COMPARATIVE FINANCIAL PERFORMANCE ANALYSIS OF COMMERCIAL BANKS OF NEPAL USING CAMEL MODEL

(With Reference to Government Owned Banks)

A Dissertation submitted to the office of the Dean, Faculty of Management
in partial fulfillment of the requirements for the Master's Degree

By

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “Comparative Financial Performance Analysis of Commercial Banks of Nepal Using Camel Model (With Reference To Government Owned 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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REPORT OF RESEARCH COMMITTEE

Ms. Ambika Dangol has defended her research proposal entitled **"Comparative Financial Performance Analysis of Commercial Banks of Nepal Using Camel Model (With Reference to Government Owned Banks)"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per the suggestion and guidance of supervisor Asso. Prof. Dr. Kapil Khanal and submit the thesis for evaluation and a viva voce examination.

Dissertation Proposal Defended Date:

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APPROVAL SHEET

We, the undersigned, have examined the dissertation entitled **"Comparative Financial Performance Analysis of Commercial Banks of Nepal Using Camel Model (With Reference to Government Owned Banks)"** presented by Ambika Dangol candidate for the degree of Master of Business Studies (MBS Semester) and conducted the Viva-voce examination of the candidate. We hereby certify that the dissertation is worthy of acceptance.

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ABBREVIATIONS

ADB	Asian Development Bank
ADBL	Agricultural Development Bank Limited
ADBN	Agricultural Development Bank, Nepal
BAFIA	Bank and Financial Institution Act
BFIs	Banking and Financial Institutions
B.S.	Bikram Sambat
CAMEL	Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity
CAMELS	Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality, Liquidity and Sensitivity
CAR	Capital Adequacy Ratio
CV	Coefficient of Variation
FI	Financial Institutions
FY	Fiscal Year
LA/TA	Liquid Assets to Total Assets ratio
NBL	Nepal Bank Limited
NFRS	Nepal Financial Reporting Standards
NII/TA	Net Interest Income to Total Assets ratio
NPA	Non-Performing Assets
NPA/TA	Non-Performing Assets to Total Advances ratio
NPL	Non-Performing Loan
NRB	Nepal Rastra Bank
RBBL	Rastriya Banijya Bank Limited
ROA	Return of Assets
ROE	Return of Equity
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
TA/TD	Total Advances to Total Deposits ratio
USA	United States of America

ABSTRACT

The study examined the financial performance of Nepalese commercial banks using the CAMEL model, with emphasis on government owned banks, over a ten-year period from 2068/69 to 2077/78. The Descriptive cum casual research design has been adopted to meet the study's objectives. The study relied on secondary data obtained from the annual financial reports of the selected government owned commercial banks' official websites. The data have been analyzed using different financial ratios and statistical tools. Capital adequacy ratio (CAR), NPA to Total Advances ratio, Total Advances to Total Deposits ratio, Net Interest Income to Total Assets ratio and Liquid Assets to Total Assets ratio have been taken as CAMEL indicators.

Diverse financial and statistical methods were utilized to determine the bank's overall financial performance, while correlation coefficients and multiple regression models were applied to measure the impact of CAMEL variables on financial performance, i.e. ROA and ROE of banks. As financial ratio analysis helps to differentiate the financial performance of commercial banks, the same bank was ranked differently based on the different financial ratios. According to the CAMEL composite rating, the study's findings revealed that NBL and ADBL ranked first with an equal composite average, followed by RBBL. However, as ADBL has first rank in three CAMEL parameter, i.e., Capital Adequacy, Management Efficiency and Earning, we concluded that ADBL has better financial performance than NBL and RBBL.

The correlation analysis revealed that NBL needs to focus on maintaining Capital Adequacy, Management Efficiency and Earning of the bank as they help improve profitability. Similarly, RBBL needs to focus on Capital Adequacy, Assets Quality and Earning as an increase in these variables is also helpful in increasing the profitability of the bank. And correlation analysis of ADBL revealed that it should give priority to maintaining and improving Assets Quality, Management efficiency, and Earning of the bank, as increments on these variables also help to increase profitability of the bank. From the multiple regression analysis, it was found that ROA and ROE of each sample bank have a statistically insignificant relationship with CAMEL. Only NBLs' earnings have a significant positive impact on the bank's Return on Assets.

***Key words**: CAMEL, Profitability ratios (ROA and ROE), Financial Performance.*

CHAPTER-I
INTRODUCTION

1.1 Background of the Study

Industrial development, modernization of agriculture, expansion of internal trade and foreign trade are the factors which mainly determine the economic development of an economy. A robust financial system is essential for the growth of a strong and vibrant economy. In the globalized economic scenario for economic development of an economy, the role and importance of prudent banking system cannot be underestimated. The banking sector, being a fundamental component of financial system is the backbone of the modern economic system. Banks are one of the oldest financial institutions in the financial system, which play a crucial role in the mobilization of deposits and disbursement of credit among the various sectors of the economy. A sound banking system acts as fuel injection which stimulates economic efficiency by mobilizing savings and allocating them to high return investment (Aspal & Dhawan, 2016).

A bank is a financial intermediary that accepts deposits and lends money to people, and an institution provides the service of transferring money and generating income. The word 'Bank' basically means 'bench or counter' and comes from the middle French word banque. Due to the significance of banks in the financial system and national economies, they are highly regulated in most countries and have now become part and parcel of everybody's life.

Banks are established to play a crucial role in enhancing a country's economy by promoting capital formation. They achieve this by mobilizing funds, encouraging innovation, and channeling these resources into various investment areas. By effectively managing and directing the mobilized funds, banks significantly influence economic activity and contribute to overall economic development (Birhanie, 2020). The banking industry is also crucial in the Nepalese economy, just like it is in numerous other nations throughout the world. In the last few years, there has been significant development and improvement in the number of banks, the number of instruments available, and the variety of services offered. In the country, there are twenty-one licensed commercial banks governed by the Central Bank of Nepal, i.e., Nepal Rastra Bank. Among them, three commercial banks are owned by government.

Financial performance analysis is the process of determining the operating and financial characteristics of a firm from accounting and financial statements. The goal of such analysis is to determine the efficiency and performance of firm's management, as reflected in the financial records and reports. The analyst attempts to measure the firm's liquidity, profitability and other indicators that the business is conducted in a rational and normal way; ensuring enough returns to the shareholders to maintain at least its market value (Bhunia, Mukhuti, & Roy, 2011).

To gain a competitive advantage, the banking sector, like other industries, must adapt to the current dynamic changes in the environment. To achieve its long-term goals, the banking sector has significantly incorporated new technologies to boost efficiency and performance. The ability to compete is defined by the efficiency and effectiveness with which it manages its finances. As such, evaluating financial performance is critical for all organizations. This is especially significant for financial institutions like banks because it helps to identify their primary strengths and shortcomings. Financial analysis also helps anticipate the future performance of banks. The information obtained by financial analysis demonstrates the organization's financial health, which will be of interest to various internal and external stakeholders such as managers, employees, consumers, financial institutions, and the government. Various authors have used different models to measure the financial strength and weaknesses of financial organizations. Among the models, the CAMEL model is popular. CAMEL is the model that measures the financial performance of banks in terms of five features: capital adequacy, asset quality, management, earnings quality, and liquidity (Rauf & Lebbe, 2016).

Several methods are used to evaluate banking performance. A well-known method is the CAMELS framework, which was created in the early 1970s by federal regulators in the United States. The CAMELS rating system assesses six key aspects of a financial institution's operations: Capital Adequacy, Asset Quality, Management Soundness, Earnings and Profitability, Liquidity, and Sensitivity to Market Risk. This framework helps banks focus on improving capital adequacy, enhancing asset quality, strengthening management practices, boosting earnings, ensuring liquidity, and managing exposure to various financial risks (Gawde, Panda, & Ingale, 2018).

The CAMEL rating system is a crucial supervisory tool for evaluating the financial performance and health of banks. It assesses banks across five key areas, assigning ratings

from 1 (excellent) to 5 (poor) for each parameter. The overall CAMEL rating reflects the bank's general condition, derived from the scores in each component. In 1996, the system was updated with the addition of the "S" parameter, which stands for "sensitivity to market risk," making the system known as CAMELS today (Lad & Ghorpade, 2022).

Profile of Selected Commercial Banks

(i) Nepal Bank Limited

Nepal Bank Limited (NBL), the first bank of Nepal proudly holds the glory of marking the formal beginning of banking system in Nepal. Nepal Bank Limited was established as FIRST bank of Nepal on Kartik 30, 1994 (November 15, 1937 A.D.) under Nepal Bank Act 1937. The bank was established with an authorized capital of Rs.10 million, issued capital of Rs.2.5 million and paid up capital of Rs.0.842 million. The share held by government and private sector was 60% and 40% respectively.

Noteablly, Nepal Bank Limited was inaugurated by King Tribhuvan with supportive vision of Prime Minister Juddha Shumsher Jung Bahadur Rana to institutionalize formal banking system in Nepal. Before the establishment of NBL, all monetary transactions were carried out by private dealers and trading centers. It was the time when there was no trust for such formal banking system. This reflected in under subscription of shares (OnlyRs.0.842 million could be raised out of floated capital of Rs.2.5 million). Raising deposit and mobilizing the collected deposit was even more difficult.

Absence of any bank in Nepal was hampering the economic progress of the country. This was taken into consideration by Nepal Bank Limited with key focus on overcoming such economic hamper and difficulties of general public. This was initiated by providing banking services to people removing their inconvenience. This objective got better and bigger with the time. Nepal Bank Limited has so far adopted according to the technological changes, national economic welfare, customer preferences in services, market competition and global financial scenarios to become a leading, glorious and highly reputed bank of Nepal (Nepal Bank Limited, n.d.).

(ii) Rastriya Banijya Bank Limted

Rastriya Banijya Bank Limited (RBBL) has a history of serving its customers far and wide across the nation for more than half a century. The bank then fully owned by

Government of Nepal, was established on 10 Magh 2022 (23 January 1966) under the special statute "Rastriya Banijya Bank Act, 2021" and had operated under "Commercial Bank Act,2031" until it was re-registered as public limited company on 6 Baishak 2063 (19 May 2006). At present, the Bank operates as "A" class financial institution licensed by Nepal Rastra Bank and carries out commercial banking activities as per the provisions of the "Bank and Financial institutions Act 2073," (2017).

RBBL endured many stressful years of business and faced existential questions at some point of time in the past. But learning the lessons from the events and craving towards the brighter future, the Bank successfully implemented a restructuring plan; and now it stands as one of the most preferred bank with the highest number of customers all 77 districts and 7 provinces of the country. The Bank has been able to imprint its presence in national economy through efficient allocation of resources in all sectors of economy thereby enhancing production and generating employment opportunities within the country (Rastriya Banijya Bank Limited, n.d.).

(iii) Agricultural Development Bank Limited

The Agricultural Development Bank of Nepal was established in 1968 under the ADBN Act 1967 as the successor of the cooperative Bank, with the primary goal of providing institutional finance for enhancing the country's agricultural production and productivity. The Land Reform Savings Corporation merged with ADBN in 1973. Subsequent changes to the Act empowered the bank to lend credit to small farmers under group liability and extend the scope of financing for promoting cottage industries. The reforms also allowed the bank to engage in commercial banking activities to mobilize domestic resources. Since its establishment, the bank has served as a leading rural lending institution, significantly contributing to the country's agricultural credit supply. Formerly, ADBN's primary operational area was rural finance. However, the bank has been involved in commercial banking operations since 1984, offering commercial banking services.

The Banks and Financial Institutions Act (BAFIA) incorporated all banks and financial institutions (BFIs) and abolished all BFI-related acts, including the ADBN Act of 1967. Since then, the bank continues to function as a public limited company

formed under the Companies Act, 2006, and has been regulated as a "A class financial institution" by Nepal Rastra Bank since 2006 (Agricultural Development Bank, n.d.).

1.2 Problem Statement

The banking sector occupies a very important place in the country's economy, acting as an intermediary to all industries, ranging from agriculture, construction, textile, manufacturing, and so on. The banking sector thus contributes directly to national income and its overall growth. As the banking sector has a major impact on the economy as a whole, evaluation, analysis, and monitoring of its performance is very important (Gawde, Panda, & Ingale, 2018).

Commercial bank report their financial information in two basic documents; balance sheet and income statement. Balance sheet is known as the report of the financial position. Income statement is commonly known as profit and loss account. The profitability position of a firm is generally known through financial statements. However overall financial performance may not be depicted by its financial reports. For this purpose, several financial and statistical tool are developed by experts.

CAMEL analysis is one of the most popular, being developed in the early 1970s by federal regulators in the United States. According to this model, all banks are subject to on-site examinations based on five dimensions: capital adequacy, asset quality, management efficiency, earnings quality, and liquidity.

The purpose of this research is to evaluate the financial situation and overall performance of the commercial banks studied. For this, following problem statement is going to be consider by this study.

1. What is the difference between financial performances of sampled commercial bank on the basis of CAMEL?
2. What is the relationship between the component of CAMEL and ROA and ROE of sampled commercial banks?
3. What is the impact of CAMEL on financial performances of sampled commercial bank?

1.3 Objectives of the Study

The general objective of this study is to examine and analyze financial performance of sampled commercial banks by using CAMEL model. This study aims to achieve following specific objectives:

1. To compare the financial performance of sampled commercial bank on the basis of CAMEL.
2. To examine and evaluate the relationship between component of CAMEL and ROA and ROE of each sample bank.
3. To measure the impact of CAMEL on financial performance of each sample bank.

