

CREDIT MANAGEMENT OF COMMERCIAL BANK IN NEPAL

A Dissertation Submitted to the Office of the Dean, Faculty of Management in Partial
Fulfillment of the Requirements for the Master of Business Studies (M.B.S.)

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June, 2024

CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **CREDIT MANAGEMENT OF COMMERCIAL BANK IN NEPAL**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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REPORT OF RESEARCH COMMITTEE

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We, the undersigned, have examined the thesis entitled **Credit Management of Commercial bank in Nepal** presented by Samjhana Dhakal a candidate for the degree of Master of Business Studies (MBS Semester) and Conducted the Viva- Voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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Perfection is anything can hardly be thought of knowing the universal fact "Human is Error", I Have taken utmost care to avoid errors, but I know they are inescapable, so I shall be obliged if they are forgiven.

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ABBREVIATION

A.D.	:	Anno Domini
ATM	:	Automatic Time Money
B.S.	:	Bikram Sambat
CV	:	Coefficient of Variation
DBL	:	Dubai Bank Limited
F.Y.	:	Fiscal Year
GIBL	:	Global IME Bank Limited
Govt.	:	Government
HBL	:	Himalayan Bank Limited
JVBs	:	Joint Venture Banks
KBL	:	Kumari Bank Limited,
LLP	:	Loan Loss Provision
Ltd.	:	Limited
M.B.S.	:	Master of Business Studies
NABIL	:	Nabil Bank Limited
NEPSE	:	Nepal Stock Exchange
NIMB	:	Nepal Investment Mega Bank Limited
NPL	:	Non Performing Loan
NRB	:	Nepal Rastra Bank
NSBI	:	Nepal State Bank Limited
PE	:	Probable Error
RI	:	Risk Index
ROA	:	Return on Assets
ROE	:	Return on Equity
Rs.	:	Rupees
SD	:	Standard Deviation
SDBL	:	Siddhartha bank limited
T.U.	:	Tribhuvan University

ABSTRACT

The researcher has identified a research problem and established objectives aimed at addressing issues related to credit management within selected commercial banks, as outlined in the introduction chapter. The primary goal of the study is to conduct a comparative analysis of credit management practices among Global IME Bank Limited, Nepal Investment Mega Bank Limited, Nabil Bank Limited, and Kumari Bank Limited, focusing on enhancing customer experiences across various touch points. This research relies on secondary data sources, including annual reports, official reports, economic journals, financial statements, and authorized websites of the concerned banks, as well as the Nepal Stock Exchange. To augment the effectiveness of the study, pertinent literature has been thoroughly reviewed, providing a foundational understanding to conduct precise research. The literature review serves as a knowledge base for comprehensively exploring the subject matter. Furthermore, the study offers an overview of key financial metrics such as Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), and Loan Loss Provision (LLP). These metrics provide insights into the financial performance and risk profiles of the banks under examination, shedding light on their interrelations and influences on overall financial performance. The research employs regression analysis, with ROE as the dependent variable and CAR, NPL, CRR, and LLP as independent variables. The model's R-squared value indicates its explanatory power in elucidating variations in ROE, while the F-statistic underscores its overall efficacy in predicting ROE. This regression model serves as a valuable tool for both prediction and comprehension of the determinants of ROE, underscoring the significance of the model in explaining variations in ROE. The high significance of the F-statistic underscores the model's robust explanatory capacity.

Keyword: Return on Equity, return on Assets, capital Adequacy Ratio, Non Performing Loan Ratio, Cash Reserve Ratio, Loan Loss Provision.

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Banking sector plays a vital role for the economic Commercial of the countries. Banking institutions are inevitable for the resources mobilization and all the Commercial of the country. They have resources for economic confidence of various segments and extend credit to people. The banking sector is largely responsible for collecting household savings in terms of different types of deposits and regulating them into the society by lending them in different sectors of the economy. The banking sector has been reached in the most remote areas of the country and has experienced a good deal in the growth of the economy by lending its resources in small scale industries under intensive banking program that has enable the banks to share economic growth of the country (Bhattarai, 2016).

Risk management in banking contains a combination of processes and models, results of scientific research, that banks base on them to implement risk- based policies and practices. A broad range of innovative and evolutionary financial products, available globally at current time, have taken place and turned banking into a dynamic and active risk management process of assets and liabilities in a low regulated, high-risk environment. Banks are not any more practice traditional financial intermediation in low risk environment (Mark, Sergio, Carolina and Tarazona, 2020).

A complex system of techniques and management tools are used from banks to measure, monitor and control risks that are mainly categorized in credit risk, market risk, interest rate risk, liquidity risk, credit risk and legal risk. In fact, risk is referred to any uncertainty that might bring losses and good management of this enhances the return profile of the bank portfolio. Main progress and goal in this area is the creation of new quantified risks measures for all above categories, providing also new categories of risks and the creation of more realistic indicators (Pandey, 2019).

The fact that today's risks may become tomorrow's losses and that maybe is not something immediate visible makes risk measurement imperative need for the banks

and the department that deals with it essential for the survival of the organism. The basic reasons that made the risk-based practices to develop quickly have major incentives to move rapidly in that direction, regulations developed guidelines for risk measurement and for defining risk-based capital (equity) and the risk management 'toolbox' of models enriched considerably, for all types of risks, providing tools making risk measures instrumental and their integration into bank processes feasible (Natufe & Esther, 2023).

Commercial banks are the central part of financial institutions and they are the most visible series of financial intermediaries. They hold the deposits of many persons, government, establishments and business units. They make funds available through their lending and investing activities to borrow business firms, industries, and individuals etc. Bank is a resource for the economic Commercial which maintains the self confidence of various segments of society and extends credit to people (Pradhan & Shah, 2019).

There is high liquidity in the market but there seems no profitable place to invest. At the same time, the bank and financial institutions are offering very low deposit interest rate. In this situation Nepalese JVBs are required to explore new opportunities to make investment if they want to survive in the competitive market. Since Commercial banks can inspire entrepreneurship, the banks should also consider national interests and government emphasis for the economic growth of the country by the Commercial of industry, trade and business and to fulfill the objective of profit making (Subedi, 2019).

Reviewing risk management systems and security position of the bank in respect of exposure to credit risk, credits risk, market risk and other risks. Advising and recommending the board on management actions required for achieving the desired level of effectiveness and compliance in response to GBIME, SBL, EBL and KBL.

1.2 Statement of the Problem

The success and failure of the Commercial banks alocs largely depends on the total Credit risk management of the banking sector. It is important to determine the factors affecting the Credit risk management and its management. This study is assist to reveal how the banking sector of the Nepal manages the credit risk. Financial institutions are increasing regularly (Bhattarai, 2016). Liquidity is at maximum level with the financial

institutions. Hence, the banks and financial institutions are competing among themselves to advance credit to limited opportunity sectors. Due to the unhealthy competition among the banks, the recovery of bank credit is going towards negatives (Pradhan & Shah, 2019). Non-performing loan of the banks are increasing year by year. It is control such type of state condition, the regulatory body of the banks and financial institutions; NRB has renewed its directives of the credit loss provision. Since the objectives of the Commercial banks are wealth maximization and achievement of organizational objectives contribute to the national economy (Subedi, 2019). Especially the study is expected to reveal the following research questions:

- Does the pattern of Return on Equity, Return on Assets, Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), Loan Loss Provision Ratio (LLP), Liquidity Ratio (LR) and Bank Size (BS) on the credit risk performance of commercial banks in Nepal?
- Do Return on Equity and Return on Assets have a relationship with Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), Loan Loss Provision Ratio (LLP), Liquidity Ratio (LR) and Bank Size (BS)?
- How do Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), Loan Loss Provision Ratio (LLP), Liquidity Ratio (LR) and Bank Size (BS) affect Return on Equity and Return on Assets in the credit risk performance of Commercial Banks in Nepal?

1.3 Objectives of the Study

The main objectives of the study are as follows:

- To describe the return on equity, return on assets, capital Adequacy Ratio (CAR), non performing loan ratio (NPL), cash reserve ratio (CRR), loan loss provision ratio (LLP), liquidity ratio (LR) and Bank Size (BS) on credit risk performance of Commercial Banks in Nepal.
- To examine the relationship between return on equity and return on assets have a relationship with capital adequacy ratio (CAR), non-performing loan ratio (NPL), cash reserve ratio (CRR), loan loss provision ratio (LLP), liquidity ratio (LR) and bank size (BS).

- To analyze the effect of return on equity and return on assets with capital adequacy ratio (CAR), non-performing loan ratio (NPL), cash reserve ratio (CRR), loan loss provision ratio (LLP), liquidity ratio (LR) and bank size (BS) affect return on equity and return on assets in the credit risk performance of commercial banks in Nepal.

1.4 Rationale of the Study

Research itself is very important because it aims to gain knowledge and to add the new literature in existing field. Thus, the research has its own imperative. Mainly, the study is important for the researcher to fulfill the academic requirement of master degree. On the other hand, the study is important for Commercial banks, researchers, scholars, investors, government and many other parties. At last, it is expected that the study will add a drop of literature in the field of Commercial banks and their capital structure. The business of banking is to measure, manage and accept risk. It is known that the credit risk managements a major factor facing by any banking industry. It is the uncertainty associated with the borrowers' loan payment. In general, when borrowers' assets value exceeds their indebtedness, they repay their loan but when borrowers' assets values are less than borrowers loan value, they may not repay. Thus, it is important that lenders be able to value the borrowers' assets and to estimate a borrower's probability of default.

Lenders should be very careful when they grant the loans, for that they need to acquire proper information about the borrowers. Successful Commercial lender needs good communication skill and clear vision to analyze borrowers planning and ability. Despite of being a very crucial topic of financial management, many researchers have not been made for this topic. At present the joint venture banks are gaining a wide popularity through their efficient management and professional services and playing an important role for the economic growth.

This study will comprises such information which will be advantageous for shareholders, management bodies of the bank and outsiders i.e. other financial institution, potential investors, stock brokers etc.

- i. This research identifies credit risk management and related factors of Commercial banks, their risk management styles and NRB's guidelines.

- ii. Investor and depositor also can know about the credit risk management with these banks to carry out business.
- iii. Students and teachers will also benefits from this research paper.
- iv. Individuals, who have known interest in Nepalese financial sector and banking sector, will be benefited.

1.5 Limitation of the Study

The limitations of the study are as follows:

- i. This study is concentrated on analysis of credit risk management of Commercial banks.
- ii. Global IME Bank Limited Siddhartha bank limited Everest Bank Limited
- iii. And Kumari Bank Limited, taken for the study.
- iv. This study is based on secondary data and information provided by the banks.
- v. This study covers 10 years data from 2013/014 to 2022/023.

CHAPTER II

LITERATURE REVIEW

This chapter presents the conceptual review of Credit risk management including different types of risk that existing in banking business, Credit risk management system and Credit risk management framework and techniques. The central bank's regulations regarding the risk management have been also discussed. This chapter deals with literatures relevant to this study.

Conceptual framework which consists concepts of banking, Commercial banks, joint venture banks, concept of credit, techniques of credit risk management, etc. Review of books, journals articles related to commercial banks and joint venture banks.

2.1 Theoretical Review

The theoretical literature review helps to establish what theories already exist, the relationships between them, to what degree the existing theories have been investigated, and to develop new hypotheses to be tested. The section highlights four theories that the study is anchored upon. They include: asymmetric information theory, transaction cost theory, portfolio theory and loan able funds theory. Its major assumption is that the demand for loans and supply of credit determine the credit interest rates. Another assumption of the theory is that there is an inverse relationship between interest rates and loan able funds. In case there is a change in the supply and demand of credit then the rate of interest will be determined by the movement of the demand and supply curve of the credit. The theory explains that the demand of credit comes from foreign borrowers, consumers, domestic borrowers and government. The supply (on the other hand) is from domestic savings and from money created from foreign lending and from the banking sector. These are the factors that affect interest (Espy, 2005).

Rates in the long term however in the short term, interest rates are determined by the economy's monetary and financial conditions (Gorder, 2009). This theory will be used in the study to explain the effect of client appraisal on financial performance of microfinance institutions.

