# DETERMINANTS OF INTEREST RATE SPREAD IN NEPALESE COMMERCIAL BANKS

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfilment of the requirements for the Master's Degree

By

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# CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "Determinants of Interest Rate Spread in Nepalese Commercial Banks". The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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Nabina Shrestha

## REPORT OF RESEARCH COMMITTEE

Ms. Nabina Shrestha has defended research proposal entitled "Determinants of Interest Rate Spread in Nepalese Commercial Banks" successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Mr. Keshar Singh Khati and submit the thesis for evaluation and viva voce examination.

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# APPROVAL SHEET

We, the undersigned, have examined the thesis entitled "Determinants of Interest Rate Spread in Nepalese Commercial Banks " Presented by Nabina Shrestha Candidate for the degree of Master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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I am responsible for all the error.

Nabina Shrestha

May, 2024

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# ABBREVIATION

| | |
|---|---|
| AQ | Assets Quality |
| BFIs | Bank and Financial Institutions |
| BS | Bank Size |
| CAR | Capital Adequacy Ratio |
| CR | Credit Risk |
| CRR | Credit Risk Ratio |
| DV | Dependent Variable |
| GDP | Gross Domestic Product |
| IDV | Independent Variable |
| INF | Inflation |
| ISR | Interest Spread Rate |
| LR | Liquidity Risk |
| ME | Management Efficiency |
| NPL | Non-Performing Loan |
| NRB | Nepal Rastra Bank |
| OCTA | Operating Cost to Total Assets |
| OE | Operational Efficiency |
| OR | Operational Risk |
| ROA | Return on Assets |
| ROE | Return on Equity |
| SLR | Statutory Liquidity Ratio |
| WADR | Weighted Average Deposit Rate |
| WALR | Weighted Average Lending Rate |
| $\varepsilon$ | Error Term |

# ABSTRACT

Interest rates play a crucial role in the lending decisions of commercial banks. These banks operate independently and establish their own lending rates. The interest rate on a loan is the percentage of the loan amount that the bank charges for lending money. When banks lend money to customers, they charge interest for various reasons, including preserving value, compensating for risk, and generating profits, among others. The major objectives of this research are to investigate the key determinants of interest rate spread in Nepalese commercial banks, to determine the relationship between operating cost, credit risk, liquidity risk, bank size, inflation, and GDP with interest rate spread, to analyze the effect of operating cost, credit risk, liquidity risk, bank size, inflation, and GDP on interest rate spread and to identify the most explanatory variables to determine the interest rate spread. The study has also used causal comparative research design which is an attempt to identify a relationship between an independent and dependent variable. The descriptive research design has been adopted for fact-finding and adequate information gathering about the fundamental issues associated with variables determinants of interest rate spread in Nepalese commercial banks. The study is based on the secondary data which are gathered for 12 commercial banks in Nepal for the period of 10 years from 2012/13 to 2021/22. The variables used in this study are dependent variables (interest spread rate) and independent variables (bank size, operating cost, liquidity, credit risk, inflation, and GDP). With basis of financial tools, this study has analyzed through statistical tools via mean, standard deviation and coefficient of variance.

The study's findings confirmed a positive correlation between the value of credit risk, operating risk, and market risk and the interest rate spread (IRS) of commercial banks in Nepal. This suggests that commercial banks will have a wider spread of interest rates when interest rates are higher. This results concluded that liquidity risk, credit risk, and operating cost ware found positive and significant determinants of interest rate spread in Nepalese commercial banks. The macroeconomic variables gross domestic products growth rate and inflation and bank specific variable bank size have not effective roles plays to determine interest rate spread. The result concluded that the bank specific factors likes non-performing loan to total loan, total bank's assets, operating cost to total assets, liquidity assets to total assets and micro economic factors likes inflation and gross domestic product ware found significant positive impact on interest rate spread. It is shown that operating cost has higher influence on interest rate spread because without managing the operating cost, interest rate spread cannot be reducing. Other variables like liquidity and credit ratio are also higher influence than other variables likes bank size, inflation, and GDP ratio. Thus, it can be concluded that Bank size, operating risk, Liquidity risk, Credit risk, Inflation, and GDP have impact on interest rate spread in Nepalese commercial banks.

*Keywords: Interest Spread Rate, Credit risk, Operating Risk, Liquidity Risk, GDP and Inflation Rat*

# CHAPTER I

# INTRODUCTION

## 1.1 Background of the Study

Commercial banks have been playing a significant role in boosting performance of the economy and act as financial agency. The banking area is generally answerable for gathering family reserve funds concerning various kinds of stores and directing them into the general public by loaning them in various areas of the economy (Goet, 2021). Interest rates are major economic factors that influence the economic growth in an economy. Interest is a charge to the borrower for the use of an asset. Assets borrowed can include cash, consumer goods, vehicles, and property. The interest rate addresses the expense of getting for the borrower and the profit from venture for the moneylender. Lenders need to be compensated for the opportunity cost of not using the money elsewhere during the loan period, so borrowers typically repay more than they borrowed. Rather than loaning the assets, moneylenders might have contributed them to produce pay. The contrast between the aggregate sum reimbursed and the first advance sum is the interest charged.

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, 2003). 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).

Interest rate is a critical consider the loaning choices of business banks, which work as free substances setting their own loaning rates. The percentage of the loan amount that is charged is known as the lending interest rate. According to Sheriff & Amoako (2014), banks charge interest on loans for a variety of reasons, including the generation of profits, risk compensation, and the preservation of value. The interest rate spread (IRS), which is a key indicator of a nation's financial system's efficiency, is the difference between lending and deposit interest rates.

The difference between a bank's interest income received and interest paid as a ratio of total assets or the difference between the ratio of interest received on all interest-bearing assets and the ratio of interest paid on all interest-earning liabilities can be used to measure interest rate spread (Mujeri & Younus, 2009).

The interest rate addresses the expense a borrower causes for utilizing cash acquired from a bank or monetary establishment, basically filling in as lease for cash. It shows what the market thinks about changes in money's purchasing power or future inflation. Business banks work with reserve funds by offering different store items to savers and afterward channel these reserve funds as credits and advances to borrowers and financial backers. (Were and Wambua, 2014). Conceptually, interest is both a payment and receipt for the use of money, interest therefore can be considered as a 'cost. On the other hand, if interest is paid, it can be considered as a 'cost' on the other hand if interest is received it can be considered as a 'return' 'Since money can earn return over a period of time, interest rates are often considered as an expression of the time value of money (Kiptui, 2014).

Commercial banks can boost their profit margins by setting higher lending rates and lower deposit rates. However, they cannot set loan rates too low, as the interest income generated would not suffice to cover the costs of deposits, general expenses, and losses from non-performing loans. Conversely, setting excessively high loan rates could jeopardize their relationships with borrowers. Therefore, determining the appropriate lending rates is a critical issue in the banking industry.

Factors influencing commercial banks’ lending rates are of significant concern not only to individual banks but also to policymakers, the banking industry, and the public. Interest rates play a vital role in daily life, significantly affecting buying power and investments. Investors must monitor interest rate trends closely, as major shifts can impact current investments and reveal new opportunities. Interest rates, typically calculated annually as the annual percentage rate (APR), control money flow in an economy. High interest rates can curb inflation but may slow economic activities, while low rates can boost economic performance but potentially lead to inflation. It is crucial to monitor changes in interest rates and their effects on other economic indicators (Aleemi et al., 2015).

The interest rate spread is the difference between two related interest rates. In the banking sector, it refers to the difference between the deposit rate and the loan rate. This spread is a significant economic issue globally (Ghasemi & Rostami, 2015). Measuring interest rate spread (IRS) can involve the difference between interest income received and interest paid by financial institutions as a ratio of total assets, or the difference between the ratio of interest received on all interest-bearing assets and the ratio of interest paid on all interest-earning liabilities (Paudel & Khanal, 2016).

In Nepal, the interest rate spread reflects the cost of financial intermediation, determined by interest expenses on deposits and interest income from domestic loans. It also indicates the level of competition in the banking sector, the extent of credit risk, and managerial efficiency. The Nepal Rastra Bank (NRB) directed "A" class banks to reduce their interest spread rate to within 4.4 percent and required BFIs to publish their interest spread monthly. Consequently, the overall interest spread of commercial banks gradually decreased to 3.78 percent by mid-July 2021 (Nepal Rastra Bank, 2021).

## 1.2 Problem Statement

The banking industry dominates the financial industry, particularly when it comes to saving money and providing credit. Understanding the financial intermediation process and the macroeconomic environment in which banks operate requires an in-depth analysis of the sector's high interest rate spreads. In spite of its significance, there has been restricted experimental exploration on industry-level or bank-level determinants of interest spread spreads.

Were and Wambua (2013) analyzed the elements driving interest rate spreads in Kenya's financial area, finding that bank-explicit factors, for example, bank size, credit risk, liquidity risk, and operating risk were more huge than macroeconomic variables like expansion and monetary development rate.  Ghasemi and Rostami (2015) came to the conclusion that the interest rate spread is influenced by market structure and reflects non-competitive pricing behavior. Mwamtambulo and Ntulo (2018) focused on the external macroeconomic factors that influence high interest rate spreads in Tanzania. High interest rate spreads can impede financial intermediation, as low deposit rates discourage savings..

Kiptui (2014) concentrated on Kenya's financial area and distinguished functional expenses, monetary tax collection, and advance quality as determinants of loan fee spreads. Interest spreads are significantly influenced by the inelasticity of deposit supply, according to the study, whereas industry concentration has no effect. Also, high working expenses and non-performing credits increment spreads, however the degree changes across nations. Bektas (2014) researched North Cyprus' financial area and found that credit risk, market power, and bank productivity emphatically and essentially influence bank spreads and net revenue edges. Ownership, increased required reserves, and lower liquidity risk all have a positive and significant impact on spreads.

The banking industry in Nepal is committed to providing capital to various industries and groups. Until recently, the central bank was in charge of regulating interest rates offered and charged by financial institutions. Institutions now independently set their interest rates, despite the fact that the Nepalese market has not yet reached maturity. It is essential to ascertain whether managerial discretion or market forces are to blame for these rates. Ojha (2020) suggested that Nepalese finance company interest rates on loans and advances and inflation rates affect deposit interest rates.

Goet (2021) investigated the impact of total deposits, cash reserve ratio, interest rate spread, inflation rate, and the relationship between loans and advances. Through the expansion of credit in the private sector, the banking industry has fueled economic expansion. Through various deposits, it funnels household savings into various economic sectors. Credit strategies give a system to accomplishing resource quality and profit goals, setting risk resilience levels, and directing loaning exercises predictable with the bank's essential course. Bank officers and managers must exercise sound judgment in order to perform effective credit management, which is challenging.

Bhattarai (2015) dissected financing costs in Nepalese business banks, featuring the drawn out high credit costs that restricted admittance to capital and obstructed monetary development. Although lending rates have been decreasing and spreads have been narrowing in recent years, they are still relatively high. Accomplishing further decreases in loaning rates will rely heavily on how banks decide their financing costs.

To enhance the intermediary efficiency of banks and achieve financial deepening, this study aims to address the research gap regarding the specific factors that might affect the variability of interest rate spreads among commercial banks in Nepal. The study will explore various factors influencing interest rate spreads within an international context and examine their relevance to Nepal's commercial banking sector. This study basically deals with the following issues:

1. What are the key determinants of interest rate spread in Nepalese commercial banks?
2. Is there any relationship between operating cost, credit risk, liquidity risk, bank size, inflation, and GDP with interest rate spread?
3. What is the effect of operating cost, credit risk, liquidity risk, bank size, inflation, and GDP on interest rate spread?

### 1.3 Objectives 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. For the study there has to be some objectives which highlight the purpose of doing research work. The major objectives of this research are as follows:

1. To access the key determinants of interest rate spread in Nepalese commercial banks.
2. To analyze the relationship between operating cost, credit risk, liquidity risk, bank size, inflation, and GDP with interest rate spread.
3. To examine the impact of operating cost, credit risk, liquidity risk, bank size, inflation, and GDP on interest rate spread.

### 1.4 Research Hypothesis

This study has chosen the following hypothesis based on the aforementioned research purpose and research questions:

*$H_1$: There is significant impact of liquidity risk on Interest rate spread*

*$H_2$: There is significant impact of credit risk on Interest rate spread*

*$H_3$: There is significant impact of operation risk on Interest rate spread*

*$H_4$: There is significant impact of Bank size on Interest rate spread*

*$H_5$: There is significant impact of Inflation rate on Interest rate spread*

*$H_6$: There is significant impact of GDP on Interest rate spread*

### 1.5 Rationale of the Study

This study aims to analyze the determinants of interest rate spread (IRS) among commercial banks in Nepal, identifying the current state of interest rate spreads. This focus aligns with the Central Bank of Nepal's monetary policy framework, which seeks to ensure realistic interest rate spreads that promote financial deepening and maintain a safe, sound, efficient, and competitive banking system through prudent risk management.