1.4 Rational of the Study

Commercial bank; one of the prominent part of financial and banking system, is the foundation of country's economic development. The purpose of this study will be to evaluate the overall financial performance of a sample of commercial banks using the CAMEL model.

Research is conducted to create certain value to current knowledge. As a result, this study will contribute to addressing a research gap in the area of comparative financial performance analysis of government owned commercial banks. This study will provide guideline for improving its performance to achieve the banks overall objectives. Similarly, this study helps banks to identify its hidden weakness regarding financial administration.

Following are the rational of the study:

1. This study will be helpful to the stockholders to know the actual financial performance of their respective banks.
2. This study is useful to management of respective banks for self-assessment of their past performance and guides them in their future plan and program.
3. This study aims to analyze the overall financial performance of selected commercial banks using the CAMEL model.
4. This study is also helpful to the fellow researcher to get brief and in-depth knowledge and get valuable finding of research for review purpose.

1.5 Limitations of the Study

Like any research endeavor, this study also operates within specific constraints. It focuses on a case study involving three commercial banks, acknowledging that these findings may not universally reflect all commercial banking contexts. The study's scope is limited by the following factors:

1. Though a commercial bank has various aspect or sector to analyze but this study concentrates only on the CAMEL i.e. (Capital adequacy, Assets quality, Management efficiency, Earning quality, Liquidity), other aspect or sector of the banks aren't covered in this research.
2. This study include the data only from ten years (2068/69 to 2077/78 B.S.) i.e. ten fiscal years.
3. The study relied solely on secondary data. The research's accuracy is based on data from the bank's financial statements.
4. This study is focused with three government owned banks that do not reflect the whole banking sector, and the study's findings are constraints to these three particular banks. As a result, the findings may not be relevant to the whole banking sector.
5. This study concentrate on the financial performance analysis based on CAMEL framework. Due to lack of detailed financial data, CAMEL component 'S' is missing from the study.
6. Limited time frame to complete this research study is major constraints.

CHAPTER II
LITERATURE REVIEW

2.1 Introduction

Going through previous studies and books with the purpose of knowing the research issue in detail and find out appropriate methodology is known as literature review. It is a written overview of major writings and other sources on a selected topic. Sources covered in the review may include scholarly journal articles, books, government reports, Web sites, etc. The literature review provides a description, summary and evaluation of each source. A literature review's objective is to present what information and ideas have been developed on a specific subject in past times, as well as their strengths and limitations. It allowed us to remain up-to-date on the matters related to research issue and familiarizes us with any contrasting perspectives on the topic. The main reason for a full review of research in the past is to know the outcomes of those investigations in areas where similar concepts and methodologies had been used successfully. This section has been divided into two parts.

- Theoretical Review
- Empirical Review

2.2 Theoretical Review

Under conceptual review of literature, the detail information and introduction about research topic is elaborated and highlighted:

2.2.1 Banking: An Introduction

A bank is a financial entity that accepts deposits from the public and issues credit. It is the financial intermediaries that channelized capital from surplus sector to deficit sector. It collect the money from surplus sector as deposits and provide it to deficit sector as lending (credit) and investment. Lending activities can be performed either directly or indirectly through capital markets. Due to their importance in the financial system and influence on national economies, banks are highly regulated in most countries.

In the word of Oxford Advance Learner's Dictionary, "Bank is an organization that provides various financial services."

Section 2 of BAFIA and NRB Act has defined a bank and financial institutions as follow: "Bank means a corporate body incorporated to carry on Banking and financial transactions

as referred to in Sub Section (1) of Section 49 and the word also includes a branch office or other office of a foreign bank located in Nepal, a branch office or other office opened outside Nepal by a bank incorporated in Nepal and an infrastructure development bank to carry out functions referred to in sub section (5) of section 49.

The history of banking in Nepal can be defined as a component of gradually and ongoing evaluation in the financial and economic aspects of Nepalese life. The foundation of "Tejarath Adda" during Prime Minister Ranoddip Singh's tenure in 1933 B.S. was the first step toward institutionalizing banking in Nepal. "Tejarath Adda" offered credit loans to the general public at 5% interest on securities such as gold, silver, and other embellishments. Its goal was to grant credit or loans to the people in general, but it did not accept deposits from them. The practice of modern banking in Nepal was introduced when Nepal Bank Limited, the first commercial bank, was established on the 30th of Kartik, 1994 B.S. The banking sector in Nepal emerged in 1994, with the formation of Nepal Bank Limited B.S. The Nepal Rastra Bank was formed as the central bank on 14 Baisakh, 2013 B.S., according to Nepal Rastra Bank Act of 2012. Its function is to monitor commercial banks and lead the nation's basic monetary policy. The Industrial Development Centre was formed in 2013 B.S., and it was later renamed Nepal Industrial Development Corporation (NIDC) in 2016. As monetary transactions become more difficult, Rastriya Banijya Bank was founded as a 100% government-owned commercial bank in 2022. Similarly, the Agriculture Development Bank was founded in 2024 B.S. Following the restoration of democracy, the Commercial Bank Act of 2031 was introduced as part of the government's liberal banking policy. This policy allowed various private banks, often in partnership with foreign entities, to be established. This trend has continued, with many banks owned by Nepalese now operating successfully (Pandey, 2008).

2.2.2 Concept of Commercial Banks

Commercial banks are the major depository institution in the financial system. It is a financial institution whose purpose is to accept deposits from people and provide loans and other facilities. Commercial banks provide basic services of banking to their customers and small to medium-sized businesses.

A commercial bank is financial institution that provides services like loans, certificates of deposits, saving bank accounts bank overdrafts, etc. to its customers. These institutions

make money by lending loans to individuals and earning interest on loans. Various types of loans given by a commercial bank are business loans, cars loans, house loans, personal loans and education loans.

They give out these loans from the money deposited by their customers in different types of accounts. They use the deposits as capital for providing loans. Commercial banks are essential for the economy of a country because they help in creating capital, credit as well as liquidity in the market. These banks are generally physically located in cities but these days there are online banks are growing in numbers.

According to Black's Law Dictionary, a "Commercial Bank" is defined as a financial institution authorized to accept both demand and time deposits, engage in trust services, issue letters of credit, rent time-deposit boxes, and provide other similar services.

In Nepal, until mid-Jan 2024, there are 20 commercial banks are in operation. Commercial bank are supervised by Nepal Rastra Bank, central bank of Nepal. Commercial banks are operated under the provision of Bank and Financial Institutional Act, 2073.

2.2.3 Financial Statement and Financial Reporting System

Commercial banks report their financial information in two basic documents: balance sheet and income statement. Balance sheet is known as the report of the financial position. Income statement is commonly known as profit and loss account. In addition to these financial statement, bank prepare cash flow statement also.

In Nepal, commercial banks have to prepare the financial statement according to the uniform bank reporting system (UBRS). Nepal Rastra Bank has prepared the format for financial reporting system for commercial banks and prepared format for financial reporting is considered as statutory form for financial reporting. All commercial banks prepare their financial reports in prescribed format and submit them to Nepal Rastra Bank quarterly (Mid-October, Mid-January, Mid-April and Mid-July). So, the structures of financial statements of all commercial banks are uniform. Bank should prepare the financial statements following Nepal Financial Reporting Standards (NFRS).

The balance sheet presents the information on bank’s assets, liabilities and equity capital for point in time. It reports the bank condition at single point in time. In Nepal, commercial banks have to prepare the balance sheet in each quarter and publish for public notice in

national daily. But audited final balance sheet is prepared as on Mid-July of each calendar year.

Profit and loss account of banks is prepared over a period of time. Like balance sheet, commercial banks prepare their profit and loss account quarterly and publish its abridged version in national daily for public notice. It contains the major categories of revenues and expenses, and net profit and loss for bank over a period of time (Paudel, Baral, Gautam, & Rana, 2019).

2.2.4 Financial Analysis

Financial analysis is the process of analyzing various items of financial statements of corporation to examine its comparative strengths and weaknesses. In other words, financial analysis involves analyzing financial statements of a firm to ascertain information about the magnitude, timing and riskiness of future cash flow.

Corporations have variety of stakeholders. These stakeholders are interested to monitor the firm and to ensure that their interests are being served. They rely on the company's financial statement for necessary information. Financial analysis undertaken varies according to specific interest of the concerned parties. Financial analysis is essential to understand what the corporation's financial statement is conveying about its financial performance. Financial statement analysis involves two type of comparison: one is to compare a firm's performance with that of other firms in the same industry; and the other is to evaluate trends in firm's financial position over a time (Paudel, Baral, Joshi, Gautam, & Rana, 2018).

2.2.5 CAMEL Rating System

Commercial banking industry has dominant position in finance industry. So, monitoring authority should monitor regularly to maintain the confidence of private sector in financial system of the country and protect the interest of depositors, lenders, shareholders and other stakeholders. The gravity of the importance of sound financial sector has increased tremendously after the Asian financial crisis that started in 1997 from Thailand and contaminated the economy of most of the East Asian countries such as Japan, Indonesia, Korea, Malaysia and of many other countries and financial crisis of 2008 that started from the U.S.A. A healthy financial sector is essential for building private sector confidence in

a liberalized financial system. Therefore, the constant off-site and on-site supervision of banks are essential to keep up healthy financial sector.

The financial condition of an individual financial institution (FI) depends on various traits, including the quality of its assets quality, liquidity position, capital base, managerial quality, market sensitivity, and earnings. These factors influence different types of risks, such as credit risk, interest rate risk, liquidity risk, market risk, off-balance sheet risk, foreign exchange risk, sovereign risk, technology risk, operational risk, and insolvency risk. If not managed sustainably, these risks can adversely affect the financial health of an FI. The degree of these risks is influenced by several elements, such as asset quality, financial market conditions, foreign exchange market stability, and assets composition, the financial health of clients, profitability, and capital adequacy. So, monitoring authority regularly regulates these indicators of financial health of banks by off-site and on-site supervision. CAMELS is commonly used supervision tool of monitoring authority.

The Basle Committee on Banking Supervision of Bank of International Settlement (BIS) has recommended using capital adequacy, asset quality, management quality, earning and liquidity (CAMEL) as criteria for assessing financial institutions in 1988. The sixth component, market risk (S) was added to CAMEL in 1997. The CAMELS framework is a prevalent method for evaluating the financial health of institutions. Originating from U.S. regulatory authorities, it is employed by the Federal Reserve Bank, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation. Many countries' monetary authorities use this system to supervise their financial institutions. The International Monetary Fund (IMF) also utilizes aggregated CAMELS indicators to assess the financial stability of its member countries as part of its surveillance efforts. In Nepal, the Nepal Rastra Bank (NRB) adopts the CAMELS framework to oversee financial institutions.

2.2.6 Components and Indicators of CAMEL Analysis

In CAMEL framework, C stands for capital adequacy, A for asset quality, M for management efficiency, E for earnings quality, and L for liquidity.

1. Capital Adequacy

The first component, capital adequacy ultimately determines how well FIs can manage with shocks to their balance sheets. Thus, it tracks capital adequacy ratio that take into

account the most important financial risks-foreign exchange, credit, and interest rate risk by assigning weightings to institution's assets. For the purpose of capital adequacy measurement, bank capital is divided into Tier I and Tier II capital. Tier I capital is primary capital and Tier II capital is supplementary capital. In Nepalese context, Tier I capital includes paid up capital, share premium, non-redeemable preference share, general reserve fund, accumulated profit, capital redemption reserve, capital adjustment fund, and other free reserve. And goodwill, fictitious assets, investment in financial instruments issued by organized organization in excess to the limit specified by NRB, and investment in financial instruments issued by organizations having own financial interest is deducted from the sum of all elements of primary capital to arrive at the core capital. Similarly, Tier II capital comprises of general loan loss provision, assets revaluation reserve, hybrid capital instruments, subordinate term loan, exchange equalization reserve, excess loan loss provision, and investment adjustment reserve. Thus, total capital of commercial banks is the sum of core capital and supplementary capital.

Leverage ratio can be used to measure the capital adequacy of a bank. This is the ratio of bank's book value of core capital to book value of its assets. The higher ratio shows higher level of capital adequacy. The U.S.A. Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991 has fixed the five target zones: (i) 5 percent and above (ii) 4 percent and above (iii) under 4 percent (iv) under 3 percent (v) 2 percent and less, of leverage ratio. The, leverage ratio falling in the first zone implies that bank is well capitalized. Similarly, the leverage falling in second zone implies that bank is adequately capitalized. The leverage falling in last three zones indicates that bank is inadequately capitalized and regulators should take prompt corrective action to bring the capital to desirable level.

According to Basel III, equity should be minimum 4.5 percent of total risk weighted exposure of banks and bank should maintain 2.5 percent capital conservation buffer. Core capital must be equal to or exceed 6 percent of total risk weighted exposure of commercial banks. Similarly, the amount of supplementary capital should not exceed the amount of the core capital. According to NRB capital adequacy framework, 2015 the mandatory levels of core capital and total capital are 6 percent and 8.5 percent of total risk weighted exposure respectively. So, including the capital conservation buffer, bank should maintain minimum capital of 11 percent of total risk weighted exposures.

2. Assets Quality

Credit risk is a crucial factor affecting the health of financial institutions (FIs). The degree of credit risk is determined by the quality of the assets held by an FI. This asset quality is influenced by exposure to specific risks, trends in non-performing loans, and the financial health and profitability of borrowers, especially in the corporate sector. Various indicators can be used to assess asset quality. The Asian Development Bank (ADB) recommends measures such as loan concentration by industry, region, and borrower, portfolio quality, related party policies, exposure on outstanding loans, the loan approval process, checks and balances on loans, the loan loss provision ratio, portfolios in arrears, the loan loss ratio, and the reserve ratio.