A. Asymmetric Information Theory

The asymmetric information theory was first explained by Akerlof's in the 1970. The theory explains that information asymmetry exists when banking lending applications are being assessed. This theory explains when important information is unknown to every party involved in a transaction (Ekumah and Essel, 2003).

Espy (2005) explains the condition whereby the parties that are part of transaction are not aware of all the important facts. The theory explain that when information asymmetry is perceived then financial institutions have two core challenges including moral hazard, in the monitoring of the behavior of the entrepreneur and adverse selection whereby the firm makes errors as it lends to the wrong people. Transaction cost theory provides an important framework that is used to make decisions that are in regard to the organizations vertical boundaries.

Williamson (2000), points out that transaction happens if a service or good is transferred across technologically separable interfaces. When one activity ends another commences. This theory was first explained by Schwartz (1974), whereby according to him, suppliers have an upper hand compared to lenders as they can get information on the credit worthiness of their customers. Suppliers are also able to monitor and ensure full payment of debts by their customers. These advantages give suppliers an advantage in terms of cost compared to traditional lenders.

On the credit market, in the course of the credit relationship between the bank and the borrower, information asymmetry generates two main problems: adverse selection and moral hazard. Due to the existing information asymmetry between the bank and the borrower, the phenomenon of adverse selection or anti-selection is manifested before signing the loan agreement. After signing the loan agreement and granting the credit, information asymmetry becomes a source of moral hazard. Adverse selection implies an immoral effect of market functioning, the effect that generates informational problems. These problems occur when there is a lack of observation of the characteristics of a product or service. There are situations where a loan applicant holds more information than a bank, more precisely the loan applicant may conceal some information about his/her characteristics: market position, competition, dependence on a partner, possible

unpaid claims that may become nonperforming, prospects of continuity of the activity for certain sectors of the economic activity, etc. The attitude of the loan applicant, not to provide the bank with this information, is immoral and the bank is not able to correctly observe the quality of the loan applicant. The example illustrates a situation of ex-ante information asymmetry where the bank is subject to an adverse selection problem.

On this issue, Akerlof (1970) considers that the adverse selection, which occurs before the signing of the loan agreement, results from the fact that information about the characteristics of the borrower is dissimulated. In a credit relationship, poor-quality borrowers, by hiding information, seek to be considered as good-quality clients, thus presenting themselves as risky clients. Also, by accepting a high interest rate, increased costs, the risky borrowers are asking for loans, not worried about the loan repayment. Of course, the most risky borrowers bring great damage to good-quality borrowers, negatively influencing the creditworthiness, namely the performance category of companies operating in a particular field, having partnerships with the same economic operators, etc. Hence, another immoral effect of the functioning of the credit market rises. As a result, banks are in a great difficulty to make a positive difference between borrowers of good quality and borrowers of poor quality. At the same time, it can be noticed the difficulty of banks to select the most cost-effective, the most secure financing projects. Equally well, it can be remembered that ex-ante information asymmetry induces an immoral, ineffective credit allocation. In this context, the interest rate seems to be a good mechanism for selecting loan applicants. Through a rigorous and careful analysis of acceptance of credit conditions, the bank can differentiate loan applicants according to their quality. Those who are willing to borrow at high interest rates, with approval conditions imposed by the restrictive bank, with tight monitoring and execution deadlines, are loan applicants whose projects are the most risky.

Conversely, loan applicants who do not agree to borrow against high interest rates, they require a review of the terms of the approval until a balanced formulation thereof is reached, so that they can be met, with deadlines to allow meeting these conditions, they propose projects for less risky financing. In view of the above, banks will also try to conceal the issue of information asymmetry by separating the two categories of financing projects: very risky projects and less risky projects.

Reduction in the effects of information asymmetry and their effective management should be major concerns for any bank. It is essential that a bank identifies the appropriate means for knowing and managing the causes of information asymmetry, mainly adverse selection and moral hazard. Stiglitz and Weiss (1981) believe that borrowers should also be interested in reducing the adverse consequences of information asymmetry. Borrowers and banks have different perceptions about information asymmetry. For example, quality borrowers see the adverse selection as a problem that may cause their loan applications to be denied. For banks, increasing their exposure to credit risk is due to the behaviour of borrowers and information hidden by them.

These are the first theories of trade credit that emerged. Trade credit arises from financial market imperfections (Emery, 1984). There are versions of the financing theory including the information advantage theory, liquidity (and financial distress) theory, asset liquidation theory and monetary policy effects. The information advantage theory posits that suppliers have information advantage over traditional financial intermediaries and are therefore able to engage in financial intermediation at lower transaction costs. Suppliers gain information about their clientele as a by-product of their close proximity and regular interaction (Petersen and Rajan, 1997), making it easier and cheaper for them to establish the creditworthiness of their clientele *ex ante* and monitor and enforce credit contracts *ex post* (Emery, 1984). In cases of default, suppliers are better able to establish whether the default is intentional or unintentional, to inform appropriate actions (Ng et al., 1999). In addition, suppliers deal with customers that are relatively homogenous, making it easier and cheaper to collect information as oppose to a heterogeneous clientele portfolio of banks.

B. Asset Liquidation Theory

The asset liquidation theory dictates that firms have advantage over traditional financial intermediaries in seizing and liquidating the assets of defaulting borrowers at lower transaction cost. This is because suppliers and buyers operate within the same or similar value chains (Emery, 1984). The liquidity theory focuses on suppliers with excess liquidity investing in trade credit to generate returns. According to Schwartz (1974), firms with easier and cheaper access to credit in the capital markets may have the

incentive to borrow and in turn use the funds to finance the purchases of customers who may be credit rationed. This is referred to as 're-distributional' role of trade credit (Meltzer, 1960). The optimal level of trade credit is attained when the marginal revenue of supplying trade credit is equal to the marginal cost (Emery, 1984). The effect of changes in monetary policy on trade credit supply and demand is at the macro-level. In a tight monetary policy regime, interest rates are driven up and credit rationing increases, constraining the ability of firms to access credit from capital markets. The credit rationed firms will thus tend to depend more on their suppliers to finance their purchases. Therefore, trade credit use will increase under tight monetary policy regime and vice versa (Meltzer, 1960; Schwartz, 1974). This has been confirmed by Meltzer (1960) and Mateut et al. (2006). Periods of economic downturns and financial crisis also increase trade credit activity (Lin and Chou, 2015).

C. Portfolio Theory

Portfolio theory first came up in the 1950s to early 1970s and was seen as an advancement in the mathematical modeling of finance. From its Commercial there have been numerous practical and theoretical criticisms against the theory. One of these is that financial returns are not based on a Gaussian distribution or any symmetrical distribution for that matter (Michael and Sproul, 1998). Portfolio theory models assets return as elliptically distributed or a normally distributed portfolio, the risk is defined as the standard deviation of return and the portfolio is modeled as a combination of weighted assets such that the portfolio return is a weighted combination of assets returns. Different assets are combined that do not have a perfectly positively correlated returns which allows the theory to reduce the portfolio return variance. The theory further assumes that the market is efficient and the investors are able to make rational decisions (Sharpe, 1964).

2.2 Empirical Review

Mohamed (2024) explained on credit management approaches and financial performance of industrial banks. The general objective of this study was to examine credit management approaches and the financial performance of industrial banks. It was based on three specific goals, to investigate the connection between client evaluation and

industrial financial performance, to investigate the connection between credit collection methods and industrial financial performance, and to examine the relationship between credit monitoring techniques and financial performance of industrial Banks. The study was based on a correlation research design and a quantitative approach. Data was collected using closed-ended questionnaires. Sixty-five respondents were involved in the study and were all selected by use of a census enquiry. Data collected was entered into the SPSS computer package. Using the SPSS, Pearson's correlation analyses were carried out to establish the relationship between study variables. The findings showed that there is a statistically significant positive association between clients' assessments and industrial banks' financial performance. There is a statistically significant positive relationship between credit collection techniques and financial performance of industrial Banks and there is a statistically significant positive relationship between credit monitoring techniques and financial performance of industrial banks. It was implicate that credit officers in industrial banks should start treating the issue of collateral security more seriously during appraisal of credit applicants. In this case, all credit applicants should be required to offer collateral security to the bank before their credit applications are approved. Furthermore, on top of the other credit collection techniques, industrial banks should start offering discounts to clients who clear their loan obligations in time, should start attaching collateral assets of defaulting credit customers and should even use the services of private collection agencies during credit collection.

Natufe and Esther (2023) examined on the credit risk management and the financial performance of deposit money banks: some new evidence. This study examined credit risk management and return on equity of Nigerian deposit money banks (DMBs) twelve (12) years (2010–2021) post-adoption of the common accounting yearend as mandated by the Central Bank of Nigeria (CBN) in 2009. Our data set comprises independent variables of capital adequacy ratio (CAR), liquidity ratio (LQR), loan-to-deposit ratio (LDR), risk asset ratio (RAR), non-performing loans ratio (NPLR), loan loss provision ratio (LLP), and size (SZ). Our dependent variable is the return on equity (ROE). Using a panel data regression analysis, it is found that CAR, RAR, NPLR, and SZ are the significant determinants of ROE. That is also found the Nigerian DMBs now significantly rely on offshore borrowings in Eurobonds to create risk assets to overcome

CBN's constriction on using local depositors' funds to create risk assets. Furthermore, we found that shareholders of DMBs with international banking licenses in Nigeria within the study period were not significantly more compensated for their risk exposure than investors in risk-free assets (treasury bills). Therefore, the CBN should continue strengthening its regulatory functions with regular reviews that would compel improvements of the DMBs' credit risk management systems to mitigate the likely failure of the credit life cycle of granted loans. Additionally, a review of its current regulatory cash reserve ratio of 37.5% is imperative to reduce DMBs' dependence on offshore funding and its associated foreign exchange risk.

Bagale (2023) explained on credit risk management and profitability of commercial banks in Nepal. A strong credit risk management avoids significant drawback and increase financial performance of banks. Good financial performance rewards employee as well as shareholders for their working environment and investment. The credit risk management is an important predictor for the profitability of the bank. Therefore, the credit risk management greatly impact on profitability of the bank. Data were collection from the sample of 15 commercial banks operated in Nepali economy for the period of 2011 to 2020 have been collected and analyzed using mean, standard deviation, correlation and regression analysis. Pooled regression analysis model (OLS) of panel data analysis is used as a major tool of analysis. In the model specification return on equity (ROE) was used as bank profitability indicators while capital adequacy ratio, cash reserve ratio, loan loss provision ratio, non-performing loan ratio and bank size were used as indicators of credit risk management. The finding indicates that credit risk has the significant impact on profitability of commercial banks in Nepal. The study reveals that cash reserve ratio, loan loss provision ratio and non-performing loan ratio has insignificant negative impact on return on equity in Nepali commercial bank. The study reveals that bank size and liquidity ratio has positive impact on return on equity. The study also reveals that liquidity ratio has significant positive impact on return on equity in Nepali commercial bank. Capital adequacy ratio also reveals has significant negative impact on return on equity. Thus, this study concludes that the credit risk management is an important predictor for the profitability of the bank. Therefore, the success of the bank in term of profitability depends on its credit risk management.

Brahmaiah (2022) studied on credit risk management practices of Indian banking industry: an empirical study. The primary objective of this paper is to examine the risk management techniques and practices of credit risk management followed by Indian Commercial banks for the period from 2021-2017 to 2020-2021. The other objective is to compare risk management practices followed by the public sector banks (PSBs) and private sector of banks (PVBs). The study uses a sample of twelve banks consisting of six largest public sector banks (PSBs) and six largest private sector banks (PVBs) for the study. The sample accounts for 78% of the banking business of the country. The study finds that the scheduled Commercial banks (SCBs) are facing credit risk, market risk and operational risk. The study finds that the credit risk management process and practices include risk identification, risk assessment, risk analysis, risk evaluation, risk monitoring and risk control. The study finds that private sector banks (PVBs) have better credit risk management practices as compared to that of public sector banks (PSBs). The PSBs have more NPAs than PVBs whereas PVBs have better asset quality and better profitability ratios than PSBs during the study period.

