CHAPTER: 1

INTRODUCTION

1.1 Background of the study

The difference between lending and deposit interest rate is known as interest rate spread. It is an important determinants of the efficacy of the financial system in a country. In another word, the ways of measuring interest rate spread (IRS) in the literature, such as the difference between interest income received and interest paid by a bank as a ratio of total assets or difference between the ratio of interest received and all interest bearing assets and the ratio of interest paid and all interest earning liabilities (Mujeri & Sayera, 2009).

Interest rate spread is defined by market microstructure characteristics of the banking sector and the policy environment. In differentiating between the pure spread and the actual spread. Observe that pure spread is a microstructure phenomenon, influenced by the degree of bank risk management, the size of bank transactions, interest rate elasticity and interest rate variability. considering risk management by the bank, found that risk-averse banks operate with a smaller spread than risk-neutral banks, explains that risk aversion raises the bank‘s optimal interest rate and reduces the amount of credit supplied. Actual spread, which incorporates the pure spread, is in addition influenced by macroeconomic variables including monetary and fiscal policy activities. Emphasize the role of direct taxes, reserve requirements, cost of transactions and forced investment in defining interest rate spread (Paroush, 1994).

The spread or margin between lending and deposit interest rates is a key variable in the financial system. It reflects the additional cost of borrowing related to intermediation activities performed by banks in linking borrowers with the ultimate fund lenders. When it is too large, it can contribute to financial disintermediation as it discourages potential savers with too low returns on deposits and limits financing for potential borrowers, thus 2 reducing feasible investment opportunities and therefore the growth potential of the economy. The magnitude of interest rate spread, however, varies across the world. It is inverse to the degree of efficiency of the financial sector, which is an offshoot of a competitive environment. The nature and efficiency of the financial sectors have been found to be the major reasons behind differences in spread in countries across the world. In economies with weak financial sectors, the intermediation

costs which are involved in deposit mobilization and channeling them into productive uses are much larger (Jayaraman & Sharma, 2003).

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007). Interest can be thought of as "rent of money". Interest rates are fundamental to a „capitalist society" and are normally expressed as a percentage rate over the period of one year. Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation. Commercial banks mobilize savings by offering various types of deposit products to savers and channel such savings as loans and advances to borrowers and investors. The difference between the rates at which banks lend money to borrowers and the rate they are paying to depositors are generally known as interest rate spread (IRS).The efficiency of the banking system is reflected by series of financial indicators and more importantly by IRS and Net Interest Margin (NIM). IRS is an important indicator of efficiency level of a bank or banking system. It reflects profit maximizing ability of the financial intermediaries (Bandaranayake, 2014).

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets. Interest can be thought of as rent of money. Interest rates are fundamental to a capitalist society and are normally expressed as a percentage rate over the period of one year. Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation. Commercial banks mobilize savings by offering various types of deposit products to savers and channel such savings as loans and advances to borrowers and investors. The difference between the rates at which banks lend money to borrowers and the rate they are paying to depositors are generally known as interest rate spread (IRS).The efficiency of the banking system is reflected by series of financial indicators and more importantly by IRS and Net Interest Margin (NIM). IRS is an important indicator of efficiency level of a bank or banking system. It reflects profit maximizing ability of the financial intermediaries (Naugi, 2001).

Lending interest rate of commercial banks may be influenced by a number of factors. The classical theory argues that the rate of interest is determined by two forces. Firstly the supplies of savings, derived mainly from households, and second the demand for

investable capital, coming mainly from the business sector (Rose, 2009). Moreover, the loanable funds theory considers the rate of interest as the function of four variables: savings, investment, the desire to hoard money and supply of money. Rational expectation theory posits that the best estimation for future interest rates is the current spot rate and that changes in interest rates are primarily due to unexpected information and or changes in economic factors (Irungu, 2013).

High interest rate spread has far reaching effects on the growth of an economy as it works against the development of financial intermediation by discouraging savers. Rising interest spread discourages savings and investments, on the one hand, and raises concerns about the effectiveness of the bank-lending channels of monetary policy, on the other. Output and employment are also affected adversely by high interest rate spread. This is because large spread diminishes savings, which in turn narrows levels of borrowing and, thus, narrows investment in the economy. Consequently, the interest rate spreads (IRS) in an economy is an indicator of inefficiency and has important implications for the growth and development of such economy. A more efficient banking system benefits the real economy by allowing higher returns for savers and lower borrowing costs for investors. Hence, a higher spread limits financing for potential borrowers (Ndungu & Naugi, 2000).

Recent researches in Sub-Saharan Africa have indicated that interest rate spreads have remained high and are even increasing in most countries in spite of financial liberalization. This study, using alternative definitions of interest rate spread and time series dataset, empirically investigated the factors that influence the level of interest rate spread in Nigeria by means of regression analysis. The analysis showed that two determinants: bank-specific operating expenses and the industry-specific need for consistent growth of shareholders' net worth explain the high spread in interest rates. Another finding isISw3 (a definition of interest rate spread which includes fees and commissions) best represents intermediation cost. The findings suggest that the banking industry is not efficient or competitive, and as long as the banks can make profits without being efficient, the observed disconnection between the growth of the financial sector and that of real sector will undermine long term growth of the economy. It is, therefore, recommended that alternative sources of financial intermediation of non-

bank type including capital market should be developed to support the real sector (Haruna, 2012).

1.2 Problem statement

Pokharel (2004) Determinants of interest rate in Nepalese financial markets. In this study he give some ideas about the interest rate in Nepalese markets. Though, this thesis tried to identify the factors that shape the interest rate in Nepalese markets, it also tried to explore the relationship between the interest rate deposits, credit rates and inflation. Among different objectives that match to study are: 1. to show the relationship between the liquidity position and interest rate on deposit and lending. 2. To identify the effect of inflation on interest rate charged and offered by various Nepalese financial institution. 3. To identify the different methods used by Nepalese financial institution to calculate interest on lending. During the study, Mr. Pokharel found similar result as discovered by the Mrs. Bhatta. According to Mr. Pokharel the major findings of the study are: The correlation coefficient between interest rate on deposit and amount of deposit collected of all sample organizations were highly negative. It means that, deposit amount of all sample banks are found to increase even if the interest rate of deposit, the attracting factors for deposit, is decreasing. This is against the theory. According to theory, there must be positive relationship. Similarly in case of lending rate and lending amount, Mr. Pokharel found the result as suggested by the theory. It means, the correlation coefficient between amount loaned and interest rate on lending of 10 sample banks is found to be highly negative. In other words, negative coefficient of other organizations means that more amounts is demanded at lower interest, which means that when demand increases, price (interest rate on lending) also increases. 30 Similarly considering about the relationship between interest rate on deposit and on lending for all sample banks, disseminator found it to be highly positive correlated. In this own words, it is Variation in one rate also brings variation in another rate in same direction. Therefore it is concluded both interest rate are determining factor of each other.

To improve intermediary efficiency of banks and achieving financial deepening. Therefore this study is designed to fill the research gap of specific factors that could possibly affects the variability of interest rate spread among commercial bank of Nepal. Study will carry out in international context, find different factors that’s affect the banks

interest spread. Hence this study attempt to find whether those factors are relevant in the context commercial banks of Nepal. This study basically deals with the following issues:

i. What are the effects of credit risk on Interest rate spread (IRS) among commercial banks in Nepal?
ii. What are the effects of operating cost on Interest rate spread (IRS) among commercial banks in Nepal?
iii. What are the effects of liquidity risk on Interest rate spread (IRS) among commercial banks in Nepal?

1.3 Objective of the study

The objective of the study is to deepen understanding on the determinants contributing to interest rate spreads in Nepal banking sector so as to resolve debates on the possible causes of the relatively high spread.

i. To examine the influence of credit risk on Interest rate spread (IRS) among commercial banks in Nepal.
ii. To investigate the influence of operation cost on Interest rate spread (IRS) among commercial banks in Nepal.
iii. To examine the influence of liquidity risk rate on Interest rate spread (IRS) among commercial banks in Nepal.

1.4 Research hypotheses

This study sought to address the following pertinent research hypotheses;

i. There is relationship between credit risk and interest rate spread among commercial banks in Nepal.
ii. There is relationship between operating cost and interest rate spread among commercial banks in Nepal.
iii. There is relationship between liquidity risk and interest rate spread among commercial banks in Nepal.

1.5 Rationale of the study

This study attempts to analyze the determinants of IRS among Commercial banks of Nepal, with a view to identifying the current state of interest rate spreads. This is because the Central Bank of Nepal monetary policy framework and its implementation

have been guided by a need to ensure, among others a realistic interest rate spreads that encourage financial deepening a safe, sound, efficient and competitive banking system through discreet risk management. This study is serve as a source reference to the researchers of similar interest and by so doing contribute to existing literature on the topic under study. It help to enrich the knowledge of future researchers and students who wish to broaden their understanding on this topic. The study is provide a comprehensive resource material for policy makers in the banking, non- financial institution as well as other business communities on the effect of high interest rate and how to tackle the problem high interest rate.

Interest income contributes major portion of net profit of any bank. Level of interest income is determined by the level of interest spread rate. The significance of this study is to identify, analyze and interpret determinants of the interest spread rate of bank. Determinants of interest rate spread of bank can be measured though the study of variables like credit Risk, operating risk and market risk. Interest spread rate also affect total lending and total deposits in an economy. So, bank must manage appropriate interest spread rate. Higher deposit interest rate encourages depositors to deposit money on bank but, side by side, high lending interest rate discourages business organization and household to carry loan from bank as it increases cost of capital to them. So, bank must maintain appropriate lending and deposit rate that can attract both depositor and debtor. This study helps bankers to analyze the past impact of interest rate spread and its impact on profitability. Some of the other significance of this study is highlighted below. It helps the bankers to carry out necessary steps to determine appropriate lending and deposit rate.

i. This study help to identify the determinants of IRS among commercial bank in Nepal.
ii. This study help to bankers carry out necessary steps to determine appropriate lending and deposit rate.
iii. This study help to new researchers to learn more about the IRS among commercial banks in Nepal.

1.6 Limitations of the study

Data was collected from Central Bank of Nepal and individual banks publications. Accuracy of information from these secondary sources could not be verified which may cause deviation from the reality if the information is inaccurate.

i. This study focused on only three factors in establishing the relationship between determinants IRS of commercial banks in Nepal.
ii. The findings of this study could not therefore be generalized to all the determinants factors affecting IRS commercial banks in Nepal.
iii. This study used a sample size of six commercial banks only. From such a sample size, it is difficult to give a real significant relationship between the variables from the data collected.
iv. The regression model used in this study is based on various assumptions which may be unrealistic in the real world. For example, the model assumes constant linear relationship between the dependent and independent variable. This relationship can however change over time.
v. This study was based on a 5 year study period from the year 2015to 2020.

1.7 Chapter plan

The whole study is divided into five chapters, which includes:

Chapter 1: Introduction

The first chapter deals with introduction. This includes background of the study, statement of the problems, and objective of the study, research hypothesis, and rationale of the study, limitations of the study and chapter plan.

Chapter 2: Literature review

The second chapter deals with the review of available literature. It includes conceptual review, review of journal articles, review of thesis, summary of literature review and research gap etc.

Chapter 3: Research methodology

The third chapter explains the research methodology to be used in the study, which includes research design, population and samples, sources of data, data collection procedure, data analysis tools and techniques and research framework.

Chapter4: Result and discussion

The fourth chapter, which is the important chapter of the study, including data presentation and analysis of data, major findings and.

Chapter 5: Summary and conclusion

The fifth chapter summarizes the main conclusion that flows from the study and summary, conclusions and offers suggestions for further improvement and conclusion of the study.

CHAPTER: 2

LITERATURE REVIEW

2.1 Introduction

The whole chapter has been divided mainly into two parts- theoretical review and empirical review. Theoretical review includes the definition of summary of different books and authors and empirical review includes the review of published articles in different journals and past studies.