The Nepal Rastra Bank (NRB) evaluates the quality of assets in commercial banks using indicators such as the composition of assets, the ratio of non-performing loans to total loans, and the ratio of net non-performing loans to total loans. Additionally, the NRB has provided directives to commercial banks concerning loan concentration. NRB has directed FIs to classify the loan and non-performing loans. Pass loans and loans on watch list are classified as performing loans. Not due and one month past due loans, loans on the collateral of fixed deposits, government bonds, NRB bonds, and loan on the sufficient collateral of gold up to Rs. 1 million provided to one customer fall under the category of pass loans. Similarly, loans past due from 1 month to 3 months, expected working capital loans without renewal, loans provided to the customers listed as nonperformer borrowers by other financial institutions, loans provided to the firms sustaining loss and having negative net worth since last three years, and loans of more than 1 billion provided by multiple banks but not converted into consortium loan fall in the watch list loans. Further, bank can put the loans on watch list if it finds weak cash flows of borrowers and poor project implementation during the inspection on watch list.

Further, non-performing loans are classified into three groups: substandard, doubtful, and bad debt/loss. Loans past due from 3 months to 6 months fall on substandard category and past due from 6 months to 1 year on doubtful debt, and loans past due more than one year on bad debt/loss category. Commercial banks have to make 1 percent provision for pass loan, 5 percent for loans on watch list, 25 percent for substandard loan, 50 percent for doubtful loan and 100 percent for bad loan.

3. Management Efficiency

Sound management is a key to bank performance but it is difficult to measure. It is primarily a qualitative factor applicable to individual institutions. Several indicators, however, can jointly serve as an indicator of management soundness. Expenses ratio, earning per employee, cost per loan, average loan size and cost per unit of money lent can be used as a proxy of the management quality. ADB recommends cost per unit of money lent as proxy of management quality. But this cannot be used as an indicator of management quality in Nepal. Since the data on amount of total loan mobilized during a particular FY is not available in published financial statements and annual reports.

4. Earning Quality

The earning capacity or profitability of a financial institution (FI) is essential for its overall health. A FI that is consistently unprofitable may face insolvency, while excessively high profitability might suggest risky behavior. Various indicators are employed to assess profitability, including return on assets, return on equity, interest-spread ratio, earning-spread ratio, gross margin, operating profit margin, and net profit margin. The Nepal Rastra Bank (NRB) primarily uses return on total assets to gauge a commercial bank's profitability. Additionally, NRB examines profitability through absolute measures such as interest income, net interest income, non-interest income, net non-interest income, non-operating income, net non-operating income, and net profit.

5. Liquidity

Liquidity risk poses a threat to the solvency of financial institutions (FIs). For commercial banks, liquidity risk manifests in two primary ways: first, when depositors demand withdrawals, and second, when commitments recorded off the balance sheet need to be fulfilled. In response to these risks, banks may need to borrow additional funds or sell assets at reduced prices to cover withdrawal demands. If the sale price of these assets is insufficient to meet the liabilities, the bank can face insolvency. The second type of liquidity risk occurs when the bank is unable to meet unexpected loan demands due to a shortage of funds. Commercial bank can raise the funds by running down their cash, borrowing additional funds in the money markets and selling off other assets at distressed price. Both liability side liquidity risk (first type risk) and assets side liquidity risk (second type risk) affect the health of commercial banks adversely. But

maintaining the high liquidity position to minimize such risks also adversely affects the profitability of FIs. Return on highly liquid assets is almost zero. Therefore, FIs should strike the tradeoff between liquidity position and profitability so that they could maintain their health sound.

Commercial bank's liquidity exposure can be measured by analyzing the sources and uses of liquidity. In this approach, total net liquidity is worked out by deducting the total of uses of liquidity from the total of sources of liquidity. Similarly, Bank for International Settlement maturity laddering model can be used to measure the liquidity of a commercial banks. In addition, different liquidity exposure ratios such as borrowed funds to total assets, core deposit to total assets, loans to deposits, and commitments to lend to total assets are used to measure the liquidity position of a commercial bank. NRB uses total loan to total deposit ratio, cash equivalents to total deposit ratio, NRB balance to total deposit ratio to measure the liquidity position of commercial banks in the course of the performance evaluation of commercial banks.

2.2.7 Construction and Interpretation of Composite Index

For the purpose of construction of composite index, each component of CAMEL is rated on five point rating scale. On five point rating scale one end of the scale (one) indicates very strong and another extreme of scale (five) indicates unsatisfactory condition of a bank. Rating points of each component are added and average rating point is calculated by dividing the sum of rating points scored by five. Composite index is the average score of five components of CAMEL.

Composite index 1 indicates that the concerned bank financial health is well above average and sounds every respect. Index 2 implies that the bank is being operated adequately within the safety and soundness standard and such institution is considered stable and able to withstand the business fluctuation quite well. Index 3 indicates that the performance of the bank is below average and need to improve its performance. Index 4 and 5 indicates the serious financial condition of the concerned bank. Bank deserving 4 index implies that it is in serious problems and needs prompt corrective action (PCA). So, regulatory authority issues directive to the management of such bank for PCA to do away the existed problem. Banks with composite index of 5 are on verge of the liquidation (Paudel, Baral, Gautam, & Rana, 2019).

2.3 Empirical Review

2.3.1 Review of Journals & Articles

Mishra and Aspal (2012) used the CAMEL Model to assess the performance of State Bank of India and its affiliated banks. This study use a descriptive analytical research approach. The study includes a sample of six public sector banks: State Bank of India (SBI) and its subsidiaries, State Bank of Bikaner and Jaipur (SBBJ), State Bank of Hyderabad (SBH), State Bank of Mysore (SBM), State Bank of Patiala (SBP), and State Bank of Travancore (SBT). Data from the annual reports of these banks for the period 2009 to 2011 were analyzed using statistical tools such as Mean, F-test, and One-Way ANOVA. The findings revealed that, in terms of capital adequacy, SBBJ and SBP were rated the highest, while SBI was rated the lowest. For asset quality, SBBJ ranked highest and SBI ranked lowest. In management efficiency, SBT achieved the top rank, whereas SBBJ was at the bottom. Regarding earnings, SBM was rated highest and SBP the lowest. Lastly, for liquidity, SBI was rated highest and SBM the lowest.

Jha and Hui (2012) conducted a study comparing the financial performance of Nepalese public banks, joint venture banks, and domestic private banks using the CAMEL framework. Their analysis showed that public sector banks had higher Return on Assets (ROA) compared to joint venture and domestic private banks, largely due to their larger total assets. However, the overall performance of public sector banks was not deemed robust, as other financial ratios such as Return on Equity (ROE), Capital Adequacy Ratio (CAR), and Credit Deposit Ratio (CDR) were superior in joint venture and domestic private banks. Factors like high overhead costs, political interference, poor management, and low-quality collateral contributed to the ongoing deterioration of public sector banks' financial health. The study also indicated that while the financial ratios of joint venture and domestic private banks showed some strength, they were still not sufficiently resilient to handle large-scale shocks to their balance sheets. The study concluded that capital adequacy ratio, interest expenses relative to total loans, and CDR had little impact on ROA. Additionally, while CAR positively influenced ROE, Non-Performing Loans (NPL), CDR, and interest rates did not significantly affect ROE.

Kumar, Harsha, Anand and Dhurva (2012) conducted the study with the objective to analyze the performance of 12 public and private sector banks over a period of eleven years (2000-2011) in the Indian banking sector. For this, CAMEL approach has been used and it

is established that private sector banks are at the top of the list, with their performances in terms of soundness being the best. Public sector banks like Union Bank and SBI have taken a backseat and display low economic soundness in comparison.

Kattel (2014) studies the financial solvency of Nepal's 6 joint venture banks and 22 private sector banks from 2007 to 2012 using the bankometer model. The bankometer shows that all of the sample banks are financially sound, with none having a solvency score of less than 70%. Mega Bank Limited, Janata Bank Limited, Century Bank Limited, and Commerz and Trust Bank Limited are among the best-performing financial institutions. These banks are among the newest in Nepal's banking system. Based on specific characteristics, only 11 commercial banks have a loan-to-asset ratio less than 65%, as required by IMF standards. The rest of the banks have a loan asset ratio of more than 65%, with Siddhartha Bank Limited being the worst. The study shows that private sector banks have a stronger solvency position than joint venture banks. The bankometer model aids in the management of internal control systems to ensure operational financial efficiency. The study shows that joint venture banks need to take some corrective activities to enhance their financial ratios in order to compete in the banking business.

Kaur, Kaur and Singh (2015) examined the financial performance of five public sector banks in India over a five-year period from 2009 to 2014. The banks studied were Bank of Baroda, State Bank of India, Punjab National Bank, Bank of India, and Canara Bank. The data was obtained from these banks' annual reports, and different ratios related to CAMEL framework covering capital adequacy, asset quality, managerial efficiency, earning quality, and liquidity, were calculated. Analysis revealed that Bank of Baroda leads in all elements of CAMEL, followed by Punjab National Bank in Capital Adequacy, Management Efficiency, and Earning Capacity, and Bank of India in Asset Quality.

Muhmad and Hashim (2015) highlighted the evaluation of bank performance, including both domestic and foreign banks in Malaysia, using the Capital adequacy, Asset quality, Management competency, Earning quality, and Liquidity (CAMEL) framework for the period 2008 to 2012. Using regression analysis, the results of the study showed that capital adequacy, asset quality, earning quality and liquidity have a significant impact on performance of Malaysian banks.

Ahsan (2016) evaluated the financial performance of three selected Islamic banks out of eight in Bangladesh for the period from 2007 to 2014. Using the CAMEL model to assess performance, the study found that all three banks-Islami Bank Bangladesh Limited (IBBL), EXIM Bank, and Social Islami Bank Limited (SJIBL)-demonstrated strong financial performance across all CAMEL parameters.

Rauf and Lebbe (2016) conducted the research on topic “Towards Increasing the Financial Performance: An Application of CAMEL Model in Banking Sector in the Context of Sri Lanka” with the objective to evaluate comparative ability of financial performance of both private and public banks in Sri Lanka. The study's findings show that private banks surpassed public banks in all CAMEL and financial performance metrics. Public banks, in contrast, lagged behind their private counterparts. According to the findings, capital adequacy, asset quality, and earnings quality were all strongly associated with bank financial performance, whereas managerial efficiency and liquidity were not.

Aspal and Dhawan (2016) conducted a study aimed at analyzing and discussing the theoretical aspects of the ratios used in the CAMELS rating model for evaluating the financial performance of the banking sector. They concluded that the CAMELS model is a valuable tool for assessing the relative financial strength of banks and for recommending improvements to address deficiencies. As a ratio-based model, CAMELS provides a framework for appraising bank performance. Their study represents an effort to explain the various ratios that are instrumental in assessing the financial performance of the banking sector.

Palamalai and Saminathan (2016) conducted a study titled "A CAMEL Model Analysis of Public, Private, and Foreign Sector Banks in India." The research ranked 25 public sector banks, 18 private sector banks, and 8 international banks using the CAMEL model, which evaluates Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity. The findings showed that among public sector banks, Andhra Bank, Bank of Baroda, Allahabad Bank, Punjab National Bank, IDBI Bank, State Bank of Bikaner and Jaipur, and UCO Bank were top-ranked. In the private sector, Tamilnad Mercantile Bank, Kotak Mahindra Bank, HDFC Bank, Axis Bank, Karur Vysya Bank, ICICI Bank, Citi Union Bank, and IndusInd Bank led the rankings. Foreign banks like Bank of Bahrain & Kuwait, HSBC Bank, The Royal Bank of Scotland, Deutsche Bank, CTBS Bank, Citi Bank, DBS Bank, and The Royal Bank of Scotland also ranked highly.

Ab-Rahim, Kadri, Ee-Ling and Dee (2018) carried out a study to assess the performance of public-listed banks in five ASEAN nations. From 1997 to 2011, 63 public listed banks were chosen from the five ASEAN countries, including ten listed banks in Malaysia, three in Singapore, ten in Thailand, 28 in Indonesia, and twelve in the Philippines. The study aimed to evaluate and compare the performance of these banks based on Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity. The analysis found that Singaporean banks performed the best overall. Specifically, Public Bank (Malaysia), United Overseas Bank (Singapore), Bank ArthaGraha (Indonesia), Bank of Ayudhya (Thailand), and Union Bank of the Philippines were identified as the top performers in their respective countries.

Gawde, Panda and Ingale (2018) analyzed the performance of Nepal Bangladesh Bank Ltd. under camel rating system. This study is a descriptive research study based on analytical research design. The data of the sample banks for a period of 2006 - 2011 have been collected from the annual reports published by the banks. The study concludes that the overall financial performance of Nepal Bangladesh Bank, based on CAMEL indicators, is satisfactory. It suggests that CAMEL criteria are a reliable measure of a bank's financial performance. If a bank does not adhere to CAMEL standards comprehensively, it may be considered a failing institution.

Rahman and Islam (2018) seek to analyze and compare the performance of Bangladesh's banking sector using the CAMEL rating framework. One of the most effective supervisory tools, the CAMELS rating system (essentially a quantitative technique), has been used to assess banks based on their performance. To achieve the study's objectives, seventeen private commercial banks were selected as samples. Data for study was gathered from the banks' annual financial statements for the period 2010-2016. The findings of this comparative analysis demonstrate that Eastern Bank has stood at the top position among all the selected banks based on the CAMEL system.

