DETERMINANTS OF INTEREST RATE SPREAD OF COMMERCIAL BANKS IN NEPAL

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment 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 of Commercial Banks in Nepal"**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has 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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REPORT OF RESEARCH COMMITTEE

Mr. Abinash Kumar Sah has defended research proposal entitled **"Determinants of Interest Rate Spread of Commercial Banks in Nepal"** 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 Dr. Dilliram Bhandariand submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We, the undersigned, have examined the dissertation entitled **"Determinants of Interest Rate Spread of Commercial Banks in Nepal"** presented by Mr. Abinash Kumar Sah for the degree of Master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the dissertation is worthy of acceptance.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

ABBREVIATIONS

CAR	:	Capital Adequacy Ratio
EXR	:	Exchange Rate
GIB	:	Global IME Bank
IEATTA	:	Interest Earning Assets to Total Assets Ratio
INF	:	Inflation Rate
IRS	:	Interest Rate Spread
NBL	:	Nabil Bank Limited
NIC	:	NIC Asia Bank
NIMB	:	Nepal Investment Mega Bank
NPL	:	Non-Performing Loans
RBB	:	Rastriya Banijya Bank
RDDTTD	:	Ratio of Demand Deposit to Total Deposit
TU	:	Tribhuvan University

ABSTRACT

The study examines the factors affecting the interest rate spread (IRS) in commercial banks in Nepal. It focuses on six main independent variables: Non-Performing Loans (NPL), Ratio of Demand Deposit to Total Deposit (RDDTTD), Interest Earning Assets to Total Assets Ratio (IEATTA), and Capital Adequacy Ratio (CAR) as bank-specific variables, along with Inflation Rate (INF) and Exchange Rate (EXR) as macroeconomic variables. The research uses both descriptive and causal research design, analyzing panel data from 2013/14 to 2022/23 for five commercial banks: NABIL Bank, Global IME Bank, Rastriya Banijya Bank, NIC Asia Bank, and Nepal Investment Mega Bank. The descriptive analysis highlights the variation in financial characteristics among the banks, while the correlation analysis reveals a positive connection between NPL and IRS, indicating that higher NPL leads to a wider interest rate spread. Conversely, IEATTA and EXR show negative correlations with IRS, suggesting that a higher proportion of interest-earning assets and a stronger exchange rate contribute to a lower IRS. Regression analysis further confirms the importance of NPL, IEATTA, and EXR on IRS, with NPL having a significant positive impact and IEATTA and EXR having significant negative impacts. On the other hand, RDDTTD, CAR, and INF demonstrate limited influence on IRS in both correlation and regression analyses. These findings offer insights into the key factors influencing interest rate spreads in Nepal's most profitable commercial banks.

Keywords: *Interest Rate Spread, Non-Performing Loans Ratio, Ratio of Demand Deposit to Total Deposit, Interest Earning Assets to Total Assets Ratio, Capital Adequacy Ratio, Inflation, Exchange Rate, Nepalese Commercial Banks*

CHAPTER – I
INTRODUCTION

1.1 Background of the study

Commercial banks play a crucial role in enhancing economic performance and act as significant financial intermediaries. Their primary responsibility involves gathering savings from households through various deposit accounts and then reallocating these funds by providing loans to various sectors of the economy (Goet, 2021). Interest rates are essential economic factors that influence growth. They represent the cost charged to borrowers for using assets such as cash, goods, vehicles, or property. For borrowers, the interest rate indicates the expense of debt, while for lenders, it signifies the return on their investment. The repayment amount typically surpasses the amount borrowed as lenders seek compensation for the opportunity cost of not investing the money elsewhere. This disparity constitutes the interest charged.

The difference in interest rates between two related rates is known as the interest rate spread. In the banking sector, it represents the difference between the rates for deposits and those for loans. The interest rate spread is a significant global economic concern (Ghasemi & Rostami, 2015) as it signifies the cost incurred by borrowers when obtaining funds from a financial institution, similar to the cost of renting money. This rate often reflects market expectations about changes in the purchasing power of money or future inflation. Commercial banks attract savings by offering a variety of deposit products and then use these savings for loans and investments (Were & Wambua, 2014). Interest serves as both a payment and a return; when paid, it is a cost, and when received, it is a return.

The time value of money is reflected in interest rates (Kiptui, 2014), impacting daily financial decisions and potentially influencing investment outcomes. Therefore, it's important for investors to closely monitor interest rate trends, as significant changes may require a reassessment of existing investments and highlight new opportunities. Interest rates are typically expressed annually as the Annual Percentage Rate (APR) and play a crucial role in regulating the flow of money in the economy: high rates can control inflation but may slow economic activity, while low rates can boost economic

performance but might lead to inflation (Aleemi et al., 2015). The difference between lending and deposit rates is referred to as the interest rate spread, which is an important measure of a financial system's efficiency. This spread is often evaluated by comparing the income generated from interest-bearing assets to the interest paid on liabilities (Paudel & Khanal, 2016).

The banking sector's market micro structure and the broader policy environment both influence the interest rate spread. Factors such as bank risk management, transaction sizes, interest rate sensitivity, and variability affect the pure spread, which is a micro structural aspect. When it comes to risk-averse banks, they tend to have smaller spreads compared to risk-neutral ones due to the impact of risk aversion on optimal interest rates and credit supply. The actual spread is shaped by macroeconomic factors like monetary and fiscal policies, direct taxes, reserve requirements, and transaction costs, which incorporate the pure spread. (Maigua & Mouni, 2016)

The difference between the interest rates charged to borrowers and those paid to depositors, known as the interest rate spread, is a reflection of the efficiency of a banking system. Both this spread and the Net Interest Margin (NIM) serve as important indicators of a bank's operational efficiency (Kanwal et al., 2014). In general, higher interest rates can enhance bank profits, although the overall financial performance is also influenced by various measures of profitability such as profit margins and return on equity. It is essential to grasp the determinants of interest rates in order to evaluate a bank's financial well-being and its future operational prospects.

Interest rate spreads are influenced by several factors. For example, if a central bank maintains a consistent monetary base and increases reserve requirements, this leads to higher interest rates. To meet these requirements, banks may have to attract more deposits, which in turn raises deposit rates. Conversely, a lower discount rate promotes borrowing, thereby increasing the money supply and decreasing interest rates. Conversely, an increase in the discount rate can discourage borrowing, leading to higher interest rates and a reduction in the money supply (Maigua & Mouni, 2016).

A credit institution, such as a bank, has the responsibility of gathering deposits, extending loans, and providing financial services. Commercial banks are involved in a

range of activities, including receiving deposits, giving out loans, and carrying out credit creation and agency functions. They offer short-term and long-term loans to support business growth and provide off-balance-sheet services like issuing guarantees and letters of credit. Banks use the high demand for loans to set favorable terms for borrowers and manage risks through pledges or guarantees, with the goal of making a profit from the difference between interest paid on deposits and interest received from loans. This difference, referred to as the spread rate, reflects the cost of financial intermediation. In Nepal, the interest rate spread, which is influenced by deposit interest expenses and loan income, indicates competition, credit risk, and managerial efficiency. Nepal Rastra Bank has instructed "A" class banks to lower their interest spread rate to within 4.4 percent, and the overall spread reduced to 3.78 percent by mid-July 2021 (Nepal Rastra Bank, 2021).

In relation to the above literatures this study aims to analyze the determinants of interest rate spread for commercial banks in Nepal focusing on factors such as the NPL ratio, demand deposit ratio, interest-earning assets ratio, capital adequacy ratio, inflation rate and exchange rate with the interest rate spread as the dependent variable.

1.2 Problem statement

The mobilization of savings and provision of credit are crucial roles played by the banking sector. Understanding financial intermediation and the macroeconomic environment in which banks operate requires an analysis of high interest rate spreads. Empirical research on the determinants of interest rate spread at the industry-level or bank level has been limited.

In their research conducted in 2024, Quy and Tuan delved into the factors influencing the profitability of banks in Vietnam, with a specific focus on the intermediary function of interest rate spread (IRS). Their findings revealed that cost efficiency, income diversity, and liquidity risk had a positive impact on IRS. On the other hand, bank size, non-performing loans, provision for bad debts, asset structure, non-interest expenses, and economic conditions were not found to have a significant effect on IRS. However, the study did not explore other potential determinants of profitability, such as market competition and regulatory influences. The authors emphasized the importance of understanding the mediating role of IRS in enhancing bank profitability

and suggested that policymakers should promote income source diversification among banks to mitigate the risks associated with credit overheating and to support long-term economic growth.

In a recent study, Goet (2021) examined the correlation between loans and various key financial indicators such as total deposits, the cash reserve ratio, interest rate spread, and inflation rate. The aim was to evaluate their impact on lending activities. The research emphasizes the pivotal role of the banking sector in driving economic growth through the channeling of household savings into loans, particularly for private enterprises. This process fosters economic activity and underscores the significance of banks' credit policies in upholding asset quality and meeting financial targets. A well-designed credit policy ensures that lending activities are in line with a bank's strategic direction. Nonetheless, handling credit poses a major challenge for commercial banks, as the success of loan decisions heavily relies on the judgment and expertise of bank officers, highlighting the intricate nature of credit management in balancing profitability and risk.

Ghasemi and Rostami (2016) examined the relationship between interest rate spread and the capital-to-assets ratio of banks, finding that the spread increases with higher capital ratios. Their results suggested non-competitive pricing behavior in the market, with a high spread indicating inefficiency in the banking system. They also noted significant correlations between the spread rate, non-performing loans (NPLs), and an inverse relationship between exchange rate fluctuations and interest rate spreads. Additionally, a negative relationship was found between income-earning assets to total assets ratio and the spread rate.

In Nepal, the banking sector is dedicated to providing funding to different sectors and catering to various groups. Previously, the central bank used to regulate the interest rates charged and offered by institutions, but in recent years, institutions have started setting their interest rates independently. Therefore, it is crucial to determine whether these rates are influenced by market forces or managerial discretion. According to Ojha (2020), inflation affects the interest rate on deposits and the interest rate on loans and advances from finance companies in Nepal.

The literature review highlights a gap in research on interest rate spread determinants in Nepal. To address this, the researcher formulated questions focusing on key issues in Nepalese commercial banks. The study examined variables like the NPL ratio, demand deposits to total deposits ratio, interest-earning assets to total assets ratio, capital adequacy ratio, and inflation, with IRS as the dependent variable. The goal was to understand the factors influencing IRS in Nepal. The research questions are as follows:

i. What is the interest rate spread position of selected commercial banks in Nepal?
ii. Is there any relationships exist between NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation rate and exchange rate with interest rate spread of selected commercial banks in Nepal?
iii. How do NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation rate and exchange rate influence on interest rate spread of selected commercial banks in Nepal?

