

**CREDIT RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF NEPALESE
COMMERCIAL BANKS**

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial
fulfillment of the requirements for the Masters of Business Studies (MBS)

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “Credit Risk Management on Financial Performance of Nepalese Commercial Banks”. 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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LIST OF ABBREVIATIONS

BR	Bank Rate
BS	Bank Size
CAR	Capital Adequacy Ratio
EBL	Everest Bank Limited
FY	Fiscal Year
HBL	Himalayan Bank Limited
LAR	Loan and Advance Ratio
LLPR	Loan Loss Provision Ratio
NABIL	Nabil Bank Limited
NBL	Nepal Bank Limited
NIBL	Nepal Investment Bank Limited
NPLR	Non-Performing Loan Ratio
RBBL	Rastriya Banijya Bank Limited
ROA	Return on Assets
ROE	Return on Equity
SPSS	Statistical Package for Social Science

ABSTRACT

The goal of the research-based study "Credit Risk Management on Financial Performance of Nepalese Commercial Banks" was to determine the elements that affect profitability and investigate the connection between these elements and the profitability of Nepal's commercial banks. The factors connected to credit risk are the main focus of this study, which also aims to develop relationships between them. This study would help us address issues such as how Nepal's commercial banks' performance is impacted by credit risk management elements.

In order to assess the relevant information about credit risk and profitability and identify the research gap in the context of Nepal, a thorough literature study was carried out. Descriptive and causal-comparative research designs were used in the study, while SPSS was used for analysis. Out of the twenty commercial banks, five were chosen as a sample. This study is entirely based on secondary data that these five commercial banks disclose each year.

According to the study's findings, there is no multicollinearity among the variables since the capital adequacy ratio, non-performing loan ratio, loan loss provision ratio, loan and advance ratio, bank size, and base rate are all less than 10. ROA has a negative association with CAR, LLPR, LAR, BS, and BR. ROA are positively correlated with the sole non-performing loan. In contrast, LAR, BS, and BR are demonstrating importance in relation to ROA. Similarly, ROE is negatively correlated with all independent parameters, including CAR, LLPR, LAR, BS, and BR. Every other element has a substantial association with ROE, however the LLPR has no meaningful relationship at all. Therefore, creating a suitable environment for credit risk, following a good procedure for giving credit, and keeping up with proper credit administration and management

The study's conclusions will serve as a guide and advantage for regulators, agencies, policymakers, and other pertinent stakeholders.

Keywords: Capital Adequacy Ratio, Loan and Advance Ratio, Loan Loss Provision Ratio, Return on Assets, Return on Equity

CHAPTER I

INTRODUCTION

1.1. Background of the study

Establishing solid lending practices and a systematic framework for risk management are the first steps in a financial institution's credit risk management (CRM) process. Under the direction of the risk management committee, policies, guidelines, industry-specific standards, and risk concentration limitations are planned. Additionally, these policies, standards, and procedures oversee the monitoring, reporting, measurement, and management of credit risk. When market circumstances change quickly, it is important to frequently assess the efficacy and adequacy of internal controls to properly manage credit risk. The procedure a bank implements to manage its financial risks is known as risk management.

Individuals and institutional investors can use the credit facilities offered by banks and other financial organizations to explore and expand profitable investment options. It is clear that any country's financial stability is ensured by the banking sector's long-term, efficient, and effective performance (Oke et al., 2012). The solid banking system is the primary determinant of the financial sector's health. Development can be disrupted by financial intermediation failures (Das and Ghosh, 2014).

Depositor funds are entrusted to commercial banks. Generally speaking, banks use depositor funds for their operations. Since the money belong to the clients, a program for their management must be implemented. The three main goals of the program must always be addressed: revenue, safety, and liquidity. All three of these appeals must be properly balanced for management to be successful.

Risk, usually referred to as chance or the likelihood of financial loss, is the unpredictability of occurrences. Banks encounter a number of risks in their day-to-day operations, including credit, liquidity, legal, operational, and market risks. Inappropriate credit policies, limited institutional capacity, fluctuating interest rates, unsuitable legislation, poor management, low capital and liquidity levels, direct lending, poor loan underwriting, laxity in credit assessment,

widespread bank licensing, poor lending practices, government intervention, and insufficient central bank supervision are the primary causes of credit risk (Kithinji, 2010). Liquidity and solvency issues progressively arise as bank credit risk increases.

The primary financial risk impeding banks' performance is credit risk. This is the risk of fluctuating asset values as a result of the counterparty's contractual debt not being able to fulfill its obligations. Tang (2021) states that the non-performing loan ratio is a measure of credit risk.

Banks make money by providing credit, which is one of their main operations. Credit quality is discussed as a stand-in for banks' operational efficiency and financial health. According to Barger et al. (2015), a key determinant of a bank's soundness and health is its credit quality. Poor credit or loan quality is a major factor in bank failures since creating credit is a bank's primary source of revenue. A key component of financial management choices is credit management, and companies that effectively manage the trade-off between credit and profitability can achieve high credit management efficiency (Bhunja & Khan, 2011).

The entire amount of money that a financial institution has to keep on hand and intends to keep in order to operate responsibly is known as capital adequacy. Customers, the general public, and the regulatory body all benefit from banks having enough capital (OlaREWaju & Akande, 2016). Sufficient and appropriate capital is one of the fundamental needs for banks and other financial institutions. To ensure their stability, all banks and financial organizations must maintain a balance between capital and available risk in their assets. According to Bateni et al. (2014), it is now one of the most crucial requirements for depository institutions.

While capital is crucial in lowering bank failure rates and depositor losses, banks also take on excessive risk to increase shareholder wealth at the expense of fund providers. In the banking sector, capital is also essential for lowering various risk factors. It is also required to lower competitiveness and moral hazard. Additionally, Almazari (2013) states that the anticipated state of the economy as a whole has an impact on the sufficiency of capital. Abdel-Karim defines capital adequacy as a measure of a bank's exposure to risk. Credit risk, market risk,

interest rate risk, and exchange rate risk are among the several categories of risk that banks face and are taken into account while calculating the CAR. As a result, the capital ratio was a crucial indicator of "safety and soundness" for regulatory bodies.

A comprehensive assessment of a business's total position in relation to assets, liabilities, equity, costs, income, and overall profitability is known as financial performance. It is quantified using a number of business-related formulae that enable users to determine precise information about the prospective efficacy of an organization. Among other benchmarks, internal users look at financial performance to assess the health and reputation of their particular firms. Financial performance is examined by external users to identify possible investment possibilities and assess a company's value. In 2018, the Corporate Financial Institute

The explanation above makes it clear that research on banks' capital adequacy and credit risk management is more significant. Basel Accords I, II, and III have emphasized the significance of capital adequacy and credit risk management for banks. Therefore, the impact of capital adequacy and credit risk on the financial performance of Nepalese commercial banks will be the main emphasis of this study. The effectiveness of the fund's investment is determined by a number of factors, including staff productivity, bank policies, borrower assessment, asset quality assessment, and many more. Unproductive loans have a greater effect on a commercial bank's profitability and performance.

Analyzing the link between bank challenges, credit risk mitigation strategies, and credit risk management techniques and customer loan repayment patterns and their impact on profitability and financial performance is the primary goal of the study. This study can offer helpful details on the credit risk management policies and procedures that Nepal's commercial banks follow, which ultimately aids in understanding situations involving credit risks that consumers and commercial banks face that have a cyclical and destructive impact (Nepal Rastra Bank, 2017). As a result, it has contributed value by providing a scenario analysis of the challenges associated with managing credit risks in the banking industry as a whole. This offers empirical support for the theories' validity, which helps the bank's management identify the most

effective credit risk management techniques that improve bank performance. Using a strong sample, this study examines the impact of credit risk on banks' financial performance. The results will be used to provide policy recommendations that will help different authorities manage the impact of credit risk and improve the quality of banks' riskier assets.

1.2. Problem Statement

A country's banking system is essential to the growth of its economy and financial stability. Every bank wants to run as profitably as possible to keep itself stable. The core of the banking sector is lending, and credit risk and nonperforming assets have a direct impact on banks' profitability. As a result, in the majority of nations, banks are subject to central bank and government regulation. Because banks' actions have an impact on the whole economy, regulatory bodies are crucial in assisting in the maintenance of control over them.

Despite the fact that several research on this topic have been conducted in other nations, there is insufficient proof about the relationship between credit risk and the financial performance of Nepalese commercial banks based on available data.

Therefore, the following problems are addressed in this study:

- What is the present state of Nepal's commercial banks' financial performance and credit risk management?
- What is the impact of credit risk management on financial performance of Nepal's commercial banks?
- How does Nepal's commercial banks' financial performance relate to their credit risk management?

1.3.Objective of the Study

Analyzing how credit risk management affects Nepalese commercial banks' financial performance is the aim of the study. The following are the precise goals:

- To assess the present state of Nepal's commercial banks' financial performance and credit risk management.
- To examine the impact of credit risk management on financial performance of Nepal's commercial banks.
- To examine the relationship between Nepal's commercial banks' financial performance and credit risk management.

1.4. Rationale of the Study

There are several studies that have been conducted on the impact of credit risk management in relation to the performance of the bank of the developed countries but there is insufficient research has been done in the context of banks of Nepal. Nepalese banks are facing problems of NPL and many banks became insolvent because of the higher NPL and NPL rate is increasing due to poor credit risk management. Recently, many Nepalese commercial banks followed capital increment plan imposed by Nepal Rastra Bank, a regulator of banks. Stronger capital adequacy reflects the healthier the bank is. Thus, this study will be pertinent for all the financial institutions to focus on the effective credit risk management and to maintain adequate capital adequacy ratio for better profitability and financial stability. The study will also benefit the customers, shareholders, creditors, scholars, students and other stakeholders. In the banking industry, banks and financial institutions are mobilizing the funds of Customers. Banks accept deposit from customers and this will be an obligation to banks and customers put their money at banks by trusting banks. So, this study will inform customers about the actual performance of the bank and help to compare between different financial institution based on deposit and profitability.

Shareholders are one of the important stakeholders of the banks. They are concerned with a profit of the bank and return on their investment as cash and stock dividends. So, this study will inform shareholders about banks performance and return on their investment, and whether banks are earning profits or not. Creditors will get an idea about banks repayment capacity by analyzing credit risk management procedures and by looking at adequacy ratio. Scholars and Students will find a useful research gap from this research and hope that gaps will stimulate

interest in further research in future. Banks will get an idea about their credit risk management procedures; further, they will be able to identify flaws in lending procedures and eliminate the problems to maximize their profitability.

1.5. Limitation of the Study

The following are the main limitations of this study, like all studies have limits because of several factors such as organizations, study time, statistical data dependability, instruments, procedures, and variances:

- Only secondary data was taken into account in this investigation. Therefore, the correctness of the information determines how reliable this research is.
- Only the data from 2070/2071 to 2079/2080 have been gathered and examined.
- The study made the assumption that all banks were the same, which may not be accurate given that the banks' sizes and goals vary.
- The population's limited financial bank data was extracted. Out of all the commercial banks, five were selected. Reflecting the overall financial health of financial institutions will thus be challenging.
- Only certain internal elements that affect profitability were taken into account.

Due to time constraints and the lack of adequate resources, the literature evaluation was restricted to a small number of papers and research projects.

CHAPTER II

LITERATURE REVIEW

Reviewing research findings or other noteworthy proposals related to commercial bank credit management is known as a literature review. To put it succinctly, the researcher is familiar with what is already known and the research gaps that are still unknown and untested thanks to the works of reputable literature experts and earlier investigations (Best and Khan, 2008). This study demonstrates the findings of all earlier research. Review studies make use of a variety of books, journals, theses, abstracts and reviews, indexes, reports, dissertations, and research projects that have been published by different organizations. It is a crucial, required procedure in research projects. It is an essential component of any dissertation.