Kobika (2018) evaluated the financial performance of Sri Lanka's public and private sector commercial banks from 2013 to 2017 using the Capital Adequacy, Asset Quality, Management Soundness, Earnings, and Liquidity (CAMEL) rating method. The study included two state commercial banks, Bank of Ceylon and Peoples' Bank, as well as four private commercial banks: Commercial Bank of Ceylon PLC, Hatton National Bank PLC, Sampath Bank, and Seylan Bank. This analysis indicated that private sector banks

outperformed state banks in terms of capital adequacy, profits, and liquidity. Private banks perform better in terms of asset quality and management soundness than public banks in Sri Lanka. Private Banks in Sri Lanka outperform state banks in terms of financial performance. Furthermore, Hatton National Bank performs strongly, Commercial Bank performs satisfactorily, BOC performs fairly, and People's Bank.

Abusharbeh (2020) uses the CAMEL rating system to evaluate the financial stability of commercial banks listed on the Palestine Exchange. The study employed content analysis, composite rating, and a one-sample t-test, focusing on six Palestinian banks. Secondary data from the banks' financial statements for the period 2007 to 2017 were analyzed. The results indicated that Palestinian banks generally comply with Basel Committee norms for capital adequacy, and their operational efficiency is "fairly managed." Additionally, the study found significant variations in performance among the Palestinian banks according to the CAMEL rating system.

Gautam (2020) analyzed the financial performance of Nepalese financial institutions from 2014/15 to 2018/19 using the CAMEL framework. The study found that commercial banks, development banks, and financing institutions all met the Nepal Rastra Bank (NRB) standards for capital adequacy, with finance companies having a stronger capital base than development banks and commercial banks. The non-performing loan (NPL) ratio showed that development banks had better asset quality compared to commercial banks and finance companies, with all banks maintaining NPL ratios below the 5% to 10% standard range. Management efficiency, as indicated by the credit to core capital and deposit ratio (CCD), was higher in commercial banks compared to other financial institutions, with all adhering to NRB guidelines. Finance companies excelled in earnings performance, with the highest Return on Assets (ROA) and Return on Equity (ROE), despite a declining ROE due to NRB’s mandate to increase paid-up capital. The liquidity ratio revealed that finance companies maintained the highest liquidity, followed by development banks and commercial banks, demonstrating finance companies' strong capacity to handle loan requests.

Hamal and Adhikari (2020) evaluated the performance of selected public and joint venture commercial banks in Nepal using the CAMEL rating system, providing rankings for each parameter individually. The study covered financial performance over a five-year period from 2015 to 2019. Findings indicated that HBL excelled in capital adequacy, EBL in loan

performance and earnings efficiency, SCB in managerial efficiency, and ADBL in liquidity. The independent sample t-test revealed no significant differences in capital adequacy, earnings performance, and liquidity between public and joint-venture banks, but did show significant differences in other aspects.

Nguyen, Nguyen and Pham (2020) conducted a study to assess the impact of CAMEL components on the financial performance of 31 commercial banks in Vietnam over a six-year period, from 2013 to 2018. The study found that capital adequacy, asset quality, liquidity, and management efficiency significantly influence the performance of Vietnamese commercial banks. In their analysis, CAMEL parameters-capital adequacy, asset quality, management efficiency, and liquidity-were treated as independent variables, while financial performance indicators such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) were considered dependent variables.

Singhal and Gupta (2020) used the camel rating model to evaluate and analyze the financial performance of public sector banks. A sample of 21 Indian public banks from 2008-2009 to 2018-2019 was examined for measuring performance. The research is based on secondary data obtained from the sample banks' annual financial statements. According to the findings of the analysis, Indian public sector banks are making an effort to retain appropriate capital, and in the coming years, all banks should try to achieve more than the required level. Public sector banks must come up with creative ways to assist them deploy funds after conducting an in-depth risk assessment.

Birhanie (2020) conducted a study titled "A Comparative Financial Performance Analysis of Selected Private Commercial Banks in Ethiopia: A CAMEL Approach." The study aimed to evaluate the financial performance of selected private banks in Ethiopia using the CAMEL components: capital adequacy, asset quality, management efficiency, earnings capacity, and liquidity. Data from audited financial statements for 2017 to 2019 were analyzed using ratio analysis. The findings revealed that Addis International Bank was the most capital-adequate and safe for creditors. Abay Bank, Dashen Bank, and Abyssinia Bank followed as relatively safe and capital-adequate. For asset quality, Awash International Bank excelled in credit management, with Bank of Abyssinia and Addis International Bank also performing well. In terms of management efficiency, Addis International Bank was the most effective in generating income from its assets. Awash

International Bank led in earning quality, while Abay Bank excelled in liquidity compared to the other banks.

Vijayalakshmi and Janani (2021) conducted the research study on the topic "A Comparative Analysis of Financial Performance on Banking sectors – A Camel Analysis", to assess the profitability and liquidity position of the two banks (Bank of Baroda and HDFC bank). For this purpose, secondary data has been considered which has been collected from the financial reports of the banks ranging from 2015 to 2020. From this study, it was found that both the banks are in a stable and safe position. On comparing, HDFC bank has better asset quality and capital adequacy than BOB. But the management of employees and control is better in BOB than HDFC bank. From the present study, HDFC bank is a better performer than BOB in terms of capital adequacy, earning profitability compared to BOB.

Magoma, Mbwambo, Sallwa and Mwasha (2022) used an explanatory research design to explore the relationship between bank performance and explanatory variables such as capital adequacy, asset quality, management efficiency, earning quality, and liquidity. The study analyzed the financial performance of seven listed commercial banks on the Dar es Salaam Stock Exchange (DSE) in Tanzania over five years, from 2016 to 2020. The findings indicated that management efficiency and capital adequacy had the most significant impact on the performance of these banks.

Lad and Ghorpade (2022) assess the performance of 18 public sector banks in India using the CAMEL Rating System. The study is based on financial data from public sector banks spanning five years from 2015 to 2019. This study is primarily based on secondary data, and 20 sub-parameters from the CAMEL rating system were analyzed, each of which correlates with a different component of financial performance analysis. According to the research, Bank of Maharashtra performed the best among the selected institutions, ranking first with a composite average of 14.85, while IDFC First Bank Ltd ranked lowest with a composite average of 20.60.

Kulshrestha and Srivastava (2022) applied the CAMEL method to measure and compare the financial performance of private and public sector banks over an eight-year period, from 2011 to 2018. This analysis takes into account the following ratios: Capital Adequacy (CA), Asset Quality (AQ), Management Soundness (MS), Earnings and Liquidity (LR). The Annova test is used to determine statistical significance and differences between groups in

this study, which established a ranking method based on averages of multiple ratios. The findings suggest that private sector banks outperform public sector banks. Overall, the results show that the performance of private sector banks has improved as a result of the application modern technology, improvements in technology, and recovery procedures.

Table 1

Meta Table:

S.N.	Date	Articles	Writers	Objectives	Methodology	Findings
1.	2022	An Analysis of Financial Performance of Public Sector Banks In India Using Camel Rating System	Dr. Ramdas Lad Dr. Nitin Ghorpade	To analyze the financial performance and ranking of the selected Public Sector banks in India using CAMEL Rating System.	This research primarily relies on secondary data and examines 20 sub-parameters within the CAMEL rating system, each linked to various aspects of financial performance analysis.	According to the findings, Bank of Maharashtra did the best overall among the selected banks, with IDFC First Bank Ltd coming in last.
2.	2022	Financial Performance Of Listed Commercial Banks In Tanzania: A Camel Model Approach.	Magoma, A. Mbwambo, H. Sallwa, A. Mwasha, N.	To analyze the financial performance of seven listed commercial banks on the Dar es Salaam Stock Exchange (DSE) over a a five-year period from 2016 to 2020.	The explanatory research method was implemented to establish the cause and effect relationship that exists between the response variable (banks performance) and the explanatory variables (capital adequacy, asset quality, management efficiency, earning quality, and liquidity) of commercial banks.	According to the findings, management efficiency and capital adequacy are the most important factors influencing commercial banks listed on Tanzania's DSE.

3.	2022	Use Of Camel Rating Framework: A Comparative Performance Analysis Of Selected Commercial Banks In India	Preeti Kulshrestha Anubha Srivastava	To examine and compare the financial health of the private and public banking sectors by utilizing the CAMEL rating approach.	A descriptive and exploratory study design was used to investigate the association between the performance of selected fourteen banks and CAMEL components using quantitative data obtained from audited annual reports over an eight-year period.	The statistics indicate that private-sector banks surpass public sector banks. Overall, the findings indicate that the performance of private sector banks has improved as a result of the use of current technology, technological upgrades, and recovery techniques.
4.	2021	A Comparative Analysis of Financial Performance on Banking sectors – A Camel Analysis	Dr. S. Vijayalakshmi, Janani J.P.	To assess the profitability and liquidity position of the two banks (Bank of Baroda and HDFC bank).	Researcher used descriptive research to conduct comparative study. Secondary data has been considered for the study, for the period of 5 years (1/4/2015 -31/3/2020). Researcher aims to analyses the financial performance of the banks in comparison with one another using CAMEL framework.	From this study, it was found that both the banks are in a stable and safe position. On comparing, HDFC bank has better asset quality and capital adequacy than BOB. But the management of employees and control is better in BOB than HDFC bank. From the present study, HDFC bank is a better performer than BOB in terms of capital adequacy, earning profitability compared to BOB.
5.	2020	Applying The CAMEL Model To Assess Performance Of Commercial Banks: Empirical Evidence From Vietnam	Anh Huu Nguyen Hang Thu Nguyen Huong Thanh Pham	The purpose of this study is to look at how CAMEL components affect the financial performance of Vietnam's commercial banks.	Collecting secondary information and data from financial statements of banks, reports of the State Bank, reports of the World Bank, and reports of the banking supervision system for a six-year period from 2013 to 2018.	According to the findings of this study, capital adequacy, asset quality, liquidity, and managerial efficiency all have an impact on the performance of Vietnamese commercial banks.

6.	2020	A Comparative Financial Performance Analysis of Some Selected Private Commercial Banks of Ethiopia: A CAMEL Approach	Dereje Birhanie	To evaluate the financial soundness of Ethiopia's private commercial banks.	The study employed a quantitative research approach by calculating ratios related to performance measures. Necessary secondary data were collected from the annual reports of five selected private commercial banks and analyzed using the CAMEL ratio analysis. Ratios were computed for each element of the model, and comparisons were made to determine which bank performed better during the investigated period.	In terms of capital adequacy, Addis International Bank is considered adequately capitalized and safe for creditors and depositors when it comes to repaying received loans. Regarding asset quality, Awash International Bank is relatively better at managing credit, followed by Bank of Abyssinia and Addis International Bank. When evaluating management efficiency, Addis International Bank is comparatively more efficient in utilizing its assets to generate income than the other banks studied. In terms of earning quality, Awash International Bank stands out as the leader among the banks. Finally, the study concludes that Abay Bank outperforms the other banks in terms of liquidity, based on the analysis of the CAMEL components.
7.	2020	The financial soundness of the Palestinian banking sector: an empirical analysis	Mohammed T. Abusharbeh	to evaluate the financial soundness of commercial banks listed on the Palestine Exchange using the CAMEL rating system.	Used secondary data from the period 2007–2017. Six local banks were included in the analysis. The researcher uses specific financial ratios to define the respective parameters of the CAMEL rating system.	Palestinian banks have been found to meet Basel Committee capital adequacy norms and to be stable in terms of profitability and liquidity. The findings show considerable disparities in performance among

		using the CAMEL system				Palestinian banks, as assessed using the CAMEL rating method.
8.	2020	Financial Performance of Nepalese Public Sector and Joint Venture Banks Using CAMEL Model	Janga Bahadur Hamal Padam Raj Adhikari	To assess the financial performance of each selected commercial bank by assigning ranks to each parameter, and to examine the mean difference in financial performance between public and joint venture commercial banks.	This study examines all aspects of financial performance measurement over a five-year period from 2015 to 2019. Descriptive statistics, including arithmetic mean, standard deviation, and coefficient of variation, were used to measure the average values, relative values, and variation of the indicated ratios.	Finding reveals that Nepalese joint venture banks have improved asset quality by reducing non-performing loans, as well as management quality by efficiently employing human resources.
9.	2020	Financial Performance Analysis of Nepalese Financial Institutions in the Framework of CAMEL	Kedar Raj Gautam	To investigate the financial performance and factors influencing financial performance of Nepalese financial institution within the context of CAMEL.	This study used a descriptive and causal research design, drawing on secondary data from Nepal Rastra Bank publications, including banking and financial data, financial stability reports, and bank supervision reports.	Finance companies excel in terms of capital adequacy and earnings, while development banks lead in asset quality, and commercial banks perform best in management efficiency. Compared to other types of financial institutions, finance companies maintain higher liquidity. Capital adequacy and asset quality are crucial factors for maximizing the return on assets (ROA) and return on equity (ROE) for financial institutions.
10.	2018	Use of CAMEL Rating Framework: A Comparative Performance Evaluation of	Md. Zahidur Rahman, Md. Shohidul Islam	To evaluate and compare the performance of the banking sector in Bangladesh.	The CAMEL Rating System is used to assess the soundness of financial institutions on a regular basis. To achieve the study's objectives, seventeen private commercial	According to the results of this comparative analysis, Eastern Bank ranks first among all of the selected institutions using the CAMEL rating system.