2.2 Theoretical review

The concept of interest rate spread can be well-defined by the market structures which are characteristics of the banking sector. Two types of interest rate spread are of interest here; pure and actual spread. Pure spread is normally subject to the size of bank transactions, extent of management of bank risk, variability and the elasticity of interest rate. Actual spread in addition to being inclusive of the pure spread, is affected by macroeconomic variables such as fiscal and monetary policy, cost of transactions reserve requirements, direct taxes, and forced investment in defining interest rate spread (Saunders, 1981).

2.2.1 Review of theories

The theories on spreads consists of studies on the determination of interest margins as well as interest rate spreads. The most influential theoretical model of determination of interest margins is the bank dealership model by in which the size of bank interest margins is explained on the basis of the uncertainties associated with deposit and loan markets, hedging behavior and expected utility maximization. Banks are assumed to be risk-averse dealers in their role as financial intermediaries. The model is premised on the fact that bank's receive deposits in random intervals while the requests for loans come in a stochastic manner and these requests have to be satisfied. This randomness, and therefore the uncertainty brought about by the manner in which deposits come and the manner by which customers make loan requests implies that banks face an inventory risk, which has to be compensated through a spread between loan and deposit rates—this is the pure interest spread. The interest margin arising from Ho–Saunders model is computed on the basis of banks that offer similar or homogeneous loans and deposits, and differences in interest margins across the banks is on account of average transaction

costs, changes in interest rates, risk taking behavior of bank managers and the extent of competition within the bank's market (Allen, 1988).

2.2.1.1 The classical theory of interest rates

The origin of monetary theory lies in classical economics, starting with the work of Adam Smith (1723-1790), (Elijah Saushini, 2016). The classical theory argues that the rate of interest is determined by two forces. Firstly the supplies of savings, derived mainly from households, and second the demand for investable capital, coming mainly from the business sector. Furthermore, this theory defines interest rate as the element that equates savings and investment. Thus, the classicists believe in the existence of a fully employed economy where saving and investment are always equal. Accordingly, interest rate is a function of savings and investment such that the higher the rate of interest the more saving will be made and the lower the rate of interest, entrepreneurs will opt to borrow in order to invest. Therefore, any shift in the supply or demand of loanable funds will cause market forces to drive the rate of interest back into equilibrium at different levels. In addition, it was found that it is the flexibility of interest rate that will ensure that the amount of savings is always equal to investment and total income will always be equal to total spending (Ritter, 2009).

2.2.1.2 The loanable funds theory

The loanable funds theory is an improvement to the classical theory of interest rate, due to its inclusivity of both monetary and non-monetary aspects of the problem (Rose, 2009). Unlike the classical theory, in the loanable funds theory, the equilibrium interest rate equates the quantity supplied of loanable funds, which according to, (Khandker ,2008) consist of savings, with the quantity for loanable funds, which consist of investments and bonds financed by government deficit. According to this theory, the interest rate is determined by supply and demand in the market for credit, (Lutz, 2009). This implies that interest is the price that equates the demand for loanable funds with the supply for loanable funds. At equilibrium level where the demand for equals the supply for loanable funds, savers-lenders and investors-borrowers are the happiest possible. The loanable funds theory is wider than the classical theory. The loanable funds theory considers the rate of interest as the function of four variables: savings, investment, the desire to hoard money and supply of money (Irungu, 2013).

2.2.1.3 The rational expectation

This theory is based on an economic idea that economic agents make choices based on their rational outlook, available information and past experiences. The rational expectation assumption states that people use all available information to make optimal forecast about the future (Gregory, 2010). In this regard, rational expectation theory posits that the best estimation for future interest rates is the current spot rate and that changes in interest rates are primarily due to unexpected information and or changes in economic factors (Irungu, 2013) For example, if the people's expectation is that interest rate will rise, many people will avoid borrowing. This will affect bank performance due to reduced earnings on interest rates, on the other hand, if people expect interest rate to fall they will be willing to borrow and this will improve banks performance due to increase in interest rate earnings (Mishkin, 2004).

2.2.2 Determinants of bank interest rate spreads

Studies that examine determinants of bank interest rate generally use variables that fall into three categories: individual bank-specific factors such as operating or administrative costs, non-performing loans, return on asset, structure of the balance sheet, non-interest income or non-core revenues, bank size, liquidity ratio of a bank, among others: factors specific to the banking industry such as the degree of competition as could, for instance, be indicated by market concentration, regulatory requirements such as minimum core capital requirements, statutory reserve requirements or regulated minimum deposit rates; and, macroeconomic indicators which include growth rate of the real Gross Domestic Product (GDP) growth rate and inflation rate. Some studies focus on one category of factors while others consider two or all the three categories of factors in estimating the interest rate spread.

2.2.2.1 Credit risk on interest rate spread

Credit risk is the potential for loss due to failure of a counterparty to meet its agreed obligations to pay the Bank in accordance with agreed terms. The bank manages its credit exposures following the principle of diversification across products, client segments and industry sectors. Country Portfolio Guidelines and the Credit Approval Document (CAD) / Credit Processing Manual govern the extension of credit to Corporate & Institutional Banking (CIB) and Commercial Banking (CB) Clients and Retail Banking Clients respectively. Each policy provides the framework for lending to

counterparties, account management, product approvals and other product related guidance, credit processes and portfolio standards. Credit risk under Retail Banking (including Business Banking), Commercial Banking and Corporate & Institutional Banking is managed through a defined framework which sets out policies and standards covering the measurement and management of credit risk. There is a clear segregation of duties between transaction originators in the businesses and the approvers in the risk functions. All credit exposure limits are approved within a defined Credit Approval Authority Framework. All corporate and institutional borrowers, at individual and group level, are assigned internal credit rating that supports identification and measurement of risk and integrated into overall credit risk analysis. Credit Grade (CG) is reviewed periodically and amended in light of changes in the borrower's circumstances or behavior. CG plays a central role in the credit quality assessment and monitoring of risk.

Credit risk is defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. Credit risk is the most expensive risk in financial institutions and its effect is more significant as compared to other risk as it directly threatens the solvency of financial institutions. The magnitude and level of loss caused by the credit risk as compared to other kind of risks is severe to cause high level of loan losses and even bank failure. While financial institutions have faced difficulties over the years for a multitude of reasons, the major cause of serious banking problems continues to be directly related to lax credit standards for borrowers and counterparties, poor portfolio risk management, or a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties.

The factors that affect interest rate spread vary across country due to different level of financial maturity. One of the most important aspects of financial maturity is access to information (Naugi, 2001).Explained that banks are exposed to credit risk because of information asymmetry. Banks do not know ex ante the proportion of loans that will perform and even when they carry out appraisals, credit losses are not fully eliminated. To cover credit risk, banks charge premium whose size depends on the banks credit policy, interest on alternative assets, amount borrowed, and type of client and size of collateral. Given the risk averse behavior, banks facing higher credit risk are likely to

pass the risk premium to the borrowers leading to higher interest rate spreads (Were & Wanbua, 2013).

Bessis (2011) effective credit risk management usually seeks to improve the efficiency of the banking sector by ensuring the banks lend to non-defaulters but charge them fair rates and also build a culture of saving through competitive deposit rates. Terms banks as 'risk machines' since commercial banks take, transform and repackage risk into banking products and services. Therefore it is important for commercial banks to adopt sound risk management strategies in order to improve competitive advantage. Previous studies have shown that there positive relationship between the level of credit risk and interest rate spread in the financial sector. High levels of credit risk create an incentive for commercial banks to increase lending rates as a provision of default risk. Ultimately, this increases the cost of capital and reduces the demand for loans leading to underdevelopment of financial sector. Therefore, there is need to understand, the effect of credit risk on interest rate spread in an economy in order to foster growth of financial sector and the economy as a whole.

2.2.2.2 Treasury bill rates

Ngugi (2001) analyzed the interest rates spread in Kenya from 1970 to 1999 and found that interest rate spread increased because of yet-to-be gained efficiency and high intermediation costs. Increase in spread in the post-liberalization period was attributed to the failure to meet the prerequisites for successful financial reforms, the lag in adopting indirect monetary policy tools and reforming the legal system and banks" efforts to maintain threatened profit margins from increasing credit risk as the proportion of non-performing assets. She attributed the high non-performing assets to poor business environment and distress borrowing, owing to the lack of alternative sourcing for credit when banks increased the lending rate, and the weak legal system in enforcement of financial contracts. According to her findings, fiscal policy actions saw an increase in Treasury bill rates and high inflationary pressure that called for tightening of monetary policy.

2.2.2.3 Operating risk on interest rates spread

Computed as operating expenses as a ratio of total net operating income. Banks incur costs of financial intermediation such as screening loan applicants to assess the risk profile of borrowers and monitor the projects for which loans are advanced. An increase in operating costs is expected to have positive influence on interest rate spreads. High operating costs are likely to include costs due to inefficiency, leading to higher spreads and hence, this variable is commonly used as an indicator of operational inefficiency. A higher cost of financial intermediation will drive up interest rates on loans while depressing interest rates on deposits. An increase in operating costs is expected to have positive influence on interest rate spreads. High operating costs are likely to include costs due to inefficiency, leading to higher spreads and hence, this variable is commonly used as an indicator of operational inefficiency.

There exist many factors can have either a direct or an indirect impact on interest rates spread. Banks' profitability and efficiency are often considered as the main factors that determine interest rates and interest rate spreads. The increase in banks' profitability and efficiency would ensure an increase in their capital base, as well as an increase in their total activities, which would inevitably lead to a greater degree of competition in the banking system, a decrease in lending rates and a narrowing of interest rate spreads (Hudon & Basharat, 2008). Perhaps the most important is the improved operational efficiency, a key driver of lower rates comes primarily from five sources: competition, reinvestment of profits, learning by doing, pressure from donors and investors on Microfinance Institutions to be socially responsible, and the absence of interest rate caps. There is a considerable degree of consensus that the quality of management makes the difference between sound and unsound banks. As this variable is measured by the cost/income ratio, an increase of this ratio means a deterioration of management efficiency and will result in a decrease in the net interest margin. Maintain that variations in overhead and operating costs are reflected in variations in bank interest margins as banks pass their operating costs on to depositors and lenders. Indicate that high operating cost, which is mainly due to labor costs, and banks' determination to maintain high profit margins are the two bank specific factors which contribute significantly to wider interest spreads. Then we might expect improved profitability, greater amounts of funds intermediated, better prices and service quality for consumers, and greater safety and soundness if some of the efficiency savings are applied towards

improving capital buffers that absorb risk. However, the converse applies to inefficient intermediaries, with the additional danger of taxpayer-financed industry bailouts if substantial losses are sustained. Consequently, efficiency of banks improves the overall economy which affects the welfare of the society as a whole. Banking literature has often used bank spreads as indicators of banking efficiency and competition. Higher spreads and margins are often interpreted to signal greater inefficiencies and lack of competition in the banking sector (Kunt & Peria, 2010).

Higher operating costs are not favorable in the banking industry as it shows how inefficient a bank is in its internal processes therefore banks always work towards minimizing their operating costs so as to improve their operating income. A bank that has very high operating costs is to maintain higher interest rate spread to cover the costs incurred. An increase in operating costs is expected to have positive influence on interest rate spreads (Were & Wanbua, 2013). In Kenya, overhead costs are largely reflected in high employee payments and highly automated and well designed and furnished bank branches. Interest rate spread increases due to yet to be gained efficiency and high intermediation costs. Both implicit and explicit taxes widen the interest spread as they increase the intermediation costs (Naugi, 2001).

