A COMPARATIVE STUDY OF LOAN MANAGEMENT ON NEPALESE COMMERCIAL BANKS

By

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "A Comparative Study of Loan Management on 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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Manisha Gyawali

Date: June, 2024

REPORT OF RESEARCH COMMITTEE

Ms Manisha Gyawali has defended research proposal entitled "A Comparative Study of Loan Management on Nepalese Commercial Banks", successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Binita Manandhar and submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We, the undersigned, have examined the thesis entitled "A Comparative Study of Loan Management on Nepalese Commercial Banks" presented by Manisha Gyawali, a candidate for the degree of Master of Business Studies (MBS Semester) and conducted Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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ABBREVIATIONS

ADBL	:	Agricultural Development Bank Limited
BK	:	Bank of Kigali
CAR	:	Capital Adequacy Ratio
CDR	:	Credit to Deposit Ratio
CRR	:	Cash Reserve Ratio
DMBs	:	Deposit - Money Banks
HBL	:	Himalayan Bank Limited
KBL	:	Kumari Bank Limited
MFIs	:	Microfinance Institutions
MQR	:	Management Quality Ratio
NBBL	:	Nepal Bangladesh Bank Limited
NIMBL	:	Nepal Investment Bank Limited
NPAT	:	Net Profit After Tax
NPLR	:	Non-Performing Loan Ratio
ROA	:	Return on Assets
ROE	:	Return on Equity
RS	:	Risk Sensitivity
SIZE	:	Bank Size

ABSTRACT

This study provides an analysis of loan management and profitability at Nepal Investment Mega Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL), identifying errors in their credit risk management practices and suggesting corrective measures. Loan management, which encompasses both on-balance sheet and off-balance sheet activities, aims to maximize the bank's risk-adjusted rate of return while keeping credit risk within acceptable limits. This study examines the relationship between various financial variables, including the credit deposit ratio (CDR), non-performing loan ratio (NPLR), cash reserve ratio (CRR), capital adequacy ratio (CAR), bank size (SIZE), return on assets (ROA), and return on equity (ROE).

Using both descriptive and causal research designs, data from annual reports and official websites for the period 2011/12 to 2020/21 were analyzed through financial ratios, descriptive statistics, correlation analysis, t-statistics, and multiple regression analysis. The findings revealed that ADBL demonstrated the most consistent asset growth and maintained a CDR below the 80% threshold. NIMBL also kept its CDR under 80%. ADBL had the highest average NPLR at 4.61%, while KBL had the lowest at 1.90%, indicating superior loan management by KBL. All three banks met the capital requirements set by NRB. ADBL exhibited lower liquidity risk and earned more from asset utilization, whereas NIMBL's investors saw higher returns from equity investments.

The study concludes that credit flow was consistent across the banks during the study period. While early years showed higher NPL ratios, adequate provisions mitigated credit risk. Profitability, measured by ROA and ROE, remained stable. The analysis found positive relationships between ROA and variables CDR, NPLR, CRR, CAR, and SIZE, with CRR and CAR being statistically significant. Conversely, CDR, NPLR, CAR, and SIZE had negative relationships with ROE, with CRR showing a positive relationship.

Keywords: Credit Deposit Ratio, Non-Performing Loan Ratio, Cash Reserve Ratio, Capital Adequacy Ratio, Bank Size

CHAPTER I

INRTODUCTION

1.1 Background of the Study

Banks traditionally thrived on providing loans, but reduced interest rates and fierce competition have impacted their business model. This has led to shifts in bank ownership, regulations, and how they operate. While challenges exist with access to funds and earning opportunities, new avenues like offering non-banking products such as insurance might present exciting possibilities for banks (Vaidya, 2014).

Governments are embracing liberal economic policies for the banking sector, granting banks greater operational freedom. This includes deregulating interest rates and reducing barriers for new banks to enter the market and existing ones to exit. The ultimate aim is to create a more open and competitive market, fostering improved economic conditions. (Turner, 2010).

At their heart, banks serve as financial intermediaries. They act as a bridge between individuals and businesses with surplus funds (savers) and those who need them (borrowers). Savers deposit their money with banks, earning interest. Banks then take these deposited funds and lend them out as loans to borrowers, charging interest. This process plays a crucial role in mobilizing resources and fueling the growth of various sectors like agriculture, industry, and commerce.

Banks offer a wide range of services beyond simply providing loans. They are the primary source of credit for individuals, businesses, and even governments. They also facilitate various payment methods like checks, credit cards, and electronic transfers, making financial transactions convenient and efficient. Additionally, banks offer financial advice and planning services, catering to various financial needs under one roof (Shrestha, 2003).

Banks act as a vital link between savers and borrowers. Individuals and businesses with surplus funds deposit their money in banks, earning interest in return. This deposited money becomes available for banks to lend out as loans to those who need it for various purposes. This arrangement benefits both parties: savers earn interest on their deposited funds, while borrowers gain access to needed capital.

In a perfectly competitive market, information and funds flow freely, and prices are determined fairly. Banks play a crucial role in maintaining this stability by engaging in "risk arbitrage." This involves taking on potentially risky loans from borrowers and issuing lower-risk securities to their depositors. By managing such risks, banks contribute to a more stable and healthy financial system.

There are two main types of banks: commercial banks and development banks. Commercial banks primarily operate in urban areas and focus on building long-term relationships with established borrowers, often businesses. Development banks, on the other hand, operate in rural areas and aim to reach new borrowers, primarily individuals and small businesses, to promote economic growth in these regions. They play a crucial role in fostering financial inclusion and development in these areas.

1.2 Problem Statement

Commercial banks play a critical role in Nepal's economy by transforming savings into investments, fueling growth across various sectors like business, industry, and infrastructure. However, their investment decisions are guided by regulations set by the central bank.

Despite their vital role, commercial banks face challenges in their investment strategies. These challenges include uncertainties due to fluctuating government policies, limitations in using certain financial tools, a less developed capital market, and a tendency to avoid risks. Additionally, banks often lack the necessary expertise and techniques to effectively manage their investment portfolios (Ghimire & Bhandari, 2023).

As competition in the banking sector intensifies, investment opportunities haven't grown at the same pace. This leads banks to prioritize less risky and easily convertible investments like government bonds and treasury bills, even though they might offer lower returns. This approach suggests that current investment policies might not be optimal for maximizing portfolio performance (Adhikari et al., 2023).

Therefore, this study aims to analyze the investment portfolio of Nepal Bank Limited specifically. It will assess returns on various investments and explore strategies to optimize the portfolio based on the performance of the Nepalese banking sector index. By investigating

these areas, the study hopes to address the identified problems and contribute to improved investment practices among commercial banks in Nepal.

- What is the liquidity position and lending efficiency of commercial banks?
- Is there any relationship of total loan and advances, total deposit and Return on Equity and Return on Assets of commercial banks?
- How does the total loan and advances, total deposit impact on Return on Equity and Return on Assets of commercial banks?

1.3 Objective of the Study

The major objective of the study is to identify the loan portfolio management of sample banks. The specific objectives are as follows:

- To examine the liquidity position and lending efficiency of sample banks?
- To assess relationship of total loan and advances, total deposit and Return on Equity and Return on Assets of commercial banks?
- To evaluative impact of total loan and advances, total deposit on Return on Equity and Return on Assets of commercial banks?

1.4 Rationale of the Study

This study aims to analyze loan management practices within a selection of banks. Recognizing the importance of efficient resource utilization for positive change and development, the study investigates how banks manage their resources in lending activities. By examining these practices, the study hopes to contribute to the development of effective corporate strategies for banks. The findings of this research are relevant to various stakeholders. Gaining insights into the bank's performance compared to competitors helps shareholders make informed investment decisions. This information equips bank management to assess their institution's performance and make strategic decisions effectively. Understanding the bank's lending practices allows customers to make informed financial decisions, such as choosing the right bank for their borrowing needs. The study's findings can inform their assessment of the bank's financial health and risk profile, impacting their decisions

regarding business partnerships or investments. Policymakers can use this information to create informed regulations and policies for the banking sector.