By filling the research gap on specific factors influencing IRS variability among Nepalese commercial banks, this study serves as a valuable reference for researchers with similar interests, enriching the existing literature on the subject. It enhances the knowledge of future researchers and students wishing to broaden their understanding of this topic. Additionally, the study provides comprehensive resource material for policymakers in banking, non-financial institutions, and other business communities to address the challenges posed by high-interest rates.

Interest income significantly contributes to the net profit of banks, and its level is determined by the interest spread rate. This study's significance lies in identifying, analyzing, and interpreting the determinants of the interest spread rate of banks, measured through variables such as credit risk, operating risk, and market risk. The interest spread rate also affects total lending and total deposits in an economy. Therefore, banks must manage an appropriate interest spread rate: higher deposit interest rates encourage depositors, while high lending interest rates discourage businesses and households from taking loans due to increased capital costs.

Banks must maintain balanced lending and deposit rates to attract both depositors and borrowers. This study helps bankers analyze the past impact of interest rate spreads on profitability and take necessary steps to determine appropriate lending and deposit rates.

This study helps bankers to analyze the past impact of interest rate spread and its impact on profitability. It helps the bankers to carry out necessary steps to determine appropriate lending and deposit rate. This study helps to identify the determinants of interest rate spread among commercial banks in Nepal. This study helps to bankers carry out necessary steps to determine appropriate lending and deposit rate. This study helps to new researchers to learn more about the interest rate spread among commercial banks in Nepal.

## 1.6 Limitation of the Study

As in other research, this research can have its own limitations and they are listed below:

1. The study will only focus on 'A' class commercial banks. However, this study has not considered development banks, finance companies, insurance companies and other non-financial companies.
2. This study will be based only in the secondary data analysis. The data collection conducting primary survey has not been taken into consideration. Hence, the result of the study is not broad and flexible. It is limited to the data available in the annual reports of the sample banks and financial reports published by Nepal Rastra Bank.
3. The findings of this study could not be generalized to manufacturing and trading enterprises because the study is only based on the banking sector.
4. This study will be taking only few independent variables. Other variables like competition, operating expenses, financial literacy, customer relationship etc. can also be taken for the study.

# CHAPTER II

# LITERATURE REVIEW

This chapter discusses the determinants of interest rate spread in Nepalese commercial banks and present conceptual framework of the study. Relevant literature is presented and the research approached proposed. A literature review is a comprehensive summary of previous research on a topic which surveys scholarly articles, books and other sources relevant to a particular area of research.

## 2.1 Theoretical Review

The theoretical dimension of the study is discussed in this section. According to Mtembu (2017), a theory is the set of interconnected constructs, definitions and suggestions which provide an organized view of phenomena in the form of relationships between variables to explain and predict phenomena. Theories are relevant for every study as they form a basis for the conceptualization of the variables under study, and theories relevant to the study have been examined in this section. The theories on spreads encompass studies on the determination of interest margins and interest rate spreads. One of the most influential theoretical models in this area is the bank dealership model. This model explains the size of bank interest margins based on uncertainties in the deposit and loan markets, hedging behavior, and expected utility maximization. In this model, banks are considered risk-averse dealers acting as financial intermediaries. The premise of the bank dealership model is that banks receive deposits at random intervals while loan requests occur in a stochastic manner, and these loan requests must be fulfilled. The model suggests that the interest margins banks set are influenced by their need to manage the uncertainties and risks associated with the timing and volume of deposits and loan demands, while also seeking to maximize their expected utility

### The Classical Theory of Interest Rates

According to Elijah Saushini (2016), classical economics is where monetary theory got its start, particularly Adam Smith's (1723-1790) writings. Two primary forces, according to classical economic theory, determine the interest rate. To begin, it is influenced by the amount of savings available, the majority of which comes from households. Second, it is impacted by the interest for investable capital, which predominantly emerges from the business area. As per traditional hypothesis, the loan cost effectively equilibrates reserve funds and venture. As a result, the classical economists' vision of a fully employed economy always equates investment with savings. The loan fee changes with the end goal that higher rates empower really saving, while lower rates brief business people to acquire for speculation purposes. Any progressions in the stockpile or interest for loanable assets lead market influences to change the financing cost, reestablishing harmony at new levels. Moreover, the adaptability of loan costs guarantees that how much reserve funds generally rises to speculation, and complete pay generally approaches all out spending, as examined by Ritter (2009). By aligning savings and investment decisions across various economic sectors, this relationship demonstrates the significance of interest rates in maintaining economic equilibrium.

**The Loanable Funds Theory**

The loanable funds theory addresses a progression over the old style hypothesis of financing costs by integrating both money related and non-money related factors into its structure, as indicated by Rose (2009). Not at all like the traditional hypothesis, which basically centers on investment funds and speculation, has the loanable assets hypothesis set that the harmony financing cost adjusts the amount of loanable assets provided with the amount requested. These loanable funds, according to Khandker (2008), include investments, government bonds funded by deficits, and savings. In this loanable funds theory, the loan not entirely settled by the connection of market interest in the acknowledge market, as featured by Lutz (2009). This point of view characterizes interest as the value that adjusts the interest for loanable assets (by borrowers) with the stockpile of loanable assets (by banks). Both savers (lenders) and investors (borrowers) are satisfied to their highest potential at the equilibrium interest rate, which occurs when supply and demand are in balance. Additionally, the loanable funds theory is more extensive than the traditional hypothesis in scope. It considers the loan cost as a component of four key factors: reserve funds, venture, the interest to hold cash (liquidity inclination), and the stockpile of cash, as examined by Irungu (2013). This extensive methodology considers a more nuanced comprehension of how loan not entirely set in stone in an economy, considering both money related strategies and more extensive financial variables impacting credit markets

### The Rational Expectation

According to Gregory (2010), the economic principle that individuals make decisions based on rational assessments of available information, past experiences, and expectations for the future is the foundation of the rational expectations theory. This theory says that people use all the information they can get to make the best predictions about the future of the economy, including interest rates. According to the rational expectations theory, the current spot rate is the most accurate indicator of future interest rates. Changes in loan costs are essentially determined by unforeseen data or changes in monetary elements, as verified by Irungu (2013). For instance, assuming individuals guess that financing costs will increment later on, they are probably going to abstain from acquiring. By lowering interest earnings, this cautious behavior may have a negative impact on the performance of the bank. Alternately, on the off chance that assumptions are for loan costs to diminish, people might be more disposed to get, accordingly possibly helping bank execution through expanded revenue income, as made sense of by Mishkin (2004). As a result, the rational expectations theory emphasizes the significance of expectations in shaping economic decisions and outcomes. This is especially true in financial markets, where interest rates have a significant impact on borrowing, lending, and economic activity as a whole.

### Theory of Liquidity Preference

The rate of interest, according to Keynes, is a purely a monetary phenomenon, a reward for parting with the liquidity, and the rate of interest is determined in the money market by the intersection of demand for and supply of money. The theory of liquidity preference posits that the interest rate is one determinant of how much money people choose to hold. The reason is that the interest rate is the opportunity cost of holding money: it is what you forgo by holding money in liquid or cash, which does not bear interest rate. When the interest rate rises, people want to hold less of their wealth in the form of money/liquid/cash.

## 2.2 Empirical Review

In this section, empirical review of the relevant literature is provided which details the studies that have been undertaken by different authors across the different regions, their research methods, variables the study examined and conclusions that have been drawn from those studies. By doing so, a more complete picture of the research can be seen and researcher can better for the research study.

*Table 1*

Review Summary Table

| S.N. | Name | Author | Objectives | Variables | Methodology | Findings |
|---|---|---|---|---|---|---|
| 1. | Determinants of the interest rate spreads in Developing Countries: Evidence on Tanzania 1991- 2009 | Aikaeli and Mugizi (2011) | To examine the determinants of interest rate spreads in Tanzania. | DV: Interest Spread rate IDV: Banking Sector, Economic Growth, Real Exchange Rate Volatility,, CO, Statutory minimum Reserve Ratio, Discount Rate | Quantitative and cross-sectional analysis, Ordinary Least Square | The results revealed the interest rate spreads in Tanzania were strongly influenced by net government borrowing from commercial banks, development of the banking sector, statutory minimum reserve requirement and the discount rate. |
| 2. | Assessing the determinants of interest rate spread of commercial banks in Kenya: An empirical investigation | Were and Wambua (2013) | To investigates the determinants of interest rate spreads in Kenya's banking sector based on panel data analysis. | DV: interest rate spread IDV: Bank Size, Market concentration, Credit Risk, Operating Risk, Liquidity Risk, ROA, GDP and Inflation | Descriptive and regression analyses, time series models and cross section data | • Bank size, credit risk, liquidity risk, return on average assets have significant impact on net interest margin.<br>• GDP growth and inflation rate were not found to be statistically significant in explaining interest rate spreads across banks |
| 3. | Interest Rate | Dhal and | To investigate the | DV: Interest | cross- | • Banks loan |

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| | Pass-through and Determinants of Commercial Banks' Loan Pricing Decisions in India: Empirical Evidence from Dynamic Panel Data Model | Ansari (2013) | commercial bank's loan pricing decisions, influenced by the host factors. | Rate<br>IDV: CRR, SLR, CAR, managerial efficiency, earnings, liquidity, bank size, loan maturity, cost of funds, opportunity cost of loans and GDP and inflation rate | sectional analysis and pure time-series analysis, fixed effect model | interest rate and its spread over deposit interest rate positively, albeit, moderately impacted by the short-term policy interest rate.<br>• The capital to risk adjusted assets ratio has a statistically significant positive effect on loan pricing.<br>• There is a positive relationship between GDP and Inflation and banks' spreads |
| 4. | Liquidity Risk Management: A Comparative Study between Conventional and Islamic Banks of Pakistan | Iqbal (2012) | To compare the liquidity risk of the Islamic and the conventional banks in Pakistan from the period 2007-2010 | DV: Liquidity Risk<br>IDV: Bank size, Non-performing Ratio, ROA, ROE and CAR | Descriptive Analysis, casual-comparative analysis | • The study found the significant and positive relation of CAR, ROA, ROE and size of the bank with the liquidity risk.<br>• The study found negative and significant relation of NPL with liquidity risk |
| 5. | Bank liquidity and its determinants in Romania | Munteanu (2012) | The aim of identifying the factors that influence bank liquidity through a multiple regression model, over a panel of commercial banks in Romania. | DV: Net Loans/Total Assets and Liquid Assets/Deposits and short term funding<br>IDV: Capital Adequacy, Assets Quality, Interbank | linear multivariate regression model, | • the capital adequacy measure is validated as a positive influence over the liquidity.<br>• The study shows that the interbank interest rate |

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| | | | | Funding, Funding Cost, Cost to income ratio, Interest rate ROBOR, Credit risk rate, Inflation rate, GDP real growth rate and Unemployment | | will be an incentive for holding liquid assets.<br>• The liquidity of the state-owned savings banks in Romania has been validated to be negatively related to the monetary policy interest rate and the level of unemployment rate |
| 6. | Determinants of Commercial Banks' Liquidity in Hungary | Vodova (2013) | to identify determinants of liquidity among Hungarian commercial banks | DV: Bank Liquidity<br>IDV: CAP, NPL, ROA, Financial Crisis, GDP, Inflation, Interest Rate, Monetary Policy, Unemployment | fixed effects regression | • Bank liquidity is positively related to capital adequacy of banks, interest rate on loans and bank profitability and negatively related to the size of the bank, interest margin, monetary policy interest rate and interest rate on interbank transaction.<br>• Growth rate of gross domestic product and bank liquidity is ambiguous. |
| 7. | Determinants of Interest Rate Spread of Nepalese Commercial Banks | Shrestha (2022) | The objective of this study is to determine the impact of interest rate changes on the Profitability of commercial banks. | DP: Interest Spread Rate<br>IDV: return on assets (ROA), management efficiency (ME), capital adequacy ratio (CAR), assets quality (AQ), and credit risk | descriptive and causal comparative research design, multivariate regression analysis | • The role of ROA, CR, INF and GDP was found to be positive<br>• ME and OE was discovered as a negative role in determining IRS of |

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| | | | | (CR, and operational efficiency (OE) inflation (INF) and growth rate of gross domestic product (GDP) | | Nepalese commercial banks. |
| 8. | Determinants of lending interest rate of commercial banks in Nepal | Ghimire and Bhandari (2023) | To investigate the determinants of lending interest rate of Nepalese commercial bank | DP: Lending rate<br>IDV: operating cost to total assets (OCTA), deposit rate (DR), profitability (ROA) and Non-performing loan | descriptive and causal comparative research, | • Deposit rate has the significant impact on the bank's lending rate and operating costs to total assets ratio, return on assets (ROA)<br>• Non-performing assets have no strong effect on the interest rate offered by commercial banks. |
| 9. | The Effect of Interest Rate Spread on the Profitability of Nepalese Commercial Banks | Acharya and Vyas (2022) | | DV: Interest Spread rate<br>IDV: Capital Adequacy Ratio(CAR), Total Deposit to Total Assets (TDTA), Shareholders Equity to Total Assets (SETA), Total Deposit to Shareholders Fund(TDSF), Total Lending to Total Assets (TLTA), and Net Interest Income to Total Assets (NIM) | quantitative approach | • The study found positive impact of CAR, SETA, TDSF and net interest income to total interest with interest spread rate,<br>• The study also found negative impact of TDTA and TDSF with interest Spread Rate |
| 10. | Determinants of Interest Rate Spreads in Nepalese Commercial | Bhattarai (2015) | To consider affecting factors on spread rate and define a suitable model of spread | DV: Interest rate spreads<br>IDV: = Default risk, Cash reserve | descriptive and causal comparative research design, | • Default risk, profitability and bank size have significant and |