2.2.2.4 Liquidity risk on interest rate spread

A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans. However, it might also be the case that higher interest income is associated with lower interest rate spreads due to higher probability of loan repayment. Interest rate risk stemming from liquidity risk is a risk created by the difference between interest-earning assets and liabilities in all currencies. If the difference in the interval is negative, then the bank will face the loss of interest as the result of an increase in interest rates. Interest rates and bank profitability are connected, with banks benefiting from higher interest rates. When interest rates are higher, banks make more money, by taking advantage of the difference between the interest banks pay to customers and the interest the bank can earn by investing. Interest rate risk can be reduced by holding bonds of different durations, and investors may also allay interest rate risk by hedging fixed-income investments with interest rate swaps, options, or other interest rate derivatives.

Tennant & Folawewo (2008) show that the degree of development of the banking sector is not an important determinant of interest rate spread. A few studies show, however, that the development of the banking sector in low income countries in Asia, Europe, Latin America and SSA has a significant negative effect on interest rate spread. The contradictory result on the effect of banking sector development on interest rate spread is seemingly surprising they contradict findings obtained by some important studies in the area. Other macroeconomic factors found to impact positively on interest rate spread include: degree of government borrowing from the commercial banking sector. Interest rate uncertain and high real interest rates.

2.2.2.5 Interest rate spread

This Study that examine determinants of bank interest rate generally use variables that fall into three categories ; individual bank-specific factors such as operating or administrative costs, non-performing loans, return on asset, structure of the balance sheet, non-interest income or non-core revenues, bank size, liquidity ratio of a bank, among others: factors specific to the banking industry such as the degree of competition as could, for instance, be indicated by market concentration, regulatory requirements such as minimum core capital requirements, statutory reserve requirements or regulated minimum deposit rates; and, macroeconomic indicators which include growth rate of the real Gross Domestic Product (GDP) growth rate and inflation rate. Some studies focus on one category of factors while others consider two or all the three categories of factors in estimating the interest rate spread. Interest rate spread consists of several components: operating cost, profits, reserves and provisions for bad debts based on the accounting perspective. These components are a reflection of micro and macro variables which impact the spread, such as efficiency, type of ownership, concentration of market power and the regulatory framework under which banks operate (Banda, 2012).

2.3 Empirical review

Interest rate spread is affected by both bank specific factors and macroeconomic factors the most significant determinants of interest rate spread in Nepal. The bank specific factors which are the bank size, credit risk, operating costs and liquidity risk and macroeconomics factors which are the inflation, exchange rate, marker structure, legal

and regulatory frame work, and taxation. Though, this study concentrated mainly on the effects of credit risk, market risk, and operating cost on interest rate spread.

2.3.1 Review of journal articles

Shrestha (1979) upon the title of Interest rate and its impact upon resource mobilization and utilization is also seems to be relevant to review here. Since his study is too old, interest rate at that time was purely the central bank's phenomenon. In this study, it has concluded that the frequent change in interest rates was disliked by customers except changing the interest rates as directed by NRB. Shrestha suggested the commercial banks to quote stable rates as far as possible .he also recommended that the method of calculating interest should be used in such a way that the previous customers and depositors who are already involved in banking transaction should not be affected adversely. He also suggested charging high interest rate on loan to luxurious goods as in unproductive sectors and a lower rate on productive and small scale industries.

Neupane (2008) carried out a study entitled Interest Rate Structure and Its Influence on Deposit and Lending of Joint Venture Banks in Nepal. He has shown the influence of interest rate on deposit and lending in Nepalese Joint Venture Banks. The conclusion drawn by Mr. Neupane is: -The interest rate of all sample banks are found to be in decreasing trends –Analysis of sample banks shows that interest rates on lending are far higher than deposit rates. Analysis of samples banks concludes that interest rate on deposit is to be found so low which does not attract the depositor. Lending interest rate of sample banks have decreased every year which provide better opportunities for the borrower's investor. Sample Banks under study show weak on mobilization of collected deposit.

The Interest Rate Spread (IRS) of the Commercial Banks in Bangladesh perspective. Based on the empirical data for the period 1974-2011 drawn from various publications of Bangladesh Bank and other sources, the empirical findings of this study found statistically significant correlation between IRS and deposit rate but no correlation with the lending rate. The data series for IRS, deposit rate, and lending rate contained a unit root and were integrated of order one. However, the Granger causality test failed to indicate any bilateral causal relationship between IRS and deposit rate, IRS and lending rate, and also to deposit rate and lending rate. The study also found that IRS prevailing

in the Bangladeshi banking sector was high compared to that in its neighboring countries (Afroze, 2013).

The impact of interest rate spread on non-performing loans in Namibia. The study employed the techniques of unit root, integration and error correction model technique on the quarterly data covering the period 2001 to 2014. The findings show that interest rate spread has a positive and statistical significant effect on non-performing loans in Namibia. Furthermore the study also showed that inflation has a positive though not statistical significant effect on non-performing loans in Namibia. Therefore, the positive impact of interest rate spread suggest that increase in interest margins has potential of increasing the probability of defaulting on loans by clients (Sheefeni, 2016). The role played by bank and industry-specific factors as well as macroeconomic variables in the determination of interest margins in Kenya's banking sector. Decomposition of the spread using income and balance sheet of the banking sector as a whole and panel data analysis of 39 commercial banks yielded consistent results which highlight the significant role played by bank and industry specific factors and macroeconomic variables in interest rate spread determination. (Kiptui, 2014).

Bhattarai (2015) the determinants of lending rate of Nepalese commercial banks. The analysis of data was based on a sample of 6 commercial banks observed over the period 6 years (2010 to 2015). The models used in the study were: pooled OLS model, fixed effects model and random effects model. This study has used 'lending rate' as dependent variable, while the explanatory variables are: operating cost to total assets ratio, deposit interest rate, profitability (ROA) and default risk. The estimated results of these three regression models reveal that operating costs to total assets ratio, profitability (ROA) and default risk have significant positive impact on the commercial bank lending rate. However, deposit rate has negligible impact on lending interest rate. Thus, this study concludes that the major determinants of commercial banks' lending rate are: operating costs to total assets ratio, profitability (ROA) and default risk in Nepalese perspectives.

The Ghanaian economy appears to be in a certain cycle of high lending and low borrowing rates culminating in wide interest rate spreads. A number of studies point to the fact that the spread between the lending rates and borrowing rates is too wide to promote efficient financial intermediation between savers and borrowers but failed to

look at macroeconomics effect on the interest rate spread in Ghana. This study contributes to the discussion by evaluating the macroeconomic variables (factors) that affect the interest rate spread with a view to determining their short-term and long-term relationships for policy recommendations that will serve the interest of all stake holders in the financial services' sector and the general Ghanaian economy. Using autoregressive distributed lag (ARDL) integration and Vector Error Correction analysis, we observed both short-run and long run relationship between identified macroeconomics variables and interest rate spread in Ghana. The study recommends that, government borrowing, interest and inflation rate are kept low while pursuing policies that maximize savings (Sheriff, 2014).

The bank-specific, industry-specific and macroeconomic factors that influence interest rate spreads (IRS) in commercial banks in Ghana using unbalanced panel data set from 33 commercial banks covering the 21-year period 1990 to 2010. The study employed annual time series data from 1990 to 2010. Results suggest that interest rate spread in Ghana is significantly influenced by bank- specific and macroeconomic variables. These are bank ownership, Management inefficiency, Gross Domestic Product Per Capita (GDPPC) and Government Securities which all have positive relationship with IRS. Government borrowing on the other hand also influences IRS significantly but has a negative effect. The paper's findings are important for central banks, the commercial banks and managers of the economy for efficiency and effectiveness. The paper is the first of its kind in Ghana a developing country with emphasis on macroeconomic variables (Garr, 2013). Studied about the affecting factors on spread rate and define a suitable model of spread rate in banking industry. Spread rate is a difference between two related interest rates. In banking industry, spread rate is the difference between debts rate (especially for deposit) and assets rate (Especially for loan). Interest rate spread has always been one of the most important and significant economic issues in different countries of the world. In this study, affecting factors on spread rate are considering in an Iranian bank during the last 19 month. Some variables such as NPL ratio, ratio of demand deposits on deposits, non-interest income, and interest assets to assets, capital adequacy ratio, ROA ratio and inflation and exchange rate are analyzed on spread rate and a model is defined for bank according to prior studies and economic issues of Iran (Gashmi & Rostanmi, 2015).

Determinants of interest rate spreads in commercial banks of Kenya based on data analysis and quantified the impact of those factors on interest rate spreads. Despite the liberalization of the financial sector, high interest rate spreads is still an issue of concern in a number of African countries, including Kenya. The project involved conducting an intensive study of the banking industry in Kenya. Various aspects contributing to bank interest rate spreads in the banking industry were explored. The research involved collecting data from commercial banks in Kenya, CBK, financial journals and newspapers. The target population was 1036 credit officers. The sample size was 103. Stratified random sampling was used. Questionnaires were used to collect primary data where drop and pick method was used. The data was processed using statistical package for social sciences (SPSS) to get various statistical measures such as the mean, frequencies and standard deviation which were applied in various processes which included validation, sorting, summarizing and aggregation of data. The data collected was analyzed using inferential statistics and descriptive statistics which involved frequencies and mean. The inferential statistics involved the use of Pearson's correlation and regression analysis. The results obtained helped to infer the determinants of interest rate spread in commercial banks of Kenya. Results indicated that all the variables of the study: Inflation rate, return on average assets, liquidity risk and credit risk influences interest rates spreads of commercial banks in Kenya. This was evidenced by the responses from respondents in regards to the study variables. The study concluded that indeed inflation rate, credit risk, liquidity ratio and returns on average assets influences interest rates spreads in commercial banks of Kenya by a substantial extent. It was recommended that a similar study should be done in Kenya. Further studies should also be carried out on operation cost and financial performance of commercial banks in Kenya with an aim of finding out their effect on interest rates spreads of the commercial bank (Kimondo, 2014).

The determinants of interest rate spread in Namibia for the period 1996-2010. The investigation is conducted through integrated vector auto regression (VAR) or multivariate integration methods. The investigation reveals that interest rate spread in Namibia is determined by Treasury bill rate, inflation rate, the size of the economy, financial deepening, bank rate or discount rate and exchange rate volatility. Treasury bill rate, inflation rate and bank rate are associated with an increase in interest rate spread. The size of the economy and financial deepening are associated with a decrease

in interest rate spread. The results suggest that an increasing interest rate policy pursued by the government can cause interest rate spread to rise. Increase in the cost of funds to commercial banks may be passed to consumers in the form of higher interest rate spread. An increase in the cost of doing business will cause interest rate spread to rise. Interest rate spread can be reduced by increasing the size of the economy which allows for economies of scale and greater competition. Financial deepening, which allows a high level of interbank competition, can also reduce the interest rate spread (Eita, 2012).

The determinants of commercial banks interest rate spread in Namibia, using a panel data analysis of bank level dada. It applied the OLS technique to identify the bank-specific variables that have been influencing interest rate spread in Namibia over the period 2004 – 2011. The results of the study indicate that deposit market share, liquidity levels and operating costs are the main bank-specific determinants of interest rate spread in Namibia. More specifically, it was found that the deposit market share and operating costs reduces net interest margin whilst the liquidity levels of a commercial bank increases its net interest margin. Furthermore, it was revealed that the tax paid by a bank, non-performing loans and the capital ratio are not important determinants of the net interest margin .The foregoing implies that the monetary authority in Namibia should place emphasis on the policies aimed at reducing the liquidity levels in the banking industry, which will reduce the net interest margins. This is especially important for both banks and consumers alike. It is also found that it is imperative to focus on policies that promote a low interest rate environment, as these would reduce the interest margins in the economy (Samahiya & Kaakunga, 2014).