1.5 Limitations of the Study

The main limitation of this study are as follows.

- The study is concentrated on liquidity position and lending efficiency of commercial banks only.
- The study has taken 3 banks i.e. Kumari Bank Limited, Nepal Investment Mega Bank Limited and Agricultural Development Bank Limited.
- The study is based on the secondary data.
- The study period covers a period of ten fiscal years i.e. from FY 2012/13 to 2022/23.

CHAPTER II

REVIEW OF LITERATURE

This section attempts to build strong theoretical background through the help of which further search for solutions of the research problems would be easier. While reviewing the literature different sources like books, documents, bulletins, reports, journals and articles etc. are considered.

2.1 Theoretical Review

The loan is one of the greatest sources of risk to a bank's safety and soundness. Whether due to tax credit standards, poor risk management, or weakness in the economy, loan problems have historically been the major cause of bank losses and failures.

Loan management process is so important; it is a primary supervisory activity. Assessing loan management involves evaluating the steps bank management takes to identify and control risk throughout the credit process. The assessment focuses on what management does to identify issues before they become problems.

2.1.1 Loan Pricing Theory

Banks face significant challenges when setting high interest rates to maximize their interest income due to adverse selection and moral hazard. Predicting a borrower's risk level at the beginning of a banking relationship is difficult. When banks set high interest rates, they may inadvertently attract more high-risk borrowers willing to accept these terms because their risky profiles limit their borrowing options. This phenomenon, known as adverse selection, leads to a borrower pool skewed towards higher risk, increasing the likelihood of defaults. Once high-risk borrowers secure loans, they may engage in even riskier behavior, a problem known as borrower moral hazard. Knowing that the bank shares the burden of potential negative outcomes, these borrowers might undertake highly speculative projects or investments. This behavior heightens the risk of default, complicating the bank's efforts to manage its loan portfolio effectively. Joseph Stiglitz and Andrew Weiss have extensively analyzed these issues. According to their theories, banks' interest rates often do not align perfectly with the actual risk posed by borrowers. This misalignment occurs because banks must balance the need for

higher interest income with the necessity of mitigating risk, navigating the complexities of adverse selection and moral hazard.

2.1.2 Commercial Loan Theory

The oldest banking theory, known as the commercial loan theory or real bills doctrine, advocates that banks should only issue short-term, self-liquidating loans. According to Hosna and Manzura (2009), this theory significantly shapes both bank lending practices and broader economic activities. Strictly following this theory suggests that the monetary supply should adjust with changes in overall economic activity. This doctrine is widely accepted by Deposit-Money Banks (DMBs) in Nigeria, where bankers argue that because their resources can be withdrawn on short notice, deposits should be used for short-term loans to match this liquidity.

Kargi (2011) argued that the strong adherence to the commercial loan theory is quite traditional, especially considering that during its peak, there were few secondary reserve assets to provide banks with a liquidity buffer. This theory does not address the credit needs of Nigeria's developing economy, as it discourages banks from financing long-term investments like plants, equipment, land, and homes. The theory's insistence that all loans should be liquidated in the normal course of business fails to recognize the relative stability of bank deposits. Although demand deposits can be withdrawn at any time, it is unlikely that all depositors will demand their funds simultaneously. This deposit stability allows banks to safely extend longer-term loans without risking illiquidity. Despite its limitations, the commercial loan theory, or real bills doctrine, has remained influential in banking. Traces of it can still be seen in bank regulatory frameworks, examination procedures, and the mindset of many bankers. Understanding contemporary banking requires knowledge of its history, which is deeply rooted in the commercial loan theory.

The commercial loan theory originated from English banking practices in the 19th century. Supporters of this theory argued that banks could maintain liquidity by issuing short-term loans that would be repaid as part of regular business operations. Essentially, deposit-money banks were expected to fund the flow of goods from production to consumption. These types of loans were referred to as inventory or working capital loans, aimed at facilitating the movement and financing of goods through various stages of production and distribution.

2.1.3 The Shiftability Theory

It's important to note that the shiftability theory doesn't replace or invalidate the commercial loan theory; rather, it offers a broader perspective on banking practices. Unlike the commercial loan theory, which focuses primarily on short-term loans as bank assets, the shiftability theory expands the range of assets banks can hold. It acknowledges that while commercial loans are suitable assets for banks, they're not the only ones. According to the shiftability theory, a bank's liquidity depends on its ability to transfer assets to others at a predictable price. This means banks can also hold short-term open market investments alongside commercial loans in their asset portfolios. This approach recognizes that different types of assets contribute to a bank's ability to manage liquidity effectively and meet the financial needs of their clients and the broader economy.

According to Hosna and Manzura (2009), the shiftability theory significantly influenced banking practices by shifting the focus of bankers and regulators from relying solely on loans to considering investments as a key source of bank liquidity. Advocates of this theory argued that the perceived liquidity of short-term commercial loans was somewhat illusory. However, Kargi (2011) noted a flaw in the shiftability theory similar to that in the commercial loan theory. The issue wasn't so much with the theory itself, which was well understood by experts in the field, but rather with how banks implemented it in practice. The fundamental problem lay in the assumption that individual banks could easily convert their assets into cash if needed, thereby ensuring liquidity. In reality, the ability of one bank to shift assets for liquidity didn't necessarily hold true when considering the entire banking system collectively. In essence, while the shiftability theory broadened the understanding of how banks could manage liquidity by including various types of investments alongside loans, it also highlighted the complexities involved in ensuring overall financial stability across the banking sector.

2.1.4 The Anticipated Income Theory

Based on a detailed study in 1949, Prochnow introduced a new loan theory termed the "Anticipated Income Theory." According to Afriyie and Akotey (2011), their research revealed that under this theory, banks planned for term loans to be repaid using the borrower's expected future earnings rather than selling off the borrower's assets (as in traditional theories) or transferring the loan to other lenders (as in shiftability theory). This approach assumes that

banks should assess loans based on the borrower's anticipated income rather than just their current financial status. Kolapo, Ayeni, and Oke (2012) noted that a notable aspect of this theory is its forward-looking approach to lending, often referred to as the "cash flow approach." Unlike the commercial loan theory, which focuses on short-term, self-liquidating loans, the Anticipated Income Theory emphasizes making loans based on the borrower's future earning potential. It doesn't challenge the idea from shiftability theory that a bank's secondary reserves are crucial for liquidity. Instead, it directs attention towards determining the types of loans that are suitable for banks, leading to different conclusions compared to the commercial loan theory (Moti, Masinde, & Mugenda, 2012).

2.2 Empirical Review

Kithinji (2014) conducted a study on the effect of credit risk management on the profitability of commercial banks in Kenya. The objective was to determine the impact of credit and non-performing loans on bank profits. The study used data from 2004 to 2008 to analyze the data. The major findings of the study revealed that the bulk of profits of commercial banks were not significantly influenced by credit and non-performing loans, challenging conventional wisdom. In conclusion, it is important to consider multiple variables impacting profits beyond credit risk management.

Manandhar et al. (2015) conducted a study on the determinants of credit risk in the Nepalese banking sector. The objective was to analyze the impact of macroeconomic and banking industry-specific variables on credit risk. The study used descriptive, correlation, and causal comparative research designs to analyze data from 17 banks over the period 2008 to 2013. The major findings of the study suggested that current credit risk in commercial banks is notably influenced by the previous year's non-performing loans and capital adequacy. In conclusion, past non-performing loans and capital adequacy are critical determinants of credit risk in Nepalese banks.

Poudel (2015) conducted a study on the impact of credit risk management on the financial performance of Nepalese commercial banks. The objective was to evaluate how credit risk parameters affect financial performance. The study used descriptive, correlation, and regression analyses to analyze financial reports from 31 banks over the period 2001-2011. The major findings of the study indicated an inverse impact on financial performance, with the

default rate emerging as the most significant predictor. In conclusion, effective management of the default rate is essential for improving the financial performance of Nepalese commercial banks.