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| | Banks | | rate in the banking industry. | ratio and Bank Size | convenience sampling method | positive impact on interest rate spreads.<br>• Cash reserve requirement has negligible effect on interest rate spreads. |
| 11. | Determinants of interest rate spread among commercial banks in Nepal | Kathayat (2021) | To investigate the evidence of the main determinants of intermediation spreads both analytically and empirically. | DV: Interest rate spreads<br>IDV: Credit risk, Operating cost and Liquidity risk | descriptive and explanatory research design | • This study revealed that credit risk was positively and significantly associated with interest spread.<br>• Operation cost was positively and significantly correlated to interest spread.<br>• Liquidity risk was positively correlated with interest spread. |
| 12. | Determinants of interest rate spread in banking industry | Ghasemi and Rostami (2016) | | DV: Spread rate<br>IDV: NPL ratio, ratio of demand deposits on deposits, non-interest income, and interest earning assets to assets, capital adequacy ratio and ROA ratio as independent variables, inflation (INF) and Exchange rate (EXR) | Cross-correlation | • There is a positive relationship between the ratio of low-cost deposits and spread rates.<br>• There is a significant correlation between the ratio of NPL and spread rate.<br>• Income-earning assets to total assets ratio (RAR) including management performance indicators, had a negative relation with spread rate.<br>• High capital adequacy ratio has a positive effect on the bank's interest rate. |

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|---|---|---|---|---|---|---|
| | | | | | | • the effect of capital adequacy rate margin is statistically significant and negative with spread rate |
| 13. | The determinants of interest rate spread: empirical evidence on the Mauritian banking sector | Ramful (2001) | To analyze the new insights on the key determinants of interest rate spreads in Uganda's banking sector by investigating the determinants of interest rate spreads, following the recent Adoption of Inflation Targeting. | DV: Lending Interest rate<br>IDV: Cost, yield, Reserve Requirement, Provision for bad debts/ Total Loans, Noninterest Income/ Total Assets | Descriptive, cross-sectional | • There exists a significant negative relationship between interest rate spread and the yield.<br>• The positive relationship between interest rate spread and reserve requirements.<br>• The provision of bad and doubtful debts which reflects the quality of loans is generally positively associated with spread.<br>• Asset quality measured by the provision of bad and doubtful debts was indeed positively related to spread but the coefficient was statistically insignificant. |
| 14. | Determinants of Interest Rate Spreads in Solomon Islands | Rebei (2014) | This study aims to determine the factors that affect Nepalese commercial banks' IRS<br><br>Aims to evaluate the relationship among variables. | DV: Spread rate<br>IDV: overhead costs, Risk, HH Index, Interest rate, Inflation | Descriptive analysis | • The study shows a clear negative relation between banks' overhead costs, inflation and interest spread<br>• Effect of risk aversion is consistent with |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | the theoretical interpretation in the sense that it positively affects spreads.<br>• The concentration of the respective banking sector are positively correlated with bank spreads.<br>• The relatively high policy interest rates significantly explain bank spreads. |
| 15. | Exploring the Determinants of Interest Rate Spreads in the Uganda Banking System | Jefferis *et al.* (2020) | This study aims to determine the factors that affect Nepalese commercial banks' IRS<br><br>Aims to evaluate the relationship among variables. | DV: Spread rate<br>IDV: Real GDP growth, exchange rate, Non-Performing Loans(NPLs), overhead cost, Return on assets, NPL | econometric analysis | • The growth of real GDP was also found to be positive and significant, indicating that banks can increase spreads when growth is strong, perhaps due to higher demand for credit. The real exchange rate was negatively related to the spread<br>• Return on assets (ROA), is a positive determinant of bank spreads |

Aikaeli and Mugizi (2011) examined Determinants of the interest rate spreads in Developing Countries: Evidence on Tanzania 1991- 2009. This paper sought to establish relative importance of macroeconomic and regulatory factors in explaining persistence of interest rate spread in Tanzania during the period 1991:I - 2009:IV. The analysis is based on secondary quarterly time series data for the period 1991-2009, a period that was characterized by financial sector reforms started in Tanzania since 1991.A Cointegration and Error Correction Model (ECM) was used to fit the data for Tanzania. The results revealed the interest rate spreads in Tanzania were strongly influenced by net government borrowing from commercial banks, development of the banking sector, statutory minimum reserve requirement and the discount rate. Among others, the results suggest the importance of low discount rate and reduced or total dispense with reserve requirement as a monetary policy strategy to reduce interest rate spreads in Tanzania. Importance of price stability in financial deepening is also underscored by the results.

Were and Wambua (2013) analyzed Assessing the determinants of interest rate spread of commercial banks in Kenya: An empirical investigation. 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.

Dhal and Ansari (2013) examined Interest Rate Pass-through and Determinants of Commercial Banks' Loan Pricing Decisions in India: Empirical Evidence from Dynamic Panel Data Model. Taking cues from the large literature and using the dynamic panel data methodology and annual data for a sample of 33 banks including public, private and foreign banks over the period 1996-2011, this study provides an empirical reflection on the interest rate channel pass-through and the impact of various bank specific factors, regulatory and supervisory indicators and macroeconomic factors on Indian banks' loan pricing decisions. The empirical analysis brings to the fore some useful applied perspectives and key insights for policy purposes. Firstly, proximate determinants can have differential effects on banks' loan pricing decisions depending upon alternative measures of loan interest rate and spreads. This is a critical finding as it will provide insights to future empirical studies. Secondly, the pass-through from the policy rate to loan interest rates could be limited when commercial banks consider several factors including the policy rate for their loan pricing decisions. Moreover, the problem of pass-through evident from differential impacts of interbank money market rate and the repo rate could relate to the alignment between liquidity and interest rate channels of transmission mechanism. Thirdly, banks' operating efficiency holds the key to softer margins and effective loan pricing decisions in the Indian context. Fourthly, higher capital charge can induce risk aversion and positively affect loan interest rate. Fifthly, the absence of clear statistically significant and positive impact of the asset quality variable, i.e., non-performing loans, suggests that there is a need for strengthening risk pricing culture in the Indian context. Finally, bank size variable, which is often considered for gauging economies of scale effect, does not hold for the Indian context. It is expected that the empirical findings of the paper could be useful for reform and policy purposes.

Iqbal (2012) evaluated Liquidity Risk Management: A Comparative Study between Conventional and Islamic Banks of Pakistan. The banking sector is viewed as an important source of financing for many businesses. In order to appraise and weigh up the soundness and reliability of banking industry, the information on the risk and how the fluctuations are managed are important to consider. Among the financial risks liquidity risk of the bank are crucial to consider. Appalling financial condition of the banks can lead to decreasing the value of bank. Managing the liquidity risk is required to be monitored and managed effectively and cautiously. Liquidity management is part of the larger risk management of the banking sector, whether they are conventional or Islamic. This study investigated the size of the bank, Non-performing loan ratio (NPL), return on assets (ROA), and return on equity (ROE), capital adequacy ratio (CAR) with the liquidity risk of conventional and Islamic banks of Pakistan. The study is done on the secondary data for the period 2007- 2010. The study found the significant and positive relation of CAR, ROA, ROE and size of the bank with the liquidity risk in both the models, whereas the negative and significant relation of NPL is observed in both the models.

Vodova (2013) analyzed Determinants of Commercial Banks' Liquidity in Hungary. This paper aims to identify determinants of liquidity among Hungarian commercial banks. The data cover the period from 2001 to 2010. Results of panel data regression analysis show that bank liquidity is positively related to capital adequacy of banks, interest rate on loans and bank profitability and negatively related to the size of the bank, interest margin, monetary policy interest rate and the interest rate on interbank transactions. The relation between the growth rate of GDP and bank liquidity is ambiguous. Bank liquidity is positively related to capital adequacy of banks, interest rate on loans and bank profitability and negatively related to the size of the bank, interest margin, monetary policy interest rate and interest rate on interbank transaction. Growth rate of gross domestic product and bank liquidity is ambiguous.

Munteanu (2012) examined Bank liquidity and its determinants in Romania. Many profitable banks faced difficulties in managing their own funds due to the misunderstanding of liquidity risk. This research paper was conducted with the aim of identifying the factors that influence bank liquidity through a multiple regression model, over a panel of commercial banks in Romania. The results reflect both common and different determinants for the two liquidity rates analyzed and are consistent with the previous literature on this topic. The pre-crisis years are observed separately from the crisis period (2008- 2010). An important indicator for bank stability, Z-score, has a significant influence over bank liquidity in the crisis years. In the pursuit of designing efficient liquidity management tools, the study built the conceptual and empirical framework for enhancing bank liquidity, as a variable difficult to stress test. The capital adequacy measure is validated as a positive influence over the liquidity. The study shows that the interbank interest rate will be an incentive for holding liquid assets. The liquidity of the state-owned savings banks in Romania has been validated to be negatively related to the monetary policy interest rate and the level of unemployment rate.

Shrestha (2022) evaluated Determinants of Interest Rate Spread of Nepalese Commercial Banks. This paper has analysed the determinants of interest rate spread (IRS) of Nepalese commercial banks. The panel data of 25 commercial banks from 2013/14 to 2020/21 was used for the analysis. The study used return on assets (ROA), management efficiency (ME), capital adequacy ratio (CAR), assets quality (AQ), and credit risk (CR, and operational efficiency (OE) as the bank specific determinants and inflation (INF) and growth rate of gross domestic product (GDP) as the macroeconomic determinants. Using the random effect model, the paper finds ROA, CR, ME, and OE as the major bank specific determinants and INF and GDP as the major macroeconomic determinants of interest rate spread. Similarly, the role of ROA, CR, INF and GDP was found to be positive while that of ME and OE was discovered as a negative role in determining IRS of Nepalese commercial banks. The findings of this study can be useful in formulating policies on the spread rate of interest.

According to Ghimire and Bhandari (2023), analyze the determinants of lending interest rate of commercial banks in Nepal. The purpose of this research is to examine the factors that affect commercial banks' lending rates in Nepal. The lending rate is the outcome variable and operating cost to total assets (OCTA), deposit rate (DR), profitability (ROA) and Non-performing loan explanatory variables. The necessary data are collected from the annual report of sample banks, banking and financial statistics, and the bank supervision report published by the Central Bank of Nepal. This study has used a descriptive and causal comparative research design. Similarly, Eviews-12 computer software has been employed for diagnosis, model fit, and analysis of data. Fourteen commercial banks have used as a data sample and tracked for a total of six years (2016 to 2021). The research employed the pooled OLS model, fixed effects model, and random effects model. Three different regression models predict that deposit rate has the significant impact on the bank’s lending rate and operating costs to total assets ratio, return on assets (ROA), non-performing assets have no strong effect on the interest rate offered by commercial banks the purpose of this research is to examine the factor that affect commercial bank’s lending rates in Nepal, by using a sample of fourteen commercial banks and tracked for a total of six years (2016 to 2021). The researchers employed pooled OLS model, fixed effect mode and random effect model.

Acharya and Vyas (2022) illustrated The Effect of Interest Rate Spread on the Profitability of Nepalese Commercial Banks. The objective of this study is to determine the impact of interest rate changes on the profitability of commercial banks. To do so, this paper uses financial information data collected from annual reports published on company websites. The sample period is from mid-July 2011/12 to 2020/21. The sample includes twenty-six commercial banks except for Rastriya Banijya Bank. The government of Nepal fully owns Rastriya Banijya Bank and thus heavily influences the management. Therefore, it is excluded from the sample banks. This research uses a quantitative research method for its analysis. Descriptive statistics are reported, and panel data regression models examine the relationship between IRS and profitability. This paper finds that interest rate spread significantly affects firm performance. One percentage increase in interest rate spread increases return on assets by 0.137%, return on equity by 1.373%, and earnings per share by 8.111%. Since interest rate spread is an essential determinant of banks' profitability, bank management and shareholders should continuously monitor the indicator.

Bhattarai (2015) examined Determinants of Interest Rate Spreads in Nepalese Commercial Banks. The aim of this study is to investigate 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.

