

IMPACT OF CREDIT RISK ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL

**A Dissertation submitted to the Office of the Dean, Faculty of
Management in Partial fulfillment of the requirements for the Master's
Degree**

by

Krishna Pudasaini

Campus Roll No: 483/073

Exam Roll No: 2485/017

Registration No: 7-2-754-53-2010

Shanker Dev Campus

Kathmandu, Nepal

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitle **IMPACT OF CREDIT RISK ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degree's it has been proposed and presented as part of requirements for any other academic purposes.

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

.....
Krishna Pudasaini

Campus Roll No: 483/073

Exam Roll No: 2485/017

Registration No: 7-2-754-53-2010

Shanker Dev Campus

REPORT OF RESEARCH COMMITTEE

Mr. Krishna Pudasaini has defended research proposal entitled **IMPACT OF CREDIT RISK ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Dr. Kapil Khanal and submit the thesis for evaluation and viva voce examination.

Dr. Kapil Khanal

Dissertation Supervisor

Supervisor Signature.....

Dissertation Proposal Defended Date:

Dissertation Submitted Date:

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Head of Research Department

Signature.....

Dissertation Viva Voce Date:

APPROVAL SHEET

We have examined the dissertation entitled IMPACT OF CREDIT RISK ON PROFITABILITY OF COMMERCIAL BANKS IN NEPAL presented by Krishna Pudasaini for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of Degree.

Supervisor Signature.....

Dr. Kapil Khanal

Signature.....

Internal Examiner

External Examiner Signature.....

Signature

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Chairperson, Research Committee

Signature

Asso. Prof. Krishna Prasad Acharya

Campus Chief

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Shanker Dev Campus

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ABBREVIATIONS

C.V	Coefficient of Variation
CAR	Capital Adequacy Ratio
DPR	Dividend Payout Ratio
DPS	Dividend Per Share
DY	Dividend Yield
EBL	Everest Bank Limited
EPS	Earning Per Share
LA	Loan and Advance
LLP	Loan Loss Provision
LQD	Liquidity
M.S.S	Mean Sum of Square
MPS	Market Price Per Share
NABIL	Nabil Bank Limited
NEPSE	Nepal Stock Exchange
NP	Net Profit
NPL	Non-Performing Loan
P.E	Probable Error
P/E	Price Earning Ratio
ROA	Return on Assets
ROE	Return of Equity
S.D	Standard Deviation
S.E.E	Standard Error of Estimate
SCBNL	Standard Chartered Bank Limited
T.S.S	Total Sum of Square
T.U	Tribhuvan University

ABSTRACTS

Finding out how credit risk management affects Nepali commercial banks is the study's primary goal. Three commercial banks, out of which twenty were active in the Nepali economy, are used as the sample for the study. The World Bank's database on macroeconomic indicators for the years 2013/14 to 2021/22 and Nepal Rastra Bank's database on bank-specific variables provided all of the study's data. The impact of credit risk on Nepalese commercial banks' performance has been investigated in this study. For this study, the descriptive and causal comparative research designs have been used. The regression model has been used to analyse the combined data from three commercial banks. The findings of the regression analysis showed that while "cost per loan assets" has a favourable impact on bank performance, "non-performing loan ratio" has a negative impact. Bank performance is positively impacted by bank size in addition to credit risk indicators. Cash reserves and the capital adequacy ratio are not thought to have an impact on a bank's performance. The study's findings indicate a strong correlation between credit risk indicators and bank performance. Similar to this, in order to detect credit risk in Nepali commercial banks, the impacts of macroeconomic factors including GDP growth, the rate of inflation, and the interbank interest rate were also looked at in addition to bank-specific data. According to the study, liquidity significantly reduces credit risk in Nepali commercial banks. On the other hand, interest spread and the capital adequacy ratio significantly lower credit risk.

Key Words: Credit Risk, Liquidity, NPL, ROA, ROE, CAR, LLP, LOD

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The danger of loss incurred by an investor when a borrower defaults on a loan is known as credit risk. We call this kind of event a default. Default risk is another phrase for credit risk. Losses to investors can take many forms, but they often consist of principle and interest lost as well as reduced cash flow and higher collection expenses. As a result, banks and other financial organisations devote all of their effort to credit risk management. When a proposal is presented, the bank considers all of its pros and cons before deciding whether or not to take on or maintain credit risks. Determining the customer's capacity to pay his debts to the Bank (as well as other lenders and creditors) when they become due is the goal of the credit risk assessment process. A bank is a type of financial organisation that serves as both a vital tool for quickening the expansion and development of the economy as a whole and a financial middleman, providing its customers with comprehensive financial solutions. A commercial bank takes deposits and pools that money to lend directly or indirectly by making investments in the capital markets. These institutions transfer funds from those who have surplus funds to invest (financial assets) to those who borrow funds to invest, thereby connecting market participants with capital deficits (borrowers) to market participants with capital surpluses (investors and lenders) within the global financial markets. A bank therefore makes a significant contribution to the growth of commerce and industry.

They serve as the foundation for the facilitation of any financial services necessary for the successful execution and running of business and commerce. This thus results in a positive trade balance, an increase in exports, a greater gross domestic product, and eventually a rise in the inhabitants' per capita income (Fedric & Stanley, 2021).

For banks, creating credit is their primary source of revenue. However, this activity carries a great deal of danger for the borrower and the lender. The possibility that a trade partner won't perform as agreed upon by the deadline or at any point subsequently poses a serious danger to the efficient operation of a bank's operations. Conversely, a bank with a high credit risk also has a high bankruptcy risk, endangering its depositors. The

majority of bank authorities and banking regulators are quite concerned about credit risk among the risks that banks confront. This is due to the fact that credit risk carries a high likelihood of quickly causing bank collapse (Achou & Tenguh, 2018).

Risk assessment in an investment is known as credit risk management. Risk is frequently associated with capital allocation and investment. To make wise investment decisions, the risks must be evaluated, and judgements should be taken by weighing the benefits and risks. Banks run some risk when they grant loans, and there may be additional hazards when they sell stocks and other financial products. One type of risk that has to be anticipated is the possibility of losses leading to the debtors' failure to make payments. Maintaining a significant level of capital is crucial for banks in order to safeguard their solvency and uphold economic stability. Credit risk management is therefore necessary to assist banks in complying with the Basel II Accord and other regulatory bodies. The higher the bank's exposure to risks, the more capital it has to have in reserves to preserve its solvency and stability. In the banking industry, credit risk management is an essential step in the loan application process. The chance that an Obligor may fail to fulfil the terms of a contract with a bank or to perform as agreed upon in general is known as credit risk. This risk can affect profits or capital both now and in the future. When principle and interest payments are made on schedule and in compliance with the terms of the agreement, the credit facility is said to be operating effectively. The banks view the non-performing loans (NPL) as potential losses of cash as a result of loan defaults. Bank credit in the lost category makes it more difficult for the bank to meet its goals (Kolapo, 2021).

It is discovered that the majority of Nepalese commercial banks grant loans without doing thorough examinations. Increased loan defaults and non-performing loans might result from this. As a result, Nepal's current financial and economic difficulties cannot be met by the credit risk management practices now in place. It is necessary to look at the banks' viability of this credit risk management investment. Using a robust sample, this study examines the relationship between credit risk and banks' financial performance. The results will form the basis for policy recommendations that will help different authorities address the impact of credit risk and improve the quality of banks' risky assets (NRB economic review 2022).

Measures of profitability such as Return on Equity (ROE) and Return on Asset (ROA) have been widely utilised. ROA is a measure of how well a bank manages its assets to produce revenue. The revenue generated by each unit of asset, or ROA, is often stated as a percentage. The issue with ROA is that it undervalues assets by excluding out-of-balance sheet items (such as assets obtained via leasing) from the total assets calculation. The Return on Equity (ROE), a different metric for profitability, is calculated by dividing net income by equity. Even while they may have good ROEs, institutions with significant financial leverage may also be more risky.

1.2 Profile of Banks

Everest Bank Limited

Catering to more than 10 lacs customers, Everest Bank Limited (EBL) is a name you can depend on for professionalized & efficient banking services. Founded in 1994, the Bank has been one of the leading banks of the country and has been catering its services to various segments of the society. With clients from all walks of life, the Bank has helped the nation to develop corporately, agriculturally & industrially. Punjab National Bank (PNB), our joint venture partner (holding 20% equity) is one of the largest nationalized banks in India having presence virtually in all important centres. Everest Bank Limited (EBL) provides customer-friendly services through its wide Network connected through ABBS system, which enables customers for operational transactions from any branches. The bank has 102 Branches, 132 ATM Counters, 31 Revenue Collection Counters and 3 Extension Counters across the country making it a very efficient and accessible bank for its customers, anytime, anywhere (<http://www.everestbankltd.com>).

Global IME Bank Limited

Global IME Bank Ltd. (GIBL) emerged after successful merger of Global Bank Ltd (an “A” class commercial bank), IME Financial Institution (a “C” class finance company) and Lord Buddha Finance Ltd. (a “C” class finance company) in year 2012. Two more “B” class development banks (Social Development Bank and Gulmi Bikas Bank) merged with Global IME Bank Ltd in year 2013. Later, in the year 2014, Global IME Bank made another merger with Commerz and Trust Bank Nepal Ltd. (an “A” class commercial bank). During 2015-16, Global IME Bank Limited acquired Pacific Development Bank Limited (a "B" Class Development Bank) and Reliable Development Bank Limited (a "B" Class Development Bank). During 2019-20, Global IME Bank Limited acquired

Hathway Finance Limited (a “C” class finance company), merged with Janata Bank Nepal Limited (an “A” class commercial bank) in year 2019 and merged with Bank of Kathmandu on January 9, 2023 to become the biggest bank in Nepal. Global Bank Limited (GBL) was established in 2007 as an ‘A’ class commercial bank in Nepal which provided entire commercial banking services. The bank was established with the largest capital base at the time with paid up capital of NPR 1.0 billion. The paid-up capital of the bank has since been increased to NPR 35.77 billion. The bank's shares are publicly traded as an 'A' category company in the Nepal Stock Exchange. It is in line with the aim of the bank to be “The Bank for All” by giving necessary impetus to the economy through world class banking service.

For the day to day operations, the bank has been using the world renowned FINACLE software that provides real time access to customer database across all branches and corporate locations of the bank. This state of the art customer database has also been linked to a Management Information System that provides easy reach to all possible database information for balanced and informed decision making. A disaster recovery system (DRS) of the Bank has also been established in the Western Region of Nepal (200 kms west of Kathmandu). The bank has been able to achieve excellent diversification of its assets. A well balanced distribution of exposure in areas of national interest has been possible through long term forecasting and timely strategic planning.

NIC Asia Bank Limited

NIC ASIA Bank has its antecedents in NIC Bank which was established on 21st July 1998. The Bank was rechristened as NIC ASIA Bank after the merger of NIC Bank with Bank of Asia Nepal on 30th June 2013. This was a historic merger in the annals of the Nepalese financial landscape as the first of its kind merger between two successful commercial banks in the country. Today, NIC ASIA has established itself as one of the most successful commercial banks in Nepal. During the post-merger integration phase, NIC ASIA managed the transition very smoothly receiving accolades from the regulators as well as the stakeholders, paving the way for other mergers and consolidation in the Nepalese financial sector. After the merger, NIC ASIA was recognized as “Bank of the Year 2013-Nepal” by The Banker, Financial Times, UK. This is the second time that the Bank was recognized with this prestigious award, the previous occasion being in 2007.

1.2 Statement of the Problems

The relationship between capital sufficiency, bank financial performance, and credit risk management has been discussed and contested. Numerous studies, including one by Li Yuqi (2018), have been conducted on this subject and have yielded varying conclusions. While some have found a positive relationship between credit risk management and banks' financial performance, others have found a negative relationship, and still others have suggested that banks' performance is also impacted by factors other than credit risk management.

Among the several risks that banks face, credit risk has a significant impact on their profitability since loans, which generate interest, account for a significant portion of their income.

On the other hand, interest rate risk and credit risk are strongly related, suggesting that a high or rising interest rate raises the likelihood of a loan default. Interest rate risk and credit risk are inextricably linked and interdependent. A growing percentage of non-performing loans in the credit portfolio hinders banks' ability to meet their goals. The percentage of loan values that are not serviced for more than three months is known as non-performing loans (Ahmad & Ariff, 2018).

Since credit risk is a crucial component of the loan application process, banks place a high value on credit risk management. By retaining credit risk exposure with the intention of protecting the bank from the negative consequences of credit risk, it optimises bank risk and adjusted risk rate of return. Ogboi, Charles, Unuafe, and Kenneth (2015) demonstrated how higher capital requirements and good credit risk management techniques may increase bank profitability. According to the study, it is crucial to declare that the strategy of lowering non-performing loans or making provisions for loan loss has never been deceptive. This implies that if banks manage loan loss and non-performing loan provisions well, they will have a greater chance of being profitable.

Low credit standards for counterparties and borrowers, inadequate portfolio management, and inattention to shifts in the economy or other factors that may impair the credit standing of banks' counter parties continue to be the main contributors to major banking issues.