Shrestha (2016) conducted a study on the loan management practices and profitability of Nabil bank and Everest bank in Nepal. The objective of the study was to scrutinize the loan management practices and profitability of commercial banks. The study used mean, correlation coefficient and multiple regression to analyze the data. The findings of the study showed that loans to deposits and the coefficient of variation found significant relationship between loan management practices and profitability. The study concluded that, there is important role of effective loan management strategies to enhance the financial performance of commercial banks.

Karki (2016) conducted a study entitled loan management of commercial banks (with reference to NBBL and HBL). The objective of the study was to analyze the loan management practices and financial performance of Nepal Bangladesh Bank Limited (NBBL) and Himalayan Bank Limited (HBL). The study used correlation coefficient mean, coefficient of variation and standard deviation to analyze data. The major findings of the study showed that HBL had more consistent ability to meet immediate liabilities compared to NBBL, NBBL had a higher ratio of loans and advances to total assets. The study concluded, the effective management of loans helps the organization uplift its financial performance and helps to increase the wealth of the stakeholders.

Bhattarai (2016) conducted a study on the impact of credit risk management on the financial performance of Nepalese commercial banks. The objective was to examine how various credit risk management parameters influence financial performance using the CAMELS model. The study used balance panel data from 10 out of 20 banks over the period 2001 to 2016. The major findings of the study revealed significant relationships, with capital adequacy ratio (CAR), non-performing loan ratio (NPLR), and management quality ratio (MQR) positively influencing financial performance, while credit to deposit ratio (CDR) and risk sensitivity (RS) showed no significant impact. In conclusion, CAR, NPLR, and MQR are critical for enhancing financial performance in Nepalese commercial banks.

Antoine (2017) investigated the study entitled the impact of loan management on the financial performance of bank of Kigali (BK). The study aimed to examine the effect of loan management on the financial performance of the Bank of Kigali (BK). The study employed correlation coefficient for analysis of data. The major findings of the study indicated, there is a strong correlation between effective loan management practices and positive financial performance. The study concluded, well-managed loans help in the better financial performance in an organization which helps to achieve the sustainable financial outcomes in the banking institutions.

Malim (2017) conducted a study on the Tanzanian banking sector. The objective was to investigate the influence of capital adequacy, profitability, and loan growth on non-performing loans over a decade (2005-2014). The study used secondary data from the Bank of Tanzania to analyze the data. The major findings of the study revealed nuances in the impact of capital adequacy and profitability on non-performing loans, emphasizing the critical role of loan growth. In conclusion, loan growth plays a significant role in influencing non-performing loans in the Tanzanian banking sector.

Kattel (2017) conducted a study on the techniques employed by Nepalese commercial banks for credit risk identification. The objective was to understand bankers' perceptions regarding the importance of various techniques and tools in identifying borrower-related risks. The study used a survey of nine banks to analyze the data. The major findings of the study revealed significant differences in tools and techniques used among State-Owned banks, Private banks, and Joint Venture banks. In conclusion, there is a diverse approach to credit risk identification among different types of banks in Nepal.

Poudel (2018) conducted a comprehensive study on credit risk assessment in Nepalese commercial banks. The objective was to identify key indicators of credit risk. The study used panel data analysis and a one-way Fixed Effect Model (EFM) to analyze data from 15 banks over the period 2002/03 to 2014/15. The major findings of the study indicated a significant positive impact of liquidity on credit risk, while capital adequacy ratio and interest spread exhibited significant negative impacts. In conclusion, managing liquidity, capital adequacy, and interest spread is essential for effective credit risk management in Nepalese commercial banks.

Daniel (2018) conducted a study on the impact of loan management on the performance of microfinance institutions (MFIs) in Rwanda. The objective was to determine the influence of loan management techniques on the performance of MFIs. The study used the correlation analysis, regression, standard deviation, mean and coefficient of variation as the statistical tool to analyze the data. The major findings of the study were that improvements in loan management were associated with reduced non-performing loans, increased profitability, owner's equity, and organizational reputation, suggesting a positive relationship between loan management and MFI performance. In conclusion, there is a critical role of effective loan management in driving positive outcomes for MFIs which provides vital insights for enhancing operational efficiency and performance within the microfinance sector.

Pradhan and Shah (2019) conducted a study on credit risk management practices in Nepalese commercial banks. The objective was to understand the impact of these practices on loan repayment. The study used a survey-based approach and correlation analysis to analyze the data. The major findings of the study revealed a positive relationship between credit risk management practices, credit risk mitigation measures, and loan repayment, while obstacles faced by borrowers did not show a significant relationship. In conclusion, effective credit risk management practices and mitigation measures enhance loan repayment in Nepalese commercial banks.

Morina (2020) conducted a study on the determinants of credit risk in Kosovo's commercial banks. The objective was to examine the relationship between credit risk determinants and non-performing loans (NPLs). The study used regression analysis on a seven-year time series dataset (2012-2018) to analyze the data. The major findings of the study were that interest rates on loans and bank profitability (ROA) substantially impact credit risk. In conclusion, these factors are crucial contributors to credit risk in Kosovo's commercial banks.

Ghimire and Bhandari (2023) conducted study on the determinants of lending interest rate of commercial banks in Nepal. The objective was to analyze the impact of operating cost to total assets (OCTA), deposit rate (DR), profitability (ROA), and non-performing loans on lending rates. The necessary data were collected from the annual reports of sample banks, banking and financial statistics, and the bank supervision report published by the Central Bank of Nepal. The study used a descriptive and causal comparative research design and employed Eviews-

12 software for diagnosis, model fit, and data analysis. Fourteen commercial banks were used as a data sample, tracked over six years (2016 to 2021). The major findings of the study, using pooled OLS, fixed effects, and random effects models, indicated that the deposit rate has a significant impact on the bank's lending rate, while operating costs to total assets ratio, return on assets (ROA), and non-performing assets have no strong effect on the interest rate offered by commercial banks. In conclusion, the deposit rate is a critical determinant of lending rates in Nepalese commercial banks.

Adhikari et al. (2023) conducted a study on a comparative analysis of the financial performance of commercial banks after mergers and acquisitions. The objective was to compare the financial performance of the overall commercial banking sector and selected commercial banks on an individual basis before and after the mergers and acquisitions (M&A) policy intervention. The research employed an analysis of financial ratios (profitability, liquidity, leverage, and shareholder wealth ratios) before and after mergers that took place between 2013 and 2020 on a sample of seven Nepalese commercial banks. The major findings of the study, tested using a paired sample t-test, indicate that the overall commercial banking sector significantly improved their liquidity and leverage ratios in the post-merger period. Other measures, such as profitability and shareholder wealth ratios, showed either mixed or insignificant results after the M&A. In conclusion, the results for selected commercial banks on an individual basis were even less conclusive and mixed, with some banks showing improvement in financial ratios while others showed insignificant results.

2.3 Research Gap

Currently, Nepalese commercial banks are facing challenges with their liquidity positions, while nonperforming loans have emerged as a significant problem across the sector. Despite banks' lending deposits to various sectors of the economy, not all sectors are performing well in the current scenario. Previous research primarily relied on secondary data analysis, overlooking the need for more comprehensive studies. Some researchers focused on aspects such as the implementation of directives by the Nepal Rastra Bank (NRB) and nonperforming loans, while others examined loan loss provisioning of commercial banks. However, this study, aims to bridge this research gap by analyzing various financial indicators such as loans and advances, deposits, total assets, nonperforming loans, and the relationship between these

indicators. Thus, this study stands out by addressing this gap and providing valuable insights into loan management practices among these banks.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the systematic approach used to address a research problem. It involves selecting specific methods and techniques that are appropriate for the study's context, explaining why these methods are chosen and why others are not, ensuring that the research results can be evaluated by the researcher or others. Essentially, research methodology outlines the sequential steps taken by a researcher to study a problem and achieve certain objectives (Kothari, 2007).