Kathayat (2021) analyzed Determinants of interest rate spread among commercial banks in Nepal. This study was largely a quantitative research given that the study sought to examine the determinants of the bank interest rates among commercial banks in Nepal. This study focused on the licensed large commercial banks according to the CBN which include in Nepal bank, Agrilcture development bank, Nabil bank, Nepal Bangladesh bank, Standard chartered bank and Himalayan bank limited. This study used secondary data available from the annual financial reports from year period between 2015 and 2020. The collected data was organized into SPSS and analyses using descriptive analysis, correlation analysis, and regression analysis. This study found out that 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 considering the three study independent variables, there is a probability of predicting interest spread by 62.1% (R squared =0.621). This study also concluded that each unit increase in operation cost, there was -0.0215 units decrease in interest spread. This study concluded that liquidity risk has significant effect on interest spread for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. 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.

Ghasemi and Rostami (2016) evaluated Determinants of interest rate spread in banking industry. This study is done to consider 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.

Ramful (2001) studied the determinants of interest rate spread: empirical evidence on the Mauritian banking sector. This paper examines the determinants of interest rate spread in the Mauritian banking sector both analytically and empirically. The sample consists of panel data for the 10 commercial banks over the period 1994 to 1999. Yearly data have been extracted from the consolidated income statements and balance sheets of individual banks. The fact that different banks close their financial year in different months has been disregarded for the sake of simplicity. The econometric estimation has been carried out using the Limdep package. Using balance sheets and income statements of commercial banks, the spread is decomposed into its various components. The empirical analysis shows that interest rate spread in Mauritius is used not only to cover the costs of operating expenses and required reserves but also reflects the prevalence of market power and compensates for the quality of loans. The estimation results show that interest rate spread is used not only to cover the cost of operating expenses and required reserves but also reflects the prevalence of market power and compensates for the quality of loans. There seems to exist a positive relationship between operating expenses and spread and the coefficient of COST. There exists a significant negative relationship between interest rate spread and the yield. The positive relationship between interest rate spread and reserve requirements. The provision of bad and doubtful debts which reflects the quality of loans is generally positively associated with spread. Asset quality measured by the provision of bad and doubtful debts was indeed positively related to spread but the coefficient was statistically insignificant.

Rebei (2014) examined Determinants of Interest Rate Spreads in Solomon Islands. This study aims to determine the factors that affect Nepalese commercial banks' IRS and this study also aims to evaluate the relationship among variables. The study shows a clear negative relation between banks’ overhead costs, inflation and interest spread. Effect of risk aversion is consistent with the theoretical interpretation in the sense that it positively affects spreads. The concentration of the respective banking sector are positively correlated with bank spreads. The relatively high policy interest rates significantly explain bank spreads.

Jefferis *et al.* (2020) analyzed exploring the Determinants of Interest Rate Spreads in the Uganda Banking System. Interest rate spreads in Uganda have been persistently high over the last two decades. This paper aims to complement the literature by investigating the determinants of interest rate spreads in Uganda, following the period after the adoption of Inflation Targeting, using three different approaches: first, a cross country comparison with regional peers, second, a decomposition of interest rates spreads in Uganda and third, a panel data analysis using system generalized method of moments (GMM). A consistent result from each of our analytical approaches is that overhead costs are positively and significantly related with bank spreads. Other important variables in explaining bank spreads include profitability (return on assets), market structure (herfindahl index), non-performing loans, economic growth, the exchange rate and the real Treasury bill rate. The results have important implications for economic policy: singling out the need for a reduction in overhead costs which needs to complemented with increased bank competition. Other policy measures that could facilitate a lowering of spreads include: a reduction in domestic government borrowing and a lowering of the sector's non-performing loans through better credit risk assessment.

## 2.3 Research Gap

The literature reviewed highlights a scarcity of studies on the determinants of interest rate spreads specifically in Nepal, contrasting with numerous studies directed in created and arising economies. Existing examinations have ordinarily centered on a set number of elements impacting financing cost spreads, while this study plans to investigate a few explicit determinants. Due to differences in economic, financial, regulatory, and operational environments between nations, it is acknowledged that findings on interest rate spreads and net interest margins are not universally accepted.

The indicators used in this study to measure interest rate spreads include inflation, gross domestic product (GDP), discount rate, return on assets (ROA), cash reserve requirement (CRR), credit risk, operating costs, and liquidity risk. Notably, to the knowledge of the researcher, no studies on this topic have been conducted after 2020. As a result, the purpose of this study is to fill in these knowledge gaps by examining the macroeconomic, industry-specific, and bank-specific factors that influence interest rate spreads in Nepal.

This research aims to fill in gaps in the existing body of knowledge by addressing both its objectives and its limitations. Its discoveries and ends are supposed to create new information inside Nepal's financial industry. Additionally, the majority of empirical studies on banking liquidity were conducted after the 2008 financial crisis, highlighting the significance of liquidity in the banking sector and financial markets. In any case, there stays a critical hole in the experimental writing in regards to liquidity risk and its determinants well defined for the business banking industry in Nepal. According to research, decisions made by the central bank and bank-specific factors like capital adequacy and profitability, as well as macroeconomic factors like interest rates and economic indicators, have an impact on the liquidity risk of commercial banks.

Regardless of the continuous development and advancement of Nepal's financial industry, exact examinations on the determinants of business banks' liquidity risk in Nepal are nearly non-existent. Consequently, this study tries to experimentally explore the determinants influencing bank liquidity in Nepal, expecting to give bits of knowledge into this significant part of banking activities in the country. By distinguishing and investigating these determinants, the review plans to add to a more profound comprehension of banking liquidity risk and its administration inside Nepal's developing monetary scene.

# CHAPTER III

# RESEARCH METHODOLOGY

Research methodology sets out overall plan associated with the study. It provides a basic framework on which the study is based upon. It is a science of studying how research is to be carried out. Before presenting the analysis and interpretation of data, it is necessary that study methodology be described first. In the absence of methodology, it is likely that conclusions drawn may be misunderstood. This chapter is designed or planned for the achievement of objective which is described in first chapter.

## 3.1 Research Design

The research design undertaken in the study has consists of descriptive and causal comparative research design to deal with the fundamental issues associated with determinants of interest rate spread in Nepalese commercial banks**.** The descriptive research design has been adopted for fact-finding and adequate information gathering about the fundamental issues associated with variables determinants of interest rate spread in Nepalese commercial banks. It explains the real and actual condition, and facts. The descriptive statistic was minimum, maximum, mean, standard deviation, coefficient of variation, and number of observation

The study has also used causal comparative research design which is an attempt to identify a relationship between an independent and dependent variable. This study establishes the cause-and-effect relationship between different related variables and interest spread rate in Nepalese commercial banks. Similarly, this design has been adopted to ascertain and understand the directions, magnitudes and forms of observed relationship between the variables of the bank performance of the study. The research has determined how interest rate spread are influenced by change to Bank size, credit risk, liquidity risk, operating risk, inflation and GDP.

## 3.2 Population and Sample, and Sampling Design

The population are all the commercial banks to involve in holding of deposits and lending in Nepal. The total no of bank is 20 commercial banks on the basis of financial stability report as of mid-July 2023. Out of them 12 banks are taken as sample on the basis of high share capital, foreign investment and high market sharing. The purposive sampling method is used. It is difficult to study all of them regarding the study topic because of limited time and resources factors too.

*Table 2*

Total Number of Observation

| S.N | Name of Banks | Fiscal Year | No. of Observation |
|---|---|---|---|
| 1 | Everest Bank Limited (EBL) | 2012/13-2021/22 | 10 |
| 2 | Global IME Bank Limited (GBL) | 2012/13-2021/23 | 10 |
| 3 | Himalayan Bank Limited (HBL) | 2012/13-2021/24 | 10 |
| 4 | Kumari Bank Limited (KBL) | 2012/13-2021/25 | 10 |
| 5 | Machhapuchhere Bank Limited (MBL) | 2012/13-2021/26 | 10 |
| 6 | NABIL Bank Limited | 2012/13-2021/27 | 10 |
| 7 | Nepal Bank Limited (NBL) | 2012/13-2021/28 | 10 |
| 8 | Nepal Investment Mega Bank Limited (NIBL) | 2012/13-2021/29 | 10 |
| 9 | NIC Asia Bank Limited (NIC) | 2012/13-2021/30 | 10 |
| 10 | Rastriya Banijya Bank Limited (RBB) | 2012/13-2021/31 | 10 |
| 11 | Standard Chartered Bank Limited (SCBL) | 2012/13-2021/32 | 10 |
| 12 | Sanima Bank Limited (SBL) | 2012/13-2021/33 | 10 |
| | Total | | 120 |

### 3.3 Nature and Source of Data, and the Instrument of Data Collection

The study is based on the secondary data which are gathered for 12 commercial banks in Nepal for the period of 10 years from 2012/13 to 2021/22. The variables used in this study are dependent variables (interest spread rate) and independent variables (bank size, operating cost, liquidity, credit risk, inflation, and GDP). The main sources of data are banking and financial statistics published by Nepal Rastra Bank, annual reports of different sample banks, supervision report of Nepal Rastra Bank and websites of respective commercial banks. In addition to these, different published articles, reports, books, and magazines will also analyze.

### 3.4 Methods of Analysis

#### 3.4.1 Descriptive Analysis

The descriptive method of research uses of many different kinds of research methods to investigate the variables in question. The most common tools are minimum, maximum, mean, standard deviation, coefficient of variation and number of observation. The objective of this study will be to analyze the structure and pattern of interest rate spread and to document the key microeconomic and determinants of interest rate spread in Nepal. Mean is calculated to find out the average of the variables used in research, which are interest rate spread, bank size, operating cost, liquidity, credit risk, inflation, and GDP. Standard deviation measures the percentage of total variation in dependent variable explained by independent variable. Coefficient of variation measures the ratio of the standard deviation to mean. It is usually used to compare the variation of different date sets in the research.

**Mean**

The mean, also known as the arithmetic average, is calculated by dividing the sum of all values within a certain range of values or quantities by the total number of values. The term "mean" is employed to calculate the central tendency of a dataset. The arithmetic mean is widely employed and effortlessly comprehensible as a measure of central tendency. The calculation involves the summation of all data points within a given population, followed by division of the sum by the total number of points. The mean is computed in this study to determine the average of the replies provided by the participants for the various variables in the Likert scale question. All samples are used to calculate the mean value of the replies in the Likert scale question.

Mean$= \frac{\sum X}{n}$

Where, $X$ = Value of responses of each independent or dependent variable

$n$ = Number of statements

**Standard Deviation**

The standard deviation is a statistical measure employed to quantify the extent of variation or dispersion within a given dataset. The positive square root of variance can be defined as it. One advantageous characteristic of the standard deviation is its ability to be represented in the same units as the data, which sets it apart from the variance. A higher degree of deviation within a data set is observed when the data points deviate further from the mean. Consequently, when the data becomes more dispersed, the standard deviation increases. This study involves the calculation of standard deviation for the responses obtained from the Likert scale throughout the entire sample.

$$\sigma = \sqrt{\frac{(X-\overline{X})^2}{n}}$$

Where, X= Value of responses of each dependent or independent variable

$\bar{X}$= Mean value of responses of each dependent or independent variable

n= Number of responses

### 3.4.2 Correlation Analysis

Correlation is a statistical tool designed to measure the degree of association between two or more variables. In other words, if the changes in one variable affects the change in another variable, then the variable are said to be co-related when it is used to measure the relationship between two variables, then it is called simple correlation. The coefficient of correlation measures the degree of relationship between two sets of Figures. Among the various methods of finding out coefficient of correlation, Karl Pearson's method is method is applied in the study. In this study, correlation is calculated for the observation to find out the degree of relation between independent and dependent variables for all samples.

### 3.4.3 Regression Analysis

In statistical modeling, regression analysis is a set of statistical processes for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable (interest rate spread) and one or more independent variables (bank size, operating cost, liquidity, credit risk, inflation, and GDP). More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. The statistical software SPSS is used to analyze the impact of the independent variables into dependent variable under the regression model.

ISR = *f (CR, LR, OC, BS, INF, and GDP).*

More specifically, the given model has been segmented into the following model:

$ISR = \beta_0 + \beta_1 CR + \beta_2 LR + \beta_3 OC + \beta_4 BS + \beta_5 INF + \beta_6 GDP + \varepsilon$

Where,

$\beta_0$ = Constant term

$\beta_1$ to $\beta_6$ =Coefficient of Variable

ISR= Interest Spread rate, defined as subtracting the weighted average deposit rate (WADR) from the weighted average lending rate (WALR)

LR= Liquidity Risk, defined as liquidity assets to total assets.

CR= Credit risk is defined as Non-Performing Loan to Total loan ratio

OR= Operational Risk is defined as operational cost to total assets

BS= Bank size is defined as the size of an individual firm is calculated as the log of total assets of a bank.

GDP= Gross domestic product, defined in terms of percentage increase in growth rate, in percentage.

INF= Annual inflation rate, defined as change in consumer price index, in percentage.

