

# **CREDIT RISK AND PROFITABILITY OF NEPALESE COMMERCIAL BANK**

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By

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## **CERTIFICATION OF AUTHORSHIP**

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “**CREDIT RISK AND PROFITABILITY OF NEPALESE COMMERCIAL BANK**”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degree 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 declared that all information sources and literature used are cited in the reference section of the dissertation.

Amit Lepcha

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## REPORT OF RESEARCH COMMITTEE

Ms. Amit Lepcha has defended research proposal entitled “**CREDIT RISK AND PROFITABILITY OF NEPALESE COMMERCIAL BANK** “, successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Asso. Prof. Dr. Kapil Khanal and submit the thesis for evaluation and viva voce examination.

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Any remaining errors are mine.

Amit Lepcha

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## **ABBREVIATIONS**

ANOVA	:	Analysis of Variance
CA	:	Capital Adequacy (CA)
EBL	:	Everest Bank Limited
GDP	:	Gross Domestic Product
HBL	:	Himalayan bank Limited
LA	:	Loans and Advance
LLP	:	Loan Loss Provision
NBL	:	Nepal Bank Limited
NPL	:	Non Performing Loan
ROA	:	Return on Assets
ROE	:	Return on Equity
S. D	:	Standard Deviation
SBIL	:	SBI bank Limited
SDC	:	Shanker Dev Campus
SPSS	:	Statistical Package for the Social Sciences
T.U.	:	Tribhuwan University

## ABSTRACT

The objective of research is to explore the current status of credit risk management in commercial bank of Nepal to examine the relationship of credit risk management factors with profitability in commercial bank of Nepal and to analyze the impact credit risk management factors with profitability in commercial bank of Nepal. The descriptive research design used for objectives one and casual comparative research design for objective two and three. The secondary data with three sample of the commercial bank out of twenty (20) are selected as an availability of data for ten years judgmental sampling. The descriptive statistics, correlation and regression analysis is conducted for the research. The SPSS and excel are the tools for analysis of the data. The finding of study each variables exhibits a high standard deviation. This suggests that the current status of the research variables is highly fluctuating in the commercial banks. The relationship of capital adequacy ratio, nonperforming loan, and loan loss provision to the return on equity is significant. The relationship of loan and advance and gross domestic product to the return on equity are not significant. The relationship of loan and advance, non-performing loan and loan loss provision to the return on assets is significant. The relationship of capital adequacy ratio and gross domestic product not significant to the return on assets. The impact of capital adequacy ratio and loan loss provision impacted to the return on equity is significant. The impact of Loan and advance, Nonperforming Loan and Gross Domestic Product are significant to the return on equity. The impact Capital Adequacy Ratio, Loan and advance, Nonperforming Loan, Loan loss provision and Gross Domestic Product to the return on assets is not significant to the return on assets.

**Keywords:** *Capital Adequacy Ratio, Loan and advance, Nonperforming Loan, Loan loss provision and Gross Domestic Product and profitability*

# CHAPTER –I

## INTRODUCTION

### 1.1 Background of the Study

Banking is crucial for a nation's economic development, and Nepal Bank Limited (NBL) holds the distinction of being the first commercial bank in the country. Commercial banks are central to the financial system, safeguarding deposits from individuals, government bodies, and businesses. By engaging in lending and investment activities, they provide funds to borrowers, including individuals, businesses, and government entities. They facilitate the flow of goods and services from producers to consumers and support government financial activities, acting as an important medium of exchange and influencing monetary policy. These functions highlight the essential role of the national commercial banking system in the economy. Banks contribute to economic growth, build trust across various societal sectors, and extend credit to individuals.

One of the key services provided by deposit money banks is offering loans, which can be short, medium, or long-term. Banks extend loans and advances to individuals, businesses, and government entities, facilitating their investment and development activities essential for growth and national economic development (Felicia, 2011). Loans and advances provided to industries, individuals, and companies enhance the nation's productivity. For example, loans to the agricultural sector boost agricultural production, as farmers can use the funds to meet their needs, thereby increasing output. Similarly, loans and advances to individuals and corporate entities help increase their income and profits, allowing for strategic fund utilization. In the banking sector, which focuses on monetary transactions, effective financial decision-making is crucial for success and profitability. Efficient loan management is particularly important for business success, requiring well-managed lending policies.

Credit risk is a fundamental aspect of financial assessment, representing the possibility that borrowers may default on their loan obligations or fail to meet agreed payment terms. This is a significant concern for lenders, investors, and financial institutions that rely on extending credit or investing in debt instruments. Credit risk arises from various factors, including the financial health of borrowers, economic conditions, industry trends, and geopolitical events.

The core of credit risk is the potential for default, where borrowers are unable to fulfill repayment commitments due to financial difficulties, management errors, or unexpected external shocks.

A comprehensive credit analysis is crucial for risk assessment, involving a detailed examination of a borrower's financial statements, credit history, cash flow projections, and other relevant metrics. This process is often enhanced by credit scoring models, which assign numerical values based on creditworthiness to help quantify risk levels. Mitigating credit risk involves a range of strategies, such as requiring collateral, obtaining guarantees or insurance, setting appropriate interest rates, and diversifying loan portfolios across different borrowers and industries. Effective credit risk management hinges on the systematic identification, assessment, monitoring, and control of credit exposures. Regulatory oversight also highlights the importance of credit risk, with regulators imposing capital requirements and other safeguards to protect financial institutions from potential credit losses.

Established credit management policies define the terms and conditions for offering goods on credit, criteria for customer qualification, collection procedures, and measures to be taken if a client becomes insolvent. Regardless of a company's market share and product demand, it is essential to regulate credit as a marketing tool to boost sales. Without proper controls on credit sales, liquidity problems may occur, hindering business growth. Even companies with significant fixed assets may experience cash shortages and struggle to meet payment deadlines.

In the banking sector, the profitability of a commercial bank is a key indicator of its financial health and operational efficiency. It reflects the bank's ability to generate sustainable earnings while managing risks and capital effectively. Important financial metrics for assessing profitability include the net interest margin (NIM), return on assets (ROA), and return on equity (ROE). NIM measures the difference between interest income from loans and investments and the interest expenses on deposits and borrowings, indicating the bank's core lending and investment performance. ROA evaluates the bank's profit generation relative to its total assets, while ROE assesses how efficiently the bank uses shareholder equity to produce returns.

Sustaining profitability depends on factors such as prudent credit risk management, cost control measures, diversified revenue streams, and effective capital allocation. Sound lending practices, including thorough credit assessments and strict underwriting standards, are crucial for mitigating credit risk and maintaining asset quality. Banks also diversify revenue through fee-based services like wealth management, advisory services, and transaction processing to enhance profitability. Cost containment efforts, such as improving operational efficiency, investing in technology, and strategic resource allocation, are vital for optimizing the cost-income ratio and increasing profitability margins.

Advanced financial systems worldwide generally consist of three main categories: central banks, private banks, and other financial institutions, all serving as financial intermediaries. Lending continues to be the core function of banks, encompassing various types such as fund-based and non-fund-based lending. Fund-based lending includes cash credit, overdrafts, and demand and term loans, bills purchased and discounted, export packing credits, and project loans. Non-fund-based lending comprises documentary credits and guarantees. The significance of lending in the banking industry remains as vital today as it was at its inception.

## **1.2 Problem Statement**

The primary challenges in the banking industry largely arise from insufficient credit management. Banks must identify, evaluate, monitor, and control credit while maintaining adequate capital to mitigate associated risks. Adequate compensation for these risks is essential, making it a critical issue for commercial banks to establish credibility.

Highly profitable and successful businesses can easily meet their own needs, as well as those of their clients and the broader community. Enhancing a bank's credibility is crucial for improving profitability, with creditworthiness being the primary source. Therefore, improving creditworthiness is the key strategy for any commercial bank. Credit is considered the most important and central aspect of commercial banking, particularly in Nepal, where credit management is seen as the core of the commercial banking sector.

In Nepal, credit management has become a significant area of focus in the commercial banking industry. However, there is a lack of scientific and empirical studies identifying credit management issues in Nepali commercial banks. This gap necessitates an assessment of the credit performance of these banks. The current situation calls for research questions that

explore credit practices, credit efficiency, liquidity position, industrial environment, management quality, and organizational climate in Nepal's commercial banking sector. Hence, the following research questions have been identified:

1. What is the current status of credit risk management in Nepalese commercial bank ?
2. Is there relationship between credit risk management factors with profitability in Nepalese commercial bank?
3. DO the credit risk management factors have impact on profitability in Nepalese commercial bank?

### **1.3 Objectives of the Study**

Undoubtedly, the commercial bank plays a crucial role in the progress of a nation. Through the provision of credit to essential sectors, banks contribute significantly to the country's development. The study's objectives can be categorized as follows:

1. To explore the current status of credit risk management in Nepalese commercial bank.
2. To examine the relationship of credit risk management factors with profitability in Nepalese commercial bank.
3. To analyze the credit risk management factors have impact on profitability in Nepalese commercial bank.

### **1.4 Hypotheses of the Study**

This section outlines the connection between the independent and dependent variables. It aims to determine whether a noteworthy relationship exists between the two variables. Following the assessment of the hypothesis, the conclusion is drawn based on whether there is a positive and significant relationship or a negative one. In this context, the related hypotheses are presented in null form.

H1: There is a significant impact of loan and advance to the profitability of Nepalese commercial bank.

H2: There is a significant impact of non-performing loan to the profitability of Nepalese commercial bank.

H3: There is a significant impact of loan loss provision to the profitability of Nepalese commercial bank.

H4: There is a significant impact of capital adequacy to the profitability of Nepalese commercial bank.

H5: There is a significant impact of GDP to the profitability of Nepalese commercial bank.

### **1.5 Rationale of the Study**

Effective credit management is crucial for reducing customer default rates, which in turn positions banks as leaders in the loan-generating sector. By minimizing defaults, banks can significantly enhance their overall profitability. This study aims to support bank management in increasing profitability by addressing credit risk, a critical factor in bank failures due to inadequate management.

Proper control of credit has extensive effects on the development and sustainability of deposit money banks, thereby influencing the broader economic landscape. When banks manage credit effectively, they not only secure their financial stability but also contribute positively to the economy by maintaining liquidity and fostering trust among depositors and investors.

This study specifically focuses on Nepal's commercial banks, aiming to elucidate the impact of credit management on financial success. Given the pivotal role that credit management plays, the findings of this study are highly relevant to various stakeholders, including customers and investors who seek assurance regarding the efficient management and utilization of their deposits. Customers and investors are increasingly concerned about the security and productivity of their investments, and this study aims to provide them with a clearer understanding of how well their funds are being managed.

Moreover, the study's findings are expected to offer valuable insights for bank management and practitioners. By understanding the nuances of effective credit management, bank managers can implement strategies that minimize risks and enhance profitability. Practitioners in the banking sector, as well as those in non-bank financial sectors, can also benefit from these insights, applying them to improve their own credit management practices.

In addition to its practical implications for the banking industry, the results of this study are anticipated to have significant applications in academic settings. Scholars and students of finance and banking can use the findings to better understand the dynamics of credit

management and its impact on financial stability and success. By providing a comprehensive analysis of credit management practices in Nepal's commercial banks, this study contributes to the broader body of knowledge in the field and supports the development of more effective financial strategies and policies.