		Selected Bangladeshi Private Commercial Banks			banks were selected as samples. Data for study was gathered from the banks' annual reports covering the years 2010-2016.	
11.	2018	Study Of Camel Rating System In Banking Supervision- A Case Study Of Nepal Bangladesh Bank Ltd	Dr. S.U. Gawde, Prof. Alekha Chandra Panda, Prof. Devyani Ingale	To examine Nepal Bangladesh Bank Ltd.'s financial performance and analyze it using the CAMEL rating.	This study is a descriptive research study based on analytical research design. The data of the sample banks for a period of 2006 - 2011 have been collected from the annual reports published by the banks.	Result reveals the overall financial performance of Nepal Bangladesh Bank, as assessed by the CAMEL index, is satisfactory. CAMEL guidelines provide an accurate measure of a bank's financial performance. If a bank does not meet the CAMEL criteria both in principle and in practice, it may be regarded as a failed bank.
12.	2018	A Comparative study of financial performance of banking sector in Sri Lanka – An application of CAMEL rating system	R. Kobika	To contrast the financial performance of public and private sector banks of Sri Lanka	For this study, two state commercial banks and four private commercial banks were chosen. Data were gathered from secondary sources, primarily from the annual reports of the selected banks. The researcher analyzed the banks' data using ratio analysis, tailored to the requirements of the CAMEL rating system.	The findings of this study indicate that private sector banks outperform state banks in capital adequacy, earnings, and liquidity. In Sri Lanka, private banks also exceed public banks in asset quality and management soundness. Overall, private banks in Sri Lanka demonstrate superior financial performance compared to state banks.
13.	2018	CAMEL Analysis on Performance of ASEAN Public Listed Banks	Rossazana Ab-Rahim Norlina Kadri Amy-Chin Ee-Ling	To assess the performance of publicly listed banks and compare their performance across different countries.	A total of 63 publicly listed banks were selected from five ASEAN countries: 10 from Malaysia, 3 from Singapore, 10 from Thailand, 28 from Indonesia, and 12 from the Philippines. The	The CAMEL analysis results indicate that Singaporean publicly listed banks are the top performers compared to their counterparts. Additionally, the comprehensive

			Abdul Alim Dee		data used in this study were obtained from secondary sources, specifically Thomson Reuters Datastream 5.1.	results highlight that Public Bank in Malaysia, United Overseas Bank in Singapore, Bank ArthaGraha in Indonesia, Bank of Ayudhya in Thailand, and Union Bank of the Philippines are the top-performing banks.
14.	2016	Camels Rating Model For Evaluating Financial Performance of Banking Sector: A Theoretical Perspective	Parvesh Kumar Aspal Sanjeev Dhawan	To examine and explore the theoretical foundations of the ratios employed in the CAMELS rating model for evaluating the financial performance of the banking sector.	This study is primarily qualitative and does not employ statistical techniques for analysis. It is based largely on a literature review and secondary information sourced from various journals, conference proceedings, and reports from professional bodies.	Result reveals that CAMELS model is a crucial tool for assessing the relative financial strength of a banking system and recommending appropriate measures to address any deficiencies. It is a ratio-based model used to evaluate the performance of banks.
15.	2016	Towards Increasing The Financial Performance: An Application of CAMEL Model In Banking Sector In The Context Of Sri Lanka	Abdul Rauf Ahamed Lebbe	The main purpose of this study was to differentiate the financial performance of banks in Sri Lanka.	A sample of banks, including both private and state-owned institutions, was selected for this study. Data were collected over a ten-year period starting in 2005. All elements of the CAMEL model (capital adequacy, asset quality, management quality, earnings quality, and liquidity) were used as independent variables, while return on equity (ROE) and return on assets (ROA) served as indicators of financial performance. Descriptive, correlation, and regression analyses	The findings reveal that private banks outperform public banks across all CAMEL and financial performance measures. It was found that capital adequacy, asset quality, and earnings quality have a strong correlation with bank financial performance, while management efficiency and liquidity do not show a significant correlation with financial performance.

					were employed to test the hypotheses.	
16.	2016	Measuring Financial Performance Based on CAMEL: A Study on Selected Islamic Banks in Bangladesh	Mohammad Kamrul Ahsan	To examine and analyze the financial soundness of sort out Islamic Banks in Bangladesh based on CAMEL Rating Analysis.	This study employed a descriptive, analytical, and empirical research design to achieve its objectives. Data covering an eight-year period, from 2007 to 2014, were obtained from the financial reports of the respective banks.	The analysis reveals that all the selected Islamic banks hold a strong position according to their composite rating system. They are robust in all aspects, including capital adequacy, asset quality, management quality, earnings capacity, and liquidity conditions.
17.	2015	Financial Performance Analysis Of Selected Public Sector Banks: A Camel Model Approach	Jaspreet Kaur Manpreet Kaur Dr. Simranjit Singh	To assess the financial performance of selected public sector banks using the CAMEL model.	Using a descriptive research design, the study employed secondary data obtained from the banks' annual reports.	Bank of Baroda leads in all aspects of the CAMEL model, while Punjab National Bank excels in capital adequacy, management efficiency, and earning capacity. Bank of India is noted for its strong asset quality.
18.	2015	Using The Camel Framework In Assessing Bank Performance In Malaysia	Siti Nurain Muhmad Hafiza Aishah Hashim	To analyze the performance of selected Malaysian banks.	The CAMEL ratios served as the major research instrument in this study. This study's data is entirely secondary, spanning the years 2008 to 2012. Regression analysis was employed to analyze the data.	The study's findings revealed that capital adequacy, asset quality, earnings quality, and liquidity all have a substantial impact on the performance of Malaysian banks.
19.	2014	Evaluating the Financial Solvency of Selected Commercial Banks of Nepal: An Application of Bankometer	Indra Kumar Kattel	To evaluate and analyze the financial soundness of joint venture banks and private sector banks in Nepal using bankometer model	Following IMF (2000) recommendations, Shar et al. (2010), and Makkar and Singh (2012), the researcher employed the Bankometer approach to assess the performance of commercial banks.	All of the sample banks are financially sound, with none having a bankometer solvency score of less than 70%. However, joint venture banks must take corrective efforts to enhance their financial ratios

						in order to compete in the banking business.
20.	2012	A Comparison Of Financial Performance Of Commercial Banks: A Case Study Of Nepal	Suvita Jha Xiaofeng Hui	To analyze and compare the financial performance of commercial banks with various ownership structures in Nepal, focusing on their financial characteristics, and to determine the factors influencing performance through financial ratios derived from the CAMEL Model.	Descriptive financial analysis is employed to describe, measure, compare, and classify the financial conditions of Nepalese commercial banks. Additionally, an econometric multivariate regression model is applied to assess the significance of variables affecting the performance of these banks.	Public sector banks are significantly less efficient than their private sector equivalents; yet, local private banks are equally efficient as foreign-owned (joint venture) banks. Furthermore, the estimation results suggest that the capital adequacy ratio, interest expenses to total loan, and net interest margin all had a significant impact on return on assets, whereas the capital adequacy ratio had a major effect on return on equity.

2.3.2 Review of previous study

Bhandari (2018) assessed the financial performance of commercial banks using the CAMEL framework. The study aimed to analyze bank performance, examine overall CAMEL ratings, and evaluate the relationship between CAMEL components and profitability. Findings showed EBL bank had the highest CAMEL rating, followed by NIBL and SCBL, with NBL bank ranked lowest. The analysis revealed that ROA positively correlated with capital adequacy, management quality, earnings, and liquidity, while asset quality had a negative correlation with ROA. ROE had significant positive correlations with the capital adequacy ratio, debt-to-equity ratio, asset quality, earnings ratio, and liquidity ratio. However, capital adequacy, asset quality, and liquidity did not significantly affect ROA, whereas management quality and earning quality were significant for ROA, and CAR, debt-to-equity ratio, and liquidity ratio significantly impacted ROE. These results will aid bank management in making informed decisions.

Thapa (2018) examined and compared the financial performance of selected Nepalese commercial banks from 2013 to 2017. She found that these banks met the NRB core capital

ratio requirements. NIBL showed strong asset quality with a declining non-performing loan ratio, while RBBL demonstrated good management efficiency with a reduced total expenses to total income ratio. Most of NIBL and RBBL's income came from interest. NIBL had a higher average ROA, indicating greater productivity. Although both banks had satisfactory ROE, NIBL needed improvement. The fluctuating net income to total loan ratio highlighted weak earning potential for both banks. However, their liquidity ratios met NRB standards.

Panday (2021) used the CAMEL model to assess the financial performance of selected commercial banks. He found that the average Capital Adequacy Ratio of all banks significantly exceeded the standard set by Nepal Rastra Bank. The Non-Performing Loan (NPL) ratio fluctuated over the five-year period but remained satisfactory on average. ADBL performed best in deposit mobilization compared to the other banks. Profitability ratios, including ROA, P/E ratio, and EPS, were outstanding on average. The study identified positive relationships between Return on Assets (ROA) and Earnings Per Share (EPS), NPL and EPS, and Cash Reserve Ratio (CRR) and EPS. This indicates that higher NPL, ROA, and CRR are associated with increased earnings, with the beta coefficients for ROA, NPL, and CRR being significant at the 5% level.

Bhattarai (2021) studied the financial performance of finance companies in Nepal using the CAMEL framework, aiming to analyze trends in CAMEL variables and evaluate the financial performance of the sampled institutions. The study found that all five finance companies maintained a Capital Adequacy Ratio (CAR) above the NRB requirements throughout the study period, with an average CAR exceeding the prescribed standards. These companies focused on core capital to meet CAR requirements and implemented effective credit policies to improve asset quality, addressing Non-Performing Assets (NPA). Despite improvements in loan quality, ROE and ROA ratios showed a decline over time. Although CAMEL measures were generally satisfactory, management efficiency indicated issues with cost control affecting income. The study concluded that focusing on CAMEL variables is crucial for improving the performance of banks and financial institutions.

2.4 Research Gap

Several studies have examined the financial performance and evaluation of commercial banks in Nepal, including comparisons among joint venture banks, private sector banks,

and other financial institutions. However, there is still a lack of analysis on certain parameters for public sector banks such as Rastriya Banijya Bank Ltd, Nepal Bank Ltd, and Agriculture Development Bank Ltd. This study aims to fill this gap by examining these specific banks. Previous studies have mainly focused on liquidity, profitability, and leverage of commercial banks. However, very few studies have applied appropriate models and conducted thorough ratio analysis. This dissertation employs both descriptive and explanatory methods to examine existing literature on the relationship between CAMEL ratios and bank performance.The research aims to analyze the actual financial performance of public sector commercial banks in Nepal using the CAMEL framework from the fiscal year 2068/69 to 2077/78 B.S., which spans ten years. This study examined all aspects of the CAMEL framework, including capital adequacy, asset quality, managerial efficiency, earnings quality, and liquidity, as directed by the NRB. These five CAMEL components are adequate to evaluate the soundness of any financial institution. The study examined whether the studied banks followed NRB directives or not.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is a way of explaining how a researcher intends to carry out their research. It's a logical, systematic plan to resolve a research problem. A methodology details a researcher's approach to the research to ensure reliable, valid results that address their aims and objectives. It encompasses what data they're going to collect and where from, as well as how it's being collected and analyzed. This chapter includes the research design, nature and sources of data, data collection models, data analysis tools and theoretical framework. The research methodology used in the present study is briefly mentioned below.

3.1 Research Design

Research design is overall strategy that researchers choose to integrate the different elements of the study in a consistent and logical way, thereby, ensuring effectively address the research problem; it provide guideline for the collection, measurement, and analysis of data. It consists blueprint for conducting research work. It is simply a structural framework of various research methods as well as techniques that are utilized by a researcher. The objective of this study is to analyze the financial performance of a government owned commercial bank using the CAMEL framework from the fiscal year 2068/69 to 2077/78. To achieve this objective, descriptive cum causal research designs has been employed.

Descriptive research design is a scientific method of collecting, classifying, and analyzing data, facts, and figures. It helps in describing the characteristics of variables and involves evaluating facts and information. Whereas, Causal research design, also called explanatory or causal-comparative research design, help to identify the extent and nature of cause-and-effect relationships between two or more variables. The descriptive research design was used in this study to describe the true situation and facts about CAMEL variables of government owned commercial banks. A causal research design was employed to examine the relationship between CAMEL variables-Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity-and the profitability measures (ROA and ROE) of Nepalese government owned commercial banks.

3.2 Population and Sample, and Sampling Design

A population refers to the entire group that we want to draw conclusions about. In this research, the total number of commercial banks is considered as the population. Currently, there are 20 commercial banks in operation in Nepal (until mid-Jan, 2024). Due to time and resource constraints, a sampling method was used instead of studying all the institutions. A sample is a specific group from which we collect data. Out of the 20 commercial banks, only 3 government owned commercial banks (representing 15%) have been selected for the study. The convenience sampling method was used to select the sample banks, which include Nepal Bank Limited, Rastriya Banijya Bank Limited, and Agricultural Development Bank Limited.

3.3 Nature and Sources of Data, and the Instrument of Data Collection

This study primarily relies on secondary data collected from the annual financial reports of banks for the period of 2068/69 to 2077/78. The financial statements and reports were obtained from the official websites of the respective banks. In addition to the annual reports, data and information were also gathered from reports and bulletins published by the NRB (Nepal Rastra Bank) and its website, NRB directives, relevant publications, journal articles, research reports, and previous dissertations. The collected data is quantitative in nature.

3.4 Method of Analysis

In this study, a variety of financial and statistical tools were utilized to obtain meaningful results and achieve the research objective. The data needed for this study were obtained from the official websites of the respective banks, specifically from their annual financial reports. The reliability and validity of the data used in this study is contingent upon the accuracy of the information presented in the banks' annual reports or accounts. Data analysis was conducted using measures such as mean, standard deviation, correlation, and regression. Microsoft Excel and SPSS version 25 software were employed for this purpose. The findings were presented using various charts and tables to effectively communicate the analyzed data.