$\varepsilon$ = Error term

### 3.5 Research Framework and Definition of Variables

Research framework of the study describes the systematic explanation of the impact of independent variables upon dependent variables for the purpose of clarifying the factors determining interest spread rate in Nepalese commercial banks. In this study, independent variable used is the bank specific and macro-economic variable which is measured by credit risk, liquidity risk, operational risk, bank size, liquidity risk, inflation and GDP of the banks. The dependent variable used in the study is the factors determining interest spread rate in Nepalese commercial banks which is measured by using interest spread rate. The conceptual frameworks that describe the dependent and independent variables used in the study are shown in the Figure 1:

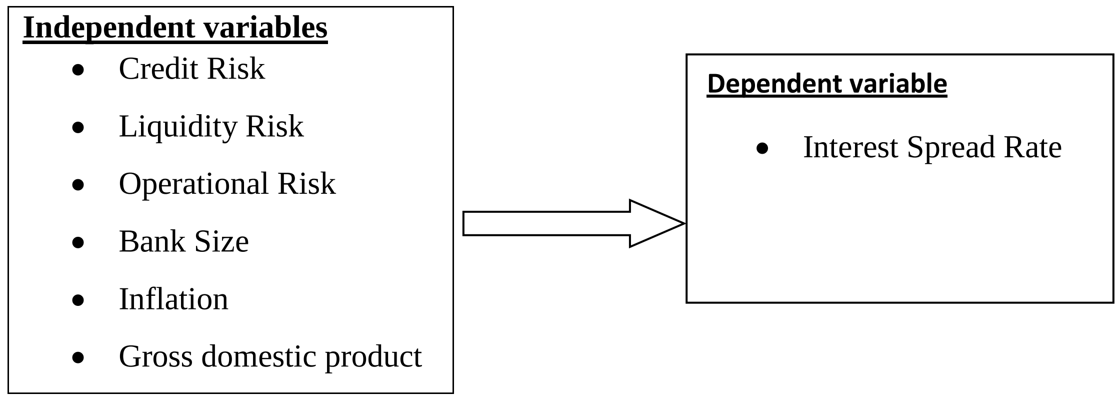


*Figure 1: Research Framework*

Source: (Shrestha 2020 & Subedi 2022)

Various variables are used in this study in the form of dependent and independent variables. The definitions of each variable used in this study are as follows:

**Interest Rate Spread**

The interest rate spread is the difference in the interest rate between the lending rate and the deposit rate. The interest rate can be calculated as follow: (rupees of interest earned divided by the Rupees amount of interest earning assets) minus (Rupees of interest paid divided by the rupee's amount of interest costing liabilities (Njeri et al., 2023). According to Aboagye et al. (2008), interest rate spread refers to the difference between the interest rate that financial institutions charge borrowers and the interest rate they pay to depositors. This spread is a critical measure of a bank's profitability, as it reflects the income generated from lending activities minus the cost of attracting and holding deposits. Similarly, the spread can be influenced by various factors, including central bank policies, market competition, credit risk, and the overall economic environment (Castro, 2013). A wider interest rate spread typically indicates higher potential earnings for the bank, while a narrower spread may suggest tighter profit margins (Wong, 1997). According to Forack (2016), interest rate spread is a crucial financial metric that denotes the difference between the interest rate that financial institutions, such as banks, charge on loans and the interest rate they pay on deposits. This spread is fundamental to a bank's profitability, as it represents the net interest margin, which is the primary source of income for most banks. A larger interest rate spread generally suggests that a bank is earning more from its lending activities relative to its costs of holding deposits, leading to greater profitability. Conversely, a narrower spread may indicate lower profit margins and can be a sign of competitive pressures or a low-interest-rate environment (Samuelson, 1945).

Interest rate spread = Weighted average lending rate – Weighted average deposit rate

**Credit Risk**

Credit risk refers to the potential financial loss that a lender or financial institution faces when a borrower or counterparty fails to meet their obligations to repay a loan or fulfill other financial commitments according to agreed terms (Spuchľákov et al., 2015). According to Chaibi (2016), Non-performing loans to total loans ratio is used as an indicator of credit risk or quality of loans. An increase in the provision for loan losses implies a higher cost of bad debt write-off. This variable expected to have a positive relationship with lending rate. Non-performing loan is also another variable which affect lending rate, this variable is measured as the ratio of the total loan or non-performing loans to total loans. According to Spuchľáková et al. (2013), Credit risk is the potential for financial loss resulting from a borrower's failure to repay a loan or meet contractual obligations. This type of risk is a fundamental concern for lenders, investors, and financial institutions, as it directly impacts their profitability and stability. Credit risk arises when borrowers whether individuals, companies, or governments are unable or unwilling to make scheduled payments on their debt obligations (Apanga et al., 2016).

Mathematically, it is calculated by:

$$Credit\ Risk = \frac{\text{Non−performing loans}}{\text{Total loans ratio}}$$

**Bank Size**

Bank size is measured as the log of total bank's assets. Larger banks should ideally be associated with lower interest rate spreads because of their ability to invest in technology that would improve efficiency and their large economies of scale (Samad, 2015).

However, to the extent that bank size connotes control of the market in the deposit and loan markets, Were and Wambua (2013) playing the significant role to determine the interest rate spread. Boyd and Runkle (1993) investigated the size and performance of banking firms. Bank size is measured as the natural logarithm of the value of total assets in US dollars. The size of a commercial bank is typically defined by several key metrics, including total assets, market capitalization, number of branches, and volume of deposits and loans. According to Aladwan (2015), the number of branches provides insight into the bank's physical presence and reach within a market. Additionally, the volume of deposits and loans signifies the bank's ability to attract customer funds and its lending capacity. Large commercial banks typically have extensive networks, significant capital reserves, and a diverse range of services, allowing them to play a pivotal role in the financial system and economy. Conversely, smaller banks may focus on niche markets or community-based services, emphasizing personal customer relationships and localized expertise (Davis & Mizruchi, 1999).

**Operational Risk**

The ratio of operating expenses to total assets is a critical measure that reflects the cost efficiency of a commercial bank in providing its services, including loans. As noted by Osazefua (2019), this ratio encompasses various operational costs such as administrative expenses, network costs, transportation costs, depreciation, and others. In banking, efficiency is often gauged by how effectively these operational costs are managed relative to the total assets held by the bank. A lower ratio indicates higher efficiency, as it suggests that the bank is able to generate revenue and manage operations while keeping costs relatively low compared to its asset base. According to Hemrit and Mounira (2012), Operating risk, also known as operational risk, refers to the potential for losses that stem from inadequate or failed internal processes, people, systems, or external events. This type of risk encompasses a wide array of issues, including failures or inefficiencies in transaction processing, compliance procedures, and reporting; errors or misconduct by employees, such as fraud, negligence, or lack of training; disruptions in IT systems due to software bugs, cyber-attacks, or system outages; and external factors like natural disasters, pandemics, and regulatory changes. Operational risk is intrinsic to all business activities, especially in industries like banking where complex processes and large transaction volumes are prevalent. Effective management of operational risk involves identifying potential risks, implementing controls and mitigation strategies, and continuously monitoring and improving processes to minimize the likelihood and impact of operational failures. Moreover, high operating costs are likely to include costs due to inefficiency leading to higher lending interest rate and hence this variable is used as an indicator of operational inefficiency (Tummala & Schoenherr, 2011).

$$Operational\ Risk = \frac{\text{Operating cost}}{\text{Total Assets}}$$

**Liquidity Risk**

Liquidity risk in banking is typically measured by the ratio of a bank's liquid assets to its total assets. Liquid assets are those that can be easily converted into cash without significant loss of value and include items like cash reserves, short-term government securities, and highly marketable assets. According to Arif & Nauman Anees (2012), banks with higher liquidity—meaning they hold a greater proportion of liquid assets relative to their total assets—are generally exposed to lower liquidity risk. This lower risk profile can translate into lower spreads, as banks may charge a reduced liquidity premium on loans. Conversely, Krishnamurthy (2010) points out that banks facing higher liquidity risk may need to borrow emergency funds at higher costs. To compensate for this risk, they may charge a liquidity premium on loans, thereby leading to higher interest rate spreads. According to Kumar and Yadav (2013), liquidity risk in banks refers to the potential inability of a bank to meet its short-term financial obligations as they come due, without incurring unacceptable losses. This risk arises when there is a mismatch between the maturities of a bank’s assets and liabilities specifically, when the bank's liabilities (such as customer deposits) can be withdrawn on short notice, but its assets (such as loans) are long-term and cannot be quickly converted into cash. Failure to manage liquidity risk can lead to severe financial distress or even insolvency, underscoring its critical importance in the banking sector (Hugonnier & Morellec, 2017).

$$Liquidity\ Risk = \frac{\text{Liquidity Assets}}{\text{Total Assets}}$$

**Inflation Rate**

Inflation (INF) serves as one of the ways through which the macroeconomic stability of an economy is measured (Atmadja, 2005). According to Kniest (1998), inflation refers to continuous and aggregate increase in the price level of commodities in an economy. Inflation occurs when there is a general and continuous rise in the prices of goods and services in the economy (Gbadebo & Mohammed, 2015). Boyd *et al*. (2001) studied the impact of inflation on financial sector performance. The result of the study reported that there is negative relationship between inflation and financial sector performance. It has been widely argued that inflation in the economy has significant effect on lending behavior of banks. According to evidences obtained from accessible literatures on the area, various views have been reflected in the literatures on the area regarding to the impact of inflation on lending behavior. However, substantial amount of literatures on the area more in general tend to advocate a negative impact of inflation on lending behavior (Diriba, 2020). The inflation rate is a measure of the rate at which the general level of prices for goods and services is rising, and, subsequently, how purchasing power is falling. It is usually expressed as a percentage over a specified period, typically annually. Inflation is calculated by tracking the changes in a price index, such as the Consumer Price Index (CPI) or the Producer Price Index (PPI), which measures the average change in prices paid by consumers or producers over time. When the inflation rate is high, each unit of currency buys fewer goods and services, reducing the purchasing power of money (Harriss, 1975).

**Gross Domestic Product**

Gross Domestic Product (GDP) is a comprehensive measure of the total value of all goods and services produced within a country's borders during a specific period, typically a year or a quarter. It serves as a key indicator of a nation's economic health and size. Gross domestic product is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. It measures the total market value of all final goods and services produced within a country in a given year (Isenmila & Erah, 2012). Gross Domestic Product (GDP) is the value of final goods produced, such as food and beverages, and services produced, such as business consultation, in the country in over a particular period of time (Brezina, 2011). Dornbusch & Fischer (1994) mentioned that the total demand for domestic output consists of four components:

consumption; investment by businesses; government purchases goods and services; and foreign demand. According to Hassan et al. (2022), Gross domestic product is a monetary measure of the market value of all the final goods and services produced in a specific time period by countries. The real gross domestic products growth rate has positive role in the economy. The economy growth rate has positive effect on lending behavior of commercial banks. GDP growth rates are crucial indicators of economic performance, reflecting whether an economy is expanding, contracting, or stagnant. High GDP growth rates typically indicate robust economic activity, while low or negative growth rates may signal economic downturns or recessions (Sobotka et al., 2011).

# CHAPTER IV

# RESULTS AND DISCUSSION

## 4.1 Results

Results include the analysis of data and its presentation. In this chapter the effort has been made to investigate the key determinants of interest rate spread in Nepalese commercial banks. The data are presented in suitable form in a table. Once the study is completed, it would be successful to prove the statement as the concrete and substantial. This study consists most of secondary data but primary data are also used where necessary to reach in decision. Secondary data has been collected particularly from monthly and annual trading report of sample commercial banks. The study has utterly relied on the secondary source of data and primary data. Data collected from the secondary sources are also tested with sophisticated statistical tools. Data analysis is a multifaceted process that involves examining, cleaning, transforming, and modeling data to uncover valuable insights, inform decisions, and support effective decision-making across various domains such as business, science, and social sciences. It encompasses diverse techniques and methodologies tailored to specific objectives and contexts. In the contemporary business environment, data analysis enhances decision-making by providing a more scientific basis for understanding trends, patterns, and relationships within data. One prominent technique within data analysis is data mining, which emphasizes statistical modeling and knowledge discovery to predict outcomes rather than merely describe them. Business intelligence, on the other hand, focuses on aggregating data to derive actionable insights primarily aimed at enhancing business operations.

### 4.1.1 Descriptive Statistics

Descriptive Analysis is concerned with the description and summarization of the data obtained from a group of individual units of analysis (Mtembu, 2017). It is used to interpret data and explain, view or summarize data in a concise way so that patterns can emerge from the data. In short, it uncovers sample’s characteristics, presents patterns and trends of the data. Descriptive analysis involves measures of frequency, central tendency, dispersion, and position, like mean, standard deviation, coefficient of variation.