2.1 Conceptual Review

The total amount of money lent to the client (borrower) by the bank (creditor), either with or without security, is known as credit. Credit is the total amount of money that a bank lends (Oxford Advanced Learners Dictionary 1992). Credit and advances are a significant component of a commercial bank's asset side of the balance sheet. One of the main sources of income for banks is interest earned on loans and credits. The bank creates the credit portfolio; otherwise, it would increase bad debts and negatively impact profitability (Varshney and Swaroop 1994).

The likelihood of a financial loss due to a borrower's failure to repay a loan is known as credit risk. In essence, credit risk is the chance that a moneylender won't get the principle and interest that is due, which would cause cash flows to be disrupted and collection expenses to rise. By examining aspects of a borrower's creditworthiness, such as their income and present debt burden, lenders can reduce credit risk.

Emerging research in both developed and developing nations has focused on the connection between credit risk and the performance of commercial banks. Numerous studies have

examined the connection between credit risk and commercial bank performance, showing that credit risk is one of the key determinants of commercial bank profitability. As such, the situation of Nepalese commercial banks should be taken into account when addressing this issue. The late 1990s saw the emergence of weaknesses in Nepal's banking sector, which showed themselves as the nation's comparatively small and disjointed financial system. The Nepalese banking system faces challenges due to a number of factors, including differences in the regulations governing banking and non-banking financial intermediaries, a lack of autonomy and weak supervisory capabilities to carry out the central bank's surveillance role and administer banking regulations, appropriate government policies that controlled the accumulation of non-performing loans, and financial institutions' noncompliance with the Banking Act's regulatory requirements.

The financial landscape is ever-changing. In today's dynamic financial environment, it is not unusual for interest rates, currency rates, commodities, and real estate prices to fluctuate. The performance and business strategies of banks are negatively impacted by these fluctuations in financial and economic factors. As a result, banks need a risk management framework. Commercial banks may lower risk and possible non-performing assets by practicing effective credit risk management. Commercial banks may identify their most lucrative business and set product prices based on risk after they have a clear understanding of their expenses and hazards. Therefore, via organizational changes, risk measuring methods, and new credit procedures and systems, financial businesses need to have a clear credit risk strategy. Credit risk management should concentrate on five areas.

- a) The procedure of credit sanctioning and monitoring.
- a) The collateral approach
- c) New business prospects give rise to credit concerns.
- d) Exposures to credit in relation to total loans or capital.
- e) Focusing on risk variables that are connected.

The lending function is simple and adds value to the company because loans make up the bulk of the assets of finance organizations. The borrower's failure to repay the loan is the biggest risk. Therefore, it is very important to handle credit risk properly and sensibly. Since lending is a straightforward service that adds value to businesses, the bulk of the assets held by finance organizations are loans. The primary risk is the borrower's potential failure to repay the loan balance. Therefore, it is crucial to handle credit risk appropriately and sensibly. ¹² In their paper that was published in the *Journal of Banking and Finance*, Merton and Morten proposed three methods for controlling credit risk (Miller & Merton; 1995: 483-489).

2.1.1. Risk Based Pricing

It is well known that risk-based pricing forces lenders to adjust the rate to reflect the loan's increased risk. Instead of relying just on past loan loss experience, the pricing process should be simple. In reality, the prime rate plus basis is typically used to determine loan prices. The most creditworthy consumers can bargain from the prime rate because it is not the lowest rate that a bank charges. The bank tried to compete with open market products like commercial paper by using the discount prime rate (Saona, 2018).

2.1.2. Assets Restriction

The borrower's assets are subject to claims from bank lenders and other creditors. Creditors are protected as long as the market value of assets exceeds the value of liabilities because the proceeds from the sale of assets cover the full claim; conversely, as long as there is a positive net worth, businesses will not give up assets to creditors that are worth more than the amount of the claim against them. Therefore, by making sure that the value of assets consistently surpasses the value of claims, lenders may safeguard themselves. Borrowers can minimize the amount of debt they have and the unpredictability of their asset values in order to accomplish this goal. Through lengthy contracts and solid client connections, lenders may enforce covenants and designate borrowers as natives for compliance.

2.1.3. Monitoring

Loan losses can be reduced if lenders are contractually obligated to continuously monitor asset values and seize assets. This can be done by auditing asset values and seizing assets before shortfalls occur or by requiring that the posted value of collateral assets equal or exceed the promised payment for private loans, for which banks have significant organizational expertise. Monitoring without ongoing surveillance is expensive (Varshney & Swaroop, 2017).

Type of Risk:

Credit Risk: Credit risk is the possible loss a borrower could sustain if they don't pay back a loan or carry out their end of the bargain. Conversely, credit risks include counterparty risk, default risk, and country risk.

Operational risk is the possibility of suffering a loss as a result of insufficient or unsuccessful internal procedures, personnel, controls, systems, and outside circumstances.

Market risk, which includes interest rate, foreign exchange rate, stock, currency, and commodity risk, is the term used to describe the monetary losses that financial institutions sustain as a result of unpredictable market fluctuations.

Before granting credit to clients, banks evaluate projects from a variety of perspectives to see if they are viable for investment. A project appraisal is a part of this procedure. The goal of project appraisal is to ensure that the project is feasible. The following queries are addressed by project appraisal:

- Is the project sound technically?
- Will there be a fair return on the project?
- Does the project align with the nation's overarching economic goals?

In general, the following areas are investigated as part of the project appraisal (Gautam, 2016).

- The financial facets
- Aspects of the economy
- Aspects of management and organization
- Legal considerations

The concept for this study was prepared by studying a large number of laws, regulations, acts, and directives. The many directions that are provided to control the commercial bank's credit are properly examined. It is clear that the comparison of commercial banks' credit management is being greatly impacted by the NRB's guidelines and activities. The following are NRB guidelines pertaining to several areas (NRB, 2013).

All commercial banks that are now in existence and were founded to function on a national scale are overseen by the NRB, which has instructed them to increase their capital fund by at least Rs. 500 million by the end of the fiscal year 2000–2001. In order to surpass the minimum capital fund of Rs. 500 million, the amount under the headings of paid-up capital, general reserve, share premium, on-redeemable preference share, and retained profits must be added to the core capital fund. Commercial banks are unable to issue and pay dividends and bonus shares if they are unable to maintain the Rs. 500 million capital funds through the conclusion of the fiscal year 2000/2001. Additionally, it mandated that all commercial banks raise their paid-up capital (not the total capital fund) by at least 10% a year in order to reach Rs. 100 million in 2009. However, the NRB has mandated that all commercial banks keep their paid-up capital at a minimum of Rs. 800 million.

The written policies of other organized institutions on the purchase of shares and securities should be prepared by banks. Only with the Board of Directors' consent may such policies be implemented. The NRB and the Nepali government should not impose any limitations on banks' ability to invest in structured securities. Banks are permitted to invest in securities and shares of any organized organization up to ten percent of the paid-up capital of those institutions (Parajuli, 2006).

Commercial banks must maintain a maximum CRR in order to guarantee sufficient liquidity, satisfy depositor demands for cash at any moment, and reassure depositors about the security of their money. In this regard, the NRB has mandated that commercial banks maintain a minimum of 7% of their current deposits in their own bank vaults, in addition to having 3% of their overall deposits in cash. A one percentage point cut in CRR went into effect at the start of the 2014–2015 fiscal year. All commercial banks are required to keep their CRR and SLR at 4 percent and 12 percent, respectively, during Poush 2079, in accordance with the fiscal year 2078/79 monetary policy.

2.2 Theoretical Review

A conceptual framework is an analytical tool that may be used in a variety of settings. The study's theoretical framework makes it easier to understand how the dependent and independent variables relate to one another and how credit risk affects Nepalese commercial banks' profitability. It aids in identifying and outlining the research problem's applicability and objective.

An economy can be developed, money and wealth can be allocated effectively, and prosperity can result from prudent credit management. It is absolute in the financial system, impacts everyone, and propels the world economy. Credit facilitates the transfer of capital from savers to spenders, which is one of the primary functions of financial markets. It allows money to flow from those without profitable investment possibilities to those who do.

Credit risk is the possibility of suffering a loss of money as a result of the borrower, bond issuer, or counterparty (the "obligors") not fulfilling their financial commitments. Obligors may fail to fulfill their responsibilities because they are unable or unwilling to do so. Compared to the incapacity to pay, financial loss resulting from the obligors' refusal to pay is less frequent.

In addition to disagreements over the terms or legitimacy of a financial contract, high-leverage transactions without equity involvement may also give rise to the obligors' refusal to pay.

The first step in implementing a credit risk management strategy is identifying the risks. Credit risk management will eventually fail if the risks are not identified and understood. Avoiding problematic transactions in the first place is the first step towards effective credit risk management. It should begin with the origination process and be proactive. On a risk-adjusted basis, transactions should make financial sense and align with the organization's profile and capabilities. Avoid transactions for which the organization lacks the skills and information necessary to properly plan and oversee.

Prudent origination, underwriting, credit risk policy, setting suitable limits, and the credit risk approval procedure are the first steps in proactive and efficient credit risk management. Employees in charge of credit risk management should always be skeptical of credit risk. Employees in charge of credit risk management should be autonomous from the company's business center and possess the necessary training, expertise, and experience. As a result, financial markets expand, new products are created, and new dangers arise. As time passes, credit risk management strategies, systems, and the credit risk approach in general should never be taken for granted. As the financial industry develops new products and new hazards, relying on computer models or methods that worked in the past does not always duplicate the risks in an acceptable manner. (Koulafetis, 2017)

Credit risk is the possibility that a counterparty or borrower may not fulfill their responsibilities in accordance with the terms of the agreement, which would cause the financial institution to suffer financial loss. The biggest source of credit risk is loans, but there are numerous sources of credit risk throughout a financial institution's operations, both on and off the balance sheet and in the trading book.

Strong measures should be implemented to monitor and control the credit risk included in banks' and other credit institutions' risk profiles. A thorough approach to risk management must include the efficient control of credit risk. The nature, scope, and complexity of the

financial institution's operations should be reflected in the governance, procedures, and internal controls that are appropriate for accepting, managing, and keeping an eye on credit risk, both individually and collectively. Consistent provisioning policies are necessary for financial organizations to have solid processes for evaluating their credit exposures. To determine if the procedures in place are sufficient to handle the credit risk they may be exposed to in the near future, they should keep an eye toward the future.

Organizational structure, credit strategies, policies, and procedures, limits and indicators, the process of providing credit, the processes of administration, measurement, and monitoring of credit, credit risk mitigation methods, and controls of credit risk are the elements of an effective credit risk management.

The main goals of financial management are to keep an eye on, manage, safeguard, and report on a company's financial assets. Companies' financial management, including all bank transactions, loans, debts, investments, and other financing sources, is handled by accountants or finance teams. Finance teams are also in charge of making sure the business complies with all legal requirements, maintains its financial stability, and maximizes profits. Smpson (2023)

2.3 Empirical Review

This section includes comprehensive assessments of relevant research on how credit risk management affects Nepal's commercial banks' financial performance.

Temba et al. (2024) examines how credit risk management practices affect the financial performance of commercial banks in Tanzania. The findings reveal that credit risk approval has a positive effect on banks' capital adequacy, efficient utilization of equity, asset quality, and liquidity. However, credit monitoring negatively affects the financial performance of banks through their earning ability, asset quality, and liquidity. The study recommends that incorporating credit risk management practices as a core aspect of bank operations is crucial, as it has a beneficial impact on financial performance. Nevertheless, it is advised to exercise

caution and achieve a harmonious balance in the integration and concentration of all examined variables since credit approval could not exhibit a positive effect on banks' earning ability.