Following financial and statistical tool are used to analyze the data:

3.4.1 Financial Tools

Different financial ratios are calculated under financial tool analysis. These ratios are categorized following the CAMEL components. The various components of the CAMEL rating model in the form of financial ratios are described as below:

1. Capital Adequacy

Capital adequacy measures a bank's financial strength and overall financial condition, as well as the management's ability to secure additional capital if needed. It reflects the bank's capacity to absorb unexpected losses and its level of leverage. The capital adequacy of a bank is evaluated using the capital adequacy ratio.

Capital Adequacy Ratio (CAR)

The capital adequacy ratio is propounded to ensure that banks can take up a reasonable level of losses arising from operational losses. The Capital Adequacy Ratio (CAR) is a crucial metric for safeguarding banks against insolvency and excessive leverage. It measures a bank's ability to handle market, operational, and financial risks. A higher CAR indicates a stronger bank and provides greater protection for investors. The banks are required to maintain 11% capital adequacy ratio as per latest NRB Capital Adequacy Framework, 2015.

It is the ratio of total capital fund to total risk weighted exposure. It is calculated by using following equation:

$$\text{Capital Adequacy Ratio} = \frac{\text{Total Capital Fund}}{\text{Total Risk} - \text{Weighted Exposure}} \times 100$$

Where,

Total Capital Fund = Core capital + Supplementary Capital

Total Risk-Weighted Exposure (TRWE) = Credit risk-weighted exposure (CRWE) + Operational risk-weighted exposure (ORWE) + Market risk-weighted exposure (MRWE) + Supervisory adjustment under pillar II (SA)

2. Assets Quality

Asset quality is a critical parameter for evaluating the financial strength of any banking or financial institution (BFI). This ratio measures the proportion of non-performing loans

(NPL) relative to the total loans and advances. An increasing ratio indicates deteriorating asset quality, while a decreasing trend suggests improvement. A non-performing loan ratio of 5% to 10% is generally considered satisfactory; however, efforts should be made to minimize this ratio for optimal asset quality (Gautam, 2020).

Asset quality reflects the level of credit risk associated with a bank's structure and the quality of its loans, advances, investments, and off-balance sheet activities. The financial soundness of a bank is closely linked to its asset quality. A strong credit portfolio indicates higher profitability, while a major concern for commercial banks is maintaining a low level of non-performing loans, as high non-performing loans can negatively impact profitability. The ratio of non-performing assets (NPA) to total advances is used to evaluate asset quality.

NPA to Total Advances Ratio

This ratio measures the overall quality of a bank's advances by indicating the financial burden imposed by non-performing assets. It is expressed as the percentage of non-performing assets relative to total loans and advances. A higher ratio signifies a deterioration in the quality of the bank’s loans.

$$\text{NPA toTotal Advances Ratio} = \frac{\text{Non Performing Assets}}{\text{Total Advances}} \times 100$$

3. Management Efficiency

The success and progress of any institution depends on the competency of its management. In fact, the management not only makes suitable policy and the business plan, but also implements them for the short term and the long term interests, which helps achieve aimed objectives of bank and financial institutions. This ratio evaluates the managerial efficiency of banks, reflecting how effectively management is running operational activities. The following ratios were used to assess management efficiency:

Total Advances to Total Deposits Ratio

The Total Advances to Total Deposits (TA/TD) ratio assesses management efficiency by evaluating how effectively a bank converts available deposits, excluding other funds like equity capital, into advances to generate profit (Uniform Financial Institutions Reporting System, 1997; Ab-Rahim et al., 2018). This ratio indicates the proportion of advances relative to the deposits mobilized by the bank. A higher ratio signifies greater reliance on

deposits for lending, while a lower ratio indicates less reliance (Lad & Ghorpade, 2022). A higher ratio is generally preferred as it indicates better efficiency.

$$\text{Total Advances to Total Deposits Ratio} = \frac{\text{Total Advances}}{\text{Total Deposits}} \times 100$$

4. Earning Quality

This ratio measures a bank's ability to generate income from its core operations. It reflects the bank's growth prospects, capacity to absorb losses, and potential for future dividends. High profitability reflects the ability to take risks. The quality of earnings is a very important criterion which depicts the standard of a bank's profitability and its potentiality to maintain quality and earn consistently. It primarily determines the profitability of bank and illustrates its sustainability and growth of future earnings. The following ratio is used to measure the Earnings Quality:

Net Interest Income (NII) to Total Assets Ratio

Net Interest Income (NII) to Total Assets Ratio also known as net interest margin ratio, is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders, relative to the amount of their assets. It is one of the most important parameter of measuring bank's performance. It is calculated as a proportion of total assets. A higher ratio indicates better earnings relative to the bank's total assets.

$$\text{Net Interest Income to Total Assets Ratio or NIM Ratio} = \frac{\text{Net Interest Income}}{\text{Total Assets}} \times 100$$

Where,

Net Interest Income = interest earned by bank - interest expended by bank

5. Liquidity

The final element of CAMEL Analysis is liquidity, which assesses a bank's ability to meet its financial obligations. Liquidity is crucial for a bank's operations, as facing liquidity risk can impact both profitability and reputation. To meet customer demands, banks must maintain sufficient liquidity, as a liquidity crisis can adversely affect their financial performance. Banks inability to manage their short-term liquidity liabilities and loan commitments can undesirably affect banks' performance by significantly increasing their

financing costs. Liquidity means the ability of the bank to honor its obligations toward depositors. Bank can preserve adequate liquidity position either by increasing current liabilities or by converting its assets in to cash quickly. It also indicates the fund available within bank to meet its credit demand from customers and cash flow requirements for various purpose. Liquidity is measured through liquid assets to total assets ratio.

Liquid Assets to Total Assets

The liquid assets to total assets (LA/TA) ratio measures a bank's overall liquidity. Cash on hand, short notice, money on call, and balances with other financial institutions (local or international) are all examples of liquid assets. The total assets include the revaluation of all the assets. Higher ratio is preferable.

$$\text{Liquid Assets to Total Assets Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}} \times 100$$

6. Indicators of Financial Performance (profitability) of Banks

a) Return on Assets (ROA)

Each financial institution has its own set of assets, and Return on Assets (ROA) measures how effectively these assets are utilized. This ratio assesses how well a bank uses its assets to generate profit, reflecting the efficiency in deploying funds from both owners and creditors. A higher ROA indicates a more effective use of assets, leading to better returns, while a lower ROA suggests less effective utilization. It is calculated by comparing net profit to total assets.

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit After Tax (NPAT)}}{\text{Total Assets}} \times 100$$

b) Return on Equity (ROE)

Return on Equity (ROE), also known as Return on Investment (ROI), is a key indicator of profitability. It reflects the bank's operating performance, debt-equity management, and asset turnover. ROE measures the earnings generated for shareholders based on their investment in the bank. A higher ROE percentage indicates greater efficiency in earning and utilizing the equity base to generate better returns for investors (Lad & Ghorpade, 2022).

It is a measure of the profitability of a bank. In calculation of this ratio, Profit after tax is expressed as a percentage of equity.

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit After Tax (NPAT)}}{\text{Shareholders' Equity}} \times 100$$

3.4.2 Statistical Tools

Some of key statistical tools used to achieve the objective of this study includes:

1. Mean

Mean is the average of the given numbers and is calculated by dividing the sum of given numbers by the total number of numbers. It is expressed as:

$$\overline{X} = \frac{\sum X}{N}$$

Where,

$\overline{X}$ = Mean or Average of data

$\sum X$ = Sum of all observations or data

N = Total number of observations or data

2. Standard Deviation(S.D)

Standard deviation is the measure of dispersion of a set of data from its mean. It measures the absolute variability of a distribution; the higher the dispersion or variability, the greater is the standard deviation and greater will be the magnitude of the deviation of the value from their mean. The concept of S.D was introduced by Karl Pearson in 1893. It is usually denoted by the letters (σ) and obtained from following formula:

$$\text{S. D } (\sigma) = \sqrt{\frac{\sum (X - \overline{X})^2}{N}}$$

Where,

S.D (σ) = Standard deviation

$\sum (X - \overline{X})^2$ = Sum of square of the deviation measured from arithmetic mean

N=Number of observations

3. Coefficient of Variation (C.V)

The coefficient of variation is a relative measure of dispersion calculated using standard deviations. It is commonly used to assess data variation and is particularly effective for comparing variability across two or more series, graphs, or distributions. The coefficient of variation is computed by applying the following formula:

$$C.V = \frac{\sigma}{\overline{X}}$$

Where,

C.V = Coefficient of variation

σ =Standard deviation

$\overline{X}$ = Mean

4. Correlation Analysis

Correlation analysis is a statistical method used to measure the strength of the linear relationship between two variables and compute their association. Correlation analysis calculates the level of change in one variable due to the change in the other. A high correlation indicates a strong association between two variables, whereas a low correlation indicates that the variables are weakly associated. There is a positive correlation between two variables when an increase in one variable leads to the increase in the other. On the other hand, a negative correlation means that when one variable increases, the other decreases and vice-versa. Correlation coefficient between two variables ranges from +1 (i.e. perfect positive relationship) to -1(i.e. perfect negative relationship).

Correlation between CAMEL indicators with ROA and ROE is analyzed for our research purpose.

5. Regression Analysis

Regression analysis is a statistical method used to examine the relationships between two or more variables. It is a quantitative approach to test how a dependent variable is influenced by one or more independent variables. In this study, multiple regression analysis is employed to assess the impact of financial ratios under the CAMEL rating system (independent variables) on profitability ratios such as Return on Assets (ROA) and Return on Equity (ROE) (dependent variables). The regression models used in this analysis are:

$ROA = \beta 0 + \beta 1CA + \beta 2AQ + \beta 3ME + \beta 4EQ + \beta 5\ LIQ + e.$

$ROE = \beta 0 + \beta 1CA + \beta 2\ AQ + \beta 3ME + \beta 4EQ + \beta 5\ LIQ + e.$

In the first model, Return on Assets (ROA) is used as the dependent variable, representing the profitability of commercial banks. The independent variables are Capital Adequacy (CA), Asset Quality (AQ), Management Efficiency (ME), Earnings Quality (EQ), and Liquidity (LIQ).

In the second model, Return on Equity (ROE) is used as the dependent variable, representing the profitability of commercial banks. The independent variables include Capital Adequacy (CA), Asset Quality (AQ), Management Efficiency (ME), Earnings Quality (EQ), and Liquidity (LIQ).

Where,

ROA= Return on Assets (Indicator of Profitability)

ROE= Return on Equity (Indicator of Profitability)

CA= Capital Adequacy represented through Capital Adequacy Ratio

AQ= Assets Quality represented through NPA to Total Advance Ratio

ME= Management Efficiency represented through Total Advances to Total Deposits Ratio

EQ = Earning quality represented through Net Interest Margin (NIM) to Total Assets Ratio

LIQ= Liquidity represented through Liquid Assets to Total Assets Ratio

$\beta 0$= Constant term

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5$ = coefficients of independent variables

e = Random Error term

3.5 Research Framework and Definition of Variables

3.5.1 Research Framework

A research framework is a detailed representation of the structure of research variables. It helps identify key areas of the study, formulate relevant research questions, and define research objectives.The following research framework shows the relationship between dependent and independent variable of CAML analysis:

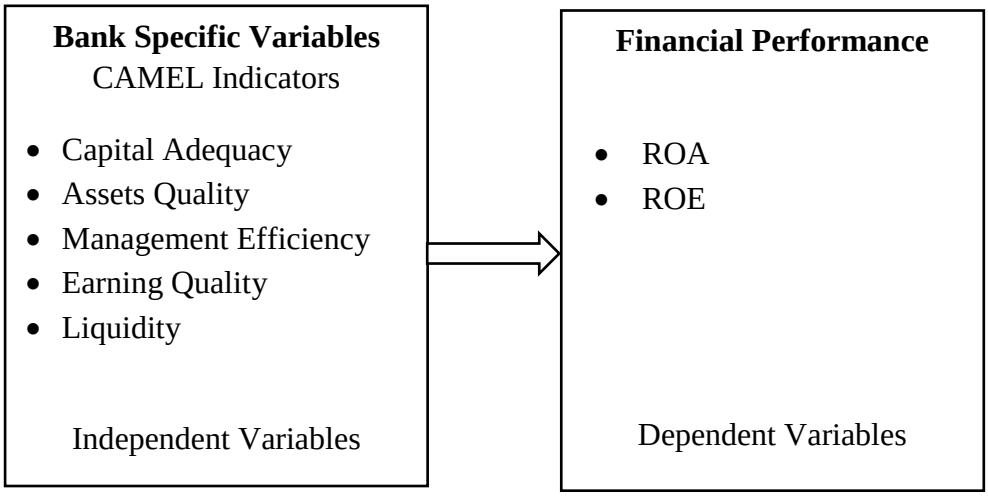

Figure 1. Research Framework of study. Adapted from "Towards Increasing the Financial Performance: An Application of CAMEL Model in Banking Sector in the Context of Sri Lanka," by A. Rauf and A. Lebbe, 2016, *Research Journal of Finance and Accounting*, *7*, p. 68.

3.5.2 Definition of Variables

Independent Variables:

1. Capital Adequacy: Capital adequacy measures a bank's ability to absorb losses and fulfill its obligations to customers without halting operations. It depends on both the amount and quality of the bank's capital. The capital adequacy ratio, which compares capital to risk-weighted assets, determines the bank's capital strength.