The effects of interest rate spread on the level of Non-Performing Assets in commercial banks in Kenya. This study adopted a descriptive research design on a sample of all commercial banks in Kenya operating by 2008 which are 43 in number. The study used questionnaires to collect data from primary data sources and secondary data, collected from Bank Supervision Report, to augment the primary data findings. The study used both quantitative and qualitative techniques in data analysis to the relationship between the interest rate spread and loan non-performance. The data were presented using graphs, table and pie-Charts. The study concludes that interest rate spread affect performing assets in banks as it increases the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on assets non-performance, for

such regulations determine the interest rate spread in banks and also help mitigate moral hazards incidental to NPAs. Credit risk management technique remotely affects the value of a bank's interest rates spread as interest rates are benchmarked against the associated non-performing assets and non-performing assets is attributable to high cost of loans. The study recommends that commercial banks in Kenya should assess their clients and charge interest rates accordingly as ineffective interest rate policy can increase the level of interest rates and consequently NPAs. They apply stringent regulations on interest rates charged by banks so as to regulate their interest rate spread and enhance periodic/regular credit risk monitoring of their loan portfolios to reduce the level of NPAs (Collins, 2011).

In this model the volatility of the spread between the overnight interest rate and the central bank policy rate (the policy spread) for the euro area and the UK during the two main phases of the financial crisis that began in late 2007. During the crisis, the policy spread exhibited signs of volatility, owing to the breakdown in interbank market activity. The determinants of this volatility are assessed using Stochastic Volatility models to gauge the role played by liquidity risk, credit risk (financial and sovereign), and interest rate expectations. Our results suggest that liquidity risk is the main determinant of the volatility of the policy spread, but also that private bank credit risk has become more apparent in the post-Lehman collapse phase of the crisis for the euro area as financial CDS premier rose due to possible default fears. In addition, the ECB appears to have been more effective in addressing liquidity risk since the onset of the crisis, and this may be related to its greater direct access to a broader range of counterparties and its acceptance of a broader range of eligible collateral. The main implication is that, in crisis times, a sufficiently flexible operational framework for monetary policy implementation produces the timeliest response to market tensions (Beirne, 2010).

The empirical determinants of credit spread changes on corporate bonds in the Australian market. Eight different credit spread changes are analyzed corresponding to bonds of four different credit ratings and four different maturity ranges. We investigate the explanatory power of several variables derived from structural models of corporate default. Also included in the analysis are variables designed to capture the liquidity component of the credit spread. Results indicate that changes in the spot rate and

changes in the slope of the yield curve are the most important determinants of credit spread changes. Overall, the model is able to describe a large proportion of the variation in credit spread changes – up to 60 percent. The model provides the best fit for credit spreads in well-established bond markets (Andrew, 2009).

Determinant of interest rate spreads in Nigeria using a panel of 12 commercial bank for the period 1986-2007. The results suggest that cash reserve requirements average loans to average total deposits remuneration to total assets and gross domestic product have positive effects interest rate spreads rate. However, non- interest income to average total assets, treasury certificate and development stocks have negative relationship with interest rate spreads. In general, the findings that suggest of deduction in reserve ratio, high bank overhead costs among other will help to moderate the high interest rate spreads in Nigeria (Akinlo & Owoyemi, 2012).

The effect of changes in open market interest rates on the interest rate spread of Malaysian commercial banks. This is performed by examining the causality and patterns of reactions of banking rates with respect to variation in open market rates. Based on vector auto regression analysis we show that there is one-way causation running from the open market rates to banking rates. Changes in open market rates significantly cause changes in the spread and deposit rates. However, no significant causation is identified for lending rates. The impulse response functions indicate that spread declines following positive innovation in open market rates and this is mainly due to the greater sensitivity of deposit rates to open market rates. The response of lending rates is shown to be low and to occur with some lag, thus, contributing to the decline in spread. We also provide evidence of a dichotomy between banks' asset and liability rates by failing to support causality between the two rates. It is argued that this imbalance of sensitivity is partly due to the uneven process of interest rate liberalization that frees deposit rates more than lending rates. These results suggest that for the Malaysian banking firms, increase in open market rates hindered their activities and could affect bank performance. The findings are consistent with the role of banks as brokers as well as asset transformers (Noor, 2012).

maximization model based on empirical industrial organization approach to explain the interest rate spread (IRS) in the banking sector of Bangladesh using panel data of 48 banks covering the period of 2004 to 2008. The analysis shows that the higher the non-

interest income as a ratio of total assets of a bank, the lower its spread. Similarly, market share of deposits of a bank, statutory reserve requirements, and NSD certificate interest rates affect the IRS. The analysis in terms of bank groups shows that IRS is significantly influenced by operating costs and classified loans for state owned commercial banks (SCBs) and specialized banks (SBs); while inflation, operating costs, market share of deposits, statutory reserve requirements, and taxes are important for the private commercial banks (PCBs). On the other hand, non-interest income, inflation, market share, and taxes matter for the foreign commercial banks (FCBs). The analysis brings out several systemic actions and measures at the bank level to improve earnings and profitability of the banks which are sustainable tools of reducing the IRS (Mujeri & Sayera, 2009).The determinants of Chinese commercial banks' net interest margins from 1996 to 2003. It applies an extension to the Ho and Saunders (1981) model to identify the elements affecting net interest margins. The results indicate that the determinants of net interest margins in the Chinese market include market competition structure, average operating costs, degree of risk aversion, transaction size, implicit interest payments, opportunity cost of reserve, and management efficiency (Wong, 2008).

The analysis on credit risk and commercial bank profitability in the Republic of Rwanda over the period 2006-2015 quarterly basis, this study investigates the integration and causal relationship between the credit risk indicators that is non-performing loans (NPL) Loan loss provision (LLP) and Capital adequacy ratio (CAR) together with macro-economic variables such as inflation,(CPI),gross domestic product (GDP) and interest rate as a moderate variable to the commercial bank profitability/performance measured by ROA (return on asset), ROE (return on equity) and NPM (net profit margin).The analysis employs augmented dickey Fuller (ADF) test, Johansson's co integration test, Granger causality test and other tests over the study period, the relationship between the variables under study are examined, the results have found evidence that the variables are co-integrated. In addition to this, our findings show that credit risk indicators, macro-economic variables used in this study are negatively and positively related to the banking performance measured by its selected indicators to one way or otherwise based on the magnitudes estimated in the study. However this study revealed that an increased exposure to credit risk reduces bank profitability, therefore, the banks should adopt an aggressive deposit mobilization to

increase credit availability and develop a reliable credit risk management strategy with adequate punishment for loan payment defaults (Rwayitare &Ruhara, 2016).

The banking sector plays a fundamental role in economic growth, as it is the basic element in the channeling of funds from lenders to borrowers. Efficient financial intermediation is an important factor in economic development process as it has implication for effective mobilization of investible resources. The purpose of this study was examines the bank, industry and macroeconomic specific factors affecting banks interest rate spread for a total of eight commercial banks in Ethiopia, covering the period of 2004-2013. To this end, the study adopts a mixed research approach by combining document analysis and in-depth interviews; the collected data was analyzed by using OLS linear regression model. The findings of the study show that credit risk, liquidity risk, operating cost, concentration, reserve requirement, gross domestic product , interest rate volatility and exchange rate volatility have statistically significant and positive relationship with banks interest rate spread. Conversely return on asset, non-interest income and financial development indicator has a negative and statistically significant relationship with bank interest rate spread. However, the relationship between management quality and inflation is found to be statistically insignificant. The study concludes that banks in Ethiopia should not only be concerned about internal structures and policies, but they should consider both the internal and external environment together in fashioning out strategies to improve their intermediary efficiency (Hailu, 2016).

To examine the factors that determine interest rate spread (IRS) of commercial banks listed on Muscat security market over the period 2008 – 2014. They are classified into four groups of financial, economic, market and legal indicators. The Spearman correlation matrix results show that all economic indicator variables have significant relationship with interest rate spread except GDP variable. No significant relationship exists between financial indicator variables and interest rate spread, but in legal indicator variables there is significant relationship with interest rate spread only in two variables the size of government and regulation. Finally, there is a significant relationship between market indicator based on market concentration measured by Herfindahl-Hirschman Index and interest rate spread. OLS regression analysis indicates a statistically significant impact on IRS by factors like return to asset ratio, liquidity

risk and risk aversion within the financial group and unemployment rate, debt services ratio and principal repayment from the economic group and Herfindahl-Hirschman Index based on market concentration group. Finally, there is a significant impact of sound money and regulation within the legal group on IRS. The researchers recommend an adaptation in the monetary policy to exploit the high level of liquidity in the banking sector by facilitating easy access to debt to individuals as well as firms thus providing the margin competitive interest rate. (Shubiri, & Jamil, 2017).

Despite the liberalization of the financial sector, high interest rate spreads is still an issue of concern in a number of African countries, including Kenya. This paper investigates the determinants of interest rate spreads in Kenya's banking sector based on panel data analysis. The empirical results show that bank-specific factors play a significant role in the determination of interest rate spreads. These include bank size based on bank assets, credit risk as measured by non-performing loans to total loans ratio, liquidity risk, return on average assets and operating costs. The impact of macroeconomic factors such as real economic growth and inflation is not significant. Similarly, the impact of policy rate as an indicator of monetary policy is found to be positive but weak. On average, big banks have higher spreads compared to small banks. There is need for explore policy options meant to enhance competition in the industry and measures to break market dominance will be one such option. Further, the banking sector needs to explore internal as well as industry-driven strategies that counter some of the bank-specific factors associated with higher spreads. These could range from diversification of products to investment in cost-saving and efficient forms of technology (Were & Wambua, 2013).

Interest spread of Pakistan's banking industry has been on the rise for the last two years. The increase in interest spread discourages savings and investments, on the one hand, and raises concerns about the effectiveness of the bank-lending channels of monetary policy, on the other. This study examines the determinants of interest spread in Pakistan using panel data of 29 banks. The results show that the share of interest-insensitive deposits in total bank deposits is a key determinant of interest spread, whereas industry concentration has no significant impact on interest spread. Furthermore, the ongoing merger wave in the banking industry will limit the options for the savers, with adverse implications for the interest

spread. We argue that to maintain a reasonably competitive environment, merger proposals may be subjected to review by an anti-trust authority (Khawaja & Din, 2007).

In spite of the reforms undertook during the 1980s and 1990s in favors of financial deepening, the spread between the lending rate and the deposit rate is still high in the member countries of the Central African Economic and Monetary Community (CAEMC). Thus, the aim of this study is to investigate the determinants of banking spread in those countries. In that vein, the study employs two-step regression proposed by Ho and Saunders using country-level data from 2000 to 2010. On one hand, the study controlled for capital inflows and natural resources endowment. On the other hand, the study took into consideration the legal and institutional framework of the sample countries and the excess liquidity prevailing their banking systems. The results revealed that among bank-specific characteristics, bank asset, doubtful loan, and the volume of credit significantly determine the observed spread. As for macroeconomic characteristics, oil rents, foreign direct investment (FDI) inflows, and real gross domestic product (GDP) growth significantly affect banking spread. Meanwhile, political stability, corruption, government effectiveness, regulatory quality, and bank concentration in the deposit market are the significant institutional determinants of the interest rate spread in CAEMC countries (Fofack, 2016).

Investigated the determinants of interest rate spreads in commercial banks of Kenya based on data analysis and quantified the impact of those factors on interest rate spreads. Despite the liberalization of the financial sector, high interest rate spreads is still an issue of concern in a number of African countries, including Kenya. The project involved conducting an intensive study of the banking industry in Kenya. Various aspects contributing to bank interest rate spreads in the banking industry were explored. The research involved collecting data from commercial banks in Kenya, CBK, financial journals and newspapers. The target population was 1036 credit officers. The sample size was 103. Stratified random sampling was used. Questionnaires were used to collect primary data where drop and pick method was used. The data was processed using statistical package for social sciences (SPSS) to get various statistical measures such as the mean, frequencies and standard deviation which were applied in various processes which included validation, sorting, summarizing and aggregation of data. The data collected was analyzed using inferential statistics and descriptive statistics which

involved frequencies and mean. The inferential statistics involved the use of Pearson's correlation and regression analysis. The results obtained helped to infer the determinants of interest rate spread in commercial banks of Kenya. Results indicated that all the variables of the study: Inflation rate, return on average assets, liquidity risk and credit risk influences interest rates spreads of commercial banks in Kenya. This was evidenced by the responses from respondents in regards to the study variables. The study concluded that indeed inflation rate, credit risk, liquidity ratio and returns on average assets influences interest rates spreads in commercial banks of Kenya by a substantial extent. It was recommended that a similar study should be done in Kenya. Further studies should also be carried out on operation cost and financial performance of commercial banks in Kenya with an aim of finding out their effect on interest rates spreads of the commercial banks (Njeri, Ombui, & Kagiri, 2013).