1.3 Objectives of the study

This study evaluates the impact of key financial ratios, such as the NPL ratio, RDDTTD, IEATTA, CAR, INF and EXR on the interest rate spread (IRS) in selected commercial banks in Nepal. The study's specific objectives are listed below:

i. To assess the interest rate spread position of selected commercial banks in Nepal.
ii. To examine the existence of relationships between NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation rate, exchange rate with interest rate spread of selected commercial banks in Nepal.
iii. To analyze the influence of NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation rate and exchange rate on interest rate spread of selected commercial banks in Nepal.

1.4 Rationale of the study

The motivation behind this research stems from the potential advantages it can bring to various interested parties. Commercial banks in Nepal could acquire valuable insights into the favorability of their interest rate spread (IRS) positions, which would enable them to enhance their lending and borrowing strategies for better profitability and risk management. The findings on the determinants of IRS could be utilized by regulators and policymakers to formulate targeted policies that foster a more competitive and effective banking industry. Investors and analysts would gain from a deeper comprehension of how both bank-specific and macroeconomic factors impact IRS, helping them to make well-informed investment decisions. In essence, the study's beneficiaries encompass the banking sector, regulatory bodies, investors, and the overall economy of Nepal, all of whom could benefit from a more profound understanding of IRS dynamics in Nepalese commercial banks. By addressing these crucial areas, the study contributes to academic literature and offers practical implications for enhancing the financial well-being and stability of Nepal's banking sector.

1.5 Limitations of the study

These limitations provide context and scope for this study, acknowledging potential constraints while conducting research on the determinants of interest rate spread of commercial banks in Nepal. The limitations of this study are as follows:

i) Limited to five Nepalese commercial banks: Nabil Bank Ltd., Global IME Bank Ltd., Rastriya Banijya Bank Ltd., NIC Asia Bank Ltd. and Nepal Investment Mega Bank Ltd., potentially limiting the representation of the broader banking sector.
ii) This study has covered past ten-year period data from FY 2013/14 to FY 2022/23.
iii) Focuses primarily on specific variables: NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation and exchange rate potentially overlooking other determinants influencing interest rate spread.
iv) Relies on secondary data sources like bank annual reports and documents, which may have limitations in data accuracy and completeness.

CHAPTER – II
LITERATURE REVIEW

This chapter aims to analyze prior research on interest rate spreads of commercial banks in Nepal and generate concepts for the current study. Reviewing earlier studies is essential for establishing a foundation and ensuring continuity. A thorough review of relevant books, journals, and articles has been conducted, divided into theoretical and empirical segments.

2.1 Theoretical review

This section examines the theoretical principles relevant for comprehending the factors influencing interest rate spreads among commercial banks in Nepal. The emphasis in this section is on investigating and evaluating fundamental theories that elucidate the mechanisms underlying interest rate spreads. These theoretical frameworks provide valuable insights into the processes through which banks establish their interest rates for loans and deposits. While specific practices may vary between banks, these theories contribute to a comprehensive understanding of how interest rate spreads are established.

Several notable theories pertinent to this analysis include:

Classical Theory of Interest Rate

The Classical Theory, which originates from Adam Smith's work, proposes that interest rates are determined by the equilibrium between the supply of savings and the demand for investment funds. When savings increase, more capital becomes available for investment, often resulting in a decrease in interest rates as lenders compete to attract borrowers. On the other hand, when there is a higher demand for loans due to increased investment opportunities, interest rates are likely to rise because borrowers are willing to pay more for access to capital, and lenders can charge higher rates. This balance between available savings and investment needs is essential for setting interest rates in a competitive marketplace, where rates adjust to reflect the scarcity or abundance of capital, ensuring efficient allocation of resources to the most productive investments (Smith, 1776).

Loanable Funds Theory of Interest Rate

The Loanable Funds Theory builds upon the Classical Theory by examining how the supply of funds available for borrowing relates to the demand for borrowing. It proposes that the interest rate functions as the equilibrium price that aligns the amount of funds provided by savers with the amount sought by borrowers. An increase in the savings rate results in a higher supply of loanable funds, typically causing interest rates to decrease. Conversely, if there is a greater demand for loans due to improved investment opportunities, interest rates will increase to equalize the supply and demand for these funds (Keynes, 1936).

Theory of Liquidity Preference

The Theory of Liquidity Preference was introduced by John Maynard Keynes, and it suggests that the public's desire to hold liquid assets determines interest rates. According to this theory, the interest rate is influenced by both the supply of money and the demand for liquidity. When individuals choose to hold more money for transactions or precautionary reasons, the demand for liquid assets increases, leading to higher interest rates. Conversely, a decrease in the demand for liquidity results in lower interest rates. This theory highlights how changes in monetary policy and money supply can impact interest rates (Keynes, 1936).

Rational Expectations Theory of Interest Rate

The theory of Rational Expectations, which was formulated by Robert Lucas, suggests that individuals in the economy base their predictions about future economic conditions on all the information available to them. These predictions then influence interest rates. According to this theory, people analyze historical data and current information to anticipate future economic trends, which in turn has an impact on interest rates. Anticipated changes in monetary policy have limited effects on real economic variables because individuals adjust their expectations accordingly. Only unanticipated policy changes have substantial effects on interest rates and economic conditions (Lucas, 1976).

Fisher Effect Theory

Irving Fisher's Fisher Effect Theory posits that nominal interest rates comprise the real interest rate and the anticipated inflation rate. According to this theory, an

increase in inflation expectations will prompt nominal interest rates to adapt in order to uphold the actual return on investments. Fisher's theory suggests that changes in the inflation rate will have a direct impact on nominal interest rates, thus preserving the genuine value of investment returns (Fisher, 1930).

Term Structure of Interest Rates Theory

The Theory of the Term Structure of Interest Rates investigates the differences in interest rates across different time periods. It includes several viewpoints: the Expectations Theory, which suggests that long-term rates reflect expected future short-term rates; the Liquidity Premium Theory, which proposes that long-term rates encompass an additional amount for the heightened risk associated with longer-term investments; and the Segmentation Theory, which argues that varying investor preferences for different time periods result in segmented markets with different interest rates. Together, these theories offer a comprehensive comprehension of how interest rates are determined for different time periods and how they change over time (Miller & Modigliani, 1961).

2.2 Empirical review

Golbabaei Pasandi et al. (2024) investigated how heightened regulatory capital requirements affect bank performance, particularly in terms of adjusting lending spreads to offset decreases in financial performance. The research compared the efficacy of economic value added (EVA) and return on equity (ROE) as indicators for determining suitable lending spreads. By analyzing data from major U.S. banks spanning from 2018 to 2022, the study revealed that the ROE method tends to overstate the necessary increase in lending spreads, while the EVA method suggests a much smaller spread. The study highlights the significance of using precise performance measures to establish lending spreads that strike a balance between regulatory demands, competitive advantage, and overall economic productivity.

Erhijakpor and Karevu (2024) conducted the impact of interest rate spreads on the financial resilience of quoted Nigerian banks from 2007 to 2021 was examined. By utilizing data from the Central Bank of Nigeria (CBN), the Securities Exchange Commission (SEC), and the World Bank, the research investigated the influence of deposit rates, lending rates, and interest rate differentials on the financial resilience, as

measured by the bank z-score, of 21 listed Nigerian banks. The results indicated that deposit rates had a positive but insignificant effect on financial resilience, while lending rates and interest rate differentials had significant negative effects on the banks' financial resilience. The study's conclusion emphasized that high lending rates and substantial interest rate differentials undermine financial resilience, suggesting that the Central Bank of Nigeria should consider measures to moderate lending rates and encourage depositors to maintain or increase their deposits. The paper also advocated for policies to stabilize interest rate differentials to improve the overall financial health of banks in Nigeria.

Eggertssonet al. (2023) investigated the impact of negative nominal policy rates on the bank lending channel using both real-world data from Sweden and a theoretical model of the banking sector. Their findings revealed that when retail household deposit rates hit a lower bound (DLB), the ability of negative policy rates to influence mortgage lending rates and credit volumes diminishes significantly. Furthermore, the study showed that further decreases in policy rates resulted in declines in bank equity values. The study's theoretical model also allows for an assessment of whether negative policy rates have an expansionary or contractionary effect by deriving a sufficient statistic based on empirical pass-through estimates. Overall, the research sheds light on the constraints of negative nominal policy rates and their intricate effects on the banking sector.

Ariwa (2023) conducted the influence of interest rate spread (IRS) on the performance of deposit money banks (DMBs) in Nigeria was examined for the period spanning from 2007 to 2020. Panel data and fixed effect regression models were utilized to assess the impact of IRS on important performance indicators such as return on assets (ROA), return on equity (ROE), and profit after tax (PAT). The findings revealed that IRS significantly affects ROE and PAT, but it does not have a significant impact on ROA. As a result, the study suggests that the Central Bank of Nigeria (CBN) should consider narrowing IRS by adjusting lending or deposit rates to enhance the overall performance of DMBs. This recommendation is aimed at improving financial stability and operational efficiency within the Nigerian banking sector.

Epor (2023) conducted a study on the influence of inflation rates on interest rate spreads using Nonlinear Autoregressive Distributed Lag (NARDL) modeling, analyzing annual data from 1981 to 2021 in Nigeria,. The results indicated that only negative inflation shocks have a significant impact on interest rate spreads, leading to noticeable decreases in spreads when inflation rates decrease. Conversely, increases in inflation do not have a significant effect on spreads. The study revealed a positive correlation between inflation rates and interest rate spreads and demonstrated one-way asymmetric causality, where both positive and negative inflation shocks can forecast changes in interest rates. These findings imply that managing inflation is crucial for reducing interest rate spreads and enhancing the effectiveness of financial intermediation in Nigeria.

Kihuro's (2023) delved into the obstacles confronted by commercial banks in terms of financial performance (FP), with a specific focus on how interest rate spreads (IRS), credit risk, and the moderating influences of bank size and ownership come into play. The research utilized longitudinal data from 41 financial institutions and employed multiple regression analysis to assess different hypotheses. Among the significant discoveries was the notable impact of IRS on credit risk and FP, alongside the pivotal roles of ownership and size. The study underscored the importance of establishing robust policy frameworks to handle IRS and enhance credit risk management, advocating for more stringent policies and promoting mergers to fortify the banking sector. By integrating interest rate dynamics with credit risk and financial performance, this research contributed to existing theories and pinpointed potential areas for future research, such as the effects of IFRS 9 and technological advancements in banking.