Odion, Yusuf and Shuaibu (2022) studied on effect of credit management on profitability of deposit money banks in Nigeria. Despite the reported importance of credit risk management on profitability of firms in the literature, there still exist a gap to be filled, as very few studies have empirically examined the relationship between credit risk management and profitability, especially in developing economies like that of Nigeria. Consequently, this study examined the effect of credit risk management on the profitability of deposit money banks in Nigeria using non-performing loans, loan loss provision and growth in interest earnings on loans and advances as proxies for credit risk management. Therefore, for a period of 5 years, between 2015 and 2021, the impact of these proxies on the profitability of deposit money banks was analyzed in this study using correlation and regression analysis processed on STATA 13 statistical software. Three hypotheses were formulated in null form and were tested by the study. Based on the empirical analysis, the study found a positive non-significant relationship between non-performing loans and profitability. The study also found a positive insignificant relationship between loan loss provision and bank profitability. On the contrary, the study found a negative but significant relationship between growth in interest earnings on loans

and advances and the profitability of deposit money banks. Therefore, it is recommended that given the current supervisory and regulatory policy frameworks for banks, credit risk managers should be less concerned with adjustments in the ratios of non-performing loan and loan loss provision as the values of these ratios have no significant effects on performance but should instead be more prudent on the management of the growth in interest earnings on loans and advances as it has a significant effect on performance.

Piao and Xiao (2022) illustrated on risk management analysis of modern Commercial banks using behavioral finance, with the increasing trend of economic globalization, China's pace of promoting interest rate mercerization is gradually accelerating, and financial market volatility is increasing day by day. Credit risk is at an all-time high for Commercial banks. The most significant risk that banks face is credit risk. The methods and technologies of Commercial bank risk management have improved with the accelerating process of financial globalization, but the rationality of risk managers who implement daily management is limited and will be influenced by emotion and will. As a result, they will be unable to implement completely unbiased risk management, i.e., they will not be able to apply risk management objectives to daily risk management in an optimal manner. The importance and measurement complexity of Commercial bank credit risk is growing in tandem with the financial market's increasing complexity. The traditional credit risk assessment model is no longer adequate to meet the requirements of today's financial risk management system. The research into the credit risk assessment model is both theoretically and practically significant.

Riak and Bill (2022) studied on the role of credit management on financial performance. This is the function within a bank or company to control credit policies that will improve revenues and reduce financial risks. A key requirement for effective credit management according to the scholars like Parrenas, (2005), is the ability to intelligently and efficiently manage customer credit lines. In order to minimize exposure to bad debt, over-reserving and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns. It should be noted that the firm's credit policy is greatly influenced by economic conditions. As economic conditions change, the credit policy of the firm may also change. Microfinance Institutions and other finance institutions must develop a credit policy to govern their credit management

operations and since microfinance institutions generate their revenue from credit extended to low income individuals in the form of interest charged on the funds granted the loan repayments may be uncertain. The success of lending out credit depends on the methodology applied to evaluate and to award the credit and therefore the credit decision should be based on a thorough evaluation of the risk conditions of the lending and the characteristics of the borrower.

Yeasin (2022) analyzed on impact of credit risk management on financial performance: A study of Commercial banks in Bangladesh. As credit risk is affecting the banking industry of Bangladesh, the study aims to analyze the impact of credit risk management on financial performance of Commercial banks. The study applied a deductive research design with targeting 6 Commercial banks in Bangladesh, all with data spanning ten years 2010 to 2019 with secondary data by employing panel regression analysis model. Four factors affecting financial performance of Commercial banks in Bangladesh were selected and analyzed. In the study Return on asset (ROA) are used as Bank performance measurement tools and non-Performing loan (NPL), Capital Adequacy ratio (CAR) and loan to deposit ratio (LDR) are used as Credit risk indicators. The result of panel data regression analysis showed that Non-performing Loan (NPL), Capital Adequacy Ratio (CAR) had negative and statistically significant impact on financial performance of Commercial banks. Therefore, the credit risk is negatively affecting the financial performance of Commercial banks.

Bussmann et al. (2021) examined on explainable machine learning in credit risk management. The paper proposes an explainable Artificial Intelligence model that can be used in credit risk management and, in particular, in measuring the risks that arise when credit is borrowed employing peer to peer lending platforms. The model applies correlation networks to Shapley values so that Artificial Intelligence predictions are grouped according to the similarity in the underlying explanations. The empirical analysis of 15,000 small and medium companies asking for credit reveals that both risky and not risky borrowers can be grouped according to a set of similar financial characteristics, which can be employed to explain their credit score and, therefore, to predict their future behaviour.

Enoch, Digil and Arabo (2021) assessed on a comparative evaluation of the effects of credit risk control on the profitability of micro-finance bank. When assessing lending applications, banks face the problem of inadequate information needed to screen potential borrowers. The relevant information needed to evaluate the commitment of the entrepreneur and the likelihood of the business is challenging to interpret or even absent. This creates risk for the banks. Therefore, it is of paramount importance to give much consideration to credit management first before embarking on lending. In this research, we used both primary and secondary sources. We adopt a multi-stage sampling method by selecting a set of 21 respondents from a population of 52 credit officers. Questionnaires were used to collect data from the respondents while descriptive and inferential statistics were used to analyze the data collected and in testing the hypotheses. Specifically, we used simple percentage and regression analysis. It is used the software SPSS (Statistical Package for Social Science) to implement the statistical techniques mentioned above. The results showed that microfinance banks need to strengthen their credit risk control measures to increase their profitability. This is because if properly adopted it helps to decrease the percentage of payments defaults. Credit management is important in improving the financial performance of microfinance banks and this is attributed to the fact that sound and grounded credit management (client appraisal) allowed the bank to be efficient and have the availability of liquidity.

Orichom and Omeke (2021) examined on capital structure, credit risk management and financial performance of microfinance institutions in Uganda. The paper examines the relationship between capital structure, credit risk management and financial performance of microfinance institutions in Uganda based on agency theory. The study adopted a cross-sectional research design to examine 64 MFIs in Uganda. Correlation and multiple regression analysis were performed to analyze the data. The results reveal that credit risk management significantly contributes to sound financial performance. Second, capital structure is not significantly related to financial performance. Therefore, credit risk appraisal, credit risk monitoring and credit risk mitigation are essential in achieving sound financial performance of MFIs. However, the structure of debt or equity does not necessarily affect financial performance. Hence, managers should endeavor to instill risk

preventive and control mechanisms so as to mitigate credit risks and achieve positive financial performance of MFIs.

Olobo et al. (2021) investigated on credit risk management practices and performance of commercial banks in South Sudan. The study was set to examine the extent to which Credit Risk Management Practices influence banks' performance in South Sudan. Credit Risk Management practices were looked at in terms of Credit Risk Identification (CRI) Credit Risk Assessment (CRA) and Credit Risk Control (CRC). The study applied a cross-sectional survey design with 124 respondents linked to the Credit process across 7 sampled banks in Juba. Cluster, purposive and sample random techniques were employed in gathering data using structured questionnaires and interview guides. The study revealed a strong positive correlation between risk management practices and bank performance is less than 0.01. Credit Risk Assessment (CRA), Credit Risk Identification and Credit Risk Control all revealed significant results the study further revealed that a unit increase in CRI and CRA and CRC, increased bank performance.

Rafał and Marta (2021) elaborated on drivers of individual credit risk of retail customers (a case study on the example of the polish cooperative banking sector). The main aim of the research was to determine the key factors determining the level of credit risk of individual clients on the example of Polish cooperative banks according to the following features: transaction characteristics, socio-demographic characteristics of the customer, the customer's financial situation, the customer's history of cooperation with the cooperative bank where they applied for a loan, and the customer's history of cooperation with other financial institutions. For the research gathered data from 1000 credit applications submitted by individual customers when applying for a credit in five different cooperative banks were used for the analyses. To assess the credit risk of retail clients it use log it regression models, and additionally, score cards were calculated. The results of the research indicate that among the factors with high predictive power there were the features characterizing the client's history of cooperation with the cooperative bank, where they applied for a loan. It may mean that when assessing credit risk related to financing individual customers, cooperative banks due to their local character have an advantage over other financial institutions.

Tunji and Kameel (2021) researched on credit risk management and financial sustainability of listed deposit money banks in Nigeria. Financial sustainability is generally believed to be the consistent key indicator of how a company is being managed presently and looking at enhanced performance in the future. However, the quality of risk assets and its management can change the entire performance of the company and consequently; its financial sustainability. This study examined the effect of credit risk management on the financial sustainability of listed deposit money banks in Nigeria. The study adopted an Ex-post facto research design. The population consisted of all 14 listed Deposit Money Banks (DMBs) in Nigeria as at December 31, 2019 out of which a sample of 12 banks were purposively selected based mainly on availability of complete data for ten years period (2010–2019). Secondary data extracted from the financial statements were analyzed using descriptive and inferential analyses. The population of 14 banks accounted for 53.85% of banks in operation. The study found that credit risk management (CRM) proxied by Loan Deposit Ratio (LDR), Non-performing Loan (NPL) and Assets Growth Percentage (AGP) had a positive significant effect on CAR of listed DMBs in Nigeria. Bank Size (BS) significantly moderated the relationship between the CRM and CAR of listed DMBs in Nigeria. However, CRM had no significant effect on ROCE of listed DMBs in Nigeria. BS significantly modified the relationship between the CRM and ROCE positively. Overall, CRM positively and significantly affected the financial sustainability of listed DMBs in Nigeria. The study concluded that credit risk management has a positive significant effect on financial sustainability of listed DMBs in Nigeria. This study recommended that regulators should adopt a risk based approach in determining capital adequacy requirements and give special attention to banks that are too big to fail while DMBs' managements should ensure that all the board members and executive managements amongst other stakeholders are trained to appreciate the functions and responsibilities of credit risk management.

Kulchittivej, Pornpundejwittaya and Silpcharu (2020) investigated on credit management guidelines to strengthen Thai industrial sector. This research investigates the credit management guidelines to strengthen Thai industrial sector. The research has been simulated from the findings of both qualitative and quantitative of 500 questionnaires distributed to industrial business executives in Thailand. The data were analyzed by

descriptive analysis categorized into SME and large enterprises, and SEM to conduct the model in consistent with the empirical data. The results show that: the credit management guidelines consist of 4 factors: characteristics management financial management operations management and assets management. The business executives gave overall importance on the guidelines at a high level with an average of 3.86. The Commercial of SEM shows that the model fits with the empirical data at Chi-Square probability level. The characteristics management directly influences the financial management and the operation management. The financial management directly influences on the assets management. The assets management has direct influence on the operations management. The findings show that the characteristics management is the essential starting component in SEM and the financial management factor has the most influence in the assets management variable with standard regression weight of 0.990.

Kule, Kamukama and Kijjambu (2020) studied on credit management systems and financial performance of savings and credit cooperatives (SACCOs) in mid-western Uganda. It is ascertain the relationship between credit management systems and financial performance of SACCOs in Mid-Western Uganda. A cross-sectional research design and positivist paradigm was used to collect data from 93 SACCOs in Mid-Western Uganda using a closed-ended questionnaire. Standard linear regression analysis was carried out. The study findings reveal a moderate, positive and significant relationship between credit management systems and financial performance of SACCOs in Mid-Western Uganda. This study suggests to management a need to put into place effective credit management systems if SACCOs are to improve their financial performance by ensuring that favorable terms and conditions, and adequate client appraisal process are in place. In addition, government should support SACCOs by providing staff trainings on credit terms and conditions formulation and improving their competencies in client appraisal.