Investigates the determinants of commercial banks interest rate spread in Namibia, using a panel data analysis of bank level dada. It applied the OLS technique to identify the bank-specific variables that have been influencing interest rate spread in Namibia over the period 2004 – 2011. The results of the study indicate that deposit market share liquidity levels and operating costs are the main bank-specific determinants of interest rate spread in Namibia. More specifically, it was found that the deposit market share and operating costs reduces net interest margin whilst the liquidity levels of a commercial bank increases its net interest margin. Furthermore, it was revealed that the tax paid by a bank, non-performing loans and the capital ratio are not important determinants of the net interest margin. The foregoing implies that the monetary authority in Namibia should place emphasis on the policies aimed at reducing the liquidity levels in the banking industry, which will reduce the net interest margins. This is especially important for both banks and consumers alike. It is also found that it is imperative to focus on policies that promote a low interest rate environment, as these would reduce the interest margins in the economy (Samahiya & Kaakunga, 2014).

The banking system, as the most important component of the financial system in Albania, plays a crucial role in economic development. Measuring the efficiency of the intermediation system requires special attention because of its implications on the level of investments, savings, resource allocation etc. The most common indicator for the efficiency of the banking system is the cost of intermediation, measured by the spread

of interest rates (the difference between the average lending rate and the average deposit rate). The study aims to analyze the trend of interest rate spread (IRS) in Albania for the period 2005-2014 based on a comparative analysis with other countries and to identify the factors with significant impact on the level of IRS in the local currency. It is based on the empirical analysis of several macroeconomic and market factors that determine IRS, used in previous studies in this field, but also incorporating other elements that are associated with the characteristics of the Albanian system. Albania has experienced high IRS during the last decade, with large fluctuations, especially in the local currency. The results of the study based on quarterly panel data for the period 2005-2014 show that IRS in Albania is negatively affected by the level of development of the banking sector and the discount rate, while inflation, deficit rate and monetary supply put positive pressure on this indicator (Brunilda, 2015).

This scientific paper analyses the factors affecting the interest rate spreads of commercial banks in Bulgaria. The Engle–Granger two-step method (1987) and the bounds testing approach of Pesaro et al. (1999, 2001) are applied. The main findings of the paper are that the interest rate spreads dynamics in Bulgaria in the period of Q1.2004 – Q3.2014 was under the long-term influence of factors such as: economic activity, market concentration, foreign ownership, external liabilities, profit margins, loan to asset ratio, loan to deposit ratio, house prices, inflation, interbank lending rates and stock prices. The short-term determinants of the interest rate spreads include: loan to deposit ratio, foreign ownership, and unemployment and market concentration. The global financial crisis and its projection on the Bulgarian economy and the Corporate Commercial Bank's insolvency are among the developments increasing interest rate spreads (Peshev, 2015).

This paper provides an empirical analysis of the determinants of the bank lending rate in Ghana using annual time series data from 1970 to 2013. We found evidence of a long-run equilibrium relationship between the average lending rate charged by commercial banks and its determining factors. In the long run, bank lending rates in Ghana are positively influenced by nominal exchange rates and Bank of Ghana's monetary policy rate but negatively with fiscal deficit, real GDP and inflation. We also find positive dependence of the bank lending rate on exchange rates, and the monetary policy rate both in the short and long run. Specifically, our findings reveal that the Bank

of Ghana's monetary policy rate and the exchange rate, by far, show strong contemporaneous effects on the average bank lending rate in Ghana (Asamoah & Adu, 2016).

This study aimed at establishing the relationship between business risks and interest rate spread of commercial banks in Kenya. It is anchored on a study "determinant of interest rate spread of commercial banks in Kenya and focused on the effects of business risks on interest rate spread of commercial banks in Kenya. Correlation research approach was undertaken. Data was collected using questionnaires and was analyzed using SPSS Version 19. After running reliability tests, factor analysis, descriptive tests, Pearson correlation, model of fitness and regression, results showed that business risks influence interest rate spread of commercial banks in Kenya. Participation of all the stakeholders on review of existing policies on stability and soundness of the banking industry is recommended. Banks should also explore internally and industry driven strategies that mitigate against some of the bank-specific factors associated with higher spreads. Results of this study suggest that business risks played significantly affect interest. It is therefore recommended that government and policy makers should implement sustainable political and macroeconomic environment to boost investors' confidence. Commercial banks in Kenya should thus participate in the interbank market or use the repurchase agreements for government securities to reduce liquidity risks to reduce fear and hence uncertainty in setting high interest rate spread (Maina, 2019).

Investigate the effects of interest rate spread on the level of nonperforming loans by commercial banks in Kenya. The research design used was explanatory because the study intended to establish if there was a causal relationship between interest rate spread and level of nonperforming loans. The population of the study was all the 43 commercial banks. The study used secondary data sources to gather information relevant in reaching at the research objective. The secondary data were collected from the CBK supervision reports on the macro-economic indicators and Kenya National Bureau of Statistics (KNBS) reports. Data was sorted and input into the statistical package for social sciences (SPSS) for production of tables, and descriptive statistics. The ANOVA results show that the independent variables were good predictors of level of nonperforming loans. The results indicated that Log interest rate spread and Log debt collection cost were statistically significant in explaining level of nonperforming loans.

Results indicate that a unit change in Log interest rate spread variable will lead to a positive change in level of nonperforming loans while a unit change in Log debt collection cost will cause a negative and significant change in level of nonperforming loans and a unit change in log credit appraisal cost will cause a negative and insignificant change in log level of nonperforming change. It is recommended that banks should be encouraged to conduct regular training programmers for credit staff. It is recommended that Central Bank which is the Regulatory Authority of commercial banks in Kenya should apply stringent regulations on interest rates charged by commercial banks. Banks should also apply efficient and effective credit risk management. It is recommended that commercial banks should use the services provided by Credit Reference Bureaus for the purpose of determining the credit worthiness of borrowers as a means of minimizing bad loans (Kamunge, 2013).

The main objective of this study was to establish the determinants of lending operations among commercial banks in Nepal. Specifically, the study sought to explore the effect of bank specific characteristics and to identify external factors that determine commercial banks' lending behavior in Nepal. Secondary panel data was used that covered a period of six years (2012/13-2017/18) of the major ten commercial banks to examine factors associated with lending behavior of in Nepal. From the estimation results, it was found that liquidity ratio, interest rate spread and exchange rate were significant in determining lending behavior in Nepal's commercial banks. The positive effect of exchange rate infers that commercial banks in Nepal have sufficient insights into the international market and trade and that they are prepared to meet short-term and long-term commitments. Inflation maintained by the central economic policy has a positive and significant influence on lending volumes among commercial banks in Nepal. Likewise, the findings showed interest rate spread negatively and significantly on total loans advanced to individual and institutions. This implies that as the cost of borrowing increases, banks significantly increase credit supply in the market. However, there seems a greater deal of reluctance from among the borrowers to get more credit in such situations. During periods of economic stagnation, majority of loans become non-performing and thus constraining credit available to private sector (Bhattarai, 2019).

The paper aims to examine the relationship between interest rate spread (IRS) and profitability and the impact of IRS on profitability of commercial banks in Nepal. Secondary data have been collected from the annual reports of Nepal investment bank ltd. from fiscal year 2066/67 to 2075/76. A regression technique has been used considering statistical package Minitab 16 version to analyze the data. The study reveals the positive impact of IRS upon the profitability of Nepal investment bank ltd. This study provides sufficient evidences to Nepalese commercial banks about the impact of their IRS on their profitability. The result of this study motivates to Nepalese commercial banks to understand the importance of IRS to raise profitability. Based on the findings, the study is useful to Nepalese commercial banks for making balance between deposit rate and lending rate and maintaining optimum level of interest rate spread to attract both depositors and debtors. This study is also useful to new researchers as a reference for conducting study on similar topic (Karki, 2020).

The main objective of the study is to identify the major indicators of credit risk among the Nepali commercial banks. The study is conducted using the sample of 15 commercial banks operated in Nepali economy. One way Fixed Effect Model (FEM) of panel data analysis is used as a major tool of analysis. All the data for the study were obtained from the database of Nepal Rastra Bank for bank specific variables and database of World Bank for macroeconomic variables for the year 2002/03 to 2014/15. The credit risk among the commercial banks in Nepal was regressed on bank specific variables such as liquidity, capital adequacy ratio, bank size, and interest spread. Similarly, the effects of macro-economic variables such as GDP growth, rate of inflation and interbank interest rate were also examined along with bank specific variables in identifying credit risk in Nepali commercial banks. The study reveals that liquidity has the significant positive impact on credit risk in Nepali commercial banks. In contrast, capital adequacy ratio and interest spread have the significant negative impact on credit risk. The analysis further confirmed that bank size and interest spread both have no any clear direction of impact on credit risk. Moving towards the GDP growth, credit risk in Nepali commercial banks is negatively fluctuates with GDP growth, however, the statistics show the coefficients are insignificant at 5% level. Contrarily, Inter-bank interest rate has insignificant negative impact on credit risk in Nepali commercial banks (Poudel, 2012).

2.3.2 Review of previous theses

Thesis In the preparation of this thesis there are some research papers and thesis related this study, which contribute some idea and help in the presentation of this study regarding to this thesis. There are very few thesis and research papers submitted to libraries of Tribhuvan University and its wing colleges on the same topic. But beside this, there are some other thesis which are related to this study to some intents. The review and the exact from them presented in this section.

Was conducted in his thesis on the interest rate structure of commercial banks in Nepal in. The objective of his study was to show the relation of interest rate with saving and fixed deposits with 31 loan and advances and with interest earning (i.e. interest received on loan minus interest paid on deposit). His analysis concludes that the time deposits are previously correlated with the interest rates. There is significant correlation between the saving deposits and the rate of interest. Fixed, deposit is more sensitive to the interest rate revision done by NRB. The correlation between the growth of fixed deposits and the interest rate particularly from 1974 to 1977 in most significant. The net interest earning is depended upon interest coverage. The total interest received and the total interest paid significantly correlated in the case of both the banks i.e. Nepal Bank Limited and Rastra Banizya Bank. He is in view that NRB can well monitor the credit flow and profit of the commercial banks in Nepal by manipulating the demand for the supply of money (Rajbhandari, 1978).

Neupane (2006) on the topic "Interest Rate and Its Relation with Deposit, Lending and Inflation in Nepal", His main objectives at the thesis were as follows: I. to explore the relation of interest rate with deposit amount (existence of substitutes effect) in Nepalese market. ii. To identity the sensitively of interest rate to the investment (borrowing). iii. To find out the relationship of interest rate with inflation in Nepalese markets. According to the researcher the interest rate on both deposit and lending of all sample banks are found to be in decreasing trend. Theoretically there is positive relationship between saving amount and saving interest rate but here negative relationship has found. It states that there is no substitution effect in Nepalese financial market. Analysis of fixed deposit amount and fixed interest rate shows negative relationship except RBB and NBL. Theoretically there is negative relationship between lending interest rate and lending amount. In this study for the 5 sample banks, it is found that all sample banks

except NBL have negative correlation between these two variables. The relationship between interest rate and lending and inflation rate is found to be moderately positive. He 34 also concluded that the spread between deposit interest rate and lending interest rate is in decreasing trend.