*Table 3*

Descriptive Statistics

| FY | Credit Risk | Liquidity Risk | Operating Risk | Bank Size | GDP | Inflation | ISR |
|---|---|---|---|---|---|---|---|
| 2012/13 | 2.16 | 31.93 | 4.16 | 57.1 | 21.7 | 9.46 | 4.13 |
| 2013/14 | 2.48 | 24.47 | 3.28 | 66.03 | 22.2 | 9.04 | 3.69 |
| 2014/15 | 2.05 | 20.93 | 3.06 | 76.68 | 22.7 | 8.36 | 3.17 |
| 2015/16 | 1.7 | 17.51 | 2.03 | 90.24 | 24.4 | 7.87 | 3.34 |
| 2016/17 | 1.52 | 17.77 | 2.13 | 102.32 | 24.5 | 8.79 | 3.4 |
| 2017/18 | 1.45 | 13.74 | 2.12 | 121.6 | 29 | 3.63 | 3.57 |
| 2018/19 | 1.53 | 13.93 | 2.16 | 140.51 | 33.1 | 4.06 | 3.34 |
| 2019/20 | 1.6 | 12.81 | 1.95 | 174.45 | 34.2 | 5.57 | 2.83 |
| 2020/21 | 1.18 | 11.27 | 1.83 | 211.95 | 33.4 | 5.05 | 3.27 |
| 2021/22 | 1.2 | 6.28 | 1 | 234.87 | 36.3 | 4.09 | 3.74 |
| Mean | 1.69 | 17.06 | 2.37 | 127.58 | 28.15 | 6.59 | 3.45 |
| SD | 0.42 | 7.31 | 0.89 | 61.83 | 5.68 | 2.33 | 0.36 |
| C.V. (%) | 24.95 | 42.81 | 37.53 | 48.47 | 20.18 | 35.28 | 10.32 |

*Sources: Data collected from annual and quartile reports of studied banks and Nepal Rasta bank*

The table 3 presents the descriptive statistics of the study from the fiscal year 2012/13 to 2021/22. According to the table, the average credit risk of Nepalese commercial bank is 1.69 and Standard deviation of 0.42, along with a C.V of 24.95%. Similarly, the liquidity risk of commercial banks is 17.06, S.D. of 7.31 and C.V. is 42.81%. Likewise, the value of average operating risk is 2.37, S.D 0.89 and C.V is with 37.53%. Moreover, the average bank size of Nepalese commercial banks is 127.58 billion while its S.D is 61.83 and C.V with 48.47%. The average GDP in Nepalese economy is 28.15 whereas S.D and C.V are 5.68 and 20.18% respectively. In addition, based on the data, the average inflation rate of Nepalese economy is 6.59 and S.D with 2.33 along with a C.V. of 35.28%. Likewise, average interest rate of Nepalese commercial banks is 3.45, S.D. with 0.36 and C.V. with 10.32%.

### 4.1.2 Correlation Analysis

Correlation is a term that refers to the strength of a relationship between two variables. It helps to measure the strength of a linear relationship between quantitative variables. A strong or high correlation means that two or more variables have strong relationship with each other, while a weak or low correlation means that the variables are hardly related. The correlation coefficient is measured on a scale that varies from + 1 through 0 to – 1. When one variable increases as the other increases, the correlation is positive; when one decreases as the other increases, it is negative.

*Table 4*

Correlation between Variable of all Samples

| Variable | Credit Risk | Liquidity Risk | Operating Risk | Bank Size | GDP | Inflation | IRS |
|---|---|---|---|---|---|---|---|
| Credit Risk | 1 | | | | | | |
| Liquidity Risk | 0.868 | 1 | | | | | |
| Operating Risk | 0.867 | 0.972 | 1 | | | | |
| Bank Size | -0.839 | -0.886 | -0.832 | 1 | | | |
| GDP | -0.806 | -0.878 | -0.799 | 0.947 | 1 | | |
| Inflation | 0.769 | 0.836 | 0.729 | -0.779 | -0.885 | 1 | |
| IRS | 0.134 | 0.364 | 0.348 | -0.102 | -0.224 | 0.16 | 1 |

The table 4 illustrates the correlation between the dependent and independent variables. The correlation between liquidity risk and interest rate spread is 0.868. It suggests that there's a high degree of association between liquidity risk and interest rate spread. It implies that changes in liquidity risk are strongly related to changes in the interest rate spread. The correlation between operating risk and interest rate spread is 0.867, In this case, as operating risk rises the, spread rate tend to rise and vice versa. Further, the correlation analysis shows the negative relationship with low significance between bank size and GDP with IRS, since its correlation value is -0.839 and -0.806. There is a strong inverse relationship between bank size and GDP with interest spread rate. A negative correlation of -0.839 suggests a strong association between bank size and interest rate spread, indicating that changes in bank size are strongly related to changes in interest rate spreads. A correlation of -0.806 suggests a strong association between GDP and interest rate spread, with changes in GDP being strongly related to changes in interest rate spreads. In practical terms, this could imply that during periods of economic growth, interest rate spreads tend to decrease, potentially reflecting lower perceived risk and increased confidence in the economy. This could have implications for lending practices, market competition, and regulatory policies. The correlation value between inflation and interest rate spread is 0.769, which signifies that two variables are positively correlates which stated that when independent variable inflation increases dependent variable interest rate spread also increases. Further, this value indicates there is highly significance between these two variables at the level of 5% significant. The correlation between credit risk and interest rate spread is 0.133. It indicates a correlation of 0.133 is close to 0, indicating a weak positive linear relationship between credit risk and interest rate spread. In this situation, as credit risk increases, the interest rate spread may tend to increase slightly, and vice versa.

### 4.1.3 Regression Analysis

The general purpose of multiple regressions is to learn more about the relationship between several independent and a dependent variable. Simple linear regression shows the effect of an independent variable on single dependent variable while multiple linear regressions show the effects of multiple independent variables on single dependent variable. Correlation analysis only provides the degree of relationship between two variables. Thus, regression analysis is done to have better understanding of the strength of relationship between two or multiple variables.

*Table 5*

Regression Statistics

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.895 |
| R Square | 0.801 |
| Adjusted R Square | 0.402 |
| Standard Error | 0.275 |
| Observations | 10 |

The table 5 portrays the regression statistics results of 12 commercial banks with observations period of 10 years from 2012/13 to 2021/22 for the dependent variable (interest rate spread) : and independent variables (bank size, operating cost, liquidity ratio, credit ratio, inflation and GDP) over the analysis period. According to the data given in the table, $R^2$ of 0.801 means that approximately 80.1% of the variance in the interest spread rate is explained by the independent variables.

*Table 6*

ANOVA Analysis

| | *df* | *SS* | *MS* | *F* | *Significance value* |
|---|---|---|---|---|---|
| Regression | 6 | 0.913 | 0.152 | 2.008 | 0.03 |
| Residual | 3 | 0.227 | 0.076 | | |
| Total | 9 | 1.140 | | | |

The table 6 provides the ANOVA Analysis of the study. According to the ANOVA table, significance or p-value is 0.03, which is less than α (i.e. 5%) that implies the overall regression model is significant which means, there is linear relationship between interest rate spread and independent variables.

*Table 7*

Regression Analysis

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | 5.71 | 2.11 | 2.71 | 0.07 | -0.99 | 12.41 | -0.99 | 12.41 |
| CR | 0.53 | 0.56 | 0.96 | 0.41 | -1.24 | 2.31 | -1.24 | 2.31 |
| LR | 0.27 | 0.10 | 2.61 | 0.08 | -0.06 | 0.60 | -0.06 | 0.60 |
| OR | -1.37 | 0.68 | -2.01 | 0.14 | -3.53 | 0.79 | -3.53 | 0.79 |
| BS | 0.02 | 0.01 | 2.31 | 0.01 | -0.01 | 0.04 | -0.01 | 0.04 |
| GDP | -0.15 | 0.08 | -1.86 | 0.16 | -0.40 | 0.10 | -0.40 | 0.10 |
| Inflation | -0.36 | 0.14 | -2.57 | 0.08 | -0.80 | 0.08 | -0.80 | 0.08 |

The table 7 represents the regression analysis of 12 commercial banks with observations for the period of 10 years from 2012/13 to 2021/22 of the dependent variable (interest rate spread) and independent variables (bank size, operating cost, liquidity ratio, credit ratio, inflation and GDP) of twelve commercial bank over the study period.

For credit Risk, p-value is 0.41 and beta or coefficient value is 0.53. Here p-value is greater than 5% that means credit risk has insignificant positive impact on interest rate spread.

For liquidity risk, p-value is 0.08 and beta is 0.27 are given. Here p-value is 0.08 which is greater than 0.05 that means it also has positive insignificant impact on interest rate spread.

For operating risk, it has -1.37 beta coefficient and 0.14 p-value. So, in essence, the statement implies insignificant negative relationship with interest rate spread.

Bank size portrays 0.02 as beta coefficient and 0.01 is p-value. So, putting these together, there is a statistically positive significant impact on interest spread rate.

Typically, a p-value of GDP is 0.16 which is slightly higher than 0.05 and beta coefficient is -0.15 that suggest negative relationship between GDP and interest rate spread. In summary, the interpretation of this statement is that there is a weak negative relationship with spread rate.

For inflation, it has beta coefficient of -0.36 and p-value is 0.08. In summary, the interpretation of this statement is that there is a moderate negative relationship between inflation and the dependent variable that revealed it has insignificant impact on spread rate.

### 4.1.4 Summary of Hypothesis

Once the data and the impact of independent variables and dependent variable have been analyzed, the final results of hypothesis testing are as follows:

*Table 8*

Hypothesis Testing based on

| Hypothesis | P-value | Remarks |
|---|---|---|
| $H_1$: There is significant impact of credit risk on Interest rate spread | 0.41 | Insignificant |
| $H_2$: There is significant impact of liquidity risk on Interest rate spread | 0.08 | Insignificant |
| $H_3$: There is significant impact of operation risk on Interest rate spread | 0.14 | Insignificant |
| $H_4$: There is significant impact of Bank size on Interest rate spread | 0.01 | Significant |
| $H_5$: There is significant impact of GDP rate on Interest rate spread | 0.16 | Insignificant |
| $H_6$: There is significant impact of Inflation on Interest rate spread | 0.08 | Insignificant |

Regression analysis

The p-value for Credit risk is 0.41, which is well above the level of 0.05, indicating that credit risk does not have a statistically significant impact on interest rate spreads.

The p-value for Liquidity risk is 0.08 that is slightly above the 0.05 threshold. While this result is not statistically significant, it is relatively close to the significance level.

With a p-value of 0.14, operational risk does not show a statistically significant impact on interest rate spreads. This indicates that operational risk, in this context, does not play a major role in determining the spread of interest rates.

Since the p-value for bank size is 0.01, which is below the level of 0.05, it is therefore concluded that there is a significant relationship between interest rate spread and bank size.

The p-value of 0.16 suggests that GDP rate does not significantly impact interest rate spreads.

Similar to liquidity risk, the p-value for inflation is 0.08, which is above the 0.05 threshold. Although not statistically significant, this result suggests a potential, although weak, relationship between inflation and interest rate spreads.

## 4.2 Discussion

The major objectives of this research are to investigate the key determinants of interest rate spread in Nepalese commercial banks, to determine the relationship between operating cost, credit risk, liquidity risk, bank size, inflation, and GDP with interest rate spread, to analyze the effect of operating cost, credit risk, liquidity risk, bank size, inflation, and GDP on interest rate spread and to identify the most explanatory variables to determine the interest rate spread.

The result of this study support Were and Wambua (2013) where the main finding is bank specific factors play a significant role in the determination of interest rate spreads. These include credit risk, liquidity risk, and operating costs. The impact of macroeconomic factors such as real economic growth and inflation is not significant. But this study does not support the variable of bank size which is positive and not significance effect on interest rate spread. The result is consistent with (Ghasemi and Rostami, 2015) which have a positive relationship between the ratio of cost and spread rates and non-performing loan (NPL) coefficient stated that the increase in non-current loans, the mount of loans receivables and profit reduced and eventually lead to a reduction in spread rate. Results show there is a significant correlation between the ratio of NPL and spread rate. Aikaeli and Mugizi (2011) study concluded that the effect on interest rate spread from inflation and real exchange rate volatility was found to be inconsistent with theory. Moreover, the regression results suggested that development of the banking sector was positively related to interest rate spread. The result of this study also support Dhal and Ansari (2013) where the main finding was multiple factors wholly or partially can contribute to high interest rates and spreads in a less developed financial system.

Similarly, Banks' operating efficiency hold the key to effective loan pricing decisions in the Indian context. Significant and positive impact of the asset quality variable, i.e., non-performing loans, on loan interest rate and its spread. For there more, Bank size variable, which is often considered for gauging economies of scale effect, does not hold for the Indian context. The result of study confirms Kiptui (2014) where operating costs turning out to be highly significant and with highest interest margin elasticity implying that bank specific factors indeed play a significant role in determining interest rate margins. In addition to liquidity ratio, Liquidity is positively correlated with interest margin at levels and in differences. Non-performing loans is also significant positive effects on interest margins. Macroeconomic factors contribute to the interest margin. Likewise, GDP growth has significant positive effects.