3.1 Research Design

Research design is the specification of method and procedures for acquiring the information needed. To achieve the specific objective of the study, descriptive and causal comparative research has been carried out in terms of credit risk management of Nepal Investment Bank Ltd., Kumari Bank Ltd. and Agricultural Development Ltd. The descriptive research design is used to find out and compare the situation of loan management and profitability among sample banks and causal research is used to analyze the relationship and effect of credit deposit ratio, non-performing loan ratio, cash reserve ratio, capital adequacy ratio, bank size on profitability of the banks.

3.2 Population and Sample

The population data for this study comprises all listed commercial banks i.e. 20 commercial banks, which are currently operating in Nepal. The sample consists of three commercial banks which are actively operating in Nepal as government owned and private commercial bank i.e. NIMBL, KBL and ADBL are the banks which are fast growing banks in the recent period and having expansion through merger policy of NRB and former issue of share to increase the equity of the banks. Purposive sampling method is to be used while selecting sample for this study which can represent the current scenario of loan management and profitability of commercial banking industry in Nepal.

3.3 Nature and Sources of Data

To conduct this study, only the secondary data are used to analyze the loan management and financial performance of the sample banks i.e. NIMBL, KBL and ADBL. The data for the analysis are collected from the published annual report of sample banks and form the official website of the banks. The data related to the provision and directives are collected form the website and publication of NRB. This study covers ten years' data from 2012/13 to 2022/23.

3.4 Methods of Analysis

In this study therefor descriptive statistics and regression analysis is applied to achieve the objective of the impact of loan management into profitability of the sample banks. In this research study some statistical tools are used for the analysis of the data more accurately, which are given below:

Arithmetic Mean

The arithmetic mean or simple mean of set of observations in the sum of all the observation divided by the number of observations. It is the best value, which represent to the whole group means is the arithmetic average of a variable. It is used to find out mean of all the ratio calculated i.e. credit deposit ratio, non-performing loan ratio, cash reserve ratio, capital adequacy ratio, bank size, ROA and ROE of the banks.

Standard Deviation

The standard deviation is the absolute measure of dispersion in which the drawback presents in other measure of dispersion as it satisfied most of the requisites of a good measure of dispersion. Higher the standard deviation Higher will be the variability and vice versa. Dispersion measures the variation of the data from the central value. In other words, it helps to analyze the quality of data regarding its variability. It is used to find out standard deviation of all the ratio calculated i.e. credit deposit ratio, non- performing loan ratio, cash reserve ratio, capital adequacy ratio, bank size, ROA and ROE of the banks.

Coefficient of Variation

Standard deviation measures the absolute spread or dispersion of data points around the mean. When we want to understand this spread relative to the mean, we use the coefficient of standard

deviation. This coefficient is expressed as a percentage and is known as the coefficient of variation (CV). A lower CV indicates greater consistency and uniformity in the data, whereas a higher CV suggests more variability. Using standard deviation alone isn't always sufficient for comparing the variability between two sets of data. The CV, however, provides a useful tool for comparing the variability of two different variables independently. It takes into account both the spread of the data (standard deviation) and the scale of the data (mean), making it a more robust measure for comparing variability across different datasets. This is also used to confirm the consistency of the ratio calculated in the financial analysis part.

Correlation Analysis

The correlation coefficient measures the strength and direction of the relationship between two variables. It helps us understand how changes in one variable are associated with changes in another variable. If the correlation coefficient is high, it indicates that when one variable changes, the other tends to change in a predictable way—either increasing or decreasing together.

$$r = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - \left(\sum X\right)^2}\sqrt{n\sum Y^2 - \left(\sum Y\right)^2}}$$

Where,

n = number of observation in series X and Y

$\sum$ X = sum of observation in series X

$\sum$ Y = sum of observation in series Y

$\sum$ X2 = sum of squared observation in series X

$\sum$ Y2 = sum of squared observation n series y

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

The value of correlation coefficient ranges from -1 to +1.

r = 0 means variables are correlated lies between -1 and +1

r = -1 means perfect negative correlation between the variables

r = +1 means positive correlation between the variables

Regression Analysis

In statistical modeling, regression analysis is a set of statistical processes for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable (ROA and ROE) and one or more independent variables (credit deposit ratio, non-performing loan ratio, cash reserve ratio, capital adequacy ratio and bank size). More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed (Yadav et al., 2010).

Regression Equation:

Model 1: $ROA = \beta 0 + \beta 1\ CDR + \beta 2\ NPLR + \beta 3 CRR + \beta 4 CAR + \beta 5 SIZE + e$

Model 2: $ROE = \beta 0 + \beta 1\ CDR + \beta 2 NPLR + \beta 3 CRR + \beta 4\ CAR + \beta 5\ SIZE + e$

Where,

ROA = Return on Assets

ROE = Return on Equity

β0 = intercept value of regression equation

β1 = coefficient of credit deposit ratio

β2 = coefficient of non-performing loan ratio

β3 = coefficient of cash reserve ratio

β4 = coefficient of capital adequacy ratio

β5 = coefficient of bank size

CDR = Credit Deposit Ratio

NPLR = Non-performing Loan Ratio

CRR = Cash Reserve Ratio

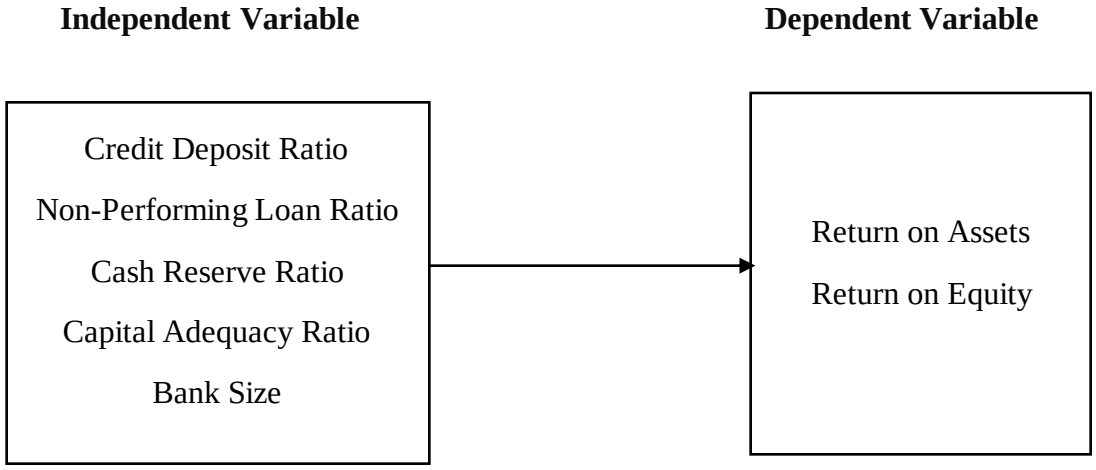
CAR = Capital Adequacy Ratio

SIZE = Logarithm of Total Assets

e = residual term of the regression equation

3.5 Research Framework and Definition of Variables

The review of various previous studies and literature the conceptual frame work for the study was developed for the analysis of loan management on profitability of Nepalese commercial banks. In the previous researches following bank specific factors as determinants of profitability in the commercial banks are used and with the reference of the previous works the conceptual framework for the study is developed here under;



Source: *(Shrestha, 2017), (Risal & Poudel, 2020) and (Rahmanullah, 2021)*

Definition of Variables

Credit Deposit Ratio

Loan and advance to total deposit ratio is used as a measure to find the credit risk variable of the bank. Previously Kattel (2016) and Risal and Poudel (2020) have used credit deposit ratio of the banks as a measure of credit risk. Loans to deposits ratio indicates how efficiently the bank makes use of depositors' fund on credit activity which is to be expected to risk of default. Higher CD Ratio implies the better utilization of total deposits and better earning. Hence 70% to 80% CD ratio is considered as more appropriate. The credit deposit ratio of the bank is calculated as;

Non-performing Loan Ratio

This ratio determines the non-performing assets in the total loan and advances portfolio' greater ratio implies the bad quality of loan of the bank. Hence lower non-performing assets to loans and advances ratio are preferable (Charles, 2013) and (Risal & Poudel, 2020) have used non-performing loan ratio in their study. As per international standard only 5% NPL is allowed but in the context of Nepal 10% NPL is acceptable.