Mafumbo (2020) researched on credit management, credit policy and financial performance of Commercial banks in Uganda. This study was carried out with the purpose of analyzing the effects of credit management on the financial performance of Commercial banks in Uganda. Specifically, the study sought to establish whether there is a relationship between credit policy and performance, Capital Adequacy and performance and credit risk control and performance. In achieving the objectives assigned by the

study, a causal research design was undertaken and that was facilitated by the use of secondary data which was obtained from published audited financial statements of commercial banks and the BOU annual supervision reports. The study used universal sampling techniques, where all banks licensed and operational in Uganda were selected, multiple regressions was used. The findings indicated a significant relationship between credit management and the financial performance of commercial banks in Uganda. The coefficient of determination R^2 was 0;408 meaning that credit management indicators explain up to 40.8% of variations in the financial performance of commercial banks in Uganda. The results from the coefficients summary in the regression model indicate that the significance of coefficients of credit policy (LR), capital adequacy (CAR) and credit risk control (NPL/TL) are - 0.031, -0.555 and -1.005 respectively. It was therefore found that both the CAR and the NPL/TL are significant though have an impact at different significance i.e. capital adequacy and credit risk control have a greater impact compared to credit policy (LR) on the financial performance of commercial banks in Uganda. It was established that there is no significant relationship between credit policy and performance of banks in Uganda, however, a significant relationship between the credit risk control, capital adequacy and the performance of commercial banks was established. It was recommended that should use a moderate credit policy as a stringent credit will undermine the financial performance. Moreover, commercial banks should seek to adequately control their credit risk by keeping lower their ratio of nonperforming loans which is the major determinant of commercial banks' financial performance as shown in the study. The bank of Uganda should encourage banks in Uganda to use credit metrics model in controlling its risks.

Sharifi, Haldar and Rao (2019) described on the relationship between credit risk management and non-performing assets of commercial banks in India. The purpose of this paper is to examine the impact of credit risk components on the performance of credit risk management and the growth in non-performing assets (NPAs) of commercial banks in India. The data are obtained from primary and secondary sources. The primary data are collected by administering questionnaire among risk managers of Indian banks. The secondary data on NPAs of Indian banks are from annual reports and Prowess database compiled by the centre for monitoring Indian economy. Multiple linear

regressions are used to estimate the models for the study. The results suggest that the identification of credit risk significantly affects the credit risk performance. The results are robust as credit risk identification is negatively related to annual growth in NPAs or loans. There is evidence in support of a priori expectation of better credit risk performance of private banks compared to that of government banks. The study has implications for Indian banks suffering from a high level of losses due to bad loans. In addition, it will have implications for the implementation of new Basel Accord norms (Basel III) by the Reserve Bank of India. The high and rising level of NPAs will have adverse consequences for credit flow in the economy in the absence of appropriate intervention by government and central bank in the form of changes in institutional and regulatory infrastructure. The problems in banking and financial services sector will lead to lower industrial and aggregate economic growth, and lower (or negative) growth in employment. There is little evidence on credit risk management practices of Indian banks, and its relationship with credit risk performance and NPA growth. The need for an effective risk management system to manage credit risk assumes importance and urgency in the context of high and rising NPAs of Indian banks, and the consequences for the Indian economy.

Banu, Sayaduzzaman and Sil (2018) elaborated on the impact of credit risk management indicators on profitability attributes: evidence from the state-owned commercial banks in Bangladesh. The focal attempt of this research is to identify the consequence of credit risk management indicators on profitability attributes of state-owned Commercial banks functioning in Bangladesh. To attain the objectives of this research study researcher has analyzed four sample banks' audited annual reports covering the period 2012 to 2016. The study has employed ANOVA technique, multiple regression models and correlation matrix to reach the concluding remark as per study objectives. The findings revealed that there is significant and insignificant variation as well as relationship in the different indicators of credit risk management but there is insignificant variation in the different attributes of profitability in the midst of the sample banks within the study period. Furthermore, there is insignificant impact of the different indicators of credit risk management namely loan and advance, classified loan, unclassified loan, leverage ratio, bad debt, default ratio, cost per loan asset and cost to income ratio on

profitability attributes such as return on assets, return on equity along with net profit percentage of the sample banks over the study period. Hence, the study has recommended that the management of the banking sector should emphasize on creating a smart credit management policy as well as lending guidelines to formulate the suitable credit risk management practice to meet the demand of loans applicants properly.

Edwin and Omagwa (2018) examined on credit management practices and financial performance of microfinance institutions in Nairobi central business district, Kenya. The link between credit management practices and financial performance remains unclear especially in the microfinance Sector in Kenya. Though there are studies on performance of MFIs in Kenya, few have sought to explain the same in view of credit management practices. Much of the available local empirical literature is in the banking context. Hence, this remains an area of empirical interest: this formed the motivation of the study. The study sought to determine the effect of credit management practices on financial performance of MFIs in Nairobi Central Business District, Kenya. A descriptive survey design was adopted for the study; the target population comprised of 165 members of staff of the MFIs studied. Primary data was collected using questionnaires. Purposive sampling was used to pick 165 respondents. Of the 165 questionnaires dispatched, 158 were filled and returned. Descriptive analysis and multiple regression analysis were used to analyze data. The study found that credit risk control, client appraisal, collection policy and terms of credit were all statistically significant in explaining financial performance of the MFIs studied. The study further established that credit risk control, client appraisal, collection policy and terms of credit had a positive relationship with financial performance. The study concludes that unit increase in credit risk control, client appraisal, and collection policy and terms of credit results to better financial performance of MFIs. Hence, the MFIs should endeavor to invest more on the credit management practices as a way of improving their financial performance. The study's contribution to knowledge was equally highlighted.

Olabamiji and Michael (2018) illustrated on credit management practices and bank performance: evidence from first bank. The study examined the influence of credit management practices on financial performance of Nigerian banks with specific reference to First bank Plc. Data was collected using purposive sampling technique from thirty (30)

respondents as a sample size used to collect data from the respondents. Both descriptive and inferential statistics were used to analyze data, such as frequency, percentage, weighted mean score, and multiple regressions. The result revealed that credit management practices have a significant positive influence on the financial performance of first bank. The result concluded that client appraisal, credit risk control, and collection policy are major predictors of financial performance of First bank. Subsequently, the study recommended that management of other banks should learn from First bank by enhancing their client appraisal techniques, credit risk control and adopting a more stringent policy to improve their financial performance.

Table 1

Summary of Empirical Review

S.N	Author and Date	Methods	Variables Dep. Var.	Indep. Var.	Findings
1	Mohamed (2024)	The study was based on a correction research design and quantitative approach. Data was collected using closed-ended questionnaires. Sixty-five respondents were involved in the study and were all selected by use of a census enquiry.	Financial Performance	Clients' assessments and industrial banks' credit collection techniques and credit monitoring techniques.	There is statistically significant positive association between clients' assessments and industrial banks' financial performance. There is statistically significant positive relationship between credit collection techniques and financial performance of industrial banks.
2	Natufe and Esther (2023)	Using a panel data regression analysis.	Return on equity (ROE).	Capital adequacy ratio (CAR), liquidity ratio (LQR), loan-to-deposit ratio (LDR), risk asset ratio (RAR), non-performing loans ratio (NPLR), loan loss provision ratio (LLP), and size (SZ)	This study found that CAR, RAR, NPLR, and SZ are the significant determinants of ROE.
3	Bagale (2023)	Pooled regression analysis model (OLS) of panel data analysis is used as a major tool of analysis.	Return on equity (ROE).	Capital Adequacy Ratio (CAR), Liquidity ratio, Loan-to-Deposit Ratio (LDR), Non Performing Loan Ratio (NPL) and Bank Size.	The finding indicates that credit risk has the significant impact on profitability of commercial banks in Nepal. The study reveals that cash reserve ratio, loan loss provision ratio and non-performing loan ratio has insignificant negative impact on return on equity in Nepali commercial bank.
4	Brahmaiah, (2022)	There were regression and correlation analysis used.	Capital Structure	Credit Management and Financial performance	The PSBs have more NPAs than PVBs whereas PVBs have better asset quality and better profitability ratios than PSBs during the study period.
5	Odion, Yusuf and Shuaibu (2022)	For a period of 5 years, between 2015 and 2021, the impact of	ROA	NPL, LLP, GIE	The study found a positive non-significant relationship between non-performing loans

		these proxies on the profitability of posit money banks was analyzed in this study using correlation and regression analysis processed on STATA 13 statistical software. Three hypotheses were formulated in null form and were tested by the study.			and profitability. The study also found a positive insignificant relationship between loan loss provision and bank profitability. The study found a negative but significant relationship between growth in interest earnings on loans and advances and the profitability of deposit money banks.
6	Piao and Xiao (2022)	The methods and technologies of Commercial bank risk management have improved with the accelerating process of financial globalization, but the rationality of risk managers who implement daily management is limited and will be influenced by emotion and will.	Borrowers repayment risk	Industry risk, business risk and manage risk.	As a result, they will be unable to implement completely unbiased risk management, i.e., they will not be able to apply risk management objectives to daily risk management in an optimal manner. The importance and measurement complexity of Commercial bank credit risk is growing in tandem with the financial market's increasing complexity.
7	Riak and Bill (2022)	In order to minimize exposure to bad debt, over-reserving and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns.	Financial Performance	Credit management, credit standards, credit collection effort, credit procedure	The credit policy of the firm may also change. Microfinance Institutions and other finance institutions must develop a credit policy to govern their credit management operations and since microfinance institutions generate their revenue from credit extended to low income individuals in the form of interest charged on the funds granted the loan repayments may be uncertain.
8	Yeasin (2022)	The study applied a deductive research design with targeting 6 Commercial banks in Bangladesh, all with data spanning ten years between 2010 to 2019 with secondary data by employing panel regression analysis model.	ROA	NPL, CAR, LDR.	The result of panel data regression analysis showed that Non-performing Loan (NPL), Capital Adequacy Ratio (CAR) had negative and statistically significant impact on financial performance of Commercial banks.
9	Bussmann, Giudici, Marinelli and Papenbrock (2021)	The model applies correlation networks to Shapley values so that Artificial Intelligence predictions are grouped according to the similarity in the underlying explanations.	Capital Structure	Credit Management and Financial performance	Small and medium companies asking for credit reveals that both risky and not risky borrowers can be grouped according to a set of similar financial characteristics, which can be employed to explain their credit score and, therefore, to predict their future behavior.
10	Enoch, Digil, and Arabo (2021)	In this research, we used both primary and secondary sources. There is adopting a multi-stage sampling method by selecting a through collect data from the respondents while descriptive and inferential statistics were used to analyze	Financial performance	Client appraisal, credit risk control, collection policy.	The results showed that microfinance banks need to strengthen their credit risk control measures to increase their profitability. This is because if properly adopted it helps to decrease the percentage of payments defaults. Credit management is important in improving the financial performance of

		the data collected and in testing the hypotheses. There were used simple percentage and regression analysis.				microfinance banks and this is attributed to the fact that sounds and grounded credit management (client appraisal) allowed the bank to be efficient and have the availability of liquidity.
11	Orichom and Omeke (2021)	The study adopted a cross-sectional research design to examine 64 MFIs in Uganda. Correlation and multiple regression analysis were performed to analyze the data.	Capital Structure	Credit Management and Financial performance	Risk and	The results reveal that credit risk management significantly contributes to sound financial performance. Second, capital structure is not significantly related to financial performance. Therefore, credit risk appraisal, credit risk monitoring and credit risk mitigation are essential in achieving sound financial performance of MFIs.
12	Olobo, Karyeija, Sande, and Khoch (2021)	The study applied a cross-sectional survey design with 124 respondents linked to the Credit process across 7 sampled banks in Juba. Cluster, purposive and sample random techniques were employed in gathering data using structured questionnaires and interview guides.	Ratio of NPL and Provision for bad loans	Risk identification, Risk assessment and Risk Control		The study revealed a strong positive correlation between risk management practices and bank performance is less than 0.01. Credit Risk Assessment (CRA), Credit Risk Identification and Credit Risk Control all revealed significant results the study further revealed that a unit increase in CRI and CRA and CRC, increased bank performance.
13	Rafał and Marta (2021)	There were assess the credit risk of retail clients it use log it regression models, and additionally, score cards were calculated	Financial performance	Credit perception, risk identification, credit assessment, credit risk control.	Risk credit	The results of the research indicate that among the factors with high predictive power there were the features characterizing the client's history of cooperation with the cooperative bank, where they applied for a loan.
14	Tunji and Kameel (2021)	The study adopted an Ex-post facto research design. The population consisted of all 14 listed Deposit Money Banks (DMBs) in Nigeria as 2019 out of which a sample of 12 banks were purposively selected based mainly on availability of complete data for ten years period. Secondary data extracted from the financial statements were analyzed using descriptive and inferential analyses.	CAR, ROCE	CRM, LDR, NPL, AGP		The study found that credit risk management (CRM) proxied by Loan Deposit Ratio (LDR), Non-performing Loan (NPL) and Assets Growth Percentage (AGP) had a positive significant effect on CAR of listed DMBs in Nigeria. Bank Size (BS) significantly moderated the relationship between the CRM and CAR of listed DMBs in Nigeria. However, CRM had no significant effect on ROCE of listed DMBs in Nigeria. BS significantly modified the relationship between the CRM and ROCE positively. Overall, CRM positively and significantly affected the financial sustainability of listed DMBs in Nigeria. The study concluded that credit risk management has a positive significant effect on financial sustainability of listed DMBs in Nigeria.
15	Kulchittivej, Pornpundejwittaya,	The research has been simulated from the	NPA growth Rate and Credit	Credit perception,	Risk credit	The characteristics management directly