Furthermore, it is evident that banks employ significant leverage in order to make a respectable profit. In order to give a framework for understanding how credit risk management affects banks' profitability, credit risk management aims to maximise a bank's risk-adjusted rate of return by keeping credit risk exposure within allowable bounds. Samuel (2012) The two main factors that lead to bank failures are inadequate liquidity and poor asset quality, which are also the main sources of credit and liquidity risk that should be considered when analysing the effects of these factors on bank profitability. Credit risk management is a significant predictor of banks' financial performance, according to the study. According to this study, the regulatory framework in which banks operate has a significant influence on the impact's degree. The result's most intriguing feature is the strong and positive correlation between capital sufficiency and banks' financial success. Liyugi (2015) discovered a negative correlation between banks' performance and credit risk and liquidity. One measure of credit risk is the number of non-performing loans (NPLs). Higher NPLs generate more risk, which lowers bank performance. It is also discovered that NPLs have a noticeable impact on some banks' profitability because they shift the cost of loan default to other customers.

Nair and Fissaha (2015) also found that commercial banks had significant rates of non-performing loans, and they highlighted the threat these posed to the sector. The results also demonstrated that the ratio of non-performing loans to total loans (NPL/TL) of financial institutions was inversely correlated with return on equity and return on asset, both of which indicate profitability. This reduces profitability. According to an analysis, credit risk ratios significantly affected the banks' operating efficiency. This meant that, in an effort to reduce credit risk, banks should make sure that shareholder-management conflicts were kept to a minimum. In addition, the management of the banks' credit risk affairs should be handled by professionals with experience and superior qualifications.

However, the study also shown that operating efficiency was unaffected by capital sufficiency indicators alone. This suggests that banks may increase their operational efficiency without focusing on capital sufficiency. According to the study, capital sufficiency had the least bearing on the differences between the two banks' operational performance (Odunga 2015). While an increase in total loans and advances increases profitability, an increase in loan loss provision reduces profitability. The return on assets of banks serves as a cross-sectional invariant indicator of the impact of credit risk on bank performance. That is, the influence is not determined by the characteristics or

management style of specific enterprises. According to Funso et al. (2014), the loan and advances ratio (LA) coefficient has the most beneficial impact on bank profitability.

One important metric for assessing the soundness of banks and other financial organisations is the capital adequacy ratio. The term "capital adequacy" describes the level of equity that is adequate to cushion the bank against potential shocks. Commercial banks operating in Nepal are required to retain a minimum of 6% of Tier-1 capital and 10% of total capital (Tier 1 and Tier 2), or core and supplemental capital, respectively. Paid-up capital, share premium, non-redeemable preference shares, combined profit, capital redemption reserve, capital adjustment fund, and other free reserves make up Tier 1 capital. The general loan loss provision, assets revaluation reserve, hybrid capital instruments, exchange equalisation reserve, excess loan loss provision, subordinated term loan, and investment adjustment reserve are all included in the Tier 2 capital. The banks' risk-weighted exposures serve as the basis for these minimum capital adequacy criteria (Etzet, 2010).

One of the elements influencing a bank's health is credit risk, and an asset quality study considers how likely it is that borrowers will repay their loans. The calibre of an individual bank's holdings determines how much credit risk it carries. A bank's asset quality is influenced by its exposure to certain risks, patterns of non-performing loans, and the well-being and financial success of its customers. The two main reasons why banks fail are inadequate levels of liquidity and poor asset quality. In Kenya in the early 1980s, a number of bank failures were caused by poor asset quality (Olweny & Shipo, 2013).

The net nonperforming loan to total loan ratio, which is primarily the nonperforming loan to total loan ratio, is used as a gauge of the calibre of the commercial banks' assets. (Baral, 2005) For a sound bank, the maximum allowable NPL is five percent. The future of the bank is largely dependent on the calibre of its management. A bank's management oversees the quality of loans, keeps an eye on overall operations, and makes sure the bank is profitable.

Even though the aforementioned research exist, Nepal does not currently have any similar studies that use more recent data. Thus, in the context of Nepalese banks, this paper addresses the following issues:

- a) What is the impact of credit risk management on the profitability position of sample banks?
- b) What is the relationship between credit risk and profitability position of sample banks?
- c) What is the structure and pattern of profitability position (Return on Assets and Return on Equity) and determinants (Capital Adequacy Ratio, Non-performing Loan, Loan Loss Provision, Liquid Assets Ratio and Credit Deposit Ratio) of Nepalese sample commercial banks?

1.3 Objectives of the Study

The major objective of this study is to analyse the effect of credit risk management and capital adequacy on performance of commercial banks in Nepal. However, the specific objectives are as follows:

- a) To analyze the effect of credit risk management on the profitability position of sampled banks.
- b) To examine the relationship between credit risk and profitability position of sampled banks.
- c) To analyse the structure and pattern of profitability position (Return on Assets and Return on Equity) and determinants (Capital Adequacy Ratio, Non-performing Loan, Loan Loss Provision, Liquid Assets Ratio and Credit Deposit Ratio) of Nepalese sample commercial banks.

1.4 Research Hypothesis

In this study following hypothesis has been set.

H1: There is significant and negative relationship between non-performing loan and bank's financial performance.

H2: There is significant and negative relationship between loan loss provision and financial performance of sample banks.

H3: There is significant and positive relationship between loan and advance with financial performance of sample banks.

H4: There is significant and negative relationship between liquidity and bank's performance.

H5: There is significant and positive relationship between capital adequacy ratio and bank's performance.

1.5 Rationale of the Study

Several variables influence the success of commercial banks in the modern world. However, the study's main goal is to determine how credit risk management and capital sufficiency affect the bank's total profitability. Capital is necessary to finance the assets and safeguard the short- and long-term creditors who provide the funds to the company. The nation's financial system's health is crucial as its collapse might impede the growth of its economy (Das & Ghosh, 2008). Financial performance is measured by net income and cash from operations and represents a company's capacity to create new resources from its regular operations over a certain period of time. Comparably, capital adequacy, which is a gauge of a financial institution's stability and strength, is expressed as a percentage of the institution's assets divided by its main capital. A ratio that can show whether or not a bank can continue to keep equity capital high enough to pay depositors when they make requests and yet have enough money to lend to grow the bank's assets.

1.6 Limitation of Study

For the completion of this study, some facts are to be considered as the limitations which are presented as below:

- This study is based on secondary data taken from annual report of sample banks, the calculation and conclusion of the study will fully depend on the accuracy and reliability of data collected from various sources and concerns organization.
- Among the 20 commercial banks (www.nrb.com.np, July, 2023,) only three commercial banks are taken as sample for this study.
- The whole study is based on data of ten-year period i.e. the fiscal year from 2012/13 to 2021/22.
- Only limited financial and statistical tools are used for analysis.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

The conceptual foundation for the study is presented in this chapter, which also reviews empirical research that has been done in the past in the context of both developed and developing nations about the effect of credit risk management on bank performance. There are three sections in this chapter. An extensive assessment of relevant works in the context of established and emerging economies is presented in the first section. The reviews are arranged chronologically. A brief summary of empirical research carried out in Nepal is also covered in this section. The research's conceptual framework, which is highlighted in the third part, aids in comprehending the relationships between the variables as well as aids in identifying the variables used for the study.

2.2 Theoretical review

2.2.1 Concept of Credit Risk

Credit risk is the possibility that an issuer of financial instruments or a debtor would be unable or unwilling to return the principle amount or interest as stipulated in a credit arrangement, which could cause the bank to suffer a financial loss. Credit risk is also the possibility that a borrower's failure to meet its commitments to the bank might have a negative impact on the bank's capital and financial performance (NRB Risk Management Guidelines, 2022).

The main risk to which banks are exposed in the regular process of lending and credit underwriting is credit risk. Credit risk results from a borrower's non-performance. The biggest and most visible source of credit risk for the majority of banks is loans; yet, credit risk can also come from operations that take place off the balance sheet.

It might result from either a reluctance or an incapacity to carry out the pre-agreed, contracted tasks. Losses from outright default in a bank's portfolio occur when a client or counterparty is unable or unwilling to fulfil obligations related to lending, trading, settlement, and other financial activities. On the other hand, losses might arise from a decline in the value of the portfolio as a result of real or perceived declines in credit quality (NRB Risk Management Guidelines, 2010).

2.1.2 Concept of Credit Risk Management

The simplest way to explain credit risk is the possibility that a counterparty or bank borrower won't fulfil its responsibilities according to the conditions that were agreed upon. By keeping credit risk exposure within reasonable bounds, credit risk management seeks to optimise a bank's risk-adjusted rate of return. Banks have to control both the risk associated with individual credits or transactions and the credit risk present in the overall portfolio. The correlations between credit risk and other hazards should be taken into account by banks. Any financial organization's long-term performance depends on its ability to manage credit risk effectively, which is a crucial part of a holistic approach to risk management (Crosse, 2015).

A growing number of financial instruments, aside from loans, that banks must deal with include acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and the extension of commitments and guarantees as well as transaction settlements expose them to credit risk (also known as counterparty risk) (Santomero, 2022). It is essential to guarantee counterparty reliability while managing credit risk. By entering into standard agreements and utilising only reputable clearing hubs, the Group reduces the risk of settlement. There are written policies in place that control how collateral is used, evaluated, and what proportion of each sort of collateral is valued. Regular monitoring is conducted to track changes in collateral values. For example, when collateral has changed dramatically or the customer's financial situation has deteriorated significantly, the value of the collateral is reevaluated. The Group exercises special care in assessing the value of collateral deemed as cyclical in nature, and its usability (Santomero, 2022).

Credit risk policy

In order to ensure a sufficiently diversified loan portfolio and prevent excessive risk concentrations by country, customer sector, industry, credit rating, group of connected clients, or time period, the risk policy and supplementary guidelines define principles governing the composition, diversification, and customer selection with respect to total exposure, as well as the use of collateral and covenants (Santomero, 2022). The exposure limit, which is a ceiling on customer-specific exposure and uncovered exposure valued in euros, is validated yearly for corporate, institutional, and credit

institution clients at least, whose actual or anticipated exposure above EUR 5 million. Limits on product or maturity may also be part of an exposure limit. The country limit is a cap on receivables from a certain nation expressed in euros. Pohjola Bank plc's risk-bearing ability and the credit rating of each nation are taken into consideration when defining the country limit and any associated period limitation. This ensures that the authorised business principles are supported. At least once a year, country restrictions are evaluated (Santomero, 2022).

Credit process

A key component of credit risk management is the daily credit procedure. The evaluation of credit standing (credit rating), credit approval, and credit execution are crucial phases in risk management, and they are all independent procedures. The flow and quality of the credit process are overseen by risk management.

2.1.3 Types of Risk Faced by Commercial Banks

Financial institutions like banks are subject to a variety of dangers. Basell 2017 states that credit risk, operational risk, market risk, credit concentration risk, liquidity risk, and other risk are the main types of risks to which banks and other financial institutions are subject. One of the main risks is credit risk, which requires extensive study and research. The many risks are enumerated and examined below.

A. Credit Risk

The danger of loss incurred by an investor when a borrower defaults on a loan is known as credit risk. We call this kind of event a default. Default risk is another phrase for credit risk. Losses to investors can take many forms, but they often consist of principle and interest lost as well as reduced cash flow and higher collection expenses. The main risk to which banks are exposed in the regular process of lending and credit underwriting is credit risk. Put another way, credit risk is the possibility that interest and principal on loans to customers won't be paid. Generally speaking, risk is the difference between the researcher's expectations and what actually occurs.

Customers of banks and other financial institutions are given credit facilities (loans and advances) in exchange for interest that is accumulated. Banks and other financial institutions offer advances and loans to various borrowers who are willing to take

measured risks. In relation to it, the borrower defaults occasionally when the calculated risk fails. The researcher refers to this as credit risk (Chatterjee, 2018).

B. Market Risk

The danger of losses in both off-balance sheet and on-balance sheet positions as a result of unfavourable changes in market pricing is known as market risk. The possibility that an investor would lose money on a daily basis as a result of price changes for assets. Diversification cannot eliminate this risk.

C. Liquidity Risk

Liquidity risk is the danger resulting from an investment's lack of marketability, which makes it difficult to buy or sell it quickly enough to stop or lessen a loss. Liquidity risk in finance refers to the possibility that a particular security or asset will not be able to be exchanged rapidly enough in the market to avoid a loss (or turn a profit). Situations when a party interested in trading an asset is unable to do so because no one in the market wants to trade that asset give rise to liquidity risk. Because it impacts their capacity to trade, liquidity risk becomes especially significant for parties that are planning to hold or already own an asset (Chatterjee, 2018).

D. Interest Rate Risk

The possibility that an investment's value may fluctuate as a result of changes in interest rates' absolute value, spread between two rates, yield curve shape, or any other interest rate connection. These shifts often have an adverse effect on securities, which can be mitigated by hedging (such as by using an interest rate swap) or diversifying (purchasing fixed-income assets with varying maturities). Bondholders have a significant risk due to interest rate risk, which has a more direct impact on bond value than stock market fluctuations. Bond prices decrease as interest rates rise and vice versa. The argument is that as interest rates rise, investors may realise better returns by switching to other investments that reflect the higher interest rate, hence keeping a bond has less opportunity cost (Chatterjee, 2018).

E. Foreign Exchange Risk

This risk is the possibility that fluctuations in currency exchange rates will affect the value of an investment. "Currency risk" or "exchange-rate risk" refers to the possibility

that an investor may have to liquidate a long or short position in a foreign currency at a loss as a result of an unfavourable shift in exchange rates. Businesses that import and/or export are often impacted by this risk, but investors who make foreign investments may also be affected. For instance, if money needs to be exchanged for another currency in order to make a certain investment, then fluctuations in the currency exchange rate will result in a change in the investment's value when it is sold and converted back (Chatterjee, 2018).

