DETERMINANTS OF LENDING INTEREST RATE NEPALESE OF COMMERCIAL BANKS

A Dissertation submitted to the Office of the Dean, Faculty of Management, in partial fulfilment of the requirements for the Degree of Masters of Business Studies

By

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CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**DETERMINANTS OF LENDING INTEREST RATE NEPALESE OF COMMERCIAL BANKS**" The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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Awotar Man Rai

REPORT OF RESEARCH COMMITTEE

Mr. Awotar Man Rai has defended research proposal entitled "*DETERMINANTS OF LENDING INTEREST RATE NEPALESE OF COMMERCIAL BANKS"* successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidance of supervisor Dr. Pitri Raj Adhikari and submits the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We have examined the dissertation entitled "*DETERMINANTS OF LENDING INTEREST RATE NEPALESE OF COMMERCIAL BANKS"* presented by Mr. Awotar Man Rai for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

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Awotar Man Rai

Researcher

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ABBREVIATIONS

AD	:	Anno Domini
AIC	:	Akaike information criterion
ATM	:	Automated Tailor Machine
BS	:	Bank Size
CRR	:	Cash Reserve Ratio
e.g.	:	Example
ETA	:	Total Equity to Total Assets Ratio
F/Y	:	Fiscal Year
i.e.	:	That is
LDR	:	Total Loan to Total Deposit Ratio
LTA	:	Total Liability to Total Assets Ratio
Ltd	:	Limited
MBS	:	Master of Business Studies
NPL	:	Non- Performing Loan Ratio
NPLR	:	Non-performing Loan Ratio
OLS	:	Ordinary Least Squares
ROA	:	Return on Assets
ROE	:	Return on Equity
SD	:	Standard Deviation
SEM	:	Structural Equation Modelling

ABSTRACT

This study's primary goal was to determine the elements that influence the interest rates that Nepalese banks charge and provide by looking at the relationship between those parameters and interest rates. The nature of this study is descriptive and causal comparative. A descriptive and causal comparative study strategy has been used to meet the goals. All 20 of the nation's listed commercial banks make up the study's population. The NRB provided a list of listed commercial banks. As of the middle of June 2024, there are twenty commercial banks in total. Using a judgmental sampling technique based on the varying sizes of the banks, four commercial banks are chosen as a sample for the study out of these twenty institutions. The operational costs to total assets ratio has a positive and statistically significant impact on the commercial bank lending rate, according to the regression models. Lending rate and profitability (ROA) have been determined to be substantially positively correlated. Furthermore, the loan interest rate is significantly and favorably impacted by default risk. Lending rate, however, doesn't seem to be a good way to explain why deposit interest rates vary. This study ultimately comes to the conclusion that, in the Nepalese environment, default risk, profitability, and the ratio of operating costs to total assets are the primary determinants of commercial banks' lending rates. The recommendations made by this study are based on the results of the empirical analysis. First off, the lending rates at the tested banks are exorbitant, which might seriously jeopardize an institution's profits and capital structure. Banks should make every effort to find a balance that would enable them to meet lending costs while also preserving positive banking relationships with their customers. It is imperative for bank management to uphold cautious lending rates in order to ensure the safety and soundness of financial institutions. Furthermore, to maintain lending rates at prudent levels consistently and continuously, bank management should make sure that the necessary policies, procedures, management information systems, and internal controls are in place.

Keywords: *Return on Assets, Return on Equity, Capital Adequacy Ratio, Cash Reserve Ratio, Non-Performing Loans Ratio, Bank Size*

CHAPTER I

INTRODUCTION

1.1 Background of the Study

One of the key terms in the loan decision-making process used by commercial banks is interest rate. Commercial banks are autonomous companies that choose their own lending interest rates. The proportion of the loan amount that the lender charges in order to lend money is known as the lending interest rate. Interest is levied on loans made by banks to their clients for a variety of purposes, such as profit-making, risk-reduction, and value preservation (Sheriff & Amoako, 2014).

The cost of borrowing money from banks for business purposes is indicated by the lending interest rate, which makes it essential for a nation's economy to grow. The lending rate is clearly important for the growth and development of all kinds of entrepreneurial endeavors, but identifying the factors that influence the lending rate in a well-established, integrated banking industry that is subject to central bank regulation is more critical (Ali et al., 2011).

Lower deposit rates and greater lending rates are the best ways for commercial banks to boost their profit margins. Because the revenue from interest income will not be sufficient to cover the cost of deposits, general expenses, and the loss of revenue from the non-performing loan portfolio, banks do not offer excessively low loan rates. However, banks are unable to charge excessively high loan rates since doing so will prevent them from maintaining their banking relationship with the borrowers. Therefore, choosing the right loan rates typically becomes a significant problem for the banking sector. Furthermore, the variables that impact the lending rates offered by commercial banks are significant issues that affect not just those particular banks but also legislators, the banking sector, and the general public. Several factors may impact the lending interest rate of commercial banks. According to the traditional idea, there are two forces that affect the rate of interest. First, there is the demand for investable capital, which primarily comes from the business sector, and second, there is the supply of savings, which mostly comes from families (Rose, 2003). Furthermore, savings, investments, the desire to hoard money, and the availability of money are the

four elements that the loanable funds theory takes into account when determining the rate of interest. According to rational expectation theory, changes in interest rates are mostly caused by unforeseen information and/or shifts in economic conditions, and the current spot rate provides the best estimate of future interest rates (Irungu, 2013).

Various factors, including those unique to the banking sector or industry, individual bank-specific factors, and macroeconomic ones, impact the lending interest rate of commercial banks (Bhattarai, 2015). Three main kinds of variables are used to determine bank lending interest rates. macroeconomic indicators such as real gross domestic product (GDP) growth rate and inflation rate; factors specific to the banking sector/industry such as the degree of competition or market concentration; and individual bank-specific factors such as operating or administrative costs, non-performing loans, return on assets, bank size, capital adequacy, and bank liquidity, among others (Bhattarai, 2015). The initial focus of these researchers' investigations on lending rate determinants was on developed and developing nations. While some of these studies take into account two aspects, others concentrate on just one.

Since Nepal's banking sector is still expanding, it is important to make sure that efficient measures are taken to lower lending interest rates. Furthermore, the interest rates that commercial banks charge on loans have been a touchy and recurrent policy problem in Nepal; therefore, it is necessary to conduct an unbiased analysis of all the variables that affect these rates. This study uses empirical analysis to look at the factors that influence lending rates in Nepal's commercial banks. The aim of this research is to examine the variables that affect interest rates on loans in commercial banks located in Nepal. Nevertheless, the focus of this study is limited to the macroeconomic variables that should be analyzed and the special characteristics that are unique to each bank. Bank executives may be able to determine the right lending interest rate by using the study's results to better understand the variables influencing lending interest rates.

As of December 2021, 172 financial institutions are in operation, with a total of 11215 branches and 278 lakh 67 thousand deposit accounts, according to Nepal Rastra Bank (2021). Throughout the nation, 180 lakh people have access to financial services. This represents 60.9 percent of the population. On average, 2844 persons can be assisted

by one branch. Out of the 753, 750 local level accesses the banking facilities. The financial organization based in Nepal offers 4086 ATM services. Up till the end of Ashad 2078, 6708521 debit cards and 123146 credit cards will be distributed. Similarly, Nepalese financial institutions offer 1530 branchless facilities, 91 lakh e-banking services, and 84 lakh 47 thousand mobile banking services nationwide.

The factors that determine the lending interest rate in commercial banks have frequently generated contentious discussion in Nepal. The primary topic of discussion is that Nepalese commercial banks' loan prices were comparatively high for an extended length of time, which restricted access to money and slowed economic progress. A comparison of the lending rate trends reveals that there is usually a far wider range for rises in lending rates than for decreases. Even if lending rates and spreads have been trending lower in recent years, they are still comparatively expensive. Nevertheless, the success of lowering lending rates will rely on how banks set their interest rates. Thus, the primary goal of this research is to examine the financial information of ten fiscal years' worth of commercial banks in order to look into the factors that influence lending rates and evaluate their importance by classifying them into macroeconomic and bank-specific variables.

In light of this, the study looks at the potential for further interest rate regime modification as well as the effects of structural changes in interest rates on deposit and portfolio lending.

1.2 Problem Statement

These days, moneylenders charge exorbitant interest rates for credit and even charge low interest rates on deposits. Capital cannot form and be completed in the global market if financial intermediaries, such as banks and financial institutions, do not play a significant role in directing savings into productive sectors in such a scenario. A lot of discussion has been about Nepal's general policies and practices regarding interest rates those banks and other financial institutions charge and offer, particularly in recent years. Businesses decrease their output and inventory levels when credit becomes more expensive and scarcer, resulting in a decline in overall spending on products and services. Consequently, joblessness increases and eco-nomic expansion

decelerates. The cost of borrowing is represented by an interest rate, which is the interest rate divided by the total amount borrowed over a given time period. Typically, it is given as a percentage over a 12-month period. It is also an essential tool for monetary policy, controlling things like investment, unemployment, and inflation. One of the most highly followed indicators of a financial market is interest rates. The formulation of capital and its appropriate application are crucial to the nation's economic growth. Since banks and other financial institutions play a big part in a nation's economic growth, more focus should be put on encouraging savers to increase their deposits and lending to prospective borrowers and investors who need bank financing by giving depositors interest and charging borrowers interest. The following are the study's shortcomings:

i. How do Nepalese commercial banks determine lending interest rates? What is the composition and trend of these factors?

ii. Is there a connection between the factors that influence lending interest rates and lending interest rates in Nepal's commercial banks?

iii. How do lending interest rate determinants affect lending interest rates in Nepalese commercial banks?

1.3 Objectives of the Study

The primary goal of this study is to determine the elements that influence the interest rates that Nepalese banks charge and provide by looking at the relationship between influencing factors and interest rate. The precise goals listed below has developed.

i. To evaluate the composition and trends of the factors that influence lending interest rates in Nepal's commercial banks.

ii. To investigate the connection between the factors that influence lending interest rates and lending interest rates in Nepal's commercial banks.

iii. To examine how lending interest rate determinants affect lending interest rates in Nepalese commercial banks.

1.4 Hypothesis

From the above purpose following hypothesis is develop:

H1: The interest rate on deposits has a major impact on the interest rate on loans at Nepalese commercial banks.

H2: The operational cost to total assets ratio significantly affects the Nepalese commercial bank's deposit lending rate.

H3: A Nepalese commercial bank's lending interest rate is significantly impacted by its profitability.

H4: The lending interest rate of Nepalese commercial banks is significantly impacted by default risk.

1.5 Rationale of the Study

Despite being a very important and sensitive part of economic development, there hasn't been a lot of research done on interest rate structure. Its impact on economic development has not received enough attention from researchers. Even with large interest spread rates, depositors and loan holders do not take their own exploitation of commercial banks seriously. Thus, this study will aid the general public in comprehending the commercial banks' interest rate structure. Interest rates imposed by commercial banks on loans have an impact on people's investment habits, while interest rates offered on deposits have an impact on deposit collection and the nation's mobilization of savings. In addition to providing teachers, researchers, students, and the general public with useful information about interest rates, deposits, and lending, this study will assist policy makers in developing sound policies governing the interest rates imposed on deposits and loans.

1.6 Limitations of the Study

The secondary data used in this study, which was taken from published sources, is not entirely accurate. Even though the financial system is made up of numerous financial institutions, including as banks, finance firms, micro-credit development banks, and government development banks, these organizations all contribute significantly to economic growth by taking deposits and subsequently lending to the general people. However, the entire analysis is based on a comparison of two of the top banks. Resources for this investigation are limited in terms of time, money, and accessibility to adequate information.