Studies mainly focuses on finding the factors that determines and net interest margin of commercial banks .banks are mainly a risk – averse dealer which accepts public deposit and lands it to the individual and business. The benefit of such financials intermediation in the access of interest income over interest expenses, called net interest margin (NIM). Higher the deference. Higher will be the net return to the bank. However, the net interest margin of the bank depends heavily various factors. The basic explanatory variable included in this study are pure interest , market power bank operating cost ,managerial risk aversion , interest rate volatility and credit risk , size of bank operation , bank reserve , management quality , liquidity and non – performance loan (Sujit, 2009).

Interest is the cost of money and it is medium of collecting and lending money respectively. Interest rate plays a vital role in banking sector. Commercial banks and financial institutions can determine the interest rate as per their own strategy. They calculate interest rate as per risk, banking cost Environmental factors etc. The important issues in this thesis are factors affecting the determination of the interest rate in commercial banks. How to calculate the interest rate is the major issue of the research focused to the investment decision of some modern commercial banks. They are gaining public popularity too. The study fulfills the objective of qualitative and quantitative factors of interest rate and banking competition through interest rate. Methods of calculating interest rate activity of depositor and lenders. Identifying the effects of inflation risk and relation and environmental factors determining the interest rate to find out the overall performance and factors affecting the rate of interest. The study introduction of statement of problem, research hypothesis limitation of the study plan is also the components of first chapter. Review of literature is an essential part of all studies. It is the way to discover what other researchers have concern and left in the area. A critical review of literature helps the researches to develop a thorough understanding and an insight into previous research work that relates to the present study. This chapter introduces the meaning of commercial bank which accepts different types of deposits and invests in various sectors. They accept the deposit; provide the

loan, performs agency function and general utility function. Interest is the cost of money, which is a very important factor. In financial world, it is the price paid for the use of loan able funds. There are different theories on interest rate. The study mainly forecasted to find out the factors of determination of the interest rate in various ways (Sethia, 2010).

2.3.3 Summary of articles and thesis

Different researchers had different findings even when their approach to interest rate spread appeared similar in Nepal and even in other countries. This means that this is an area which requires frequent study in order to establish the determinants of interest rate spread at a particular period in time. Many researchers looked at effects of interest rate spread on non-performing assets; others looked at causes of interest rate spread in other countries while others had concentrated on a few determinants of interest rate spread such as inflation. Others looked at effects of interest rate spread on a particular sector. Hence there was need to fill in the gap of determinants of interest rate spread which had existed over the years. While a number of studies have investigated the effect of interest rate spreads, most of these studies have been done in developed countries with few being done in developing countries. This study on interest rate spread Nepal found that commercial banks incorporate charges on intermediation services offered under uncertainty, and set the interest rate levels for deposits and loans. The approach used in much of the literature is to classify determinants of commercial banks interest rate spreads according to whether they are bank-specific, industry (market) specific or macroeconomic in nature. Note that the specific characteristics of commercial banks that are usually theorized to have an impact on their spreads include the size of the bank, ownership pattern, the quality of the loan portfolio, capital adequacy, overhead costs, operating expenses, and shares of liquid and fixed assets. Notes that the incidence of fraud, the ease with which bad credit risks survive due diligence, and the state of corporate governance within banks all lead to higher operating costs, asset deterioration and ultimately wider interest rate spreads. These studies all show that such bank-specific factors impact significantly on commercial banks‟ net interest margins. The results of many other studies suggest that individual bank characteristics are often not tightly correlated with interest rate spreads. It is asserted that this may be because spreads are largely determined at the industry level, thus making individual bank characteristics more relevant to other variables, such as bank profitability.

2.4 Research gap

The relevant literature reviewed indicates the existence of several studies in developed and emerging economies while there was exiguous of studies in Nepal on the area of determinants of interest rate spread. Most studies reviewed have also concentrated on a few factors determining interest rate spread while this study is explore several specific determinants .However, there is no universally accepted findings to the determinants of interest rate spread and net interest margin since, countries differ each other by their economic, financial ,regulatory and operating environments. The interest rate spread indicators use in the study are inflation, gross domestic product, discount rate, return on assets, cash reserve requirement, Credit Risk, Operating cost and liquidity risk and after 2020 there is no any studies on this issue to the knowledge of researcher. Therefore, this study is designed to fill knowledge gaps by investigating bank specific, industry specific and macroeconomics determinants of Banks interest rate spread in Nepal.

CHAPTER: 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives the theoretical foundation of data collection and analysis for the research study. It represents the highlight of research design, population, sample size, data collection techniques, sources of data and data analysis tools. It shows the framework of data collection and presentation and analysis. Research methodology has been used to fulfill the objectives of this study.

3.2 Research design

This study is based on descriptive and explanatory research design. Descriptive research design is used to describe the relationship between risk factors and IRS. It measure mean, standard deviation, correlation coefficient and regression with basic calculation of present collected data. Similarly explanatory research design is used to analyze the phenomena occur and predict future occurrences. Hypothesis the specify nature and direction of relationship between two or more variables.

3.3 Population and sample

The population refers to the entire group of people, events or things of interest that a researcher wishes to investigate. The target population refers to the complete group of specific population elements relevant to the research project. The target population for this study included all the commercial banks involved in holding of deposits and lending in Nepal. The central bank of Nepal has licensed 27 commercial banks. As the study only 6 banks are taken as sample. From population here the simplest method of sampling that is simple random sampling method is used. The sample banks are Nepal Bank Limited, Agriculture Development Bank, Nabil Bank, Bangladesh Bank, Standard chartered Bank, Himalayan Bank.

Table 3.1

Sample banks and the year of study

SN	Banks	Fiscal year	No. of period observed
1	Nepal Bank limited	2014/15-2019/20	5
2	Agriculture Development bank	2014/15-2019/20	5
3	Nabil Bank	2014/15-2019/20	5
4	Nepal Bangladesh Bank	2014/15-2019/20	5
5	Standard chartered Bank	2014/15-2019/20	5
6	Himalayan Bank	2014/15-2019/20	5
	Total		**30**

3.4 Nature and sources of data

This study is based on secondary data. Secondary data are collected from annual report of the concerned banks documents, books, other publishes or unpublished material, newspapers are the important data and informal quires, with the authorities of the concerned banks is primary source in nature.

3.5 Data collection procedure

This study used secondary data sources to gather information relevant in reaching at the research objectives. Secondary data was collected from the reports included published commercial banks financial statements, micro-economic indicators and Nepal Central Bureau of Statistics (NCBS) reports. This study data collection source was justified by the fact that data on IRS in commercial banks were available in CBN's bank supervision report while the same works hand in hand with NCBS in making such statistics and estimation. This study used available data on interest rate spreads determinants which included; credit risk, operation costs and liquidity risk for the period 2015 to 2020 obtained from the central bank of Nepal website and the annual financial reports from the six large commercial banks as categorized by the CBN. This study also used theoretical and empirical data gathered from other related studies. The analysis used the secondary data because the verification process is more rapid and the reliability, availability and convenience of information regarding test research questions and its conclusion are greatly enhanced.

3.6 Data processing procedure and analysis method

The collected data classified according to its nature and characters.to make the analysis more reliable and easier, different data sheet have been prepared for different variables. The data is carefully edited and processed by computer program such as SPSS then the required table and is generated using others tools. The available information is grouped as per the need of the research work in order to meet research objectives. The collected data are presented in appropriate forms of table. For analysis purpose different kinds of appropriate mathematical, statistical and software tools. The data collected from different sources are recorded systematically and identified. These models predict that market structure of the banking sector, macroeconomic variables, operating costs, regulatory costs and the credit risk can affect interest spreads. In addition, the study include the share of current and savings account deposits in total bank deposits as an explanatory variable. These deposits are by and large interest-insensitive and the larger is the share of such deposits the less incentive the banks have to offer on higher returns deposits. Secondary data obtained from the Central Bank of Nepal annual reports from the year 2015to 2020, the management of the commercial banks are also assist in giving out necessary information required by the study.

Data analysis tools

Arithmetic mean

Arithmetic mean is the sum of observation divided by the number of observation. In such case all the items are equally important. It is referred some time as average simply the mean.

$$\text{Mean } (\bar{x}) = \frac{\sum x}{n}$$

Where,

X = Mean

$\sum$ X = Sum of all the Variable X

n = Variables involved

Standard deviation

The standard deviation is the best tools to measure fluctuation in any data. It is usually denoted by sigma. The standard deviation is defined as the positive square root of the

arithmetic mean of the square deviations from their arithmetic mean of a set of values.

$$SD\ (\delta) = \sqrt{\frac{1}{n}\Sigma(x - \bar{x})^2}$$

Coefficient of correlation

A correlation coefficient is statistical measure or the degree to which changes to the value of one variable predict change to the value of another. In positively correlated variables, the value increase or decrease in tandem. In negatively correlated variable, the value of one increase as the value of the other decrease. Correlation coefficients are expressed as values between +1 and -1. A coefficient of +1 indicates a perfect positive correlation. A change in the value of one variable will predict a change in the same direction on the second variable. A coefficient of -1 indicates a perfect negative correlation: a change in the value of one variable predicts a change on the opposite direction in the second variable. Karl Pearson coefficient of correlation is usually denoted by 'r'.

Coefficient of variation

The coefficient of variation (CV) is a statistical measure of the dispersion of data points In a data series around the mean. The coefficient of variation represents the ration of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from one another.

Coefficient of Variation

$$C.V = \frac{S.D}{Mean} \times 100$$

Regression analysis

Regression analysis is used as a tool of determining the strength of relationship between two variables. Thus, it is a statistical value of one variable when the value of other variables is known. The unknown variables which have to be predicted are called dependent variable and the known variable is called independent variable.

Linear Regression Model:

$\hat{Y} = \alpha + \beta i Xi + ei$

Where,

$\hat{Y}$ = Dependent variable

Xi = Independent Variables

α = Constant

βi = Coefficient of slope of regression model

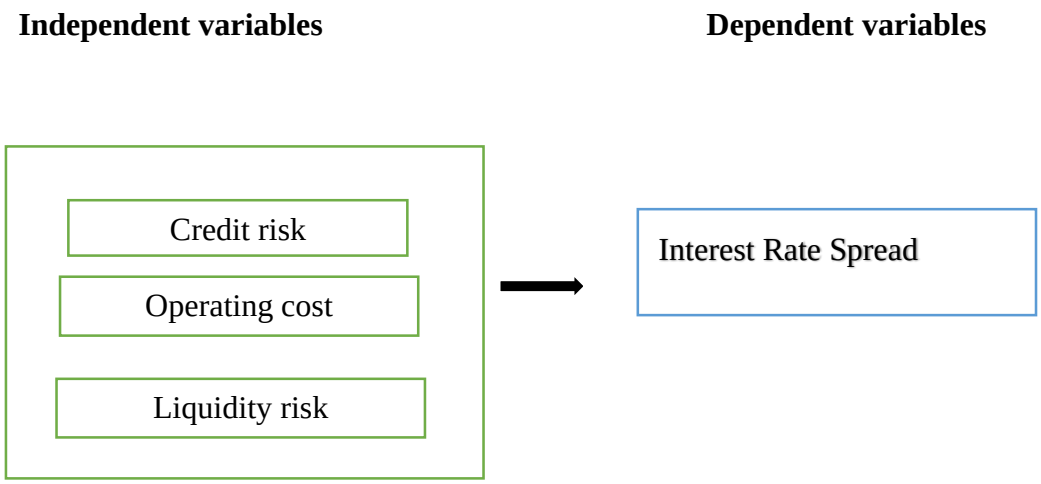
ei = Error term

3.7 Research framework and definition of variables

The objective of this study was to establish the determinants of interest rate spread among commercial banks in Nepal. This overall objective of the study is conceptually and diagrammatically represented.