F. Operational Risk

Operational risk is the possibility of suffering a loss as a result of external occurrences or insufficient or unsuccessful internal systems, people, or processes. Inadequate protocols and controls, human mistake, and system malfunctions are all linked to operational risk. It is the risk of loss resulting from the possibility that insufficient information systems, technological malfunctions, fraud, breaches in internal controls, unanticipated disasters, or other operational issues might cause unforeseen losses or damage to one's reputation. There is operational risk associated with every product and company activity.

The following categories of operational risk events have the potential to cause significant losses: clients, products, and business practices; external and internal fraud; employment practices and workplace safety; system failures and business disruption; physical asset damage; and, lastly, execution, delivery, and process management. The goal of operational risk management is the same as that of credit, market, and liquidity risks: to determine the extent of operational risk exposure for the financial institution; to comprehend the factors that influence it; to allocate capital against it; and to recognise trends both internally and externally that could aid in its prediction. Operational risk is present in almost all banking transactions and operations, and if it is not understood and managed, there is a significant chance that certain hazards will remain unidentified and uncontrolled (Basel 2007).

G. Strategic Risk

Even while "other" risks like representational and strategic risk are difficult to quantify, banks are nonetheless obligated to take them into account when determining the appropriate level of capital (Basel 2007).

2.1.4 NRB Directives of Credit Risk

Unified Directive 2074 Related to Credit Risk

The NRB's Unified Directive 2074 has a significant effect on all commercial banks and financial organisations. Every bank is brought up to speed and compliant with its regulations thanks to this one mandate. This directive, which has shown to be an efficient control mechanism for overall regulation, aims to regularise prudential regulation on all banks and financial institutions. The directives pertaining to credit are briefly addressed below:

Directive No. 1-Capital Adequacy Ratio (Basel Implementation)

Maintaining adequate capital funds or shareholder equity to undertake investments in risk-weighted exposure or assets is known as capital adequacy. Banks and other financial institutions classified as "A," "B," "C," and "D" are required to retain a specific proportion of their total risk-weighted exposure as capital. This is a result of the Basel. It is among the NRB's most useful instruments for reducing and vetting risk. On the other hand, the total risk weighted asset, which has been evaluated from 0% risk to 150% risk, comprises both on and off balance sheet assets. The capital adequacy ratio is calculated mathematically by dividing the total capital fund by the weighted total exposure to risk.

Table 2.1

Capital Fund Requirement

Institution	Minimum Capital Reserve as per Risk Weighted Exposure	
	Primary Capital	Supplementary Capital
"A" class	6%	10%
"B" & "C" Class	5.5%	11%
"D" Class	4%	8%

(Source: NRB Directive 2019)

A. Primary or Core Capital (Tier 1)

Let's start by talking about what a capital fund actually is and what it consists of. The whole amount of capital contributed by equity owners, including additional long-term capitals, reserves, etc., is known as the capital fund. The capital fund is made up of the total of two different kinds of capital, which include:

Tier 1 (core) capital, which consists of stated reserves and equity capital, is the essential component of capital that should receive the most attention. The majority of market assessments of capital sufficiency are based on this essential component of capital, which is also very relevant to profit margins and a bank's competitiveness. As a result, the BCBS has determined that capital should be defined in two stages for supervisory purposes. This will have the effect of requiring a minimum of 50% of a bank's capital base to be made up of a core element made up of equity capital and published reserves from post-tax retained earnings. In order to rank as Tier 1, capital must be fully paid up, have no fixed servicing or dividend costs attached to it and be freely available to absorb losses ahead of general creditors. Capital also needs to have a very high degree of permanence if it is to be treated as Tier 1. It can be listed out as below:

B. Supplementary Capital (Tier 2)

Reserves that have been passed through the profit and loss account but remain unpublished, together with all other capital instruments that are suitable and qualified for capital purposes, are included in the Supplementary (Tier 2) Capital. Up to 100% of the Tier 1 capital that was determined, following the modifications mentioned in 2.4, components of the Tier 2 capital shall be considered capital funds. When a bank has negative Tier 1 capital, its Tier 2 capital is deemed to be zero for regulatory reasons. As a result, the capital fund is equal to the core capital in these situations.

B. Risk Weighted Exposure

Depending on the kind of borrower, every loan granted by banks and other financial organisations has a certain amount of risk. Thus, the type of loan determines how the borrowers are categorised and weighted. Therefore, the total risk weighted exposure is the entire loan that has been given a certain weight of risk.

Directive No. 2-Classification of Loans and Advances and Loan Loss Provision

Every Loan is unique. As a result, the due date determines how loans and advances are categorised. When a borrower doesn't fulfil his responsibility to pay banks and other financial institutions, there is a period of time known as the due period. This refers to a borrower who has not made their required payments for more than three months. The fundamental reasoning behind this is to set aside a certain proportion of the total amount owed in the event that the borrower defaults on their commitments.

1. Classification of Loans and Advances:

a. Pass Loan

This category includes all loans and advances whose principle and interest payments are regular, that is, not past due or past due but less than ninety days. A 1% provision on the outstanding balance of loans and advances is required for this category.

b. Substandard Loan

Loans and Advances whose either principal or interest payment is due for more than 3 months but has not crossed 6 months falls under this category. This category requires 25% provision on outstanding balance of loans and advances.

c. Doubtful Loan

Loans and Advances whose either principal or interest payment is due for more than 6 months but has not crossed 1 year falls under this category. This category requires 50% provision on outstanding balance of loans and advances.

d. Bad Loan

Loans and Advances whose either principal or interest payment is due for more than 1 Year falls under this category. This category requires 100% provision on outstanding balance of loans and advances.

- Pass Loans and advances are called Performing loans whereas Substandard, Doubtful and Bad loans are called non-performing loans and advances.

2. Additional arrangement for Pass Loan

I. Following Loans and advances can be considered as Pass Loan

- a. Loans and advances that are fully secured by bullions (Gold, Silver).

- b. Loans and advances that are fully secured by Fixed Deposit Receipt.
- c. Loans and advances that are secured by government securities or NRB issued Bonds.

But, if the government securities and NRB issued Bonds are pledged as secondary collateral those loans and advances must be provisioned on the basis of ageing as shown above 1

II. Working Capital Loans having maturity of one year can be classified under pass category if renewed. If interest is due on those loans then it must be categorized on the basis of due days of interest.

3. Additional arrangement for Bad Loan

Even if the loan is not past due, loans and advances showing following characteristics are considered as Bad Loan

- a. Market value of collateral insufficient to cover loan amount.
- b. Declared Bankrupt of Borrower.
- c. Borrower missing or absconding
- d. Non-funded facilities including bills purchased converted into funded facilities but not yet recovered within 90 days.
- e. Misuse of Loans
- f. If Non recovery of loan succeeded by auction process exceeds 6 months or recovery of loans under litigation process.
- g. Loans and advances extended to Black listed borrowers.
- h. Project and business under threat of operation.
- i. Exceed of 90 days for credit card loan.
- j. Overdue Trust Receipt Loan

4. Additional Arrangement for Term Loan

In respect of term loans, the classification shall be made against the entire outstanding loan on the basis of the past due period overdue instalment.

- a. Principal and Interest cannot be recovered by overdrawing the account of the customer
- b. Rescheduling and Restructuring of Loan

Banks may reschedule or restructure such loans upon receipt of the written plan of action from the borrower citing the following reasons.

- i. Evidence of adequate collateral and documentation regarding Loans.
- ii. An evaluation of the borrower/ enterprise's management with particular emphasis on efficiency, commitment and high standards of business ethics.

To reschedule or restructure the loans, it is mandatory that at least 25% of past due interest up to rescheduled or restructured date should be paid by the borrower. If all interests have been recovered before renewal of loans, it can be categorized into Pass Loan.

Directive No. 3 (Single Obligor Limit and Sector wise Lending)

1. Single Obligor Limit

This tool of NRB is effective in checking the credit concentration risk of the banks and financial institutions. Single Obligor refers to the credit facility being extended to single person, firm, company or a group of the borrowers, meaning that banks and financial institutions are provided certain threshold to extend credit facilities. Banks and financial institutions extend credit facilities including fund based and non fund based facility to the tune of 25% of the Primary Capital.

2. Credit facility extended to Hydropower, Transmission Line and Cable car operation

The single obligor limit, however, does not hold 25% threshold in sector like Hydropower development, transmission line and cable car operation. Banks and financial institutions can extend credit facilities including fund based and non fund based facility to the tune of 50% of the Primary Capital.

2. Exception on Limit of Credit Facility

Banks and financial institution need not comply to above mentioned threshold in following circumstances.

- a. Loans and advances extended by fully securing it by Fixed deposit receipt, government securities and government bonds, guarantee provided by multilateral banks, International Monetary fund and
 - b. Loans and advances extended to Nepal Oil Corporation, Nepal Food Corporation.
3. Interrelation between borrowers shall be kept under same group.
 - a. If a company or a person holds 25% of more share of another company comes under same group.
 - b. Member of Same group, firm

- c. Personal guarantee provided by a person, company to another person or company.
- d. Credit facility extended to different borrower from same collateral.

4. Sector wise Lending

This tool of NRB checks sector concentration risk. If banks and financial institutions keep on extending credit facilities to same sector and if unfortunately the sector has no profitable future, then their existence comes into threat. Thus this risk must be checked.

5. Arrangement for Real Estate Lending

This tool of NRB has proven to be one of the best tools. We have been witnessing a serious problem in real estate sector form past few years. The real estate sector were booming and the price hike was everywhere by brokers and investors investing in it. NRB according to its circular have made below mentioned provisions under real estate lending.

- Loans and advances extended to this sector can lend only 60% of fair market value of the properties mortgage in favor of the bank to avail credit facilities.
- Following threshold is defined and shall be maintained within the prescribed date.

Directive No. 17 (Deprived Sector Lending)

NRB has created provisions for every banks and financial institutions to create deprived sector lending so as to promote deprived sectors. Banks and financial institutions are penalized if not met minimum criterion/threshold on this lending. For this purpose, NRB has defined deprived sector as less earning Individuals, socially deprived women, Dalits, Blinds, Deaf, Differently able people etc..

This minimum criterion/threshold shall be met by banks and financial institution after successful operation of 1 year.

Following direct investment made on loans and advances are eligible for contribution on deprived sector.

- a. Deprived or less earning individuals, micro finance etc.
- b. Micro Hydropower Project producing less than 50KW electricity, Solar Home System, Solar Cooker, Solar Dyer, Solar Pump, Biogas, Improved Water Mill, Improved Cook Stoves and wind energy.
- c. Lending under tri-party arrangement involving manpower agency, foreign employment seeking individuals and banks for threshold up to 150,000.00
- d. Reserve created by NRB on Youth and small entrepreneurship.
- e. Other small and micro finance projects.

Following indirect investment made on loans and advances are eligible for contribution on deprived sector.

- a. Lending made to "D" class licensed institutions and other small credit co-operatives in an understanding to flow the sum lent to various deprived sectors as defined by NRB.
- b. Lending made to small Farmer Co-operatives in an understanding to make small lending to various units.

Directive No. 11 (Consortium Loan Financing)

- a. Definition: Loans and advances availed to a borrower, Firm, Company or Project under consensus agreement between participating licensed banks and financial institution is called Consortium Loan Financing.
- b. About Consortium: Borrower, Firm, Company or Project can only make banking transaction from Lead or participating bank to use the consortium loan. The same is applicable to loose consortium.

A Project financed by two or more banks without forming consortium group/bank under pariah's collateral arrangement is called Loose Consortium.

- c. Required Conditions/Covenants:
 - i. Banks and Financial institutions licensed by NRB can only participate as a consortium banks and financial institutions. But, Provident Fund, Citizen Investment trust and Insurance companies can also participate or become a lead bank under consortium loan arrangement.
 - ii. If any institutions are participated beside one stated in section "c", NRB must be notified.
- d. Other Institution granting loan and open account:
 - i. No additional loans and advances shall be granted to the borrower by non participating banks and financial institution. However, in case of urgency or contingency such loans that add up to existing consortium loan is allowed.
 - ii. The borrower, firm, company and project is not allowed to open accounts on non participating banks and financial institutions. However, in case of urgency or contingency such account operation is allowed.
- e. Disbursement of Loans and Timing: Once the application for consortium loan is filed and consortium banks are formed, the consortium banks and financial

institutions must decide whether the applied loans and advances shall be availed or not by within 90 days.

- f. Selection of Consortium Banks: The selection of Consortium banks can be made by the borrower itself and the lead bank where borrower has applied consortium loan for.

But, once the consortium banks are formed, no new participating bank can entry without approval from existing consortium bank's decision.

- g. Selection of Lead Bank: Bank or financial institution granting highest share in loans and advances among the participating bank, experience in handling consortium loans can have long relationship with the client/borrower is selected as the lead bank.

2.3 Empirical Review

2.3.1 Review of Articles and Journals

David and Osemwegie (2023) looked at the the articles Importance of Capital Adequacy and its impact on the financial business in the Nigerian banks through GLS estimator technique Statements for the period from 1995 to 2010. The study aims to investigate the effects of capital adequacy on financial business promotion for Nigerian banks, demonstrating the significant role that capital adequacy plays in enhancing banks' financial performance. The level of capital adequacy and a nation's economic growth are intimately related. Because of the heightened risks and financial crises that banks confront, the problem of capital sufficiency has become increasingly important in light of worldwide regulatory developments. The industrialised nations' efforts to increase the capacity of global capital and regulations were motivated by their interest in the topic of capital adequacy and their desire to harmonise their control frameworks (Basel III). More laws and regulations were put in place to reduce risks and facilitate the shift of liquidity, as well as to address issues and create a more adaptable banking industry. According to the findings, in order to have high-quality capital during times of stress and crisis, safety margins, leverage rates, and liquidity risk management indicators have been established.