### **1.6 Limitations of the Study**

The research is following limitations;

- Data from 2014-2023 the periods of ten year is taken under this study.
- Data were taken from the website of the banks; it means all data are secondary data for studies.
- Only three sample commercial banks were selected for studies.
- Based on historical figure.
- Only five independent variables are taken for study and relation is with two dependent variables.
- Data presentation, various statistical calculations, and analysis will be conducted using Excel and the SPSS 22 version tools.

## **CHAPTER-II**

### **LITERATURE REVIEW**

This chapter primarily focuses on extensive research conducted by the researcher, who has a thorough understanding of the topic from multiple angles and perspectives. In this context, "angles" refer to the various components that make up the subject. The researcher demonstrates a theoretical understanding of the variables involved and has built a strong conceptual foundation. A comprehensive grasp of each concept related to the issue is essential, as it ensures that subsequent tasks can be carried out accurately and without difficulty.

A key component of this chapter is the literature review, which involves a critical assessment of a segment of previously published knowledge. This process includes summarizing, categorizing, and comparing earlier works, as well as reviewing relevant literature and theoretical studies. The literature review is divided into three integral parts.

#### **2.1 Theoretical Review**

##### **Concept of Credit**

Deposit money banks are responsible for effectively managing credit risk, given that they both accept deposits and provide credit facilities. Credit is defined as the trust a lender places in a borrower to allocate resources without requiring immediate repayment, based on the expectation that the lender will receive an asset of equivalent value on the agreed repayment date (Greuning & Bratanovic, 2003). The accurate measurement and effective management of credit risk, which is the most significant risk faced by banks, profoundly impact a bank's operational success. In financial terms, credit involves the issuance of loans and the creation of debt (Giesecke, 2004).

As highlighted by Tetteh (2012), Sound credit-giving practices are fundamental principles that strengthen the financial standing of institutions. This involves setting credit limits and developing a process for approving new credits. Credit is crucial for a country's economic growth and development, serving two key functions: it transfers funds to where they can be used most effectively and efficiently, and it helps economize the use of currency by having a multiplier effect on the volume of money in circulation.

## **Credit Risk**

Financial institutions, acting as financial intermediaries, are vital in channeling funds from surplus units to deficit units. In fulfilling this role, they encounter various risks, which have become a prominent focus in contemporary financial studies and have attracted significant attention from scholars and professionals. Effective credit management is a key determinant of the success of any banking institution. As noted by Mohammad and Garba (2014), Credit risk refers to the potential loss of an outstanding loan, either partially or entirely, due to credit events. Examples of such events include bankruptcy, failure to meet obligations, repudiation or moratorium, credit rating changes, and restructuring.

Lending involves various risks, with credit risk playing a central role because loans typically comprise a significant portion—ranging from half to nearly three-quarters—of total bank assets. Credit risk emerges from the uncertainty about a counterparty's ability or willingness to meet the terms and conditions of a credit arrangement. Naomi (2011) further asserts that credit risk represents the potential impact on net income resulting from non-payment or delayed payment of credit facilities granted to customers. The Basel Committee on Banking Supervision (1999) defines credit risk as the likelihood that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms.

These definitions collectively emphasize that credit risk poses a significant financial challenge when not managed effectively, likening it to a cancer that can lead to serious financial problems.

## **Credit Risk Management Strategies**

Credit risk management strategies entail the methods employed by banks to lessen or alleviate the negative consequences of credit risk. Developing a comprehensive credit risk management framework is vital as it leads to higher revenue and overall survival. The foundational principles of credit risk management strategies include establishing a transparent structure, delegating authority, maintaining discipline, promoting communication at all levels, and ensuring individual accountability (Kolapo et al., 2012). These strategies represent actions taken by banks to prevent or reduce the adverse impacts of credit risk. As previously emphasized, a strong credit risk management framework is essential for banks to improve

profitability and secure their ongoing presence in the market. The core principles of the credit risk management process are structured in the following sequence:

### **Loan and Advance**

A loan is a financial agreement wherein a business or individual borrows a certain amount of money from a bank or financial institution, with the obligation to repay it within a specified timeframe. According to Wikipedia, in finance, a loan entails the lending of money from one or more individuals, organizations, or entities to others. An advance, a specific type of loan commonly utilized by businesses to meet short-term funding needs, is generally expected to be repaid within a year, following the terms and conditions established by the Reserve Bank of India and the authorizing entity, typically a bank. Advances may be extended based on primary security, collateral security, or personal guarantees provided by directors, promoters, or partners.

### **Non- Performing Loans**

The predominant determinant of credit risk in deposit money banks is the proportion of nonperforming loans compared to total loans, acting as a gauge of the loan portfolio's caliber. This ratio signifies the percentage of total loans and advances that are at risk of becoming nonperforming. A higher ratio suggests potential shortcomings in the management's assessment of loan requests and raises doubts about the prospects of recovering a substantial portion of the loans. Nonperforming credit facilities are typically classified into three categories—substandard, doubtful, or lost—according to criteria outlined in the banking laws of a country.

### **Loan Loss Provision**

As per the directive, licensed banks are required to set aside adequate provisions for expected losses, utilizing the credit portfolio classification system mentioned earlier, to reflect their true financial condition accurately. To meet this objective, two categories of provisions—specified and general—are considered appropriate. Specified provisions are determined based on the evaluated risk of default on individual credit facilities, whereas general provisions are established to recognize that even performing credit facilities entail some risk of loss, albeit minimal. Consequently, regulatory bodies instruct all licensed banks to allocate specific provisions for non-performing credits.

**GDP (Gross Domestic Product)**

The Gross Domestic Product (GDP) of a nation denotes the total monetary or market value of all goods and services produced within the country's boundaries during a particular period. GDP is usually calculated annually, although it can also be measured quarterly. For example, the U.S. government routinely releases both quarterly and annual GDP figures. Given that GDP provides a broad measure of a country's output, it is widely considered as a yardstick for evaluating the economic health of a nation.

**Profitability**

The profitability of banks can mirror the risk tolerance of their managers, as highly profitable banks often exhibit a readiness to undertake riskier endeavors. Conversely, less proficient management may lead to increased occurrences of bad debt. Profitability metrics are essential for investors as they offer indications of how efficiently management has employed their investments (Devinaga, 2010). Profitability levels hold particular importance for bank shareholders, serving as a gauge of management effectiveness. When evaluating the financial robustness of deposit money banks, profitability assumes a dominant role.

Popular profitability metrics utilized across different organizations, including banks and financial institutions, encompass Return on Assets (ROA) and Return on Equity (ROE). ROA reflects the extent of net income generated by the bank and evaluates how efficiently its assets contribute to profit over a period. Conversely, ROE, which represents the ratio of net income to total equity, illustrates the returns to shareholders concerning the book value of their investment, gauging the rate of return for ownership interest.

Bank rankings frequently hinge on elevated ROA ratios and total assets. In the banking domain, ROA is viewed as a favorable profitability metric because it is unaffected by financial leverage and the risks associated with it (Saeed et al., 2016). Profitability can be evaluated through diverse indicators such as ROA and ROE, which researchers favor for their independence from financial leverage and their suitability for cross-industry comparisons. ROA and ROE serve as robust benchmarks for assessing profitability, facilitating comparisons within the same industry or across various industries (Devinaga, 2010).

Return on Assets (ROA), defined as the ratio of net income to total assets, gauges how efficiently a bank's management utilizes its total assets to generate profit within a specific period. ROA can be deconstructed into various elements.

## **2.2 Empirical Review**

### **2.2.1 International Article Review**

Lawrence et al. (2024) investigated the influence of credit risk on the performance of both large and small banks in South Africa. They collected data from audited financial reports of 14 commercial banks, which were then divided into two panel datasets. The data was analyzed using R-Studio software version 3.5.1. The study examined the impact of various factors such as capital adequacy ratio (CAR), non-performing loan to gross loan (NPLGL), loan-to-deposit ratio (LTDR), leverage ratio (LR), and board gender diversity (BGD), with bank size (total asset) and AGE as control variables, on performance metrics (return on asset [ROA] and return on equity [ROE]). Results showed that non-performing loans (NPL), CAR, LR, LTDR, and the age of banks significantly and more strongly affected the performance, as measured by ROA, of small banks compared to large banks. Interestingly, NPL had a lesser impact on the ROE of small banks compared to large banks but showed no impact on the ROA of large banks during the period of 2008–2017.

Mandagi et al. (2024) examined the influence of banking risks, specifically credit risk (NPL) and liquidity risk (LDR), on stock returns, with profitability (ROA) as an intervening variable. The study focused on banking sector companies listed on the Indonesia Stock Exchange. Structural equation modeling and path analysis were employed for data analysis, utilizing the SPSS AMOS 25 application. Results indicated that non-performing loans (NPL) had a significant effect on return on assets (ROA) but did not impact stock returns. Loan-to-deposit ratio (LDR) did not affect return on assets (ROA) or stock returns. Additionally, return on assets (ROA) did not influence stock returns. Furthermore, return on assets (ROA) did not mediate the relationship between non-performing loans (NPL) and stock returns, nor did it mediate the relationship between loan-to-deposit ratio (LDR) and stock returns.

Natufe and Evbayiro-Osagie (2023) conducted a study on credit risk management and return on equity of Nigerian deposit money banks (DMBs) over a twelve-year period (2010–2021) following the adoption of the common accounting year-end mandated by the Central Bank of Nigeria (CBN) in 2009. The study examined various independent variables including capital adequacy ratio (CAR), liquidity ratio (LQR), loan-to-deposit ratio (LDR), risk asset ratio (RAR), non-performing loans ratio (NPLR), loan loss provision ratio (LLP), and size (SZ), with return on equity (ROE) as the dependent variable. Through panel data regression analysis, they identified CAR, RAR, NPLR, and SZ as significant determinants of ROE. The study highlighted the increased reliance of Nigerian DMBs on offshore borrowings in Eurobonds to create risk assets due to restrictions on using local depositors' funds. Moreover, shareholders of DMBs with international banking licenses were not found to receive significantly higher compensation for their risk exposure compared to investors in risk-free assets.

Telg et al. (2023) investigated the dynamics of rating and default risk during the COVID-19 crisis from a credit risk modeling perspective. They found that growth dynamics remained a stable and sufficient predictor of credit risk incidence throughout the pandemic period, despite fluctuations due to government intervention and lockdown measures. While unobserved component models effectively explained the high-default wave in the early 2000s, they were less effective in predicting defaults beyond growth dynamics during the 2008 financial crisis or the early 2020 COVID default peak. Additionally, government support variables did not diminish the impact of growth proxies or unobserved components.

Veizi and Zhuli (2023) examined the influence of risk management on bank profitability in Nigeria by employing correlation analysis, pooled ordinary least square estimates, and fixed and random effect estimations from 2007 to 2020. Their study utilized return on asset (ROA) as the dependent variable and considered liquidity risk, credit risk, operational risk, market risk, capital risk, and bank size as independent variables. The findings revealed that ROA was negatively impacted by liquidity risk, capital risk, and bank size, whereas it was significantly and positively affected by market risk. Operational risk and credit risk showed an insignificant positive relationship with ROA. The study concluded that liquidity risk and capital risk had a slight reducing effect on ROA.

Mamari et al. (2022) investigated the correlation between risk management practices and a bank's financial performance. This quantitative study utilized secondary data collected from the annual reports of eight banks listed on the Muscat Stock Exchange. Structural Equation Modeling (SEM) with Partial Least Square (PLS) Software was employed for analysis. The results unveiled a positive and significant association between risk management and the return on assets (ROA). The study inferred that effective risk management positively influences a bank's performance, as indicated by ROA. However, risk management was found to have no significant correlation with the return on equity (ROE).