	and Silpcharu (2020)	findings of both qualitative and quantitative of 500 questionnaires distributed to industrial business executives in Thailand. The data were analyzed by descriptive analysis categorized into SME and large enterprises, and SEM to conduct the model in consistent with the empirical data.	risk performance	risk identification, credit risk assessment, credit risk control and credit risk capital requirements.	influences the financial management and the operation management. The financial management directly influences on the assets management. The assets management has direct influence on the operations management.
16	Kule, Kamukama and Kijjambu (2020)	A cross-sectional research design and positivist paradigm was used to collect data from 93 SACCOs in Mid-Western Uganda using a closed-ended questionnaire. Standard linear regression analysis was carried out.	Financial Performance	Constant, Beta coefficient, Credit Management Systems, Error term.	The study findings reveal a moderate, positive and significant relationship between credit management systems and financial performance of SACCOs in Mid-Western Uganda.
17	Mafumbo (2020)	A causal research design was undertaken and that was facilitated by the use of secondary data which was obtained from published audited financial statements of Commercial banks and the BOU annual supervision reports. The study used universal sampling techniques, where all banks licensed and operational in Uganda were selected, multiple regressions was used.	Lending Ratio	CAR, NPL, ROE.	The findings indicated a significant relationship between credit management and the financial performance of Commercial banks in Uganda.
18	Sharifi, Haldar and Rao (2019)	The data are obtained from primary and secondary sources. The primary data are collected by administering questionnaire among risk managers of Indian banks. The secondary data on NPAs of Indian banks are from annual reports and Prowess database compiled by the Centre for Monitoring Indian Economy. Multiple linear regressions are used to estimate the models for the study.	NPA growth Rate and Credit risk performance	Credit Risk perception, credit risk identification, credit risk assessment, credit risk control and credit risk capital requirements.	The results suggest that the identification of credit risk significantly affects the credit risk performance. The results are robust as credit risk identification is negatively related to annual growth in NPAs or loans. There is evidence in support of a priori expectation of better credit risk performance of private banks compared to that of government banks. The study has implications for Indian banks suffering from a high level of losses due to bad loans.
19	Banu, Sayaduzzaman and Sil (2018)	The study has employed ANOVA technique, multiple regression models and correlation matrix to reach the concluding remark as per study objectives.	NPA growth Rate and Credit risk performance	Credit Risk perception, credit risk identification, credit risk assessment, credit risk control and credit risk capital requirements.	The findings revealed that there is significant and insignificant variation as well as relationship in the different indicators of credit risk management but there is insignificant variation in the different attributes of

20	Edwin and Omagwa (2018)	A descriptive survey design was adopted for the study; the target population comprised of 165 members of staff of the MFIs studied. Primary data was collected using questionnaires. Purposive sampling was used to pick 165 respondents. Of the 165 questionnaires dispatched, 158 were filled and returned. Descriptive analysis and multiple regression analysis were used to analyze data.	Financial performance	Constant, coefficient, client appraisal, credit risk control, collection policy, terms of credit	profitability in the midst of the sample banks within the study period. Furthermore, there is insignificant impact of the different indicators of credit risk management namely loan and advance, classified loan, unclassified loan, leverage ratio, bad debt, default ratio, cost per loan asset and cost to income ratio on profitability attributes such as return on assets, return on equity along with net profit percentage of the sample banks over the study period. The study found that credit risk control, client appraisal, collection policy and terms of credit were all statistically significant in explaining financial performance of the MFIs studied.
21	Olabamiji and Michael (2018)	Data was collected using purposive sampling technique from thirty (30) respondents as a sample size used to collect data from the respondents. Both descriptive and inferential statistics were used to analyze data, such as frequency, percentage, weighted mean score, and multiple regressions.	Financial Performance	Client Appraisal, Credit Control, collection policy.	The result revealed that credit management practices have a significant positive influence on the financial performance of first bank. The result concluded that client appraisal, credit risk control, and collection policy are major predictors of financial performance of First bank.

2.2.1 Review of Nepalese Context

Poudel (2024) illustrated on the impact of credit risk management on financial performance of commercial banks in Nepal. This study try to explore various parameters pertinent to credit risk management as it affect banks' financial performance. Such parameters covered in the study were; default rate, cost per loan assets and capital adequacy ratio. Financial report of 20 banks were used to analyze for eleven years (2011-2022) comparing the profitability ratio to default rate, cost of per loan assets and capital adequacy ratio which was presented in descriptive, correlation and regression was used to

analyze the data. The study revealed that all these parameters have an inverse impact on banks' financial performance; however, the default rate is the most predictor of bank financial performance. The recommendation is to advise banks to design and formulate strategies that will not only minimize the exposure of the banks to credit risk but will enhance profitability.

Chhetri (2021) explained on effect of credit risk management on financial performance of Nepalese commercial banks. The main purpose of this study is to investigate the effect of credit risk on the financial performance of commercial banks in Nepal. The panel data of seventeen commercial banks with 85 observations for the period of 2015 to 2020 have been analyzed. The regression model revealed that non-performing loan (NPLR) has negative and statistically significant impact on financial performance (ROA). Capital adequacy ratio (CAR) and bank size (BS) have negative and statistically no significant impact on financial performance (ROA). Credit to deposit (CDR) has positive but no significant relationship with the financial performance (ROA) and the study concluded that the management quality ratio (MQR) has positive and significant relationship with the financial performance (ROA) of the commercial banks in Nepal. The study recommends that, it is fundamental for Nepalese commercial banks to practice scientific credit risk management, improve their efficacy in credit analysis and loan management to secure as much as possible their assets, and minimize the high incidence of non-performing loans and their negative effects on financial performance.

Bhattarai (2019) conducted a research on effect of credit risk management on financial performance of commercial banks in Nepal. The main purpose of this study is to investigate the effect of credit risk on the financial performance of commercial banks in Nepal. The balance panel data of ten commercial banks with 160 observations for the period of 2001 to 2016 have been used for the analysis. The regression results revealed that capital adequacy ratio (CAR), non-performing loan ratio (NPLR) and management quality ratio (MQR) have significant relationship with the financial performance (ROA) of the commercial banks in Nepal. Similarly, credit to deposit ratio (CDR) and risk sensitivity (RS) has no significant impact on the financial performance of the commercial banks in Nepal.

Pradhan and Shah (2019) explained on credit risk management of commercial banks in Nepal. The study is primarily focused on credit risk assessment practices in commercial banks on the basis of their internal efficiency, assessment of assets and borrower. The model of the study is based on the analysis of relationship between credit risk management practices, credit risk mitigation measures and obstacle and loan repayment. Based on a descriptive research approach the study has used survey-based primary data and performed a correlation analysis on them. It discovered that credit risk management practices and credit risk mitigation measures have a positive relationship with loan repayment, while obstacles faced by borrowers have no significant relationship with loan repayment. The study findings can provide good insights to commercial bank managers in analyzing their model of credit risk management system, policies and practices and in establishing a profitable and sustainable model for credit risk assessment by setting a risk tolerance level and managing credit risk vis-a-vis the prevailing market competition.

Paudel (2019) studied on credit risk management in Nepalese cooperative societies. Credit risk management has been always a prime concern for different stockholder since it is the most critical of all risks faced by the depository institutions (DIs). Since regulatory prerequisite imposed to cooperative society (CS) is not standard as imposed to banks by central bank, number of risks has been observed in this sector. Along with the horizontal and vertical growth of cooperatives, it diluted the ethical practices, and resulted issues such as adverse selection problem, lack of transparency and poor governance system. This study has comprehended the analysis of credit risk and credit risk management of Nepalese CSs using quantitative and qualitative tools. Primary survey has been conducted in July to September 2014, and secondary data are collected from annual audit report for the five years period from 2008/09 to 2012/013 by sampling of 126 cooperatives from Kathmandu district. Internal management of cooperatives seems to be prompt in some cases, but it seems to be unfair in some other cases. A strong and prompt regulation should be imposed to eliminate such unfair practices. Credit risk management of CSs does not seem to be satisfactory so, concern authorities should select an appropriate credit risk management and its practical implementation, Risk variable are significantly associated with financial performance, efficiency and organizational factors. CVR of long-term solvency risk and credit default risk are 32.50 % and 26.30%

respectively and indicate the level of sensitiveness of those variables during the day-to-day operation of CSs to manage credit risk. A huge discrepancy on sizes of activities of the CSs suggested that a unanimous regulatory provision may not be effective therefore CSs should be categorized in different basis such as size, area covered, activities etc. and the regulation should be imposed accordingly.

Bhattarai (2016) explained on effect of credit risk on the performance of Nepalese commercial banks. This study has examined the effect of credit risk on performance of Nepalese commercial banks. The descriptive and causal comparative research designs have been adopted for the study. The pooled data of 14 commercial banks for the period 2010 to 2015 have been analyzed using regression model. The regression results revealed that 'non-performing loan ratio' has negative effect on bank performance whereas 'cost per loan assets' has positive effect on bank performance. In addition to credit risk indicators, bank size has positive effect on bank performance. Capital adequacy ratio and cash reserve are not considered as the influencing variables on bank performance. This study concludes that there is significant relationship between bank performance and credit risk indicators.

Table 2

Summary of Empirical Review of Nepalese Context

S.N	Author and Date	Methods	Findings
1	Poudel, 2024	Financial report of 20 banks were used to analyze for eleven years, comparing the profitability ratio to default rate, cost of per loan assets and capital adequacy ratio which was presented in descriptive, correlation and regression was used to analyze the data	The study revealed that all these parameters have an inverse impact on banks' financial performance: however, the default rate is the most predictor of bank financial performance.
2	Chhetri, 2021	The panel data of seventeen commercial banks with 85 observations for the period of 2015 to 2020 have been analyzed. The regression model revealed.	Non-performing loan (NPLR) has negative and statistically significant impact of financial performance (ROA). Capital adequacy ratio (CAR) and bank size (BS) have negative and statistically no significant impact on financial performance (ROA) and the study concluded that the management quality ratio (MQR) has positive and significant relationship with the financial performance (ROA) of the commercial banks in Nepal.
3	Bhattarai, 2019	The balance panel data of ten commercial banks with 160 observations for the period of 2001 to 2016 have been used for the analysis. There were regression and correlation analysis used.	The regression results revealed that capital adequacy ratio (CAR), non performing loan ratio (NPLR) and management quality ratio (MQR) has significant relationship with the financial performance (ROA) of the commercial banks in Nepal. Similarly, credits to deposit ratio (CDR) and risk sensitivity (RS) have no significant impact on the financial performance of the commercial banks in Nepal.

4	Pradhan and Shah, 2019	Based on a descriptive research approach the study has used survey-based primary data and performed a correlation analysis on them.	The findings can provide good insights to commercial banks managers in analyzing their model of credit risk management system, policies and practices and in establishing a profitable and sustainable model for credit risk assessment by setting a risk tolerance level and managing credit risks vis-à-vis the prevailing market competition.
5	Bhattarai, 2016	The descriptive and causal comparative research designs have been adopted for the study. The pooled data of 14 commercial banks for the period 2010 to 2015 have been analyzed using regression model.	The regression results revealed that non performing loan ratio has negative effect on bank performance whereas cost per loan assets has positive effect on bank performance. In addition to credit risk indicators, banks size has positive effect on bank performance ³ . Capital adequacy ratio and cash reserve are not considered as the influencing variables on bank performance.