2. Asset Quality: An asset encompasses all bank holdings, including current and fixed assets, loans, investments, real estate, and off-balance-sheet transactions. This indicator helps assess asset performance. The ratio of Gross Non-Performing Loans to Gross Advances is used to evaluate the effectiveness of the bank's credit decisions.

3. Management Efficiency: The board of directors and top-level managers are crucial for the effective operation of banking activities. This parameter assesses management effectiveness by evaluating how well duties and responsibilities are delegated, how compensation policies and job descriptions are structured, and how successful the management is in achieving the bank's overall performance.

4. Earning Quality: A bank's earnings include income from all operations, as well as from non-performing and extraordinary sources. This parameter assesses the bank's efficiency in terms of its capital adequacy to cover potential losses and its ability to pay dividends. The Return on Assets (ROA) ratio measures the bank's earnings relative to its assets.

5. Liquidity: Liquidity refers to a bank's ability to convert assets into cash. It is measured by the ratio of cash held by the bank and its balance with the central bank relative to its total assets.

Dependent Variables:

1. Return on Equity (ROE)

Return on equity (ROE) is the net income divided by shareholder equity. It's a measure of profitability. The measure is often calculated using average equity over a period due to the mismatch in the income statement and balance sheet.

2. Return on Assets (ROA)

Return on Assets (ROA) is calculated by dividing net income by total assets. It's an efficiency measure of how well a company is using its assets. ROAs can vary based on the industry, thus, it's best to compare company ROAs that operate in similar industries, or to use ROA for historical analysis (comparing a company's current ROA to its previous ROA).

CHAPTER IV
RESULTS AND DISCUSSION

This section of the chapter covers the analysis and presentation of the collected data, along with the results obtained. The study focuses on comparing the financial performance of three sample banks namely NBL, RBBL, and ADBL - using CAMEL analysis, based on their annual financial reports from FY 2068/69 to FY 2077/78. In this chapter, raw data collected from the financial statements of respective banks is processed and presented in a systematic and understandable way using tables. Such systematized data are analyzed and interpreted using various statistical and financial tools discussed in the previous chapter.

4.1 Results

In this section, collected data is presented and analyzed using tables and different statistical and financial tools to extract its meaning.

4.1.1 Analysis of CAMEL Indicators

4.1.1.1 Capital Adequacy

Capital adequacy is considered a key indicator of a bank's financial health. To ensure survival, it is essential for maintaining stakeholder confidence and avoiding bankruptcy (Aspal & Dhawan, 2016).

The Capital Adequacy Ratio (CAR), also known as the Capital to Risk (Weighted) Assets Ratio (CRAR), is the ratio of a bank's capital to its risk. Generally, the central bank tracks a bank's CAR to ensure that it can absorb a reasonable amount of loss and complies with statutory Capital requirements. It is a measure of a bank's capital. It is expressed as a percentage of a bank's risk-weighted credit exposures. The enforcement of regulated levels of this ratio is intended to protect depositors and promote the stability and efficiency of financial systems around the world.

Table 2

Capital Adequacy Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	-5.82	-9.77	19.00
2069/70	-0.59	2.94	16.34
2070/71	4.55	4.62	15.09
2071/72	7.50	10.16	13.99
2072/73	10.20	10.46	17.16
2073/74	14.47	10.39	20.41
2074/75	11.27	11.27	19.66
2075/76	16.80	13.39	20.37
2076/77	17.01	12.64	19.33
2077/78	16.80	13.46	16.94
Average	9.22	7.96	17.83
Standard Deviation (SD)	7.86	7.15	2.26
Coefficient of Variation (CV)	0.85	0.90	0.13

Table *2* displays the capital adequacy ratios (CAR) of three sampled banks from FY 2068/69 to FY 2077/78. All the banks experienced fluctuating CAR trends during this period. Initially, both NBL and RBBL failed to meet the capital adequacy ratio standards set by NRB. According to the Capital Adequacy Framework of 2007 and 2015, commercial banks are required to maintain 10% and 11% of their total capital fund, respectively, out of their total risk-weighted exposures. However, ADBL consistently met the NRB standards throughout the study period. Maintaining a sufficient capital adequacy ratio is crucial for a bank to instill trust in stakeholders and avoid bankruptcy. A higher CAR indicates a bank's better resilience during crisis situations. The average CAR of NBL and RBBL is 9.22% and 7.96%, respectively, which is below the NRB standard. On the other hand, ADBL has the highest average CAR of 17.83% among the three banks. This comparison suggests that ADBL has a stronger capital base, followed by NBL and RBBL. The standard deviations of NBL, RBBL, and ADBL are 7.86, 7.15, and 2.26, respectively. This indicates that NBL has greater variability in its CAR compared to RBBL and ADBL. The coefficient of variation for the capital adequacy ratios of NBL, RBBL, and ADBL are 0.85, 0.90, and

0.13, respectively. This demonstrates that ADBL maintains a higher amount of Tier I and Tier II capital in its risk-weighted assets, showing financial stability.

4.1.1.2 Assets Quality

Asset quality rating evaluates the credit risk associated with assets like loans and investment portfolios that generate interest payments. The effectiveness of management in controlling and monitoring credit risk influences this rating. Essentially, it measures how effectively a bank generates income or turnover from its assets and lending activities (Malbul, 2022).

NPA to total advances ratio was used to assess the asset quality of the sample banks. Non-performing assets (NPAs) are loans that are either in default or at high risk of default, typically after 90 days, although this can vary based on contract terms, borrower behavior, and bank policies. NPAs reduce net profit due to the provisions required for these loans. The Non-Performing Loan to Total Loan and Advances ratio indicates the proportion of defaulted loans compared to the total loans disbursed, with a lower ratio being preferable for the bank (Joshi, 2021).

Table 3

NPA to Total Advances Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	5.58	7.27	8.98
2069/70	5.24	5.32	5.85
2070/71	5.12	6.38	5.46
2071/72	3.98	5.35	5.35
2072/73	3.11	4.25	4.36
2073/74	3.32	3.77	4.60
2074/75	3.02	4.80	3.41
2075/76	2.70	4.77	3.29
2076/77	2.52	3.79	2.84
2077/78	2.13	3.51	1.88
Average	3.67	4.92	4.60
Standard Deviation (SD)	1.24	1.21	1.99
Coefficient of Variation (CV)	0.34	0.25	0.43

Table 3 shows the non-performing assets or loan to total loans and advances ratio over the study period of FY 2068/69 to FY 2077/78. The NPA to total advances ratios of NBL and ADBL are declining, indicating that both banks' asset quality is improving. However, the NPA to total advances ratio of RBBL is in a fluctuating trend.

The average NPA to total advances ratios of NBL, RBBL, and ADBL are 3.67, 4.92, and 4.60, respectively. A lower average NPA to total advances ratio of NBL shows the bank's ability to recover their loans and advances from their customers. That means NBL has fewer default loans as compared to ADBL and RBBL. Table 3 also reveals the SD of NBL, RBBL, and ADBL as 1.24, 1.21, and 1.99, respectively, and the CV of NBL, RBBL, and ADBL as 0.34, 0.25, and 0.43, respectively. The coefficient of variation (CV) of the non-performing loan to total loan and advances ratio is highest for ADBL, followed by NBL. This suggests that ADBL has maintained a higher level of well-performing loans on average. While NBL shows better asset quality on average, ADBL demonstrates superior asset quality when considering the CV.

4.1.1.3 Management Efficiency

Management quality reflects the capability of the board and management team to assess, identify, and manage business risks effectively. It ensures that operations are conducted efficiently, safely, and in compliance with regulations.

Aspal and Dhawan (2016) state that the Total Advances to Total Deposits (TA/TD) ratio is used to highlight management efficiency. This ratio measures how effectively the bank's management converts available deposits (including receivables) into advances to generate maximum returns. Total deposits encompass savings deposits, demand deposits, term deposits, and deposits from other banks. A higher TA/TD ratio is preferable.

Table 4

Total Advances to Total Deposits Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	52.98	46.08	103.99
2069/70	60.10	53.84	100.81
2070/71	59.45	56.73	94.80
2071/72	68.45	6 1.05	93.77
2072/73	71.05	58.46	95.46
2073/74	79.17	69.30	92.90
2074/75	78.44	72.89	99.78
2075/76	81.41	78.55	94.60
2076/77	75.67	67.79	87.77
2077/78	85.78	68.35	95.16
Average	71.25	63.30	95.90
Standard Deviation (SD)	10.82	9.80	4.57
Coefficient of Variation (CV)	0.15	0.15	0.05

Table 4 presents the ratio of total advances to total deposits, which has fluctuated during the research period for each bank. This ratio evaluates the efficiency and capability of bank management in converting available deposits into high-earning advances. Agricultural Development Bank Limited (ADBL) ranks first with an average advances to deposits ratio of 95.90%, followed by Nepal Bank Limited (NBL) at 71.25%, and Rastriya Banijya Bank Limited (RBBL) at 63.30%. This indicates that ADBL has effectively utilized its depositors' funds, advancing the money for the bank's maximum growth.

Table 4 also discloses the lowest SD of ADBL with a value of 4.57, followed by RBBL and NBL with values of 9.80 and 10.82, respectively. Since the SD of the TA/TD ratio of ADBL is less than that of the other two banks, the management of ADBL is efficient at channeling its deposits as loans and advances with lower risk. The coefficient of variation of the TA/TD ratio of ADBL is the lowest (0.05), followed by NBL and RBBL with equal values (0.15). It depicts that ADBL had the highest consistent ratio over the period and was able to maintain a higher level of managerial efficiency.

4.1.1.4 Earning Quality

Earnings are an important metric for measuring an organization's financial performance. Earnings quality primarily assesses the bank's profitability and productivity while also explaining the growth and sustainability of future earnings capacity. Similarly, a bank relies on its earnings to fund dividends, maintain appropriate capital levels, invest in growth opportunities, develop plans for engaging in new strategies, and retain a competitive outlook (Ahsan, 2016).

Here, the net interest income to total assets ratio (NII/TA) is used to determine the earning quality of banks. This ratio portrays how much a bank can earn for every rupee invested in assets. A higher number indicates better earnings given the total assets.

Table 5

Net Interest Income to Total Assets Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	3.16	2.50	6.49
2069/70	3.57	3.24	6.12
2070/71	3.62	3.17	5.22
2071/72	3.75	3.29	5.59
2072/73	4.45	3.33	5.60
2073/74	5.17	4.02	5.60
2074/75	4.79	4.62	4.90
2075/76	3.61	4.39	5.03
2076/77	2.94	3.54	3.75
2077/78	2.88	2.65	3.09
Average	3.79	3.48	5.14
Standard Deviation (SD)	0.77	0.69	1.03
Coefficient of Variation (CV)	0.20	0.20	0.20

Table 5 illustrates the earnings of three government owned banks, based on their total assets. Here, the NII/TA ratio is considered. It was calculated by dividing net interest income by total assets of the banks. All three banks had a fluctuating trend in the NII/TA ratio throughout the study period of FY 2068/69 to FY 2077/78. The above table reveals that ADBL had a higher average NII/TA ratio (5.14%) than NBL (3.79%) and RBBL

(3.48%). It means ADBL was able to maintain better earnings quality than other banks. It has a greater capacity to earn from its investments in assets.

The standard deviations of NBL, RBBL, and ADBL are 3.79, 3.48, and 5.14, respectively. The value of the standard deviation indicates that there is greater variability in Net Interest Income (NII) and Total Assets (TA) for ADBL compared to RBBL and NBL. The coefficient of variation of the NII/TA ratio of NBL, RBBL, and ADBL is equal, i.e., 0.20.

4.1.1.5 Liquidity

Liquidity is vital as it shows a bank's capability to fulfill its financial commitments. Adequate liquidity implies that the bank maintains enough liquid assets to cover its short-term liabilities. Banks can meet these obligations by either attracting short-term deposits from customers or swiftly converting their assets into cash (Rahman & Islam, 2018).

According to Rauf and Lebbe (2016), liquidity risk can severely damage a bank's reputation. To mitigate this risk, banks must carefully manage liquidity while also investing a substantial portion of funds in high-yield securities to ensure profitability and liquidity for depositors. The liquid assets to total assets (LA/TA) ratio indicates a bank's overall liquidity position. Effective liquidity management is crucial for a bank, as improperly utilized funds can lead to losses due to the lack of returns on idle cash. The higher the Liquidity, the better the solvency and working capital of the banks, which are required for day-to-day operations.

Table 6

Liquid Assets to Total Assets Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	23.99	18.46	9.77
2069/70	20.33	15.31	12.44
2070/71	8.54	20.19	10.17
2071/72	10.50	16.40	11.46
2072/73	19.82	17.27	9.67
2073/74	16.84	11.87	12.31
2074/75	7.37	19.25	14.40
2075/76	18.44	9.24	12.86
2076/77	12.45	9.40	14.62
2077/78	11.80	11.57	11.79
Average	15.01	14.90	11.95
Standard Deviation (SD)	5.62	4.08	1.75
Coefficient of Variation (CV)	0.37	0.27	0.15

Table 6 shows the LA/TA ratio of three government owned banks over the period of FY 2068/69 to FY 2077/78, which is in a fluctuating trend. For a bank, liquidity refers to the capacity to fulfill its financial obligations as they become due. The average liquid assets to total deposit ratio maintained by NBL, RBBL, and ADBL is, respectively, 15.01%, 14.90%, and 11.95%. On the basis of liquid assets to total deposit, NBL stands first, followed by RBBL and ADBL. The higher the Liquidity, the better the solvency and working capital of the banks, which are required for day-to-day operations. It means NBL is more solvent and has greater potential to fulfill demand than RBBL and ADBL.