Shrestha (2022) conducted on the factors affecting interest rate spread (IRS) in Nepalese commercial banks. Panel data from 25 commercial banks covering the period from 2013/14 to 2020/21 was utilized for the analysis. The study considered bank-specific determinants such as return on assets (ROA), management efficiency (ME), capital adequacy ratio (CAR), asset quality (AQ), credit risk (CR), and operational efficiency (OE), along with macroeconomic factors including inflation (INF) and GDP growth rate. Through the use of a random effect model, the research revealed that ROA, CR, ME, OE, INF, and GDP were significant determinants of

IRS. Additionally, it was found that ROA, CR, INF, and GDP had a positive impact on IRS, while ME and OE had a negative influence. The study's conclusions provide valuable insights for policymakers in shaping strategies related to interest rate spread in Nepalese commercial banks.

Golbabaei and Botshekan (2022) explored how changes in capital ratios affected the interest rate spread (IRS) of insured US commercial banks. They specifically focused on the varying impacts and channels through which banks' adjustments to their capital ratios influenced the IRS. The study utilized a panel threshold regression method, incorporating one and two threshold variables such as changes in the capital ratio, capital contributions, and adjustments in risk-weighted assets. The results indicated a significant threshold effect; banks that experienced larger increases in capital ratios or contributed more capital and risk-weighted assets to this increase had a more pronounced impact on the IRS. Similar findings were observed in the panel threshold regression model with two threshold variables and four regimes. The study also verified the robustness of these results through a panel smooth transition regression approach, alternative threshold variables, and tests across different bank size categories. These findings highlight the importance of comprehending the nuanced effects of capital ratios on IRS, particularly within the realms of regulatory and financial decision-making.

Fakunmoju et al. (2022) conducted a study on the factors that impact the survival of banks in Nigeria, with a specific focus on interest rate spreads and other bank-specific elements. By utilizing secondary data from 2011 to 2020 and employing an ex-post facto research design, the study revealed that interest rate spread, asset quality, management efficiency, bank size, and board size play crucial roles in determining bank survival. The research underscores the importance of these factors for bank managers to prioritize in order to improve their survival and stability within the Nigerian banking sector. The study adds to our understanding of how both internal and external factors influence the resilience of banks in challenging economic conditions.

Ishaq and colleagues (2022) investigated how interest rate spreads impact the profitability of commercial banks in Pakistan using advanced time-series econometric

techniques. Their analysis covered data from seven major banks spanning from 2002 to 2018 and used metrics like return on assets, return on equity, and earnings per share to evaluate profitability. Through the application of Newey-West Hetroskedasticity and Autocorrelation Consistent (HAC) estimators, the study affirmed a strong connection between interest rate spreads and bank profitability, with return on assets displaying the most compelling statistical evidence. The results indicate that careful management of deposit and lending rates is essential for maximizing profitability, underscoring the importance of making strategic decisions regarding interest rate spreads.

Damane (2022) conducted the factors influencing interest rate spreads in Lesotho's commercial banking sector were explored using monthly time series data spanning from January 2009 to December 2018. The research utilized the Autoregressive Distributed Lag (ARDL) bounds testing approach and the non-linear ARDL model to analyze long-term co-integration and symmetric effects. The results revealed a sustained co-integration between interest rate spreads and variables such as inflation and the Treasury bill rate, with inflation and Treasury bill rates demonstrating a positive and significant impact, while the deposit rate had a negative effect on spreads. The study concluded that the impact of inflation and deposit rates was less than one. These findings highlight the importance of upholding macroeconomic stability and implementing strategies that optimize savings to effectively manage interest rate spreads.

Ullah (2022) examined of the interest rate spread (IRS) in Bangladesh's commercial banks was carried out using time series data from 60 banks spanning from 1976 to 2020. The results indicated that a higher proportion of non-interest income to total assets correlated with a decreased IRS. The research also delved into the impact of various economic factors such as broad money, inflation, quasi money, the official exchange rate, and personal remittance on IRS. Through the use of diverse statistical techniques, the analysis demonstrated the significant influence of money supply and exchange rate fluctuations on IRS. These findings highlight the effectiveness of the commercial banking sector in Bangladesh and its role in economic development, emphasizing the importance of non-interest income in managing interest rate spreads.

Botshekan and Golbabaei (2021) investigated how capital ratios affect interest rate spreads in insured US commercial banks using annual data. They used a panel threshold regression approach with single and dual threshold variables to analyze the impact of changes in capital ratios and their components on interest rate spreads. The study found significant threshold effects, suggesting that banks with higher increases in capital ratios or contributions from capital and risk-weighted assets experienced a greater impact on interest rate spreads. These results were consistent across different modeling approaches, including the panel smooth transition regression, highlighting the importance of considering capital ratio dynamics and their asymmetric effects when evaluating interest rate spreads in the banking sector.

Obeh and Brotoboh (2021) conducted a study on the influence of interest rate spread (IRS) on savings behavior in Nigeria spanning from 1981 to 2019. Through the use of ordinary least squares models and multiple regression analysis, the research revealed that IRS, exchange rates, inflation, savings, interest rates, and GDP growth were not statistically significant in affecting savings behavior. The researchers conducted unit root tests and established a long-term relationship among the variables using the Johansen co-integration test. The findings of the study suggested that the Central Bank of Nigeria should take steps to oversee and control IRS-related factors such as deposit rates, operational efficiency, liquidity risk, and GDP growth. Furthermore, the study recommended strengthening collaboration with financial institutions to formulate policies aimed at reducing bank lending rates and enhancing financial performance in Nigeria.

Goet (2021) investigated the interaction between bank-specific and macroeconomic factors such as Total Deposit (LNTD), Cash Reserve Ratio (CRR), Interest Spread Rate (ISR), and Inflation Rate (IR) on Loan and Advances (LNLA) in joint venture banks in Nepal was investigated using co-relational and causal research methods. Analysis of secondary panel data from four out of seven joint venture banks spanning seven years revealed significant correlations and effects. The study identified a positive correlation between LNLA and LNTD, indicating the favorable impact of increased total deposits on lending activities. Conversely, a notable negative correlation was observed between LNLA and IR, underscoring the influence of inflation rates on lending behavior. While LNTD and IR were found to be significant

drivers of LNLA, CRR and ISR did not exhibit substantial effects on lending patterns. These findings provide valuable insights into the lending dynamics within Nepal's banking industry, guiding future research avenues and strategic decision-making processes.

Afful (2021) conducted an investigation was carried out into the reasons behind the high lending-deposit spreads in Sub-Saharan Africa. The aim was to ascertain how financial market structure contributes to this phenomenon. The study employed both theoretical modeling and empirical analysis to evaluate the effects of various factors on lending-deposit spreads. Results indicated that while the financial market structure alone does not have a significant impact on the spread, it does play a role when combined with the difference between bank and stock market returns. Furthermore, it was observed that factors such as the concentration of the banking sector and the credit-deposit ratio lead to an increase in the spread. On the other hand, delayed credit market equilibrium, government size, and savings rate were found to have a negative influence on the spread.

Li and colleagues (2021) applied advanced analytical methods, specifically Multifractal Detrended Moving Average (MF-DMA) and Multifractal Cross-Correlation Analysis (MFCCA), to explore the interconnections between foreign exchange markets and interest rate differentials. The research detected significant multifractal cross-correlations, revealing distinct patterns in the relationships between foreign exchange rates and short-term interest rate differentials in countries like Australia, Canada, Japan, the UK, and the EU. Conversely, in China, stronger correlations were observed with long-term interest rate differentials. Through the use of rolling window analysis, the study unveiled substantial variability in these cross-correlations across different time periods, countries, and maturity levels, emphasizing the dynamic and evolving nature of the link between exchange rates and interest rate spreads. This investigation sheds light on the intricate interplay between foreign exchange rates and interest rate differentials, offering valuable insights into their multifaceted interactions and underscoring the significance of considering temporal and regional variations in financial analysis.

Karki (2020) explored the focus was on examining the correlation between interest rate spread (IRS) and profitability, specifically within Nepalese commercial banks, with a particular emphasis on Nepal Investment Bank Ltd. By analyzing secondary data from the bank's annual reports covering fiscal years 2009/10 to 2018/19, the research utilized regression analysis using Minitab 16 to evaluate the impact of IRS on profitability. The results indicated a positive association between IRS and the bank's profitability, highlighting the significance of effectively managing the balance between deposit and lending rates to optimize financial performance. This research underscores the crucial role of strategic rate management in improving profitability in Nepalese commercial banks and lays the groundwork for future investigations into interest rate spreads and banking profitability in Nepal.

Jefferis et al. (2020) examined persistently high interest rate spreads in Uganda, particularly after the adoption of Inflation Targeting. Using a robust methodology, including cross-country comparisons and panel data analysis with the system GMM, they found that operational costs significantly increase spreads. Key determinants identified include return on assets, market structure (Herfindahl index), non-performing loans, economic growth, exchange rates, and the real Treasury bill rate. The study recommends targeted policies to reduce overhead costs, enhance competition, lower domestic borrowing, and improve credit risk evaluation to manage non-performing loans and narrow spreads.

Bai (2020) examined the effects of interest rate liberalization on China's banking industry, highlighting both positive and negative consequences. While liberalization improved profitability and competitiveness by giving banks more flexibility, it also increased competition and introduced a more unpredictable interest rate environment. The study emphasizes the benefits of market efficiency but also the risks of reduced government oversight. Bai identifies key factors influencing liberalization's impact and offers recommendations to mitigate negative effects while fostering industry growth. These include enhancing risk management strategies, improving regulatory frameworks, and encouraging innovation within the banking sector. Additionally, Bai stresses the need for gradual reforms to ensure stability during the transition, enabling banks to better adjust to the evolving financial landscape.

Table 1

Summary of Empirical Review

Author(s)	Objectives	Variables	Methodology	Findings
Golbabaei Pasandi et al. (2024)	To examine the implications of increased regulatory capital requirements on bank performance and how lending spreads are adjusted.	**Dependent**: Lending Spreads **Independent**: EVA, ROE, Regulatory Capital	Data analysis of U.S. banks (2018-2022)	The findings of this study indicate that the ROE approach overestimates the necessary increase in lending spreads, while the EVA approach suggests a much lower spread. Accurate measures are crucial for setting lending spreads.
Erhijakpor and Karevu (2024)	Investigating how interest rate spreads impact the financial resilience of publicly traded Nigerian banks.	**Dependent**: Financial Resilience (Bank Z-score) **Independent**: Deposit Rates, Lending Rates, Rate Differentials	Data analysis from CBN, SEC, and World Bank (2007-2021)	The findings of this study reveal that lending rates and interest rate differentials have significant negative effects on financial resilience, whereas deposit rates have an insignificant effect. High lending rates and rate differentials detract from resilience.
Eggertsson et al. (2023)	To explore the bank lending channel of negative nominal policy rates and their effects.	**Dependent**: Mortgage Lending Rates, Credit Volumes **Independent**: Negative Policy Rates, Bank Equity Values	Empirical data from Sweden and theoretical model analysis	The findings of this study show that negative policy rates lose effectiveness when retail deposit rates reach a lower bound, and further reductions in policy rates lead to declines in bank equity values. The effectiveness of negative rates in influencing lending diminishes significantly.