The results obtained Mwamtambulo and Ntulo (2018) that the factors such as operating cost, provision for loan loss, and liquidity risk play a major role in increasing the interest rate spread. The results supported the need for the banks to find the optimum level for the operating costs, increase the level of operational efficiency and effectiveness. Achille (2016) reveled the finding of this studied that, bank assets, doubtful loan, and the volume of credit were among banks pecific characteristics, the significant determinants interest rate spread in CAEMC countries. On the other hand, inflation and real GDP growth were the significant macroeconomic determinants. But, the macro economic factors play the positive but not significance in the contest of Nepal. The result is consistent with Bektas (2014) which credit risk, market power, bank efficiency, and liquidity risk consistently have positive and significant effect on bank spreads and net interest margin. Furthermore, the macroeconomic variables, inflation rates seen significant values in the net interest margin.

The result consistent with Bhattarai (2020) which observed that there is positive and significant result between credit risk with interest rate spread. The other remaining variables such as size of the banks and GDP growth rate are positive, but insignificant. Result have been found that inflation rate is not support with the interest rate spread. Timsina (2020) reveled that commercial banks' interest rate spread is determined by the gross domestic product of the country and liquidity ratio and significant positive relationship between them. If macro-economic situation was conducive and supportive. Bhattarai (2015) revealed that operating costs to total assets ratio has positive and statistically significant impact on commercial bank in lending rate. Moreover, default risk has significant and positive impact on lending interest rate. Eventually, this study concludes that the major determinants of commercial banks’ lending rate are operating costs to total assets ratio and default risk in Nepalese context.

# CHAPTER V

# SUMMARY AND CONCLUSION

## 5.1 Summary

Interest rates are major economic factors that influence the economic growth in an economy. The various statistical tools have been used to make analysis meaningful and systematic and meet the research objective. During the research the areas that formed the part of the conceptual review were historical development of financial institution and evolution of commercial banks in Nepal, concept of commercial bank, function of banks and its components. Capital composition of the bank assures people of its inability to do any wrong and so these ratios are considered good when high. However, it must be high to a mandatory level, as too much of it might direct bank towards single operation or too diverted operation and management.

The major objectives of this research are to investigate the key determinants of interest rate spread in Nepalese commercial banks, to determine the relationship between operating cost, credit risk, liquidity risk, bank size, inflation, and GDP with interest rate spread, to analyze the effect of operating cost, credit risk, liquidity risk, bank size, inflation, and GDP on interest rate spread and to identify the most explanatory variables to determine the interest rate spread. This study follows descriptive and causal research design. The descriptive statistic are minimum, maximum, mean, standard deviation, coefficient of variation, and number of observation. Casual research conducts to identify the extent and nature of cause-and effect relationship between the variables. The research determines how interest rate spread are influenced by change to Bank size, credit risk, liquidity risk, operating risk, inflation and GDP. This study base only on secondary data. To collect the secondary data, published annual reports, balance sheet, prospectus, journals, magazines, articles, government and university publications, Nepal Rasta Bank as well as websites of sampled banks have been used as the sources of secondary information to determine the factor affecting on interest rate spread. The population is 27 commercial banks on the basis of financial stability report for the fiscal year 2020/21 which is published by Nepal Rasta Bank. Out of them 12 banks are taken as sample on the basis of high share capital, foreign investment and high market sharing. The purposive sampling method is used.

The study of descriptive analysis reveals that general improvement in the financial indicators of Nepalese commercial banks over the specified period, with decreasing credit risks and operating costs, and increasing bank size and GDP. However, there are fluctuations in liquidity ratios, inflation, and interest rate spreads, reflecting changing economic conditions and policy impacts. Understanding these trends can help policymakers, investors, and stakeholders make informed decisions about the financial sector and the broader economy.

In the context of Nepalese commercial banks, the correlation analysis reveals the comprehensive insights about the interest rate spread such as Liquidity Risk and Operating Risk are strongly positively correlated with interest rate spreads, indicating that banks charge higher spreads to mitigate these risks. Bank Size has a strong negative correlation with interest rate spreads, suggesting that larger banks benefit from lower spreads due to efficiencies and better risk management. Inflation is strongly negatively correlated with interest rate spreads, potentially reflecting how inflation affects the real returns on loans and deposits. GDP has a moderate positive correlation with interest rate spreads, implying that economic growth can lead to wider spreads as banks capitalize on increased economic activity. Credit Risk shows a weak positive correlation with interest rate spreads, indicating that while credit risk does influence spreads, its effect is relatively minor compared to other factors. By understanding these relationships, bank managers and policymakers can make informed decisions to enhance financial stability and economic growth in Nepal.

The regression model shows a strong fit to the data based on the high R-squared value and low standard error. However, the lower adjusted R-squared suggests that the model might benefit from refinement, possibly by removing non-significant predictors or addressing multicollinearity issues. According to the ANOVA analysis the overall regression model is statistically significant ($p = 0.03$), indicating that the model explains a significant amount of the variance in the dependent variable compared to a model with no predictors. Furthermore some variables like BS show statistical significance in their effect on the dependent variable, others such as CR, LR, OR, GDP, and Inflation do not show significant effects based on the given p-values. The interpretation should also consider practical significance and the context of the variables in the specific domain of the analysis.

**5.2 Conclusion**

The objective of this study was to analyze the determinants of interest rate spreads (IRS) in commercial banks in Nepal, focusing specifically on credit risk, operating risk, and market risk within the banking sector. The study confirmed a positive relationship between IRS and these risk factors, indicating that higher levels of credit risk, operating risk, and market risk contribute to increase interest rate spreads among commercial banks. Despite financial reforms, the upward trend in interest rate spreads persists, potentially due to reductions in credit risk, market risk, and operating costs. However, this suggests that improvements in the efficiency of financial services delivery to depositors and borrowers following financial liberalization have been limited. Efforts should be directed towards reducing interest rate spreads as they are critical indicators of bank performance. While financial sector reforms have not yet led to significant reductions in IRS, they remain essential for overall economic development. Assessments of banking sector reforms in transitional economies highlight their positive impacts on fiscal and monetary stability, emphasizing the need for continued prudent management and supervision of banks.

This results concluded that liquidity risk, credit risk, and bank size were found positive and significant determinants of interest rate spread in Nepalese commercial banks. The macroeconomic variables gross domestic products and inflation and bank specific variable operating risk have not effective roles plays to determine interest rate spread. The result concluded that the bank specific factors likes non-performing loan to total loan, total bank's assets, operating cost to total assets, liquidity assets to total assets and micro economic factors likes inflation and gross domestic product ware found significant positive impact on interest rate spread. It is shown that operating cost has higher influence on interest rate spread because without managing the operating cost, interest rate spread cannot be reducing. Other variables like liquidity and credit ratio are also higher influence than other variables likes bank size, inflation, and GDP ratio. Thus, it can be concluded that Bank size, operating risk, Liquidity risk, Credit risk, Inflation, and GDP have impact on interest rate spread in Nepalese commercial banks.

### 5.3 Implication

A number of recommendations have been made for the concerned authorities, future researchers, academics, and bankers on the basis of the analysis, interpretation, and conclusions. In Nepal, the spread between interest rates is too high. It is suggested that commercial banks reduce the spread between interest rates as much as possible to encourage lending by those who wish to do so. This will assist with creating the benefit of bank and furthermore helps in upgrade the monetary condition over the long haul. Store assumes vital part for the development of monetary foundations. Banks are unable to provide loans to customers without deposits. The banks are recommended to expand the store with the goal that they could give credit to penniless clients. The bank and monetary organization is expected to persistent increment the bank resources for lessen unsure gamble and unfortunate rivalry. The bank's reputation may suffer if the number of non-performing loans rises. Because of this client didn't allow advance which impacts on bank development and productivity. All of the sample banks should use well-trained employees because doing so improves customer service and makes work operations more productive.

Loaning establishments are recommended to contribute on new regions along with to present cutthroat client arranged plans on loaning and getting so that really loaning and acquiring can be advanced. The country's economic development relies heavily on banks. In any case, every one of the banks have good execution, there is circumstance of expansion which is a reason for tight degree activity. In this manner, Nepal Rasta Bank needs to serious areas of strength for concoct and observing with one window administration in store and speculation exercises. The commercial banks' interest rate spreads were significantly influenced by the independent variables used in this study. This concentrate consequently suggests that different variables that impact the loan fees of business banks be utilized to guarantee that business banks set ideal financing cost spreads and subsequently work on their presentation. In addition, this study suggests that the Central Bank of Nepal, on behalf of the Government of Nepal, should play a key role in developing policies and regulations to direct commercial banks in establishing optimal interest rate spreads in order to encourage loan acceptance and boost these banks' performance. Expanded advance take-up will prompt development in the economy of the country.

## 5.4 Recommendations for Further Study

Interest rate is inevitable in the monetary area since it is the main approach to remunerating contributors and meeting the costs in business banks. The difference between lending and deposit rate can however be controlled. The government, policymakers, and commercial banks, among other financial sector stakeholders, receive a number of recommendations from this study. From these research findings, the study recommends that;

1. Since fuel prices, commodities, and services prices were mentioned as major components of inflation, the government should make sure that the political environment is stable. This would greatly reduce the spread between commercial banks in Nepal's interest rates. On the other hand, these changes will make the business environment better and more affordable, which will help the financial services industry grow.
2. Commercial banks should also explore internally and industry driven systems to relieve against or counter a portion of the bank-explicit elements related with higher spreads, for example, expansion of items to lessen dependence on premium pay and the related dangers and furthermore interest in cost-saving and proficient types of innovation to decrease working expenses.
3. Policymakers should implement measures to encourage the growth of medium-sized banks in an effort to break the dominance of a few banks in the market and increase competition in an effort to open the financial sector. This sort of system will increment rivalry among banks and thus diminish loan fee spread.
4. Commercial banks should to expand the scope of elective speculations accessible to institutional financial backers which would work on their adaptability in

overseeing both long haul and transient ventures since high-focus stores from huge contributors can twist spreads in light of their influence with the person.

5. In order to reduce liquidity risk, commercial banks in Nepal should use the repurchase agreement for government securities or participate in the interbank market, as this has been identified as the greatest cause of fear and, consequently, uncertainty regarding the setting of high interest rate spreads.
6. If higher spreads are identified, policymakers may need to consider balancing capital requirements with measures to keep credit affordable.