Bhatt et al. (2023) to examined the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. It also examines the mediating role of credit risk management on the performance of commercial banks in Nepal. The results indicate that there is a positive relationship between environmental risk and credit on credit risk management. The results show that credit risk management mediates the relationship between environmental risk, credit appraisal measurements, market risk analysis, and the performance of commercial banks. Therefore, managers should strive to impart risk prevention and control mechanisms to reduce credit risk and achieve good financial performance.

Alfa (2023) used panel data regression analysis on E-view 7 data analysis software to investigate the effects of capital sufficiency and credit risk management on the performance of money deposit banks in Nigeria. The bank's reports included secondary data in the form of cross-sectional and time series data. Twelve banks' annual reports covering the years 2015–2021 were examined for credit risk factors and the capital adequacy ratio.

Banu et al. (2021) found that while there is minimal variance in the various profitability qualities across the sample banks over the research period, there is substantial and insignificant variation as well as a relationship in the various credit risk management indicators. Additionally, the various credit risk management indicators—loan and advance, classified and unclassified loans, leverage ratios, bad debt, default ratios, cost per loan asset, and cost to income ratios—have negligible effects on profitability metrics like return on equity and return on assets as well as the sample banks' net profit percentage over the course of the study. Therefore, the study has suggested that the banking industry's management should prioritize developing a clever credit management policy and lending guidelines in order to develop the best credit risk management practices and appropriately satisfy the needs of loan applicants.

Olobo et al. (2021) examined 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 simple 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.

Munangi and Sibindi (2020) investigated how credit risk affected South African banks' financial results. First, the study showed a negative correlation between bank financial performance (measured by ROA) and credit risk (measured by the ratio of non-performing loans), with a highly statistically significant result. The study's second goal was to determine if South African banks' financial performance and growth were significantly correlated. Growth was found to have a beneficial impact on banks' financial performance. Thirdly, the study aimed to investigate the connection between capital sufficiency and financial performance. A favorable correlation was seen when ROA was used to measure financial success. Fourth, the study's conclusions regarding the correlation between size and financial success metrics were equivocal. Fifth, the analysis showed a negative correlation between bank leverage and ROA.

Islam et al. (2020) examined a panel dataset for 22 sample commercial banks during the years 2008 to 2017. The results show that Loan Loss Provision to NPL ratio and Cost per Loan ratio were found to have a significant positive impact on Return on Assets (ROA), while Capital Adequacy ratio and Leverage ratio have a significant negative impact on the performance of banks. However, Non-Performing Loan ratio, Loan Loss Provision to Total Asset, Loan Loss Provision to Total Loan, Total Loan to Total Asset, and Log of Total Asset and Deposit, were found to have an insignificant impact on the profitability. The findings of the study assert that credit risk has a noteworthy negative impact on profitability. The study recommends that bank

management should be more strategic in credit risk assessment, to curtail the exposure to credit risk and to boost profitability.

Rehman et al. (2019) examined risk management strategies undertaken by the commercial banks of Baluchistan, Pakistan, to mitigate or eliminate credit risk. The findings of the study are significant as commercial banks will understand the effectiveness of various risk management strategies and may apply them for minimizing credit risk. This explanatory study analyses the opinions of the employees of selected commercial banks about which strategies are useful for mitigating credit risk.

Ali and Dhiman (2019) revealed that the independent variables of the sampled public sector banks significantly impact the profitability during the study period. On the basis of empirical findings, it can be said that credit risk management is a vital parameter in determining the banking performance. Banks should be persistent in developing and revising its credit risk management practices or systems according to changing risk exposures so that default risk in lending could be minimized and ultimate aim of attaining higher profitability is achieved.

Serwadda (2018) revealed that credit risk management impacts on the performance of Ugandan commercial banks. The results portrayed that bank's performance was inversely influenced by non-performing loans which may expose them to large magnitudes of illiquidity and financial crisis. Thus, given such results, the researcher recommends that banks need to enhance their credit risk management techniques not only to earn more profits but also to maintain a qualitative asset portfolio and attention be given to non-performing loans, loan loss provision to total loans and growth in interest earnings that were found to be significant.

Noor et al. (2018) tested the co-integration of the variables and looked at how POCL affected ROI, ROE, and ROA. Co-integration between the variables under investigation has been discovered. Additionally, regression analysis has shown that POCL significantly reduces ROI. In the near term, POCL has no discernible effect on ROA or ROE. However, POCL has a major long-term effect on ROE and ROA.

Singh and Sharma (2018) revealed that there is significant positive relationship between ROA and CAR, LPNPL, whereas ROA and NPLR have significant negative relationship. The independent variables (Credit Risk Variable) have predicted 55.7 percent to the dependent variable i.e., ROA, it also indicates that there is a significant impact of CAR, NPLR, LPNPL on ROA. Credit risk management is crucial on the bank profitability since it have a significant relationship with bank profitability and contributes up to 55.7 percent. Among the credit risk management indicators, NPLR is the single most important predictor of the bank profitability, whereas CAR and LPNPL are not significant predictors of bank profitability. Hence, the banks are advised to put more emphasis on credit risk management to reduce credit risk as non-performing loans and attain maximum profitability.

Nwudel and Okeke (2018) examined the effect of credit risk management on the performance of deposit money banks in Nigeria. The dataset for the years 2000–2014 was compiled from the annual reports and financial statements of the chosen deposit money institutions, and an ex post facto research approach was used. The ordinary least square regression model was used to evaluate three hypotheses. The results show that credit risk management significantly and favorably affected the deposit money banks' return on equity, return on assets, and total loans and advances. According to the report, bank management should work more to reduce nonperforming loans by assessing borrowers' repayment capacity. In this sense, the regulator ought to improve its monitoring capabilities.

Hamza (2017) revealed the fact that bank performance and credit risk management are inversely related. The capital adequacy ratio (CAR), loan loss provision ratio (LLPR), liquidity ratio (LR), and non-performing loan ratio (NPLR) all significantly affect return on assets (ROA), according to studies of ROA. The return on assets is positively impacted by the capital adequacy ratio (CAR), loan and advances (LAR), SIZE, and the loan loss provision ratio (LLPR), liquidity ratio (LR), and non-performing loan ratio (NPLR). The CAR, LAR, and LLPR factors significantly affect return on equity (ROE). In this model, the dependent variable is positively impacted by the CAR, LAR, and SIZE variables and negatively by the LLPR, NPLR, and LR variables.

Mushtag et al. (2017) investigated the effects of capital adequacy ratio and credit risk drivers on the financial performance of Pakistani banks. Various elements that contribute to credit risk and eventually have a negative impact on banks' performance are taken into account for the study. Following a thorough investigation, it was shown that return on assets is adversely correlated with credit risk (non-performing loans), cost per loan assets, and loan and advance. The findings show that Pakistan's commercial banks' financial performance is being negatively impacted by excessive credit risk. It is advised that banks manage their non-performing loans and operational costs per loan in order to reduce the credit risk related to their main business. Nonetheless, the capital adequacy ratio significantly improves the institutions' performance. According to the findings, the average CAR of the majority of Pakistan's commercial banks is higher than the benchmark CAR set by the State Bank of Pakistan (SBP) under BASEL II, demonstrating the banks' sound capital buffer against default losses.

Mendoza and Rivera (2017) looked at the capital adequacy and credit risk of 567 rural banks in the Philippines to see how these factors impact bank profitability. We discovered a statistically significant negative correlation between credit risk and profitability using the Arellano-Bond estimator. However, empirical research revealed that the profitability of Philippine rural banks is not significantly impacted by capital sufficiency. Rural banks must thus do a more thorough analysis to see whether capital injection will lead to greater profitability as opposed to growing debt. According to the report, banks must also determine which risk variables have the most effects on their financial performance in order to complement their strategy with improved risk-adjusted performance assessment. Taking into account the good credit risk management guidelines provided by regulatory agencies, rural banks should set up credit risk management that outlines the steps involved in loan approval from start to finish. Furthermore, to guarantee the rigorous application of internal procedures on loan operations, rural banks must strengthen internal control mechanisms.

Ebenezer and Omar (2016) found a negative and significant correlation between the ratio of non-performing loans and bank profitability, a negative and insignificant correlation between the ratio of debt to total assets and profitability, and a positive and negligible correlation

between the ratio of debt to equity and bank profitability during the study period. The findings generally suggest that banks should put more effort into managing their inherent risk, which frequently has an impact on their financial stability and profitability. Thus, the study comes to the conclusion that credit risk has an effect on Nigerian commercial banks' profitability.

Muritihi et al. (2016) analyzed that there is a substantial and adverse correlation between bank profitability and credit risk. Both short- and long-term bank performance is negatively correlated with low asset quality or a high percentage of non-performing loans relative to total assets. It is advised that Kenyan commercial bank management improve their ability to analyze credit and administer loans in light of the study's findings. Lending criteria and credit regulations should be made clear.

Table 1

Summary of Empirical Review

SN	Author	Objectives	Methodology	Major Findings
1	Temba et al. (2024)	To examines how credit risk management practices affect the financial performance of commercial banks.	Employing multiple linear regression techniques, the study analyzed balanced panel data from 225 observations gathered from audited published annual reports of 15 commercial banks in Tanzania from 2006 to 2020.	The findings reveal that credit risk approval has a positive effect on banks' capital adequacy, efficient utilization of equity, asset quality, and liquidity. However, credit monitoring negatively affects the financial performance of banks through their earning

				ability, asset quality, and liquidity.
2	Bhatt et al. (2023)	To explore determinants of credit risk management that can influence the performance of commercial banks.	Depending on the quantitative method used, this study collected data using a survey approach, which is often associated with deductive methods	The findings suggest that an effective risk management approach for a bank in Nepal is dependent on several critical elements.
3	Alfa (2023)	To empirically examine the joint impact of credit risk management and capital adequacy on the financial performance of listed money deposit banks in Nigeria	Secondary data,12 listed money deposit bank	The findings of the study, the following recommendations are made: Banks must constantly review their credit policy guidelines from time to time in consonance with the dynamics of business environment. In the wake of current economic depression with the consequences on the currency depreciations

4	Banu et al. (2021)	To identify the consequence of credit risk management indicators on Profitableness attributes of state-owned commercial banks functioning in Bangladesh.	Population and Sample, the secondary sources especially from five years (from 2012 to 2016), multiple regression Analysis with ordinary least square (OLS), Dependent and Independent Variables.	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.
5	Olobo et al. (2021)	The study was set to examine the extent to which Credit Risk Management Practices influence banks' performance in South Sudan.	The study applied a cross-sectional survey design with 124 respondents linked to the Credit process across 7 sampled banks in Juba.	The study revealed a strong positive correlation between risk management practices and bank performance.
6	Munangi et al. (2020)	This study examined the impact of credit risk on the financial performance of South African banks.	A correlation research design is adopted for this research. non-experimental descriptive design also adopted.	The findings from the empirical analysis, both monetary authorities and management of individual banks hold a sway in the overall financial performance of banks.