Joseph and Tabitha (2022) try to investigate the articles Impact of Capital on the financial performance in the context of commercial banks in Kenya. Between 2002 and 2006, they discovered that for both Tier I and Tier II banks, the ratios of core capital to total risk weighted assets and total capital to total risk weighted assets fell. The study's

goal is to investigate bank non-performing loans. As a result, the Tier I and Tier II banks increased these two ratios at a level that was noticeably greater than the 8% and 12% minimum requirements, respectively, that were imposed. There, financial and statistical tools have been employed. Furlong and Keeley (2021) looked at a piece on commercial banks' credit risk management, which aims to investigate bank credit risk management, revealed that the study stressed that capital is the essential component and the only component shared by all banking systems worldwide. To accomplish the objective of this study, a descriptive research approach was employed. It is the foundation upon which market assessments of capital are based, and it is fully apparent in the published account. It significantly affects profit margins and banks' capacity to compete. Consistent evidence that the imposition of total assets and deposits, respectively, determines the capital adequacy of banks in isolation was found in the study, which looked at a panel of data for 127 institutions. The research concluded that profit maximization, avoidance of bankrupt and their negative externalize on the financial system and incentive to increase risky assets.

Stoica (2021) stated the article Introduction of Higher Minimum Bank Capital Requirements. And the objectives of study is the imposition of capital regulation induced a reduction in loan supply and, hence, in total lending. He using statistical tools and financial tools as a methodology. In this article, consistent evidence from the study that looked at a panel of data for 572 banks in 15 developing countries is presented. After studying the articles, he discovered that liquidity risk is the likelihood that the company won't be able to pay its creditors due to fluctuations in the ratio of long-term to short-term credits and no relationship with the organization's liability structure. Additionally, the study discovered indications that a general slowdown in bank loans might result from raising the minimum capital requirements for banks.

Sinkey (2020) examined a paper on the Commercial Bank's Goals for Credit Risk Management and discovered that, in order to control credit risk, banks naturally manage their portfolios through the use of descriptive research design approach. The risk-adjusted rate of return of a bank is achieved by keeping its exposure to credit risk within reasonable bounds. Both the risk associated with individual credits as transactions and the credit risk inherent to the overall portfolio must be managed by banks.

Rodrik (2019) introduced the articles Non-Performing loan of commercial bank. Our goal is to investigate bank nonperforming loans using a technique based on descriptive research and statistical tools. This ultimately results in higher lending rates from the banks, which slows the expansion of credit. Consistent evidence that the imposition of banks' lending rates and hence contributes to decreased credit growth was identified in the study, which looked at a panel of data for 198 institutions. A study on credit risk management came to the conclusion that a large percentage of non-performing loans (NPLs) raises doubts about the banks' capital position, which restricts their ability to get funding. He discovered that having a high percentage of non-performing loans (NPLs) raises doubts about the banks' capital position, which restricts their ability to obtain funding.

Robert and Gary (2018) suggested the articles Factors Affecting Bank Operating Efficiency on the performance of Bank. And add that the most glaring signs of failing banks are not inefficient operations but rather a higher percentage of performing and non-performing loans, which are often linked to local macroeconomic issues in research. The study aims to identify the factors that impact a bank's operational efficiency and overall success. The descriptive research design approach was applied in the papers. The influence of liquid assets on profitability was determined by the study, which looked at a panel of data for 78 banks. Banks with higher levels of liquid assets are seen favourably by funding markets, which lowers their financing costs and boosts profitability. Well capitalised banks face lower need for external funding, as well as lower bankruptcy and funding costs. This advantage translates into profitability. The study found that there is a net effect of increasing the ratio of substandard credits in the bank's credit portfolio and decreasing the bank's profitability. Accordingly, a bank will be more resilient to collapse the more capital it possesses, according to several studies.

According to Brownbridge (2017), who read articles about the transformation of the US banking industry, insider lending was the primary cause of the bad loans that many local banks failed to make. He also noted that high interest rates charged to borrowers operating in high-risk industries were the second major factor in bank failure. The study aims to evaluate the impact of operating efficiency on bank performance. Here, a few financial and statistical methods were employed in the process. The research looked at 201 banks' worth of panel data. According to the report, a bank's profitability is

negatively impacted by a large percentage of non-performing loans in its portfolio, particularly when it comes to disposals.

Huzinga (2017) studied the articles the Profitability of European Banks: A Cross-Sectional and Dynamic Panels Analysis was pointed out that credit risk management is in two-fold which includes, the realization that after losses have occurred, the losses becomes unbearable and the developments in the field of financing commercial paper, security, and other non-bank competition which pushed banks to find viable loan borrowers. The study aims to identify the factors that impact bank operational efficiency and bank performance. The study has employed the descriptive research design approach. According to the Basel Committee on Banking Supervision, loans are the primary and most visible source of credit risk, with additional sources being found in the diverse range of operations that the bank engages in. As a result, every bank in the world must understand the necessity of identifying, measuring, monitoring, and controlling credit risk as well as figuring out how to reduce it. According to the research, a bank should be sufficiently capitalised to protect itself from these risks and be fairly rewarded for any losses.

Barrios and Blanco (2016) opined in the articles Bank's Performance in relation with its Capital Adequacy and there some variables must be considered. The study's goal is to determine the bank's capital adequacy. Both statistical and financial approaches were employed in this investigation. These factors include the managerial calibre and productivity effectiveness of banks, both of which are highly dependent on the level of industry competitiveness. The sufficiency of the capital is determined by the bank's management's capacity to guarantee that the capital is efficiently handled. Although capital adequacy ratios are primarily concerned with credit risks, having capital adequacy ratios over the minimal levels advised by the Basle Capital Accord does not ensure the "safety" of a bank. The study discovered that the profitability of banks is influenced by both capital adequacy and bank performance.

Bashir and Hassan (2016) in the study of the articles Relationship between Market Structure and Profitability of Commercial Bank. Using time series data from 1970 to 1994, the study also established a connection between the profitability of Malawi's commercial banks and their market structure. The goal of the study is to investigate the

long-term link between concentration and profitability utilising statistical and financial methods in the research approach. The study's conclusions showed that banks with larger non-loan earnings assets are more lucrative than those with higher loan ratios, and that a higher loan ratio actually has a negative effect on profits.

Odunga (2015) studied Impact of Credit Risk Management and Capital Adequacy on the Financial Performance of Commercial Banks in Nigeria. Examining how banks handle credit risk is one of the study's goals. A few financial and statistical instruments have been employed in the research. An efficient banking system is necessary for a healthy economy. Kenya's banking industry has expanded significantly throughout the years in terms of quantity, scope, and profitability. Notwithstanding the industry's expansion, there are still difficulties in the form of market, credit, and operational risk. Although it is not the biggest loan provider, Kenyan commercial banking leads the financial services sector in terms of assets. This study sought to investigate the impact of credit risk, capital adequacy, and bank-specific performance indicators on the operational efficiency of commercial banks in Kenya, guided by the principles of operational efficiency theory. We specifically looked to determine the impact on banks' operating efficiency of capital adequacy ratios (Core capital ratio, risk-based capital ratio, total capital ratio, and equity capital to total assets ratio) and bank-specific credit risk ratios (Net charge off to gross loans ratio, loan loss provision to total loans ratio, loan loss provision to equity, and loan loss reserves to equity ratio). The study used Fixed Effects Regression to analyse the panel data using an explanatory research methodology. The study's findings showed that the bank's operating efficiency the year before was favourably and considerably impacted by both risk-based capital ratio and operational efficiency. Based on the regression analysis, an overall R² of 0.4135 was obtained, indicating that credit risk and capital adequacy metrics account for 41.35 percent of a bank's operating efficiency. This suggests that a company's past performance will undoubtedly have an impact on how it proceeds with its efforts to simplify its operational strategy. Commercial banks are crucial as financial intermediaries for savers and borrowers in an economy, thus banks should look for ways to increase their risk-based capital ratio in order to increase operational efficiency and maintain their competitiveness in the market.

Ogboi and Unuafe (2015) a study the articles Credit Risk Management of Commercial Bank of Nigeria to find out the impact of credit risk management and capital adequacy

on the financial performance of commercial banks in Nigeria. Examining Nigerian commercial banks' credit risk management is one of the study's goals. Six of the twenty-one banks that were operational in Nigeria as of December 2010 had their published financial statements made available, which provided the study's data. The impact of capital adequacy and credit risk management on banks' financial performance in Nigeria from 2000 to 2010 was examined using panel data regression analysis. With the exception of loans and advances, which were shown to have a negative effect on banks' profitability throughout the research period, the results showed that prudent credit risk management and capital sufficiency had a favourable influence on banks' financial performance. It is consequently advised that Nigerian banks implement suitable credit risk management procedures by carrying out thorough credit evaluation prior to loan distribution and withdrawal in light of the findings. It is also advised that sufficient focus be placed on improving Nigerian banks' Tier-One capital.

Ikpefan (2014) study the articles Credit Risk management of bank and financial performance of Nigeria. The articles' goals are to analyse the degree to which the performance, management, and capital adequacy of Nigeria's commercial banks (1986–2006) have an influence. For the investigation, financial and statistical instruments were employed. It has been discovered that capital adequacy ratios hurt profitability. and discovered that there is a negative association between the return on capital and the management and operational expenditure efficiency as determined by the researcher. The study's implications include, but are not limited to, the observation that adequate shareholder funds, particularly in the wake of the global financial crisis that caused massive losses in the Nigerian financial system, can help promote Nigerian commercial banks, improve their performance, and boost customer confidence.

Samuel Olausi and Abiola (2013) conducted a study of articles to The Impact of Ccredit Risk Mmanagement on The Ccommercial Bbanks Pperformance in Nigeria. This study set out to find out how Nigerian commercial banks performed in relation to credit risk management. For seven years, the financial records of seven commercial banking companies were examined. To estimate the model, the panel regression model was used. The model included capital adequacy ratio (CAR) and non-performing loans (NPL) as credit risk management indicators, and return on equity (ROE) and return on asset (ROA)

as performance indicators. The results showed that the profitability of commercial banks in Nigeria is significantly impacted by credit risk management.

2.3.2 Review of Thesis

Pokhrel (2021) studied the articles The Impact of credit risk management concluded that though the optimal standard of current ratio should be 2:1 for convention measure of liquidity it is not appraisal on banking. His research is to investigate the effects of credit risk. Financial and statistical methods have been applied in this instance. The high level of bank investment in the private sector is demonstrated by the credit to private sector credit rate. The ratio of investment to total loans, advances, and investments demonstrates how HBL invests in secure assets more wisely than in riskier ones.

Tiwari (2022) has concluded that though the optimal standard of current ratio should be 2:1 for convention measure of liquidity it is not appraisal on banking in her study of article Study on Credit Management of Himalayan Bank Limited. which is to investigate bank credit risk management. The high level of bank investment in the private sector is demonstrated by the credit to private sector credit rate. The ratio of investment to total loans, advances, and investments demonstrates how HBL invests in secure assets more wisely than in riskier ones. They discovered that the reliance ratio is displayed by the interest income to total income ratio. With a mean of 2.0484, the interest income to interest expenditure ratio is higher. The loans appear to be efficient and regular.

Poudel (2021) conducted a study of the impact of Credit risk management on financial performance using the descriptive research data of three commercial banks EBL, NABIL and SCBNL acting in the country for the objectives to analysis the impact of credit risk management of bank in Nepal; however, it reveals that there was a significant impact of the directives on the various aspects of the commercial banks. Information was collected during the period 2013/14 to 2022/23. The analysis concludes that there is a high association between net profit and the total amount of loans and advances. Increases in net profit are correlated with increases in loans and advances. Net profit is therefore determined by the total amount of advances and loans issued in addition to other investments made in banking operations. Since the banks' net income, or net amount, is determined by deducting various expenditure amounts from their net profit. Specifically, a rise in pass loans fuels an increase in net revenue for the bank.

Dhakal (2020) has written dissertation on A study on Credit Risk Management of Standard Chartered Bank (SCB) and Rastriya Banijya Bank (RBB). Her main research goals were to determine the rate of increase in non-performing loans, total loans, and loan loss provisioning for the individual banks; to examine the lending portfolio, including sector-specific and concentration lending; to ascertain the portfolio of investments in the government sector; and to identify the bank's high-risk and low-risk weighted assets. The primary conclusions of the research were that Standard Chartered Bank Nepal Ltd. and Rastriya Banijya Bank Ltd.'s credit risk management was examined objectively in terms of non-performing loan (NPL) analysis, portfolio management (lending based on sector), the position of risk-weighted assets, investments in government securities, and the status of margin lending. Although both banks have decreasing trend of NPL, RBB has higher NPR as compared to SCBNL which has affected its capital base.