Despite the fact that this study has taken great care to include the majority of the significant sectors, it is nevertheless susceptible to the following limitations:

- Because only specific financial and statistical tools and methodologies are employed in this study, there may be some mistake in the data calculations.
- The study is primarily based on secondary data, with only data from the fiscal years 2013–14 through 2022–23 serving as the basis for the entire analysis.

CHAPTER II

LITERATURE REVIEW

Reviewing research studies and other pertinent propositions in the relevant field of study is an essential and required step in research works that allows for the knowledge of all relevant data, conclusions, and discrepancies as well as the conducting of additional research. An important area of the financial sector is the effect of interest rate structures on deposit collecting and mobilization through loans. Therefore, the purpose of this study is to determine how interest rate changes affect commercial banks' lending and deposit policies. This chapter therefore focuses on providing comments on the conceptual framework, interest rate policy change, interest rate theories, and book, paper, and thesis, article, and policy document reviews.

2.1 Theoretical Review

several economists have proposed several interest rate theories that explain how interest rates are set in different scenarios. The following are a few popular theories on interest rates:

The classical theory of interest rates

The classical theory of interest rates, which was created by several British economists in the 18th and 19th centuries and further expanded by Fisher (1930) earlier this century, is one of the oldest ideas about the factors that determine the pure or risk-free interest rate. According to the traditional idea, interest rates are determined by two factors: the first is the supply of savings, which primarily comes from households, and the second is the demand for investment capital, which primarily comes from the business sector.

Saving by Households, Peter (2003): In contemporary developed countries, the majority of saving is done by individuals and families. Savings for these households just means not making any purchases. As a result, current savings are equal to the difference between current income and current outlays for consumption. Households usually take into account a number of aspects when determining when and how much to save: the quantity of current and long-term income, the intended savings target, and the desired percentage of income to be set aside in savings (i.e the inclination to save). In general, household savings increase as income does. Compared to families with

lower earnings, higher income families and individuals often save more and consume less. Interest rates are a significant factor in saving decisions, even if income levels most likely influence them. Interest rates have an impact on a person's decision to save money for future purchases versus consume it now. According to the traditional theory of interest, people choose current consumption above future consumption at a specific moment in time. It is considered that a sensible person will always choose their enjoyment of goods and services now over their enjoyment of them hereafter. As a result, the only method to motivate a person or family to save more money and reduce their current consumption is to increase the interest rate on their present savings. Future spending and satisfaction would rise if more money were saved in the present at a better rate of return. According to the conventional view, paying interest is a benefit of waiting, delaying present spending in favor of larger future consumption. A higher interest rate makes saving more appealing than spending on consumption, which motivates more people to replace some portion of their present consumption with saving and future consumption. The volume of savings and interest rates should positively correlate, according to the so-called substitution effect. A higher current volume of savings results from higher interest rates.

Savings by business firms

Households and businesses both save money, and they invest some of it in the financial markets to buy securities and lend money. The majority of firms keep savings in the form of retained earnings. In fact, one important indicator of the amount of current corporate savings is the annual growth in retained earnings that businesses report. Furthermore, business enterprises use the majority of their yearly investment spending capital from these retained earnings. The amount of corporate profits and the dividend policy of firms are the two main determinants of saving. The retention ratio, or the ratio of retained earnings to net income after taxes, is a summary of these two elements. This ratio shows what percentage of company profits are invested back into the company instead of being distributed to shareholders as dividends. Experience has demonstrated that large firms rarely alter their dividend policy. Regardless of their existing earnings, a lot of firms choose to maintain or slightly boost their dividend payouts year. Any earnings gaps that must be made up by borrowing are used to pay dividends. The quantity of business profits, or retained earnings, is then the crucial factor influencing the amount of corporate savings.

Businesses will be able to rely less on the money and capital markets and more on earnings held within the company for funding if higher profits are anticipated. As a result, there is a decline in the demand for loans and a downward trend in interest rates. Conversely, in the event that earnings decline but companies do not reduce their investment plans, they will have to rely more heavily on capital markets and the money supply for investment funds. Interest rates may increase in tandem with the growth in loan demand. Profits are the main factor that determine how much a corporation may save, but interest rates also have an impact on how much of current operational costs and long-term investment expenditures should be funded internally vs externally. Firms tend to employ more domestically generated funds to finance projects when interest rates in the money and capital markets are higher. On the other hand, reduced interest rates promote increased reliance on outside funding from the capital and money markets, according to Panta (1983).

Savings by government

Though less commonly than people and businesses, governments also save money. As a matter of fact, most government receipts come in unexpectedly higher than what is actually spent. The two main elements influencing government savings are the economy's income flows, which are the source of government tax collections, and the rate at which government expenditure initiatives are implemented. It expands the money supply, according to Keynes (1936).

The Loanable Fund Theory of Interest Rate

It is an advanced version of classical theory that attempts to address many of the shortcomings of earlier theories. classical theory, in particular, which emphasizes individual, governmental, and corporate saving and spending. However, it is primarily driven by two factors: the interaction between the supply and demand for credit (loanable funds) determines the risk-free rate of interest.

Total demand for loanable funds

Bhattarai (2014) examined the amount of loanable funds that are required by local consumers, national businesses, the government, and international companies. Loans are typically requested by the government for the construction and management of the country, by businesses for the purchase of machinery and equipment, and by consumers for the purchase of goods and services. According to recent studies,

customers are more interested in the non-price parameters of loans—like the down payment, maturity date, and size of installment payments—than they are in the interest rate when they apply for credit. This demonstrates how relatively inelastic consumer demand is for loans un relation to interest rates. Compared to consumer borrowing, domestic corporate credit demands are typically more sensitive to fluctuations in interest rates. The public welfare and social necessities, not the interest rate, are taken into consideration when the government decides how much money to borrow and spend. International governments, businesses, and banks have been borrowing billions of dollars from the vast U.S. banking system in recent years. The disparity between interest rates in foreign markets and domestic lending rates affects this massive demand for credit from overseas. Certain businesses, consumers, and governments reduce their borrowing plans due to higher interest rates, while lower interest rates increase demand for credit.

The total supply of loanable funds, as demonstrated by Bhattarai (2014), is mostly made up of domestic savings, money hoarding, international loans, and domestic bank lending. The gap between the amount of money available and what the general populace wants is known as dishoarding. Money hoarding that goes against the grain, or dishoarding, only occurs when supply exceeds demand. When the public's current income exceeds their current expenses, they save domestically. However, businesses also make savings by increasing their depreciation reserves and holding onto a portion of their existing earnings. Even though it happens infrequently, government savings happen when current earnings surpass current expenses.

The Liquidity preference theory of interest

This is Keynes' interest rate theory from 1936. This theory states that interest results from the interaction between the money supply and the demand for liquidity. The demand for liquidity is the primary factor in liquidity preference theory that determines interest rates. According to Keynes, the interest rate is actually a cost of using money, a finite resource. Even when the return on their money is minimal or nonexistent, businesses and individuals nevertheless prefer to hold money in order to conduct everyday transactions and as a safety measure against future financial demands. A common objective among investors in fixed-income assets, such

corporate and government bonds, is to hold money as a safety net against falling security prices. Thus, interest rates represent the cost incurred by investors to persuade them to forgo perfectly liquid assets in favor of riskier ones. Interest rates will increase unless the government increases the money supply, which might cause a significant desire for liquidity at times. Only two investment channels are taken into account in the notion of liquidity preference: bonds and cash (including bank deposits). Bonds provide interest but cannot be spent until they are converted into cash. In contrast, money offers perfect liquidity, or instant spending power. A bond paying a fixed rate of interest loses market value when interest rates climb.

In contrast, a decrease in interest rates raises bond prices; if bonds are sold for cash, the bondholder will realize a capital gain. If the investor converted those bonds into cash, they would face a capital loss. The classical theorists believed that holding money was illogical since it yielded little to no return. However, Keynes believed that if interest rates were predicted to climb, then saving money may be a perfectly reasonable course of action, as rising rates can generate significant losses for bond investors. The total of transactional, precautionary, and speculative needs for money in the economy is just that—a demand for money. These money needs are set at a specific level of national income since income, not interest rates, is the primary factor influencing transactions and precautionary demand.

The money supply is the second factor in this hypothesis that determines interest rates. We assume that the money supply is inelastic with respect to the interest rate and that government decisions about the amount of money to be created are motivated by the public welfare rather than the level of interest rates. In modern economies, the money supply is controlled, or at least closely regulated.

Rational Expectancy Theory

A fourth main theory concerning the factors influencing interest rates has emerged in recent years and seems to be gaining traction. This is the interest rate rational expectations hypothesis. It adds to the increasing amount of studies showing that the capital and money markets are extremely effective at absorbing fresh information that influences the value of securities and interest rates. The rational expectations theory makes the following key assumptions and conclusions: rates of return in successive time periods are correlated with zero; expectations regarding future security prices

and interest rates are formed efficiently; changes in rates and security prices are correlated only with unexpected information; and the prices of securities and interest rates should reflect all available information. The market uses all of this information to establish a probability distribution of expected future prices and interest rates. According to the rational expectations theory, understanding the public's present expectations is necessary in order to forecast interest rates. Interest rates must adjust if fresh information is sufficient to shift such expectations. It suggests that without knowing what the public already anticipates happening, policymakers cannot influence interest rates to move in any specific way. In fact, they cannot modify interest rates at all unless they can persuade the public that a different set of expectations is justified.

However, the reasonable expectations theory is still in its early stages of development. One major issue is the lack of knowledge regarding how the public sets expectations, what data are used, how weights are assigned to certain data points, and how quickly forecasters learn from their mistakes.

2.2 Empirical Review

Chen et al. (2023) looked into the impact of two absent factors and if liberalization has affected commercial banks' ability to withstand risk in any way. This piece examines 288 data points. The VAR model co-integration test, the ADF stationarity test, and the Sobel test are among the analyses. Our findings demonstrate the beneficial impact of China's interest rate marketization policy on lowering bank risk. China's ability to communicate its monetary policy and exercise strategic leadership can both be enhanced by commercial banks' anti-risk skills. This article demonstrates the need for stronger laws and regulations to lessen the possibility of bankruptcy that commercial banks may experience as a result of interest rate liberalization. By drawing from the theories of monetary policy transmission and strategic leadership, this research advances the notion of interest rate liberalization and anti-risk capabilities. It concludes that interest rate risk has gone up as a result of market-oriented rate reform.

Kariuki (2023) investigated the relationship between lending institution performance in Africa and interest rates. Examining the relationship between interest rates and lending institution performance in Africa was the aim of this study. Regression

analysis and multiple correlation were employed by the writers. The study also found that performance in terms of profits before taxes and extraordinary items (PBTEI) and returns on equity (ROE) was significantly impacted by interest rates on loans and advances.

Acharya and Vyas (2022) assessed how macroeconomic and bank-specific factors affected the profitability of commercial banks in Nepal. Panel data from twenty-four commercial banks between 2011–12 and 2019–20 are used in the study. According to the study, factors unique to banks, like the capital adequacy ratio, non-performing loans, and cost of financing, have a negative impact on the profitability of banks (ROA and ROE). Conversely, there is a positive correlation between the interest rate spread, total investment to total asset, and net interest income to total asset. In terms of macroeconomic factors, banks' performance is positively impacted by GDP, but it is negatively impacted by INF (inflation). Because the macroeconomic variable INF has a negative impact on GDP, the analysis comes to the conclusion that it is the main factor influencing banks' profitability.