7	Islam et al. (2020)	The purpose of the study is to scrutinize how, and to what level, the indicators of credit risk influence the profitability of commercial banks in Bangladesh.	Using quintile regression analysis, this study examined a panel dataset for 22 sample commercial banks during the years 2008 to 2017.	The findings of the study assert that credit risk has a noteworthy negative impact on profitability and also recommends that bank management should be more strategic in credit risk assessment, to curtail the exposure to credit risk and to boost profitability.
8	Rehman et al. (2019)	To identify risk management strategies undertaken by the commercial banks of Baluchistan, Pakistan, to mitigate or eliminate credit risk.	This study adopts an explanatory research design, which was aimed to collect authentic, credible and unbiased data.	The findings of the study are significant as commercial banks will understand the effectiveness of various risk management strategies and may apply them for minimizing credit risk.
9	Ali & Dhiman (2019)	This present study tries to explore an empirical association between the credit risk management and banks'	A quantitative research design has been used for achieving this research objective.	The empirical findings indicate that ROA (profitability) is positively related to CAR, management quality and earnings ability whereas it is found to be negatively related to AQ and liquidity.

		financial performance.		
10	Serwadda (2018)	To examine the impacts of credit risk management on the performance of Uganda Commercial Banks.	The study employs descriptive regressions and correlation analysis.	The study intends to analyze the impact of credit risk management on the performance of banks with the help of credit risk management aspects and financial performance metric or measure.
11	Noor et al. (2018)	An effective banking system is needed and without it, it is difficult for the economy to mobilize the real resources necessary For economic growth and stability.	Data have been collected from secondary sources, simple regression analysis and to test the co-integration among the variables using STATA software and then VECM model.	In the study, it has been found that there exists co-integration among the study variables. In regression analysis, it has also been found that POCL has significant negative impact on ROI. But the impact of POCL is not significant on ROA and ROE.
12	Singh & Sharma (2018)	To examine the impact of credit risk on profitability of twenty-six public sector banks.	The research design for the present study is explanatory in nature, which is used to find the cause and effects relationship between the various indicators	The study revealed that there is significant positive relationship between ROA and CAR, LPNPL, whereas ROA and NPLR have significant negative relationship.

			of credit risk management and profitability.	
13	Nwudel & Okeke (2018)	This study investigated the impact of credit risk management on the performance of deposit money banks in Nigeria using five banks that had highest asset base.	Ex-post facto research design was adopted using dataset for the period 2000–2014 collated from the annual reports and financial statement of the selected deposit money banks.	The study recommended that bank managers need to put more efforts to control the non-performing loan by critically evaluating borrowers' ability to pay back.
14	Hamza (2017)	This study captured the impact of credit risk management on performance of commercial banks in Pakistan.	Descriptive statistics, correlation matrix and through regression models.	The findings revealed the fact that credit risk management is inversely associated with bank performance.
15	Mushtaq et al. (2017)	This study aims to investigate; how credit risk and capital adequacy affects the performance of commercial banks in Pakistan.	All data required for the study are collected from the annual reports of the selected banking companies for the period of 6 years from 2007-2012.	The findings of this study help the risk managers to ensure prudent credit risk management practices that will help in reducing non-performing loans and Improving banking performance.

16	Mendoza & Rivera (2017)	To identify a measure of credit risk, capital adequacy, and bank profitability; and to propose an econometric model that will estimate its causation with profitability;	The data was sourced from the report furnished by the Systems and Reports Management Division of the BSP.	Rural banks need to enhance internal control measures to ensure the strict Implementation of internal processes on lending operations.
17	Ebenezer & Omar (2016)	To determine the significant effects of credit risk and its measure indicators; and the relationship between the indicators which influence the profitability of banks.	Data for this study consists of annual observations on 8 Nigeria commercial banks between 2011 and 2014.	The study concludes that credit risk impact on profitability of commercial banks in Nigeria.
18	Murithi et al. (2016)	The objective of study was to assess the effect of credit risk on financial performance of commercial banks in Kenya.	The pairwise correlations between the variables, were carried out. F-test was used to determine the significance of the	The study findings, it is recommended that Commercial banks in Kenya should enhance their capacity in credit

regression while the analysis and loan coefficient of administration. Clear determination, within credit policies and lending and between R2, were guidelines should be used to determine how established. much variation in dependent variable is explained by independent variables.

2.3.1 Review of Literature in Nepalese Context

Niraula and Maharjan (2024) investigated how Nepali commercial banks' profitability is affected by macroeconomic factors and credit risk. The banks' profits per share and return on assets were seen as regressive. GDP growth rate, consumer price index, and base rate were examined as indicators of macroeconomic variables, whereas non-performing loans, the capital adequacy ratio, and the credit to deposit ratio were used as regressors and proxies of credit risk. When determining the variance in return on assets, the GDP growth rate was negligible. In defining the variation in earnings per share, inflation and base rate were probably not significant.

Khanal and Sapkota (2023) investigated the effect of credit risk management on financial performance of commercial banks in Nepal. This study uses balanced panel data from 10 commercial banks from 2012 to 2021 and utilizes the Pooled Ordinary Least Square estimator. The study used ROA as a financial performance measure and CAR, NPLR, CDR, MQR, and BS as credit risk indicators. According to the study, CDR has a negative and negligible impact on ROA, whereas CAR, NPLR, and BS have a positive and negligible influence. Likewise, MQR has a strong beneficial impact on ROA.

Bagale (2023) based on secondary data about credit risk management and its impact on profitability of Nepalese commercial banks. Numerous risks, including credit, operation, market, liquidity, interest, and foreign exchange risks, are present in the day-to-day operations of the majority of banks. Credit risk is one of the issues that banks have had to deal with, and it has a big impact on their financial performance.

Shrestha (2022) examined the effect of credit risk on profitability of Nepalese commercial banks. The ratios of total loan to total deposit (TL/TD), cash reserve ratio (CRR), nonperforming loan to total loan (NPL/TL), and loan loss provision to total loan (LLP/TL) are used to assess credit risk, while return on assets (ROA) is used to gauge profitability. The investigation was conducted using 18 commercial banks' yearly data from 2013–14 to 2018–19. This study uses the Fixed Effect model to determine how credit risk significantly affects Nepalese commercial banks' profitability. Lastly, it is noted that the profitability of Nepalese commercial banks is significantly impacted negatively by NPL/TL and LLP/TL and significantly positively by TL/TD. In order to boost the profitability of Nepalese commercial banks, the bank management should raise the ratio of total loans to total deposits while lowering the ratios of nonperforming loans to total loans and loan loss provisions to total loans.

Bhandari (2019) has used the majority of the money in the form of credit and advances and the majority of deposits are used for income-generating purposes. Deposit-born banks are able to provide their clients a variety of services, including advances and credit. In order to profit from this, banks are drawing deposits to underserved areas. The sample banks' loss and credit provisions have been rising annually. The country's economic situation is causing credit takers to receive poor returns on their investments. As a result, credit clients fail to refund bank funds within the allotted time frame. Credit has thus grown as a result of the default risk. The bank should thus raise its credit loss reserve.

Shrestha (2019) indicated non-performing loans and commercial banks' profitability have a strong positive correlation, meaning that even when loan losses are larger, banks are still profitable. Small businesses are unable to obtain loans because banks charge higher interest

margins as a result of inadequate credit risk management procedures. Regarding policy directives, Nepal's commercial banks have rained down areas of needless spending.

Poudel (2018) found that Nepal's commercial banks' profitability is significantly impacted by the non-performing loan ratio. Furthermore, inflation, the interest spread rate, and the solvency ratio all have little detrimental effects on profitability. On the other hand, Nepal's commercial banks' profitability is greatly enhanced by the capital adequacy ratio, total assets, and GDP growth. Lastly, there is a negligible positive effect of interbank interest rates on profitability.

Shrestha (2018) indicated to the commercial banks in the sample had inadequate credit risk management procedures. The Capital Adequacy Ratio's negligible result serves as proof of this. It suggests that the capital adequacy ratio is not a reliable indicator of bank performance. The study disproves the notion that Nepalese commercial banks with greater capital adequacy ratios may make more loan advances, absorb credit losses when they occur, and perform better since the coefficient of capital adequacy ratio is negative and statistically insignificant.

Poudel (2018) found that in Nepali commercial banks, liquidity significantly reduces credit risk. On the other hand, interest spread and the capital adequacy ratio significantly reduce credit risk. The investigation also demonstrated that there is no discernible relationship between bank size and interest spread and credit risk. Credit risk in Nepali commercial banks is adversely correlated with GDP growth, while the statistics indicate that the coefficients are negligible at the 5% level. On the other hand, Nepali commercial banks' credit risk is negligibly impacted negatively by interbank interest rates.

Bhattarai (2016) investigated how Nepalese commercial banks' performance was impacted by credit risk. The study has chosen to use both descriptive and causal comparative research designs. A regression model was used to assess the combined data of 14 commercial banks from 2010 to 2015. 'Non-performing loan ratio' has a negative impact on bank performance, whereas 'cost per loan assets' has a favorable impact, according to the regression findings. Bank performance is positively impacted by bank size in addition to credit risk indicators. Cash reserves and the capital adequacy ratio are not thought to have an impact on bank performance.

The study comes to the conclusion that credit risk indicators and bank performance are significantly correlated.

Bhandari and Nakarmi (2016) revealed the financial positions of three public and ten private commercial banks. The Central Bank of Nepal's annual audited financial accounts of commercial banks, which are released by the individual banks, and an annual economic survey are the primary sources of the data. The commercial banks' financial performance was evaluated by averaging four-year ratios from 2008/09 to 2011/12. Thirteen commercial banks were chosen for this study's examination. The Analytic Hierarchy Process framework, which established hierarchical criteria based on CAEL (Capital Adequacy, Asset Quality, Efficiency, and Liquidity), served as the basis for the financial measures used to evaluate bank performance.

Kattel (2015) concluded that there is less concentration in the banking sector when it comes to the employment of contemporary credit identification methods. In order to determine the credit risk during the credit assessment, the bank must pay special attention to the models that have been built thus far. The banks will identify any dishonest behavior on the borrower's behalf throughout the evaluation procedures. Various steps are taken to adhere to an efficient credit management system, and the bank is always working to enhance its credit risk detection methods in its credit policy for lending quality.

Table 2

Summary of Literature Review on Nepalese Context

SN	Author	Objective	Methodology	Major Finding
1	Niraula & Maharjan (2024)	To examine the impact of credit risk and macroeconomic factors on the profitability of	Data were collected from the sample of 14 commercial banks in Nepali	The study resulted that the GDP growth rate was insignificant in defining the variation on return on assets. Likely, inflation

		commercial banks in Nepal	economy of five fiscal year. Data are analyzed using Pearson correlation and Ordinary Least Square (OLS) for regression.	and base rate were not significant in defining the variation on earning per share. Result of this study provided sufficient scope to bankers in developing their growth strategies.
2	Khanal & Sapkota (2023)	To investigate the effect of credit risk management on financial performance of commercial banks in Nepal.	Quantitative nature and secondary source of data has been collected from ADBL, HBL, SBL, RBB, NBL, NMB, NIBL, GIBL, EBL, PBL.	Based on empirical results, study conclude that bank in order to design an effective credit risk management system need to establish a suitable credit risk environment, operating under a sound credit granting process, maintaining an appropriate credit administration that involves, monitoring, processing as well as enough controls over credit risk.
3	Bagale (2023)	To find the impact of credit risk on profitability of commercial banks in Nepal.	Data were collected from the sample of 15 commercial banks operated in Nepali economy for	This study conclude that capital adequacy ratio, and liquidity ratio have the greatest impact on the financial performance of

			the period of 2011 to 2020 Data are analyzed using mean, standard deviation, correlation and regression analysis	sample commercial banks, while loan loss provision ratio, cash reserve ratio, and bank size have the least effect.
4	Shrestha (2022)	To examined the effect of credit risk on profitability of Nepalese commercial banks	The annual data of 18 commercial banks from 2013/14 to 2018/19 have been used for the analysis.	This study also conclude that the credit risk measured by cash reserve ratio (CRR), has negative but insignificant influence on profitability.
5	Bhandari (2019)	To analyzed the factors affecting credit risk on profitability of Nepalese commercial banks.	This study adopts descriptive and analytical research design.	Entire study found that the commercial banks overall management of credit risk is good and reasonable.
6	Shrestha (2019)	The main objective of the study is to evaluate the credit risk management of commercial banks of Nepal.	This study adopts descriptive and correlational research design.	The findings indicate a significant positive relationship between non-performing loans and commercial banks' profitability revealing that, there are higher loan losses but banks still earn profit.