Ariwa (2023)	To investigate the effect of interest rate spread on the performance of deposit money banks in Nigeria.	**Dependent**: ROA, ROE, PAT **Independent**: IRS	Panel data and fixed effect regression models (2007-2020)	The findings of this study indicate that IRS has a significant impact on ROE and PAT but does not significantly affect ROA. It is recommended that the Central Bank of Nigeria adjust IRS to improve overall performance.
Epor (2023)	To analyze the impact of inflation rates on interest rate spreads in Nigeria.	**Dependent**: Interest Rate Spreads **Independent**: Inflation Rates	Nonlinear Autoregressive Distributed Lag (NARDL) model (1981-2021)	The findings of this study suggest that negative inflation shocks significantly affect interest rate spreads, leading to decreases when inflation rates fall. Controlling inflation is crucial for managing spreads effectively.
Kihuro (2023)	To explore the challenges faced by commercial banks related to financial performance and the impact of interest rate spreads.	**Dependent**: Financial Performance **Independent**: IRS, Credit Risk, Bank Size, Ownership	Longitudinal data, multiple regression analysis	The findings of this study show that IRS significantly affects credit risk and financial performance, with ownership and size also playing crucial roles. Robust policy frameworks are needed to manage IRS and improve credit risk management.
Shrestha (2022)	To analyze the determinants of interest rate spread in Nepalese commercial banks.	**Dependent**: Interest Rate Spread (IRS) **Independent**: ROA, ME, CAR, AQ, CR, OE, INF, GDP	Panel data, random effect model (2013/14-2020/21)	The findings of this study indicate that ROA, CR, INF, and GDP have a positive effect on IRS, while ME and OE negatively influence IRS.

Golbabaei and Botshekan (2022)	To investigate the asymmetric impacts of capital ratios on interest rate spreads among insured US commercial banks.	**Dependent**: Interest Rate Spread (IRS) **Independent**: Capital Ratios, Capital Contributions, Risk-Weighted Assets	Panel threshold regression approach	The findings of this study reveal significant threshold effects, showing that banks with higher increases in capital ratios or greater contributions of capital and risk-weighted assets exhibit a stronger impact on IRS.
Fakunmoju et al. (2022)	To investigate factors affecting bank survival in Nigeria, focusing on interest rate spreads.	**Dependent**: Bank Survival **Independent**: IRS, NPL, Asset Quality, Management Efficiency, Bank Size, Board Size	Secondary data, ex-post facto research design (2011-2020)	The findings of this study emphasize that IRS, asset quality, and management efficiency are critical for bank survival, with bank size and board size also playing important roles.
Ishaq et al. (2022)	To explore the relationship between interest rate spreads and the profitability of commercial banks in Pakistan.	**Dependent**: Profitability (ROA, ROE, EPS) **Independent**: IRS	Time-series econometric methods (2002-2018)	The findings of this study confirm a robust relationship between IRS and profitability, with ROA showing the strongest statistical support. Prudent management of rates is crucial for optimizing profitability.
Damane (2022)	To investigate the determinants of interest rate spreads in Lesotho's commercial banking sector.	**Dependent**: Interest Rate Spread (IRS) **Independent**: Inflation, Treasury Bill Rate, Deposit Rate	ARDL bounds testing and non-linear ARDL model (2009-2018)	The findings of this study show a long-run co-integration between IRS and variables like inflation and Treasury bill rates, with inflation and Treasury bill rates positively impacting spreads. The deposit rate negatively affects spreads.

Ullah (2022)	To analyze interest rate spread in Bangladesh's commercial banks and its determinants.	**Dependent**: Interest Rate Spread (IRS) **Independent**: Non-interest Income, Money Supply, Inflation, Exchange Rate	Time-series data analysis (1976-2020)	The findings of this study indicate that higher non-interest income is associated with a lower IRS, and fluctuations in money supply and exchange rates significantly impact IRS.
Botshekan and Golbabaei (2021)	To examine the asymmetric impacts of capital ratios on interest rate spreads among US banks.	**Dependent**: Interest Rate Spread (IRS) **Independent**: Capital Ratios, Capital Contributions, Risk-Weighted Assets	Panel threshold regression approach	The findings of this study reveal significant threshold effects; banks with higher capital ratios or greater contributions from capital and risk-weighted assets experience a greater impact on IRS.
Obeh and Brotoboh (2021)	To investigate the impact of interest rate spread on savings behavior in Nigeria.	**Dependent**: Savings Behavior **Independent**: IRS, Exchange Rates, Inflation, Savings, Interest Rates, GDP Growth	Ordinary least squares models and multiple regression analysis (1981-2019)	The findings of this study indicate that IRS and other factors like exchange rates, inflation, and GDP growth were statistically insignificant in influencing savings behavior. Measures to monitor and manage IRS-related factors are recommended.
Goet (2021)	To explore the impact of bank-specific and macroeconomic variables on loan and advances in Nepal.	**Dependent**: Loan and Advances (LNLA) **Independent**: Total Deposit, Cash Reserve Ratio, Interest Spread Rate, Inflation Rate	Correlational and causal research design on secondary panel data	The findings of this study show that total deposits positively affect lending, while inflation negatively impacts lending behavior.

Afful (2021)	To investigate high lending-deposit spreads in Sub-Saharan Africa and the role of financial market structure.	**Dependent**: Lending-Deposit Spread **Independent**: Financial Market Structure, Bank and Stock Market Returns, Banking-Sector Concentration	Theoretical modeling and empirical analysis	The findings of this study reveal that while the financial market structure alone does not significantly affect spreads, it influences the spread when interacting with bank-stock market return differentials.
Li et al. (2021)	To study the cross-correlations between foreign exchange markets and interest rate differentials.	**Dependent**: Interest Rate Differentials **Independent**: Foreign Exchange Rates	Multifractal Detrended Moving Average (MF-DMA) and MFCCA analysis	The findings of this study highlight significant multifractal cross-correlations, particularly between foreign exchange rates and short-term interest rate differentials, with variability across periods and countries.
Karki (2020)	To examine the relationship between interest rate spread and profitability in Nepalese commercial banks.	**Dependent**: Profitability (ROA) **Independent**: IRS	Regression analysis using secondary data (2009/10 to 2018/19)	The findings of this study indicate a positive impact of IRS on the bank's profitability, highlighting the importance of effective rate management.
Jefferis et al. (2020)	To analyze high interest rate spreads in Uganda post-Inflation Targeting.	**Dependent**: Interest Rate Spreads **Independent**: Overhead Costs, ROA, Market Structure, Non-performing Loans, Economic Growth, Exchange Rates, Real Treasury Bill Rate	Cross-country comparisons, panel data analysis with GMM	The findings of this study indicate that overhead costs significantly impact bank spreads. Key determinants include profitability, market structure, and other macroeconomic factors. Policy measures are needed to reduce overhead costs

Bai (2020)	To assess the effects of interest rate liberalization on China's banking industry.	**Dependent**: Banking Sector Performance **Independent**: Interest Rate Liberalization, State Control, Growth Opportunities	Analysis of sector advancements and challenges	The findings of this study show that interest rate liberalization has improved profitability and competitiveness but also introduced challenges. The study suggests understanding its implications and proposes measures to mitigate negative impacts.

2.3 Research gap

The term "research gap" denotes the differences between previous research and the current study. This research expands the timeframe to 2022/23, while earlier studies only covered up to 2020/21 and utilized data from a maximum of 5 years, whereas this study spans 10 years. Furthermore, a wider array of financial and statistical tools is utilized in this study. The researcher has classified independent variables into bank-specific and macroeconomic categories. Bank-specific variables encompass the NPL ratio, demand deposits to total deposits ratio, interest-earning assets to total assets ratio, and the capital adequacy ratio. The macroeconomic variable considered is inflation. Unlike previous studies, this study focuses on the interest rate spread as the dependent variable. The research is specifically aimed at the top commercial banks, including Nabil Bank Ltd., Global IME Bank Ltd., Rastriya Banijya Bank Ltd., NIC Asia Bank Ltd., and Nepal Investment Mega Bank Ltd, selected based on their highest profitability in the fiscal year 2022/23. The primary goal of this study is to effectively address the identified research gap.

CHAPTER– III
RESEARCH METHODOLOGY

The section on research methodology in a research report details the approaches, instruments, and procedures utilized to analyze data and produce the report. It requires thorough exploration, particularly in the quest for fresh information in any field of expertise, in order to establish the suitable research method. The researcher will employ the subsequent methodology to fulfill the study's goals.

3.1 Research design

The research design serves as a thorough plan that outlines the overall framework of the research program. This study utilizes both descriptive and causal-comparative research designs to investigate issues pertaining to the determinants of interest rate spread. The descriptive research design is used to examine lending patterns and the factors that influence them. Simultaneously, the causal-comparative research design is employed to investigate the direction and strength of the relationship between the dependent variable (interest rate spread) and the independent variables (NPL ratio, ratio of demand deposits to total deposits, interest-earning assets to total assets ratio, capital adequacy ratio, inflation rate, and exchange rate).

3.2 Population and sampling, and sampling design

As of April 02, 2024, Nepal has 20 commercial banks in operation, which form the total population for this research. Out of these, only 5 commercial banks have been chosen as the sample. These banks include Nabil Bank Ltd., Global IME Bank Ltd., Rastriya Banijya Bank Ltd., NIC Asia Bank Ltd., and Nepal Investment Mega Bank Ltd. They were selected based on their strong profitability in the fiscal year 2022/23, ensuring a focus on institutions with robust financial performance. The objective of the study is to analyze the factors influencing the interest rate spread among these commercial banks in Nepal.

3.3 Nature and sources of data and the instrument of data collection

The study utilized secondary sources such as previously gathered data from annual reports, financial outcomes of specific banks, and documents detailing the banks'

strategies. It also integrated information from newspapers, magazines, economic periodicals, and reports from the Nepal Rastra Bank (NRB). Through the analysis of this extensive data, the study aimed to comprehend the factors that impact the interest rate spread among commercial banks in Nepal. This methodology has facilitated a deeper insight into banking practices and can inform more prudent decision-making within the banking sector.