Al-Mulali et al.'s study from 2022 examined how interest rates affect Malaysian banks' performance. This study set out to ascertain the effect of interest rates on the performance of Malaysian commercial banks as well as the direction of the correlation between interest rates and the industry's output. Analysis of multiple regression was used by the writers. The results demonstrated a strong positive correlation between interest rates and the performance of Malaysian commercial banks, as well as a favorable association between interest rates and performance. According to the study's findings, stricter standards should be used when choosing and overseeing borrowers in order to guarantee that environmental regulations are being followed.

The factors influencing Nepalese commercial banks' interest rate spread (IRS) were the subject of a study by Shrestha (2022). Analyzing the factors that influence Nepalese commercial banks' interest rate spread (IRS) was the goal of this study. For the study, the authors employed regression analysis and multiple correlation. The results showed that whereas ME and OE were found to have a negative impact in predicting the IRS of Nepalese commercial banks, ROA, CR, INF, and GDP were shown to have a favorable role. According to the research findings, policies pertaining to the spread rate of interest can benefit from this study.

The factors influencing the lending interest rates of commercial banks with listings in Jordan were examined by Mustafa and Qudah (2021). The purpose of this study was to investigate lending interest rate determinants. Regression analysis and multiple correlation were employed by the writers. The findings indicate that the lending interest rate of Jordanian commercial banks was significantly impacted positively by both inflation and the deposit interest rate. As one of the elements that can lead to a further fall in lending interest rates, the study stated that banks could utilize their size and profitability as tools to lower lending interest rates.

Al-Mulali and others. Al (2021) looked into how interest rates affected the performance of banks in the nations that make up the Gulf Cooperation Council. This study set out to investigate how interest rates affect the performance of commercial banks. Analysis of multiple regression was used by the writers. The results demonstrated a strong positive correlation between interest rates and the performance of commercial banks in the Gulf Cooperation Council (GCC) as well as a beneficial effect of interest rates on commercial bank performance. According to the study's findings, the appropriate authorities ought to establish a reasonable Minimum Loan Rate (MLR), focus on promoting tourism in a particular area, and adopt measures that strengthen the local economy.

Qureshi and Bibi (2021) investigated how interest rates affected Pakistani banks' operational results. This study sought to ascertain how interest rates affected Pakistani commercial banks' performance as well as the direction of the link between interest rates and performance. Panel data regression analysis was employed by the writers. The results demonstrated that interest rates and the performance of commercial banks in Pakistan were significantly correlated negatively and that interest rates had a detrimental effect on commercial bank performance in Pakistan. According to the study's conclusion, fresh information can help us comprehend liquidity in emerging nations like Pakistan.

The effect of interest rates on the performance of Saudi Arabian banks was examined by Ali and Shaheen in 2021. This study set out to investigate how interest rates affected Saudi Arabia's commercial banks' performance. Analysis of multiple regression was used by the writers. The results demonstrated a strong positive correlation between interest rates and Saudi Arabia's commercial banks' performance, as well as a favorable association between interest rates and Saudi commercial banks'

performance. This study found that since increased profitability is one of the primary goals of bank supervisors and regulators, the findings are quite pertinent.

In 2020, Mbowe, Mrema, and Shayo conducted research on Tanzanian bank lending interest rate determinants. The goal of the study is to investigate the factors that influence bank lending interest rates in Tanzania, with a particular emphasis on determining the major factors and their relative significance. Among the methods used include econometric estimation of interest rates through decomposition utilizing annual balance sheet data from banks. The key factors influencing lending rates, according to results on interest rate decomposition, are operating costs, non-performing loans, and funding costs (interest rates on deposits). Between 2014 and 2017, the three components constituted around 69.5 percent and 67.4 percent of the average lending rates for medium and big banks, respectively, but accounted for 70.4 percent of the lending rates for small banks. Regarding econometric estimations, the results validate the importance of operating costs, non-performing loans, and cost of funds in explaining the dynamics of bank lending rates. The statutory minimum requirement ratio (SMR) seems to be a significant factor in all banks' lending rates, but its share has been decreasing over time in line with the expansionary monetary policy measures implemented since 2014. Bank size and liquidity level have a negative impact on lending rates; operating costs, cost of funds, and inflation have a statistically significant positive impact. With the exception of locally held banks, the SMR ratio is statistically significant but indicates a negative outcome. The primary factors that determine bank lending rates can be listed in order of relative importance as follows: cost of funds (0.255), operating costs (0.261), and inflation, which has an average positive influence on lending rates of 0.432 for every unit change in inflation. The biggest negative impact on the variable is shown in bank size, which increases by 0.288 units.

Mbowe, Mrema, and Shayo (2020) looked into Tanzanian bank lending interest rate determinants. The goal of the study is to investigate Tanzanian bank lending interest rate determinants. The multiple regression analysis was performed in this investigation. The key factors influencing lending rates, according to results on interest rate decomposition, are operating costs, non-performing loans, and funding costs (interest rates on deposits). This study came to the conclusion that bolstering the

regulatory and supervisory functions is crucial, primarily to guarantee that the financial system has enough liquidity to meet everyday needs.

Oladimeji and Oladele (2020) examined how interest rates affected Nigeria's commercial banks' operational results. This study set out to investigate how interest rates affected Nigeria's commercial banks' performance. Analysis of multiple regression was used by the writers. The results demonstrated a substantial inverse association between interest rates and the performance of Nigeria's commercial banks, as well as a negative influence of interest rates on such performance. According to the study's findings, interest rate policies have not greatly enhanced banks' overall performance and have only slightly boosted the expansion of the economy in support of sustainable development.

Qureshi and Akram (2020) investigated how interest rates affected the performance of banks. This study set out to ascertain how interest rates affected Pakistani commercial banks' performance as well as to look at the relationship between interest rates and performance in Pakistani commercial banks. Analysis of multiple regression was used by the writers. The results demonstrated that interest rates and the performance of commercial banks in Pakistan were significantly correlated negatively and that interest rates had a detrimental effect on commercial bank performance in Pakistan. This study came to the conclusion that OBS operations, as opposed to deposit- or equity-financing, encourage a more diverse, margin-generating asset base, and that variations in OBS exposure are correlated with cross-sectional variations in interest-rate risk and liquidity risk.

Mehmood and Muhammad (2019) conducted research on the effect of interest rates on Pakistani commercial banks' performance. This study set out to ascertain how interest rates affected Pakistani commercial banks' performance as well as to look at the relationship between interest rates and performance in Pakistani commercial banks. Analysis of multiple regression was used by the writers. The results demonstrated that interest rates and the performance of commercial banks in Pakistan were significantly correlated negatively and that interest rates had a detrimental effect on commercial bank performance in Pakistan. According to the study's conclusion, fresh information can help us comprehend liquidity in emerging nations like Pakistan.

The factors influencing bank deposits in Nepalese commercial banks were investigated by Maharjan (2018). This study's goal was to examine the factors that influence bank deposits in Nepalese commercial banks. Regression analysis and descriptive statistics were employed in the data analysis. According to this study, the main factors influencing bank deposits in Nepalese commercial banks are the number of branches, the rate of savings deposits, the rate of fixed deposits, return on assets, and the consumer price index. This study came to the conclusion that bank deposits would decrease when the consumer price index increased.

Poudel (2018) examined how interest rate spreads affected Nepal's commercial banks' profitability. The purpose of this study was to look at how interest rate spreads affected Nepali commercial banks' profitability. Regression analysis and descriptive statistics were employed in the data analysis. The research's conclusions not only add to the body of knowledge but also assist authorities in their efforts to guarantee that Nepal's banking industry operates profitably and competitively. This study came to the conclusion that consumers of retail banking products are more likely to be young and well-educated. The majority of responders emphasize that retail lending presents challenges.

In their 2016 study, Maigai and Mouni examined the impact of interest rate determinants on Kenyan commercial banks' performance. They discovered that, to a large degree, inflation rates have an impact on national commercial banks' performance. In Kenya, there is a negative correlation between the performance of commercial banks and inflation rates. Bank performance declines in response to rising inflation rates. This study examines how Pakistani banks' performance is affected by inflationary tendencies. According to the study's findings, Muslim Commercial Bank Limited, Allied Bank Limited, United Bank Limited, and Bank Al-Falah Limited saw a decline in ROA, ROE, and net interest margin as inflation rises. As a result, the analysis comes to the conclusion that Kenya's commercial banks will perform worse as inflation rises. The study discovered that the reserve requirement has a significant impact on Kenyan commercial banks' performance. The reserve requirement rates have a detrimental effect on Kenya's commercial banks' performance. The outcome showed that the return on assets of banks is inversely correlated with monetary policy. Thus, the study comes to the conclusion that Kenyan commercial banks' performance

will decline as reserve requirements rise. Bank performance suffers when reserve requirements are raised.

Asamoah and Adu (2016) conducted study on Ghana's interest rate determinants. This study set out to look at the factors that influence interest rates in Ghana. Regression analysis and descriptive statistics were employed in the data analysis. The average lending rate that commercial banks charge and the variables that determine it have a long-run equilibrium relationship, according to the study. Additionally, this study reveals a favorable short- and long-term relationship between the bank lending rate and exchange rates as well as the monetary policy rate. The average bank lending rate in Ghana is significantly impacted by both the currency rate and the monetary policy rate set by the Bank of Ghana, according to the study's findings.

Timsina (2016) examined the factors that influence bank interest rates on deposits held by commercial banks in Nepal. Regression analysis techniques were employed in this study in order to analyze the lending activities of the banks. This study has shown that the lending activities of commercial banks have been significantly impacted by the banks' liquidity ratio in addition to the GDP. According to the study's conclusion, policymakers should concentrate more on the growth of the formal sector's funding, the proper development of the contemporary banking industry, and the creation of an environment that is sensitive to investor interests in order to boost bank lending, which is essential for fostering Nepal's economic expansion.

Using six commercial banks, Bhattarai (2015) examined the factors that affected the lending interest rates of Nepalese banks between 2010 and 2015. For this study, the descriptive and causal comparative research designs have been used. The factors influencing loan interest rates have been investigated using the pooled OLS model, fixed effect model, and random effect model. The study's independent variables include deposit interest rate, profitability (ROA), operating cost to total assets ratio, and default risk, whereas the dependent variable is lending rate. The operational costs to total assets ratio has a positive and statistically significant impact on the commercial bank lending rate, according to the computed regression models. Lending rate and profitability (ROA) have been determined to be substantially positively correlated. Furthermore, the loan interest rate is significantly and favorably impacted by default risk. The deposit rate, however, doesn't seem to be a good way to explain why lending interest rates vary. This study ultimately comes to the conclusion that, in

the Nepalese environment, default risk, profitability, and the ratio of operating costs to total assets are the primary determinants of commercial banks' lending rates.

Khan (2014) looked at the financial accounts of four significant banks from 2008 to 2012 in order to determine how interest rate fluctuations affected the profitability of commercial banks operating in Pakistan. Changes in interest rates so reduce savings and investments while simultaneously boosting bank lending efficiency. Bank profitability was the dependent variable in the study, and interest rates were the independent variable. The study employed the Pearson correlation method to investigate the effects of interest rate fluctuations on the profitability of commercial banks in Pakistan. Consequently, a robust and affirmative association was seen between the lending interest rate and the profitability of commercial banks. This implies that when interest rates rise or fall, bank profits will also increase or decrease.

The effect of bank lending rates on Nigerian Deposit Money Banks' performance from 2000 to 2010 was examined by Okoye and Ricahrd (2013). It investigated how bank lending rate policy influences the performance of Nigerian deposit money banks and especially determined the effects of lending rate and monetary policy rate on the performance of Nigerian deposit money banks. The research incorporated and evaluated time-series and quantitative design using secondary data econometrics in a regression. The study's conclusion demonstrates that the loan rate and the monetary policy rate have a major, favorable impact on the operation of deposit money banks in Nigeria. These suggest that the lending rate and the monetary policy rate are the real performance indicators for banks.