Khadgi (2019) concluded on his articles Credit Risk Management of Nepal Investment Bank Ltd that liquidity ratio: The cash and bank balance to total deposit of NIBL is fluctuation during the study period. The goal of this study is to investigate Nepal's credit risk management. There, financial and statistical tools have been employed. Over the course of the trial, the mean ratio was 0.093 times/s. Asset Management Ratio: Overall, there is a growing tendency in loans and advances to fixed deposit ratios. During the research period, 2.9432 is the mean ratio. The ratio of NIBL's total loans and advances to total deposits is trending upward. During the research period, he discovered that the average mean ratio of NIBL was 0.718 times. Leverage Ratio: During the thesis period, NIBL's debt to equity ratio has been trending upward. The typical ratio on average is 14.24 times.

Profitability Ratio: NIBL's overall net profit is trending upward. Lending Efficiency Ratio: The NIBL's ratio of loan loss provision to total loans and advances is trending downward. 2004–5 saw the greatest ratio of 3.11%, while 2007–8 saw the lowest ratio of 1.93%. Over the research period, the mean ratio was 2.73%.

2.4 Research Gap

The rise of financial institutions in the Nepalese economy has caused changes in the bank's efficacy and financial situation throughout time. The examination of the previously mentioned pertinent material has improved the foundational comprehension

and knowledge needed to give study direction and significance. Numerous articles on the subject of lending policy and the financial performance of commercial banks have been written. Numerous studies have been conducted on the influence and application of NRB guidelines, commercial bank lending policies, and credit risk management. The majority of researchers concentrate on calculating the performance ratio to estimate the credit risk. The majority of researchers concentrate on capital sufficiency, profitability, liquidity, and efficiency ratio.

The goal of the study project differs from that of earlier investigations of commercial banks and other financial organisations. While other research has been conducted on credit risk management and bank performance in commercial banks, this study attempted to compare the credit risk and financial performance of joint venture banks and private commercial banks. further discovered the connection between ROE and ROA and credit risk characteristics.

CHAPTER III

RESEARCH METHODOLOGY

The goal of the study project differs from that of earlier investigations of commercial banks and other financial organisations. While other research has been conducted on credit risk management and bank performance in commercial banks, this study attempted to compare the credit risk and financial performance of joint venture banks and private commercial banks. further discovered the connection between ROE and ROA and credit risk characteristics.

3.1 Research Design

The research design is the overall approach you take to ensure you will effectively solve the research topic by integrating the many study components in a cohesive and logical manner. It serves as the guide for data collecting, measurement, and analysis. A research design is the result of decisions on what, where, when, how much, and by what means to conduct a study. A research design is the setup of parameters for data collection and analysis with the goal of integrating relevance to the study goal.

In order to address concerns related to credit risk and bank performance in the context of Nepal, this study used a descriptive, correlational, and causal comparative research approach. The financial circumstances of Nepalese commercial banks have been described, measured, compared, and categorised using the descriptive study approach. In a similar vein, respondents' opinions and perceptions of bank performance and credit risk have been evaluated. Additionally, a casual comparative research methodology was used in the study to evaluate the impact of several variables on the commercial bank performance in Nepal. This study's primary goal in using a causal comparative research methodology is to determine whether bank performance, as determined by ROA and ROE, can be predicted using data on credit risk indicators.

3.2 Nature and Sources of Data

To achieve its stated aims and address the research issues, this study is dependent on secondary sources of data. The published financial statements of the sample commercial bank in Nepal as of the most recent fiscal year recorded in the database offered on each bank's website serve as the secondary sources of data for this study. In addition, data

from the NRB data bank was utilised to extract the necessary information for this investigation. The banks that are purchased or merged throughout the study's duration are, to the greatest extent feasible, omitted in order to guarantee consistency in presentation.

3.3 Population and Sample

The study's population consists of all of Nepal's commercial banks. Thus, 21 commercial banks make up the study's population (nrb.com.np). In order to determine the relationship between credit risk and the performance of Nepal's commercial banks from 2012–13 to 2021–22, this study uses panel data approaches.

Summary of sample banks and observations

Bank	Symbol	Study Period	Observation
Everest Bank Limited	EBL	2012/13 to 2021/22	10
Global IME Bank Limited	GBIME	2012/13 to 2021/22	10
NIC Asia Bank Limited	NICA	2012/13 to 2021/22	10
Total Observation			30

(Source : www.nrb.com.np).

Therefore, the sample for this study includes 3 commercial banks, or around 4% of the overall population, and was selected using a random sampling technique in order to meet the study's objectives.

There are three types of commercial banks in Nepal: venture, private, and government banks. The outcomes and conclusions from the sample of these three institutions are representative of all banks.

3.4 Tools of the Study

Numerous financial, statistical, and accounting instruments were employed in this study in order to meet its goals. The patterns in the data that are now accessible will guide the data analysis. In this study, analytical statistical methods like Karl Person's coefficient of correlation and simple regression are used with the resources and instruments at hand. The diverse computed outcomes acquired from financial, accounting, and statistical instruments are compiled under distinct headings. To interpret the outcomes, they are then contrasted with one another.

3.4.1 Financial Tools

An organization's financial performance may be evaluated using a variety of financial instruments. Financial ratios—mathematical relationships or ratios between two or more numbers from financial statements—are used in traditional accounting-based assessments of financial performance. For the purpose of making decisions, these ratios can be utilised to assess the outcomes (Banerjee, 2018). In this category, financial performance is analysed more frequently using ROA and ROE. Whereas ROE is the ratio of net income by shareholders' equity, ROA is the ratio of net income divided by the company's total assets. As noted by Ruslan et al. (2009), ROA is a metric of bank profitability that emphasises the bank's capacity to generate revenue from its activities. Based on total equity, return on equity (ROE) measures how well a bank's management uses shareholders' money (Kennedy, 2019). The level of financial leverage and the ROA ratio have an impact on the ROE ratio (Robin et al., 2018). greater leveraged banks often have greater ROE but lower ROA. It was stated by Ommeren (2011) that most banks acquire significant financial leverage in order to make ROE very competitive. The following discusses the foundational financial instruments used in this investigation.

Return on Assets

A commercial bank's profitability in relation to its total assets may be determined by looking at its return on assets (ROA). An analyst, investor, or manager can determine a commercial bank's efficiency in generating profits from its assets by looking at its return on assets (ROA). The greater the ROA, which is shown as a percentage, the better. The following indicators have been determined using ROA. An indication of a bank's profitability in asset utilisation is return on assets, or ROA. The best ways to compare banks using ROA are with similar banks or with the bank's own historical performance. Unlike other comparable measures like return on equity, ROA include a bank's debt (ROE).

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Average Assets}}$$

Return on Equity

For portfolios, investing in commercial banks that outperform their competitors in terms of profitability may be quite beneficial. Investors can discern between banks that generate profits and those that consume them by looking at return on equity (ROE).

However, ROE must be utilised cautiously and may not always provide a complete picture of a commercial bank.

$$\text{Return on Equity (ROE)} = \frac{\text{Shareholders' equity}}{\text{Net income}}$$

Capital adequacy ratio (CAR)

The capital adequacy ratio is a metric used to determine the percentage of a bank's capital that corresponds to its total risk-weighted assets. The credit risk associated with the assets is contingent upon the recipient of the loan from the bank; for instance, there is no risk associated with a loan to the government, but the percentage of loans to people is relatively high.

$$(\text{CAR}) = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}}$$

Capital Adequacy Ratio

Non Performing Loan (NPL)

The non-performing assets in the portfolio of all credit advances are identified by this ratio. A higher ratio suggests that the bank's loans are of poor quality. Therefore, it is better to have a smaller percentage of non-performing assets to loans and advances. Only 5% NPA is permitted by international standards, although 10% NPA is permissible in the context of Nepal.

$$\text{NPA to Total Loan \& Advance} = \frac{\text{Total Non -Performing Loan}}{\text{Total Loan \& Advances}}$$

Loan Loss Provision (LLP)

A bank may set aside money from its yearly profits as a loan loss provision, either to offset a lost credit facility or as a safeguard against the loss of a nonperforming loan. When comparing the banking systems of developing nations to those of industrialised economies, Ahmadand (2007) looked at the major factors that influence credit risk for commercial banks. The study discovered that one important factor that influences potential credit risk is an increase in loan loss provision. This is expressed as:

$$\text{Loan loss Provision to NPL} = \frac{\text{Loan loss provision}}{\text{Non-Performign loan}} \times 100\%$$

Loan and Advances

The ratio of loans and advances to total assets calculates how much is borrowed and advances relative to total assets. In other words, it displays the ratio of advances and loans to total assets. A high percentage of loans and advances shows that the organisation is doing well in terms of mobilising money deposits. On the other hand, low loan degree demonstrated appropriate money utilisation. The hazardous asset is a loan. This ratio can be calculated as follows:

$$\text{Loan and Advances to Total assets Ratio} = \frac{\text{Loans and Advances}}{\text{Total assets}}$$

3.4.2 Statistical Tools

A number of significant statistical methods have been employed in the presentation and analysis of the data in order to meet the study's goal. For this, several statistical methods have been employed, such as least squares, linear trend analysis, correlation analysis, coefficient of variance, and standard deviation. In light of the available financial data, a number of statistical methods relevant to this study are developed in order to increase the conclusion's reliability. The statistical tools listed below are used for this. Below is a discussion of the fundamental statistical analysis associated with this study:

Arithmetic Mean

The total of all observations divided by the total number of observations is the arithmetic mean, or simply the "Mean" of a collection of observations. It is the best value that the group as a whole can use. A variable's mean is its mathematical average. A series' arithmetic mean can be found using:

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

Where, $\sum X$ = sum of the variable 'X'

N= No of observation

Standard Deviation

The absolute measure of dispersion that eliminates the flaws in other measurements of dispersion is the standard deviation. Given that it meets the majority of the requirements for a good measure of dispersion, it is referred to as the best measure of dispersion.

$$\text{Standard Deviation of } \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}$$

Coefficient of Variation

The standard deviation represents the dispersion in absolute terms. The coefficient of standard deviation is the relative measure of dispersion based on the standard deviation.

It is calculated as under:

$$\text{Coefficient of variation (CV)} = \frac{\sigma}{\bar{X}} \times 100$$

Correlation Coefficient (r)

Correlation coefficient is defined as the association between the dependent variable and independent variable. It is a method of determining the relationship between these two variables.

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)^2\}} \sqrt{\{N\sum y^2 - (\sum y)^2\}}}$$

When $r = 1$, there is positive perfect correlation between the two variables.

When $r = -1$, there is a negatively perfect correlation between the two variables. When $r = 0$, the variables are uncorrelated.

Regression Analysis

The statistical method known as regression is used to estimate or predict one variable based on other factors and to ascertain the statistical connection between two or more variables. Regression, then, is that statistical tool that allows one variable's unknown value to be approximated or forecasted based on the known value of another variable, assuming a close relationship between the two variables. Given the value of one variable, we may estimate the value of the other. For instance, we may determine the amount of production needed to reach a specific level of sales if we are aware of the strong relationship between production and sales. Thus regression determines the average probable change in one variable based on a certain amount of change in another (Silwal, 2018).

In symbolically, it is defined as:

$$\sum e^2 = \sum (Y - \hat{Y})^2$$

This is called the least square if

$\sum e^2 = \sum (Y - \hat{Y})^2 = 0$ which best fits all the data.

taking the first derivative of this expression with respect to "a" and "b" gives two equations which are called the normal equations.

$$\text{i.e. } = \frac{a \sum (Y - \hat{Y})}{a} = \text{minimum and } \frac{b \sum (Y - \hat{Y})}{b} = 0$$

gives,

$$\sum Y = na + b \sum X$$

$$\sum XY = a \sum X + b \sum X^2$$

3.5 Variables and Hypothesis

The dependent Variables and Independent Variables have been used in this study are as follows:

The depended variables are ROA and ROE.

The Independent Variables are Non-Performing Loan, loan loss provision, loans and advance, liquidity and capital adequacy ratio.

H1: There is significant and negative relationship between non-performing loan and bank's financial performance.

H2: There is significant and negative relationship between loan loss provision and financial performance of sample commercial banks.

H3: There is significant and positive relationship between loan and advance with financial performance of sample commercial banks.

H4: There is significant and negative relationship between liquidity and bank's performance.

H5: There is significant and positive relationship between capital adequacy ratio and bank's performance.

3.6 Conceptual Framework

The link between profitability and credit risk is depicted in Figure 1 using both an empirical and theoretical viewpoint. Return on equity and return on assets have been designated as the dependent variables in this study. In contrast, the following independent variables are used to quantify credit risk and capital adequacy: non-performing loan/total loans and advances, loan loss provision/total loan, loans and advances/total deposit, total deposit/loans and advances, and capital adequacy ratio. The following figure provides a description of the empirical results.