Cash Reserve Ratio

The cash reserve ratio (CRR) is a crucial factor in analyzing how credit risk impacts bank performance. Traditionally, CRR is a tool used by central banks to regulate monetary conditions. It represents the minimum percentage of customers' deposits that commercial banks must keep as reserves with the central bank. Adjusting the CRR allows the central bank to influence the liquidity available in the banking system. In a recent study (Shrestha, 2017), researchers explored the relationship between changes in the cash reserve ratio (CRR) and the profitability of banks. This investigation aimed to understand how variations in CRR affect the financial health and operational outcomes of commercial banks.

Capital Adequacy Ratio

Capital Adequacy Ratio (CAR) is a measure of the amount of bank's capital expressed as a percentage of its risk weighted credit exposure capital adequacy ratio as credit risk indicator in the previous study of (Poudel, 2012).

Bank Size

Size is one of the control variable measured by using the natural logarithm of total asset. Size has a positive and significant relationship with the profitability of the banks (Akomeah, Agumeh, & Frimpong, 2020). Based on these empirical evidences, it is expected that size should have positive relationship with profitability of the banks.

Return on Assets

Return on total assets ratio measures the profitability of a firm that explains a firm to earn satisfactory return on all financial resources invested in the bank's assets. The ratio explains net income for each unit of assets (Risal & Poudel, 2020).

Return on Equity

Shareholders fund represents that part of long term source of funds which is collected by using equity shares and preference shares. To measure the return earned by shareholders, return on shareholders' equity is used or this ratio is calculated to find out the profitability on the owner's capital or investment. This ratio helps to analyze whether the company has been able to provide higher return on investment to its owners or not (Hosna & Manzura, 2009).

CHAPTER IV

RESULTS AND DISCUSSION

In this chapter, the data have been analyzed and interpreted using financial and statistical tools as outlined in the research methodology in the third chapter. The analysis section includes descriptive statistical analysis, as well as correlation and regression analysis.

4.1 Descriptive Analysis

4.1.1 Analysis of Credit Deposit Ratio

In this, the credit deposit ratio during the study period for NIMBL, KBL, and ADBL is analyzed. The comparative credit positions in the credit deposit ratios of these banks are also examined.

Table 1

Analysis of Credit Deposit Ratio

Year	NIMBL	KBL	ADBL
2011/12	75.30	49.62	77.30
2012/13	76.80	49.55	83.21
2013/14	77.60	65.54	84.61
2014/15	74.70	78.39	84.61
2015/16	71.97	72.90	88.92
2016/17	72.93	78.07	83.67
2017/18	74.70	89.60	87.92
2018/19	71.97	90.52	91.70
2019/20	72.93	85.50	87.25
2020/21	75.12	95.58	94.79
Mean	74.40	75.53	86.40
SD	1.93	16.30	4.88
CV	2.60	5.90	5.12

The table 1 presents data on the Credit Deposit Ratio (CDR) for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's CDR ranged from 71.97 in 2015/16 to

77.60 in 2013/14, with an average CDR of 74.40 over the period. The standard deviation (SD) for NIMBL's CDR was 1.93, resulting in a coefficient of variation (CV) of 2.60%, indicating low variability in NIMBL's CDR over the years. KBL's CDR fluctuated more widely, ranging from 49.55 in 2012/13 to 95.58 in 2020/21, with a mean CDR of 75.53. KBL's CDR exhibited a higher standard deviation of 16.30, resulting in a CV of 5.90%, indicating moderate variability compared to NIMBL. ADBL's CDR also showed variability, ranging from 77.30 in 2011/12 to 94.79 in 2020/21, with an average CDR of 86.40. ADBL's CDR had a standard deviation of 4.88, resulting in a CV of 5.12%, indicating moderate variability similar to KBL.

4.1.2 Analysis of Non-Performing Loan Ratio

In this section, the position of non-performing loans in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative position and variation in the non-performing loan ratios of these banks are also examined here.

Table 2

Analysis of Non-Performing Loan Ratio

Year	NIMBL	KBL	ADBL
2011/12	3.32	2.21	8.98
2012/13	0.68	2.89	5.85
2013/14	0.83	4.03	5.46
2014/15	1.36	2.49	5.35
2015/16	2.78	1.15	4.36
2016/17	2.91	1.86	4.60
2017/18	1.36	1.05	3.50
2018/19	2.78	1.01	3.29
2019/20	2.91	1.39	2.84
2020/21	2.46	0.96	1.88
Mean	2.14	1.90	4.61
SD	0.98	1.01	1.99
Max	45.61	53.05	43.09
Min	3.32	2.21	8.98

The table 2 provides data on the Non-Performing Loan Ratio (NPLR) for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's NPLR ranged from a minimum of 0.68 in 2012/13 to a maximum of 3.32 in 2011/12, with an average NPLR of 2.14

over the period. The standard deviation (SD) for NIMBL's NPLR was 0.98. KBL's NPLR fluctuated between 0.96 in 2020/21 to 4.03 in 2013/14, with an average NPLR of 1.90. KBL's NPLR exhibited a standard deviation of 1.01. ADBL's NPLR ranged from 1.88 in 2020/21 to 8.98 in 2011/12, with an average NPLR of 4.61. ADBL's NPLR had a standard deviation of 1.99.

4.1.3 Analysis of Cash Reserve Ratio

In this section, the position of cash reserve ratios in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative position and variation in the cash reserve ratios of these banks are also examined here.

Table 3

Cash Reserve Ratio

Year	NIMBL	KBL	ADBL
2011/12	13.60	13.52	36.65
2012/13	7.20	12.43	32.27
2013/14	10.50	13.62	30.43
2014/15	8.20	7.48	28.74
2015/16	5.50	8.74	23.33
2016/17	8.70	10.33	31.18
2017/18	8.20	6.85	29.15
2018/19	5.50	4.59	27.20
2019/20	8.70	3.78	33.98
2020/21	4.40	3.72	36.21
Mean	8.05	8.51	30.91
SD	2.68	3.86	4.10
CV	33.32	45.44	13.28

The table 3 presents data on the Cash Reserve Ratio (CRR) for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's CRR ranged from 4.40 in 2020/21 to 13.60 in 2011/12, with an average CRR of 8.05 over the period. The standard deviation (SD) for NIMBL's CRR was 2.68, resulting in a coefficient of variation (CV) of 33.32%, indicating

moderate variability in NIMBL's CRR over the years. KBL's CRR fluctuated between 3.72 in 2020/21 to 13.62 in 2013/14, with an average CRR of 8.51. KBL's CRR exhibited a higher SD of 3.86, resulting in a CV of 45.44%, indicating relatively high variability compared to NIMBL. ADBL's CRR ranged from 23.33 in 2015/16 to 36.65 in 2011/12, with an average CRR of 30.91. ADBL's CRR had a standard deviation of 4.10, resulting in a CV of 13.28%.

4.1.4 Analysis of Capital Adequacy Ratio

In this section, the position of capital adequacy ratios in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative position and variation in the capital adequacy ratios of these banks are also examined here.