Table 1

Summary of Empirical Review

Author (s)	Objectives	Methodology	Findings
Kariuki (2023)	The objective of this study was to examine influence of interest rates and performance of lending institution in Africa.	The authors used multiple correlation and regression analysis.	The study also concluded that interest rates on loans and advances became significant in affecting performance in terms of profits before tax and exceptional items (PBTEI) and also returns on equity (ROE).
Al-Mulali et al. (2022)	The objective of this study was to determine the impact of interest rate on the performance of commercial banks.	The authors used multiple regression analysis.	The findings showed that there was a significant positive relationship between interest rate and the performance of commercial banks in Malaysia.
Shrestha (2022)	The aim of this study was to analyze the determinants of interest rate spread (IRS) of Nepalese commercial banks.	The authors used multiple correlation and regression analysis.	The role of ROA, CR, INF and GDP was found to be positive while that of ME and OE was discovered as a negative role in determining the IRS of Nepalese commercial banks. The findings of this study can be useful in formulating

			policies on the spread rate of interest.
Mustafa and Qudah (2021)	To examine the determinants of lending interest rates.	The authors used multiple regression analysis.	□ ROA and bank size had negative significant impacts on lending interest rates. Liquidity had a negative insignificant impact. □ The results also show that deposit interest rate and inflation had a positive significant impact on lending interest rate.
Qureshi and Bibi (2021)	The objective of this study was to determine the impact of interest rate on the performance of commercial banks in Pakistan	The authors used panel data regression.	□ The findings showed that there was a significant negative relationship between interest rate and the performance of commercial banks in Pakistan
Ali and Shaheen (2021)	The objective of this study was to examine the impact of interest rate on the performance of commercial banks in Saudi Arabia	The authors used multiple regression analysis.	□ The findings showed that there was a significant positive relationship between interest rate and the performance of commercial banks in Saudi Arabia
Oladimeji	The objective of this	The authors	□ The findings showed

and Oladele (2020)	study was to examine the impact of interest rate on the performance of commercial banks in Nigeria.	used multiple regression analysis.	that there was a significant negative relationship between interest rate and the performance of commercial banks in Nigeria.
Mbowe, Mrema, & Shayo (2020)	To examine the determinants of bank lending interest rates in Tanzania	The authors used multiple correlation and regression analysis.	The findings confirm the role of operating costs, non-performing loans, and cost of funds in explaining bank lending rates dynamics. Operating costs, cost of funds, and inflation have a statistically significant positive effect on bank lending rates, while bank size and level of liquidity have a negative influence.
Mehmood and Muhammad (2019)	The objective of this study was to determine the impact of interest rate on the performance of commercial banks in Pakistan and to examine the direction of the relationship between interest rate and the performance of	The authors used multiple regression analysis.	The findings showed that there was a significant negative relationship between interest rate and the performance of commercial banks in Pakistan, and that interest rate had a negative impact on the performance of

	commercial banks in Pakistan.		commercial banks in Pakistan.
Poudel (2018)	To analyze the impact of Interest Rate Spread on Profitability of Commercial Banks	The descriptive statistics and regression analysis were used for data analysis.	There is clear positive relationship between interest rate spread and banks profitability. When interest rate spread increases, it will lead to increase profitability, i.e. Increase in return on equity, return on assets, net profit margin, earning per share e.t.c. And vice versa.
Maharjan (2018)	To analyze the Determinants of Bank Deposits of Nepalese Commercial Banks	The authors used multiple correlation and regression analysis.	This states that higher the gross domestic product, lower would be the bank deposit. The study also reveals that saving deposit rate, fixed deposit rate, number of branches, return on assets and consumer price index are major determinants of banks deposit.
Timsina (2016)	To evaluate the banks' lending operations and its drivers using time series analysis	The authors used multiple correlation and regression	Liquidity ratio of the banks, in addition to the Gross Domestic Product, has hugely

		analysis.	affected the lending operations of the commercial banks. □ Upon performing the Granger Causality Test, she recorded that there is a unidirectional causal relationship from GDP to private sector credit.
Bhattarai (2015)	To analyze the Determinants of lending interest rates of Nepalese commercial banks.	The authors used multiple correlation and regression analysis.	□ The dependent variable used in the study is lending rate and independent variables are: operating cost to total assets ratio, deposit interest rate, profitability (ROA), and default risk.

2.3 Research Gap

Numerous research studies on interest rates, deposits, and lending have been funded by financial institutions and state-run businesses. A case study of two companies is the subject of some studies, while comparisons are the focus of others. However, funding for the research of interest rates and their relationships to deposits, lending, and inflation in Nepal at two representative commercial banks is scarce. After reviewing similar papers, no one study that examined interest rates and their relationship to deposits and loans from commercial banks was identified.

Regression analysis and ratio analysis were the most common statistical and financial tools utilized by the researchers. This study uses a variety of tools, including specialized tools like trend analysis and ratio analysis. Hence, the research study conducted in Nepal on interest rates and their relationships to deposits, lending, and

inflation. will make an attempt to use a variety of relevant financial and statistical methods and techniques to conduct a detailed analysis of the relationship between interest rates, lending, deposits, and inflation in the current environment. All those who are concerned and the general public may benefit from the study.

CHAPTER III

RESEARCH METHODOLOGY

A systematic study must adhere to an appropriate technique in order to meet its predetermined goal. Research methodology is a methodical approach that a researcher uses to analyze an issue from a particular point of view and aim. Stated differently, research methodology pertains to the techniques and procedures used throughout the entire data-focused investigation, including data collection tools and procedures, data processing and tabulation techniques, and analytic approaches. In actuality, it is a critical thinking technique that involves problem-solving and problem-defining, hypothesis- or solution-forming, data collection, organization, and evaluation, deduction, and conclusion-making.

Research methodology provides a framework for methodically resolving research quandaries in order to achieve the study's main goal. It includes a succinct description of the study design, the types and sources of data, the procedure for gathering data, and the methodology of the instruments used to analyze the data.

3.1 Research Design

A research design is essentially the plan or framework for a study that serves as a direction for data collection and analysis. Based on the primary goal of the study, there are several basic categories into which research designs can be divided, including descriptive research designs. The nature of this study is descriptive and causal comparative. A descriptive and causal comparative study strategy has been used to meet the goals.

3.2 Population and Sample

All 20 of the nation's listed commercial banks make up the study's population. The NRB provided a list of listed commercial banks. As of mid-June 2023, there are a total of 20 commercial banks, making up the study's population. Using the judgmental sampling method, four of these 20 commercial banks were chosen as the study's sample based on their largest total assets.

i. Agriculture Development Bank Ltd (ADBL);

ii. Himalayan Bank Ltd (HBL);

iii. Nepal Bank Ltd (NBL);

iv. NMB Bank Ltd (NMB)

3.3 Nature and Source of Data

Since secondary sources of data have been the primary source of information used in this research, obtaining them will need significant work, time, and persuasion of relevant authorities. Secondary information from the respective offices has been sourced from the published annual report, balance sheet, prospectus, annual general meeting, and unpublished office records as well as journals, magazines, government and university publications, NRB, and the websites of the two banks. For further information and authenticity regarding the numerous published statistics as the primary data, personal observation and a few unofficial interview techniques have been used.

3.4 Method of Data Collection

The necessary data was gathered from the sample bank's annual reports for the study periods via the sample bank's official websites. The official websites also include statistics on Nepal's commercial banks, NRB regulatory directives, and other relevant publications.

3.5 Methods of Data Analysis

The financial and statistical tools used to assess the data and draw the research's conclusion will be covered and included in the thesis. Various tools are used to examine the data in order to derive specific findings from this study. The emphasis on statistical tools is in line with the topic requirement, hence the following statistical tools will be used in this study.

3.5.1 Arithmetic Mean

The value that represents the group of values and provides information about the concentration of values in the middle of the distribution is called the mean. We get a point from an average that best represents the data. It portrays the traits shared by the entire group. Between the two extreme observations of the total data set is where the arithmetic mean value is found. It is a messenger for the homogeneous bulk of info.

By adding up each item and dividing the sum by the total number of items, the AM's value can be found.

Mathematically,

Arithmetic Means (AM) is given by,

$$\bar{X} = \frac{\sum x}{n}$$

Where,

X=Arithmetic Mean

∑X= Sum of all the values of the variable X

n= Number of observation

3.5.2 Standard Deviation

The absolute dispersion is measured by the standard deviation (σ). The magnitude of the values' departures from their mean will increase with increasing standard deviation. High levels of observational consistency and series homogeneity are indicated by small standard deviations, and vice versa.

Mathematically,

$$\sigma = \sqrt{\frac{1}{n}\sum (X - \bar{X})^2}$$

3.5.3 Coefficient of Variation

A relative metric is the coefficient of variation, or CV. CV is a better statistical technique to compare variability between two or more series.

Mathematically,

$$CV = \frac{\sigma}{\bar{x}} \times 100$$

3.5.4 Correlation Coefficient (r)

Correlation is the term used to describe the right statistical tools used to uncover, measure, and express a quantitative relationship in a concise formula. A positive correlation exists when there is a direct proportionality between the values of the variables. Conversely, in the event when the variable values exhibit inverse proportionality, the correlation is deemed negative; yet, the correlation coefficient consistently stays within the range of +1 to -1. According to Karl Pearson, the basic correlation coefficient (between, let's say, X and Y) is provided by

$$r_{xy} = \frac{cov(X,Y)}{\sigma X \sigma Y}$$

$$r_{xy} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where "r" always falls between +1 and -1, denoting the correlation between two variables, X and Y.

There is perfect positive correlation when "r" = +1.

There is perfect negative correlation when "r" = -1.

There is no association when "r" = 0.

There is a high degree of positive or negative correlation when "r" is between 0.7 and 0.999 (or -0.7 and -0.999).

There is a moderate level of correlation when "r" is between 0.5 and 0.699.

There is little degree of correlation when 'r' is smaller than 0.5.

3.5.5 Coefficient of Determination (R^2)

The contribution of an independent variable to the prediction of dependent variables can be quantified using the coefficient of determination. It is computed by square of the correlation coefficient, as previously mentioned, and is more appropriate when verifying the results than the correlation coefficient.

$$R^2 = r \times r$$

3.5.6 Regression Analysis

The statistical method that allows us to predict an unknown variable's value from a known value of any other variable is called regression. We can estimate the value of one variable from the value of another, assuming that the two variables are tightly connected. The one whose value is known is known as the independent variable, and the one whose value needs to be estimated is known as the dependent variable. Therefore, regression uses a specific amount of change in one variable to predict the average probable change in another. By establishing an estimated functional relationship between the variables, it is a statistical method for determining the relationship between the variables. It is employed to ascertain whether or not the provided independent variable has an impact on the dependent variable.

A popular application of statistical theory in practically all scientific fields is regression analysis.

Multiple Regression Analysis

A natural progression from basic linear regression analysis is multiple regression analysis. To estimate the unknown values of a dependent variable, two or more independent variables are employed rather than just one. Nonetheless, the analysis's basic idea doesn't change.

The statistical technique known as multiple regression is used to estimate, or predict, the most likely value of the dependent variable based on the known values of two or more independent variables.

We examine the multiple regression equation that follows.