Obae and Jagongo (2022) explored the influence of credit rationing and client appraisal on the loan performance of commercial banks in Kenya. Employing a descriptive survey design, the study surveyed 38 commercial banks in the country to gather primary data on credit management practices through a questionnaire. Additionally, secondary information on loan performance was obtained from document reviews of loan records spanning from 2018 to 2020. SPSS (v-21) was utilized for both descriptive and inferential analyses of the data. Regression analysis revealed that credit rationing and client appraisal significantly predicted loan performance, with debt collection identified as a significant factor impacting the performance of commercial bank loans. The study concluded that effective credit management practices are crucial for commercial banks, positively influencing loan performance.

Emmanuel et al. (2021) investigated the impact of credit risk on bank performance in Nigeria, focusing on three randomly selected banks. Utilizing return on assets (ROA) as the dependent variable and factors including capital adequacy ratio, non-performing loans ratio, total loans to total assets, total deposit, and interest rate as independent variables, the study employed classical Ordinary Least Square and panel co-integration techniques. Results indicated that credit risk had a negative short-term impact on bank performance, establishing a long-run relationship between credit risk and bank performance.

Kulchittivej et al. (2020) investigated credit management guidelines aimed at enhancing the Thai industrial sector. The study analyzed data from 500 questionnaires distributed to industrial business executives in Thailand. It utilized descriptive analysis, categorized respondents into SMEs and large enterprises, and employed structural equation modeling (SEM). The findings revealed four crucial factors in credit management guidelines: characteristics management,

financial management, operations management, and assets management. Notably, characteristics management played a central role in SEM, while financial management had a direct influence on assets management.

Zimon and Dankiewicz (2020) conducted a study on trade credit management strategy in Polish group purchasing organizations during the COVID-19 pandemic, focusing on the construction sector in Poland. The study outlined mechanisms that enabled SMEs in purchasing groups to adapt their trade credit management strategies. These adaptations included purchasing goods with a large reserve, rigorously monitoring receivables, transitioning to cash sales, and restricting long-term trade credit sales.

Jahan and Rahman (2020) aimed to comprehend credit risk management and its effect on a bank's performance, particularly return on equity (ROE). The study surveyed 12 banks (6 state-owned and 6 private commercial banks) in Bangladesh, collecting data from 2011 to 2015. Various statistical tools such as mean, standard deviation, regression analysis, one-way ANOVA, and principal component analysis were employed for analysis. The research aimed to provide stakeholders with precise insights into the credit risk management practices of commercial banks and their impact on profitability (ROE).

Olabamiji and Michael (2018) investigated the impact of credit management practices on the financial performance of Nigerian banks, with a specific focus on First Bank Plc. Through purposive sampling, the study gathered data from 30 respondents and utilized both descriptive and inferential statistics for analysis. Findings indicated that credit management practices significantly and positively influenced the financial performance of First Bank. Key predictors of financial performance included client appraisal, credit risk control, and collection policy.

Asant (2018) conducted a study on the credit risk management of microfinance institutions in Ghana. The research targeted all microfinance institutions in Ghana, selecting five institutions operating in the Ashanti region as the sample. Employing questionnaires as the primary data collection tool, the study unveiled corporate, individual, and SME commercial loans as the primary sources of credit risk for microfinance institutions in Ghana. Recommendations included enhancing the capacity of credit administration departments within microfinance institutions to better assess organizational risk exposures.

Jonathan and Michael (2018) examined the correlation between credit risk management and bank performance in Nigeria, using Fidelity Bank Nigeria PLC as a case study. Employing descriptive survey research, the study analyzed data collected from the bank's annual reports spanning from 2010 to 2016. The Pearson Coefficient of Correlation was utilized to analyze hypotheses. The study concluded that there was no significant relationship between credit risk management and bank performance in Nigeria, with only weak negative correlations observed.

Nwanna and Oguezue (2017) investigated the relationship between credit management and profitability (ROA) of Deposit Money Banks (DMBs) in Nigeria spanning from 2006 to 2015. Utilizing secondary data sourced from the Central Bank of Nigeria Statistical Bulletins and the Annual Reports of DMBs, the study applied multiple regression techniques for analysis. Results revealed that loans and advances, as well as loan loss provision, had positive but statistically insignificant impacts on profitability, whereas non-performing loans showed a negative and statistically insignificant effect.

Alemarga et al. (2014) conducted a study on credit management within Dashen Bank S.C. The research aimed to elucidate the components of credit management in private commercial banks, encompassing loan processing, and approval, disbursement, and recovery processes. Combining primary and secondary sources, the study collected and analyzed data using qualitative and descriptive methods. The findings contributed to drawing conclusions and offering recommendations for enhancing credit management practices within Dashen Bank S.C.

**Table 1**

*Summary of International article Review*

Sn	Authored and date	Objectives	Methodology	Findings
1	Natufe and Evbayiro-Osagie/ (2023)	To conducted a study on credit risk management and return on equity of Nigerian deposit money banks.	Through panel data regression analysis, they pinpointed CAR, RAR, NPLR, and SZ as notable factors influencing ROE.	The research unveiled a growing dependence of Nigerian Deposit Money Banks (DMBs) on offshore borrowings via Eurobonds to generate risk assets, driven by limitations on utilizing local depositors' funds. However, shareholders of

				DMBs possessing international banking licenses did not exhibit notably higher compensation for their exposure to risk compared to investors in risk-free assets.
2	Telg et al./ (2023)	To explored the dynamics of rating and default risk during the COVID-19 crisis from a credit risk modeling perspective.	Regression and correlation etc.	Unobserved component models were deemed useful in elucidating the surge in defaults during the early 2000s; however, their efficacy in projecting defaults beyond growth dynamics was found to be diminished.
3	Veizi and Zhuli/(2023)	To investigated the impact of risk management on bank profitability in Nigeria, employing correlation analysis, pooled ordinary least square estimates, and fixed and random effect estimations.	Their study used return on asset (ROA) as the dependent variable, considering liquidity risk, credit risk, operational risk, market risk, capital risk, and bank size as independent variables.	The findings revealed that return on assets (ROA) experienced adverse effects from liquidity risk, capital risk, and bank size, whereas it was notably and positively influenced by marketing risk. However, operational risk and credit risk showed a negligible positive correlation with ROA.
4	Mamari et al./ (2022)	To investigated the relationship between risk management practices and a bank's financial performance.	This quantitative research, relying on secondary data extracted from the annual reports of eight banks listed on the Muscat Stock Exchange, employed Structural Equation Modeling (SEM) utilizing Partial	The results unveiled a notable and statistically significant correlation between risk management and return on assets (ROA). The research indicated that proficient risk management practices have a favorable impact on a bank's performance, as evidenced by ROA.

			Least Squares (PLS) Software for analysis.	
5	Obae and Jagongo (2022)	To examined the impact of credit rationing and client appraisal on the loan performance of commercial banks in Kenya.	Employing a descriptive survey methodology targeted at 38 commercial banks within the nation, the research gathered primary data regarding credit management practices.	Regression analysis demonstrated that both credit rationing and client appraisal emerged as substantial indicators of loan performance, with debt collection recognized as exerting a notable influence on the efficacy of commercial bank loans.
6	Emmanuel et al. / (2021)	To investigate the effect of credit risk on bank performance in Nigeria, focusing on three randomly selected banks.	The study employed classical Ordinary Least Square and panel co-integration techniques	The findings indicated that credit risk had an adverse effect on bank performance in the short term, while a sustained relationship between credit risk and bank performance was established over the long term.
7	Kulchittivej et al./ (2020)	To explored credit management guidelines to strengthen the Thai industrial sector.	The study analyzed data from 500 questionnaires distributed to industrial business executives in Thailand, employing descriptive analysis, categorization into SMEs and large enterprises, and structural equation modeling (SEM).	The findings underscored four principal elements within credit management guidelines: characteristics management, financial management, operations management, and assets management. Notably, the study accentuated the pivotal role of characteristics management within the Structural Equation Modeling (SEM) framework, wherein financial management directly influenced assets management.
8	Zimon and Dankiewicz/ (2020)	To presented a study on trade credit management strategy in	Focusing on the construction industry in Poland, the research elucidated	These adaptations involved tactics such as accumulating inventory, closely monitoring accounts receivable, transitioning to

- |    |                              |  |   |   |
|----|------------------------------|--|---|---|
|    |                              | Polish group purchasing organizations during the COVID-19 pandemic.  | methods enabling Small and Medium Enterprises (SMEs) within procurement consortia to adjust their strategies for managing trade credit.   | cash transactions, and reducing the provision of extended trade credit.   |
| 9  | Jahan and Rahman (2020)      | To aim to understand credit risk management and its impact on a bank's performance, specifically return on equity (ROE).                 | Multiple statistical methodologies, such as mean calculation, standard deviation assessment, regression analysis, one-way ANOVA, and principal component analysis, were employed for data analysis. | The study aimed to furnish stakeholders with accurate insights into the credit risk management practices of commercial banks and their implications on profitability.   |
| 10 | Olabamiji and Michael (2018) | To explored the influence of credit management practices on the financial performance of Nigerian banks, with a focus on First Bank Plc. | Using purposive sampling, the study collected data from 30 respondents and employed both descriptive and inferential statistics for analysis.   | The findings revealed that the financial performance of First Bank was notably bolstered by effective credit management practices. Key predictors of financial performance included client appraisal, credit risk control, and collection policy. |
| 11 | Asant (2018)                 | To investigated the credit risk management of microfinance institutions in Ghana.  | The study encompassed all microfinance institutions in Ghana, selecting a sample of five institutions situated in the Ashanti region. Questionnaires served as the                                  | The research unveiled that corporate, individual, and Small and Medium Enterprise (SME) commercial loans constituted the primary sources of credit risk for microfinance institutions in Ghana.   |

- primary tool for data collection.
- 12 Nwanna and Oguezue / (2017) To examined the nexus between credit management and profitability (ROA) of Deposit Money Banks (DMBs) in Nigeria. Utilizing secondary data extracted from both the Central Bank of Nigeria Statistical Bulletins and the Annual Reports of Deposit Money Banks (DMBs), the study applied multiple regression techniques for analysis. The results suggested that loans and advances, as well as loan loss provisions, had positive but inconsequential impacts on profitability, whereas non-performing loans exhibited a negative and inconsequential effect.
- 13 Alemarga et al./ (2014) To conduct a study on credit management in Dashen Bank S.C. Combining primary and secondary resources, the research gathered and scrutinized data employing qualitative and descriptive methodologies. The findings contributed to drawing conclusions and making recommendations for improving credit management in Dashen Bank S.C.
- 14 Orag et al./ (2014) To determined how commercial bank credit could influence the manufacturing sector in Nigeria. The research utilized secondary data from the Central Bank statistical bulletin and applied ordinary least squares multiple regression models to establish relationships between dependent and independent variables. There is the significant relationships between dependent and independent variables.
- 15 Nazari and Alidadi (2013) To focused on identifying classification criteria for good The research employed artificial neural network. The results highlighted the importance of individual loan frequency and loan amount in determining the classification

		and bad customers in Iranian banks.	techniques for criteria of good and bad credit risk customers. assessment, gathering data from 497 samples encompassing 18 variables.	
16	Charles and Kenneth / (2013)	To explored the impact of credit risk management and capital adequacy on the financial performance of banks in Nigeria.	The research employed a panel data model to assess the connections among loan loss provisions, loans and advances, non-performing loans, capital adequacy, and return on assets.	The results suggested that effective credit risk management and sufficient capital adequacy positively influenced the financial performance of banks, while loans and advances had a detrimental effect on profitability.