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# ANNEX

| Name of Banks | Fiscal year | credit Risk | Liquidity risk | Operating Risk | Bank Size | GDP | Inflation | Interest Spread rate |
|---|---|---|---|---|---|---|---|---|
| EBL | 2012/13 | 1.02 | 57.36 | 5.57 | 57.72 | 21.7 | 9.46 | 4.19 |
| | 2013/14 | 0.97 | 42.42 | 4.55 | 62.11 | 22.16 | 9.04 | 4.3 |
| | **2014/15** | 0.66 | 22.78 | 2.77 | 83.09 | 22.73 | 8.36 | 2.85 |
| | **2015/16** | 0.38 | 26.69 | 1.65 | 93.74 | 24.36 | 7.87 | 2.79 |
| | **2016/17** | 0.25 | 24.44 | 1.83 | 95.09 | 24.52 | 8.79 | 3.11 |
| | **2017/18** | 0.2 | 25.11 | 1.87 | 115.51 | 28.97 | 3.63 | 3.14 |
| | **2018/19** | 0.16 | 23.97 | 1.94 | 129.57 | 33.11 | 4.06 | 2.55 |
| | **2019/20** | 0.22 | 21.14 | 1.8 | 143.55 | 34.19 | 5.57 | 2.14 |
| | **2020/21** | 0.12 | 23.72 | 1.56 | 160.22 | 33.43 | 5.05 | 3.24 |
| | **2021/22** | 0.24 | 7.2 | 1.02 | 172.74 | 36.29 | 4.09 | 3.26 |
| GBL | 2012/13 | 2.45 | 43.22 | 4.08 | 34.11 | 21.7 | 9.46 | 3.48 |
| | 2013/14 | 2.55 | 25.14 | 1.92 | 52.29 | 22.16 | 9.04 | 2.79 |
| | **2014/15** | 2.23 | 41.39 | 6.64 | 60.18 | 22.73 | 8.36 | 3.15 |
| | **2015/16** | 1.89 | 17.93 | 1.99 | 74.68 | 24.36 | 7.87 | 3.23 |
| | **2016/17** | 1.6 | 23.72 | 1.78 | 101.91 | 24.52 | 8.79 | 2.86 |
| | **2017/18** | 0.77 | 12.2 | 2.22 | 104.85 | 28.97 | 3.63 | 2.87 |
| | **2018/19** | 0.55 | 13.95 | 2.23 | 120.09 | 33.11 | 4.06 | 3.08 |
| | **2019/20** | 1.76 | 15.01 | 1.9 | 212.32 | 34.19 | 5.57 | 2.3 |
| | **2020/21** | 1.41 | 15.25 | 1.81 | 268.43 | 33.43 | 5.05 | 3.49 |
| | **2021/22** | 2.1 | 10.34 | 1.26 | 276.96 | 36.29 | 4.09 | 3.51 |
| HBL | 2012/13 | 1.65 | 41.12 | 5.58 | 53.07 | 21.7 | 9.46 | 4.35 |
| | 2013/14 | 1.96 | 29.88 | 3.35 | 64.67 | 22.16 | 9.04 | 3.34 |
| | **2014/15** | 3.22 | 21.3 | 2.57 | 73.54 | 22.73 | 8.36 | 3.3 |
| | **2015/16** | 1.23 | 14.76 | 1.96 | 87.34 | 24.36 | 7.87 | 3.6 |
| | **2016/17** | 0.85 | 11.71 | 2.08 | 92.88 | 24.52 | 8.79 | 3.41 |
| | **2017/18** | 0.85 | 10 | 2.21 | 98.99 | 28.97 | 3.63 | 3.55 |
| | **2018/19** | 1.4 | 10.83 | 2.38 | 109.39 | 33.11 | 4.06 | 3.33 |
| | **2019/20** | 1.01 | 15.68 | 2.16 | 125.26 | 34.19 | 5.57 | 2.55 |
| | **2020/21** | 0.48 | 11.66 | 2.07 | 141.02 | 33.43 | 5.05 | 3.31 |
| | **2021/22** | 0.77 | 4.23 | 1.42 | 168.42 | 36.29 | 4.09 | 3.28 |
| KBL | 2012/13 | 2.23 | 62.48 | 8.78 | 25.32 | 21.7 | 9.46 | 3.51 |
| | 2013/14 | 4.03 | 34.8 | 6.97 | 27.58 | 22.16 | 9.04 | 2.59 |
| | **2014/15** | 2.49 | 25.88 | 4.38 | 33.42 | 22.73 | 8.36 | 2.28 |
| | **2015/16** | 1.15 | 17.74 | 1.53 | 37.95 | 24.36 | 7.87 | 2.86 |
| | **2016/17** | 1.86 | 20.22 | 1.7 | 47.69 | 24.52 | 8.79 | 1.79 |
| | **2017/18** | 1.05 | 15.72 | 2.06 | 59.55 | 28.97 | 3.63 | 0.77 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2018/19** | 1.01 | 16.94 | 2.26 | 73.2 | 33.11 | 4.06 | 1.84 |
| | **2019/20** | 1.39 | 12.85 | 1.96 | 116.55 | 34.19 | 5.57 | 1.5 |
| | **2020/21** | 0.96 | 11.02 | 2.19 | 145.84 | 33.43 | 5.05 | 3.13 |
| | **2021/22** | 0.96 | 5.41 | 0.59 | 176.77 | 36.29 | 4.09 | 3.23 |
| MBL | 2012/13 | 1.68 | 24.26 | 2.88 | 27.14 | 21.7 | 9.46 | 3.5 |
| | 2013/14 | 1.78 | 38.05 | 3.7 | 37.13 | 22.16 | 9.04 | 2.97 |
| | **2014/15** | 0.64 | 47.63 | 9.47 | 44.21 | 22.73 | 8.36 | 2.94 |
| | **2015/16** | 0.55 | 15.48 | 1.72 | 52.29 | 24.36 | 7.87 | 3.23 |
| | **2016/17** | 0.38 | 18.7 | 1.9 | 58.63 | 24.52 | 8.79 | 3.12 |
| | **2017/18** | 0.44 | 13.3 | 1.96 | 71.14 | 28.97 | 3.63 | 2.45 |
| | **2018/19** | 0.37 | 14.87 | 2.45 | 85.2 | 33.11 | 4.06 | 3.17 |
| | **2019/20** | 0.52 | 13.77 | 2.45 | 104.1 | 34.19 | 5.57 | 3.05 |
| | **2020/21** | 0.62 | 13.36 | 2.17 | 131.62 | 33.43 | 5.05 | 3.82 |
| | **2021/22** | 0.84 | 4.91 | 1.65 | 145.03 | 36.29 | 4.09 | 3.78 |
| NABIL | 2012/13 | 2.32 | 16.02 | 2.25 | 98.77 | 21.7 | 9.46 | 5.02 |
| | 2013/14 | 2.23 | 9.48 | 1.9 | 101.23 | 22.16 | 9.04 | 4.34 |
| | **2014/15** | 1.82 | 7.22 | 1.22 | 119.86 | 22.73 | 8.36 | 3.06 |
| | **2015/16** | 1.14 | 8.44 | 1.07 | 131.35 | 24.36 | 7.87 | 3.45 |
| | **2016/17** | 0.8 | 9.09 | 1.43 | 144.02 | 24.52 | 8.79 | 3.89 |
| | **2017/18** | 0.55 | 9.52 | 1.49 | 160.92 | 28.97 | 3.63 | 3.82 |
| | **2018/19** | 0.74 | 11.42 | 1.77 | 163.53 | 33.11 | 4.06 | 3.29 |
| | **2019/20** | 0.98 | 10.44 | 1.34 | 237.68 | 34.19 | 5.57 | 2.74 |
| | **2020/21** | 0.84 | 5.26 | 1.58 | 291.07 | 33.43 | 5.05 | 3.79 |
| | **2021/22** | 1.54 | 2.89 | 0.32 | 331.06 | 36.29 | 4.09 | 3.83 |
| NBL | 2012/13 | 3.29 | 9.59 | 1.14 | 68.65 | 21.7 | 9.46 | 6.03 |
| | 2013/14 | 2.84 | 27.82 | 3.81 | 77.98 | 22.16 | 9.04 | 4.69 |
| | **2014/15** | 1.88 | 25.33 | 2.38 | 88.21 | 22.73 | 8.36 | 4.64 |
| | **2015/16** | 3.11 | 19.83 | 2.78 | 103.48 | 24.36 | 7.87 | 5.41 |
| | **2016/17** | 3.32 | 16.85 | 2.57 | 112.06 | 24.52 | 8.79 | 5.82 |
| | **2017/18** | 3.37 | 9.04 | 2.1 | 133.47 | 28.97 | 3.63 | 6.04 |
| | **2018/19** | 2.64 | 12.01 | 1.6 | 171.52 | 33.11 | 4.06 | 4.24 |
| | **2019/20** | 2.47 | 5.8 | 1.59 | 191.16 | 34.19 | 5.57 | 3.31 |
| | **2020/21** | 2.05 | 5.99 | 1.5 | 222.65 | 33.43 | 5.05 | 4.34 |
| | **2021/22** | 1.9 | 4.26 | 0.73 | 260.08 | 36.29 | 4.09 | 4.43 |
| NIBL | 2012/13 | 1.21 | 11.36 | 1.09 | 105.25 | 21.7 | 9.46 | 5.02 |
| | 2013/14 | 1.77 | 4.56 | 0.68 | 124.52 | 22.16 | 9.04 | 4.34 |
| | **2014/15** | 1.25 | 5.25 | 0.42 | 129.52 | 22.73 | 8.36 | 3.06 |
| | **2015/16** | 0.68 | 9.71 | 0.91 | 134.52 | 24.36 | 7.87 | 3.45 |
| | **2016/17** | 0.83 | 11.52 | 1.18 | 155.36 | 24.52 | 8.79 | 3.89 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2017/18** | 1.36 | 13.07 | 1.34 | 171.89 | 28.97 | 3.63 | 3.82 |
| | **2018/19** | 2.78 | 13.12 | 1.41 | 185.84 | 33.11 | 4.06 | 3.29 |
| | **2019/20** | 2.91 | 10.77 | 1.26 | 203.02 | 34.19 | 5.57 | 2.72 |
| | **2020/21** | 2.46 | 6.33 | 1.24 | 227.93 | 33.43 | 5.05 | 3.79 |
| | **2021/22** | 1.47 | 3.79 | 0.7 | 250.59 | 36.29 | 4.09 | 3.85 |
| NIC | 2012/13 | 0.79 | 18.64 | 3.66 | 46.54 | 21.7 | 9.46 | 2.63 |
| | 2013/14 | 0.68 | 14.53 | 2.75 | 51.5 | 22.16 | 9.04 | 3.23 |
| | **2014/15** | 0.41 | 7.72 | 1.6 | 60.52 | 22.73 | 8.36 | 2.39 |
| | **2015/16** | 0.11 | 9.88 | 1.31 | 80.46 | 24.36 | 7.87 | 2.22 |
| | **2016/17** | 0.04 | 13.87 | 1.86 | 99.27 | 24.52 | 8.79 | 2.26 |
| | **2017/18** | 0.01 | 14.04 | 1.83 | 170.94 | 28.97 | 3.63 | 2.22 |
| | **2018/19** | 0.23 | 16.68 | 2.02 | 217.7 | 33.11 | 4.06 | 3.12 |
| | **2019/20** | 0.27 | 12.38 | 2.05 | 250.59 | 34.19 | 5.57 | 2.64 |
| | **2020/21** | 0.24 | 9.53 | 1.54 | 346.15 | 33.43 | 5.05 | 3.73 |
| | **2021/22** | 0.49 | 5.12 | 0.67 | 358.57 | 36.29 | 4.09 | 3.74 |
| RBB | 2012/13 | 4.32 | 18.32 | 1.69 | 104.24 | 21.7 | 9.46 | 3.65 |
| | 2013/14 | 6.38 | 10.7 | 1.08 | 122.56 | 22.16 | 9.04 | 3.47 |
| | **2014/15** | 5.35 | 9.54 | 0.7 | 139.56 | 22.73 | 8.36 | 3.64 |
| | **2015/16** | 4.25 | 32.37 | 2.21 | 172.06 | 24.36 | 7.87 | 3.76 |
| | **2016/17** | 3.77 | 20.52 | 2.12 | 179.07 | 24.52 | 8.79 | 4.43 |
| | **2017/18** | 4.75 | 8.26 | 2.11 | 197.33 | 28.97 | 3.63 | 5.96 |
| | **2018/19** | 4.59 | 9.08 | 1.94 | 226.41 | 33.11 | 4.06 | 5.56 |
| | **2019/20** | 4.08 | 9.38 | 1.72 | 266.77 | 34.19 | 5.57 | 3.53 |
| | **2020/21** | 3.23 | 11.57 | 1.45 | 309.99 | 33.43 | 5.05 | 4.37 |
| | **2021/22** | 2.01 | 7.38 | 0.79 | 330.24 | 36.29 | 4.09 | 4.43 |
| SCBL | 2012/13 | 4.32 | 11.02 | 2.29 | 42.41 | 21.7 | 9.46 | 4.59 |
| | 2013/14 | 4.29 | 11.67 | 1.63 | 41.41 | 22.16 | 9.04 | 4.64 |
| | **2014/15** | 4.33 | 9.61 | 1.07 | 47.74 | 22.73 | 8.36 | 3.85 |
| | **2015/16** | 5.83 | 31.15 | 6.4 | 59.07 | 24.36 | 7.87 | 3.19 |
| | **2016/17** | 4.55 | 30.87 | 5.78 | 71.86 | 24.52 | 8.79 | 3.51 |
| | **2017/18** | 3.98 | 23.55 | 4.72 | 82.78 | 28.97 | 3.63 | 5.76 |
| | **2018/19** | 3.76 | 17.43 | 4.2 | 94.61 | 33.11 | 4.06 | 4.24 |
| | **2019/20** | 3.15 | 18.11 | 3.6 | 116.3 | 34.19 | 5.57 | 5.53 |
| | **2020/21** | 1.68 | 14.79 | 3.43 | 137.76 | 33.43 | 5.05 | 3.88 |
| | **2021/22** | 1.73 | 11.52 | 1.17 | 155.45 | 36.29 | 4.09 | 3.84 |
| SBL | 2012/13 | 0.65 | 69.73 | 10.88 | 21.98 | 21.7 | 9.46 | 3.61 |
| | 2013/14 | 0.22 | 44.56 | 7.01 | 29.38 | 22.16 | 9.04 | 3.53 |
| | **2014/15** | 0.37 | 27.5 | 3.5 | 40.3 | 22.73 | 8.36 | 2.87 |
| | **2015/16** | 0.02 | 6.1 | 0.82 | 55.96 | 24.36 | 7.87 | 2.89 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2016/17** | 0.01 | 11.74 | 1.33 | 70 | 24.52 | 8.79 | 2.71 |
| | **2017/18** | 0.03 | 11.04 | 1.48 | 91.82 | 28.97 | 3.63 | 2.41 |
| | **2018/19** | 0.08 | 6.8 | 1.76 | 109.04 | 33.11 | 4.06 | 2.34 |
| | **2019/20** | 0.45 | 8.34 | 1.56 | 126.14 | 34.19 | 5.57 | 1.89 |
| | **2020/21** | 0.12 | 6.74 | 1.41 | 160.67 | 33.43 | 5.05 | 3.7 |
| | **2021/22** | 0.35 | 8.35 | 1.66 | 192.49 | 36.29 | 4.09 | 3.65 |

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