Table 4

Capital Adequacy Ratio

Year	NIMBL	KBL	ADBL
2011/12	11.10	12.20	19.00
2012/13	14.92	12.17	16.34
2013/14	13.02	11.81	14.93
2014/15	12.66	10.84	13.90
2015/16	13.26	11.69	17.16
2016/17	13.54	14.50	20.41
2017/18	12.66	13.36	20.33
2018/19	13.26	11.75	20.37
2019/20	13.54	15.35	19.29
2020/21	14.71	13.71	16.94
Mean	13.27	12.74	17.87
SD	1.08	1.43	2.36
CV	8.12	11.23	13.21

The table 4 presents data on the Capital Adequacy Ratio (CAR) for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's CAR ranged from 11.10 in 2011/12 to 14.71 in 2020/21, with an average CAR of 13.27 over the period. The standard deviation (SD) for NIMBL's CAR was 1.08, resulting in a coefficient of variation (CV) of 8.12%,

indicating relatively low variability in NIMBL's CAR over the years. KBL's CAR fluctuated between 10.84 in 2014/15 to 15.35 in 2019/20, with an average CAR of 12.74. KBL's CAR exhibited a standard deviation of 1.43, resulting in a CV of 11.23%, indicating moderate variability compared to NIMBL. ADBL's CAR ranged from 13.90 in 2014/15 to 20.41 in 2016/17, with an average CAR of 17.87. ADBL's CAR had a standard deviation of 2.36, resulting in a CV of 13.21%, indicating higher variability compared to both NIMBL and KBL.

4.1.5 Analysis of Bank Size

In this section, the position of bank size in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative position and variation in the bank size of these banks are also examined here.

Table 5

Bank Size

Year	NIMBL	KBL	ADBL
2011/12	65756	25131	63521
2012/13	73153	28223	77097
2013/14	86174	31021	88520
2014/15	104345	38199	100812
2015/16	129783	42417	111786
2016/17	150818	60994	126867
2017/18	171894	82724	134854
2018/19	185842	105311	151458
2019/20	203024	145972	179320
2020/21	227930	189783	222440
Mean	139871.90	74977.50	125667.50
SD	56953.09	56186.06	48769.52
CV	40.72	74.94	38.81

The table 5 provides data on the size of banks, represented by their total assets, for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's total assets ranged from 65,756 in 2011/12 to 227,930 in 2020/21, with an average total asset value of 139,871.90

over the period. The standard deviation (SD) for NIMBL's total assets was 56,953.09, resulting in a coefficient of variation (CV) of 40.72%, indicating moderate variability in NIMBL's total asset size over the years. KBL's total assets fluctuated between 25,131 in 2011/12 to 189,783 in 2020/21, with an average total asset value of 74,977.50. KBL's total assets exhibited a higher standard deviation of 56,186.06, resulting in a CV of 74.94%, indicating relatively high variability compared to NIMBL. ADBL's total assets ranged from 63,521 in 2011/12 to 222,440 in 2020/21, with an average total asset value of 125,667.50. ADBL's total assets had a standard deviation of 48,769.52, resulting in a CV of 38.81%.

4.1.6 Analysis of ROA

In this section, the position of return on assets in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative positions in the ROA are :

Table 6

Return on Assets

Year	NIMBL	KBL	ADBL
2011/12	1.60	1.10	2.90
2012/13	2.00	1.03	2.97
2013/14	2.10	1.10	1.76
2014/15	2.13	1.06	0.93
2015/16	1.79	1.69	0.58
2016/17	1.19	1.29	2.15
2017/18	2.13	1.26	2.71
2018/19	1.79	1.17	2.77
2019/20	1.19	0.76	1.86
2020/21	1.56	1.04	1.59
Mean	1.75	1.15	2.02
SD	0.36	0.24	0.83
CV	20.56	20.81	41.29

The table 6 presents data on the Return on Assets (ROA) for NIMBL, KBL, and ADBL for the years spanning from 2011/12 to 2020/21. NIMBL's ROA fluctuated between 1.19 in 2016/17 and 2.13 in 2017/18, with an average ROA of 1.75 over the period. The standard deviation

(SD) for NIMBL's ROA was 0.36, resulting in a coefficient of variation (CV) of 20.56%, indicating moderate variability in NIMBL's ROA over the years. Similarly, KBL's ROA ranged from 0.76 in 2019/20 to 1.69 in 2015/16, with a mean ROA of 1.15. KBL's ROA exhibited a standard deviation of 0.24, resulting in a CV of 20.81%, indicating relatively consistent variability compared to NIMBL. ADBL's ROA showed wider fluctuations, ranging from 0.58 in 2015/16 to 2.97 in 2012/13, with an average ROA of 2.02. ADBL's ROA had a higher standard deviation of 0.83, resulting in a CV of 41.29%.

4.1.7 Analysis of ROE

In this section, the position of return on equity in the loan portfolios of NIMBL, KBL, and ADBL during the study period is analyzed. The comparative position in the ROE are examined.

Table 7

Analysis of ROE

Year	NIMBL	KBL	ADBL
2011/12	17.17	11.61	13.97
2012/13	27.26	10.96	16.09
2013/14	24.48	11.53	10.09
2014/15	20.01	11.80	21.66
2015/16	15.66	17.75	13.60
2016/17	16.65	8.18	11.77
2017/18	14.71	9.94	14.07
2018/19	13.00	10.50	14.79
2019/20	8.92	6.70	11.70
2020/21	11.04	10.43	11.20
Mean	16.89	10.94	13.89
SD	5.72	2.89	3.29
CV	33.85	26.38	23.65

The data in Table 7 represents the Return on Equity (ROE) for NIMBL, KBL, and ADBL over a ten-year period from 2011/12 to 2020/21. During this period, NIMBL's ROE fluctuated

significantly, starting at 17.17% in 2011/12 and peaking at 27.26% in 2012/13, before declining to a low of 8.92% in 2019/20 and slightly recovering to 11.04% in 2020/21. The mean ROE for NIMBL over this period was 16.89%, with a standard deviation (SD) of 5.72, resulting in a coefficient of variation (CV) of 33.85%. KBL's ROE also showed variability, with values ranging from 6.70% in 2019/20 to 17.75% in 2015/16. The mean ROE for KBL was 10.94%, with a standard deviation of 2.89 and a CV of 26.38%, indicating less variability compared to NIMBL. ADBL's ROE had its own fluctuations, reaching a high of 21.66% in 2014/15 and a low of 10.09% in 2013/14. The mean ROE for ADBL over the study period was 13.89%, with a standard deviation of 3.29 and a CV of 23.65%, suggesting the most stability among the three banks.

Table 8

Correlation Analysis

Variables	ROA	ROE	CDR	NPLR	CRR	CAR	LNSIZE
ROA	1.000						
ROE	0.350	1					
CDR	0.220	-0.249	1				
NPLR	0.341	-0.055	0.545**	1			
CRR	0.469**	0.011	0.705**	0.710**	1		
CAR	0.533**	-0.087	0.628**	0.448*	0.740**	1	
LNSIZE	0.154	-0.095	-0.011	-0.114	0.067	0.418*	1

The correlation analysis in Table 8 reveals the relationships between various financial variables. Return on Assets (ROA) shows a positive correlation with Cash Reserve Ratio (CRR) and Capital Adequacy Ratio (CAR), indicating that higher levels of CRR and CAR are associated with higher ROA. Return on Equity (ROE) demonstrates a weak positive correlation with CRR and CAR, albeit not statistically significant. Credit Deposit Ratio (CDR) displays a weak positive correlation with ROA, indicating that higher CDR may be associated with slightly higher ROA. Non-Performing Loan Ratio (NPLR) exhibits a moderate positive correlation with CRR and CAR, suggesting that higher levels of CRR and CAR might be associated with a higher NPLR. Capital Adequacy Ratio (CAR) demonstrates a strong positive

correlation with CRR, indicating that banks with higher CAR tend to have higher CRR. Bank Size (LNSIZE) shows a weak positive correlation with CAR, indicating that larger banks tend to have higher capital adequacy ratios. Overall, the correlation analysis provides insights into the interrelationships among key financial variables in the banking sector, aiding in understanding their potential impacts on financial performance and risk management.

4.1.8 Regression Analysis

Regression analysis is a mathematical method of determining which of those factors has an effect on the outcome of the experiment. It provides answers to the questions: What are the most important factors? Which of these can we afford to ignore? What is the nature of the interactions between those factors? And, perhaps most crucially, how confident are we in our understanding of all of these variables? For this study ROA and ROE is dependent variable and CDR, CRR, NPLR, CAR and LNSIZE were used as independent variables.