Dependent Variables

Independent Variables

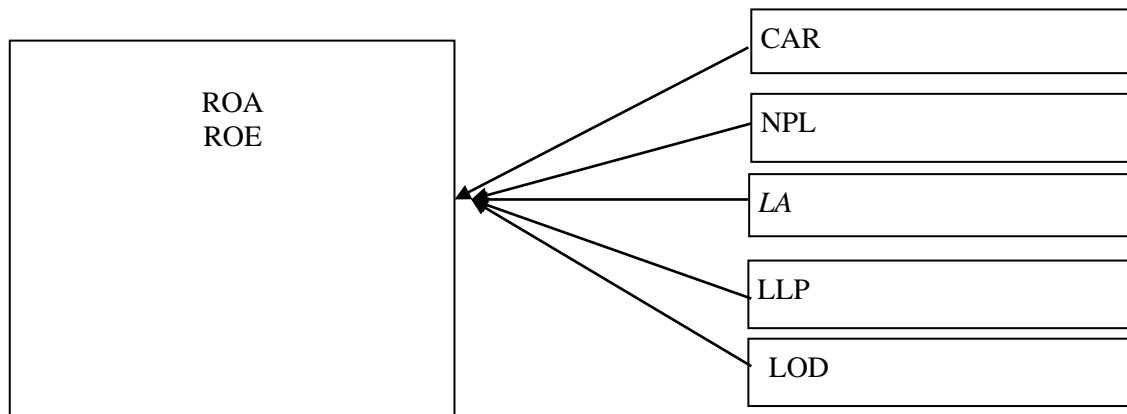


Figure 1: Conceptual Framework Developed by Researcher (2023)

Dependent Variables

The following Independent Variables have been used in study:

Return on Assets

A commercial bank's profitability in relation to its total assets may be determined by looking at its return on assets (ROA). An analyst, investor, or manager can determine a commercial bank's efficiency in generating profits from its assets by looking at its return on assets (ROA). The greater the ROA, which is shown as a percentage, the better. The following indicators have been determined using ROA.

Return on Equity

For portfolios, investing in commercial banks that outperform their competitors in terms of profitability may be quite beneficial. Investors can discern between banks that generate profits and those that consume them by looking at return on equity (ROE). However, ROE must be utilised cautiously and may not always provide a complete picture of a commercial bank. Here, we go into further detail on return on equity—what it is, how it works, and how to apply it.

Independent Variables

The following Independent Variables have been used in study:

Non-Performing Loan

A bank's asset quality is determined by its exposure to certain risks, trends in non-performing loans, and the profitability and well-being of its bank borrowers. The study also shows that credit risk has a distinctly negative effect on profitability. This finding can be explained by considering that the accumulation of delinquent loans increases with financial institutions' exposure to higher-risk loans; this suggests that many commercial banks have experienced lower returns as a result of these loan losses (Miller & Noulas, 2017).

Loan Loss Provision

A bank may set aside money from its yearly profits as a loan loss provision, either to offset a lost credit facility or as a safeguard against the loss of a nonperforming loan. When comparing the banking systems of developing nations to those of industrialised economies, Ahmadand (2007) looked at the major factors that influence credit risk for commercial banks. The study discovered that one important factor that influences potential credit risk is an increase in loan loss provision.

Loans and Advances

A bank client can utilise loans and advances to access bank cash, which must be returned with interest within a predetermined time frame. The impact of credit risk management in Kenyan banks was examined by Kithinji (2010) using two metrics: the ratio of loans and advances to total assets and the ratio of non-performing loans to total loans and advances on return on total asset. The study discovered that the volume of lending and non-performing loans have little bearing on commercial banks' overall earnings. It follows that factors other than credit and non-performing loans affect banks' bottom lines.

Liquidity

The extent to which the price of an asset or security remains unchanged when it is purchased or sold on the open market. A large volume of trading activity is a sign of liquidity. Liquid assets are those that are easily acquired or traded. Liquidity is, put simply, the capacity to turn an asset into cash fast. Another name for it is marketability. Additionally, a company that is liquid usually has greater financial flexibility to pursue

new investment possibilities. For instance, cash which is the most liquid of all assets is a non-earning asset. It would therefore be expected that higher liquidity would negatively correlate with profitability.

Capital Adequacy Ratio

The capital adequacy ratio, or CAR, is selected as the primary indicator of a bank's soundness from the regulator's perspective. The most dependable and liquid forms of financial capital, namely shareholders' equity, make up the capital adequacy ratio. Banks that have a high capital adequacy ratio are profitable. Good capital requirements enable commercial banks to take on non-performing loans. According to Bourke (2019), there is a substantial and positive correlation between profitability and capital adequacy. The following factors were examined, as previously mentioned, in order to determine how credit risk management affected commercial banks' bottom lines. The significance of the independent and dependent variables was tested using the study's instruments.

CHAPTER IV

RESULTS AND DISCUSSIONS

Within the framework of Sample bank, this chapter addresses a number of topics related to credit risk, capital sufficiency, and bank performance. Descriptive statistics of the variables, correlation findings for the dependent and explanatory variables, regression analysis for the return on equity and asset measures of profitability, and a discussion of the findings are all included. Microsoft Excel and SPSS were used for the analysis of secondary data. This chapter presents, analyses, and discusses primary data that were gathered from commercial bank employees in addition to secondary data analysis. The respondents' perceptions of the mean and standard deviation were used to rate the influence of capital sufficiency and credit risk on the profitability of Nepali commercial banks. There are three sections in this chapter. The presentation and analysis of secondary data related to capital adequacy and credit risk indicators, together with an explanation of the findings that follow, are the topics of the first part. Correlation and regression analysis are covered in the second section. The third and last section covers the closing remarks related to the secondary data analysis findings.

In order to examine the cross-sectional link between capital adequacy, credit risk, and bank performance, this section aims to evaluate and present the secondary data related to these variables. Stepwise cross-sectional regression analysis, descriptive statistics, and Pearson correlation coefficients are the methods used to analyse secondary data in order to accomplish the goal. The relevant sections address the conclusions from the data analysis in depth.

4.1 Financial Performance and Credit Risk Position

Return on Assets (ROA)

A measure of a company's profitability in relation to its total assets. Return on assets provides insight into how well management uses its resources to produce profits. Return on assets is expressed as a percentage and is computed by dividing a company's yearly earnings by the total value of its assets. This is also known as return on investment at times. The company's assets consist of both equity and debt. The company's activities are financed by these two forms of funding. Investors may determine how well a firm is transforming its available funds into net income by looking at its return on assets.

The structure of the variables influencing bank performance in connection to the credit risk and capital sufficiency of Nepal's listed commercial banks is covered in this section. The structure, average value, and standard deviation are displayed year-by-year. For the chosen commercial banks, the return on assets has been calculated from 2013 to 2022.

Table 1

Structure of return on assets of Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	2.1	2.55	2.71	7.36	2.45
2014	2.11	2.8	2.8	7.71	2.57
2015	2.39	2.67	3.25	8.31	2.77
2016	2.25	2.51	2.65	7.41	2.47
2017	1.85	1.99	2.06	5.9	1.97
2018	1.59	1.98	2.32	5.89	1.96
2019	1.83	1.84	2.69	6.36	2.12
2020	1.97	2.61	2.61	7.19	2.40
2021	1.94	2.61	2.11	6.66	2.22
2022	1.42	1.71	1.58	4.71	1.57
Total	19.45	23.27	24.78		
Mean	1.945	2.327	2.478		
SD	0.28	0.38	0.45		
CV	0.14	0.16	0.18		

Source: Panel Data in Appendix

According to the sample banks' top return on asset structure and pattern, NICA Bank Limited has the highest average return on assets (2.47 percent), followed by Everest Bank Limited (2.31 percent). A lower bank standard deviation suggests that the return has been consistent relative to the bank's assets. Based on the standard deviation of return on assets, all of these banks' bank performance is comparable with what is shown in Table 1.

Profitability: Return on Equity (ROE)

The net income produced expressed as a proportion of shareholders' equity. Return on equity is a metric used to assess a company's profitability that indicates how much profit it makes using the capital that shareholders have invested in it. The rate of return on the equity or ownership stake of the owners of common stock is measured by return on equity, or ROE. It gauges how well a company makes money off of each unit of shareholders' equity, sometimes referred to as net assets or assets less liabilities. Return on equity demonstrates how successfully a business grows its earnings using investment

cash. Odunga et.al (2018) used return of equity as dependent variables to find the effect of credit risk and capital adequacy on bank performances of commercial banks.

Table 2

Structure of return on equity in Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	22.54	21.69	30.25	74.48	24.83
2013	22.54	21.69	30.25	74.48	24.83
2014	27.61	26.27	32.78	86.66	28.89
2015	28.56	26.38	27.91	82.85	27.62
2016	29.9	28.36	22.73	80.99	27.00
2017	26.1	21.69	20.79	68.58	22.86
2018	30.5	17.18	25.61	73.29	24.43
2019	28.4	11.98	22.41	62.79	20.93
2020	22.8	18.66	20.94	62.4	20.80
2021	20.3	19.49	17.76	57.55	19.18
2022	17.4	15.15	13.61	46.16	15.39
Total	254.11	206.85	234.79		
Mean	25.411	20.685	23.479		
SD	4.19	4.99	5.50		
CV	0.16	0.24	0.23		

Source: Panel Data in Appendix

Table 2 depicts the structure and pattern of the return on equity of the sample commercial banks for the study period. Table 2 shows that from 2013 to 2022, NICA had the greatest average return on equity, at 28.27 percent, followed by Everest Bank at 25.06 percent.

The bank with the greatest return on equity, or EBL, had the largest standard deviation based on the standard deviation result. This is because the bank's ratio had a lot of ups and downs and a negative return on equity in 2016. Based on a year-by-year analysis, the table indicates that the fiscal year 2017 had the highest Return on Equity of all the research periods. Additionally, the large standard deviation of that year indicates significant fluctuations in the Return on Equity ratios among the banks.

he study concludes that NICA Bank has been performing better in terms of Return on Equity among the selected commercial banks, despite the fact that it has the second-

highest Return on Equity among the selected banks. This is because NICA Bank has a smaller standard deviation than any of the other selected banks, which explains why it has been more consistent in producing a similar Return on Equity year after year during the study period.

Capital Adequacy and Credit Risk Management

The lending institution's main line of defence against clients who default on loans or other credit that has been given to them is credit risk management. On the other hand, capital adequacy, which is often represented as a ratio of capital to assets, is a gauge of a bank's or securities firm's financial strength. The study includes non-performing loans, loan loss provisions, advances and loans, and liquidity as credit risk factors. The capital adequacy ratio is the variable used to define the impact of capital adequacy.

Table 3

Structure of capital adequacy ratio of Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	10.44	12.1	9.3	31.84	10.61
2014	9.35	12.29	9.98	31.62	10.54
2015	9.31	11.03	9.68	30.02	10.01
2016	9.61	10.83	10.18	30.62	10.21
2017	8.46	11.67	10.51	30.64	10.21
2018	10.34	14.08	11.73	36.15	12.05
2019	12.58	19.58	12.9	45.06	15.02
2020	12.65	21.41	13	47.06	15.69
2021	12.38	18.31	12.5	43.19	14.40
2022	11.92	16.85	13.07	41.84	13.95
Total	107.04	148.15	112.85		
Mean	10.704	14.815	11.285		
SD	1.48	3.70	1.43		
CV	0.14	0.25	0.13		

Source: Panel Data in Appendix

Table 3 displays the capital adequacy ratio's structure and trend from 2013 to 2022. According to the results, GBIME had the greatest capital adequacy ratio at 16.31%, followed by Everest Bank Limited at 12.65%. With an 11.34 percent capital adequacy ratio, NICA has the lowest percentage. Likewise, the capital adequacy ratio reaches its maximum in 2022 at 14.95 percent, while it reaches its lowest point in 2018 at 12.16 percent.

Non-Performing Loan

A loan that is non-performing is one for which the borrower has not paid the agreed-upon payments for a minimum of ninety days. A nonperforming loan is one that is either past due or almost past due. The chances that a loan will be fully repaid are thought to be significantly reduced once it becomes nonperforming. Even if the debtor hasn't made up all of the missing payments, a nonperforming loan becomes re-performing if the debtor begins making payments on it once again. Put otherwise, a loan that has past its maturity date but still has some remaining balance is considered non-performing.

Table 4

Structure of Non-performing loan to total loan of Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	0.34	0.62	2.01	2.97	0.99
2014	0.84	0.78	2.33	3.95	1.32
2015	0.62	0.77	2.13	3.52	1.17
2016	0.97	0.48	2.23	3.68	1.23
2017	0.66	0.34	1.82	2.82	0.94
2018	0.38	0.32	1.14	1.84	0.61
2019	0.25	0.19	0.8	1.24	0.41
2020	0.2	0.18	0.55	0.93	0.31
2021	0.16	0.15	0.74	1.05	0.35
2022	0.22	0.44	0.98	1.64	0.55
Total	4.64	4.27	14.73		
Mean	0.464	0.427	1.473		
SD	0.27	0.22	0.66		
CV	0.59	0.52	0.45		

Source: Panel Data in Appendix

The structure and trend of nonperforming loans from 2013 to 2022 are displayed in Table 4. According to the results, NICA had the largest percentage of non-performing loans (1.79%), followed by EBL Bank (0.60%). EBL has the lowest percentage of non-performing loans (0.6%). In a similar vein, the greatest percentage of non-performing loans was 1.17 percent in 2016 and the lowest capital adequacy ratio was 0.50 percent in 2022.

Loan loss provision to total loan (LLP) has been taken into account in the study in order to gauge the credit risk. The loan loss provision to total loan for each sample bank for the study period spanning 2013 to 2022 is displayed in Table 4.

In general, the higher the nonperforming loan and charge-off percentages, the higher the provision for loan losses should probably be. If the study compares the result has found nearly the similar result.

Loan Loss Provision (LLP)

An cost set aside for credits or loans that fail is known as a loan loss provision. It is a sum left aside in case the loan is not repaid. In general, banks operate by receiving deposits and utilising those funds to provide loans. This is the fundamental banking model; it is a little more sophisticated. In every loan category, banks anticipate that certain loans will not perform as predicted, so they must strike a balance between their loan receivables and the demand for deposits. The bank may suffer a loss on anticipated income if these loans become fully overdue in their repayments or completely default. Therefore, banks set aside a portion of the expected loan repayments from all loans in its portfolio to cover all, or a portion, of the loss. In the event of a loss, instead of taking a loss in its cash flows, the bank can use the amount set aside to cover the loss.