3.4 Method of analysis

In order to comprehend the factors influencing the interest rate spread of commercial banks in Nepal, researchers have utilized a mix of descriptive statistics and inferential statistics methodologies. The descriptive statistics part has encompassed calculations such as the mean, standard deviation, and variance, while the inferential statistics part has encompassed analyses like multiple correlation and multiple regression.

A. Descriptive statistics

The analysis of important independent variables like the NPL ratio, the ratio of demand deposits to total deposits, the interest-earning assets to total assets ratio, the capital adequacy ratio, inflation, and exchange rate, with the interest rate spread as the dependent variable, has greatly benefited from descriptive statistics. This examination offers valuable insights into the average values, variability, and distribution of these variables, aiding in understanding the spread and characteristics of the data. It equips us to investigate the factors influencing the interest rate spread in Nepalese banks. Thus, the descriptive statistics are as follows:

Arithmetic mean

The average, also known as the arithmetic mean, is a measure of central tendency in a set of data. It is calculated by adding up all the values and then dividing by the total number of values. This statistic is commonly used to describe data.

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

Where,

n = Total number of values in the dataset

$\sum x$= Sum of all values in the dataset

Standard deviation

The dispersion or variability within a dataset is quantified by standard deviation in descriptive statistics, showing how much the values deviate from the mean. The calculation of standard deviation depends on whether the analysis pertains to a population or a sample.

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(x-\bar{x})^2}{N-1}}$$

Where,

x Represents each individual data point in the dataset

$\bar{x}$ Represents the mean (average) of the dataset

N denotes the total number of data points in the dataset

Variance

Variance in descriptive statistics indicates how widely or closely a set of data points is distributed around the mean. It calculates the average of the squared differences between each data point and the mean of the data set. The formula for variance (s2) for a sample is:

$$\text{Variance } (s^2) = \text{Square of Standard Deviation } (\sigma^2)$$

B. Inferential Statistics

Inferential statistics are the methods used for drawing conclusions about the relationship between independent variables, such as the NPL ratio, the ratio of demand deposits to total deposits, the interest-earning assets to total assets ratio, the capital adequacy ratio, inflation, and exchange rate as the dependent variable, interest rate spread. These methods include correlation analysis and regression analysis, which aid in evaluating the strength and significance of the connections between the independent variables and the dependent variable. This approach offers insights into the factors influencing the interest rate spread in the banking sector of Nepal.

Correlation analysis

The correlation coefficient is used to statistically measure the strength and direction of relationships between multiple variables. If there is a positive correlation, both

variables will move in the same direction, either increasing or decreasing. On the other hand, a negative correlation suggests that as one variable increases, the other decreases. This coefficient can range from +1 to -1, where +1 indicates a perfect positive correlation and -1 represents a perfect negative correlation. A value of +1 means that changes in one variable predict changes in the other in the same direction, while a value of -1 indicates changes in opposite directions. Karl Pearson's correlation analysis method using SPSS version 29 has been utilized in the study.

Multiple regression analysis

Quantification of the average relationship between two or more variables in their original data units is involved in multiple regression analysis. Estimation or prediction of one variable's value is based on given values of other variables, where there exist both dependent (response) and independent (predictor) variables. In statistical analysis, the regression coefficients ('β') aid in comprehending how changes in predictor variables impact the response variable, showing the extent of change in the response variable for a one-unit change in predictors.

Model specification

The interest rate spread is the dependent variable in this model, and it has been impacted by multiple independent variables. The model is depicted as:

$IRS = \alpha + \beta_1 NPL + \beta_2 RDDTTD + \beta_3 IEATTA + \beta_4 CAR + \beta_5 INF + \beta_6 EXR + \varepsilon it$

Where:

α = Intercept/ constant term

IRS = Interest Rate Spread

NPL = Non-performing Loan Ratio

RDDTTD = Ratio of Demand Deposit to Total Deposit

IEATTA = Interest-Earning Assets to Total Assets Ratio

CAR = Capital Adequacy Ratio

INF = Inflation rate

EXR = Exchange Rate

εit = error term of the stochastic model

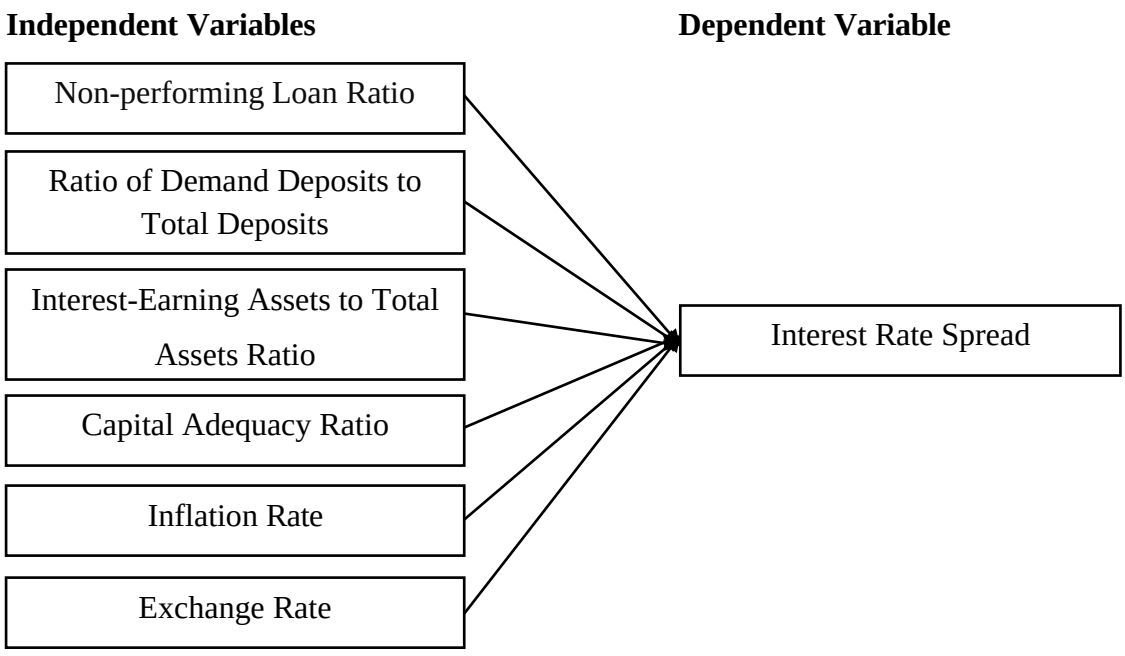
Betas (β) are the parameters of the model

3.5 Research framework and definition of variables

The theoretical and empirical foundation of the study on the factors affecting interest rate spread in commercial banks in Nepal integrates concepts from existing literature. It aims to comprehend the correlation between the dependent variable, Interest Rate Spread (IRS), and various independent variables including the NPL Ratio (NPL), the Ratio of Demand Deposits to Total Deposits (RDD/TD), the Interest-Earning Assets to Total Assets Ratio (IEA/TA), the Capital Adequacy Ratio (CAR), Inflation (INF), and exchange rate (EXR). These variables are rooted in banking regulations, risk management theories, financial stability concepts, monetary policy considerations, and macroeconomic theories. By encompassing these elements, the framework offers a systematic approach to examining interest rate spread, providing valuable insights into the operational dynamics of banks and the financial factors influencing interest rate decisions in Nepal.

Figure 1

Research Framework



(Source: Ghasemi & Rostami, 2016; Shrestha, 2022)

Definition of Variables

Dependent Variable

The factor that researchers measure or observe to see how it changes in response to the independent variables is known as the dependent variable. It signifies the outcome or result of interest in the study. In this study, interest rate spread (IRS) serves as the

dependent variable. Researchers observe or measure how IRS changes in response to variations in the independent variables, representing the main outcome being studied in the research.

a) Interest Rate Spread

The difference between the interest rate that borrowers are charged on loans and the rate paid to depositors on savings accounts and other deposits is known as the interest rate spread. This spread measures the profit banks make from their lending activities and serves as an indicator of the cost of borrowing and the return on deposits. It is an important metric for assessing bank profitability and financial stability, showing how well banks manage interest rate risk and generate income from lending (Mishkin, 2019). Analyzing the interest rate spread provides researchers with valuable insights into the efficiency of the banking sector and the impact of financial and economic factors on bank performance (Saunders & Cornett, 2018).

Independent Variables

The factor that researchers manipulate or change to observe its effect on the dependent variable is known as the independent variable. In the case of studying interest rate spread in commercial banks, independent variables consist of elements such as the NPL Ratio, the Ratio of Demand Deposits to Total Deposits, the Interest-Earning Assets to Total Assets Ratio, the Capital Adequacy Ratio (CAR), and macroeconomic indicators like Inflation (INF). These variables have an impact on the interest rate spread, thus influencing the overall financial performance and operational dynamics of commercial banks.

a) NPL Ratio

The Non-Performing Loan (NPL) Ratio serves as a crucial financial measure that assesses the percentage of a bank's total loans that are not generating income due to missed payments, typically categorized as loans overdue by 90 days or more. This metric offers insights into the potential financial risk and the efficacy of the bank's credit management (Bessis, 2015). A higher NPL Ratio signifies heightened risk and potential financial instability, indicating the extent of problematic loans that could impact the bank’s profitability and overall financial well-being (Rose & Hudgins,

2013). Effectively managing the NPL Ratio is essential for upholding stability and operational efficiency in the banking sector.

b) Ratio of Demand Deposit to Total Deposit

The proportion of a bank's total deposits held in demand accounts, such as checking accounts, which can be withdrawn at any time, is measured by the Ratio of Demand Deposits to Total Deposits. This ratio is calculated by dividing the total amount of demand deposits by the total amount of all deposits, including both demand and time deposits (Rose & Hudgins, 2013). A higher ratio indicates a larger share of deposits in liquid, easily accessible accounts, impacting the bank's liquidity and its ability to meet short-term obligations. On the other hand, a lower ratio suggests a higher proportion of deposits in less liquid, time-bound accounts, affecting the bank's overall liquidity management and financial stability (Saunders & Cornett, 2018).

c) Interest-Earning Assets to Total Assets

The ratio of Interest-Earning Assets to Total Assets evaluates the percentage of a bank's total assets that produce interest revenue. It is computed by dividing the total value of interest-earning assets, such as loans, investments, and securities, by the bank's total assets (Bessis, 2015). This ratio demonstrates how efficiently a bank utilizes its assets to generate earnings. A higher ratio indicates that a larger portion of the bank's assets is earning interest, potentially resulting in increased revenue and profitability. Conversely, a lower ratio suggests that a smaller proportion of the assets are generating interest income, which could impact the bank's financial performance (Rose & Hudgins, 2013).

d) Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) plays a crucial role in the banking sector as it is used to assess a bank's risk management capabilities and its capacity to fulfill financial obligations. Regulated by banking authorities, it ensures that banks have enough capital to cover potential losses. CAR is calculated by dividing a bank's total capital, which includes Tier 1 and Tier 2 capital, by its total risk-weighted assets (TRWA) (Basel Committee on Banking Supervision, 2011). This ratio provides valuable insights into the financial strength of the bank in relation to its risk exposure, demonstrating its ability to handle difficult situations (Bessis, 2015).

e) Inflation Rate

The increase in prices of goods and services over time is measured by the inflation rate. If the inflation rate is higher, it means that prices are increasing at a faster pace, thereby reducing the purchasing power of money. In order to maintain stable prices and support economic growth, central banks and governments keep a close watch on inflation (Mishkin, 2019). Inflation is significantly influenced by factors such as demand, supply, monetary policies, and external events. It is essential for businesses, investors, and individuals to consider inflation management when making financial decisions (Samuelson & Nordhaus, 2010).

f) Exchange Rate

The value at which one currency can be traded for another in the foreign exchange market is known as the exchange rate. It indicates the amount of one currency required to buy a single unit of another. Exchange rates can either be fixed, with the rate set by a country's government or central bank, or floating, determined by factors such as interest rates, inflation, and political stability (Krugman & Obstfeld, 2018). Changes in exchange rates can have a significant impact on international trade, investment, and the prices of goods and services in different countries (Mishkin, 2019).

CHAPTER – IV
RESULTS AND DISCUSSION

The "Results and Discussion" section has summarized and interpreted the findings of the study. It has highlighted how independent variables like NPL, RDDTTD, IEATTA, CAR, INF and EXR have affected IRS. This section has discussed the significance of these relationships and their implications for the banking sector.

4.1 Results

In this section, the study has examined the determinants of interest rate spread among commercial banks in Nepal. It has used descriptive statistics to summarize the dataset, including measures such as the arithmetic mean and standard deviation. Inferential statistics, including Karl Pearson's correlation analysis and multiple regression analysis, have explored the relationships between the dependent variable is Interest Rate Spread (IRS) and the independent variables: Non-Performing Loans (NPL), Ratio of Demand Deposit to Total Deposit (RDDTTD), Interest Earning Assets to Total Assets (IEATTA), Capital Adequacy Ratio (CAR), Inflation (INF)and Exchange Rate (EXR). The analysis has determined how these factors influence the interest rate spread in the banking sector.

Descriptive Statistics

This study has utilized descriptive statistics to provide an overview of the data used in analyzing the determinants of interest rate spread among commercial banks in Nepal. The dependent variable IRS has been assessed alongside independent variables such as NPL, RDDTTD, IEATTA, CAR, INF and EXR. Descriptive statistics, including the mean, have been calculated to determine the average values of these variables, while the standard deviation has measured the dispersion from the mean. The minimum and maximum values have defined the data range, helping to understand the extent of variation. This descriptive analysis has facilitated a deeper understanding of the data's central tendencies and spread, setting the stage for more detailed inferential statistical analyses to explore the relationships and impacts of these determinants on interest rate spread.

Table 2

Descriptive Statistics of All Variables

Variables	N	Min	Max	Mean	SD	Variance
NPL	50	0.06	6.38	2.0420	1.47950	2.189
RDDTTD	50	3.76	61.70	21.3262	12.4960	156.151
IEATTA	50	73.36	99.40	85.2366	4.56883	20.874
CAR	50	4.62	15.96	12.5324	1.57862	2.492
INF	50	3.63	9.04	6.4198	2.04989	4.202
EXR	50	98.20	128.11	111.083	9.35281	87.475
IRS	50	2.75	5.34	4.1828	0.60404	0.365
Valid N (list wise)	50					

(Source: SPSS Version 29)

Table 3 presents the descriptive statistics for key financial variables of sample banks, based on 50 observations. Non-Performing Loans (NPL) vary from 0.06 to 6.38, with a mean of 2.0420 and a standard deviation of 1.47950, indicating moderate variability. Ratio of Demand Deposits to Total Deposit (RDDTTD) shows a wide range from 3.76 to 61.70, a mean of 21.3262, and a high variance of 156.151, reflecting substantial variability. Interest Earning Assets to Total Assets (IEATTA) ranges from 73.36 to 99.40, with a mean of 85.2366 and low variability, as indicated by a standard deviation of 4.56883. Capital Adequacy Ratio (CAR) ranges from 4.62 to 15.96, with a mean of 12.5324 and moderate variability. Inflation (INF) varies from 3.63 to 9.04, showing considerable variability with a mean of 6.4198 and a standard deviation of 2.04989. Exchange Rate (EXR) ranges from 98.20 to 128.11, with a mean of 111.083 and substantial variability. Lastly, Interest Rate Spread (IRS) ranges from 2.75 to 5.34, with a mean of 4.1828 and low variability, as indicated by a standard deviation of 0.60404. These statistics provide a comprehensive view of the financial indicators and their variability among the sample banks.

Inferential Statistics

Inferential statistics, including correlation and regression analysis, have been used to explore the relationships between independent variables (NPL, RDDTTD, IEATTA, CAR, INF and EXR) and the dependent variable (IRS). These analyses have revealed how changes in the independent variables affect the interest rate spread.

a) Correlation Analysis

Descriptive analysis has been performed on the independent variables and the dependent variable. Correlation analysis has been used to evaluate the relationships between independent variables such as NPL, RDDTTD, IEATTA, CAR, INF and EXR with the dependent variable IRS. The study has examined the inherent relationships among these variables. Karl Pearson's correlation analysis method has been employed using SPSS version 29 and the results are presented in Table 4.

Table 3

Karl Pearson's Correlation Analysis of Study Variables

Variable	NPL	RDDTTD	IEATTA	CAR	INF	EXR	IRS
NPL	1						
RDDTTD	0.055	1					
IEATTA	-0.33*	-0.257	1				
CAR	-0.47**	0.024	0.538**	1			
INF	0.246	-0.219	0.048	-0.34*	1		
EXR	-0.009	0.275	0.163	0.46**	-0.41**	1	
IRS	0.314*	-0.014	-0.319*	-0.182	0.158	-0.28*	1

* Correlation is significant at the 0.05 level (2-tailed)

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

(Source: SPSS Version 29)

Table 4 illustrates the correlation between each independent variable with the dependent variable Interest Rate Spread (IRS). Non-Performing Loans (NPL) show a positive correlation of 0.314* with IRS, indicating that higher non-performing loans are associated with a higher interest rate spread. The Ratio of Demand Deposit to Total Deposit (RDDTTD) has a correlation of -0.014 with IRS, suggesting that it has minimal impact on the interest rate spread. Interest Earning Assets to Total Assets (IEATTA) is negatively correlated with IRS at -0.319*, implying that a higher proportion of interest-earning assets is linked to a lower interest rate spread. The Capital Adequacy Ratio (CAR) has a negative correlation of -0.182 with IRS, indicating that better capital adequacy is associated with a lower interest rate spread. Inflation (INF) shows a correlation of 0.158 with IRS, reflecting limited influence. The Exchange Rate (EXR) is negatively correlated with IRS at -0.28*, suggesting that a higher exchange rate is associated with a lower interest rate spread.

b) Multiple Regression Analysis

Regression analysis has assessed the relationships among variables to understand their influence on each other and aid in predictions. In this study, it has investigated how NPL, RDDTTD, IEATTA, CAR, INF and EXR impact IRS.

Table 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.515[a]	0.265	0.162	0.55283

a. Predictors: (Constant), EXR, NPL, RDDTTD, IEATTA, INF, CAR

b. Dependent variable: IRS

(Source: SPSS Version 29)

Table 5 shows that the R^2 value of 0.265 indicates that approximately 26.5% of the variability in IRS is explained by the independent variables in the model: NPL, RDDTTD, IEATTA, CAR, INF EXR. This R^2 value reflects a moderate level of explanatory power, suggesting that while the model accounts for a significant portion of the variability in IRS, 73.5% of the variance remains unexplained by the predictors included. This indicates that other factors not accounted for in the model might be influencing the IRS, pointing to the need for further investigation into additional variables or external influences.

Table 5

Analysis of Variance (ANOVA)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.737	6	0.789	2.583	0.032[b]
	Residual	13.142	43	0.306		
	Total	17.879	49			

a. Dependent variable: IRS

b. Predictors: (Constant), EXR, NPL, RDDTTD, IEATTA, INF, CAR

(Source: SPSS Version 29)

Table 6 shows the results of the Analysis of Variance (ANOVA) for the regression model. The regression model explains 4.737 units of variance with a mean square of

0.789, yielding an F-value of 2.583 with a significance level of 0.032. This p-value indicates that the model is statistically significant at the 5% level, suggesting that the independent variables NPL, RDDTTD, IEATTA, CAR, INF and EXR collectively have a significant impact on the dependent variable, Interest Rate Spread (IRS). The residual sum of squares is 13.142 with a mean square of 0.306, indicating the variance not explained by the model.

Table 6

Regression Analysis for Dependent Variable IRS

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	8.520	1.839		4.633	0.000
NPL	0.144	0.065	0.352	2.215	0.032
RDDTTD	-0.001	0.007	-0.020	-0.139	0.890
IEATTA	-0.046	0.022	-0.345	-2.028	0.049
CAR	0.136	0.075	0.355	1.803	0.078
INF	0.018	0.046	0.061	0.390	0.699
EXR	-0.023	0.011	-0.354	-2.110	0.041

a. Dependent variable: IRS

(Source: SPSS Version 29)

$IRS = 8.520 + 0.144NPL - 0.001RDDTD - 0.046IEATA + 0.136CAR + 0.018INF - 0.023EXR + \varepsilon it$

Table 7 presents the regression analysis for the dependent variable Interest Rate Spread (IRS) revealing how various independent variables impact IRS at a 5% significance level. The constant term is 8.520 and is highly significant ($p < 0.001$), indicating a robust baseline level for IRS. Among the predictors, NPL shows a significant positive effect on IRS with a coefficient of 0.144 and a p-value of 0.032, which is below the 5% threshold. In contrast, RDDTTD does not significantly influence IRS, with a coefficient of -0.001 and a p-value of 0.890, well above the 5% significance level. IEATTA has a significant negative impact on IRS with a coefficient of -0.046 and a p-value of 0.049 which is just below the 5% threshold. CAR's effect is marginally significant with a coefficient of 0.136 and a p-value of

0.078, slightly exceeding the 5% significance level. INF does not have a significant effect on IRS, with a coefficient of 0.018 and a p-value of 0.699. EXR significantly negatively impacts IRS, with a coefficient of -0.023 and a p-value of 0.041, which is below the 5% significance level. These findings indicate that NPL, IEATTA and EXR significantly affect IRS while RDDTTD, INF and CAR show limited significance.