Table 9

Regression Analysis for Dependent Variable ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.601	1.144	1.400	(0.174)
CDR	-0.038**	0.007	-5.111	(0.000)
NPLR	-0.243**	0.056	-4.329	(0.000)
CRR	0.069**	0.017	4.194	(0.000)
CAR	-0.023	0.042	-0.539	(0.595)
LNSIZE	0.273*	0.100	2.720	(0.012)
R-Square	0.631			
S.E. of regression	0.793			
F-Statistic	8.215**			
Prob (F-Statistic)	(0.000)			

The regression analysis in table 9 shows results for the dependent variable Return on Assets (ROA) with several significant insights. The constant term, with a coefficient of 1.601 and a p-value of 0.174, meaning the expected ROA when all other variables are zero is not reliably

different from zero. For the independent variables, the Coefficient of Deposit Ratio (CDR) has a negative coefficient of -0.038 and a highly significant p-value of 0.000. Similarly, the Non-Performing Loan Ratio (NPLR) shows a negative impact on ROA, with a coefficient of -0.243 and a significant p-value of 0.000, indicating that higher NPLR correlates with lower ROA.

In contrast, the Capital Reserve Ratio (CRR) has a positive coefficient of 0.069 and a significant p-value of 0.000, implying that an increase in CRR is associated with a significant increase in ROA. However, the Capital Adequacy Ratio (CAR) has a coefficient of -0.023 and a p-value of 0.595, indicating that CAR does not have a statistically significant effect on ROA. The bank size (LNSIZE) shows a positive and significant relationship with ROA, with a coefficient of 0.273 and a p-value of 0.012. Overall, the model has an R-squared value of 0.631, indicating that approximately 63.1% of the variance in ROA. The standard error of the regression is 0.793, and the F-statistic of 8.215 with a p-value of 0.000. This analysis shows that CDR, NPLR, CRR, and LNSIZE are significant predictors of ROA, while CAR does not significantly impact ROA.

Table 10

Regression Analysis for Dependent Variable ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	22.951**	9.563	2.400	(0.025)
CDR	-0.340**	0.103	-3.308	(0.003)
NPLR	-1.181*	0.564	-2.094	(0.047)
CRR	0.489**	0.131	3.732	(0.001)
CAR	-0.925*	0.420	-2.205	(0.037)
LNSIZE	2.461*	1.082	2.274	(0.032)
R-Square	0.522			
S.E. of regression	5.610			
F-Statistic	5.233**			
Prob (F-Statistic)	(0.002)			

The regression analysis in table 10 is for the dependent variable Return on Equity (ROE) reveals significant findings. The constant term has a coefficient of 22.951, with a standard error

of 9.563, resulting in a t-statistic of 2.400 and a p-value of 0.025. This indicates that the intercept is statistically significant at the 5% level, suggesting that the expected ROE, when all other variables are zero, is 22.951. Among the independent variables, the Coefficient of Deposit Ratio (CDR) has a coefficient of -0.340 and a p-value of 0.003, indicating a statistically significant negative impact on ROE. This means that an increase in CDR is associated with a decrease in ROE. Similarly, the Non-Performing Loan Ratio (NPLR) has a coefficient of -1.181 and a p-value of 0.047, also suggesting a significant negative relationship with ROE. Thus, higher NPLR is linked to lower ROE.

In contrast, the Capital Reserve Ratio (CRR) has a positive coefficient of 0.489 and a highly significant p-value of 0.001, indicating that an increase in CRR is associated with a significant increase in ROE. The Capital Adequacy Ratio (CAR) has a negative coefficient of -0.925 and a p-value of 0.037, signifying a statistically significant negative impact on ROE, suggesting that higher CAR is associated with lower ROE. The logarithm of bank size (LNSIZE) has a positive coefficient of 2.461 and a p-value of 0.032, indicating that larger bank size is significantly associated with higher ROE. The model has an R-squared value of 0.522, which indicates that approximately 52.2% of the variation in ROE is explained by the independent variables in the model, suggesting a moderate level of explanatory power. The standard error of the regression is 5.610, indicating the average distance that the observed values fall from the regression line. The F-statistic of 5.233 and its p-value of 0.002 indicate that the overall regression model is statistically significant, implying that the independent variables collectively have a significant effect on ROE.

4.2 Discussion

The analysis of loan management and profitability for Nepal Investment Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL) during the study period reveals notable insights. ADBL demonstrated more consistent asset growth compared to the other banks. ADBL maintained its credit deposit ratio below the 80% threshold, and NIMBL also distributed less than 80% of its deposits as loans and advances. ADBL had the highest average non-performing loan ratio at 4.61%, while KBL had the lowest at 1.90%, indicating that KBL had better loan management practices during the period studied. All three banks adhered to the capital requirements set by the Nepal Rastra Bank (NRB). ADBL

exhibited lower liquidity risk, and it earned more from asset utilization, whereas NIMBL's investors saw higher returns from equity investments.

The relationship analysis showed that Return on Assets (ROA) has a low positive correlation with the credit deposit ratio, with a coefficient of 0.350, aligning with Rahmanullah (2021), who also found a positive correlation between these variables. Conversely, Return on Equity (ROE) has a low negative correlation with the credit deposit ratio, with a coefficient of -0.249, contradicting Rahmanullah (2021), who suggested that increased lending boosts bank earnings.

ROA and non-performing loans are positively correlated, with a coefficient of 0.220, which differs from Poudel (2013) and Shrestha (2017), who found a negative relationship between non-performing loans and ROA. On the other hand, ROE and non-performing loans are negatively correlated, with a coefficient of -0.055, consistent with Shrestha (2017), indicating that higher non-performing loans reduce ROE.

ROA is positively correlated with the cash reserve ratio, with a coefficient of 0.469, although this relationship is not significant in the broader population. This finding contrasts with Shrestha (2017), who found a negative correlation. Similarly, ROE is positively correlated with the cash reserve ratio, with a coefficient of 0.011, again opposite to Shrestha (2017), who found a negative relationship between liquidity and ROE.

ROA and the capital adequacy ratio have a low positive correlation of 0.533, consistent with Poudel (2012), who also found a positive relationship between these variables. However, ROE and the capital adequacy ratio have a low negative correlation of -0.087, which does not align with Shrestha (2017), who found a positive relationship.

ROA is positively correlated with bank size, with a coefficient of 0.154, supporting Bhattarai (2016), who found the same relationship. In contrast, ROE is negatively correlated with the cost to loan and advance ratio, with a coefficient of -0.095, differing from Rahmanullah (2021), who found a positive relationship between bank size and ROE.

The regression analysis indicates that the credit deposit ratio has a significant negative effect (-0.038) on ROA, contrary to the findings of Risal and Poudel (2020) and Yeasin (2022), possibly because the sample banks did not manage to increase earnings proportionally to their loan and advances growth. The non-performing loan ratio also has a significant negative effect

(-0.243) on ROA, consistent with the findings of Charles (2013), Shrestha (2017), Risal and Poudel (2020), and Yeasin (2022), who all indicated that higher non-performing loans reduce profitability.

The cash reserve ratio has a significant positive effect (0.069) on ROA, contrary to Shrestha (2017), who found a negative effect, suggesting that holding more cash reserves might reduce profitability due to less fund mobilization. The capital adequacy ratio has no significant negative effect (0.023) on ROA, aligning with Risal and Poudel (2020), Charles (2013), and Shrestha (2017), but contradicting Poudel (2017) and Yeasin (2022), who found a negative effect, implying that higher capital increases market competition, reducing profitability. Bank size has a significant positive effect (0.273) on ROA, consistent with Bhattarai (2016), who also found that larger bank size positively affects ROA.