$LIR_{it} = \beta_0 + \beta_1 OCTA_{it} + \beta_2 DIR_{it} + \beta_3 PROF_{it} + \beta_4 DR_{it} + e_{it}$

Where,

LIR_{it} = Lending interest rate of i^{th} bank in year t

$OCTA_{it}$= Operating cost to total assets ratio of i^{th} bank in year t

DIR_{it}= Deposit interest rate, which is the average interest rate on deposits of i^{th} bank in year t

$PROF_{it}$= Profitability, which is calculated as net income divided by total assets of i^{th} bank in year t

DR_{it}= Default risk, which is calculated as non-performing loans to total loans of i^{th} bank in year t

β_0 = The intercept of the regression line

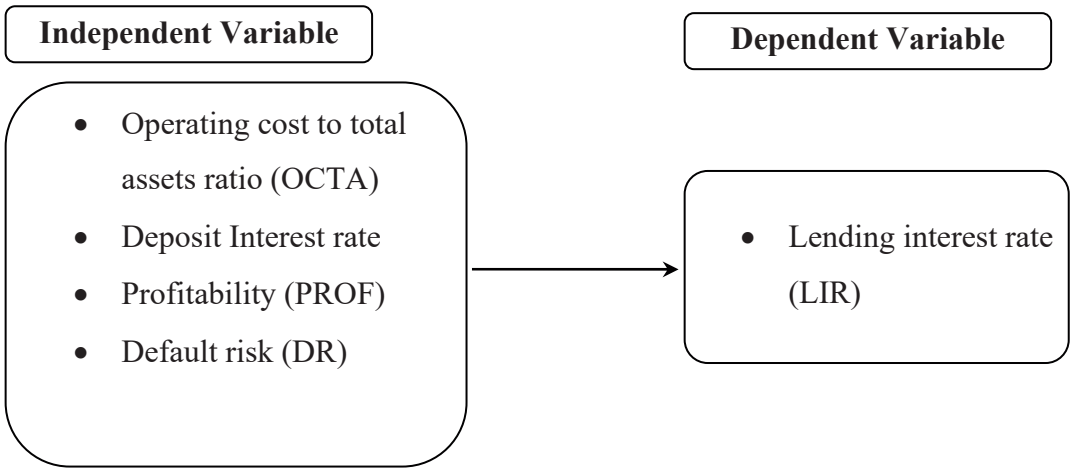
β0 is the regression line's intercept; β1, β2, β3, β4 are the slopes that show how much loan interest rates vary as the independent variable varies by a single unit. It is anticipated that the coefficients β1, β2, β3, and β 4 will be greater than zero.

e_{it} = error component

3.6 Research Framework and definition of variables

The type and direction of the associations as well as the relationships between the variables are described in the study framework. Seven factors that affected the loan

rate analysis were taken into account based on the literature review. The following are the independent and dependent variables:



Source: Gautam (2018)

Figure 1: Research framework

3.6.1 Definition of Variables

Interest Rate on Lending

The cost incurred by borrowers when obtaining loans from commercial banks is known as the lending rate. The operating cost to total asset ratio, deposit interest rate, profitability, and default risk are thought to have an impact on the lending interest rate of commercial banks. The study's dependent variable is the amount lent. Lending is the process of taking out a loan from a commercial bank. When lending interest rates rise, loan amounts will fall and vice versa.

Interest Rate on Deposit

The average interest rate (in percentage terms) on retail deposits at each bank is known as the deposit interest rate. Deposit interest rates determine the interest that is paid on customer deposits. The interest rate on loans may rise in tandem with the interest rate on deposits. Using empirical tests, Schnitzel (1986) investigates the causal relationship between deposit rates and mortgage lending rates. The author demonstrates how, during the time that the regulated deposit interest rate system was in place, deposit interest rates had an impact on loan interest rates. There is clear evidence of a one-way causal relationship between deposit and loan interest rates, according to Kaymaz and Kaymaz (2011). They said that banks utilize the previous

period's deposit interest rates to determine the interest rates on their loans. The interest rates on loans and deposits were found to significantly positively correlate. According to Mbao, Kapembwa, Mooka, Rasmussen, and Sichalwe (2014), lending rates are considerably positively impacted by the interest rate paid on deposits. It is anticipated that the interest rates on deposits and loans will rise.

Operating Cost to Total Assets Ratio

One of the independent variables in this study is the ratio of operating costs to total assets. The cost needed to supply a loan unit is measured by the ratio of operational expenses to total assets, which is dependent on staff productivity as well as other operating costs (depreciation, branch network, administrative responsibilities, etc.). The ratio of operating costs to total assets is the primary measure of a commercial bank's efficiency. The commercial banks' efficiency increases with decreasing ratios.

Profitability

Net income is calculated as the total assets divided by net income. This is typically regarded as a reliable metric for assessing a bank's asset profitability relative to other banks in the banking sector. A negative correlation was discovered by Mbao, Kapembwa, Mooka, Rasmussen, and Sichalwe (2014) between lending rates and profitability (return on assets). They claimed that factors that help banks make more money also typically help borrowers by lowering the interest rates they pay, and that increases in bank costs are typically passed on to borrowers in the form of higher lending rates. It is anticipated that lending interest rates and profitability will have a negative correlation. It is hypothesised that banks' lending rates are influenced by their return on average assets, and that banks with strong returns on average assets also provide lower loan interest rates.

Default risk

The possibility that a borrower won't be able to pay back all of the principal and interest on a loan has an impact on lending interest rates. This risk of default could be associated with a shift in the borrower's financial situation brought on by both predicted and unforeseen fluctuations in the level of general economic activity. The non-performing loan ratio serves as a stand-in for the default rate on all loans and

advances. Another factor that influences lending rates is non-performing loans; this variable is calculated as the ratio of total loans to either non-performing or performing loans. A larger expense of bad debt write-offs is implied by an increase in the provision for loan losses. Because of this risk-averse behavior, banks are more likely to pass on the risk premium to borrowers, which raises borrowing rates. It is anticipated that this variable and lending rate will have a positive association. Another factor that influences lending rates is non-performing loans; this variable is calculated as the ratio of total loans to either non-performing or performing loans.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter's primary goal is to provide data and analyze it using a variety of statistical and financial methods. The analysis and presentation of empirical data comprise this chapter. Since the significant variables are highly sensitive and taken into account, the components of lending interest rate analysis will be presented in this chapter. The lending interest rate has been examined and understood with the use of analysis.

Such that this research will establish the sample banks' strengths and weaknesses, past performance, and current financial situation. The financial tools featured regression analysis or trend analysis between certain variables in addition to graphical presentation. The relationship between the variables impacting financial performance has been reflected in the analysis using data presentations and a variety of financial tools.

4.1 Results

The findings from experiments or data analysis are referred to as results. Usually presented in an organized fashion, these results include statistical analysis, tables, figures, and other pertinent visual aids. A research paper or report's results section seeks to impartially convey the study's findings by outlining any noteworthy observations, correlations, or patterns that were found during the investigation. It gives readers the information they need to grasp the significance of the research findings in light of the study's goals by providing the evidence required to either support or disprove the study's hypotheses or research questions.

4.1.1 Analysis of Interest Rate on Lending

People often borrow less during periods of higher interest rates in the economy (particularly when it comes to lending or credit) than during periods of lower interest rates. Theory states that there should be more borrowing when there is a low loan rate.

Table 2

Interest Rate on Lending

Year/Banks	NBL	HBL	ADBL	NMB
2013/14	8.17	9.33	11.45	10.55
2014/15	8.14	8.67	11.3	10.14
2015/16	8.11	8.15	11.08	9.55
2016/17	8.07	8.06	9.56	8.12
2017/18	7.21	7.71	11.21	7.89
2018/19	6.13	6.55	10.9	6.68
2019/20	6.29	6.76	11.27	10.12
2020/21	7.03	7.15	11.73	10.7
2021/22	7.98	7.86	10.58	9.86
2022/23	6.99	7.25	9.26	8.95
Mean	7.41	7.75	10.83	9.26
SD	0.79	0.86	0.81	1.32

Source: Annual Reports of NBL, HBL, ADBL and NMB (2013/14 to 2022/23)

Four main Nepalese commercial banks—NBL (Nepal Bank Limited), HBL (Himalayan Bank Limited), ADBL (Agricultural Development Bank Limited), and NMB (NMB Bank)—presented the interest rates on loans for a ten-year period, from the fiscal year 2013/14 to 2022/23, in Table 2. The table gives an overview of the lending climate and interest rate patterns during this time, showing variations in each bank's rates and providing information about Nepal's overall economic situation during these years. From 8.17% in 2013/14 to a low of 6.13% in 2018/19, the interest rates, starting with NBL, exhibit a general downward pattern. They then marginally increase to 7.98% by 2021/22, before declining once more to 6.99% in 2022/23. With a standard deviation of 0.79 and an average interest rate of 7.41% over the past ten years, loan rates appear to be comparatively steady with just slight variations.

The lending rates at HBL additionally show an initial decreasing trend, going from 9.33% in 2013/14 to 6.55% in 2018/19, then an upward trend that reaches 7.86% in 2021/22 and stabilizes at 7.25% in 2022/23. With a standard deviation of 0.86 and an average interest rate of 7.75% for the time, HBL's pattern is more variable than NBL's, but it is still quite reasonable.

In contrast to the other banks, ADBL has a more erratic pattern of interest rates. From a peak of 11.73% in 2020–21, the rates increased to 9.56% in 2016–17, fell to 9.26% in 2022–23, and then increased to 11.45% in 2013–14. Because it focuses on agricultural financing, which might have diverse risk profiles, the average interest rate for the period is 10.83% with a standard deviation of 0.81, demonstrating large variances and a higher baseline rate than other banks.

The loan rate fluctuation that NMB exhibits is the most notable. The rate was 10.55% in 2013–14, dropped to 6.68% by 2018–19, spiked to 10.12% in 2019–20, and then varied, reaching 8.95% in 2022–2023 as a conclusion. With a larger standard deviation of 1.32 and an average interest rate of 9.26% over the course of a decade, there have been significant variations in lending rates.

4.1.2 Deposit Interest Rate

The composition and trends of the study's sampled banks' operational effectiveness. It is the sum that savers deposit in commercial banks or financial institutions in order to receive interest while also keeping their money secure. The primary sources of funding needed to meet the ever-increasing needs of the financial world are deposits. The mobilization of deposits is essentially what keeps commercial banks alive. When the commercial banks have sufficient deposits, they could operate. The amount of profit will increase with the deposit volume. Therefore, a commercial bank's initial priority is to gather as many of the dispersed deposits as it can. Safeguarding the amount deposited by ordinary depositors and efficiently mobilizing their funds is one of the primary goals of commercial banks. The rate of deposit for each year is displayed in Table 2.

Table 3

Interest Rate on Deposit

Year/Banks	NBL	HBL	ADBL	NMB
2013/14	8.25	3.96	5.7	3.18
2014/15	7.05	4.25	4.36	3.56
2015/16	7.32	5.17	7.17	4.21
2016/17	5.36	4.54	6.24	4.11
2017/18	5.18	4.35	6.97	4.19
2018/19	4.96	4.59	7.15	4.31
2019/20	4.8	4.44	5.87	3.89
2020/21	4.99	4.7	5.46	3.45
2021/22	4.45	4.	4.68	3.54
2022/23	3.7	3.77	4.44	3.68
Mean	5.61	4.42	5.80	3.81
SD	1.44	0.39	1.08	0.38

Source: Annual Reports of NBL, HBL, ADBL and NMB (2013/14 to 2022/23)

Over a ten-year period, from the fiscal year 2013/14 to 2022/23, Table 3 shows the interest rates on deposits for four Nepalese commercial banks: HBL (Himalayan Bank Limited), NMB (NMB Bank), ADBL (Agricultural Development Bank Limited), and NBL (Nepal Bank Limited). This table provides information on the deposit rate management practices of various banks, illustrating both the general trends in the banking industry and the state of the Nepali economy. The interest rates on deposits, starting with NBL, started at 8.25% in 2013–14 and thereafter generally decreased, coming down to 3.7% by 2022–2023. During this time, the average interest rate was 5.61%, with a 1.44 standard deviation. This suggests that deposit

interest rates have dropped significantly over the past ten years, which may be the result of the bank's effort to cut funding costs or a reaction to more general economic conditions like lower inflation or adjustments to central bank policy.