### 2.2.2 Review of Nepalese Article and Thesis

Shrestha (2024) investigated the influence of credit risk on the profitability of commercial banks in Nepal by analyzing secondary data collected from Nepalese commercial banks over a ten-year period. The study utilized correlation and multiple regression analysis to examine the data. The findings revealed that State Bank of India (SBI) exhibited the best credit risk position with the lowest non-performing loan ratio (NPL), while Nepal Bank Limited (NABIL) achieved the highest profitability in terms of Return on Assets (ROA). Correlation analysis indicated that the Cash Reserve Ratio (CRR) had an insignificant negative relation with ROA and an insignificant positive relation with Return on Equity (ROE). Additionally, there was an insignificant positive correlation between Credit to Deposit Ratio (CDR) and ROA, and a significant positive relationship with ROE. However, the non-performing loan ratio had an insignificant negative relationship with both ROA and ROE. Furthermore, leverage ratio had an insignificant negative relationship with ROA but a significant positive relationship with ROE. Finally, bank size had an insignificant negative relationship with ROA and a significant negative relationship with ROE. Multiple regression analysis indicated that the cash reserve ratio had an insignificant negative effect on profitability, while credit to deposit ratio had a significant positive impact. Conversely, non-performing loan ratio and bank size had

insignificant negative impacts on profitability. Moreover, leverage had a significant negative impact on profitability.

Thapa (2024) evaluated the current status of credit and credit risk of Nepalese commercial banks, examining the relationship between capital adequacy ratio (CAR), non-performing loan ratio (NPLR), management quality ratio (MQR), and credit deposit ratio (CDR) with Return on Assets (ROA) and Return on Equity (ROE). Descriptive methods such as means, standard deviation, correlation, and regression were employed for data analysis. The study found that ROA, CAR, NPLR, and CDR were significantly correlated. However, the correlation between ROA and ROE was insignificant, while the correlation with CAR was negative but low. Additionally, there was a negative, insignificant correlation with non-performing assets and a low, negative correlation with credit deposit ratio. Regression analysis indicated an insignificant regression line for CAR, NPLR, CDR, and MQR on ROA, while the regression line for these variables on ROE was significant.

Rimal (2023) investigated the current status of credit risk and profitability of commercial banks in Nepal, analyzing the relationship between credit risk and financial performance. The study employed a descriptive, correlation, and causal comparative research design using secondary data from three sampled commercial banks in Nepal. The research variables included profitability, credit risk, liquidity ratio, capital adequacy ratio, interest spread rate, and base rate. Financial and statistical analysis was conducted using various ratio analyses, descriptive statistics, correlation, and regression analysis with SPSS and Excel. The findings revealed fluctuating data nature with high standard deviation. Profitability had a positive but not significant relationship with credit risk and liquidity. The capital adequacy ratio had a negative and insignificant relationship with profitability, while interest spread rate had a positive and significant relationship. Base rate exhibited a negative and significant relationship with profitability. The impact of credit risk on profitability was negative and not significant. Liquidity ratio and capital adequacy had a positive impact on profitability, but it was not significant. Interest spread rate had a positive impact, while the base rate had a negative and significant impact on profitability.

Aryal (2022) conducted an assessment of credit investment and recovery among Financial Public Enterprises in Nepal, facilitated by ADB/N. The study aimed to tackle the issue of

individuals facing challenges in repaying credit due to high interest rates from non-institutional sources, often resulting in property transfer and potential landlessness. Despite increased efforts, ADB/N encountered difficulties in credit collection. The research revealed a rising trend in actual credit disbursement, collection, and outstanding amounts, albeit at a decreasing rate. There was a positive correlation between credit disbursement and collection, and the planned credit collection and disbursement values set by planning and project departments did not significantly deviate from actual values. Lack of customer awareness about the bank's policies was identified, suggesting the need for improved borrower education and increased focus on credit collection and outstanding amounts.

Gautam (2021) analyzed finance companies in Nepal, focusing on objectives related to the interest rate structure and credit repayment. The study highlighted a rapid decline in the utilization of funds for hire purchase credit and emphasized the use of credit loss provision as a measure of credit quality. A significant annual increase in credit loss was observed, underscoring the importance of control measures. Companies with above-average credit loss provision were advised to reassess their investment and repayment policies.

Chand (2020) investigated credit disbursement and repayment at the Agriculture Commercial Bank Nepal, addressing issues such as the limited benefits of the bank to small farmers and slow credit collection impeding economic growth. The study aimed to examine the repayment situation, understand investment growth rates, and identify potential causes of non-repayment. A systematic relationship between credit disbursement and repayment was found, with a significant correlation coefficient of 0.94. Recommendations included ADB/N playing a more substantial role in meeting credit demands in rural areas and channeling credit through borrower groups for improved recovery.

Joshi (2018) sought to comprehend the fund mobilization and investment policy of EBL, Nabil, and BOK. The findings indicated that EBL had a stronger liquidity position compared to Nabil and BOK, with total investments falling between the other two banks. EBL exhibited lower total interest earned to total outside assets ratio compared to Nabil and BOK. Additionally, EBL had a higher capital risk ratio but an average credit risk ratio compared to Nabil and BOK.

Panta (2019) conducted research on commercial bank deposits and their utilization, finding a consistent percentage of total credit provided by commercial banks over a span of five years. The study noted a significant rise in deposit collection, indicating a widening gap between deposit accumulation and utilization. It underscored the necessity for equitable and sector-specific policies within commercial banks to contribute effectively to the economic advancement of the country.

**Table 2**

*Summary Nepalese article Review*

Sn	Authored and date	Objectives	Methodology	Findings
1	Shrestha/ (2024)	To investigated the impact of credit risk on profitability of commercial banks in Nepal.	Correlation and multiple regression analyses were employed in this study to examine the gathered data.	This research indicates that among the banks surveyed, State Bank of India (SBI) exhibits the most favorable credit risk position, as evidenced by its superior management or maintenance of non-performing loan ratios. This suggests that SBI has the lowest credit risk among the banks examined. Regarding profitability, NABIL appears to excel in managing its overall operations, boasting the highest ratio of Return on Assets among the surveyed banks.
2	Thapa /(2024)	To assessed the present status of credit and credit risk of Nepalese commercial banks, examine the relationship CAR, NPLR, MQR and CDR with ROA and ROE of Nepalese commercial banks and to analyzed impact of CAR, NPLR, MQR and	The data analysis method was descriptive such as means, standard deviation, correlation and regression.	The study found significant variables including Return on Assets, Capital Adequacy Ratio, Non-Performing Assets and Credit Deposit Ratio. The correlation analysis revealed that the correlation between Return on Assets and Return on Equity was not statistically significant. Additionally, the correlation between Capital Adequacy Ratio and Return on Assets showed a negative and low degree relationship. The correlation between Non-

CDR on financial performance (ROA and ROE) of Nepalese commercial banks

Performing Assets and Return on Assets was statistically insignificant. The correlation between Credit Deposit Ratio and Return on Assets indicated a low degree of negative correlation. The correlation between Return on Equity and Capital Adequacy Ratio was significantly high. Moreover, the correlation between Return on Equity and Non-Performing Assets was highly significant. The correlation between Return on Equity and Credit Deposit Ratio was highly significant and negative. However, the correlation between Return on Equity and Management Quality Ratio was very low. Regression analysis revealed that the regression line of Capital Adequacy Ratio, Non-Performing Loans, Credit Deposit Ratio, and Management Quality Ratio on Return on Assets was statistically insignificant. Conversely, the regression line of these variables on Return on Equity was significant.

- 3 Rimal (2023) To examined the current status of the credit risk and profitability of commercial bank, to analyses the relationship between credit risk and financial performance of sampled banks and to examine the impact of credit risk on the
- The study employed a research design encompassing descriptive, correlation, and causal comparative methodologies. Secondary data were collected from the sampled bank. Financial and
- The study found positive but insignificant relationships between profitability and credit risk as well as profitability and liquidity. The relationship between capital adequacy ratio and profitability was negative and insignificant. However, there was a positive and significant relationship between profitability and interest spread rate. Additionally, the base rate exhibited a negative

- |   |                 |  |  |  |
|---|-----------------|--|--|--|
|   |                 | financial performance of sampled banks.  | statistical analyses were conducted to achieve the research objectives using the provided raw data.  | relationship with profitability, which was significant. While the impact of credit risk on profitability was negative, it was not significant. Both liquidity ratio and capital adequacy had a positive impact on profitability, although this was not significant.  |
| 4 | Aryal / (2022)  | To conducted an evaluation of credit investment and recovery of Financial Public Enterprises in Nepal facilitated by ADB/N.    | Using panel data regression analysis   | The results indicated a rising pattern in real credit disbursement, collection, and outstanding, albeit at a diminishing rate. A favorable correlation was observed between credit disbursement and collection, with the projected credit collection and disbursement closely aligning with the actual figures, as set by planning and project departments, without significant disparities. |
| 5 | Gautam / (2021) | To analyze the finance companies of Nepal, focusing on objectives related to the interest rate structure and credit repayment. | Regression and correlation etc.  | The research emphasized a notable yearly rise in credit losses, underscoring the necessity for effective control measures. Companies exhibiting credit loss provisions above the average were encouraged to reassess their investment and repayment strategies.  |
| 6 | Chand / (2020)  | To explored credit disbursement and repayment at the Agriculture Commercial bank Nepal.  | The study employed return on assets as the dependent variable, while treating liquidity risk, credit risk, operational risk, market risk, capital risk, and bank size as | The findings suggested that ROA experienced adverse effects due to liquidity risk, capital risk, and bank size, while marketing risk significantly and positively influenced it. However, operational risk and credit risk showed an insignificant positive correlation with ROA.  |

7	Mamari et al./ (2022)	To investigated the relationship between risk management practices and a bank's financial performance.	independent variables. This quantitative study, based on secondary data collected	The study found a systematic relationship between credit disbursement and repayment, with a significant correlation.
8	Joshi /(2018)	To aimed to understand the fund mobilization and investment policy of EBL, Nabil, and BOK.	Using a descriptive survey design applied.	The results indicated that EBL exhibited superior liquidity compared to Nabil and BOK, with its total investment positioned between the other two banks. Additionally, EBL demonstrated lower total interest earned relative to total outside assets compared to Nabil and BOK. Although EBL had a higher capital risk ratio, its credit risk ratio was average compared to Nabil and BOK.
9	Panta/ (2019)	To studied commercial bank deposit and its utilization, noting a consistent percentage of total credit supplied by commercial banks over five years.	Correlation and regression are the tools of the study.	Deposit collection experienced a notable surge, signifying an expanding disparity between collection and utilization. Concurrently, there was a substantial rise in deposit collection. This widening gap between deposit accumulation and credit utilization underscores an economic requirement.

### 2.3 Research Gap

Many researchers have predominantly focused on individual countries, presenting diverse findings. However, a noticeable gap exists as no prior study has comprehensively examined credit management and profitability across all deposit money banks in Nepal. Recognizing this geographical void, our research endeavors to fill this gap by conducting an inclusive study within the context of Nepal. Additionally, our exploration of existing research on credit management and bank profitability reveals a temporal gap, with most studies covering up to the year 2023. To address this temporal discrepancy, in this research extend the investigation

to encompass the period up to 2023, which includes the aftermath of the global economic recession and its consequential impact on credit management challenges faced by banks.