7	Poudel (2018)	The main purpose of the study was to examine the impact of credit risk on profitability of the commercial banks in Nepal.	Data were collected from the sample of 15 commercial banks operated in Nepali economy for the period of 2002/03 to 2014/15.	Capital adequacy ratio, total assets, and GDP growth have the significant positive impact on Profitability of commercial banks in Nepal.
8	Shrestha (2018)	This study is to examine the effects of credit risks on commercial bank's performance in the context of Nepal.	Secondary data are collected for the study from selected banks for the period of 2006 to 2016 which have been used for the analysis	This study concludes that there exists significant relationship between bank performance and credit risk indicators.
9	Poudel (2018)	The main objective of the study is to identify the major indicators of credit risk among the Nepali commercial banks.	The study were obtained from the database of Nepal Rastra Bank for bank specific variables and database of World Bank for macroeconomic variables for the year 2002/03 to 2014/15.	Reveals that liquidity has the significant positive impact on credit risk in Nepali commercial banks. In contrast, capital adequacy ratio and interest spread have the significant negative impact on credit risk.
10	Bhattarai (2016)	This study has examined the effect of credit risk on	The descriptive and causal comparative research designs	This study concludes that there is significant

		performance of Nepalese commercial banks.	of have been adopted for the study.	relationship between bank performance and credit risk indicators.
11	Bhandari & Nakarmi (2016)	This study lies mainly in identifying and prioritizing financial parameters based on which financial institutions are considered efficient	The data are mainly obtained from the Central Bank of Nepal annual audited financial statements (published by the respective banks), and a yearly economic survey. An average of four year ratios from 2008/09 to 2011/12 was evaluated to assess the financial performance of the commercial banks	This study attempts to find out the current performance of commercial banks in Nepal and develop a multi criteria model to check the health and status of these banks.
12	Kattel (2015)	The main purpose of this study is to explore the current credit risk identification techniques used by Nepalese commercial banks.	Questionnaires were used as research instruments. A sample of 9 commercial banks randomly chosen was used in this analysis.	The bank must closely follow the current developed models to identify the credit risk during the credit assessment.

2.4. Research Gap

Time, population, methodologies, applications and implementations, and other various perspectives were the main areas of disparity. A research gap is a subject or area where the capacity to draw conclusions about an issue is limited by missing or insufficient information. The success or failure of the banks is determined by the credit they offer, according to an examination of journals, essays, and books. Only the impact of credit risk on Nepalese commercial banks' profitability has been the subject of this study. Numerous studies have been conducted on credit risk management and how it affects profitability in industrialized nations with efficient markets. In a similar vein, a large number of papers have been written about credit policy and commercial banks' financial performance. However, in Nepal, where the market is flawed and imports drive the economy, there aren't many research on the credit risk management of government banks. In a similar vein, Nepalese banks suffered from poor credit risk mitigation strategies, and it is important to address the fact that few of them have enough capital to withstand the economic shock. As a result, the researcher thinks that the study's findings provide something fresh that lessens the gap in the literature.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with research design of the study and the methods used to collect and analyze data. The chapter includes research design, sample and population, sampling techniques, Nature and source of data, instrument of data collection, methods of analysis and research framework and its variable. The chapter describes how the analysis is carried out and findings are obtained. The empirical part has focused on finding out how bank's financial Performance is being affected by credit risk management.

3.1. Research Design

Research design is the roadmap of research methods and techniques chosen by a researcher. The design allows researchers to hone in on research methods that are suitable for the subject matter and set up their studies up for success. An impactful research design usually creates a minimum bias in data and increases trust in the accuracy of collected data. A design that produces the least margin of error in exploratory research is generally considered the desired outcome. The researchers have used descriptive research design as it describes the characteristics of population and nature of demographic segments. The study employed descriptive and causal-comparative research designs to deal with the determinants of profitability of commercial banks of Nepal. The descriptive research design is being adopted for fact-finding and adequate information gathering about the fundamental issues associated with variables affecting the performance of commercial banks of Nepal. It explained the real and actual condition, and facts.

The study established a cause-and-effect link between Nepalese commercial banks' profitability and credit risk using a causal-comparative research approach. More precisely, the study examined the relationship between the Return on Equity and Return on Assets of five commercial banks in Nepal over a ten-year period, from 2070/2071 to 2079/2080, and the Loan Loss Provision Ratio, Non-Performing Loan Ratio, Loans and Advances Ratio, Bank size, Base rate, and Capital Adequacy Ratio.

3.2. Population and Sample

At present, 20 commercial banks are operating in Nepal. Some of them are under Merger agreement. All the commercial banks will be considered as the population of this research. Due to the limited time period and resource factors, it is not possible to study all the data related to all the commercial banks of them regarding the study topic. So, here judgmental sampling is being used in this research. Among all the commercial banks of Nepal, five of them shall be taken as a sample size where one of them will be government bank, one domestic private bank, and three joint venture banks as the sample of this study. Selection was based on their profitability, size of the organization, capital base, lending and advances deposit volume, investment, and profitability of the banks. The main reason behind the selection of sample was the cost of the survey, effort in the survey procedure and time constraints. In order to ensure uniformity in presentation, some banks were excluded because of the different reasons. Following commercial banks were taken as a sample for the study.

i. Government Bank

1. Rastriya Banijya Bank Limited

ii. Joint Venture Banks

1. Everest Bank Limited
2. Himalayan Bank Limited
3. Nabil Bank Limited

iii. Domestic Private Bank

1. Nepal Investment Mega Bank Limited

3.3. Nature and Source of Data

The secondary data used in the study came from the published financial reports of five Nepalese commercial banks covering the ten-year period from 2070/2071 to 2079/2080. Loan loss provision ratio, non-performing loan ratio, loans and advances ratio, bank size, base rate, capital adequacy ratio, return on equity, and return on assets are the variables that were

employed in the study. Secondary data was gathered from commercial banks' annual reports as well as Nepal Rastra Bank's Banking and Financial Statistics and Bank Supervision Report.

3.4. Instruments of Data Collection

The information gathered from the bank's financial and annual reports was carefully examined and presented in an appropriate manner to allow for analysis with a variety of analytical tools. Spreadsheet and SPSS software were used to code, tabulate, and standardize the collected data.

3.5. Methods of Analysis

The process of cleansing, converting, and modeling data in order to find relevant information for corporate decision-making is known as data analysis. Extracting valuable information from data and making decisions based on that knowledge is the goal of data analysis. For the proper analysis, the gathered replies were coded and input into SPSS software. The statistical and economic models used to analyze secondary data are covered in this section. The study uses regression, correlation, and descriptive analysis techniques. The mean, standard deviation, and minimum and maximum values of the variables used to characterize the characteristics of the sample businesses are all included in the descriptive statistics. The direction and strength of the link between dependent and independent variables are measured using correlation analysis. Regression analysis is used to determine how much an independent variable influences a dependent variable, both alone and in combination with other factors. It explains the many statistical tests of significance, including as the t-test, F-test, detection, and linear regression analysis, that are used to validate models. Every social science model is examined for individual effects using the statistical package's F-test. Details of the model analysis and statistical significance test have been covered in the section that follows.

Using panel data, the econometric models used in this paper attempt to investigate how credit risk affects the profitability of Nepalese commercial banks. This study uses the following linear regression model to examine how credit risk affects Nepalese commercial banks' profitability.

Therefore, the model equation that follows is meant to test the hypothesis. According to the conceptual framework, the dependent variables' (bank profitability's) function looks like this:

$$\text{Bank performance} = f(\text{NPLR}, \text{LLPR}, \text{LAR}, \text{CAR}, \text{BS and BR})$$

More precisely, the provided model has been divided into the subsequent models:

Model 1:

Regression Model:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{NPLR}_{it} + \beta_2 \text{LLPR}_{it} + \beta_3 \text{LAR}_{it} + \beta_4 \text{CAR}_{it} + \beta_5 \text{BS} + \beta_6 \text{BR} + e_{it}$$

Model 2:

Regression Model:

$$\text{ROE}_{it} = \beta_0 + \beta_1 \text{NPLR}_{it} + \beta_2 \text{LLPR}_{it} + \beta_3 \text{LAR}_{it} + \beta_4 \text{CAR}_{it} + \beta_5 \text{BS}_{it} + \beta_6 \text{BR}_{it} + e_{it}$$

Where,

Return on assets, or ROA, is calculated as the percentage of net income divided by total assets.

Return on equity, or ROE, is calculated by dividing net income by shareholders' equity.

Non-Performing Loan Ratio (NPLR)

Loan Loss Provision Ratio (LLPR)

Loan and Advance Ratio (LAR)

Capital adequacy ratio (CAR)

Bank Size (BS)

Base Rate (BR)

e is the error term.

The constant term is β_0 , while the beta coefficients of the variables are β_1 , β_2 , β_3 , β_4 , β_5 , and β_6 .

3.6. Research Framework and Definition of variable

An underlying structure or model that supports our group's research endeavors is provided by a research framework. It is clear from the earlier, well-established research on credit risk management that this area of study is crucial to the growth of the contemporary financial industry. In order to understand the impact of credit risk on the financial performance of

Nepalese commercial banks, the study's framework provides a methodical explanation of the relationship between the dependent and independent variables. It aids in identifying and defining the research problem's purpose and emphasis. Here, Independent variables are Non-performing Loans Ratio, Loan Loss Provision Ratio, Loan and Advance Ratio, Capital Adequacy Ratio, Bank Size and Base Rate and Dependent Variables are Return on Assets (ROA) and Return on Equity (ROE). It helps to determine and define the focus and goal of the research problems.

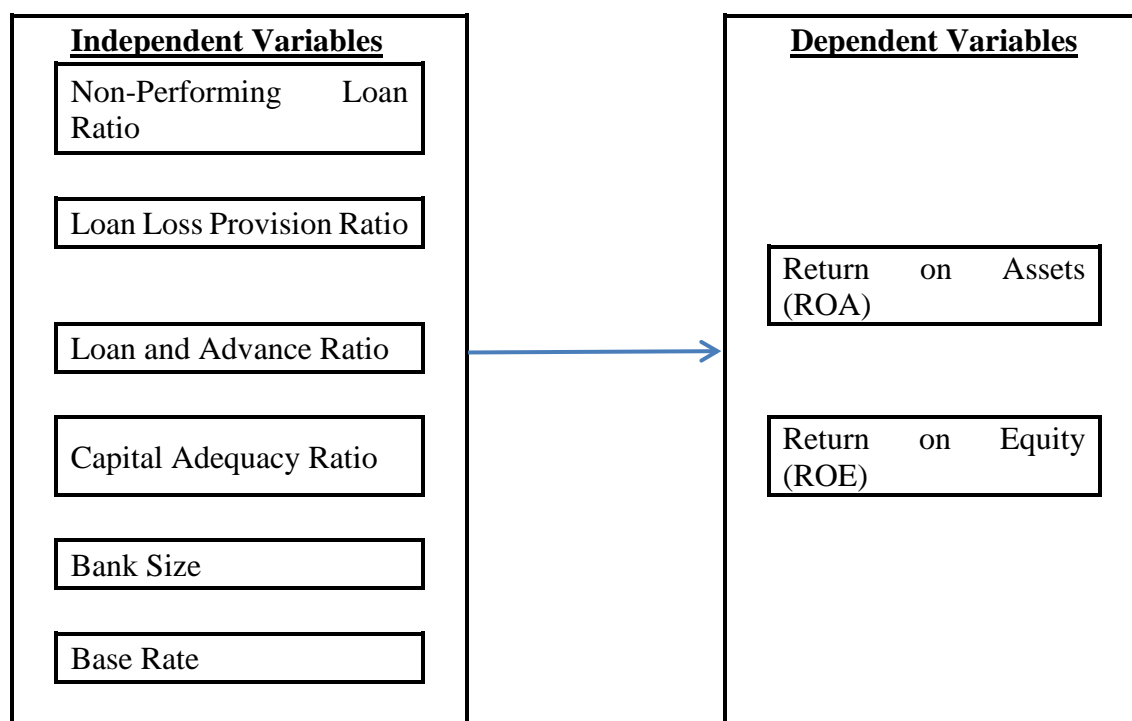


Figure 1 *Conceptual Framework*

Sources: Gotame S. (2018) and Hamza S. (2017)