Table 5

Structure of loan loss provision to total loan of Sample Banks

Year	EBL	GBIME	NICA	Total	Mean
2013	0.85	1.99	0.64	3.48	1.16
2014	0.64	1.71	0.34	2.69	0.90
2015	0.59	1.68	0.29	2.56	0.85
2016	0.54	3.67	0.3	4.51	1.50
2017	0.39	1.33	0.17	1.89	0.63
2018	0.28	1.3	1.1	2.68	0.89
2019	0.32	0.72	0.29	1.33	0.44
2020	0.7	0.7	0.99	2.39	0.80
2021	0.23	1.27	0.06	1.56	0.52
2022	0.33	1.05	0.43	1.81	0.60
Total	4.87	15.42	4.61		
Mean	0.487	1.542	0.461		
SD	0.20	0.81	0.33		
CV	0.40	0.53	0.71		

Source: Panel Data in Appendix

The structure and trend of loan loss provision relative to total loan from 2013 to 2022 are displayed in Table 5. The findings indicate that, at 1.542 percent of the total loan, GBIME had the largest loan loss provision, followed by EBL bank at 0.487 percent. EBL and NICA have the lowest loan loss provisions relative to the total loan amount, at 0.40 and Rs. 0.71, respectively.

Loans and Advances

One sort of debt is a loan. A loan involves the gradual transfer of financial assets between the lender and the borrower, much like all other debt instruments. In a loan, the

borrower first gets or borrows money from the lender in an amount known as the principle, and they are then required to return the lender with money of a similar amount at a later date. The borrowed sum may be returned quickly to accommodate the borrower's schedule. Thus, a firm that borrows money from a bank to finance its working capital needs can operate effectively. Loans and advances are utilized for making payment of current liabilities, wage and salaries of employees, and also the tax liability of business loans and advances from banks.

Table 6

Structure of loans & advances to total deposit ratio of Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	76.98	48.92	77.91	203.81	67.94
2014	73.22	56.87	74.9	204.99	68.33
2015	76.57	58.63	74.55	209.75	69.92
2016	78.01	55.13	64.43	197.57	65.86
2017	66.63	49.11	70.49	186.23	62.08
2018	75.14	56.88	68.85	200.87	66.96
2019	84.05	62.2	65.38	211.63	70.54
2020	81.86	66.45	82.66	230.97	76.99
2021	87.01	70.11	81.96	239.08	79.69
2022	83.52	56.75	79.72	219.99	73.33
Total	782.99	581.05	740.85		
Mean	78.299	58.105	74.085		
SD	5.71	6.40	6.26		
CV	0.07	0.11	0.08		

Source: Panel Data in Appendix

From 2013 to 2022, the structure and trend of the loan and advance to total deposit ratio are displayed in Table 5. According to the results, NICA bank came in second with 74.085 percent, while EBL had the highest loan and advance to total deposit ratio at 78.299 percent. With a loan and advance to total deposit ratio of 58.105 percent, GBIME has the lowest rate. Likewise, the loan and advance to total deposit ratio from in 2022 ranks for the greatest percentage at 82.32 percent, while the loan and advance to total deposit ratio from in 2022 stands for the lowest percentage at 72.4 percent.

Liquidity

The extent to which the price of an asset or security remains unchanged when it is purchased or sold on the open market. A large volume of trading activity is a sign of liquidity. Liquid assets are those that are easily acquired or traded. Liquidity is, put

simply, the capacity to turn an asset into cash fast. Another name for it is marketability. Additionally, a company that is liquid usually has greater financial flexibility to pursue new investment possibilities. Demircuc, Kunt, and Huizinga (2001) discovered a negative correlation between bank performance and liquidity.

Table 7

Structure of liquid assets to total deposits and borrowings of Sample banks

Year	EBL	GBIME	NICA	Total	Mean
2013	35.59	45.69	29.67	110.95	36.98
2014	37.41	44.56	28.94	110.91	36.97
2015	36.59	48.65	25.69	110.93	36.98
2016	32.26	47.07	26.35	105.68	35.23
2017	32.86	47.68	27.31	107.85	35.95
2018	30.84	39.67	30.39	100.9	33.63
2019	25.31	44.81	32.86	102.98	34.33
2020	25.37	49	28.07	102.44	34.15
2021	35.72	47.17	26.76	109.65	36.55
2022	31.46	56.98	25.72	114.16	38.05
Total	323.41	471.28	281.76		
Mean	32.341	47.128	28.176		
SD	4.09	4.16	2.19		
CV	0.13	0.09	0.08		

Source: Panel Data in Appendix

Table 7 displays the liquidity ratio's structure and trend from 2013 to 2022. According to the results, EBL bank had the second-highest liquidity ratio (32.341 percent), behind GBIME (47.47 percent). At 28.176 percent, NICA has the lowest loan and advance to total deposit ratio. Comparably, the liquidity ratio from holds the maximum value in 2017 with 38.05 percent, and the lowest value in 2021 with 34.15 percent.

4.2 Deceptive Analysis

In the above section i.e. analysis of financial highlights shows the average and standard deviation of each bank and also a year-wise average and the standard deviation of all independent and dependent variables taken in the study. In this section it shows the average, standard deviation, minimum and maximum of overall data of bank performance, capital adequacy, and credit risk and liquidity variables.

Table 8***Analysis of descriptive statistics of capital adequacy, credit risk ratio and performance***

Measures\Variables	Mean	Std Deviation	Minimum	Maximum
ROA (%)	1.84	0.22	0.92	2.82
ROE (%)	17.57	2.66	9.79	28.27
CAR (%)	12.85	0.71	11.32	16.31
NPL (%)	1.82	1.94	0.4	4.46
LA (%)	77.17	2.15	57.73	84.4
LLP (%)	1.05	0.66	0.4	2.47
LQD (%)	31.62	1.52	25.38	40.15

Source: Panel Data in Appendix

In table 8 which shows the descriptive analysis of variables, the return on asset ROA of 10 sample commercial banks is 1.84 percent on average. Between a minimum of 0.92 percent and a high of 2.82 percent, there is a significant variation in the return on assets. With a standard deviation of 2.66, the sample bank's average return on equity is 17.57 percent. The return on equity has a minimum of 9.79 percent and a high of 28.27 percent. With a standard deviation of 0.71, the sample bank's capital adequacy ratio is 12.85% on average. The capital adequacy ratio has a minimum value of 11.32 percent and a maximum value of 16.31 percent. With a standard deviation of 1.94, the sample bank's nonperforming loan percentage is 1.82 percent on average. A nonperforming loan has a minimum value of 0.4 and a maximum value of 4.46 percent. With a standard deviation of 2.15, the sample bank's average loan and advance percentage is 77.17 percent. For loans and advances, the lowest figure is 57.73 percent, while the highest value is 84.46 percent. With a standard deviation of 0.66, the sample bank's average loan loss provision is 1.05 percent. The loan loss provision has a minimum value of 0.40 and a maximum value of 2.47 percent. The sample bank's average liquidity is 31.62%, with a standard deviation of 1.52. The lowest liquidity number is 25.38 percent, while the highest value is 40.15 percent.

4.3 Corelation Analysis

In this section the correlation between profitability measures; return on asset and return on equity and explanatory variables; capital adequacy ratio, non-performing loan, loans & advances, loan loss provision and liquidity have been presented and analyzed. A

correlation matrix used to ensure the correlation between explanatory variables. Cooper & Schindler (2010) suggested that a correlation coefficient above 0.8 between explanatory variables should be corrected for because it is a sign for multicollinearity problem. Hair et al(2006) argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem. The ROA reflects the ability of a bank's management to generate profits from the bank's assets and this profitability measure is correlated with other explanatory variables either positively or negatively. In table 9 below, the correlation analysis was undertaken between profitability measure; return on asset and return on equity and explanatory variables; capital adequacy, non-performing loan, loans & advances, loan loss provision and liquidity.

Table 9

Correlation Matrix

	ROA	ROE	CAR	NPL	LA	LLP	LQD
ROA	1						
ROE	0.917**	1					
CAR	0.524**	0.499**	1				
NPL	-0.306**	-0.396**	-0.633**	1			
LA	0.243**	0.139	0.319**	-0.274**	1		
LLP	0.348**	0.470**	0.575**	0.785**	0.239**	1	
LQD	-0.618**	-0.631**	0.516**	-0.347**	0.099	-0.417**	1

Source: Panel Data in Appendix

The single asterisk (*) sign indicates that result is significant at 1 percent level, double asterisk (**) sign indicates that result is significant at 5 percent level.

According to Table 9, there is little link between commercial bank loans and advances and profitability. The correlation coefficient between return on asset and loans and advances is 0.243, the least positive coefficient when compared to other variables. This finding indicates that there is a negative link between the profitability as determined by return on asset and the liquidity of commercial banks, as indicated by the ratio of liquid assets to deposits. The amount that the bank is making on its equity investment is what matters most when calculating return on equity (ROE). Return on equity is positively correlated with capital adequacy, loans & advances, and liquidity, as the accompanying table illustrates. Again in this case liquidity has a considerable relationship with ROE (a coefficient of 0.631) whereas there is a negative correlation of -0.396 between return on equity and non-performing loan.

4.4 Regression Analysis

This study also uses secondary data analysis based on the cross-sectional regression model described in chapter 3 to assess the results' statistical significance and robustness. In order to examine the estimated relationship of bank performance (ROA and ROE) with capital adequacy and credit risk variables for cross-sectional data of 10 sample commercial banks that include 70 observations during the period of 2016 through 2022, it essentially deals with regression results from various specifications of the models 1 and 2.

4.4.1 Effect of Credit Risk on Return on Assets

Table 10 demonstrates that the capital adequacy ratio's beta coefficient is positive in relation to return on asset, suggesting that greater capital adequacy ratios would translate into higher bank profitability. Additionally, it is substantial at the 1% level. According to the table, the beta coefficient for non-performing loans is negative when compared to return on asset, meaning that the profitability of banks will decrease as the number of non-performing loans increases. Additionally, it is substantial at the 1% level. Table 10 demonstrates that the beta coefficient for loan and advance is positive with return on asset, indicating that banks would be more profitable if they made more loans and advances. This relationship is substantial and occurs at the 1 percent level. The table demonstrates that the loan loss provision's beta coefficient is positive in relation to return on asset, suggesting that bigger loan loss provisions would increase bank profitability. Additionally, it is substantial at the 1% level. The table demonstrates that the liquidity ratio's beta coefficient is negative in relation to return on asset, indicating that a larger liquidity ratio would translate into a lower level of bank profitability. Additionally, it is substantial at the 1% level.

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LA_{it} + \beta_4 LLP_{it} + \beta_5 LQD_{it} + e_{it}$$

Where

ROA_{it} = Return on Total Assets firm i in year t

CAR_{it} = Capital Adequacy Ratio i in year t

NPL_{it} = Non Performing Loan firm i in year t

LA_{it} = Loan and Advance firm i in year t

LLP_{it} = Loan Loss Provision of firm i in year t

LQD_{it} = Liquidity of Firm i in year t

β₀ = Intercept (constant term)

β₁, β₂, β₃ = Regression Coefficient for Respective Variables (i.e. the Slope which Represents the Degree with which Share Price Changes as the Independent Variable Changes by One Unit Variable).

Table 10

Regression Analysis I

Specification	Intercept	CAR	NPL	LA	LLP	LQD	F	Adj. R2	SEE
I	-0.010 (-2.15)*	0.232 (6.85)*					46.97*	0.269	0.016
II	0.023 (11.98)*		-0.141 (3.58)*				12.81*	0.086	0.018
III	-0.011 (-1.01)			0.040 (2.79)*			7.76*	0.051	0.019
IV	0.026 (11.36)*				0.675 (4.13)*		17.07*	0.114	0.018
V	-0.023 (-4.64)					-0.143 (8.74)*	76.43*	0.376	0.015
VI	-0.032 (-4.83)	0.124 (3.57)*					32.09*	0.427	0.014

Source: Panel Data in Appendix

The single asterisk (*) sign indicates that result is significant at 1 percent level.