In contrast to previous researchers who often employed a single model with more than five independent variables, our research is driven by academic intent. Notably, many of these prior studies were conducted in international contexts, with a focus on sectors beyond banking. For future scholars, there is an opportunity to explore different sectors within Nepal, deviating from the conventional emphasis on commercial banks. Furthermore, potential research initiatives could span over a decade, providing a more comprehensive understanding. In our study, we specifically consider three independent variables alongside dependent variables. Rimal (2023) the research variables are profitability, credit risk, liquidity ratio, capital adequacy ratio, interest spread rate, base rate. The interest spread rate and base rate is not included here. Gautam (2021) analyzed the finance companies of Nepal but this research is on commercial bank.

## **CHAPTER-III**

### **RESEARCH METHODOLOGY**

The research methodology entails a structured and deliberate strategy utilized for investigating research inquiries or validating hypotheses through the gathering, examination, and interpretation of data. This section delineates the research framework, sources of data, target population and sample selection, as well as the techniques and instruments for data analysis. The fundamental elements of the research methodology encompass:

#### **3.1 Research Design**

This research employs a blend of descriptive and causal-comparative research methodologies, encompassing a wide range of variables and factors pertinent to banks' credit management decisions. Comparative data from diverse banks will be incorporated to enrich the comprehensiveness of the report. The study primarily assumes a descriptive stance, aiming to elucidate variables such as loans and advances, non-performing loans, loan loss provisions, leverage, capital adequacy, GDP, and profitability metrics such as return on assets and return on equity.

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

The study population consists of all 20 commercial banks currently operating nationwide as of 2023, although the population size has diminished due to mergers. However, for this research, a sample of three commercial banks—Everest Bank Limited, Nepal SBI Bank Limited, and Himalayan Bank—has been chosen to represent the population and form the foundation of the study. The sample selection method combines cluster sampling, as banks are chosen based on joint ventures, and judgmental sampling, which is influenced by the data availability on the bank's website.

#### **3.2 Nature and Source of Data**

This section provides insights into the characteristics and origins of data. Data can be classified into two main types: primary data and secondary data. A diverse range of sources is available for researchers, including both broadcast and unbroadcast sources. Broadcast sources encompass materials such as scholarly articles, annual reports, newspapers, tax reports,

government policies, and books. Unbroadcast sources include internal organizational documents like meeting minutes and vouchers. For this research, data are gathered from the annual reports of the bank, making it secondary in nature.

### **3.4 Instrument of Data Collection**

The instrument refers to the methodologies utilized for data collection. For primary data collection, various instruments are employed, including questionnaires, laboratory experiments, quasi-experiments, observations, interviews, and scales. Secondary data, on the other hand, are sourced from the websites of the respective banks, annual reports, economic reports from the Nepal Rastra Bank (NRB) covering banking and financial statistics, and other published statistical data. Furthermore, informal discussions and procedures are utilized to gather supplementary information.

### **3.5 Methods of Analysis**

To fulfill the study's objectives, various statistical tools are applied, including descriptive statistics, correlation analysis, and multiple regression analysis. The data analysis is conducted in accordance with the available patterns of the data.

#### **3.5.1 Financial Analysis**

- Return on Assets
- Return on Equity
- Capital adequacy ratio

#### **Return on assets (ROA)**

This is the ratios which are calculated by dividing the net profit to total assets. This can be indicated that the relations of profit to the assets.

$$\text{Return on assets} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

#### **Return on Equity (ROE)**

This is the ratios which are calculated by dividing profit after tax by total equity. This can be indicated that the relations of profit to shareholders equity.

$$\text{Return on equity} = \frac{\text{Net pfofit}}{\text{Equity shares}}$$

### Capital Adequacy Ration

Capital adequacy is the calculated result of the equity by total assets of the bank and financial institution. In this research it is calculated by using the following formula.

$$\text{Capital adequacy} = \frac{\text{Equity Capital}}{\text{Total Assets}}$$

### 3.5.2 Statistical Analysis

#### Descriptive Statistics Analysis

Descriptive analysis involves examining the mean, standard deviation, minimum, and maximum values of the relevant data variables.

#### Arithmetic Mean

The arithmetic mean, often referred to as the average, is calculated by adding together all the values and then dividing the total by the number of observations in the sample. This metric serves as a representation of the entire dataset, positioned at the midpoint between the highest and lowest values. Therefore, the average is commonly considered a measure of central tendency. In the context of this research, the arithmetic mean is utilized to assess data concerning sample banks across a span of ten fiscal years, employing the following formula:

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

Where,  $\bar{X}$  = Mean

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

n = Variable involved

#### Standard Deviation

The standard deviation is a statistical measure used to gauge the degree of variability or spread within a dataset. It is calculated as the square root of the variance, which involves determining the extent to which each data point differs from the mean. It is denoted by ( $\sigma$ ).

$$\text{Standard Deviation S.D} = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where,

X=variables

$\bar{X}$  = mean

N= No. of Period

### Minimum

The minimum value in a dataset is the smallest numerical observation within the variable being examined. When the data is arranged in ascending order, the minimum value is the first entry in the sorted list. While there may be duplicate minimum values in the dataset, by definition, there can only be one minimum value, as it represents the smallest value in the set.

### Maximum

The maximum value in a dataset is the largest numerical observation within the variable being studied. When the data is arranged in ascending order, the maximum value is the last entry in the sorted list. While there may be duplicate maximum values in the dataset, there is only one unique maximum for a given set of data. Unlike the minimum, which can be duplicated, there cannot be two maximum values because one must be greater than the other.

### Correlation Analysis (r):

It is the simplest of ascertaining the correlation between two variables. It is not influenced by the size of the extreme items. Karl Pearson coefficient of correlation is usually denoted by 'r'.

$$\text{Correlation Coefficient (r)} = \frac{n \sum XY - \sum X \sum Y}{\sqrt{[n \sum x^2 - (\sum X)^2] [n \sum Y^2 - (\sum Y)^2]}}$$

Where,

N = number of X and Y

$\sum XY$  = Sum of the product of series X and Y

$\sum X$  = Sum of series X

$\sum Y$  = Sum of series Y

$\sum X^2$  = Sum of the square of series X

$\sum Y^2$  = Sum of the square of series Y

This research design primarily aims to determine the direction and strength of the relationship between different pairs of variables. To achieve this goal, correlation analysis is utilized as a

statistical tool. Correlation analysis helps uncover the direction and magnitude of the relationship between two sets of variables, indicating how these variables co-vary and the extent of their association. The Pearson correlation coefficient is employed to elucidate this relationship, with values ranging from -1 to +1. A correlation coefficient of -1 denotes a perfect negative correlation, indicating that the two variables move precisely in opposite directions. Conversely, a correlation coefficient of +1 signifies a perfect positive correlation, suggesting that the variables are closely related in a positive direction.

### **Multiple Regression Analysis**

Multiple regression analysis is a statistical technique utilized to explore the relationship between a single dependent (outcome) variable and multiple independent (predictor) variables. The main objective of multiple regression analysis is to predict changes in the dependent variable based on variations in the independent variables. It evaluates the effectiveness of several predictors in predicting changes in the dependent variable. Moreover, the coefficient of determination, or R-squared, represents the proportion of variability in the dependent variable explained by the regression equation. The multiple regression equation can be expressed as follows:

Model 1

$$ROA = \beta_0 + \beta_1 \times LA + \beta_2 \times NPL + \beta_3 \times LLP + \beta_4 \times CA + \beta_5 \times GDP + e$$

Model 2

$$ROE = \beta_0 + \beta_1 \times LA + \beta_2 \times NPL + \beta_3 \times LLP + \beta_4 \times CA + \beta_5 \times GDP + e$$

Where,

ROA= Return On Assets

ROE=Return On Equity

LA= Loans and Advance

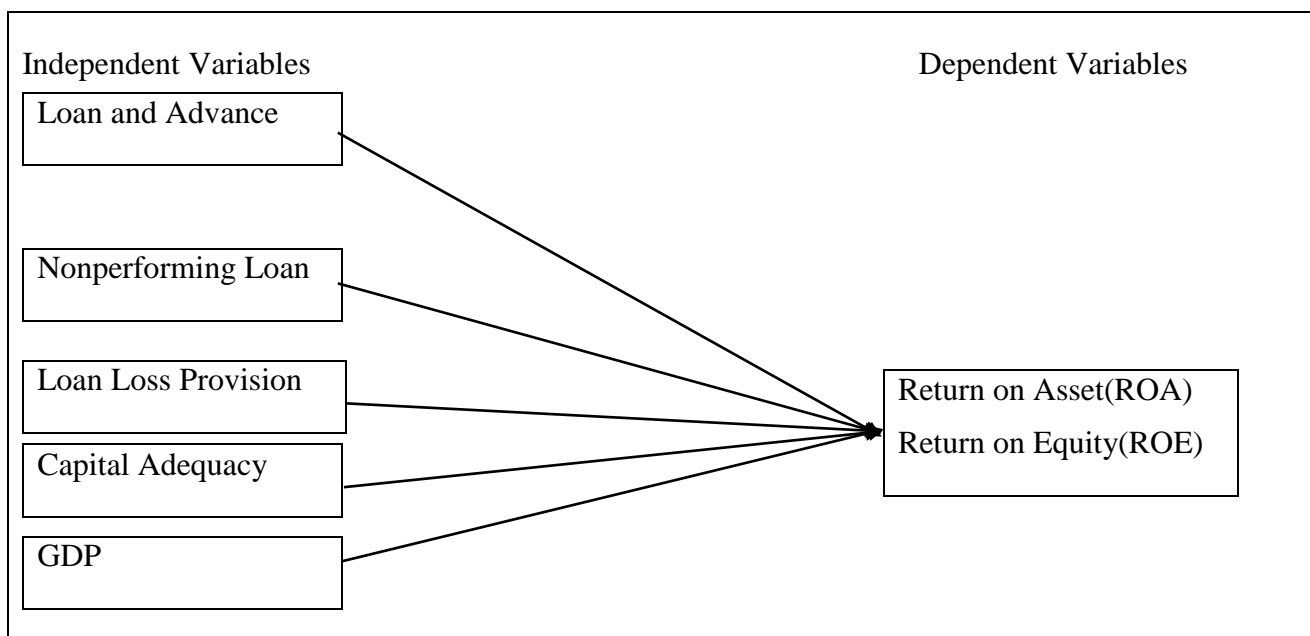
NPL= Non Performing Loan

LLP=Loan Loss Provision

CA= Capital Adequacy (CA)

GDP= Gross Domestic Product

### 3.6 Research Framework



Source: *Natufe & Evbayiro-Osagie (2023)*

**Figure 1** Research Framework

### 3.7 Definition of Variables

#### **Profitability:**

Profitability is a cornerstone for the growth, innovation, and operational efficiency of commercial banks (Helpell, 2002). The stability of the overall economy heavily depends on the profitability levels achieved by commercial banks. Higher profitability enables banks to absorb risks and withstand economic shocks effectively. Additionally, profitability is essential for ensuring the operational efficiency of commercial banks. Empirical studies suggest that the financial health of commercial banks is closely linked to their profitability (Mills, 2006). Despite market reforms in sub-Saharan Africa leading to challenges in commercial bank profitability, earlier research argued that market liberalization is crucial for achieving robust profitability in commercial banks (Xuezhi & Qin, 2012).