In contrast to NBL, the deposit rates at HBL have been comparatively steady. The rates started at 3.96% in 2013–14, reached their highest point of 5.17% in 2015–16, and then fluctuated somewhat before concluding at 3.77% in 2022–2023. Over the course of the period, the average deposit rate is 4.42%, with a low standard deviation of 0.39. This consistency points to a cautious approach to controlling deposit rates, preserving depositor appeal while balancing funding costs.

The deposit rates for ADBL are more variable, peaking at 7.17% in 2015/16 after beginning at 5.7% in 2013/14 and generally declining to 4.44% by 2022/23. The slightly higher average interest rate of 5.80% with a standard deviation of 1.08 for ADBL is indicative of higher volatility than for HBL, which could be explained by the latter's emphasis on luring deposits to finance riskier loans like agriculture, which frequently call for higher interest rates.

Out of the four banks, NMB has always had the lowest deposit rates. The rates grew marginally to a peak of 4.31% in 2018/19 after beginning at 3.18% in 2013/14. By 2022/23, the rates had dropped to 3.68%. With a standard deviation of 0.38 and an average rate of 3.81% over the past ten years, the deposit rates are reasonably modest and stable. This implies that NMB's approach might center on preserving affordable finance to continue its lending operations, maybe focusing on a different group of depositors or utilizing new funding sources.

4.1.3 Operating Cost to Total Assets Ratio

One of the independent variables in this study is the ratio of operating costs to total assets. The cost needed to supply a loan unit is measured by the ratio of operational expenses to total assets, which is dependent on staff productivity as well as other operating costs (depreciation, branch network, administrative responsibilities, etc.).

Table 4

Operating cost to total assets ratio

Year/Banks	NBL	HBL	ADBL	NMB
2013/14	10.01	8.45	7.59	15.54
2014/15	16.21	8.79	10.77	14.10
2015/16	14.25	10.31	12.40	8.44
2016/17	13.63	15.16	13.95	11.00
2017/18	11.07	15.71	11.03	9.30
2018/19	9.85	8.86	9.61	7.53
2019/20	16.24	23.33	13.85	9.65
2020/21	10.17	15.83	14.80	10.04
2021/22	11.04	14.79	14.22	11.70
2022/23	11.63	14.75	16.86	13.57
Mean	12.41	13.60	12.51	11.09
SD	2.47	4.62	2.76	2.61

Source: Annual Reports of NBL, HBL, ADBL and NMB (2013/14 to 2022/23)

Table 4 presents a summary of the operating cost to total assets ratio during a ten-year period, from the fiscal year 2013/14 to 2022/23, for four major commercial banks in Nepal: NBL (Nepal Bank Limited), HBL (Himalayan Bank Limited), ADBL (Agricultural Development Bank Limited), and NMB (NMB Bank). This ratio, which illustrates the proportion of a bank's assets that are consumed by operating expenditures, is a crucial gauge of operational efficiency.

Over the course of the time, NBL's operating cost to total assets ratio varies dramatically. The ratio began at 10.01% in 2013/14 and reached its highest point of

16.24% in 2019/20. Subsequent years saw a stabilization around 11%, with the ratio finishing at 11.63% in 2022/23. With a standard deviation of 2.47, the mean ratio for the past ten years is 12.41%. These variations point to intervals of high operating costs, which could be brought on by expansions, reorganizations, or rises in operational inefficiencies over time.

Operating cost ratio for HBL is trending upward; it started at 8.45% in 2013–14 and peaked at 23.33% in 2019–20. Even if it gradually declines in the ensuing years, it still stays comparatively high at 14.75% in 2022–2023. With a larger standard deviation of 4.62 and a mean ratio of 13.60%, there is clearly significant variability. This pattern may be the result of branch expansion, technology investments, or increased administrative expenses during the time frame.

The ADBL ratio shows a generally steady but marginally rising trend in operational expenses. The ratio peaks in 2022–2023 at 16.86%, having started at 7.59% in 2013–14. With a standard deviation of 2.76 and a mean ratio of 12.51%, these numbers indicate considerable variability. ADBL's higher ratios in subsequent years can be the result of increasing administrative and servicing expenses related to the company's agricultural lending operations.

NMB displays a unique pattern, with an operating cost ratio of 15.54% in 2013–14 at first, falling to 7.53% in 2018–19, and then increasing once more to 13.57% in 2022–2023. With a standard deviation of 2.61, the mean ratio is 11.09%. This unpredictability points to times of higher investment, presumably associated with shifting strategies or scaling operations, interspersed with periods of operational reform or efficiency improvements.

4.1.4 Profitability Ratio

Net income is calculated as the total assets divided by net income. This is typically regarded as a reliable metric for assessing a bank's asset profitability relative to other banks in the banking sector.

Table 5

Profitability Ratio

Year/Banks	NBL	HBL	ADBL	NMB
2013/14	1.28	2.31	2.24	3.99
2014/15	0.87	2.69	1.53	2.9
2015/16	1.15	3.04	1.40	2.97
2016/17	1.63	2.58	1.61	1.76
2017/18	1.39	1.77	1.12	3.12
2018/19	1.58	2.21	1.33	2.32
2019/20	1.72	2.57	1.49	2.15
2020/21	1.67	2.47	1.32	2.71
2021/22	1.82	2.11	0.78	2.77
2022/23	1.06	1.46	1.39	1.86
Mean	1.42	2.32	1.42	2.66
SD	0.32	0.46	0.37	0.66

Source: Annual Reports of NBL, HBL, ADBL and NMB (2013/14 to 2022/23)

From the fiscal years 2013/14 to 2022/23, Table 5 presents an examination of the profitability ratios for the four main commercial banks in Nepal: NBL (Nepal Bank Limited), HBL (Himalayan Bank Limited), ADBL (Agricultural Development Bank Limited), and NMB (NMB Bank). This ratio, sometimes known as return on assets (ROA), provides information about a bank's overall efficiency and performance by assessing its capacity to earn a profit in relation to its total assets. The profitability ratio, which starts with NBL, fluctuates throughout the course of the decade, peaking at 1.82% in 2021/22 and falling to 1.06% in 2022/23 after starting at 1.28% in 2013/14. During this time, the average profitability ratio was 1.42%, with a standard deviation of 0.32. This points to a little degree of volatility in NBL's profitability, with some periods of higher performance perhaps as a result of efficient asset use and other periods of lower profitability.

In comparison to NBL, HBL exhibits a comparatively greater and more consistent profitability ratio. It began in 2013/14 at 2.31%, reached a peak of 3.04% in 2015/16, and then progressively decreased to 1.46% by 2022/23. With a standard deviation of 0.46 and a mean profitability ratio of 2.32%, the performance was largely consistent

with slight swings. This stability points to steady profitability that may be fueled by effective business practices and sound financial management.

ADBL's profitability ratio is more erratic, peaking at 2.24% in 2013–14, declining generally, and then hitting a low of 0.78% in 2021/22 before marginally rebounding to 1.39% in 2022–23. With a standard deviation of 0.37, the average ratio for the duration is 1.42%. This suggests greater volatility and periods of reduced profitability, which are probably caused by the difficulties in financing agriculture, which can be more influenced by outside variables like the state of the weather and the market.

Among the four banks, NMB typically displays the greatest profitability ratio; it began at 3.99% in 2013–14 and has varied over time, reaching a high of 3.12% in 2017–18 and a low of 1.76% in 2016–17. In comparison to the other banks, this one has a mean ratio of 2.66% and a standard deviation of 0.66, which suggests better profitability but also more variability. This shows that, despite occasional dips in profitability, NMB has been able to use its assets to generate higher returns.

4.1.5 Default Risk

The possibility that a borrower won't be able to pay back all of the principal and interest on a loan has an impact on lending interest rates. This risk of default could be associated with a shift in the borrower's financial situation brought on by both predicted and unforeseen fluctuations in the level of general economic activity. The ratio of non-performing loans reduces the overall loan and advance default rate. Another factor that influences lending rates is non-performing loans; this variable is calculated as the ratio of total loans to either non-performing or performing loans. A larger expense of bad debt write-offs is implied by an increase in the provision for loan losses. Because of this risk-averse behavior, banks are more likely to pass on the risk premium to borrowers, which raises borrowing rates. It is anticipated that this variable and lending rate will have a positive association. Another factor that influences lending rates is non-performing loans; this variable is calculated as the ratio of total loans to either non-performing or performing loans.

Table 6

Default Risk

Year/Banks	NBL	HBL	ADBL	NMB
2013/14	8.55	5.94	7.86	8.99
2014/15	5.89	5.74	7.33	8.98
2015/16	5.36	3.44	3.56	8.85
2016/17	3.92	2.57	4.88	5.46
2017/18	3.94	2.15	4.38	5.35
2018/19	2.81	1.66	3.52	4.36
2019/20	3.73	2.22	5.03	4.6
2020/21	7.25	3.77	5.46	3.5
2021/22	6.90	4.96	6.69	3.29
2022/23	5.78	4.97	7.00	2.84
Mean	5.41	3.74	5.57	5.62
SD	1.82	1.58	1.57	2.44

Source: Annual Reports of NBL, HBL, ADBL and NMB (2013/14 to 2022/23)

The default risk ratios for the ten-year period from the fiscal year 2013/14 to 2022/23 of four Nepalese commercial banks are shown in Table 6: NBL (Nepal Bank Limited), HBL (Himalayan Bank Limited), ADBL (Agricultural Development Bank Limited), and NMB (NMB Bank). The default risk ratio represents the degree of credit risk and the caliber of each bank's loan portfolio. It is frequently expressed as non-performing loans (NPL) as a proportion of total loans.

The default risk ratio exhibits a notable decline over the period, beginning with NBL. It begins in 2013/14 at 8.55%, declines to 2.81% in 2018/19, and then gradually increases to 5.78% by 2022/23. With a standard deviation of 1.82, the average default risk ratio for the past ten years is 5.41%. This shows that even though NBL has reduced its default risk significantly, there are still variations that point to times when credit risk is higher.

The default risk ratio for HBL shows a steady downward trend, starting at 5.94% in

2013–14 and down to 1.66% in 2018–19. Toward the conclusion of the era, it does, however, exhibit a minor increase once more, peaking at 4.97% in 2022–2023. With a mean ratio of 3.74% and a standard deviation of 1.58, credit risk management has improved generally. However, current data suggests that maintaining low default rates needs to be given more attention.

The default risk ratio of ADBL is more erratic. Beginning in 2013–14 at 7.86%, it falls to 3.52% in 2018–19 before rising once more to 7.00% by 2022–2023. Credit risk varies, as seen by the mean default risk ratio of 5.57% and standard deviation of 1.57. The nature of agricultural loans, which is vulnerable to outside variables like weather and market volatility, may be the cause of this unpredictability.

Of the four banks, NMB has the greatest average default risk ratio. The ratio exhibits a general declining trend, peaking at 8.99% in 2013–14 and falling to 2.84% in 2022–2023 at its lowest. With a standard deviation of 2.44 and a mean default risk ratio of 5.62%, there is a lot of variation. Although the early high ratios indicate that NMB has been heavily exposed to riskier lending, the subsequent decrease trend is indicative of successful risk management techniques over time.