Another regression analysis found that the credit deposit ratio has a significant negative effect (-0.340) on ROE, opposite to the findings of Risal and Poudel (2020), who suggested that higher credit deposit ratios increase bank earnings and profitability. The non-performing loan ratio has a significant negative effect (-1.181) on ROE, consistent with Risal and Poudel (2020) and Shrestha (2017), indicating that higher non-performing loans decrease profitability.

The cash reserve ratio has a significant positive effect (0.489) on ROE, contrary to Shrestha (2017), who found a negative effect, suggesting that liquidity negatively impacts ROE. The capital adequacy ratio has a negative effect (-0.925) on ROE, consistent with Risal and Poudel (2020), but not with Shrestha (2017), who found a positive relationship, suggesting that increased capital raises market competition, reducing profitability. Finally, bank size has a significant positive effect (2.461) on ROE, aligning with Shrestha (2017), who found that asset growth can increase market coverage and earning potential, thereby boosting ROE.

CHAPTER V

SUMMARY AND CONCLUSION

This chapter presents a summary, conclusions, and actionable implications of the study. It identifies errors in the credit risk management practices of Nepal Investment Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL), and provides corrective suggestions for improvement.

5.1 Summary

This chapter provides a summary of the study, along with conclusions and actionable implications. The study identifies errors in the credit risk management practices of Nepal Investment Bank Ltd. (NIMBL), Kumari Bank Ltd. (KBL), and Agricultural Development Bank Ltd. (ADBL), and suggests corrective measures.

Loan management involves ensuring that borrowers meet their obligations as per agreed terms. It includes not only on-balance sheet activities but also off-balance sheet and interbank exposures. The primary goal is to maximize the bank's risk-adjusted rate of return while keeping credit risk within acceptable limits. This function is crucial for controlling loan policies to boost revenues and reduce financial risks, making it an essential aspect of modern banking operations where risk is inherent.

The study aims to analyze the loan management and profitability levels of NIMBL, KBL, and ADBL. It examines the relationship between variables such as the credit deposit ratio (CDR), non-performing loan ratio (NPLR), cash reserve ratio (CRR), capital adequacy ratio (CAR), bank size (SIZE), return on assets (ROA), and return on equity (ROE). The focus is on how CDR, NPLR, CRR, CAR, and SIZE impact ROA and ROE.

The study employs both descriptive and causal research designs. Descriptive research is used to compare loan management and profitability among the banks, while causal research analyzes the relationships and effects of loan management on profitability using statistical tools. Data were collected from the banks' annual reports and official websites, covering ten years from 2011/12 to 2020/21. Analysis tools included financial ratios, descriptive statistics,

correlation analysis, t-statistics, and multiple regression analysis. Excel and Views software were used for data analysis.

5.2 Conclusion

The analysis of loan management and profitability for NIMBL, KBL, and ADBL showed that ADBL had the most consistent asset growth and did not exceed the 80% credit deposit ratio threshold. NIMBL also distributed less than 80% of deposits as loans and advances. ADBL had the highest average non-performing loan ratio at 4.61%, while KBL had the lowest at 1.90%, indicating better loan management at KBL. All three banks maintained the capital requirements set by NRB. ADBL exhibited lower liquidity risk and earned more from asset utilization, while NIMBL's investors saw higher returns from equity investments.

The study concludes that credit flow in the banks was consistent during the study period. Although non-performing loan ratios were higher in the early years, sufficient provisions against these loans reduced credit risk. Profitability, measured by ROA and ROE, was also consistent. The analysis found that CDR, NPLR, CRR, CAR, and SIZE had positive relationships with ROA, with CRR and CAR being statistically significant. Conversely, CDR, NPLR, CAR, and SIZE had negative relationships with ROE, with CRR showing a positive relationship.

5.3 Implications

The findings of the study have several important implications for management, policymakers, investors, and researchers interested in this field.

- Credit Risk Management Strategy: Banks need to develop effective credit risk management strategies by thoroughly evaluating creditworthiness before granting loans.
- Periodic Assessments: Senior management should ensure regular, independent internal assessments of the bank's credit-granting and management practices.
- Reducing Non-Performing Loans: Implementing robust credit risk and loan service management processes is essential to keep non-performing loans (NPL) at a minimum, which helps maintain high profitability.

- Improving Asset Management: Commercial banks should focus on increasing the efficiency of their asset management and improving their business models to strengthen overall performance.
- Managing Credit Risk Variables: Banks should prioritize managing key credit risk variables to ensure that stakeholders are not adversely affected by loan management issues.
- Government Regulation: The government's efforts to regulate banking and financial institutions (BFIs) concerning credit risk parameters like the capital adequacy ratio (CAR), non-performing loan ratio (NPLR), and credit deposit ratio (CDR) are commendable.
- Academic Contribution: This study provides valuable insights for academics and can serve as a foundation for further research. Future studies should explore additional factors that could help improve loan management and performance in Nepalese commercial banks, as this study focused on only a few key factors.

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APPENDIX

Analysis of Credit Deposit Ratio

Year	NIMBL	KBL	ADBL
2011/12	75.30	49.62	77.30
2012/13	76.80	49.55	83.21
2013/14	77.60	65.54	84.61
2014/15	74.70	78.39	84.61
2015/16	71.97	72.90	88.92
2016/17	72.93	78.07	83.67
2017/18	74.70	89.60	87.92
2018/19	71.97	90.52	91.70
2019/20	72.93	85.50	87.25
2020/21	75.12	95.58	94.79

Analysis of Non-Performing Loan Ratio

2011/12	3.32	2.21	8.98
2012/13	0.68	2.89	5.85
2013/14	0.83	4.03	5.46
2014/15	1.36	2.49	5.35
2015/16	2.78	1.15	4.36
2016/17	2.91	1.86	4.60
2017/18	1.36	1.05	3.50
2018/19	2.78	1.01	3.29
2019/20	2.91	1.39	2.84
2020/21	2.46	0.96	1.88

Cash Reserve Ratio

2011/12	13.60	13.52	36.65
2012/13	7.20	12.43	32.27
2013/14	10.50	13.62	30.43
2014/15	8.20	7.48	28.74
2015/16	5.50	8.74	23.33
2016/17	8.70	10.33	31.18
2017/18	8.20	6.85	29.15
2018/19	5.50	4.59	27.20
2019/20	8.70	3.78	33.98
2020/21	4.40	3.72	36.21

Capital Adequacy Ratio

2011/12	11.10	12.20	19.00
2012/13	14.92	12.17	16.34
2013/14	13.02	11.81	14.93
2014/15	12.66	10.84	13.90
2015/16	13.26	11.69	17.16
2016/17	13.54	14.50	20.41
2017/18	12.66	13.36	20.33
2018/19	13.26	11.75	20.37
2019/20	13.54	15.35	19.29
2020/21	14.71	13.71	16.94

Bank Size

2011/12	65756	25131	63521
2012/13	73153	28223	77097
2013/14	86174	31021	88520
2014/15	104345	38199	100812
2015/16	129783	42417	111786

2016/17	150818	60994	126867
2017/18	171894	82724	134854
2018/19	185842	105311	151458
2019/20	203024	145972	179320
2020/21	227930	189783	222440
	Return on Assets		
2011/12	1.60	1.10	2.90
2012/13	2.00	1.03	2.97
2013/14	2.10	1.10	1.76
2014/15	2.13	1.06	0.93
2015/16	1.79	1.69	0.58
2016/17	1.19	1.29	2.15
2017/18	2.13	1.26	2.71
2018/19	1.79	1.17	2.77
2019/20	1.19	0.76	1.86
2020/21	1.56	1.04	1.59
	Return on Equity		
2011/12	17.17	11.61	13.97
2012/13	27.26	10.96	16.09
2013/14	24.48	11.53	10.09
2014/15	20.01	11.80	21.66
2015/16	15.66	17.75	13.60
2016/17	16.65	8.18	11.77
2017/18	14.71	9.94	14.07
2018/19	13.00	10.50	14.79
2019/20	8.92	6.70	11.70
2020/21	11.04	10.43	11.20

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