#### **Loan Loss Provision:**

A loan loss provision is a designated expense aimed at covering losses stemming from defaulted loans. Banks allocate a portion of anticipated loan repayments from their portfolio to address potential losses, either partially or in full. These reserves act as a cushion to mitigate

losses in case of loan defaults. Loan loss provisions play a critical role in ensuring the safety and stability of a bank by anticipating unexpected losses through bank capital and expected losses through provisions. The adequacy of these provisions, coupled with future margin income, is essential for mitigating losses during economic downturns or other adverse situations (Bikker & Metzmakers, 2005).

**Nonperforming Loan:**

The profitability of commercial banks relies heavily on loans, which constitute a significant portion of their earning assets. Elevated levels of nonperforming loans pose a threat to profitability, prompting banks to set aside reserves for these defaulted loans (Farhan et al., 2012). Non-Performing Assets (NPAs) refer to loans with outstanding interest or dues exceeding 90 days, raising concerns in the banking sector. Recovering such loans has been a persistent challenge, contributing to banking crises and economic downturns (Barth et al., 2004). Various factors, including economic downturns, insider lending, political affiliations of bank owners, lack of customer disclosure, and inadequate banking staff skills, contribute to the increase in nonperforming loans (Richard, 2011).

**Loan and Advance:**

The loan and credit department plays a crucial role in the operations of any bank, significantly impacting overall profitability. Success in this department is vital, as failure may result in substantial losses or even bankruptcy. Ongoing loans, such as Cash Credit and Overdraft, allow transactions within a specified limit and have a predetermined date for full adjustment. Fixed-term loans are repayable within a specific period according to a predetermined repayment schedule (Rahman, 2019).

**Capital Adequacy:**

Capital adequacy reflects an institution's capacity to maintain capital commensurate with the nature and extent of all risks it faces. It also indicates management's ability to identify, measure, monitor, and control these risks. Factors such as growth plans, economic conditions, risk management practices, and concentrations of loans and investments influence an institution's capital adequacy. Evaluating the impact of credit, market, and other risks on a bank's financial health is crucial when assessing capital adequacy.

**GDP (Gross Domestic Product):**

Gross Domestic Product (GDP) represents the total monetary or market value of all goods and services produced within a country's borders over a specified period. It serves as a broad indicator of a country's economic health and is typically calculated annually or quarterly. GDP acts as a yardstick for measuring a country's production and overall economic well-being.

## CHAPTER-IV

### RESULT AND DISCUSSION

The result is related to the presentation of the data collected from the annual report of the commercial bank in this research and discussion is comparative analysis of the resulted output with the previous researcher.

#### 4.1 Result

##### 4.1.1 Descriptive Statistics Analysis

Descriptive analysis involves examining the mean, standard deviation, minimum, and maximum values of the relevant data variables.

**Table 3**

*Descriptive Statistics Analysis*

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Equity	30	3.15	51.40	16.42	11.96
Return on Assets	30	.47	2.58	1.6	.49
Capital Adequacy Ratio	30	3.91	16.86	9.8	2.5
Loan and advance	30	45320	237989	102349	40443
Nonperforming Loan	30	62.70	1842.00	629.48	553.69
Loan loss provision	30	434.00	4051.00	1210.9	765.19
Gross Domestic Product	30	-2.37	8.98	4.3	3.24
Valid N (listwise)	30				

*Source: Appendix-2*

Table 3 shows the descriptive statistics of the all the variables they are dependent variables return on equity and return on assets of the commercial bank. The independent variables are Capital Adequacy Ratio, Loan and advance, Nonperforming Loan, Loan loss provision, Gross Domestic Product. Total of 30 observation because of the each commercial bank has 10. The observation in the table denoted by the “N”. Minimum, maximum, mean and standard deviation are calculated for knowing the current position of the variables in the commercial banking industries.

The Return on Equity has a minimum of 3.15, a maximum of 51.40, a mean of 16.42, and a standard deviation of 11.96. The Return on Assets has a minimum of 0.47, a maximum of 2.58, a mean of 1.6, and a standard deviation of 0.49. The Capital Adequacy Ratio has a minimum of 3.91, a maximum of 16.86, a mean of 9.8, and a standard deviation of 2.5. Loans and Advances have a minimum of 45,320, a maximum of 237,989, a mean of 102,349, and a standard deviation of 40,443. Nonperforming Loans have a minimum of 62.70, a maximum of 1,842.00, a mean of 629.48, and a standard deviation of 553.69. Loan Loss Provisions have a minimum of 434.00, a maximum of 4,051.00, a mean of 1,210.9, and a standard deviation of 765.19. Gross Domestic Product has a minimum of -2.37, a maximum of 8.98, a mean of 4.37, and a standard deviation of 3.24.

The table indicates a significant disparity between the minimum and maximum values, as well as between the mean and both the minimum and maximum values. Each variable exhibits a high standard deviation. This suggests that the current status of the research variables is highly variable and inconsistent across the commercial banks.

#### **4.1.2 Correlation Analysis**

Correlation analysis is utilized to elucidate the direction and strength of the relationship between two sets of variables, showcasing how these variables co-vary and indicating the degree of their association. The Pearson correlation coefficient, ranging from -1 to +1, is employed to explicate this relationship. A correlation coefficient of -1 indicates a perfect negative correlation, implying that the variables move in opposite directions. Conversely, a coefficient of +1 suggests a perfect positive correlation, signifying that the variables are closely related in a positive direction. The independent variables under examination in this study include Capital Adequacy Ratio, Loan and Advance, Nonperforming Loan, Loan Loss Provision, and Gross Domestic Product. The table comprises a total of 30 observations, with each commercial bank contributing 10 observations, denoted as "N" in the table.

**Table 4***Correlation of the Variables*

		Return on Equity	Return on Assets	Capital Adequacy Ratio	Loan and advances	Nonperforming Loans	Loan loss provision	Gross Domestic Product
Return on Equity	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	30						
Return on Assets	Pearson Correlation	.522**	1					
	Sig. (2-tailed)	.003						
	N	30	30					
Capital Adequacy Ratio	Pearson Correlation	-.775**	-.230	1				
	Sig. (2-tailed)	.000	.222					
	N	30	30	30				
Loan and advance	Pearson Correlation	-.344	-.527**	.293	1			
	Sig. (2-tailed)	.063	.003	.115				
	N	30	30	30	30			
Nonperforming Loans	Pearson Correlation	-.381*	-.387*	.203	.431*	1		
	Sig. (2-tailed)	.038	.035	.283	.018			
	N	30	30	30	30	30		
Loan loss provision	Pearson Correlation	-.436*	-.551**	.164	.602**	.785**	1	
	Sig. (2-tailed)	.016	.002	.387	.000	.000		
	N	30	30	30	30	30	30	
Gross Domestic Product	Pearson Correlation	.113	.063	-.126	-.112	.185	.078	1
	Sig. (2-tailed)	.550	.741	.509	.555	.327	.681	
	N	30	30	30	30	30	30	30

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

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

*Source: Appendix -2*

Table 4 displays the correlation between the dependent variable, Return on Equity (ROE), and the independent variables: Capital Adequacy Ratio, Loans and Advances, Nonperforming Loans, Loan Loss Provisions, and Gross Domestic Product (GDP). The table comprises 30 observations, with each commercial bank contributing 10 observations, denoted by "N."

The correlation between the Capital Adequacy Ratio and ROE is negative and significant, with a coefficient of -0.775 and a significance level of 1% ( $p = 0.000$ ).

Loans and Advances exhibit a negative but not significant correlation with ROE, with a coefficient of -0.344 and a significance level above 0.05 ( $p = 0.063$ ).

Nonperforming Loans display a negative and significant correlation with ROE, with a coefficient of -0.381 and a significance level of 5% ( $p = 0.038$ ).

Similarly, Loan Loss Provisions show a negative and significant correlation with ROE, with a coefficient of -0.436 and a significance level of 5% ( $p = 0.016$ ).

GDP demonstrates a positive but not significant correlation with ROE, with a coefficient of 0.113 and a significance level above 0.05 ( $p = 0.550$ ).

Regarding Return on Assets (ROA), the Capital Adequacy Ratio exhibits a negative but not significant correlation, with a coefficient of -0.230 and a significance level above 0.05 ( $p = 0.222$ ).

Loans and Advances display a negative and significant correlation with ROA, with a coefficient of -0.527 and a significance level of 1% ( $p = 0.003$ ).

Nonperforming Loans show a negative and significant correlation with ROA, with a coefficient of -0.387 and a significance level of 5% ( $p = 0.035$ ).

Likewise, Loan Loss Provisions demonstrate a negative and significant correlation with ROA, with a coefficient of -0.551 and a significance level of 1% ( $p = 0.002$ ).

Lastly, GDP presents a positive but not significant correlation with ROA, with a coefficient of 0.063 and a significance level above 0.05 ( $p = 0.741$ ).

#### **4.1.3 Multiple Regression Analysis**

Multiple regression analysis is a statistical technique utilized to explore the relationship between a single dependent variable, often referred to as the criterion variable, and several

independent variables, known as predictor variables. The main objective of multiple regression analysis is to predict changes in the dependent variable based on variations in the independent variables. It evaluates the collective impact of multiple predictors on forecasting changes in the dependent variable. Additionally, the coefficient of determination, commonly known as R-squared, indicates the proportion of variability in the dependent variable that can be explained by the regression model.

For this analysis, two regression models are employed based on Return on Equity (ROE) and Return on Assets (ROA). These models help assess the influence of various independent variables on the dependent variables, providing insights into the factors affecting the financial performance of commercial banks.

### **Multiple Regression Analysis Based on Return on Equity**

Return on equity is the dependent variable of the research. The dependent variable of the research is based multiple regression equation using the Model summary, ANOVA and coefficient is calculated here under.

**Table 5**

*Model Summary of Model One*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842 <sup>a</sup>	.709	.649	7.09

a. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

*Source: Appendix-2*

Table 5 presents the model summary for the research, which is based on the independent variables Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances, with the dependent variable being Return on Equity. The research includes a total of 30 observations. The table indicates an R square value of 0.709, meaning that the independent variables collectively account for 70.9% of the variance in the dependent variable. The remaining 29.1% is influenced by other variables not included in this study.

**Table 6***ANOVA of Model One*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2947.122	5	589.424	11.715	.000 <sup>b</sup>
	Residual	1207.543	24	50.314		
	Total	4154.665	29			

a. Dependent Variable: Return on Equity

b. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

*Source: Appendix-2*

Table 6 presents the ANOVA for Model One of the research. In this model, the dependent variable is Return on Equity, and the independent variables, or predictors, include Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances. The regression value is significant, as the p-value is 0.000, which is less than 0.05.

**Table 7***Coefficient of Model One*

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	53.25	6.248		8.523	.000
	Capital Adequacy Ratio	-3.43	.544	-.741	-6.31	.000
	Loan and advance	3.44	.000	.116	.803	.430
	Nonperforming Loan	.001	.004	.038	.205	.839
	Loan loss provision	-.007	.003	-.420	-2.066	.050
	Gross Domestic Product	.219	.427	.059	.514	.612

a. Dependent Variable: Return on Equity

*Source: Appendix-2*

Table 7 presents the coefficients for Model One. In this model, the dependent variable is Return on Equity, and the independent variables, or predictors, are Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances. The research includes 30 observations.

The impact of the Capital Adequacy Ratio on Return on Equity is negative and significant, confirming the hypothesis. This is indicated by a negative beta value of -3.436, meaning a 1% change in the Capital Adequacy Ratio results in a -3.436% change in Return on Equity. The standard error is low at 0.544, and the significance value is 0.000, which is less than 0.05, making it significant.