4.2 Descriptive statistics

The minimum, maximum, mean, and standard deviation of the variables under investigation make up the descriptive statistics used in this study. Descriptive statistics, then, make it possible to show the data in a more meaningful form, making it easier to analyze the data.

Table 7 presents the descriptive statistics of the independent factors (interest rate on lending, operating cost to total assets ratio, profitability ratio, and default risk) and dependent variables (interest rate on deposit) for the chosen sampled banks.

4.2.1 Descriptive statistics of all variables

The descriptive statistics for the dependent and independent variables of seven sampled banks are displayed in the table below for the research period spanning 2013–2022–2023. Interest Rate on loan (loan interest rate, or average interest rate on lending) is the dependent variable. The interest rate on deposit (the average interest rate on deposits), the ratio of operating costs to total assets (the ratio of operating costs to total assets), the profitability ratio (the ratio of profitability, which is determined by dividing net income by total assets), and the default risk (the ratio of

non-performing loans to total loans) are the independent variables.

Table 7

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LIR	40	7.37	18.15	11.58	2.37
OCTA	40	1.24	9.40	4.83	1.94
DIR	40	9.44	11.44	10.73	0.51
PROF	40	7.59	24.27	14.36	3.95
DR	40	0.25	4.11	1.72	0.69

N=40

A overview of the descriptive data for different financial indicators during a specified period for the four Nepalese commercial banks can be found in Table 7. Lending Interest Rate (LIR), Operating Cost to Total Assets ratio (OCTA), Deposit Interest Rate (DIR), Profitability (PROF), and Default Risk (DR) are among the measures that are included. An understanding of the range, central tendency, and variability of these financial measurements can be gained from the minimum, maximum, mean, and standard deviation of each statistic.

Lending Interest Rate (LIR)

The range of the Lending Interest Rate (LIR) is 7.37% to 18.15%, with a standard deviation of 2.37 and a mean of 11.58%. This shows that, with a typical rate of about 11.58%, the interest rates that banks charged on loans have varied greatly during the course of the examined period. Significant variability is demonstrated by the comparatively high standard deviation, which over time reflects shifts in monetary policy, individual bank tactics, and overall economic situations.

Operating Cost to Total Assets Ratio (OCTA)

The Operating Cost to Total Assets ratio (OCTA) has a mean of 4.83% and a standard deviation of 1.94. Its range is 1.24% to 9.40%. This broad range points to significant changes in the banks' operating efficiency over time or across the board. According to the mean figure, banks typically allocate 4.83% of their total assets to

operating expenses. The high standard deviation indicates significant variability that may be impacted by various factors, including operations scale, managerial effectiveness, and infrastructure and technology investment.

Deposit Interest Rate (DIR)

With a mean of 10.73%, a standard deviation of 0.51 and values ranging from 9.44% to 11.44%, the Deposit Interest Rate (DIR) exhibits the least fluctuation among the metrics. The low standard deviation and narrow range suggest that the interest rates on deposits are generally constant and steady over time, both among institutions and throughout a given period. This stability can be the result of a controlled interest rate environment and a competitive deposit market.

Profitability (PROF)

Profitability (PROF), which is determined by dividing net income by total assets and has a mean of 14.36% and a standard deviation of 3.95, varies greatly from 7.59% to 24.27%. The large variance and high standard deviation point to notable variations in the banks' profitability, which are likely impacted by their different cost control strategies, revenue-generating capacities, and asset utilization efficiency. The average profitability of 14.36% suggests that bank profitability is generally robust, but variability suggests that bank profitability may vary.

Default Risk (DR)

The percentage of non-performing loans to total loans, or default risk (DR), has a mean of 1.72% and a standard deviation of 0.69. It ranges from 0.25% to 4.11%. While the maximum value of 4.11% shows that certain banks have confronted increased credit risk, the minimum value of 0.25% shows that some banks have maintained relatively low levels of non-performing loans. Overall, the mean value of 1.72% indicates a modest level of default risk, and the standard deviation exhibits some variability, which is probably due to variations in the banks' loan portfolio quality and credit risk management strategies.

4.3 Correlation analysis

To determine relationships between the various factors, correlation analysis between variables was examined. The relationship between the many independent and dependent variables related to the research is ascertained using Pearson's Correlation

analysis. Any two variables' linear correlation is measured.

The bivariate Pearson's correlation coefficients between the various study variables are shown in Table 8. Based on data from seven chosen commercial banks with thirty observations from 2013–14 to 2022–23, the correlation coefficients were calculated. ..Interest Rate on loan (loan interest rate, or average interest rate on lending) is the dependent variable. The interest rate on deposit (the average interest rate on deposits), the ratio of operating costs to total assets (the ratio of operating costs to total assets), the profitability ratio (the ratio of profitability, which is determined by dividing net income by total assets), and the default risk (the ratio of non-performing loans to total loans) are the independent variables.

Table 8

Correlation Analysis

		LIR	OCTA	DIR	PROF	DR
LIR	Pearson Correlation	1				
	Sig. (2-tailed)					
OCTA	Pearson Correlation	-.087	1			
	Sig. (2-tailed)	.550				
DIR	Pearson Correlation	-.463**	.693**	1		
	Sig. (2-tailed)	.001	.000			
PROF	Pearson Correlation	-.116	-.101	-.081	1	
	Sig. (2-tailed)	.424	.484	.578		
DR	Pearson Correlation	-.288*	.036	-.011	.168	1
	Sig. (2-tailed)	.043	.803	.939	.243	

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

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

A correlation analysis of the links between the loan interest rate (LIR), which is the dependent variable, and a number of independent variables, including the profitability (PROF), default risk (DR), operating cost to total assets ratio (OCTA), deposit interest rate (DIR), and profitability (DIR), is shown in Table 8. The strength and direction of these relationships are revealed by the Pearson correlation coefficients and their significance levels (Sig. 2-tailed).

Lending Interest Rate (LIR) and Operating Cost to Total Assets Ratio (OCTA)

At a significance threshold of 0.550, the Pearson correlation coefficient between LIR and OCTA is -0.087. The operating cost to total assets ratio and lending interest rates may have a very small inverse link, according to this weak negative correlation. The high p-value, however, suggests that there is little statistical significance to this link. Consequently, it doesn't seem that changes in operational costs as a percentage of total assets have a significant effect on the lending interest rates that banks set.

Lending Interest Rate (LIR) and Deposit Interest Rate (DIR)

At the 0.001 significance level, the correlation coefficient between LIR and DIR is -0.463. It is statistically significant that there is a moderate negative link between greater deposit interest rates and lower lending interest rates. This inverse link might be a reflection of a competitive banking market, where banks that provide lower lending rates can do so because their lower cost of funds enables them to draw in more deposits.

Lending Interest Rate (LIR) and Profitability (PROF)

LIR and PROF have a -0.116 association with a significance level of 0.424. Although it is not statistically significant, this weak negative correlation points to a small inverse association between lending interest rates and profitability. This suggests that the lending interest rates set by the banks are not significantly impacted directly by changes in profitability.

Lending Interest Rate (LIR) and Default Risk (DR)

LIR and DR have a correlation coefficient of -0.288 at the significance level of 0.043. It is statistically significant that there is a weak to moderate negative link between lower lending interest rates and increased default risks. This discovery, which seems contradictory, may indicate that banks with greater default risks are lowering their lending rates in an effort to draw in more creditworthy borrowers or better control their overall risk exposure.

4.4 Regression analysis

This section presents the findings of the regression analysis that was computed. In more detail, it displays the regression results for the lending interest rate of a selected sample of banks, including the interest rate on deposit (the average interest

rate on deposit), the ratio of operating costs to total assets (the operating cost to total assets ratio), the profitability ratio (the profitability is calculated as net income divided by total assets), and the default risk (the default risk is calculated as the ratio of non-performing loans to total loans).

Regression analysis makes the assumption that there is a causal link between two or more variables, whereas correlation analysis makes no such assumption. A single dependent variable is the subject of a simple linear regression, whereas a single dependent variable is the subject of multiple linear regressions, which illustrate the effects of several independent variables. The degree of association between two variables is all that correlation analysis can reveal. Regression analysis is therefore performed in order to gain a deeper comprehension of the degree of correlation between two or more variables. The impact of several independent factors on a single dependent variable is examined using multiple regression analysis. Thus, to examine the effects of different independent variables, multiple regression analysis is employed.

Predicting how important independent variables will affect deposits requires the application of multiple linear regression analysis. Here is the equation that represents the impact of independent variables:

$$LIR_{it} = \beta_0 + \beta_1 OCTA_{it} + \beta_2 DIR_{it} + \beta_3 PROF_{it} + \beta_4 DR_{it} + e_{it}$$

Where,

LIRit = Ith Bank's lending interest rate in year t

OCTAit= The bank's operating cost to total asset ratio in year t

The average interest rate on deposits made by ith bank in a given year is known as DIRit, or deposit interest rate.

PROFit= Profitability is determined by dividing net income by the total assets of the bank in the year t.

DRit, or default risk, is computed as the ratio of non-performing loans to all of the bank's loans in the year t.

β0 = The regression line's intercept

The slope, shown as β1, β2, β3, β4, indicates the extent to which loan interest rates vary when the independent variable varies by a single unit. It is anticipated that the coefficients β1, β2, β3, and β 4 will be greater than zero.

e_{it} = error component

Analysis of variance (ANOVA), beta coefficients, and model summary results examined the effects of independent factors on sampled banks' interest rates on deposits.

All variables regression

Table 9

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651[a]	.424	.373	.39295

a. Predictors: (Constant), DR, PROF, LIR, OCTA

The coefficient of determination, or R-square, which is sometimes referred to as the model summary, can be used to explain variation. Table 9 shows that the R-square value is 0.424, meaning that DR, PROF, DIR, and OCTA account for 42.4% of the variation in the lending interest rate of the sampled institutions. In this study, however, the remaining 67.6% (100% 42.4%) remains unexplained. Put differently, this research has not taken into account other variables that could have explained the lending interest rate of the tested institutions.

Similarly, after adjusting for degree of freedom (df), adjusted R-square is 0.373, meaning that 37.3% of the bank lending interest rate of the tested banks in Nepal is explained by DR, PROF, DIR, and OCTA. The standard error of the estimate, which measures the variability of the observed value of the deposit interest rate of the sampled banks, is also shown in the model summary and is 0.39295.

Table 10

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.116	4	1.279	8.283	0.000[b]
	Residual	6.949	35	.154		
	Total	12.064	39			

a. Dependent Variable: LIR

b. Predictors: (Constant), DR, PROF, DIR, OCTA

Table 10 shows that there is a linear relationship between the independent variables and the deposit interest rate of the sampled banks. The F value is 8.283 and the p value is.000, meaning that the p value is less than 0.05 and is significant at the five percent significance level.

ANOVA yields a p-value of 0.000, which is smaller than the alpha value of 0.05. As a result, the connection between the dependent and independent variables can be accurately predicted by the model. Consequently, in the context of Nepal, the independent factors (DR, PROF, DIR, and OCTA) significantly explain the variance in the lending interest rate of the sampled banks.

Table 11

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.415	1.076		2.244	.030
	OCTA	.126	.043	.469	2.972	.005
	DIR	-.220	.043	-.797	-5.073	.000
	PROF	-.067	.094	-.082	-.711	.481
	DR	-.017	.006	-.300	-2.606	.012

a. Dependent Variable: LIR

The loan interest rate (LIR) is the dependent variable in this regression model; the operating cost to total assets ratio (OCTA), deposit interest rate (DIR), profitability (PROF), and default risk (DR) are the independent variables. The coefficients of all these variables are shown in Table 11. Together with their statistical significance, each coefficient indicates the direction and intensity of the link between the independent and dependent variables.

