94%

<b>SBI BANK LIMITED</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
Capital Adequacy Ratio	13.47%	13.49%	15.76%	15.15%	14.01%
Non-Performing Loan	0.19%	0.14%	0.10%	0.20%	0.20%
Cash Reserve Ratio	9.03%	7%	8.33%	9.5%	10.92%
Coverage Ratio	79.11%	76.26%	75.00%	74.38%	74.38%
Interest Spread Rate	5.43%	4.99%	4.45%	4.99%	4.43%
Return on Assets (ROA)	1.70%	2.00%	1.68%	1.94%	1.97%
Return on Equity (ROE)	21.51%	22.16%	20.42%	15.81%	16.20%

<b>MEGHA BANK LIMITED</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
Capital Adequacy Ratio	14.99%	12.95%	14.87%	18.42%	15.48%
Non-Performing Loan	1.75%	0.79%	1.36%	0.82%	0.86%
Cash Reserve Ratio	9.04%	10.130%	17.530%	13.24%	11.48%
Coverage Ratio	76.44%	79.48%	70.05%	75.93%	75.79%
Interest Spread Rate	3.62%	4.32%	3.85%	4.33%	4.73%
Return on Assets (ROA)	1.37%	1.79%	1.73%	1.70%	1.80%
Return on Equity (ROE)	12.60%	17.25%	16.88%	15.25%	16.85%

<b>MACHHAPUCHHRE BANK LIMITED</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>
Capital Adequacy Ratio	12.47%	12.23%	17.48%	15.36%	12.88%
Non-Performing Loan	0.64%	0.55%	0.37%	0.44%	0.37%
Cash Reserve Ratio	5.89%	5.89%	15.34%	11.06%	9.24%
Coverage Ratio	72.51%	76.25%	76.58%	76.13%	76.98%
Interest Spread Rate	4.28%	4.59%	4.27%	4.75%	4.27%
Return on Assets (ROA)	1.24%	1.49%	1.87%	1.89%	1.93%
Return on Equity (ROE)	18.74%	20.25%	14.27%	15.25%	16.12%