Figure 3.1

Research framework



Source: International Journal of Science and Research

Credit risk

Credit risk is the potential for loss due to the failure of counterparty to meet its obligations to pay the Bank in accordance with agreed terms. Credit exposures arise from both the banking and trading book. The credit risk of individual counterparties or groups of connected counterparties as well as at the portfolios of retail clients is assessed and reviewed. The credit risk management covers credit rating and measurement, credit approval, large exposures and credit risk concentration, credit monitoring, and portfolio analysis. All business banking, commercial and corporate & institutional borrowers, at individual and group levels, are assigned internal credit rating that supports identification and measurement of risk and integrated into overall credit risk analysis.

Operational cost

Operational cost is defined as the potential for loss from inadequate or failed internal processes, and systems, human error, or from the impact of external events including legal risks. Operational cost Type Framework (ORTF) adopted by the bank outlines the overall risk management approach for operational risk (OR) for the internal stakeholders and external stakeholders. The bank allocates responsibilities for the management of operational risk consistent with the three lines of defense. The ORTF is built on a risk- based approach meaning that risk management plans, processes. An Operational risks can arise from all business lines and from all activities carried out by the Bank. Operational Risk management approach seeks to ensure management of operational cost by maintaining a complete process universe defined for all business segments, products and functions processes.

Liquidity risk

Computed as the ratio of bank's liquid assets to total assets (LQDR). The degree to which banks are exposed to liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans. Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads.

Interest rate spreads

Interest rate spread is defined by market microstructure characteristics of the banking sector and the policy environment. In differentiating between the pure spread and the actual spread. Observe that pure spread is a microstructure phenomenon, influenced by the degree of bank risk management, the size of bank transactions, interest rate elasticity and interest rate variability. Considering risk management by the bank, found that risk-averse banks operate with a smaller spread than risk-neutral banks, explains that risk aversion raises the banks optimal interest rate and reduces the amount of credit supplied. Actual spread, which incorporates the pure spread, is in addition influenced by macroeconomic variables including monetary and fiscal policy activities. Emphasize the role of direct taxes, reserve requirements, cost of transactions and forced investment in defining interest rate spread. The spread or margin between lending and deposit interest rates is a key variable in the financial system. It reflects the additional cost of

borrowing related to intermediation activities performed by banks in linking borrowers with the ultimate fund lenders. When it is too large, it can contribute to financial disintermediation as it discourages potential savers with too low returns on deposits and limits financing for potential borrowers, thus reducing feasible investment opportunities and therefore the growth potential of the economy.

CHAPTER: 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents a discussion of the results and the process through which the results were obtained. In addition to this, demographic information of respondents is presented. Finally, the statistical methods of analysis are discussed, which include a descriptive analysis, a correlation analysis, and a multiple regression analysis through SPSS version 20.

4.2 Data presentation and analysis

This chapter is based on the analysis, discussion, and interpretation of data collected during the study. The analysis is mainly based on secondary data which were collected from public annual financial report. The data has been analyzed with references to the objectives of the study as mentioned in the chapter. The data are presented with tables to make it convenient possible to interpret. Finally, the statistical methods of analysis are discussed, which include a descriptive analysis, a correlation analysis, and a multiple regression analysis through SPSS.

4.3 Descriptive analysis

This section deals with the descriptive analysis of the data collected through the questionnaires during the research process. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data. Descriptive statistics help us to simplify large amounts of data associated with these variables in a sensible way. Descriptive analysis incorporates calculation of statistical measures such as mean, standard deviation, including minimum (min) and maximum (max) values. The objective of this study was to analyze the trends in IRS and to document the key microeconomic and determinants of IRS in Nepal. Secondary data obtained from the annual report of banks and database was compiled and analyzed in the Statistical Package for Social Sciences (SPSS). Table one below presents a summary of the description of the data used in the analysis.

Table 4.1:

Descriptive statistics of interest rate spread all sectors

	N	**Min**	**max**	**mean**	**Std.deviation**	**Skewness**	**Kurtosis**
Interest spread	120	-0.31	0.47	0.0803	0.09548	-0.274	4.351
Credit risk	120	0	3.19	0.4481	0.50017	2.117	5.484
Liquidity risk	120	0	12.41	1.8324	1.34726	4.332	25.64
Operating cost	120	4	9.96	7.1654	1.0096	0.369	0.371

Source (Survey data, 2020)

This study findings in table 4.1 illustrated interest spread, credit risk levels, liquidity and operation cost for the sampled banks for quarterly results for the last five year which made a total of 120 observations. The six banks were rated as being large by central bank of Nepal. Results in table 4.1 reported that interest spread was 8.03%. It was also shown that credit risk levels was 44.81% operating cost (mean=0.4481). Liquidity was reported to be 1.824 current assets over current liabilities of firms and a company size of 7.1654.

Table 4.2:

Descriptive statistics of interest rate spread

	N	Mean	Std.Deviation	Skewness	Kurtosis
Interest rate spread	120	3.3502	0.85221	0.574	-0.452
Credit risk	120	3.1387	0.95749	0.58	-0.634
Liquidity risk	120	3.2608	1.02269	0.33	-0.83
Operating cost	120	3.7502	0.91583	0.085	-1.441

Source (survey data, 2020)

The findings in table 4.2 provide descriptive statistics for all variables. Results showed that operation cost had the highest mean of 3.7. This implies that banks demonstrated more operation cost with less demonstration on credit risk (3.14). Further, to test the normality distribution the study examined the Skewness and kurtosis values. Skewness is used to measure the symmetry of a distribution while kurtosis is used to measure the Preakness or flatness of a distribution (Tabachnick and Fidell, 2007). Based on the results, the values of Skewness and kurtosis revealed that the data was normally distributed where the Skewness values was in the range of-.0.356 to 0.574. The value for kurtosis, on the other hand, was in the range of -0.452 to -1.462 well below the threshold of +/- 10.

4.4 Test of normality

The normality tests are supplementary to the graphical assessment of normality. Kolmogorov-Simonov test and Shapiro Walk was used to test normality of the data. The test statistics are shown in table 4.8. In this study, the p-value is more than 0.05. Therefore the study rejects the alternative hypothesis and concludes that the data comes from a normal distribution.

Table 4.3:

Test of normality

	Kolmogorov-Smirnov (KS) test			Shapiro-Walk		
	Statistic	Df	Sig	Statistic	Df	Sig
Interest spread	0.243	120	0.061	0.849	120	0.841
Credit risk	0.136	120	1.141	0.912	120	0.072
Operation cost	0.158	120	0.067	0.887	120	0.205
Liquidity risk	0.153	120	0.112	0.918	120	0.311

a Lilliefors Significance Correction

Sources (survey data, 2020)

4.5 Correlation results

Descriptive analysis was conducted on the independent variables determinants factors (credit risk, operating cost and liquidity risk) and the dependent variables interest rates spread (IRS). The analysis continued with correlation analysis with the aim of testing research hypothesis of this research study. Correlation analysis is a technique of assessing the relationship between variables: credit risk, operation cost and liquidity risk with interest spread. Thus, the study analyzed the relationships that are inherent among the independent and dependent variables. The results regarding this were summarized and presented in Table 4.4.

Table 4.4:

Correlation between interest rate spread and determinants factors

	Interest spread	Credit risk	Operating cost	Liquidity risk
Interest spread	1			
Credit risk	.366**	1		
Operating cost	.695**	.508**	1	
Liquidity risk	.778**	.315**	.860**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Findings revealed that credit risk was positively and significantly associated with interest spread ($r = 0.3661$, $p<0.01$) indicating 36.6% positive relationship with interest spread. Further, operation cost was positively and significantly correlated to interest spread ($r = 0.695$, $p<0.01$) showing that operation cost has 69.5% positive relationship with interest spread. Moreover, liquidity risk was positively correlated with interest spread ($r = 0.778$, $P<0.01$) an indication of 77.8% positive relationship with interest spread.

4.6 Regression results

A correlation analysis can only tell whether or not a strong relationship exists between two variables. But even if a correlation coefficient indicates that a strong relationship exists between two variables, we still do not know the exact shape of the relationship between the two variables. A regression analysis provides us with more information about the slope of the relationship. It is used to describe the nature of a relationship and to make predictions. So, for deeper understanding of the relationship between interest

rate spread, credit risk, operating cost and liquidity risk conducted the regression analysis.

Table 4.5:

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig. F change
1	0.788a	0.621	0.611	.62081	.938

a Predictors: (Constant), Credit risk, Operation cost, liquidity risk
b Dependent Variable: Interest spread
Source (Survey data, 2020)

Table 4.5 Illustrates the model summary of multiple regression model, the results showed that all the three predictors (credit risk, operation cost and liquidity risk) explained 83.5 percent variation of interest spread. This showed that considering the three study independent variables, there is a probability of predicting interest spread by 62.1% (R squared =0.621).

4.7 Analysis of variance (ANOVA)

Table 4.6:

Analysis of variance of interest rate spread

Model	Sum of squares	Df	mean square	F	Sig.
Regression	73.293	3	24.413	63.391	.000b
Residual	44.707	116	.385		
Total	118.00	119			

Source (Survey data, 2020)

F test is used to find out whether there is an influence of independent variables on the dependent variable. The value of F statistic is equal to 63.391 and p value of 0.000<0.05 level of significance implying that the joint contribution of credit risk levels , liquidity and operating cost significantly predict interest spread. Thus justifying the following estimation model:-

Interest spread = - 4.295288E-016+0.141X1-0.028X2+0.757X3

Where,

X1 = credit risk

X2 = operation cost

X3 = Liquidity risk

4.8 Test of hypotheses

Hypothesis testing is the use of statistics to determine the probability that a given hypothesis is true. Hypothesis testing is done by using inferential analysis. Inferential analysis tests hypothesis to determine if absorbed differences between groups or variable are real or occur simply by chance. If sample data are not consistent with the statistical hypothesis, the hypothesis is rejected. Each hypothesis is tested and analyzed individually and the analysis is done with a system design for statistical analysis.

Hypothesis 1(Ho1)

Stated that credit risk has no significant effect on interest spread. Findings showed that credit risk had coefficients of estimate which was significant basing on $\beta 1 = 0.141$ (p-value = 0.043 which is less than $\alpha = 0.05$).The null hypothesis was thus rejected and it was concluded that credit risk had a significant effect on interest spread. This suggested that there was up to 0.141 unit increase in interest spread for each unit increase in credit risk. The effect of credit risk was more than 2 times the effect attributed to the error, this was indicated by the test value = 2.04.

Hypothesis 2 (Ho2)

Stated that operation cost had no significant effect on interest spread. However, research findings showed that operation cost had coefficients of estimate which was negative and not significant basing on $\beta 2 = -0.028$ (p-value = 0.830 which was more than $\alpha = 0.05$) hence the null hypothesis was accepted. This indicated that for each unit increase in operation cost, there was -0.0215 units decrease in interest spread Furthermore, the effect of operation cost was stated by the t-test value = -0.0215 which implied that the standard error associated with the parameter was less than the effect of the parameter.

Hypothesis 3 (Ho3)

Postulated that liquidity risk had no significant effect on interest spread. Findings showed that liquidity risk had coefficients of estimate which was significant basing on $\beta 3 = 0.757$ (p-value = 0.000 which is less than $\alpha = 0.05$) implying that the null hypothesis was rejected and it was concluded that liquidity risk has significant effect on interest spread. This indicated that for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. The effect of liquidity risk was stated by the t-test value = 6.49 which indicated that the effect of liquidity risk was over 6 times that of the error associated with it.