OCTA's coefficient is 0.126, with a 0.043 standard error. According to this, the lending interest rate (LIR) was predicted to rise by 0.126 units for every unit increase in the operating cost to total assets ratio, leaving all other factors constant. In relation to other variables, this relationship's strength and direction are indicated by the standardized coefficient (Beta) of 0.469. According to the significant p-value of 0.005 and the t-value of 2.972, there is statistical significance in this association.

DIR's coefficient is -0.220, with a 0.043 standard error. This means that, while keeping all other factors equal, the lending interest rate (LIR) should fall by 0.220 units for every unit increase in the deposit interest rate. The high negative correlation between DIR and LIR is indicated by the standardized coefficient (Beta) of -0.797. There is statistical significance in this association, as indicated by the t-value of -5.073 and the significant p-value of 0.000.

PROF's coefficient is -0.067, and its standard error is 0.094. The non-significant t-value of -0.711 and the p-value of 0.481 demonstrate that changes in profitability do not have a statistically significant effect on the lending interest rate (LIR).

With a standard error of 0.006, the coefficient for DR is -0.017. According to this, the lending interest rate (LIR) is predicted to fall by 0.017 units for every unit rise in default risk, keeping all other factors equal. The association between DR and LIR appears to be moderately negative, as indicated by the standardized coefficient (Beta) of -0.300. According to the significant p-value of 0.012 and the t-value of -2.606, this association is statistically significant.

4.5 Hypotheses Testing

The process of determining if a particular hypothesis is true by means of statistical analysis is known as hypothesis testing. To test hypotheses, inferential analysis is employed. To ascertain whether observed differences between groups or variables are true or the result of random variation, inferential analysis tests hypotheses. Analyzing

the complete population is the best method to find out if a statistical hypothesis is true. Because it is frequently not feasible, researchers usually look at a random sample of the population. The hypothesis is rejected if sample data do not support the statistical hypothesis.

Every hypothesis is independently evaluated and examined, and the analysis is carried out using a statistical analysis system (SPSS). In order to determine the link between the dependent and independent variables in this study, five alternative hypotheses were generated. The Regression analysis shown in Table 12 serves as the foundation for testing each hypothesis. The next section discusses tests on each of these theories:

Table 12

Hypothesis testing

Model		Unstandardized Coefficients		Standardized Coefficients			Results
		B	Std. Error	Beta	t	Sig.	
1	(Constant)	2.415	1.076		2.244	.030	
	OCTA	.126	.043	.469	2.972	.005	Accepted
	DIR	-.220	.043	-.797	-5.073	.000	Accepted
	PROF	-.067	.094	-.082	-.711	.481	Rejected
	DR	-.017	.006	-.300	-2.606	.012	Accepted

a. Dependent Variable: LIR

H1: There is a significant impact of Deposit interest rate on lending interest rate of sampled banks.

Table 12: The sampled banks in Nepal had a lending interest rate of 0.000 (P <0.05) with a p value of 0.000. At the 5% threshold of significance, the alternative hypothesis is accepted. As a result, the deposit interest rate significantly affects the lending interest rate of the Nepali banks that were selected.

H2: There is significant impact of operational cost to total assets ratio on lending interest rate of sampled banks.

Regarding the lending interest rate of the sampled banks in Nepal, Table 12 shows that the p value of operational cost to total assets is 0.005 (P >0.05). At the 5% threshold of significance, the alternative hypothesis is accepted. Thus, the lending interest rate of the Nepali banks that were sampled is significantly impacted by the ratio of operating costs to total assets.

H3: There is a significant impact of profitability on lending interest rate of Sampled banks.

The profitability ratio in Table 12 has a p value of 0.481 (P>0.05). At the 5% threshold of significance, the alternative hypothesis is rejected. Therefore, the profitability ratio has no effect on the lending interest rate of Nepal's sampled banks.

H4: There is significant impact on default risk on lending interest rate of Sampled banks.

According to Table 12, the default risk p-value is 0.012 (P–!!0.05). At the 5% threshold of significance, the alternative hypothesis is accepted. Consequently, default risk has a major effect on the interest rates that Sampled banks lend money at.

4.6 Discussion

The empirical result of the regression model indicates that the interest rate on commercial bank loans and the ratio of operational expenses to total assets have a positive and statistically significant association. Using a regression model, it is also discovered that the variable has a statistically significant link with lending interest rates that goes in the same direction. The outcome is in line with the findings of Mbao, Kapembwa, Mooka, Rasmussen, and Sichalwe (2014), who discovered that operating costs have a favorable impact on lending rates. Furthermore, the outcome is justified by the likelihood that high operating costs will result from inefficiencies in lending, which raises lending interest rates.

Regression analysis reveals a substantial positive correlation between profitability (ROA) and loan rate; nevertheless, this relationship is not significant at the 5% significance level. The outcome suggests that, in the Nepalese environment, profitable commercial banks do raise lending rates. This finding is in line with Mbao, Kapembwa, Mooka, Rasmussen, and Sichalwe (2014), who discovered a negative correlation between lending rates and profitability (ROA). It also aligns with the priori anticipation. The fact that the sampled banks with high profitability (ROA)

charge greater interest rates on deposits may be the rationale for this comparable outcome.

In three of the models utilized in this analysis, the lending rate as a cost of the primary sources of funding for bank operations is determined to be statistically insignificant. The findings suggest that lending interest rates do not appear to be well explained by lending interest rates. indicating that the effect's strength is far lower than anticipated. Furthermore, from a Nepalese perspective, the low coefficient of the lending rate indicates that it is not the only source of bank financing.

CHAPTER V

SUMMARY AND CONCLUSION

The summary, the conclusion, and the recommendation make up the three primary sections of this chapter. All four chapters are revised or summarized in the summary section. The study findings are summarized in the conclusion section, and recommendations and suggestions are offered based on the knowledge and expertise gained from this thesis project. Recommendations are offered for both additional research and for the interested parties to improve the current situation.

5.1 Summary

It is envisaged that the financial system will grow the economy and assist in raising people's standards of living. By gathering the dispersed resources from savers (household, business, or government), financial intermediaries mobilize the money and give the gathered sum to investors or users (i.e. lending collected amount from depositors to borrower). Financial system intermediaries make ends meet by lending money at a higher interest rate and giving the loan holder a small interest payment. It implies that these kinds of organizations exist because they generate a sizable profit from lending and lending interest spreads. The choice to charge and offer interest on loans and loans has an impact on the organization's profit margin. Offering greater interest rates typically draws in depositors. Similar high loan rates demotivate investors, which lowers foreign investment in the nation. Interest rates are one of the main elements that determine lending and lending volume, even if there are other economic factors that also effect lending. This study is being conducted with the primary goal of demonstrating the relationship between lending rate and lending amount, or the substitution impact, lending rate and lending amount, inflation, and interest rate.

Following the government's liberal policy adoption, the NRB gradually relaxed its fixed interest rate policy that financial intermediaries were required to charge and offer. However, the NRB occasionally issues directives pertaining to the financial institutions' overall performance. As a result, banks and other financial organizations have had the ability to quote interest rates on loans and deposits for the previous few years. This makes the Nepalese economy competitive. In this way, the purpose of this study is to determine the applicability of various finance and economics theories to

the financial markets in Nepal. These key hypotheses include the Fisher effect, the substitution effect, and the inverse link between lending amount and interest rate. The first chapter of this dissertation provides a brief overview of the Nepalese economy, interest rate, sample organizations, issue statement, significance of the study, and other topics.

A review of prior studies as well as a theoretical overview are included in the second chapter. That chapter reviews several points of view about interest, including its role, theories, and variables influencing interest rates, among other things. There are primarily four theories that are of interest. Review topics include the Loanable Fund Theory, Rational Expectancies Theory, Liquidity Preference Theory, and Classical Theory. Similar explanations are given for the factors influencing interest rates, such as marketability, default, currency rate, and other risks. In a similar vein, the second chapter also examines the Fisher and Harrod-Keynes effects in order to determine the relationship between interest rates and inflation.

Research design is covered in the third chapter along with population and sample, data source, and data analysis techniques. Two commercial banks are selected for sampling purposes from the entire financial system; the analysis mostly uses secondary data.

Finally The obtained data are tabulated and graphically presented in the fourth chapter, where they are evaluated using a variety of statistical tools, including trend analysis and the mean.

5.2 Conclusion

The factors influencing the lending interest rates of commercial banks listed on the Nepal Stock Exchange have been investigated in this study. For this study, the descriptive research designs have been used. The factors influencing lending interest rates have been investigated using multiple regression models. The annual reports of the four commercial banks in the sample were the source of the panel data, which covered the years 2013 to 2022. Lending rate is the study's dependent variable, while its independent variables include default risk, profitability (ROA), lending interest rate, and operating cost to total assets ratio.

The operational costs to total assets ratio has a positive and statistically significant impact on the commercial bank lending rate, according to the computed regression

models. Lending rate and profitability (ROA) have been determined to be substantially positively correlated. Furthermore, the loan interest rate is significantly and favorably impacted by default risk. Lending rate, however, doesn't seem to be a good way to explain why deposit interest rates vary. This study ultimately comes to the conclusion that, in the Nepalese environment, default risk, profitability, and the ratio of operating costs to total assets are the primary determinants of commercial banks' lending rates.

The recommendations made by this study are based on the results of the empirical analysis. First off, the lending rates at the tested banks are exorbitant, which might seriously jeopardize an institution's profits and capital structure. Banks should make every effort to find a balance that would enable them to meet lending costs while also preserving positive banking relationships with their customers. It is imperative for bank management to uphold cautious lending rates in order to ensure the safety and soundness of financial institutions. Furthermore, to maintain lending rates at prudent levels consistently and continuously, bank management should make sure that the necessary policies, procedures, management information systems, and internal controls are in place.

Second, a more robust regulatory and supervisory structure is required to support bank lending rate policy. To improve their overall credit management and lower the percentage of non-performing loans they hold, commercial banks should create credit rules, procedures, and analytical tools. Commercial banks should also refrain from making loans that result in bad debt. Lastly, both lenders and borrowers require the government to provide vital infrastructure support. The study's findings support the idea that banks should enhance their management procedures, especially when compared to those in other industrialized and developing nations.

5.3 Implications

The recommendations made by this study are based on the results of the empirical analysis. To begin with, The lending rates of the sampled banks are exorbitant, which might seriously jeopardize an institution's profits and capital structure. Banks should make every effort to find a balance that would enable them to meet lending costs while also preserving positive banking relationships with their customers. It is imperative for bank management to uphold cautious lending rates in order to ensure the safety and soundness of financial institutions. Furthermore, to maintain lending

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ABSTRACT This study's primary goal was to determine the elements that influence the interest rates that Nepalese banks charge and provide by looking at the relationship between those parameters and interest rates. The nature of this study is descriptive and causal comparative. A descriptive and causal comparative study strategy has been used to meet the goals. All 20 of the nation's listed commercial banks make up the study's population. The NRB provided a list of listed commercial banks. As of the middle of June 2024, there are twenty commercial banks in total. Using a judgmental sampling technique based on the varying sizes of the banks, four commercial banks are chosen as a sample for the study out of these twenty institutions. The operational

costs to total assets ratio has a positive and statistically significant impact on the commercial bank lending rate

, according to the regression models. Lending rate and profitability (ROA) have been determined to be substantially positively correlated. Furthermore, the loan interest rate is significantly and favorably impacted by default risk. Lending rate, however, doesn't seem to be a good way to explain why deposit interest rates vary. This study ultimately comes to the conclusion that, in the Nepalese environment, default risk, profitability, and

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