The impact of Loans and Advances on Return on Equity is positive but not significant, so the hypothesis is not confirmed. This is shown by a positive beta value of 3.44, indicating a 1% change in Loans and Advances leads to a 3.44% change in Return on Equity. However, the standard error is 0.000, and the significance value is 0.43, which is more than 0.05, making it insignificant.

The impact of Nonperforming Loans on Return on Equity is positive but not significant, thus the hypothesis is not confirmed. The positive beta value of 0.001 suggests a 1% change in Nonperforming Loans results in a 0.001% change in Return on Equity. The standard error is low at 0.004, but the significance value is 0.839, which is more than 0.05, making it insignificant.

The impact of Loan Loss Provision on Return on Equity is negative and significant, confirming the hypothesis. This is indicated by a negative beta value of -0.007, meaning a 1% change in Loan Loss Provision results in a -0.007% change in Return on Equity. The standard error is 0.003, and the significance value is 0.05, which is equal to 0.05, making it significant.

The impact of Gross Domestic Product on Return on Equity is positive but not significant, so the hypothesis is not confirmed. This is indicated by a positive beta value of 0.219, meaning a 1% change in GDP results in a 0.219% change in Return on Equity. The standard error is 0.429, and the significance value is 0.621, which is more than 0.05, making it insignificant.

### **Multiple Regression Analysis Based on Net Profit**

Net Profit is the dependent variable of the research. The dependent variable of the research is based multiple regression equation using the Model summary, ANOVA and coefficient is calculated here under.

**Table 9***Model Summary of Model Two*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.613 <sup>a</sup>	.376	.246	.42

a. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

Source: *Appendix-2*

Table 9 presents the model summary for the research, which is based on the independent variables Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances, with the dependent variable being Return on Assets. The research includes 30 observations. The table indicates an R square value of 0.246, meaning that the independent variables collectively account for 24.6% of the variance in the dependent variable. The remaining 75.4% is influenced by other variables not included in this study.

**Table 10***ANOVA of Model Two*

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	2.652	5	.530	2.895	.035 <sup>b</sup>
	Residual	4.396	24	.183		
	Total	7.048	29			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

Source: *Appendix-2*

Table 10 presents the ANOVA for Model One of the research. In this model, the dependent variable is Return on Assets, and the independent variables, or predictors, include Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances. The regression value is significant, as the p-value is 0.035, which is less than 0.05.

**Table 11***Coefficient of Model Two*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.377	.377		6.306	.000
	Capital Adequacy Ratio	-.018	.033	-.092	-.537	.596
	Loan and advance	-3.19	.000	-.262	-1.234	.229
	Nonperforming Loan	8.41	.000	.095	.350	.729
	Loan loss provision	.000	.000	-.456	-1.531	.139
	Gross Domestic Product	.006	.026	.040	.236	.815

a. Dependent Variable: Return on Assets

Source: *appendix-2*

Table 11 presents the coefficients for Model One. In this model, the dependent variable is Return on Assets, and the independent variables, or predictors, include Gross Domestic Product, Loan Loss Provision, Nonperforming Loans, Capital Adequacy Ratio, and Loans and Advances. The research includes 30 observations.

The impact of the Capital Adequacy Ratio on Return on Assets is negative and significant, supporting the hypothesis. This is indicated by a negative beta value of -.018, meaning a 1% change in the Capital Adequacy Ratio results in a negative .018% change in Return on Assets. The standard error is low at 0.033, and the significance value is 0.596, which is more than 0.05, making it is not significant.

The impact of Loans and Advances on Return on Assets is negative and not significant, so the hypothesis is not supported. This is shown by a beta value of negative 3.19, indicating a 1% change in Loans and Advances results is negative 3.19% change in Return on Assets. The standard error is 0.000, and the significance value is 0.229, which is more than 0.229, making it insignificant.

The impact of Nonperforming Loans on Return on Assets is positive and not significant, not supporting the hypothesis. The positive beta value of 8.41 suggests a 1% change in Nonperforming Loans results in an 8.41 % change in Return on Assets. The standard error is

low at 0.000, and the significance value is 0.139, which is more than 0.05, making it not significant.

The impact of Loan Loss Provision on Return on Assets is zero and not significant, so the hypothesis is not supported. This is indicated by a beta value of 0.00, meaning a 1% change in Loan Loss Provision results in a no change in Return on Assets. The standard error is 0.000, and the significance value is 0.139, which is more than 0.05, making it insignificant.

The impact of Gross Domestic Product on Return on Assets is positive and not significant, so the hypothesis is not supported. This is indicated by a negative beta value of .006, meaning a 1% change in GDP results in a .006% change in Return on Assets. The standard error is 0.026, and the significance value is 0.815, which is more than 0.05, making it insignificant.

## **4.2 Discussion**

The first objective of research is to explore the current status of credit risk management in Nepalese commercial bank. It is found that the minimum and maximum values, as well as between the mean and both the minimum and maximum values. The result is consistent with the result of Thapa, (2024). Each variable exhibits a high standard deviation. This suggests that the current status of the research variables is highly variable and inconsistent across the commercial banks. The result is consistent with the result of Telg et al., (2023).

The second objective of research is to examine the relationship of credit risk management factors with profitability in Nepalese commercial bank. It is found that the relationship between the Capital Adequacy Ratio and Return on Equity (ROE) is negative and significant. The result is consistent with the result of Lawrence et al., (2024). The relationship between Loans and Advances and ROE is negative but not significant. The result is consistent with the result of Mandagi et al., (2024). The relationship between Nonperforming Loans and ROE is negative and significant. The result is consistent with the result of Natufe and Evbayiro-Osagie, (2023). The relationship between Loan Loss Provisions and ROE is negative and significant. The result is consistent with the result of Veizi and Zhuli, (2023). The relationship between GDP and ROE is positive but not significant. The result is consistent with the result of Mamari et al., (2022). The relationship between the Capital Adequacy Ratio and Return on Assets (ROA) is negative but not significant. The result is consistent with the result of Obae and

Jagongo, (2022). The relationship between Loans and Advances and ROA is negative and significant. The result is consistent with the result of Emmanuel et al., (2021). The relationship between Nonperforming Loans and ROA is negative and significant. The result is consistent with the result of Kulchittivej et al., (2020). The relationship between Loan Loss Provisions and ROA is negative and significant. The result is consistent with the result of Zimon and Dankiewicz, (2020). The relationship between GDP and ROA is positive but not significant. The result is consistent with the result of Jahan and Rahman, (2020).

The third objective of research is to analyze the impact of credit risk management factors with profitability in Nepalese commercial bank. It is found that the impact of the Capital Adequacy Ratio on Return on Equity is negative and significant, confirming the hypothesis. The result is consistent with the result of Shrestha, (2024). The impact of Loans and Advances on Return on Equity is positive but not significant, so the hypothesis is not confirmed. The result is consistent with the result of Olabamiji and Michael, (2018). The impact of Nonperforming Loans on Return on Equity is positive but not significant, thus the hypothesis is not confirmed. The result is consistent with the result of Asant, (2018). The impact of Loan Loss Provision on Return on Equity is negative and significant, confirming the hypothesis. The result is consistent with the result of Chand, (2020). The impact of Gross Domestic Product on Return on Equity is positive but not significant, so the hypothesis is not confirmed. The result is consistent with the result of Gautam, (2021). The impact of the Capital Adequacy Ratio on Return on Assets is negative and significant, supporting the hypothesis. The result is consistent with the result of Aryal, (2022). The impact of Loans and Advances on Return on Assets is negative and not significant, so the hypothesis is not supported. The result is consistent with the result of Jonathan and Michael, (2018). The impact of Nonperforming Loans on Return on Assets is positive and not significant, not supporting the hypothesis. The result is consistent with the result of Nwanna and Oguezue, (2017). The impact of Loan Loss Provision on Return on Assets is zero and not significant, so the hypothesis is not supported. The result is consistent with the result of Thapa, (2024). The impact of Gross Domestic Product on Return on Assets is positive and not significant, so the hypothesis is not supported. The result is consistent with the result of Rimal, (2023).

## CHAPTER- V

### SUMMARY AND CONCLUSION

#### 5.1 Summary

Banking constitutes a pivotal component of a nation's economic advancement, with Nepal Bank Limited (NBL) serving as the pioneer commercial bank in the region. Commercial banks function as the cornerstone of financial institutions, safeguarding deposits from various entities including individuals, governmental bodies, and enterprises. Credit risk, a fundamental aspect of financial evaluation, encapsulates the potential for borrowers to default on their loan commitments or fail to adhere to agreed-upon payment terms. This aspect is a pervasive concern for lenders, investors, and financial institutions, all of whom rely on extending credit or investing in debt instruments. Established credit management policies delineate terms and conditions for extending credit, customer eligibility criteria, procedures for collections, and measures to be taken in case of client insolvency. Irrespective of a company's market share or product demand, prudent credit regulation serves as a marketing tool to enhance sales. The research holds significance for both customers and investors who seek assurance regarding the effective management and utilization of their deposits, thus representing an enlightening pursuit. The anticipated findings are poised to offer valuable insights to individuals, management teams, and practitioners across both banking and non-bank financial sectors. Moreover, these results are expected to have practical implications in academic realms. On the basis of given background the research is conducted on “credit risk and profitability of Nepalese commercial bank”.

The objective of research is to explore the current status of credit risk management in commercial bank of Nepal to examine the relationship of credit risk management factors with profitability in commercial bank of Nepal and to analyze the impact credit risk management factors with profitability in commercial bank of Nepal. To achieve the objective of the research use descriptive and casual comparative research design. The objective are set because of the problem of the research are what is the current status of credit risk management in commercial bank of Nepal? Is there relationship between credit risk management factors with profitability in commercial bank of Nepal? Whether there is any impact credit risk management factors

with profitability in commercial bank of Nepal? The descriptive research design used for objectives one and casual comparative research design for objective two and three. The secondary data with three sample of the commercial bank out of twenty (20) are selected as an availability of data for ten years judgmental sampling. The descriptive statistics, correlation and regression analysis is conducted for the research. The SPSS and excel are the tools for analysis of the data. The finding of study each variables exhibits a high standard deviation. This suggests that the current status of the research variables is highly fluctuating in the commercial banks. The relationship of capital adequacy ratio, nonperforming loan, and loan loss provision to the return on equity is significant. The relationship of loan and advance and gross domestic product to the return on equity are not significant. The relationship of loan and advance, non-performing loan and loan loss provision to the return on assets is significant. The relationship of capital adequacy ratio and gross domestic product not significant to the return on assets. The impact of capital adequacy ratio and loan loss provision impacted to the return on equity is significant. The impact of Loan and advance, Nonperforming Loan and Gross Domestic Product are significant to the return on equity. The impact Capital Adequacy Ratio, Loan and advance, Nonperforming Loan, Loan loss provision and Gross Domestic Product to the return on assets is not significant to the return on assets.

## **5.2 Conclusion**

The first objective of research is to explore the current status of credit risk management in Nepalese commercial bank. It is found that the each variables exhibits a high standard deviation. This suggests that the current status of the research variables is highly fluctuating in the commercial banks. In conclusion the current status of credit risk management in commercial bank of Nepal is fluctuating in nature based on the given data of each variables.