2.5 Research Gap

Yeasin (2022) analyze on impact of credit risk management on financial performance. The study applied a deductive research design with targeting 4 Commercial banks in Bangladesh, all with data spanning ten years between 2010 to 2019 with secondary data by employing panel regression analysis model. Four factors affecting financial performance of Commercial banks in Bangladesh were selected and analyzed. In this tools used study Return on asset (ROA) are used as Bank performance measurement tools and non-Performing loan (NPL), Capital Adequacy ratio (CAR) and loan to deposit ratio (LDR) are used as Credit risk indicators. The result of panel data regression analysis showed that Non-performing Loan (NPL), Capital Adequacy Ratio (CAR) had negative and statistically significant impact on financial performance of Commercial banks. Whereas Loan to deposit ratio (LDR) had positive.

During the review of previous thesis and article, it was found that no research has been conducted by taking these sample banks and these data. Present study is based on the data taken from four Commercial banks. By reviewing an earlier thesis, it was found that researchers only analyzed the bank performance depend on the Return on Equity (ROE) with other financial indicators but this study has examined also bank's performance depend on the Return on Equity with capital Adequacy Ratio (CAR), Non Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR) and Loan Loss Provision Ratio (LLP). This study examined those factors that play important role in determining credit risk management and growth rate, non performing assets and credit risk performance of Commercial banks. This study also examines the impact and relationship of credit risk

management and growth in non performing assets of with other financial indicators like credit risk perception, credit risk identification, credit risk assessment, credit risk control and credit risk capital requirements. This study used to secondary data from 2012/013 to 2021/022, and used statistical tools like coefficient of correlation and regression analysis. Probably this will be the appropriate research in the area of credit risk management of purpose this study mostly used.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the methodology that adopted in analysis of the data for the study. The population and sample, sources and data collection technique, data analysis tool, the hypothesis to be tested and various limitations which are associated with the study have been discussed in this chapter.

3.1 Research Design

The study is combination of descriptive and casual comparative research design has been used. Historical data are used to identify and analyze the past status of banks performance based on which future recommendation has been made. Descriptive researches have been adopted to evaluate credit risk management techniques of commercial banks. The method of the study is a quantitative approach.

3.2 Population and Sample

Commercial banks are national or regional financial institutions designed to provide medium and long-term capital for productive investment, often accompanied by technical assistance, in poor countries. During the past decade, Commercial banks are rated as Class "A" banks by the Nepal Rastra Bank. There are 20 Commercial banks as considered as the population. Among them only four commercial banks are selected for the study. Thus, only 4 commercial banks are taken out as a sample, because these companies have highest capital at the data of 2081-01-15. Similarly, financial statements of four commercial banks, 10 years research period have been taken as samples for the same purpose. Global IME Bank Limited, Nepal Investment Mega Bank Limited, Nabil Bank Limited, and Kumari Bank Limited were selected for the study has highest their substantial paid-up capital and extensive loan distribution, surpassing that of other commercial banks so those banks are sample for the study.

3.3 Types and Sources of Data

There are two kinds of data; primary data and secondary data. The primary data are those which are collected fresh and for the first time and thus happen to be original in character. Secondary data on another hand are those which have already been collected

by someone else and have already been passed through the statistical processes. The research is based secondary data. The annual reports of respective banks, various reports from NRB and other reports are used to collect the secondary data. Besides these, other essential data and information were collected from some published and unpublished documents. The research has also consulted the library to gather necessary data and information during research work. The sources of secondary data are as follows:

- Journals, newspapers, and magazines.
- Unpublished master's degree thesis related to this research.
- NEPSE, Merolagani, Sharesansar and NRB reports.
- Books related to financial management.

3.4 Data Presentation Tools and Techniques

The data collected from annual report of selected banks and the report published by NRB were tabulated and analyzed with the help of excel. Consistent and reliable research indicates that a research conducted by using appropriate data collection instruments which increases the credibility and value of research findings. Since the audited annual reports were published by NRB, the validity and reliability of such report tends to be high.

3.5 Data analysis Tools

Financial and statistical tools such as mean, standard deviation, correlation, regression, and t-test model is applied to analyze the data collected from annual reports of the Commercial banks. Based on risk index, T-test and regression outputs the research hypotheses were tested. In order to get concrete result from this study, data are analyzed by using different type of financial and statistical tools. As per topic requirement, banks annual report, classification of loans and advances and bills purchased schedule and principal indicators are used. The analysis of data will be done according to the pattern of available data. The descriptions of financial as well as statistical tools are as follows:

3.5.1 Financial Tools

On the study return on assets, return on equity, capital adequacy ratio, non performing loan ratio, cash reserve ratio and loan loss provision are analyzed.

3.5.2 Statistical Tools

a. Arithmetic Mean

Arithmetic Mean has widely used in this study. It has been used to calculate the average for five year of data. This tool has been used to calculate the single figure that can represent the whole data for the period. It is computed by using following formula:

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

Where,

\bar{X} = Mean

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

n = Variables involved

b. Standard Deviation

Standard deviation measures the absolute dispersion or variability of distribution. The greater the amount of dispersion, larger will be the standard deviation. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series; a large standard deviation means just the opposites.

$$SD = \sqrt{\frac{\sum x^2}{N} - \frac{(\sum x)^2}{N}}$$

c. Coefficient of Variation (C.V.)

Coefficient of variation is the ratio of standard deviation to mean of the observation. When two frequency of distribution have same arithmetic mean, their variability of these two distributions may be compared by calculating their respective standard deviations. It is the tools of relative dispersion which measure the risk per unit. This is called the coefficient of variation which calculated as:

$$C.V = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

d. Correlation

The correlation coefficient (r) provides an index of the direction and magnitude of the relationship between two sets of scores. This coefficient is obtained by dividing the

covariance of the two variables by the product of their standard deviation. The value of correlation lies between +1 and -1.

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

A correlation matrix is the standard form of reporting correlation result. It allows us to compare correlation coefficient across all of the variables under study.

e. Coefficient of determination

The coefficient of determination (R^2) measures how well a statistical model predicts an outcome. The outcome is represented by the model's dependent variable. The lowest possible value of R^2 is 0 and the highest possible value is 1.

The coefficient of determination is a measure of the degree of linear association or Correlation between two variable one of which happens to be independent and other being dependent variable. In other word r measures the percentage total variation in dependent variables. The coefficient of determination value can have ranging from zero to one. A value or one can occur only if the unexpected variation is zero which simply means that all the data point in the scatters diagram fall exactly on the regression line.

f. Regression analysis

Regression is the statistical tool, with the help of which we can predict the unknown value of one variable from known value of any other variable. Assuming that the two variables are closely related, we can estimate the value of one variable from the value of another. The variable, whose value is given, is called independent variable and the variable whose value is to be predicted is called “dependent variable”. It is a statistical tool for determining relationship between the variables by the establishment of an approximate functional relationship between them. It is used to determine that whether the dependent variable is influenced by the given independent variable or not.

$$ROA = a + b_1 \times CAR + b_2 \times NPL + b_3 \times CRR + b_4 \times LLP + b_5 \times LR + b_6 \times BS$$

$$ROE = a + b_1 \times CAR + b_2 \times NPL + b_3 \times CRR + b_4 \times LLP + b_5 \times LR + b_6 \times BS$$

$$ROA = \text{Return on Assets}$$

ROE = Return on Equity

CAR = Capital Adequacy Ratio

NPL = Non performing Loan Ratio

CRR = Cash reserve ratio

LLP = Loan Loss Provision

LR= Liquidity Ratio

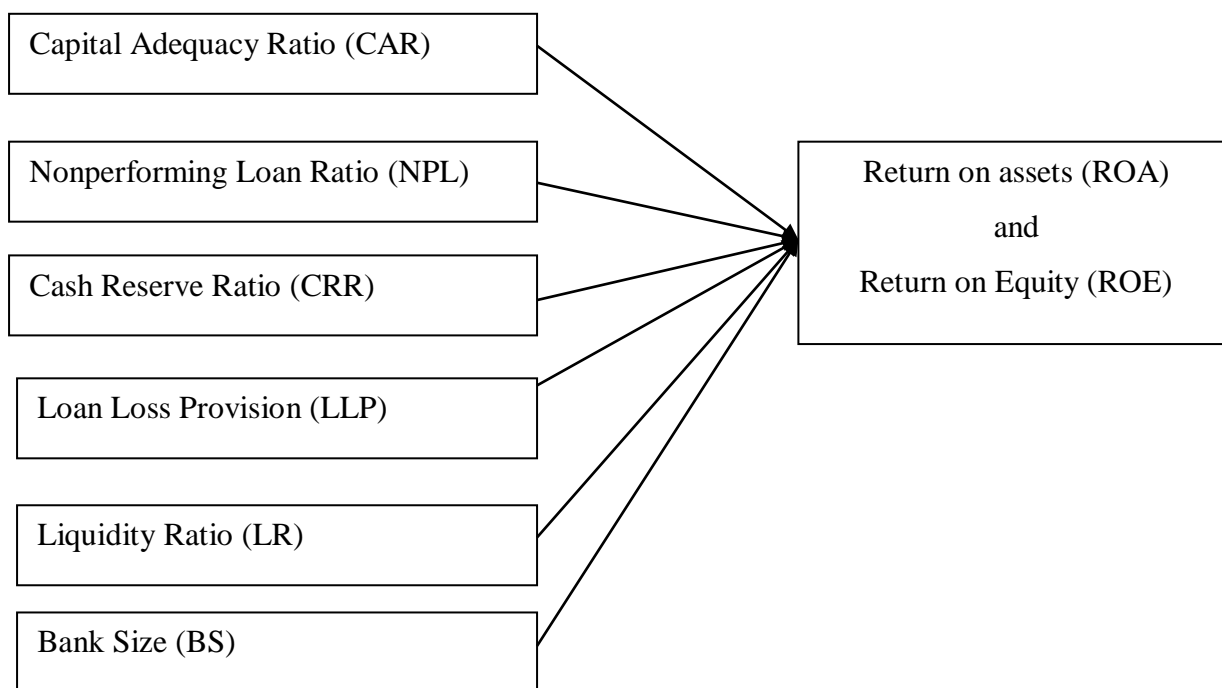
BS= Bank Size

3.6 Research Framework and Definition of Variables

The models are estimated using multiple linear regression method. In the first model, NPA growth rate is regressed on five explanatory variables, credit risk perception, identification, assessment, and control and capital requirement. The schematic diagram of the relationship between credit risk and these factors shown in figure 3.1.

Independent Variables

Dependent Variables



(Source: Bagale, 2023)

Figure 1: Research Framework

Definition of Research Variables

i. Dependent Variables

Return on Assets (ROA)

Return on assets is a metric that indicates a company's profitable in relation to its total assets. ROA can be used by management, analysts and investors to determine whether a company uses its assets efficiently to generate a profit (Bagale, 2023). It can calculate a company's ROA by dividing its net income by its total assets.

Return on Equity (ROE)

Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets (Yeasin, 2022).

ii. Independent Variables

Capital Adequacy Ratio (CAR)

The capital adequacy ratio (CAR) is an indicator of how well a bank can meet its obligations. Also known as the capital-to-risk weighted assets ratio (CRAR), the ratio compares capital to risk-weighted assets and is watched by regulators to determine a bank's risk of failure. It's used to protect depositors and promote the stability and efficiency of financial systems around the world (Raik & Bill, 2022).

Non Performing Loan Ratio (NPL)

A non-performing loan is a type of loan that is not generating any income for the lender, as the borrower has stopped making repayments. A non-performing loan will be a major cause of concern for both lender and borrower and will have severe repercussions. There are many reasons why a borrower may stop making payments on their loan. Maybe the borrower lost their job and can no longer afford the payments. Or maybe the borrower is using the loan for a business venture that has not yet generated any income (Piao & Xiao, 2022).

Cash reserve Ratio (CRR)

The Cash Reserve Ratio or the CRR is a regulation used by the Central Banks in most countries by which it sets the minimum fraction of customer deposits and currency that every commercial bank is required to hold as reserves with themselves (Odion, Yusuf & Shuaibu, 2022).

Loan Loss Provision (LLP)

A loan loss provision is an income statement expense set aside to allow for uncollected loans and loan payments. Banks are required to account for potential loan defaults and expenses to ensure they are presenting an accurate assessment of their overall financial health (Brahmaiah, 2022).