Dependent Variables

Return on Assets (ROA)

A measure of a company's profitability in relation to its total assets is called return on assets, or ROA. ROA provides a sense of how well management uses its resources to produce profits. Because it avoids the distortions caused by variations in financial leverage, ROA is a good metric for comparing the profitability of banks with comparable business risk profiles. From an accounting perspective, ROA is a thorough indicator of a bank's entire success. Tang (2021). Compared to other performance metrics, it appears to be better suitable for comparing banks in the same sector. Return on assets (ROA) is therefore selected as the study's success metric.

$$ROA = \frac{Net\ Profit}{Total\ Assets}$$

Return on Equity (ROE)

The total amount of net income returned expressed as a percentage of shareholders' equity is known as return on equity, or ROE. By displaying the amount of profit a business produces from the capital invested by its shareholders, ROE gauges an organization's profitability. It is a profitability metric that determines how much profit a business makes using the capital of its owners. It's an indicator of effectiveness. It also indicates how well a company's management is allocating the capital of its owners. Generally speaking, declining ROE is troublesome. ROE reveals the bank's ability to generate profits using its own capital (Yilmaz, 2013). An industry that can produce cash internally is more likely to have a high return on equity.

$$ROE = \frac{Net\ Profit}{Total\ Equity}$$

Independent Variables

Capital Adequacy Ratio (CAR)

From the perspective of a regulator, CAR is the primary indicator of a bank's financial health and is used as an independent variable to determine performance. The amount of capital that a bank or other financial institution must maintain in order to comply with its financial regulator's requirements is known as capital adequacy. Bhattra (2016). This makes it easier to make sure that organizations aren't holding assets that increase the default risk. Additionally, to guarantee that banks have enough money to maintain operations while processing withdrawals. Olalekan and Adeyinka (2013) discovered a strong and favorable correlation between the bank's profitability and capital adequacy. Hoffmann (2011), however, discovered a negative correlation between bank profitability and capital. It represents the total capital of the bank expressed as a proportion of its risk-weighted exposure. It includes the most dependable forms of financial capital, namely shareholders' equity. As a result, banks with high CAR are profitable. Resilient capital sufficiency allows a bank to avoid bank run failure by absorbing potential loan losses.

$$CAR = \frac{\textit{Tier One Capital} + \textit{Tier Two Capital}}{\textit{Risk Weighted Assets}}$$

Non- Performing Loan Ratio (NPLR)

The amount of borrowed funds on which the debtor has not completed his regular payments for a minimum of ninety days is known as a nonperforming loan (NPL). A nonperforming loan is one that is either past due or on the verge of default. Because it indicates the percentage of loan losses relative to the overall loan amount, NPLR identifies how banks manage their credit risk (Hossan et al., 2013). The default rate on all loans and advances has been calculated using NPLR. Make the claim that the primary indicator of commercial banks' credit risk is NPLR. They discover that the banks' level of credit default risk, as indicated by NPLR, has a statistically significant negative impact on ROA, a measure of profitability. As a result, it

calculates the default rate as the predicted negative correlation between the nonperforming loan ratio and bank financial performance.

$$NPLR = \frac{\text{Non Performing Loans}}{\text{Total Loans}}$$

Loan Loss Provision Ratio (LLPR)

The ratio of loan loss provisions to nonperforming loans is known as the loan loss provision ratio. According to Bokhari & Ali (2020), LLP is a practice that commercial banks use to safeguard their capital and profitability situations by setting aside a certain amount of money (reserves) to deal with any possible loan default. Profitability has a negative correlation with LLP. Caporale et al. (2015) discovered evidence of a negative correlation between future losses and the amount of collateralized loans, which can reduce credit risk. Tahir and colleagues (2014) discovered that the bank's financial health and profitability were negatively impacted by larger loan loss provisions.

$$LLPR = \frac{\text{Loan Loss Provision}}{\text{Non Performance Loan}}$$

Loan and Advances Ratio (LAR)

The loan and advances ratio (LAR), which is calculated as $LAR = (\text{Loan and Advance}) / (\text{Total Deposits})$, is a ratio that shows how well banks can tolerate deposit withdrawals and how ready they are to satisfy loan demand by lowering their cash holdings. The danger of insolvency can be decreased when banks have greater liquidity (Basel, 1999).

$$LAR = \frac{\text{Loan and Advances}}{\text{Total Deposits}}$$

Bank Size (BS)

In the banking industry, latent economies or diseconomies of scale are primarily captured by bank size. These variables adjust for variations in product costs and risk diversification based on the size of the financial institution. This included accounting for the potential expectation that big banks may have more diverse lending and product offerings. The natural logarithm of the banks' total assets serves as a stand-in for bank size in the majority of finance literature. It is typically anticipated that bank size will have a beneficial impact on profitability (Sharma, 2021).

Bank Size = Natural logarithm of total assets

Base Rate (BR)

The lowest interest rate that a bank or other financial organization is permitted to charge its clients for loans is known as the base rate. It acts as a standard by which different loans and credit products are priced.

Base Rate = Central Bank's Policy Rate + Cost of Funds + Operating Costs + Profit Margin

CHAPTER IV

RESULTS AND DISCUSSION

Data presentation and analysis are covered in this chapter. Secondary data serves as the foundation for the study. The impact of credit risk management on Nepalese commercial banks' financial performance is examined using secondary data. For this, a number of the statistical methods described in the chapter have been employed. There are five sections in this chapter. The structure and pattern analysis of the data is studied in the first section, followed by descriptive statistics in the second, correlation analysis in the third, regression analysis in the fourth, and closing remarks regarding the outcome obtained from the secondary data in the final section, which concludes this chapter.

4.1 Descriptive Statistics of Variables

The mean, minimum, maximum, and standard deviation of the variables under investigation make up the descriptive statistics employed in this investigation. Descriptive statistics therefore make it possible to display the data in a more comprehensible manner, which facilitates easier data interpretation.

Below are the descriptive statistics for both the independent and dependent variables. The financial performance was measured using the dependent variables Return on Equity (ROE) and Return on Assets (ROA), while the independent variables that affected the profitability of commercial banks were non-performing loans, loans and advances, loan loss provision, capital adequacy ratio, bank size, and base rate.

4.1.1 Descriptive Statistics of Dependent and Independent Variables

The dependent and independent variable descriptive statistics for commercial banks for the 2071/2072 to 2079/2080 study period are displayed in this table. Return on equity (ROE) and return on assets (ROA) are dependent variables, while the independent variables are the capital adequacy ratio (CAR: tier I capital plus tier II capital divided by risk-weighted assets,

in percentage), non-performing loan ratio (NPLR: non-performing loans divided by total loans, in percentage), loan loss provision ratio (LLP: loan loss provision to non-performing loan, in percentage), loan and advance ratio (LAR: total loans and advances to total deposits, in percentage), bank size (BS: bank's assets), and base rate (Central Bank's Policy Rate + Cost of Funds + Operating Costs + Profit Margin).

Table 3

Descriptive Statistics of Dependent and Independent Variables

	Minimum	Maximum	Mean	Std. Deviation
ROA	0.76	3.32	1.7542	0.51943
ROE	7.09	52.41	18.4278	8.93819
NPLR	0.09	5.35	1.7954	1.53249
LLPR	93.02	1311.00	242.2876	226.82670
LAR	56.73	94.12	77.9702	8.84499
CAR	10.19	15.96	12.4754	1.33732
BS	7044.00	48301.00	19253.2600	9902.31567
BR	4.17	10.86	7.4252	1.52191

N = 50

Source: Bank and Financial Institution's annual reports.

The range of return on assets is 0.76 percent to 3.32 percent, with an average of 1.75 percent and a standard deviation of 0.51 percent, as Table 3 illustrates.

Similarly, return on equity ranges from a minimum of 7.09 percent to a maximum of 52.41 percent, with a mean of 18.43 percent and a standard deviation of 8.9 percent.

Similarly, the non-performing loan ratio ranges from a minimum of 0.09 percent to a maximum of 5.35 percent, with an average of 1.79 percent and a 1.53 percent mean and standard deviation.

The loan loss provision ratio has a minimum of 93.02 percent and a maximum of 1311.00 percent. According to the descriptive analysis, the mean and standard deviation are 242.28 and 226.83 percent, respectively.

Among the bank-specific independent variables, the Loan and Advance Ratio deviates from the mean by 8.84 percent, with the lowest and largest values being 56.73 percent and 94.12 percent, respectively, and the average being 77.97 percent.

With a mean value of 12.47 percent and a standard deviation of 1.33 percent, the capital adequacy ratio ranges from a minimum of 10.19 percent to a maximum of 15.96 percent. This shows that throughout the research period, the sample commercial banks in Nepal had a CAR that was higher than the required minimum of 10%.

Bank Size has a minimum of 7044 percent and a maximum of 48301 percent, respectively. According to the descriptive analysis, the mean and standard deviation are 19253.26 percent and 9902.31 percent, respectively.

The Base Rate's lowest and greatest values are 4.17 percent and 10.86 percent, respectively. According to the descriptive analysis, the mean and standard deviation are 7.42 and 1.52 percent, respectively.

4.2 Correlation Analysis

A bivariate study called correlation quantifies the direction and degree of link between two variables. Stronger ties between the two sets of data are indicated by higher correlation values. A perfectly linear positive or negative relationship exists when the correlation is 1 or -1; no relationship exists when the correlation is 0; a positive relationship exists when the correlation is greater than 0; and a negative relationship exists when the correlation is less than 0. This section explains the correlation between independent and dependent variables for a few chosen commercial banks in Nepal. Additionally, because the significance threshold of 0.01 is used, the correlation coefficient is significant if the P value is less than α , or 0.01; otherwise, it is inconsequential.

4.2.1 Pearson Correlation Matrix for selected Nepalese Commercial Banks

The bivariate Pearson's correlation coefficients between the study's independent and dependent commercial bank variables are displayed in this table. Return on equity (ROE, defined as net profit divided by total shareholders' equity) and return on assets (ROA, defined as net income divided by total assets, in percentage) are the dependent variables, while the capital adequacy ratio (CAR, defined as tier I capital plus tier II capital divided by risk weighted assets, in percentage), non-performing loan ratio (NPLR, defined as non-performing loans divided by total loans, in percentage), loan loss provision ratio (LLP, defined as loan loss provision to nonperforming loan, in percentage), bank size (BS, defined as bank's assets), and base rate (Central Bank's Policy Rate + Cost of Funds + Operating Costs + Profit Margin) are the independent variables.

Table 4

Pearson Correlations Analysis

	ROA	ROE	NPLR	LLPR	LAR	CAR	BS	BR
ROA	1							
ROE	.656**	1						
NPLR	0.041	.465**	1					
LLPR	-0.226	-0.228	-.509**	1				
LAR	-.312*	-.660**	-.524**	.341*	1			
CAR	-0.198	-.529**	-.393**	0.171	0.277	1		
BS	-.532**	-.549**	0.087	-0.092	.363**	.396**	1	
BR	-.353*	-.479**	-0.158	-0.046	.547**	0.081	.378**	1

Note: The asterisk signs (**) and (*) indicate that correlations are significant at 1 percent and 5 percent levels respectively.

Source: Bank and Financial Institution's annual reports.