The second objective of research is to examine the relationship of credit risk management factors with profitability in Nepalese commercial bank. It is found that the relationship of capital adequacy ratio, nonperforming loan, and loan loss provision to the return on equity is significant. The relationship of loan and advance and gross domestic product to the return on equity are not significant. The relationship of loan and advance, non-performing loan and loan loss provision to the return on assets is significant. The relationship of capital adequacy ratio and gross domestic product not significant to the return on assets. In conclusion the relationship

of capital adequacy ratio, nonperforming loan, and loan loss provision to the return on equity is significant and other hand the relationship of loan and advance, non-performing loan and loan loss provision to the return on assets is significant.

The third objective of research is to analyze the impact of credit risk management factors with profitability in Nepalese commercial bank. It is found that the impact of capital adequacy ratio and loan loss provision impacted to the return on equity is significant. The impact of Loan and advance, Nonperforming Loan and Gross Domestic Product are significant to the return on equity. The impact Capital Adequacy Ratio, Loan and advance, Nonperforming Loan, Loan loss provision and Gross Domestic Product to the return on assets is not significant to the return on equity. In conclusion the impact of capital adequacy ratio and loan loss provision impacted to the return on equity is significant.

### **5.3 Implications**

Research on the relationship between credit risk and the profitability of commercial banks in Nepal has several important implications for various stakeholders, including banks themselves, regulators, investors, future researcher and policymakers. Here's a detailed analysis of these implications:

Understanding the impact of credit risk on profitability can help banks enhance their risk management frameworks. Effective credit risk management can minimize non-performing loan (NPLs) and loan defaults, thereby protecting and potentially enhancing profitability.

Insights from the research can guide banks in refining their lending policies. By identifying the types of loans that are more likely to default, banks can adjust their credit approval processes and criteria to balance risk and return more effectively.

Better knowledge of the credit risk-profitability relationship allows banks to allocate capital more efficiently. Banks can optimize their capital structure to ensure they have adequate provisions for potential losses while still achieving desired profitability levels.

Banks can design and offer new financial products that cater to varying risk profiles of borrowers, thereby attracting a broader customer base while managing risk appropriately.

Regulators can develop more effective prudential regulations and supervision mechanisms based on the empirical evidence of how credit risk affects bank profitability. This can help in maintaining financial stability in the banking sector.

Understanding the impact of credit risk on profitability can improve the stress testing frameworks used by regulators to assess the resilience of banks under adverse economic conditions.

The research can inform adjustments in capital adequacy requirements to ensure that banks maintain sufficient capital buffers against credit risk exposures.

Investors can make more informed decisions regarding their investments in banking stocks. Knowledge of how credit risk affects profitability can help in assessing the risk-return profile of banks more accurately.

Investors can use the insights to better assess the credit risk management practices of banks, leading to more accurate valuations and investment strategies.

Policymakers can use the research findings to implement policies that promote economic stability. By ensuring that banks maintain healthy profitability without excessive risk-taking, they can foster a more stable financial system.

If the research indicates that lending to small and medium-sized enterprises (SMEs) poses higher credit risks but can be managed effectively, policymakers can design support mechanisms to encourage banks to lend to this vital sector without compromising their profitability.

A stable and profitable banking sector is crucial for economic growth. Banks that manage credit risk well can continue to lend and support business expansion, leading to broader economic benefits.

Future researcher for their academic research reference.

## REFERENCE

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## APPENDIX

### Appendix 1: Data from Annual Report

#### Everest Bank Limited

Rs in million

Year (EB)	Equity	Total Assets	Non-performing loan	Total Loan and advance	Loan loss Provision	Net profit After tax
2023	25371	250090	879	167555	975	3362
2022	22561	225211	1200	155053	1350	2429
2021	20,683	122,645	786	138000	896	1770
2020	18,637	191,162	1254	121000	1386	2,516
2019	17,625	170077	1123	114000	1256	3,054
2018	16,134	144818	456	95239	653	2,581
2017	11,543	116510	197	79924	546	2,118
2016	7348	113885	264	67315	956	1730
2015	6889	99167	367	55422	881	1574
2014	5456	70445	470	48406	878	1549

#### Nepal SBI Bank Limited

Rs in million

Year (SBI)	Equity	Total Assets	Non-performing loan	Total Loan and advance	Loan loss Provision	Net profit After tax
2023	18266	185958	78	122173	987	1,967
2022	17113	153102	72	110675	1015	1,638
2021	15400	137808	68	100312	950	963
2020	14781	132401	64	94662	902	1543
2019	14154	118314	62.7	88494	873	2292
2018	12801	102538	62.8	75767	814	2023
2017	10397	99828	64	96451	727	2392
2016	6920	127619	65	105580	564	2819
2015	4645	118695	74	85778	492	2093
2014	4535	90292	91	90348	434	2331

#### Himalayan Bank

Rs in million

Year (HB)	Equity	Total Assets	Non-performing loan	Total Loan and advance	Loan loss Provision	Net profit After tax
2023	33630	332392	1842	237989	4051	1562
2022	22010	216286	1520	154972	3351	2367
2021	20132	178490	634	132093	1325	2998
2020	17589	155884	1077	106726	1546	2586
2019	15994	133151	1091	97469	1386	2,763
2018	14138	116462	1206	86159	1456	1,875
2017	12328	108063	641	76394	1246	2,281
2016	8822	99863	568	67745	1354	1,935
2015	6958	82801	1721	53476	1951	1,112
2014	6082	73589	887	45320	1128	959

#### Everest Bank Limited

Year(EB)	Equity	Total assets	Net profit after tax	ROA in %	ROE in %	CAR in %
2023	25371	250090	3362	1.344316	13.25135	10.14475
2022	22561	225211	2429	1.078544	10.76637	10.01772
2021	20,683	122,645	1770	1.44319	8.557753	16.86412
2020	18,637	191,162	2,516	1.316161	13.50003	9.749323
2019	17,625	170077	3,054	1.795657	17.32766	10.36295
2018	16,134	144818	2,581	1.782237	15.99727	11.14088
2017	11,543	116510	2,118	1.81787	18.34878	9.907304
2016	7348	113885	1730	1.519076	23.54382	6.452123
2015	6889	99167	1574	1.587222	22.84802	6.946867
2014	5456	70445	1549	2.198879	28.39076	7.745049

#### Nepal SBI Bank Limited

Year(SBI)	Equity	Total assets	Net profit after tax	ROA in %	ROE in %	CAR in %
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2023	18266	185958	1,967	1.057766	10.76864	9.822648
2022	17113	153102	1,638	1.069875	9.571671	11.17752
2021	15400	137808	963	0.698798	6.253247	11.17497
2020	14781	132401	1543	1.165399	10.43908	11.16381
2019	14154	118314	2292	1.937218	16.1933	11.96308
2018	12801	102538	2023	1.972927	15.80345	12.48415
2017	10397	99828	2392	2.396121	23.00664	10.41491
2016	6920	127619	2819	2.208919	40.73699	5.42239
2015	4645	118695	2093	1.763343	45.0592	3.913391
2014	4535	90292	2331	2.581624	51.40022	5.022593

## Himalayan Bank

Year(HB)	Equity	Total assets	Net profit after tax	ROA in %	ROE in %	CAR in %
2023	33630	332392	1562	0.469927	4.644663	10.11757
2022	22010	216286	2367	1.094384	10.7542	10.17634
2021	20132	178490	2998	1.679646	3.149215	11.27906
2020	17589	155884	2586	1.658926	6.123145	11.28339
2019	15994	133151	2,763	2.075088	6.821308	12.01193
2018	14138	116462	1,875	1.609967	8.530202	12.13958
2017	12328	108063	2,281	2.110806	5.199546	11.40816
2016	8822	99863	1,935	1.937655	6.438449	8.834103
2015	6958	82801	1,112	1.342979	24.73412	8.40328
2014	6082	73589	959	1.303184	14.58402	8.264822

## Appendix 2: Result from SPSS Calculations

## Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Equity	30	3.15	51.40	16.4248	11.96931
Return on Assets	30	.47	2.58	1.6006	.49298
Capital Adequacy Ratio	30	3.91	16.86	9.8603	2.57998
Loan and advance	30	45320.00	237989.00	102349.9000	40443.26027
Nonperforming Loan	30	62.70	1842.00	629.4833	553.69156
Loan loss provision	30	434.00	4051.00	1210.9667	765.19393
Gross Domestic Product	30	-2.37	8.98	4.3790	3.24324
Valid N (listwise)	30				

## Correlations

		Return on Equity	Return on Assets	Capital Adequacy Ratio	Loan and advance	Nonperforming Loan	Loan loss provision	Gross Domestic Product
Return on Equity	Pearson Correlation	1	.522**	-.775**	-.344	-.381*	-.436*	.113
	Sig. (2-tailed)		.003	.000	.063	.038	.016	.550
	N	30	30	30	30	30	30	30
Return Assets	Pearson Correlation	.522**	1	-.230	-.527**	-.387*	-.551**	.063
	Sig. (2-tailed)	.003		.222	.003	.035	.002	.741
	N	30	30	30	30	30	30	30
Capital Adequacy Ratio	Pearson Correlation	-.775**	-.230	1	.293	.203	.164	-.126
	Sig. (2-tailed)	.000	.222		.115	.283	.387	.509
	N	30	30	30	30	30	30	30
Loan and advance	Pearson Correlation	-.344	-.527**	.293	1	.431*	.602**	-.112
	Sig. (2-tailed)	.063	.003	.115		.018	.000	.555
	N	30	30	30	30	30	30	30
Nonperforming Loan	Pearson Correlation	-.381*	-.387*	.203	.431*	1	.785**	.185
	Sig. (2-tailed)	.038	.035	.283	.018		.000	.327
	N	30	30	30	30	30	30	30
Loan loss provision	Pearson Correlation	-.436*	-.551**	.164	.602**	.785**	1	.078
	Sig. (2-tailed)	.016	.002	.387	.000	.000		.681
	N	30	30	30	30	30	30	30
Gross Domestic Product	Pearson Correlation	.113	.063	-.126	-.112	.185	.078	1
	Sig. (2-tailed)	.550	.741	.509	.555	.327	.681	
	N	30	30	30	30	30	30	30

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

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

## Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842 <sup>a</sup>	.709	.649	7.09326

a. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2947.122	5	589.424	11.715	.000 <sup>b</sup>
	Residual	1207.543	24	50.314		
	Total	4154.665	29			

a. Dependent Variable: Return on Equity

b. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53.250	6.248		8.523	.000
	Capital Adequacy Ratio	-3.436	.544	-.741	-6.310	.000
	Loan and advance	3.447E-5	.000	.116	.803	.430
	Nonperforming Loan	.001	.004	.038	.205	.839
	Loan loss provision	-.007	.003	-.420	-2.066	.050
	Gross Domestic Product	.219	.427	.059	.514	.612

a. Dependent Variable: Return on Equity

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613 <sup>a</sup>	.376	.246	.42800

a. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

#### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.652	5	.530	2.895	.035 <sup>b</sup>
	Residual	4.396	24	.183		
	Total	7.048	29			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), Gross Domestic Product , Loan loss provision , Capital Adequacy Ratio, Loan and advance , Nonperforming Loan

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.377	.377		6.306	.000
	Capital Adequacy Ratio	-.018	.033	-.092	-.537	.596
	Loan and advance	-3.19	.000	-.262	-1.234	.229
	Nonperforming Loan	8.41	.000	.095	.350	.729
	Loan loss provision	.000	.000	-.456	-1.531	.139
	Gross Domestic Product	.006	.026	.040	.236	.815

a. Dependent Variable: Return on Assets

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ABSTRACT

**The objective of** research **is to** explore **the** current status **of credit risk management** in development bank **of**