Liquidity Ratio (LR)

Liquidity ratios serve as important indicators of a bank's financial health, stability and ability to manage credit risk. By maintaining adequate liquidity levels, banks can enhance their resilience to economic downturns, market fluctuations and unexpected events, thereby safeguarding against potential credit losses and maintaining the trust and confidence of stakeholders (Odion, Yusuf & Shuaibu, 2022).

Bank Size (BS)

The impact of bank size on credit risk management underscores the importance of tailoring risk management practices to the specific characteristics and needs of individual institutions. While larger banks may have advantages in terms of resource, expertise and access to capital, effective credit risk management is essential for banks of all sizes to maintain financial stability, safeguard against losses and support sustainable growth (Bagale, 2023).

CHAPTER IV

RESULT AND DISCUSSION

This chapter includes the brief profiles of the different kinds of data and ratios of the selected four banks that have been collected and compiled for the purpose of the study. Then, data are tabulated, analyzed and interpreted and are compared among the banks under study. This chapter delivers the systematic and orderly results of the study in the form of presentation, interpretations and analysis of the secondary data with various issues associated with the impact of assets and liabilities management on profitability of Nepalese development banks.

The basic steps in the analytical process consist of identifying issues, determining the availability of suitable data, deciding the method appropriate for answering the questions of interest, applying the methods and evaluating, summarizing and communicating the result. Various statistical tools described in chapter three have been used for this purpose. This chapter is divided into five sections.

The first section deals with structure and pattern analysis of data, second section deals with descriptive statistics, third section deals with the correlation analysis, fourth section deals with regression analysis and the final section wraps up this chapter with concluding remarks about the result derived from the secondary data.

4.1 Descriptive Analysis

Descriptive analysis is a sort of data research that aids in describing, demonstrating, or helpfully summarizing data points so those patterns may develop that satisfies all of the conditions of the data. It is the technique of identifying patterns and links by utilizing recent and historical data.

Table 3
Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	12.20	35.36	25.20	7.26
ROE	11.98	36.20	20.00	6.35
CAR	10.23	24.03	13.64	3.13
NPL	0.75	174.00	1.79	24.37
CRR	5.25	37.52	12.09	7.96
LLP	5.75	37.52	12.45	7.83
LQ	5.26	37.20	14.26	8.36
BS	6.23	42.30	15.20	8.25

Valid N (listwise) 50

Source: Annual report of selected banks by using SPSS version 26

Table 3 presents descriptive statistics for five key financial indicators: Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), and Loan Loss Provision (LLP). These statistics provide a summary of the dataset's central tendencies and variability. For ROE, the data ranges from a minimum of 11.98% to a maximum of 36.20%, with a mean (average) value of 20.00% and a standard deviation of 6.35 percentage points. ROE is a measure of a company's profitability relative to its shareholders' equity. CAR varies from a minimum of 10.23% to a maximum of 24.03%, with a mean value of 13.64% and a standard deviation of 3.13 percentage points. CAR assesses a financial institution's ability to cover its risk through its capital. NPL shows a wider range, from 0.75% to 174.00%, with a mean of 1.79% and a substantial standard deviation of 24.37 percentage points. NPL indicates the proportion of loans in a portfolio that are not generating income due to defaults or late payments. CRR ranges from 5.25% to 37.52%, with a mean of 12.09% and a standard deviation of 7.96 percentage points. CRR is a monetary policy tool used by central banks to control the money supply. Finally, LLP ranged from 5.75% to 37.52%, with a mean value of 12.45% and a standard deviation of 7.83 percentage points.

LLP represents provisions made by a financial institution to cover potential losses on loans.

4.2 Correlation Analysis

Correlation analysis in research is a statistical method used to measure the strength of the linear relationship between two variables and compute their association. Simply put correlation analysis calculates the level of change in one variable due to the change in the other. A high correlation points to a strong relationship between the two variables, while a low correlation means that the variables are weakly related. They try to identify the relationship, patterns, significant connections, and trends between two variables or datasets. Correlation Analysis between variables was studied to find relations among them. Pearson's Correlation analysis is used to determine the relation between various independent and dependent variables associated with the research. It measures the linear correlation between any two variables.

Correlation interpretation is based on following five classical rules:

($r = 0$ to $.20$) indicates negligible or no correlation

($r = .20$ to $.40$) indicates positive but low degree of correlation

($r = .40$ to $.60$) indicates positive moderate degree of correlation

($r = .60$ to $.80$) indicates positive and marked degree of correlation

($r = .80$ to $.1.00$) indicates positive and high degree of correlation

Table 4

Correlation Analysis

	ROA	ROE	CAR	NPL	CRR	LLP	LR	BS
ROA	1							
ROE	.421*	1						
CAR	.652	.782**	1					
NPL	.678	.712*	.781**	1				
CRR	.459*	.413*	.440**	.395**	1			
LLP	.597*	.545*	.503**	.574**	.211**	1		
LR	.423*	.541*	.452**	.434**	.321**	.421**	1	
BS	.563*	.632*	.632**	.674**	.476**	.371**	.269**	1

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

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

Source: Annual report of selected banks by using SPSS version 26

Table 4 presents a correlation analysis among the financial variables, with Return on Equity (ROE) as the dependent variable and Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), and Loan Loss Provision (LLP) as the independent variables. The correlation coefficients indicate the strength and direction of the linear relationships between these variables.

The correlation coefficient between ROE and CAR is 0.782, which is highly positive and statistically significant at the 0.01 level. This suggests a strong positive relationship between ROE and CAR, meaning that as the Capital Adequacy Ratio increases, Return on Equity tends to increase as well. The correlation coefficient between ROE and NPL is 0.712, also highly positive and statistically significant at the 0.01 level. This implies that there is a strong positive association between ROE and NPL, suggesting that as Non-Performing Loan Ratio increases, Return on Equity tends to increase too.

ROE and CRR have a positive correlation coefficient of 0.413, which is statistically significant at the 0.05 level. This indicates a moderate positive relationship between ROE and Cash Reserve Ratio. Finally, the correlation coefficient between ROE and LLP is 0.545, again highly positive and statistically significant at the 0.01 level. This signifies a strong positive association between ROE and Loan Loss Provision, suggesting that as Loan Loss Provision increases, Return on Equity tends to increase as well.

The correlation analysis reveals significant relationships between ROE and all the independent variables, indicating that these financial indicators are interrelated. This information is valuable for understanding how changes in one financial metric may influence or be influenced by changes in others, which can be critical for making informed financial decisions and assessing risk.

4.3 Regression Analysis

A correlation analysis can only tell whether or not a strong relationship exists between two variables. But even if a correlation coefficient indicates that a strong relationship exists between two variables, the exact shape of the relationship between the two variables cannot be determined. In this case, regression analysis provides more information about the slope of the relationship. It is used to describe the nature of a

relationship and to make predictions. This section determines which independent variable explains variability in the outcome, how much variability in dependent variables is significant in explaining the variability of the dependent variable. While correlation analysis assumes no causal relationship between variables, regression analysis assumes causal relationship between two or more variables. Simple linear regression shows the effect of an independent variable on single dependent variable while multiple linear regressions show the effects of multiple independent variables on single dependent variable. Correlation analysis only provides the degree of relationship between two variables. Thus, regression analysis is done to have better understanding of the strength of relationship between two or multiple variables. Multiple regression analysis is used to analyze the impact of multiple independent variables on single dependent variable.

The advantage of conducting linear regression analysis included the ability to evaluate multiple independent variables that simultaneously affect the dependent variables. Multiple linear regression analysis is used to predict the impact of independent variables.

Table 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860 ^a	.739	.734	.49364

a. Predictors: (Constant), CAR, NPL, CRR, LLP, LR and BS

Table 5 presents the model summary for a regression analysis. This analysis aims to predict a dependent variable (not shown in this table) based on a set of independent variables, which are listed as predictors in the table 3.

R-squared is a measure of how well the independent variables explain the variation in the dependent variable. In this model, the R-squared value is .739, which means that approximately 73.9% of the variation in the dependent variable can be explained by the independent variables in the model. This suggests that the model is moderately effective in explaining the dependent variable's variability.

Similarly, adjusted R-square takes into account the number of predictors in the model and adjusts R-squared accordingly. In this case, the adjusted R-squared is .734, which is very close to the R-squared value, indicating that the model's explanatory power remains relatively stable when accounting for the number of predictors. Standard error of the estimate is a measure of the model's accuracy in predicting the dependent variable. A lower value indicates better predictive accuracy. In this model, the standard error of the estimate is .49364, which suggests that, on average, the predictions made by the model are within approximately 0.49364 units of the actual values.

Table 6

Anova

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	270.619	4	38.660	158.652	.000 ^b
	Residual	95.521	45	.244		
	Total	366.140	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), CAR, NPL, CRR, LLP, LR and BS

Table 6 provides the results of an analysis of variance (ANOVA), which is a regression model used to predict the dependent variable ROE (Return on Equity) based on the independent variables CAR, NPL, CRR, LLP, LR and BS.

The F-statistic is a measure of the model's overall significance. A higher F-value suggests that the model is more significant. In this case, the F-statistic is 158.652, which is quite high. The significance level (p-value) associated with the F-statistic. A low p-value indicates that the regression model is statistically significant.

The p-value here is .000, which is less than the typical significance threshold of 0.05. This means that the regression model, as a whole, is statistically significant in predicting ROE.

Table 7
Coefficient Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.310	.134		2.316	.021
	CAR	.321	.043	.343	7.381	.000
	NPL	.077	.047	.079	1.635	.103
	CRR	.060	.036	.056	1.675	.095
	LLP	-.123	.034	-.116	-3.582	.000
	LR	.045	.046	.452	1.234	.008
	BS	.352	.063	.043	1.475	.001

a. Dependent Variable: ROE

Table 7 provides the results of a coefficient analysis, which is a regression model used to predict the dependent variable ROE (Return on Equity) based on the independent variables CAR, NPL, CRR, and LLP, LQ and BS.

The coefficient for CAR is 0.321, meaning that, all else being equal; a one-unit increase in Capital Adequacy Ratio (CAR) is associated with a 0.321-unit increase in ROE. Similarly, the coefficient for NPL is 0.077, suggesting that, keeping other factors constant, a one-unit increase in Non-Performing Loan Ratio (NPL) is associated with a 0.077-unit increase in ROE. However, this coefficient is not statistically significant at the 0.05 level ($p = 0.103$), indicating that NPL may not have a strong influence on ROE in this model.

The coefficient for CRR is 0.060, implying that a one-unit increase in Cash Reserve Ratio (CRR) leads to a 0.060-unit increase in ROE. Like NPL, this coefficient is not statistically significant at the 0.05 level ($p = 0.095$). Similarly, the coefficient for LLP is -0.123, indicating that a one-unit increase in Loan Loss Provision (LLP) is associated with a 0.123-unit decrease in ROE. This coefficient is statistically significant at the 0.01 level ($p < 0.001$), suggesting that LLP has a significant negative impact on ROE in this model.

The coefficient analysis provides insights into how each independent variable (CAR, NPL, CRR, and LLP) is associated with the dependent variable ROE. Capital Adequacy Ratio (CAR) and Loan Loss Provision (LLP) have statistically significant impacts on ROE, while Non-Performing Loan Ratio (NPL) and Cash Reserve Ratio (CRR) has not statistically significant predictors of ROE.

Liquidity ratios serve as important indicators of a Banks's financial health, stability, and ability to manage credit risk. By maintain adequate liquidity Levels, Banks can enhance their resilience to economic downturns.

The impact of bank size on credit risk management underscores the importance of tailoring risk management practices to the specific charatertitcs and needs, of individual intuitions.

4.4 Discussion

This study shows that the independent variable capital adequacy ratio has statistically significant impacts on return on equity. This finding has supported by Mafumbo (2020), who has found capital adequacy ratio has statistically significant impacts on return on equity. But in the contrary, Edwin and Omagwa (2018) found that capital adequacy ratio has statistically insignificant impacts on return on equity.

Similarly, this study also that the independent variable non-performing loan has statistically insignificant impacts on return on equity. This finding has supported by Tunji and Kameel (2021), who has found non-performing loan has statistically insignificant impacts on return on equity. But in the contrary, Olobo et al. (2021) found that non-performing loan has statistically significant impacts on return on equity.