4.2 Discussion

The main objective of this study is to analyze the determinants of interest rate spread among commercial banks in Nepal. The sample has included five prominent banks Nabil Bank, Global IME Bank, Rastriya Banijya Bank, NIC Asia Bank and Nepal Investment Mega Bank chosen due to their highest profitability which has ensured the inclusion of high-performance institutions with significant contributions to the banking sector. The study has focused on six independent variables: Non-Performing Loans (NPL), Ratio of Demand Deposit to Total Deposit Ratio (RDDTTD), Interest Earning Assets to Total Assets Ratio (IEATTA) and Capital Adequacy Ratio (CAR) as bank-specific variables alongside Inflation Rate (INF) and Exchange Rate (EXR) as macroeconomic variables. Data has been collected from the bank's annual reports, financial statements and relevant economic reports. Both descriptive statistics and inferential statistics including correlation and regression analysis have been employed to analyze the data and understand the relationships between the independent variables and Interest Rate Spread (IRS).

The descriptive statistics reveal varied characteristics among the key financial variables of the sample banks. Non-Performing Loans have shown moderate variability, ranging from 0.06 to 6.38, with an average of 2.0420. The Ratio of Demand Deposit to Total Deposit exhibits high variability with a broad range and mean of 21.3262. Interest Earning Assets to Total Assets has demonstrated low variability, while the Capital Adequacy Ratio has shown moderate variability. Inflation and Exchange Rate both display considerable variability. Interest Rate Spread has had low variability, with a mean of 4.1828. These statistics highlight the diverse financial conditions and stability among the banks in the sample.

The correlation analysis reveals that Non-Performing Loans (NPL) positively correlates with Interest Rate Spread (IRS) at 0.314*, suggesting that higher non-

performing loans are associated with a higher interest rate spread. In contrast, Interest Earning Assets to Total Assets (IEATTA) shows a negative correlation of -0.319*, indicating that a greater proportion of interest-earning assets is linked to a lower interest rate spread. The Capital Adequacy Ratio (CAR) also has a negative correlation of -0.182 with IRS, implying that better capital adequacy generally corresponds to a narrower interest rate spread. The Ratio of Demand Deposit to Total Deposit (RDDTTD) has a negligible impact on IRS with a correlation of -0.014, while Inflation (INF) shows a minimal correlation of 0.158. Finally, the Exchange Rate (EXR) is negatively correlated with IRS at -0.28*, suggesting that a higher exchange rate may lead to a lower interest rate spread. These findings indicate that while NPL and EXR significantly impact IRS, variables like RDDTTD and INF have limited effects.

Regression analysis for the dependent variable Interest Rate Spread (IRS) has identified how various independent variables impact IRS at a 5% significance level. The constant term is 8.520 which is highly significant ($p < 0.001$) providing a robust baseline for IRS. Among the predictors, Non-Performing Loans (NPL) shows a significant positive effect on IRS with a coefficient of 0.144 and a p-value of 0.032, indicating its influence is statistically significant. In contrast, the Ratio of Demand Deposit to Total Deposit (RDDTTD) does not significantly affect IRS, with a coefficient of -0.001 and a p-value of 0.890 well above the 5% threshold. Interest Earning Assets to Total Assets Ratio (IEATTA) has a significant negative impact on IRS, with a coefficient of -0.046 and a p-value of 0.049 just below the 5% threshold. Capital Adequacy Ratio (CAR) shows a marginal significance with a coefficient of 0.136 and a p-value of 0.078, slightly exceeding the 5% significance level. Inflation (INF) does not significantly influence IRS with a coefficient of 0.018 and a p-value of 0.699. Exchange Rate (EXR) has a significant negative effect on IRS, with a coefficient of -0.023 and a p-value of 0.041, below the 5% significance level. These results suggest that NPL, IEATTA and EXR significantly affect IRS while RDDTTD, INF and CAR exhibit limited significance.

The correlation analysis indicates that Non-Performing Loans (NPL) have a moderate positive correlation with Interest Rate Spread (IRS) aligning with Ghasemi and Rostami (2016) but differing from Jefferis et al. (2020). The Ratio of Demand Deposit

to Total Deposit (RDDTTD) shows negative correlation with IRS consistent with Ghasemi and Rostami (2016) but contrasting with Damane (2022). Interest Earning Assets to Total Assets Ratio (IEATTA) exhibits a notable negative correlation with IRS similar to Bai (2020) but differing from Ghasemi and Rostami (2016). Capital Adequacy Ratio (CAR) negatively correlates with consistent with Shrestha (2022); Ghasemi and Rostami (2016); Golbabaei and Botshekan (2022) but differing from Botshekan and Golbabaei (2021). Inflation (INF) shows positive correlation with IRS aligning with Shrestha (2022) but contrasting with Epor (2023). Lastly, Exchange Rate (EXR) has a negative correlation with IRS in line with Obeh and Brotoboh (2021) but differing from Ghasemi and Rostami (2016).

The regression analysis reveals a significant positive effect of Non-Performing Loans (NPL) on Interest Rate Spread (IRS) aligning with findings by Ghasemi and Rostami (2016) but differing from Jefferis et al. (2020); Fakunmoju et al. (2022). The Ratio of Demand Deposit to Total Deposit (RDDTTD) shows no significant effect on IRS, consistent with Erhijakpor and Karevu (2024) but contrasting with Ghasemi and Rostami (2016). Interest Earning Assets to Total Assets Ratio (IEATTA) has a significant negative impact on IRS corroborating Bai (2020) but diverging from Ghasemi and Rostami (2016). Capital Adequacy Ratio (CAR) exhibits a marginally significant positive effect on IRS aligning with Damane (2022) but differing from Shrestha (2022); Ghasemi and Rostami (2016). Inflation (INF) shows no significant effect on IRS consistent Damane (2022) but conflicting with Epor (2023). Finally, Exchange Rate (EXR) has a significant negative impact on IRS, in line with Ullah (2022); Obeh and Brotoboh (2021) but differing from Ghasemi and Rostami (2016).

CHAPTER – V
SUMMARY AND CONCLUSION

5.1 Summary

The main objective of this study is to analyze the determinants of interest rate spread among commercial banks in Nepal, focusing on six key independent variables: Non-Performing Loans (NPL), Ratio of Demand Deposit to Total Deposit (RDDTTD), Interest Earning Assets to Total Assets Ratio (IEATTA) and Capital Adequacy Ratio (CAR) which are bank-specific variables along with Inflation Rate (INF) and Exchange Rate (EXR) have been classified as macroeconomic variables. Interest Rate Spread (IRS) has been considered the dependent variable. To achieve this, both descriptive and causal research designs have been employed. The descriptive research design has been utilized to examine the status and patterns of these financial and macroeconomic variables, while the causal research design has been applied to evaluate the effects of these variables on the interest rate spread among the selected commercial banks.

As of April 2, 2024, Nepal's banking sector has consisted of 20 commercial banks, representing the total population for this study. From this population, five banks have been selected for the sample: NABIL Bank, Global IME Bank, Rastriya Banijya Bank, NIC Asia Bank and Nepal Investment Mega Bank. These banks have been chosen due to their highest profitability, ensuring that the sample represents the most financially successful institutions in the sector. The study has utilized panel data covering the period from 2013/14 to 2022/23 which has been sourced from the annual reports and financial statements of these banks. By focusing on key financial indicators, including both bank-specific and macroeconomic variables, this study has provided valuable insights into how these determinants have influenced the interest rate spread among the most profitable commercial banks in Nepal. The analysis has offered a comprehensive view of how profitability factors have contributed to financial outcomes and performance within the Nepalese banking sector.

The descriptive statistics have revealed diverse financial characteristics among the sample banks. Non-Performing Loans (NPL) have shown moderate variability, with

values ranging widely and an average of 2.0420. The Ratio of Demand Deposit to Total Deposit (RDDTTD) has exhibited high variability, with a broad range and an average of 21.3262. Interest Earning Assets to Total Assets (IEATTA) has demonstrated low variability, while the Capital Adequacy Ratio (CAR) has shown moderate variability. Both Inflation (INF) and Exchange Rate (EXR) have displayed considerable variability. Interest Rate Spread (IRS) has had low variability, with an average of 4.1828. These findings have highlighted the diverse financial conditions and stability among the banks in the sample.

The correlation analysis reveals that Non-Performing Loans (NPL) has a positive relationship with Interest Rate Spread (IRS), indicating that higher levels of non-performing loans are linked to a higher interest rate spread. Conversely, Interest Earning Assets to Total Assets (IEATTA) and Capital Adequacy Ratio (CAR) both show negative correlations with IRS, suggesting that a higher proportion of interest-earning assets and better capital adequacy are associated with a lower interest rate spread. The Ratio of Demand Deposit to Total Deposit (RDDTTD) and Inflation (INF) have shown minimal impact on IRS. Lastly, the Exchange Rate (EXR) also negatively correlates with IRS, indicating that a higher exchange rate may be linked to a lower interest rate spread. Overall, NPL and EXR have significant effects on IRS, while RDDTTD and INF have limited influence.

The regression analysis of Interest Rate Spread (IRS) has highlighted the impact of various independent variables at a 5% significance level. The constant term, highly significant, establishes a strong baseline for IRS. NPL has shown a significant positive effect on IRS indicating that higher non-performing loans are linked to a higher interest rate spread. In contrast, the RDDTTD has not significantly influenced IRS. Interest Earning Assets to Total Assets Ratio (IEATTA) has demonstrated a significant negative impact, suggesting that a higher proportion of interest-earning assets is associated with a lower interest rate spread. The Capital Adequacy Ratio (CAR) has displayed marginal significance, indicating that its effect on IRS is less clear. Inflation (INF) has not significantly affected IRS. Finally, the Exchange Rate (EXR) has had a significant negative effect on IRS, implying that a higher exchange rate is associated with a lower interest rate spread. Overall, NPL, IEATTA, and EXR significantly influence IRS, whereas RDDTTD, INF, and CAR have limited impact.