The relationship between Return on Assets and Non-Performing Loan Ratio

The non-performing loan ratio and return on assets have a weakly positive link, according to the Pearson correlation ($r=0.041$, $p<0.01$). The nonperforming loan ratio and return on assets show a positive connection and are linearly connected, according to the sig (2-Tailed) value of 0.041, which is less than the significance level of 0.05. This indicates that there is no discernible relationship between an increase or drop in the non-performing loan ratio and a rise or fall in return on assets.

The relationship between Return on Assets and Loan Loss Provision Ratio

Return on Assets and Loan Loss Provision Ratio have a moderately negative association, according to the Pearson correlation ($r=-0.226$, $p<0.01$). Strong proof that these two variables have a negative correlation and are not linearly associated may be seen in the significant value of -0.226, which is more than the significance level of 0.05. This indicates that there is no meaningful correlation between changes in one measure and changes in the other.

The relationship between Return on Assets and Loan and Advances Ratio

Return on Assets and Loan and Advances Ratio have a moderately negative association, according to the Pearson correlation ($r=-0.312$, $p<0.01$). Strong evidence that these two variables are negatively linked and linearly associated can be seen in the significant value of -0.312, which is greater than the significance level of 0.05. This indicates that there is a substantial correlation between changes in one measure and changes in the second.

Relationship between Return on Assets and Capital Adequacy Ratio

The Capital Adequacy Ratio and Return on Assets have a weakly negative association, according to the Pearson correlation ($r=-0.198$, $p<0.01$). There is compelling evidence that these two variables have a negative correlation and are linearly uncorrelated, since the significant value of -0.198 is greater than the significance level of 0.05. This indicates that there is no meaningful correlation between changes in one measure and changes in the other.

The relationship between Return on Assets and Bank Size

Return on assets and bank size have a moderately negative link, according to the Pearson correlation ($r=-0.532$, $p<0.01$). Return on assets and bank size are statistically correlated, as indicated by the sig (2-Tailed) value of -0.532 , which is more than the significance level of 0.05 . This indicates that there is a substantial correlation between an increase or reduction in the bank size and an increase or decrease in return on assets.

The relationship between Return on Assets and Base Rate

Return on assets and base rate have a moderately negative association, according to the Pearson correlation ($r=-0.353$, $p<0.01$). Return on assets and base rate have a statistically significant link, as indicated by the sig (2-tailed) value of -0.353 , which is more than the significance level of 0.05 . This indicates that there is a substantial correlation between changes in one measure and changes in the second.

The relationship between Return on Equity and Non-Performing Loan Ratio

The non-performing loan ratio and return on equity have a somewhat favorable association, according to the Pearson correlation ($r=0.465$, $p<0.01$). The non-performing loan ratio and return on equity have a statistically significant link, as indicated by the sig (2-tailed) value of 0.465 , which is more than the significance level of 0.05 . This indicates that there is a substantial correlation between an increase or reduction in the non-performing loan ratio and an increase or drop in return on assets.

The relationship between Return on Equity and Loan Loss Provision Ratio

The loan loss provision ratio and return on equity have a weakly negative association, according to the Pearson correlation ($r=-0.228$, $p<0.01$). Strong proof that these two variables have a negative correlation and are not linearly associated is provided by the sig (2-Tailed) value, which records -0.228 and is more than the significance level of 0.05 . This indicates that there is no meaningful correlation between changes in one measure and changes in the other.

The relationship between Return on Equity and Loan and Advances Ratio

The loan and advance ratio and return on equity have a moderately negative association, according to the Pearson correlation ($r=-0.660$, $p<0.01$). Return on equity and loan and advance have a statistically significant association, as indicated by the sig (2-tailed) value of -0.660 , which is more than the significance level of 0.05 . This implies that changes in loan and advance amounts have a substantial impact on changes in return on equity.

The relationship between Return on Equity and Capital Adequacy Ratio

The capital adequacy ratio and return on equity have a moderately negative association, according to the Pearson correlation ($r=-0.529$, $p<0.01$). These two variables are shown to be negatively linked and linearly associated by the significant value of -0.529 , which is more than the level of significance. This indicates that there is a substantial correlation between changes in one measure and changes in the second.

The relationship between Return on Equity and Bank Size

Return on equity and bank size have a moderately negative association, according to the Pearson correlation ($r=-0.549$, $p<0.01$). Return on equity and bank size are statistically correlated, as indicated by the sig (2-tailed) value of -0.549 , which is below the significance level of 0.05 . This implies that changes in bank size have a substantial impact on changes in return on equity.

The relationship between Return on Equity and Base Rate

Return on equity and base rate have a moderately negative association, according to the Pearson correlation ($r=-0.479$, $p<0.01$). Return on equity and base rate have a statistically significant link, as indicated by the sig (2-tailed) value of -0.479 , which is more than the

significance level of 0.05. This implies that changes in base rate have a substantial impact on changes in return on equity.

4.3 Regression Analysis

This section ascertains which independent variables account for outcome variability, the extent to which independent variables and the dependent variable account for dependent variable variability, and which variables are significant (in comparison to other variables) in explaining the dependent variable's variability. To investigate the influence of independent variables, linear regressions were employed. To ascertain the type of link between the impacts of independent and dependent variables, a multiple regression model was used.

The regression model's suitability for producing trustworthy findings was evaluated using ANOVA. When the confidence level is 95% or above, the regression model is considered suitable.

4.3.1 Factor Influencing Return on Assets

By dividing net profit by total assets, one may calculate return on assets. The capital adequacy ratio, non-performing loans, loan loss provisions, loans and advances bank size and base rate may all have an impact.

Table 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.633 ^a	0.401	0.317	0.42915	1.560

Source: Bank and Financial Institution's annual reports.

The model summary of the coefficient of determination (R²) and correlation coefficient (R) between the dependent and independent variables is displayed in Table 5. Return on assets and

all independent variables have a 0.633 correlation coefficient. This figure shows that Return on Assets and all independent variables together have a positive association. The coefficient of determination is another name for R^2 . It is a statistical indicator of the degree to which the data match the regression line. It is the proportion of response variable variation that a linear regression model can account for. The greater the percentage, the better the model matches the data. R-square is always between 0 and 100%. The all-independent variable in this case accounts for 40.1% of the variation in the Return on Assets, according to the R square of 0.401. According to the description of the regression model above, the corrected R2 value is 0.401. This indicates that the impacts of NPLR, LLPR, LAR, CAR, BS, and BR (independent variables) account for 40.1% of Return on Assets (the dependent variable). Therefore, variables other than this variable can be used to obtain the remaining 59.9 percent.

The Durbin-Watson d test was utilized in the study to ascertain each variable's autocorrelation. We may conclude that there is positive autocorrelation among the data we utilized when the DW test value falls between 0 and less than 2. DW Test = 1.560, for example.

Table 6

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5.301	6	0.884	4.797	<.001 ^b
Residual	7.919	43	0.184		
Total	13.221	49			

a. Dependent Variable: Return on Assets

b. Predictors: (Constant), NPLR, LLPR, LAR, CAR, BS, BR

Source: Bank and Financial Institution's annual reports.

The F-significance value of $p < 0.001$ is displayed in Table 6. This indicates that the possibility (probability) of the regression model making an incorrect forecast is less than 0.001. As a

consequence, the regression model's confidence level is higher than 95%, confirming the suitability of our model and the accuracy of the findings.

Table 7

Regression Coefficient

Model	Unstandardized		Standardized			Collinearity	
	Coefficients		Coefficients			Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.666	1.097		2.431	0.019		
NPLR	-0.030	0.060	-0.087	-0.494	0.624	0.444	2.251
LLPR	-0.001	0.000	-0.355	-2.484	0.017	0.684	1.462
LAR	0.004	0.011	0.064	0.351	0.727	0.418	2.393
CAR	0.011	0.058	0.028	0.190	0.850	0.626	1.598
BS	-2.646E-05	0.000	-0.504	-3.168	0.003	0.549	1.820
BR	-0.079	0.052	-0.230	-1.523	0.135	0.608	1.644

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

Source: Bank and Financial Institution's annual reports.

$$ROA_{it} = 2.666 - 0.03NPLR_{it} - 0.001LLPR_{it} + 0.004LAR_{it} + 0.011CAR_{it} - 2.646BS - 0.079BR + e_{it} \dots\dots\dots (1)$$

Every independent variable has a VIF of less than 10. There is no multicollinearity between the independent variables, as evidenced by the tolerance factor of each independent variable being close to 0 and the VIF of the overall variable being less than 10.

The study found a strong correlation between return on assets and two variables, namely LLPR and BS, based on the significance levels shown in table 7. This indicates that these two factors have the most effects on achieving the return on assets. Therefore, in order to improve return on assets, the bank must concentrate on LLPR and BS.

4.3.2 Factor Influencing Return on Equity

Net profit divided by total equity yields return on equity. The capital adequacy ratio, non-performing loans, loan loss provisions, loans and advances, bank size and base rate may all have an impact.

Table 8

Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.812 ^a	0.659	0.611	5.57287	1.314

Source: Bank and Financial Institution's annual reports.

The model summary of the coefficient of determination (R²) and correlation coefficient (R) between the independent and dependent variables is displayed in Table 8. All independent variables and return on equity have a correlation value of 0.812. This figure shows that Return on Equity and all independent variables together have a positive association. The coefficient of determination is another name for R². It is a statistical indicator of the degree to which the data match the regression line. It is the proportion of response variable variation that a linear regression model can account for. The greater the percentage, the better the model matches the data. R-square is always between 0 and 100%. Here, the R square of 0.659 indicates that the all-independent variable accounts for 65.90 percent of the variation in the return on equity. According to the regression model description above, the corrected R² value is 0.659. This indicates that the impacts of NPLR, LLPR, LAR, CAR, BS, and BR (independent variables) account for 65.90 percent of Return on Equity (the dependent variable). Therefore, variables other than this variable can be used to accomplish the remaining 34.10 percent.

The Durbin-Watson d test was utilized in the study to ascertain each variable's autocorrelation. We may conclude that there is positive autocorrelation among the data we utilized when the DW test value falls between 0 and less than 2. DW Test = 1.314, for example.

Table 9*ANOVA*

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2579.227	6	429.871	13.841	<.001 ^b
Residual	1335.448	43	31.057		
Total	3914.675	49			

Source: Bank and Financial Institution's annual reports.

The F-significance value of $p < 0.001$ is displayed in Table 9. This indicates that the possibility (probability) of the regression model making an incorrect forecast is less than 0.001. As a consequence, the regression model's confidence level is higher than 95%, confirming the suitability of our model and the accuracy of the findings.

Table 10*Regression Coefficient*

Model	Unstandardized		Standardized			Collinearity	
	Coefficients		Coefficients			Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
(Constant)	67.457	14.244		4.736	0.000		
NPLR	1.381	0.779	0.237	1.772	0.084	0.444	2.251
LLPR	-0.001	0.004	-0.018	-0.171	0.865	0.684	1.462
LAR	-0.267	0.139	-0.264	-1.917	0.062	0.418	2.393
CAR	-1.440	0.753	-0.215	-1.914	0.062	0.626	1.598
BS	0.000	0.000	-0.331	-2.754	0.009	0.549	1.820
BR	-0.916	0.671	-0.156	-1.366	0.179	0.608	1.644

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

Source: Bank and Financial Institution's annual reports.

$$ROE_{it} = 67.457 + 1.381NPLR_{it} - 0.001LLPR_{it} - 0.267LAR_{it} - 1.440CAR_{it} + 0.00BS_{it} - 0.916BR_{it} + e_{it} \dots \dots \dots (2)$$

Every independent variable has a VIF of less than 10. There is no multicollinearity between the independent variables, as evidenced by the tolerance factor of each independent variable being close to 0 and the VIF of the overall variable being less than 10.