Likewise, this study also that the independent variable cash reserve ratio has statistically insignificant impacts on return on equity. This finding has supported by Yeasin (2022), who has found cash reserve ratio has statistically insignificant impacts on return on equity. But in the contrary, Piao and Xiao (2022) found that cash reserve ratio has statistically significant impacts on return on equity.

Lastly, in this study the independent variable loan loss provision has statistically significant impacts on return on equity. This finding has supported by Bagale (2023),

who has found loan loss provision has statistically significant impacts on return on equity. But in the contrary, Edwin and Omagwa (2018) found that loan loss provision has statistically insignificant impacts on return on equity.

CHAPTER-V

SUMMARY AND CONCLUSIONS

5.1 SUMMARY

The researcher has identified that research problem and set objectives to solve research problems about credit management of selected development banks as described in introduction chapter. The main objective of the study is to analyze the comparative study on credit management of Global IME bank Limited, Siddhartha Bank Limited, Everest Bank Limited and Kumari Bank Limited. The research is based on secondary source of data. To make this study more effective, related literatures have been reviewed. The review of literature provides the foundation of knowledge in order to undertake this research more precisely. This study is mainly conducted on the basis of secondary data collected from annual reports, official report, economic journal, financial statement etc. and authorize web site of concern bank and Nepal stock exchange. The ten years financial statement has been examined for the purpose of the study.

The presentation and analysis of data has been made comparative analytical and their interpretation has done in chapter four by applying the wide varieties of methodology as stated in chapter three. It includes the various financial and statistical tools. In case of financial tools ratio analysis is done which consists liquidity ratio, assets management ratio, profitability ratio, risk ratio. Various statistical tools such as arithmetic mean, standard deviation, coefficient of correlation, trend analysis have been applied to fulfill the objective of this study. The major findings of the study are also included in the final section of the presentation and analysis chapter.

This study provides an overview of essential financial metrics, including Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loan Ratio (NPL), Cash Reserve Ratio (CRR), and Loan Loss Provision (LLP). It offers insights into the central tendencies of these metrics, aiding in understanding the financial performance and risk profiles of the entities under consideration. Similarly, the correlation coefficients reveal the strength and direction of relationships between financial metrics. Robust positive correlations are observed between ROE and CAR, ROE and NPL, and ROE and LLP, indicating that changes in these indicators tend to align with ROE. A moderate positive

correlation exists between ROE and CRR. These insights illuminate how these variables interrelate and influence overall financial performance.

The results of a regression analysis where ROE is the dependent variable, and CAR, NPL, CRR, and LLP are independent variables. The model's R-squared value indicates its capacity to explain variations in ROE, while the F-statistic underscores its overall effectiveness in predicting ROE. This model serves as a valuable tool for predicting and understanding the drivers of ROE. Also, the significance of the model, demonstrating its ability to explain variations in ROE. The highly significant F-statistic underscores the model's substantial explanatory power.

In summary, the individual contributions of predictors (CAR, NPL, CRR, LLP, LR and BS) or the model. CAR emerges as a significant driver with a positive coefficient, indicating its positive influence on ROE. Conversely, LLP has a negative coefficient, suggesting that higher Loan Loss Provisions are associated with lower ROE. Although NPL and CRR exhibit positive coefficients, they do not reach statistical significance. This analysis identifies specific financial factors influencing ROE, enhancing decision-making and risk assessment.

5.2 Conclusion

The conclusion of the study highlighted significant correlations between ROE and several independent variables. Notably, ROE showed strong positive associations with CAR and LLP, indicating that higher capital adequacy and effective loan loss management can positively impact ROE. Additionally, a moderate positive correlation was found between ROE and CRR. These relationships underscore the interconnectedness of these metrics. The high R-squared and significant F-statistic signify the model's strong predictive power, making it a valuable tool for understanding and forecasting ROE based on the selected independent variables on the model's significance in explaining ROE variations. The highly significant F-statistic emphasized the model's substantial explanatory capabilities.

The strong positive correlation between Capital Adequacy Ratio (CAR) and Return on Equity (ROE) suggests that maintaining a robust capital base is crucial for enhancing profitability. Companies and financial institutions with higher capital adequacy are better

positioned to absorb losses and generate higher ROE, which is a key indicator of financial health. The analysis reveals that Non-Performing Loan Ratio (NPL) has a significant but slightly weaker positive correlation with ROE. This indicates that while maintaining a low NPL is important for profitability, it might not have as strong an influence as capital adequacy. However, it still emphasizes the importance of effective credit risk management to sustain a healthy ROE.

While CRR shows a moderate positive correlation with ROE, it does not reach statistical significance in the coefficient analysis. Nevertheless, the correlation suggests that prudent cash reserve management can have a positive impact on profitability. Further research or a larger dataset may provide more conclusive insights. The significant negative correlation between Loan Loss Provision (LLP) and ROE implies that higher provisions for potential loan losses are associated with lower profitability. This underscores the balance that financial institutions must strike between provisioning for potential losses and maintaining strong ROE. Effective risk management and predictive modeling in this area are critical.

Similarly, coefficient analysis provided insights into the individual contributions of the independent variables. CAR emerged as a significant positive driver of ROE, while LLP played a significant negative role, indicating the importance of maintaining strong capital adequacy and prudent loan loss provisions. NPL and CRR, while not statistically significant, still played roles in the model.

In conclusion, these findings suggest that financial entities should carefully consider their capital adequacy, loan quality, cash reserves, and provisioning practices. By doing so, they can optimize their Return on Equity while effectively managing risk. Furthermore, ongoing monitoring and analysis of these financial metrics are essential to adapt to changing economic conditions and regulatory requirements. Ultimately, the insights from this analysis can guide financial decision-makers in enhancing their organizations' financial performance and stability.

5.3 Implications

Commercial banks have to maintain appropriate liquid assets. The current ratio of the Commercial banks is considerable. This can be regarded as good liquidity position. Considering the growth position of financial market, the lending policy management capabilities, strategic planning and fund flow situation, bank should maintain enough liquid assets to pay short-term obligations. So, it is recommended to maintain sound liquidity position. Last political instability directly affected the economic sector such as hotel and tourism, manufacturing and trading sector. Bank loan and advances is decreasing in this sector. So banks should give priority to these sectors as well as banks should create new investing sector to mobilize deposit.

Keeping all this in consideration, the development banks seems equal performance. Furthermore development banks should increase in its income in managing its deposit. In the future ahead, the three banks recommended to improve its weaknesses by adopting the innovative approach to marketing. In the light of growing competition in the banking sector, all sampled bank should be customer oriented. It should strengthen and activate its marketing function as it is an effective tool to attract and retain the customers.

In the global competitive environment, the bank should develop an innovative app CAR to bank marketing and formulate new strategies of serving customers in a more convenient and satisfactory way by optimally utilizing the modern technology and offering new facilities to the customers at competitive prices. The bank is also required to explore new market areas. For this purpose, it is recommended to form a strong market department in its central level, which deals with the banking products, places, price and promotion as well.

The credit process begins with customer on boarding. In order to be considered for a line of credit with a business, a potential buyer must fill out a Cash Reserve Ratio. The application will list information about the potential buyer and will include a bank reference (i.e. a contact at the potential buyer's financial institution).

The credit management team will endeavor to gather valuable information about the potential buyer's business. Development banks should minimize their existing level of excess liquidity by investing in more profitable sectors. Idle assets of theirs in form of

excess cash or equivalents should be diverted in various investment opportunities available in the market. Commercial banks are formulate and implement the sound and effective credit management to increase volume of proper investment and loan and advances and decrease in bad debts that helps to meet required level of profitability as well as social responsibility. They may contact the bank reference provided by the potential buyer and inquire about their finances. They will also gather credit reports from the major credit bureaus to learn about their credit history. If possible, the credit management team will reach out to other businesses that the potential buyer has bought on credit from (referred to as trade references) in order to learn about their experiences with the business.

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APPENDIX-I

Return on Equity

Year	GBIME	NIMB	NABIL	KBL
2013/014	18.25	16.03	35.20	24.20
2014/015	13.30	17.45	35.210	22
2015/016	12.20	16.19	30.43	22
2016/017	16.30	15.02	28.36	21
2017/018	17.25	20.31	26.38	18
2018/019	21.20	22.85	26.27	16.85
2019/020	15.23	17.08	21.69	17.06
2020/021	14.25	17.46	17.18	24.53
2021/022	16.20	14.87	11.98	21.58
2022/023	16.20	15.81	18.66	14.17

Capital Adequacy Ratio

Year	GBIME	NIMB	NABIL	KBL
2013/014	10.23	14.30	18.25	10.27
2014/015	12.30	15.20	16.20	11.26
2015/016	15.20	11.51	14.22	11.5
2016/017	13.24	11.21	13.93	11.02
2017/018	14.20	12.39	16.43	10.68
2018/019	16.20	13.28	21.18	11.23
2019/020	17.40	14.03	24.03	11.14
2020/021	15.20	13.49	17.98	10.48
2021/022	19.20	15.71	19.71	12.15
2022/023	14.25	15.15	18.91	12.46

Nonperforming loan Ratio (NPL)

Year	GBIME	NIMB	NABIL	KBL
2013/014	2.36	1.03	1.27	1.27
2014/015	1.27	1.02	2.30	1.29
2015/016	1.02	1.01	2.5	1.91
2016/017	0.75	0.83	2.8	1.76
2017/018	1.26	1.19	2.67	1.54
2018/019	1.62	1.5	2.51	1.3
2019/020	1.47	1.64	1.99	1.34
2020/021	1.75	1.59	1.98	1.94
2021/022	1.29	1.57	1.84	2.19
2022/023	174	1.97	2.61	1.67

Cash Reserve Ratio

Year	GBIME	NIMB	NABIL	KBL
2013/014	7.25	8.27	10.25	32.25
2014/015	13.20	16.35	9.23	8.32
2015/016	7.42	6.18	6.10	5.75
2016/017	8.26	6.10	22.40	8.72
2017/018	6.39	7.14	16.43	6.08
2018/019	9.20	8.72	21.18	37.52
2019/020	5.25	9.41	24.03	30.32
2020/021	9.30	6.82	7.89	28.74
2021/022	10.20	9.98	19.71	26.64
2022/023	8.21	8.71	18.91	23.05

Loan Loss Provision

Year	GBIME	NIMB	NABIL	KBL
2013/014	14.20	7.23	10.25	25.20
2014/015	6.39	8.25	9.25	15.20
2015/016	7.25	9.03	6.74	6.76
2016/017	6.25	7.00	6.10	5.75
2017/018	8.36	8.33	22.40	8.72
2018/019	7.25	9.58	16.43	32.49
2019/020	8.20	9.32	21.18	37.52
2020/021	14.20	10.92	24.03	30.32
2021/022	13.20	8.33	7.98	28.74
2022/023	11.20	10.04	19.71	26.64

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CREDIT MANAGEMENT OF COMMERCIAL BANK IN NEPAL A Dissertation Submitted to the Office of the Dean, Faculty of Management in Partial Fulfillment of the Requirements for the Master of Business Studies (M.B.S.) BY: Samjhana Dhakal Shanker Dev Campus T.U. Regd. No: 7-2-752-88-2008 Campus Roll No.: 2856/073 Exam Roll No: 2856/017 Kathmandu, Nepal June, 2024 ABSTRACT The researcher has identified a research problem and established objectives aimed at addressing issues related to credit management within selected commercial banks, as outlined in the introduction chapter. The primary goal of the study is to conduct a comparative analysis of credit management practices among Global IME Bank Limited, Siddhartha Bank Limited, Everest Bank Limited, and Kumari Bank Limited, focusing on enhancing customer experiences across various touch points. This research relies on secondary data sources, including annual reports, official reports, economic journals, financial statements, and authorized websites of the concerned banks, as well as the Nepal Stock Exchange. To augment the effectiveness of the study, pertinent literature has been thoroughly reviewed, providing a foundational understanding to conduct precise research. The literature review serves as a knowledge base for comprehensively exploring the subject matter. Furthermore, the study offers an overview of key financial metrics such as