4.4.2 Effect of Credit Risk on Return on Equity

Table 11 demonstrates that the capital adequacy ratio's beta coefficient is positive in relation to return on equity, suggesting that greater capital adequacy ratios would result in higher bank profitability. Additionally, it is substantial at the 1% level. According to the table, the beta coefficient for non-performing loans is negative when compared to return on equity, meaning that the profitability of banks will decrease as the number of non-performing loans increases. Additionally, it is substantial at the 1% level.

$$ROE_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 LA_{it} + \beta_4 LLP_{it} + \beta_5 LQD_{it} + e_{it}$$

Where, ROE_{it} = Return on Equity firm i in year t
 CAR_{it} = Capital Adequacy Ratio i in year t
 NPL_{it} = Non Performing Loan firm i in year t
 LA_{it} = Loan and Advance firm i in year t
 LLP_{it} = Loan Loss Provision of firm i in year t
 LQD_{it} = Liquidity of Firm i in year t
 β₀ = Intercept (constant term)

Table 11
 Regression Analysis II

Spe	Intercept	CAR	NPL	LA	LLP	LQD	F	Adj. R2	SEE
I	-0.006 (0.17)	1.608 (6.41)*					41.07 *	0.243	0.120
II	0.227 (17.05)*		-1.329 (-4.80)*				23.07 *	0.150	0.128
III	0.067 (0.825)*			0.167 (1.56)**			2.44* **	0.011	0.138
IV	0.260 (16.613) *				6.622 (1.118)*		35.09 *	0.214	0.123
V	-0.123 (-3.403)					-1.061 (9.060)*	82.08 *	0.393	0.108
VI	-0.116 (-2.45)**	0.529 (-1.72)** *	-0.392 (-1.34)			-0.851 (6.44)*	32.93 *	0.434	0.104

Source: Panel Data in Appendix

A result is considered significant at the 1 percent, 5 percent, and 10 percent levels, respectively, indicated by the single asterisk (*), double asterisk (**), and triple asterisk (***) signs. According to the data, the beta coefficient for loans and advances is positive when compared to return on equity assets, meaning that banks would be more profitable if they made more loans and advances. Additionally, it is substantial at the 1% level. The table demonstrates that the loan loss provision's beta coefficient is positive in relation to

return on equity, suggesting that bigger loan loss provisions would translate into better potential bank profitability. And it is significant and 1 percent level. The table shows that the beta coefficient for liquidity ratio is negative with return on equity which indicates that higher the liquidity ratio lower would be banks profitability and it is significant and 1 percent level.

4.5 Major Findings

In accordance with the study data and the technique described in Chapter 3, the empirical results were given in this chapter. The examination of secondary data yields similar results on how credit risk and capital sufficiency affect bank performance. The study finds that while nonperforming loans to total loans and loan loss provision to total loans have negative and significant relationships with ROA, capital adequacy, loans and advances, and liquidity have positive and significant relationships with ROA. When it comes to ROE, the ratio of loan loss provision to total loan has a negative and noteworthy relationship. The correlation between ROE and liquidity, capital adequacy, loans and advances, and non-performing loans is positive but negligible.

The major findings from the analysis of data are listed below:

1. NICA Bank Limited has the best return on asset (2.47 percent), while Everest Bank Limited is placed third (2.31 percent). A lower bank standard deviation suggests that the return has been consistent relative to the bank's assets.
2. Throughout the chosen research period, NICA Bank has demonstrated more consistency in generating a comparable return on equity annually. Based on this, the study may determine that NICA Bank has been outperforming the other chosen commercial banks in terms of ROE.
3. GBIME has the greatest capital adequacy ratio (16.31 percent), followed by NICA Bank Limited and EBL. EBL has the lowest CAR, at 11.32 percent.
4. NICA Bank Limited had the largest nonperforming loan (NPL) at 1.79 percent, followed by EBL at 0.60 percent. GBIME has the lowest NPL, at 0.47 percent.
5. GBIME has a 1.43 percent loan loss provision to the whole loan, whereas NICA has the greatest loan loss provision to the total loan at 0.48 percent. EBL has the lowest loan loss provision—0.40% of the total loan—compared to other lenders.
6. The greatest liquidity ratio was recorded by GBIME, at 47.7%, followed by EBL at 30.55 and NICA at 28.21 percent. At 25.31 percent, EBL has the lowest loan and advance to total deposit ratio. Similarly, in the year 2017 liquidity ratio from stands

for highest with 34.86 percent whereas in the year 2021 liquidity ratio from stands for lowest with 26.36 percent.

7. The return on assets ranges widely, from 0.92 percent at least to 2.82 percent at maximum. With a standard deviation of 2.66, the sample bank's average return on equity is 17.57 percent.

The return on equity has a minimum of 9.79 percent and a high of 28.27 percent.

8. The capital adequacy ratio has a minimum value of 11.32 percent and a maximum value of 16.31 percent.
9. The sample bank's nonperforming loan percentage is 1.82 percent on average, with a 1.94 standard deviation.

A nonperforming loan has a minimum value of 0.4 and a maximum value of 4.46 percent.

10. The loan and advance for sample bank on average is 77.17 percent with standard deviation of 2.15. The minimum value for loan and advance is 57.73 whereas maximum value stands for 84.46 percent.
11. The loan loss provision for sample bank on average is 1.05 percent with standard deviation of 0.66. The minimum value for loan loss provision for is 0.40 whereas maximum value stands for 2.47 percent.
12. The sample bank's average liquidity is 31.62%, with a standard deviation of 1.52. The lowest liquidity number is 25.38 percent, while the highest value is 40.15 percent.
13. The bank's return on equity investment is what matters most to ROE. Return on equity is positively correlated with capital adequacy, loans & advances, and liquidity, as the accompanying table illustrates. In this instance, liquidity and ROE have a strong association (coefficient of 0.631), however the link between ROE and NPL is negative (-0.396).

4.6 Discussion

This study, like that of David and Osemwegie (2023) and Joseph and Tabitha (2022), aims to investigate bank credit risk management. It highlights the fact that capital is the one aspect that unites all banking systems worldwide. The analysis differs from those of Stoica (2021), Sinkey (2020), and Rodrik (2019) in that it concludes that significant non-

performing loans (NPLs) raise uncertainty regarding the capital position of the banks and, as a result, limit their access to funding.

The study has found the net effect of increasing the ratio of substandard credits in the bank's credit portfolio and decreasing the bank's profitability, the well capitalized banks face lower need to external funding and lower bankruptcy and funding costs, and this advantage translates into profitability the study is consistent to the study of Robert and Gary (2018), Brownbridge (2017) and Huzinga (2017). The study's goals are to identify the factors that impact bank operational efficiency on bank performance. It bears similarities to the research conducted by Barrios and Blanco (2016), Bashir and Hassan (2016), Odunga (2015), and Ogboi and Unuafe (2015). Ikpefan (2014). The articles' goals are to investigate the degree to which the performance, management, and capital sufficiency of commercial banks are impacted. For the investigation, financial and statistical instruments were employed. It has been discovered that capital adequacy ratios hurt profitability. and discovered that there is a negative association between the return on capital and the management and operational expenditure efficiency as determined by the researcher. The study contradicts the conclusions of Samuel Olausi and Abiola (2013), Pokhrel (2021), and Tiwari (2022) that the dependency ratio is shown by the interest income to total income ratio. With a mean of 2.0484, the interest income to interest expenditure ratio is higher. The loans appear to be efficient and regular. Poudel (2021), Dhakal (2020), and Khadgi (2019) have shown that the credit rate indicates a high level of bank investment in the private sector, which is consistent with the results of credit to the private sector.

The study's findings differ from those of previous research because of the sample of banks chosen, bank performance, return on assets, net profit margin ratio, return on equity, years for data selection, and annual report financial indicator. As a result, the study's conclusions are in conflict with those of previous research, making it contradictory.

CHAPTER V

SUMMARY AND CONCLUSION

This chapter summarises the study's key results and provides a concise synopsis of the full investigation. Furthermore, the main findings are covered in a different section of this chapter, along with some implications and suggestions for improving the capital sufficiency and overall performance of the banking industry in Nepal. The chapter concludes with a discussion of the potential for more study in the same area.

5.1 Summary

The study's overall goals were to determine how credit risk management affected banks' financial performance; its particular goals were to determine how default rate and cost per loan asset affected banks' financial performance. The outcome demonstrated that credit risk management is a significant predictor of banking financial performance, meaning that risk management is essential to bank performance success. Banks are recommended to place greater attention on risk management as it generally contributes significantly to bank performance. The percentage ratio of a financial institution's main capital to its assets is known as capital adequacy, and it serves as a gauge of the stability and soundness of its finances. A ratio that can show whether or not a bank can continue to keep equity capital high enough to pay depositors when they make requests and yet have enough money to lend to grow the bank's assets. The capital adequacy ratios of banks are disclosed in their financial reports. It is expressed as a percentage of assets in terms of equity capital. Regulators often enforce capital requirements in the form of straightforward mechanical norms rather than complex risk models.

This study's main goal is to examine how Nepal's commercial banks perform in relation to capital sufficiency and credit risk management. But the specific goals are to look at how capital adequacy and bank performance relate to each other, to look at capital adequacy, credit measures, and non-performing loans in Nepal's commercial banks, and to find out if credit risk as measured by loans & advances, nonperforming loans, and loan loss provision influences bank performance. The capital adequacy ratio's beta coefficient is positive in relation to return on equity, suggesting that greater capital adequacy ratios would translate into higher bank profitability. Additionally, it is substantial at the 1% level.

This finding is consistent with Abiola (2019), his study was based on Nigerian bank. The table shows that the beta coefficient for non-performing loan is negative with return on equity which indicates that higher the non-performing loan lower would be banks profitability. And it is significant and 1 percent level.

This result is in line with Achou's (2008) research, which focused on banking and finance. The study also shows a negative correlation between return on equity and non-performing loans. According to the study, the beta coefficient for loans and advances is positive when compared to return on asset, meaning that banks would be more profitable if they made more loans and advances. Additionally, it is substantial at the 1% level. This result contradicts Ahmad's (2008) findings, which indicated that there was a negative correlation between loan and advance and return on asset if the study's default percentage for non-payment increased.

The table demonstrates that the loan loss provision's beta coefficient is positive in relation to return on asset, suggesting that bigger loan loss provisions would increase bank profitability. Additionally, it is substantial at the 1% level. The table demonstrates that the liquidity ratio's beta coefficient is negative in relation to return on asset, indicating that a larger liquidity ratio would translate into a lower level of bank profitability. Additionally, it is substantial at the 1% level. This result is in line with Maisel's (1981) research, which found a positive correlation between loan loss provision and return on asset.

5.2 Conclusion

The study's main finding is that there is little correlation between commercial bank loans and advances and profitability. The correlation coefficient between return on asset and loans and advances was 0.243, the smallest positive coefficient when compared to other variables. This finding indicates that there is a negative link between the profitability as determined by return on asset and the liquidity of commercial banks, as indicated by the ratio of liquid assets to deposits. The amount that the bank is making on its equity investment is what matters most when calculating return on equity (ROE). Return on equity is positively correlated with capital adequacy, loans & advances, and liquidity, as the accompanying table illustrates. Again in this case liquidity has a considerable

relationship with ROE (a coefficient of 0.631) whereas there is a negative correlation of -0.396 between return on equity and non-performing loan.

- The study observed a positive relationship between return on assets and capital adequacy hence the bank willing to increase the bank performance (ROA) should increase capital adequacy ratio.
- The study observed a negative relationship between return on assets and loan loss provision. Hence, the bank should limit or reduce the loan loss provision in order to increase bank performance.
- The study observed a negative relationship between return on equity and liquid assets to deposit ratio i.e. liquidity and hence the bank should maintain liquid assets ratio with a view to improve bank performance.
- The study observed a positive relationship between return on equity and capital adequacy. Hence the bank should maintain capital adequacy ratio with a view to increase the profitability of the bank.
- The study observed a negative relationship between return on equity and loan loss provision. Hence the bank should properly evaluate the client before disbursement of loan in order to reduce loan default and increase the bank's profitability.

5.3 Implications

The primary source of income for banks and the source of credit risk is loans. Therefore, it is advised that banks concentrate more on accurately quantifying loans and properly evaluating businesses. Loans must only be given to legitimately in need employees of the specified firm who are able to repay the loans. To prevent loans and investments from defaulting, banks should have their credit portfolios reviewed on a regular basis by the appropriate authorities. This is because defaults or non-performance on loans and investments result in increased provision, which may be extremely costly for banks. It is advised that banks adhere to the sustainable growth strategy as greater financial performance is correlated with larger size, or total assets. Banks are advised to lend more directly to people or businesses in order to give them access to bank financing and increase bank profitability, since the expense of lending does not appear to have a materially detrimental effect on the financial performance of commercial banks. Interest rate spreads are beneficial to commercial banks', especially banks', bottom lines.

Further Researcher

Additional data can be used by researchers in the future to strengthen their conclusions and broaden their analysis. In order to validate the study's findings, additional researchers can employ a variety of instruments and methodologies. Additionally, researchers can apply these techniques to populations within the manufacturing and public sectors, allowing the study's conclusions to be verified in various contexts and applied broadly to all business domains.

Policy Level

In the context of Nepal it is provided to the borrowers who often go to the bank not in the new financial sector.

Management Level

The study can start this process on a regular basis. Following the approval and distribution of credit, in-person inspections should be performed, and there should also be recurring, careful observation of the borrowed units' accounts' activities. Supervisors in charge of the credit monitoring and recovery division must to be dynamic in their job. Having regular conversations with the branch workers and considering their recommendations for collecting outstanding balances is something that many managers remark. Finally, we must never lose sight of the moral precept that "giving life is better than killing." Stated differently, it is important to remember that loan recovery is preferable than auction.

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ABSTRACTS Finding out how credit risk management affects Nepali commercial banks is the study's primary goal. Three commercial banks, out of which twenty were active in the Nepali economy, are used as the sample for the study. The World Bank's database on macroeconomic indicators for the years 2013 to 2021/22 and Nepal Rastra Bank's database on bank-specific variables provided all of the study's data. The impact of credit risk on Nepalese commercial banks' performance has been investigated in this study. For this study, the descriptive and causal comparative research designs have been used. The regression model has been used to analyse the combined data from three commercial banks. The findings of the regression analysis showed that while "cost per loan assets"

has a favourable **impact on bank performance** , "non-performing loan ratio" **has a negative impact**