4.9 Credit risk, operating cost, liquidity risk and interest rate spread

Table 4.7:

Output of regression coefficient, ANOVA and R^2 of model 1

Predictor	Coefficients		t-value	Sig.
	B	Std. Error		
(Constant)	4.288E-016	0.057	0.000	1.00
Credit risk	6.141	.069	2.047	0.043
Operating cost	-0.028	0.129	-0.215	0.830
Liquidity risk	0.757	0.117	6.490	0.000
R	0.788			
R Square	0.621			
Std. Error of the Estimate	.62081			
F-value(3,120 d.f)	63.391			
Sig. of F text	0.000	Significant at 5% level of significance		
Model 1: $\hat{Y}$=4.288E-016+6.141X1+-0.028X2+0.757X3				

a Dependent Variable: Interest spread

Table 4.7 shows the finding of regression analysis between determinants factors (i.e. credit risk, operating risk, market risk) and interest rates spread. R value 0.788 indicated the positive relationship between credit risk, operating cost, liquidity risk and interest rate spread. Similarly, R-square value of 0.621 states that 62.1% change in IRS was due to determinants factors. Regression coefficient (B1) credit risk, operating cost and market risk of were 6.141, -.028 and 0.757 which illustrate that 1-unit increase in credit risk will bring 0.020-unit increase in interest rate spread. Standard error of the estimate

of 0. 62081indicates the variability of the observed value of interest rate spread from regression line is 0.62081 units. The sig. of F test is 0.000 which is less than 0.05 that means model 1 is significant at 5% level of significant. The correlation coefficient had shown that there is significant correlation between interest rate spread and determinants factors (i.e. credit risk, operating cost, liquidity risk).

4.10 Finding

In this study, the main purpose was to understand and analyze the determinant factors through interest rate spread (IRS). With the aim of finding relationship between determinant factors and interest rate spread as depicted in theoretical framework. Interest rate spread analyze the data collected from public annual report of banks. The observed was carried out using convenience sampling from those randomly selected banks. The collected data were analyzed using computing software (Microsoft excel and SPSS). Descriptive analysis was made during the analysis correlation analysis and regression analysis conducted to find the relationship between determinants factors and interest rate spread.

The major finding or results of this study are summarized as below the research has addressed the following important issues:

• The factors influencing determinants factors through IRS.
• The relationship of independent variable with dependent variable.
• The most important factors that influence IRS.

This study sought to examine the determinants of interest rates spreads among commercial banks Nepal. Interest rate spread was measured as the difference between interest charged on loans and that charged on deposits. Interest spread, credit risk levels, liquidity and operation cost for the sampled banks for quarterly results for the last five year which made a total of 120 observations. The six banks were rated as being large by central bank of Nepal. The interest spread was 8.03% while credit risk levels was 44.81% and operating cost (mean=0.4481). Liquidity was reported to be 1.824 current assets over current liabilities of firms and a company size of 7.1654.

The model summary of multiple regression model, showed that all the three predictors (credit risk, operation cost and liquidity risk) explained 83.5 percent variation of interest spread. This showed that considering the three study independent variables, there is a

probability of predicting interest spread by 62.1% (R squared =0.621).The ANOVA results show that the F statistic is equal to 63.391 and p value of 0.000<0.005 level of significance implying that the joint contribution of credit risk levels , liquidity and operating cost significantly predict interest spread. Thus justifying the following estimation model:-

This study examined the effect of credit risk on interest rate spreads. Credit risk is measured as the ratio of non-performing loans to total loans. The study revealed that credit risk was positively and significantly associated with interest spread ($r = 0.3661$, $\rho<0.01$) indicating 36.61% positive relationship with interest spread.

This study examined the effect of operating costs on interest rate spreads. Operating costs are measured as the log of operating costs. The study found that operation cost was positively and significantly correlated to interest spread ($r = 0.695$, $\rho<0.01$) showing that operation cost has 69.5% positive relationship with interest spread.

This study examined the effect of liquidity on interest rate spreads. Liquidity risk is measured as ratio of bank liquid assets to total assets The study found that liquidity risk was positively correlated with interest spread ($r = 0.778$, $\rho<0.01$) an indication of 77.8% positive relationship with interest spread credit risk had a weak negative effect on interest rate spread ($\beta = -.001$, $p = 0.997$.

CHAPTER: 5

SUMMARY AND CONCLUSIONS

5.1 Introduction

This chapter presents the summary of the research findings, relevant discussions, conclusions and necessary recommendations. This study sought to investigate determinants of interest rate spread among commercial banks in Nepal. Specifically, this study investigated the effects of credit risk, operating costs, market risk, business risks and ownership structure on interest rate spread among commercial banks in Nepal. The presentation is organized around specific objectives and research hypotheses. The conclusions are in tandem with the specific objectives and research hypotheses. The recommendations refer to suggestions for further study or proposal for change. Each recommendation relates to each conclusion.

5.2 Summary

The findings revealed that credit risks are very significant in explaining changes in interest rate spread among commercial banks in Nepal. This study concludes that, banks are exposed to various risks (including interest risks, credit risk, foreign exchange risk and political risk) as a result of uncertainty, information asymmetry and the policy environment. To cover these risks, banks charge a premium whose magnitude depends on the credit policy, the interest rate on alternative assets, amounts borrowed and types of client. Business risks play such a major role in explaining changes in interest rate spread among commercial banks in Nepal. This study found that stated that credit risk has no significant effect on interest spread. The null hypothesis was thus rejected Consistent with some past literature on the factors that influence interest rate spreads, the study concludes that credit risk had a significant effect on interest spread. This suggested that there was up to 0.141 unit increase in interest spread for each unit increase in credit risk. The effect of credit risk was more than 2 times the effect attribute ted to the error.

Research findings presented in chapter four revealed that operating costs have no influence on the interest rate spread among commercial banks in Nepal. Findings indicate that, commercial banks in Nepal have been able to take care of their operating costs such as salaries and wages, stationery, security, transport, communication, maintenance and utility costs as depicted by this study and do not need to transfer this

costs to their customers. Operating costs are not indicators of interest rate spread among commercial banks in Nepal as indicated by this study. This study stated that operation cost had no significant effect on interest spread hence the null hypothesis was accepted. Consistent with some past literature on the factors that influence interest rate spreads, this indicated that for each unit increase in operation cost, there was - 0.0215 units decrease in interest spread Furthermore, the effect of operation cost was stated by the t-test value = -0.0215 which implied that the standard error associated with the parameter was less than the effect of the parameter.

Liquidity risk variable was found to be statistically significant in explaining the variations of interest rate spread among commercial banks in Nepal and was retained in the overall model. This suggests that limited investment alternatives for large depositors facilitate the distortion of interest rate spreads. It appeared that institutional investors are highly 110 motivated to negotiate the highest deposit rates from the commercial banking system given the perceived dearth of other viable investment options. This study postulated that liquidity risk had no significant effect on interest spread. Therefore the null hypothesis was rejected and it was concluded that liquidity risk has significant effect on interest spread. This indicated that for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. The effect of liquidity risk was stated by the t-test value = 6.49 which indicated that the effect of liquidity risk was over 6 times that of the error associated with it. This is consistent with the results of some of the past studies on interest rate spreads.

5.3 Conclusions

The objective of this study was to determinants of IRS of commercial banks in Nepal. The study focused on three factors in the banking sector: credit risk, operating risk and market risk. The findings of the study confirmed that there exists a positive relationship between IRS of commercial banks in Nepal and value of credit risk, operating risk as well value of market risk. This implies that interest rate spread result in increased level of interest rates spread among commercial banks. The reason for the upward trend of interest rates spread despite reforms could therefore be attributed to decrease on credit risk and market risk as well as operating cost.

Since interest spreads is a measure of bank efficiency, this is a clear indication that the efficiency in delivery of financial services to depositors and borrowers has not

improved much following financial liberalization. Also concluded that the relationship between interest spread and bank performance is insignificant. Measures therefore need to be taken to reduce the level of interest rates spread since it is a key measure of bank performance. In as much as financial sector reforms have not resulted in reduction of interest rates spread, they should still be pursued since they result in the general development of the economy. Impact of banking sector reforms to the fiscal and monetary stability of many transitional economies was assessed. And they observed that the success of reforms significantly contributes to the fiscal and monetary stability. They concluded that while the reforms have brought about improvements in the banking system, banks are now more prudently managed and supervised. Financial sector factors should therefore be encouraged in the banking sector.

5.3.1 Implication

The independent variables used in this study did significantly influence the interest rate spreads of the commercial banks. This study therefore recommends that other factors that influence the interest rates of commercial banks be used in order to ensure that commercial banks set optimal interest rate spreads and thus improve their performance. This study also recommends that the Government, through the Central Bank of Nepal should be instrumental in developing policies and regulations to guide commercial banks in setting up of optimal interest rate spreads in order to promote loan uptake as well as improve performance of these commercial banks. Increased loan uptake will lead to growth in the economy of the country.

This study suggests that a comprehensive study is carried out to evaluate various other factors that may influence interest rate spreads as well as through the use of secondary data. There is also need for more studies to examine the factors that influence the interest rate spreads of twenty-seven commercial banks. This will be important in providing insights into how the setting up of interest rate spreads by commercial banks can be improved. Studies also need to be done on this subject using multiple regression techniques. This study provide more robust results than the current study which was based on the time series data. Further investigations could be conducted on this topic in a country specific case but perhaps using a different methodology. VAR methodology could be applied to this topic to establish how the lagged variables influence interest rate spreads. Impulse response analysis should be carried out on interest rate spreads

and its determinants to underscore how a shock in one of the variables affects the other variables. Variance decomposition analysis would estimate the extent of the influence of various variables on interest rate spreads.

This study focusing on all reforms can be conducted in order to establish the relationship between determinants interest rate spreads among commercial banks in Nepal. Analysis of all the reforms adopted in the banking industry will give more reliable conclusion on the effect of financial sector reforms and interest rate spreads of commercial banks in Nepal a. This study focusing on the whole banking sector can be conducted in order to establish the relationship between determinants interest rate spreads of commercial banks in Nepal. This will ensure the whole population is presented in the study and as such the findings will give more significant relationship between the variables from the data collected. A similar study covering a longer duration can be conducted. A longer duration of the study will capture periods of various economic significances such as booms and recessions, and as such giving a broader dimension to the problem. A study can be done on the effect of interest spread on financial performance of commercial banks. The findings can then be compared with this study finding to identify how determinants impact the banking sector. This study focused on commercial banks in Nepal. This study on the effects of determinants on interest rates spread can be conducted through a survey of the commercial banks. This allow for comparison of findings to come up with recommendations that are applicable to all the researcher in the bank in Nepal.

5.4 Recommendations for further study

Interest rate is inevitable in the financial sector since it is the only way of rewarding depositors and meeting the costs in commercial banks. The difference between lending and deposit rate can however be controlled. This study makes several recommendations to players in the financial sector like the government, policy makers as well as commercial banks. From these research findings, the study recommends that;

i. The government should ensure existence of stable political environment, fuel prices, commodities and services prices as they were mentioned as major components of inflation, which would contribute immensely in reducing interest rate spread among commercial banks in Nepal. Conversely these changes will

contribute to better and affordable business environment which in turn boosts the financial services sector.

ii. Commercial banks should also explore internally and industry driven strategies to mitigate against or counter some of the bank-specific factors associated with higher spreads such as diversification of products to reduce reliance on interest income and the associated risks and also investment in cost-saving and efficient forms of technology to reduce operating costs.

iii. In an effort to open up the financial sector, policy makers should device measures to promote the growth of medium sized banks in a bid to enhance their ability to penetrate the market so as to break market dominance by a few banks and also enhance competition. This kind of strategy will increase competition among banks and hence reduce interest rate spread.

iv. Commercial banks should increase the range of alternative investments available to institutional investors which would improve their flexibility in managing both long term and short term investments since high-concentration deposits from large depositors are able to distort spreads based on their leverage with the individual bank.

v. Commercial banks in Nepal should participate in the interbank market or use the repurchase agreement for government securities to reduce their liquidity risk as it was mentioned to be the greatest source of fear and hence uncertainty in setting high interest rate spread.

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