5.2 Conclusion

The first objective of this study is to assess the interest rate spread position of selected commercial banks in Nepal. This objective has been achieved by analyzing key financial metrics across banks such as NABIL Bank Limited, Global IME Bank, Rastriya Banijya Bank, NIC Asia and Nepal Investment Mega Bank. The analysis has provided a detailed view of how each bank's interest rate spread has been influenced by various factors such as non-performing loans, ratio of demand deposit to total deposit, interest-earning assets to total assets, capital adequacy ratio, inflation rate and exchange rate. It has revealed significant variations in interest rate spreads, reflecting differences in financial management practices and external economic conditions. Banks with higher non-performing loans have generally exhibited wider interest rate spreads, while those with greater proportions of interest-earning assets and better capital adequacy have shown narrower spreads. These findings underscore the importance of effective asset management and capital adequacy in optimizing interest rate spreads as well as identifying key areas for improvement to enhance financial performance and competitiveness.

The second objective of this study is to examine the relationships between independent variables such as Non-Performing Loans (NPL) ratio, Ratio of Demand Deposits to Total Deposits (RDDTTD), Interest-Earning Assets to Total Assets Ratio (IEATTA), Capital Adequacy Ratio (CAR), Inflation (INF) and Exchange Rate (EXR) with the dependent variable Interest Rate Spread (IRS) among selected commercial banks in Nepal. This objective has been accomplished by analyzing the correlation and impact of these variables on IRS across banks like NABIL Bank Limited, Global IME Bank, Rastriya Banijya Bank, NIC Asia and Nepal Investment Mega Bank. The analysis has revealed that NPL has shown a positive correlation with IRS indicating that higher non-performing loans are associated with wider interest rate spreads. Conversely, IEATTA and CAR have demonstrated negative correlations with IRS, suggesting that a higher proportion of interest-earning assets and better capital adequacy are linked to narrower spreads. RDDTTD and INF have shown minimal impact on IRS, highlighting their limited influence on the interest rate spread. These insights have clarified the dynamics between the financial variables and interest rate spreads, providing a comprehensive understanding of the factors affecting the cost of borrowing in Nepal's banking sector.

The third objective of this study is to analyze the influence of independent variables such as Non-Performing Loans (NPL) ratio, Ratio of Demand Deposits to Total Deposits (RDDTTD), Interest-Earning Assets to Total Assets Ratio (IEATTA), Capital Adequacy Ratio (CAR), Inflation Rate (INF) and Exchange Rate (EXR) on the dependent variable Interest Rate Spread (IRS) of selected commercial banks in Nepal. This objective has been achieved by conducting regression analysis to assess how each independent variable impacts IRS across banks including NABIL Bank Limited, Global IME Bank, Rastriya Banijya Bank, NIC Asia Bank and Nepal Investment Mega Bank. The analysis has shown that NPL has a significant positive effect on IRS, indicating that higher non-performing loans are associated with wider interest rate spreads. IEATTA has exhibited a significant negative impact, suggesting that a greater proportion of interest-earning assets leads to narrower spreads. CAR has shown marginal significance, reflecting a slight association with IRS. RDDTTD and INF have had minimal influence on IRS. These findings have highlighted the varying degrees of impact that different financial and macroeconomic factors have on the interest rate spread, providing valuable insights for managing interest rate policies and improving financial performance in the banking sector.

5.3 Implications

The implications of this study, which has analyzed the influence of key bank specific and macroeconomic variables on the Interest Rate Spread (IRS) among selected commercial banks in Nepal, are as follows:

a) **Policy Recommendations:** Policymakers should consider the significant impact of Non-Performing Loans (NPL) and Interest-Earning Assets to Total Assets Ratio (IEATTA) on IRS when designing regulations and monetary policies. Strategies to manage and reduce non-performing loans could help in narrowing the interest rate spread, thereby potentially improving the financial stability of banks and enhancing their competitiveness.

b) **Bank Management Strategies:** Banks should focus on improving their capital adequacy ratios and managing their portfolios of interest-earning assets effectively. Since NPLs have been shown to significantly widen the interest rate spread, effective credit risk management and strategies to minimize loan defaults are crucial. Similarly, optimizing the ratio of interest-earning assets can help in controlling the interest rate spread.

c) **Financial Planning:** Financial institutions should review their strategies concerning the Ratio of Demand Deposits to Total Deposits (RDDTTD) and Inflation Rate (INF), as these factors have demonstrated minimal influence on IRS in this study. This suggests that while they are less impactful on IRS, they should still be monitored as part of broader financial management and planning.

d) **Investment Decisions:** Investors and stakeholders should be aware that variables such as NPL and IEATTA play a more significant role in determining IRS. Understanding these relationships can aid in making informed investment decisions and assessing the financial health and performance of banks.

e) **Future Research:** Further research could explore the long-term effects of these variables on IRS and incorporate additional factors that might influence interest rate spreads. Examining different banking contexts or expanding the sample size could provide deeper insights and enhance the robustness of the findings.

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APPENDIX

Data of selected sample Banks

Banks	Years	NPL (%)	RDDTTD (%)	IEATTA (%)	CAR (%)	INF (%)	EXR (NPR)	IRS (%)
NIBL	2013/14	2.23	14.9	85.6	11.24	9.04	98.2	5.05
	2014/15	1.82	14.1	84.5	11.57	8.4	99.49	3.97
	2015/16	1.14	17.2	90.6	11.73	7.87	106.35	3.74
	2016/17	0.8	16.6	80	12.42	8.79	106.21	4.32
	2017/18	0.55	31.5	84.2	13	3.63	104.37	4.48
	2018/19	0.74	28.5	84.5	12.5	4.06	112.88	4.19
	2019/20	0.98	27.5	83.2	13.07	5.57	116.31	3.51
	2020/21	0.84	21.7	88.2	12.77	5.05	117.87	3.31
	2021/22	1.62	16.5	91.2	13.09	4.15	121.04	2.75
	2022/23	3.39	17.5	89.2	12.54	7.65	128.11	3.8
Global IME	2013/14	2.55	22.6	88.2	12.38	9.04	98.2	5.34
	2014/15	2.23	25	88.3	12.69	8.4	99.49	4.11
	2015/16	1.89	27.4	89.4	12.35	7.87	106.35	4.52
	2016/17	1.67	16.7	83.6	11.37	8.79	106.21	3.36
	2017/18	0.77	10.2	86.6	11.47	3.63	104.37	4.86
	2018/19	0.55	13.2	85.8	12.31	4.06	112.88	4.47
	2019/20	1.76	11.3	82.1	12.48	5.57	116.31	5.12
	2020/21	1.41	10.8	83.4	13.2	5.05	117.87	3.49
	2021/22	1.28	4.82	87.5	12.67	4.15	121.04	3.68
	2022/23	3.15	8.83	86.6	13.34	7.65	128.11	4.66
RBB	2013/14	6.38	25.23	73.36	4.62	9.04	98.2	4.14
	2014/15	5.35	25.27	77.4	10.16	8.4	99.49	4.53
	2015/16	4.25	25.46	76.18	10.46	7.87	106.35	4.73
	2016/17	3.77	28.65	81.79	10.39	8.79	106.21	4.92
	2017/18	4.75	9.4	84.9	11.46	3.63	104.37	4.95
	2018/19	4.29	18.2	82.6	13.39	4.04	112.88	4.46
	2019/20	4.08	43.5	86.3	12.64	5.57	116.31	4.26
	2020/21	3.23	61.7	85.3	13.46	5.05	117.87	4.37
	2021/22	2.09	24.8	88.2	13.29	4.15	121.04	4.29
	2022/23	3.77	21.5	80.9	12.92	7.65	128.11	4.03
NIC Asia	2013/14	2.33	3.76	85.5	14.05	9.04	98.2	4.46
	2014/15	2.07	6.6	87.8	12.49	8.4	99.49	3.19
	2015/16	0.76	4.1	91.1	12.44	7.87	106.35	3.36
	2016/17	0.36	4.39	99.4	13.83	8.79	106.21	3.49
	2017/18	0.06	17.9	79	12.24	3.63	104.37	3.6
	2018/19	0.46	19.4	77.1	13.32	4.04	112.88	5.02
	2019/20	0.75	53	80.7	13.5	5.57	116.31	4.18
	2020/21	0.5	45.9	85.5	12.47	5.05	117.87	3.25
	2021/22	0.53	43.9	85.2	13.38	4.15	121.04	3.41
	2022/23	0.88	43.5	84	13.36	7.65	128.11	4.28
NIMB	2013/14	1.77	15.5	80.5	11.27	9.04	98.2	4.82
	2014/15	1.25	14.3	86.5	11.9	8.4	99.49	4.61
	2015/16	0.68	14.2	90.7	14.92	7.87	106.35	4.66
	2016/17	0.83	13	89	13.02	8.79	106.21	4.34
	2017/18	1.36	21	83.7	12.66	3.63	104.37	4.3
	2018/19	2.78	24	82.1	13.26	4.04	112.88	4.32
	2019/20	2.91	21.3	85.5	13.54	5.57	116.31	4.83
	2020/21	2.46	24.8	90	14.71	5.05	117.87	3.89
	2021/22	1.49	20.2	89.3	15.96	4.15	121.04	3.22
	2022/23	4.54	15	89.6	13.32	7.65	128.11	4.5

(Source: Annual reports and financial results of sample banks 2013/14 to 2022/23)

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ABSTRACT The study examines the factors affecting the interest rate spread (IRS) in commercial banks in Nepal. It focuses on six main independent variables: Non-Performing Loans (NPL), Ratio of Demand Deposit to Total Deposit (RDDTTD), Interest Earning Assets to Total Assets Ratio (IEATTA), and Capital Adequacy Ratio (CAR) as bank- specific variables, along with Inflation Rate (INF) and Exchange Rate (EXR) as macroeconomic variables. The research uses both descriptive and causal research design, analyzing panel data from 2013/14 to 2022/23 for five commercial banks: NABIL Bank,

Global IME Bank , Rastriya Banijya **Bank, NIC Asia Bank** , and **Nepal Investment Mega Bank**

. The descriptive analysis highlights the variation in financial characteristics among the banks, while the correlation analysis reveals a positive connection between NPL and IRS, indicating that higher NPL leads to a wider interest rate spread. Conversely, IEATTA and EXR show negative correlations with IRS, suggesting that a higher proportion of interest-earning assets and a stronger exchange rate contribute to a lower IRS. Regression analysis further confirms the importance of NPL, IEATTA, and EXR on IRS, with NPL having a significant positive impact and IEATTA and EXR having significant negative impacts. On the other hand, RDDTTD, CAR, and INF demonstrate limited influence on IRS in both correlation and regression analyses. These findings offer insights into the key factors influencing interest rate spreads in Nepal's most profitable