The study found a substantial correlation between return on equity and three dimensions, specifically BS, based on the significance levels shown in table 10. This indicates that these three factors have the most effects on achieving the return on equity. Therefore, in order to improve return on assets, the bank must concentrate on BS.

4.4 Discussions

The study's primary focus is on the impact of credit risk management on Nepalese commercial banks' financial performance. The ratios of non-performing loans, loan loss provisions, loans and advances, capital adequacy, bank size, and base rate have all been taken into account in this study. Return on equity and return on assets are used to quantify the dependent variables or bank performance. The findings are predicated on secondary data that was gathered for five commercial banks during 2070/2071 to 2079/2080. Descriptive statistics, correlation analysis, and linear regression analysis were used to arrive at the conclusion.

The structure and pattern of the dependent and independent variables are analyzed in the first section of the study. The descriptive analysis of various variables and correlation analysis were examined in the second section. The last section covers inferential analysis, which makes use of various methods such as regression and correlation. The majority of independent variables are connected to dependent variables through correlation analysis. Furthermore, two of the six independent factors significantly affect the dependent variables, according to the regression analysis.

The study's findings are consistent with those of Shrestha (2019), who found a strong positive correlation between non-performing loans and commercial banks' profitability, indicating that even while loan losses are larger, banks continue to turn a profit. It shows that while non-

performing loans have no effect on banks' profitability, they do increase return on assets for banks.

According to Hamza (2017), bank performance and credit risk management are inversely related. The CAR, LAR, and LLPR factors significantly affect return on equity (ROE). In this model, the dependent variable is positively impacted by the CAR, LAR, and SIZE variables and negatively by the LLPR, NPLR, and LR variables. Here, the R square of 0.659 indicates that the all-independent variable accounts for 65.90 percent of the variation in the return on equity. According to the regression model description above, the corrected R² value is 0.659. This indicates that the impacts of NPLR, LLPR, LAR, CAR, BS, and BR (independent variables) account for 65.90 percent of Return on Equity (the dependent variable).

Therefore, the essential components of efficient credit risk management include creating a suitable environment for credit risk, functioning within a sound procedure for providing credit, keeping a suitable system for administering and managing credit, and making sure that the controlling mechanism is in place.

CHAPTER V

SUMMARY AND CONCLUSION

This chapter summarizes the study's main results and provides a concise synopsis of the full investigation. Furthermore, a separate portion of this chapter discusses the main results, which are followed by some implications and suggestions regarding how credit risk management affects Nepalese commercial banks' performance.

5.1 Summary

The purpose of this study is to determine the elements that affect the profitability of Nepal's commercial banks and to investigate the connection between these elements and profitability.

The study used financial data from five commercial banks over the previous ten years. Secondary data was used for all of the financial analysis. All of the data was gathered on their official website.

This project's first task was to determine how credit risk affected the Nepalese commercial bank's financial performance. This was done using ROA and ROE as the profitability metrics and the capital adequacy ratio, non-performing loan ratio, loan loss provision ratio, loan and advance ratio, bank size, and base rate as credit risk indicators. The impact of credit risk on the bank's profitability was examined using a variety of methods, including regression analysis, correlation analysis, and descriptive statistics.

According to inferential analysis, there is no multicollinearity between the variables since the capital adequacy ratio, non-performing loan ratio, loan loss provision ratio, loan and advance, bank size, and base rate ratio are all less than 10.

According to the study, return on assets and two dimensions are LLPR and BS have a substantial link. This indicates that these two factors have the most effects on achieving the

return on assets. According to the study, return on equity and BS have a substantial link. This indicates that these factors have the most effects on achieving the return on equity.

5.2 Conclusion

In today's fiercely competitive banking sector, the relationship between credit risk management and financial performance is a major concern. On the one hand, risky lending boosts profitability; yet, if the risk exposure depletes the capital, it may potentially cause the bank to fail. In these situations, the following factors are crucial for assessing the exposure to credit risk and its effects on the financial performance of Nepalese commercial banks: credit character, credit monitoring, borrower repayment capacity, liquidity, operating expenses, interest rate spread, debt to equity ratio, capital adequacy ratio, and prudent lending practices.

The study's main finding is that the main factors influencing return on assets in Nepalese commercial banks are loans and advances, bank size, and base rate. The outcome demonstrates that advances and loans significantly and negatively affect return on assets. It suggests that the return on asset would decrease as loans and advances increased. Similarly, the return on assets is negatively and significantly impacted by the bank rate ratio, indicating that the higher the bank rate, the lower the return on assets. In a similar vein, the bank rate ratio significantly and negatively affects return on assets, showing that the higher the bank rate, the lower the return on assets. Conversely, non-performing loans have a small but beneficial effect, showing that the bigger the non-performing loan, the better the return on assets; nonetheless, non-performing loans have no effect on banks' profitability. In a similar vein, loan loss provisions have a negative and negligible effect, showing that while they have no effect on banks' profitability, they do have a negative effect on return on assets. Additionally, return on assets is negatively and negligibly impacted by the capital adequacy ratio. It shows that the return on assets will decrease with a greater capital adequacy ratio.

The study also finds that return on equity is positively impacted by the non-performing loan ratio. This implies that a greater non-performing loan percentage would translate into a better return on equity. Similarly, return on equity is negatively impacted by bank size, base rate, loan loss provision ratio, loan and advance ratio, and capital adequacy ratio. This indicates that

a lower return on equity would result from greater values of the capital adequacy ratio, loan loss provision ratio, loan and advance ratio, bank size, and base rate. Major factors influencing return on equity also include bank size, base rate, loan and advance ratios, capital adequacy ratio, and non-performing loan ratio.

Therefore, the essential components of efficient credit risk management include creating a suitable environment for credit risk, functioning within a sound procedure for providing credit, keeping a suitable system for administering and managing credit, and making sure that the controlling mechanism is in place.

5.3 Implication

Commercial bank policymakers may find this research helpful in forming their future strategies about the financial performance of banks that are impacted by credit risk. The following are the study's main implications:

1. The research may help policymakers assess the effects of credit risk and provide the guidelines they need to develop strategies and policies in the area of credit risk management to improve banks' financial performance.
2. The management of the commercial bank must use caution while establishing guidelines for its loan policy. Setting up a credit policy requires some work, but it helps to guarantee profitability. Additionally, bankers and staff members must be cognizant of the impact of credit risk on performance in order to make better decisions.
3. The primary source of a bank's income is lending, and credit default is linked to credit risk. Therefore, banks should properly evaluate businesses and grant loans to legitimately needy individuals who are able to repay the loans from the authorized firm.
4. Before purchasing commercial bank stocks and bonds, investors can benefit from knowing the key factors that will enhance the bank's financial performance.

5. Few credit rating agencies in Nepal assist banks approve loans, and accurate evaluation by credit rating organizations would lower the amount of non-performing loans and loan loss provisions.
6. This study helps academics determine whether the claims and the suggested conceptual framework are legitimate and backed by empirical evidence.

Policymakers, agencies, regulators, and other pertinent parties will thus be guided and benefit from this study. As a result, this study will increase the understanding of future scholars who wish to investigate this pertinent topic.

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Appendix

BANK	YEAR	ROA	ROE	NPLR	LLPR	LAR	CAR	BS	BR
RBBL	2070/71	1.50	47.28	5.31	140.88	56.73	10.19	12256	6.32
	2071/72	3.32	52.41	5.35	130.12	61.05	10.34	13956	6.7
	2072/73	1.60	30.93	4.25	108.18	58.44	10.46	16643	6.36
	2073/74	1.60	26.53	3.77	152.18	69.3	10.39	17354	6.36
	2074/75	1.85	19.19	4.75	98.94	71.38	11.22	19733	5.6
	2075/76	2.23	23.39	4.79	111.65	77.15	13.39	22641	5.5
	2076/77	1.64	18.97	4.08	105.44	67.18	12.64	26677	5.61
	2077/78	1.10	11.92	3.23	109.82	73.62	14.31	30999	6.12
	2078/79	1.30	13.12	2.09	140.99	87.83	13.29	33024	9.07
	2079/80	0.76	7.09	3.77	121	75.52	12.92	39402	8.26
EBL	2070/71	2.25	29.04	0.09	186.71	78	11.3	7044	6.4
	2071/72	1.85	23.25	0.66	239.96	66.6	13.3	9915	6.14
	2072/73	1.52	17.79	0.38	704.3	75.1	12.7	11388	7.03
	2073/74	1.83	15.28	0.25	501.2	84.1	14.5	11651	7.68
	2074/75	1.97	16.08	0.20	503.63	81.9	14.2	14481	6.4
	2075/76	1.94	17.41	0.16	714	87	13.7	17007	8.12
	2076/77	1.42	13.53	0.22	682	83.5	13.4	18502	8.05
	2077/78	0.89	8.58	0.12	1311	85.3	12.5	21164	5.99
	2078/79	1.08	10.77	0.12	676	90.77	11.89	22521	8.82
	2079/80	1.13	11.22	0.24	235.64	80.94	13.3	25009	9.47
HBL	2070/71	1.30	15.77	2.98	112.43	71.8	11.2	7358	8.63
	2071/72	1.34	15.98	1.96	123.86	75.4	11.4	8280	7.78
	2072/73	1.94	21.94	3.22	109.41	79.1	10.8	8475	5.68
	2073/74	2.19	21.58	2.16	131.75	85.1	10.9	10849	9.57
	2074/75	1.67	14.57	0.85	188.38	88.3	11.4	12314	9.66
	2075/76	2.21	18.34	1.40	187.54	87.4	11.6	13329	9.05
	2076/77	1.79	15.4	1.12	218.11	82.3	11.8	15582	8.38
	2077/78	1.68	14.89	0.48	394.94	89.9	11.2	17849	6.75

	2078/79	1.09	10.76	1.59	242.75	94.12	10.49	21628	9.88
	2079/80	1.14	11.23	4.93	93.02	83.58	13.23	33415	10.86
NIMB	2070/71	2.30	27.6	2.18	118.73	71.9	11.3	8617	6.94
	2071/72	1.90	24.8	1.76	143.95	72.8	11.9	9063	6.5
	2072/73	2.00	26.01	0.79	212.87	76.8	14.9	10862	5.1
	2073/74	2.06	16.65	1.36	124.09	77.6	13	15285	8.36
	2074/75	2.13	14.71	1.36	124.09	74.7	12.7	17183	9.02
	2075/76	1.79	13	0.98	118.86	72	13.3	18592	8.33
	2076/77	1.19	8.92	1.15	150.08	72.9	13.5	23015	7.51
	2077/78	1.56	11.04	1.23	165.59	75.1	14.7	22797	5.74
	2078/79	1.67	11.17	1.49	211.72	85.21	15.96	24444	8.59
	2079/80	1.55	7.38	0.77	107.89	85.67	14.1	44750	9.36
	NABIL	2070/71	2.89	27.97	2.23	120.33	74.6	11.2	8727
2071/72		2.06	22.73	1.82	135.95	64.6	11.6	11600	5.78
2072/73		2.32	25.61	1.14	182.71	70.5	11.7	12700	4.17
2073/74		2.69	22.41	0.79	224.7	65.4	12.9	14402	6.61
2074/75		2.61	20.94	0.55	278.12	82.7	13	16908	7.78
2075/76		2.11	17.76	0.74	221.06	82	12.5	20114	8.09
2076/77		1.58	13.61	0.97	195.52	79.7	13	23768	7.32
2077/78		1.71	15.19	0.78	241.01	89.8	12.8	29107	5.86
2078/79		1.27	10.19	1.62	154.16	92.29	13.09	41982	8.77
2079/80		1.19	9.46	1.54	107.12	83.83	12.66	48301	9.52

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ABSTRACT The goal of the research-based study "Credit Risk Management on Financial Performance of Nepalese Commercial Banks" was to determine the elements that affect profitability and investigate the connection between these