Table 6 also reveals the standard deviation and coefficient of variation of the LA/TA ratio. The SD of NBL, RBBL, and ADBL is 5.62, 4.08, and 1.75, respectively. The CV of the liquidity ratio measured by LA/TA of ADBL is the lowest, followed by RBBL and NBL. It depicts that ADBL was able to maintain a higher level of liquidity. Whereas, the coefficient of variation of the liquidity ratio of NBL was highest with a 0.37 value, indicating NBL has a lower amount of liquidity as compared with others.

So, on average, NBL has better liquidity, but on the basis of CV, ADBL has a better liquidity position.

4.1.1.6 Composite Ranking of CAMEL Indicators

To assess the overall performance of the banks being studied, a composite ranking system is used. This system calculates the average of all ranks across five indicators: Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity {(Capital Adequacy + Asset Quality + Management efficiency + Earning quality + Liquidity) /no of indicators (5)}. Banks are then ranked based on their composite average, with the bank having the lowest composite average being ranked as the best bank (Rauf & Lebbe, 2016).

Table 7

Composite ranking based on CAMEL indicators for Overall Financial Performance of the Banks

Bank	C		A		M		E		L		Overall	
	Avg	Rank	Avg	Rank	Avg	Rank	Avg	Rank	Avg	Rank	Composite Avg	Rank
NBL	9.22	2	3.67	1	71.25	2	3.79	2	15.01	1	1.6	1
RBBL	7.96	3	4.92	3	63.3	3	3.48	3	14.9	2	2.8	2
ADBL	17.83	1	4.6	2	95.9	1	5.14	1	11.95	3	1.6	1

In order to assess the overall performance of banks, the composite rating has been calculated using the group ranking of the government owned banks of Nepal for the period of 2068/69–2077/78, and the results are presented in the Table 7.

Table 7 reveals that on the basis of the average ratio, NBL ranked first according to asset quality and liquidity performance and second according to capital adequacy, management efficiency, and earning quality of the bank. RBBL ranked third in all CAMEL parameters except liquidity. ADBL ranked first according to capital adequacy, management efficiency, and earning quality. ADBL ranked second on asset quality and third on liquidity parameters.

Overall, on the basis of CAMEL model analysis, NBL and ADBL are ranked in the first position with an equal lowest composite average of 1.6, followed by RBBL with a

composite average of 2.8. So, we can conclude that, on the basis of the CAMEL Model, NBL and ADBL have better financial performance than RBBL.

4.1.2 Analysis of Profitability Indicators

4.1.2.1 Return on Assets (ROA)

This ratio indicates the earnings generated by banks relative to their total assets, reflecting how efficiently banks use their assets. It measures a bank's ability to convert its investments into net income (Singhal & Gupta, 2020). A higher ratio is preferable, as it signifies a higher turnover of assets.

Table 8

Return on Assets Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	0.30	1.26	2.90
2069/70	1.07	1.29	2.97
2070/71	0.92	1.50	1.72
2071/72	0.55	3.33	3.57
2072/73	2.79	1.42	2.20
2073/74	2.78	1.60	2.02
2074/75	2.41	1.85	2.54
2075/76	1.51	2.23	2.77
2076/77	1.22	1.64	1.86
2077/78	1.33	1.10	1.59
Average	1.49	1.72	2.41
Standard Deviation (SD)	0.89	0.65	0.64
Coefficient of Variation (CV)	0.60	0.38	0.27

The return on assets (ROA) over the period of 2068/69 to 2077/78 for government owned banks in Nepal is presented in Table 8. This ratio represents how efficiently a bank uses and mobilizes its assets to create profit. All three banks had a fluctuating trend in ROA during the study period. The average ROA of NBL, RBBL, and ADBL is 1.49%, 1.72%, and 2.41% respectively. As ROA is an indicator of the profitability of a bank, a higher ROA

for ADBL indicates that it has a greater ability to earn profit from the proper utilization of its assets.

Table 8 also shows that the SD of the ROA ratio of NBL, RBBL, and ADBL is 0.89, 0.65, and 0.64, respectively, which depicts that NBL has greater and ADBL has less variability in the ratio as compared to others. Similarly, the value on CV of ROA of ADBL is the lowest, followed by RBBL in second place and NBL in third place. It shows that ADBL was able to maintain better earnings efficiency and have greater profitability as compared to NBL and ADBL.

4.1.2.2 Return on Equity (ROE)

Return on equity (ROE) is another key indicator of profitability, measuring the return generated per unit of equity capital across different banks. A higher ROE is considered favorable for any institution, as it directly or indirectly influences the share price of that institution (Joshi, 2021). The higher the ROE percentage, the more efficiently the bank is utilizing its equity base to generate returns for investors..

Table 9

Return on Equity Ratio (in %) of sample banks

F.Y.	NBL	RBBL	ADBL
2068/69	-6.07	-37.88	14.18
2069/70	-361.36	102.96	16.10
2070/71	21.42	76.96	10.09
2071/72	12.63	69.56	22.21
2072/73	42.94	27.37	13.60
2073/74	27.23	26.48	11.77
2074/75	14.00	19.19	12.89
2075/76	8.87	23.38	14.69
2076/77	7.77	19.01	11.72
2077/78	8.92	11.94	11.01
Average	-22.37	33.90	13.83
Standard Deviation (SD)	119.83	39.69	3.46
Coefficient of Variation (CV)	-5.36	1.17	0.25

Table 9 summarizes the Return on equity (ROE) ratio of the respective commercial bank throughout the period of study. The ROE of all banks is fluctuating. The average ROE of NBL is in negative form (-22.37) due to the immense negative value of FY 2069/70, i.e., -361.36%. This happened due to the negative equity of the bank during that period. This implies that the shareholders receive very low returns in terms of dividends. The average ROE of RBBL and ADBL is 33.90% and 13.83%, respectively. RBBL has a higher ROE in comparison to ADBL. It seems RBBL was efficiently utilizing its shareholders' funds.

The highest standard deviation of NBL, 119.83, shows that NBL is riskier than other banks in terms of return on equity. Where the lowest standard deviation of ADBL is 3.46, which indicates that it is less risky in terms of return on equity than other banks. The coefficients of variation of the sample banks NBL, RBBL, and ADBL are -5.36, 1.17, and 0.25, respectively. The CV of NBL is negative due to its negative average. The CV of ADBL is the lowest among RBBL and ADBL. It shows that the ADBL is more consistent in maintaining its return on equity than the other sample banks.

4.1.3 Comparative Analysis

Key result obtain from CAMEL analysis and profitability analysis is presented in comparative form which helps to get the summarized information of sample units.

Table 10

Comparative financial performance of sample banks

Variables	NBL		RBBL		ADBL	
	Avg. ($\bar{X}$)	S.D. (σ)	Avg. ($\bar{X}$)	S.D. (σ)	Avg. ($\bar{X}$)	S.D. (σ)
Capital Adequacy	9.22	7.86	7.96	7.15	17.83	2.26
Assets Quality	3.67	1.24	4.92	1.21	4.6	1.99
Management Efficiency	71.25	10.82	63.30	9.80	95.90	4.57
Earning Quality	3.79	0.77	3.48	0.69	5.14	1.03
Liquidity	15.01	5.62	14.90	4.08	11.95	1.75
Return of Assets	1.49	0.89	1.72	0.65	2.41	0.64
Return of Equity	-22.37	119.83	33.90	39.69	13.83	3.46

Table 10 presents a comparative analysis of NBL, RBL, and ADBL on the basis of CAMEL and profitability. It shows that the average CAR maintained by NBL, RBBL, and ADBL are respectively 9.22%, 7.96%, and 17.83%. It indicates that only ADBL meets the NRB standard regarding CAR. Comparing the CARs of each bank reveals that ADBL has the strongest capital base, followed by NBL and ADBL. The average Asset Quality measured through the NPA/TA ratio of NBL, RBBL, and ADBL is respectively 3.67%, 4.92%, and 4.60%. The comparison among the NPA/TA ratios of each bank implies that the quality of assets at NBL is better than at ADBL and RBBL. Table 10 shows that the average TA/TD maintained by NBL, RBBL, and ADL is respectively 71.25%, 63.30%, and 95.90%. The comparison of the TA/TD ratios among commercial banks suggests that ADBL's management is slightly more effective than other banks at mobilizing its total deposits into loans and advances. The Earnings Quality measured by the NII/TA ratio of NBL, RBBL, and ADBL is 3.79%, 3.48%, and 5.14%, respectively. The higher the ratio, the better the banks' earnings. So on that basis, ADBL is able to earn a better income by utilizing its earning assets in the productive sector than NBL and RBBL.

The liquid assets to total assets ratios maintained by NBL, RBBL, and ADBL are, respectively, 15.01%, 14.90%, and 11.95%. On the basis of liquid assets to total assets, NBL stands first, followed by RBBL and ADBL.

According to the conventional rule of rating, BFIs with an ROA of less than 1 fall into the marginal earning performance zone (Gautam, 2020). The average ROA maintained by NBL, RBBL, and ADBL is 1.49%, 1.72%, and 2.41%, respectively, all of which are greater than 1% and therefore outside the marginal earning performance zone. Comparing the ROAs of each commercial bank indicates that ADBL is the best performer, followed by RBBL and NBL. Similarly, the average ROE for NBL, RBBL, and ADBL is -22.37%, 33.90%, and 13.83%, respectively. Based on ROE, RBBL ranks first, followed by ADBL and NBL.

4.1.4 Correlation Analysis

Correlation is a statistical device designed to measure the degree of association between two or more variables. A Pearson correlation coefficient is used in this study to establish and analyze correlation between CAMEL indicators and Profitability indicators i.e. ROA and ROE.

A Pearson correlation matrix indicates the direction, strength and significance of relationship between two variables among the variables in study. There could be perfect correlation between two variables which represented by +1 or there could be perfect negative correlation which is represented by -1. The value of correlation coefficient remains always in between -1 to +1. There is a positive correlation between two variables when an increase in one variable leads to an increase in the other. On the other hand, a negative correlation means that when one variable increases, the other decreases, and vice-versa (Yadav, et al., 2018).

4.1.4.1 Correlation Analysis of NBL

This section analyzes the correlation between the dependent variables (ROA and ROE) and the independent variables (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity) for NBL.

Correlation between ROA and CAMEL indicators

Table 11

Correlation between ROA and CAMEL indicators

Variables	ROA	C	A	M	E	L
ROA	1					
C	.526	1				
A	-.534	-.949**	1			
M	.567	.943**	-.954**	1		
E	.792**	.138	-.088	.202	1	
L	-.047	-.425	.334	-.363	-.077	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 11 shows the correlation between the dependent variable ROA and all independent variables: CAMEL, i.e., Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity of NBL. It also shows the correlation between and among

all independent variables. Here, our focus is to analyze the correlation between ROA and CAMEL indicators.

Table 11 shows that Capital Adequacy, Management Efficiency, and Earnings Quality are positively correlated with ROA, as their correlation coefficients are 0.526, 0.567, and 0.792, respectively. It indicates that if Capital Adequacy, Management Efficiency, and Earning Quality increase, ROA also increases, and vice versa. Whereas there is a negative correlation between ROA and Asses Quality and Liquidity, as it has a negative correlation coefficient of -0.534 and -0.047, which means if Asses Quality and Liquidity of the bank decreases, ROA increases, and vice versa. Table 11 also shows that there is a significant positive correlation between ROA and Earnings Quality at significance level 0.01. This means there is a 99% chance of a positive correlation between them.

Correlation between ROA and CAMEL indicators

Table 12

Correlation between ROE and CAMEL indicators

Variables	ROE	C	A	M	E	L
ROE	1					
C	.463	1				
A	-.462	-.949**	1			
M	.378	.943**	-.954**	1		
E	.172	.138	-.088	.202	1	
L	-.337	-.425	.334	-.363	-.077	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 12 shows the correlation coefficient between dependent variable ROE and all independent variables; CAMEL i.e. Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity of NBL. Table 12 shows that Capital Adequacy, Management Efficiency, and Earnings Quality are positively correlated with ROA, as their

correlation coefficients are 0.463, 0.378, and 0.172, respectively. It indicates that if Capital Adequacy, Management Efficiency, and Earning Quality increase, the ROE of NBL also increases, and vice versa. Whereas there is a negative correlation between ROE and Asses Quality and Liquidity, as it has a negative correlation coefficient of -0.462 and -0.337, which means if Asses Quality and Liquidity of NBL decreases, ROE of NBL increases, and vice versa.

4.1.4.2 Correlation Analysis of RBBL

This section examines the correlation between the dependent variables (ROA and ROE) and the independent variables (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity) for RBBL.

Correlation between ROA and CAMEL indicators

Table 13

Correlation between ROA and CAMEL indicators

Variables	ROA	C	A	M	E	L
ROA	1					
C	.310	1				
A	.047	-.855**	1			
M	.280	.849**	-.697*	1		
E	.351	.553	-.351	.764*	1	
L	-.030	-.538	.678*	-.608	-.207	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 13 shows that Capital Adequacy, Asset Quality, Management Efficiency, and Earnings Quality of RBBL are positively correlated with ROA of RBBL, as their correlation coefficients are 0.310, 0.047, 0.280, and 0.351, respectively. It implies that an increase in Capital Adequacy, Asset Quality, Management Efficiency, and Earnings Quality leads to an increase in the ROA of the bank and vice versa. There is a negative correlation between ROA and liquidity, as the correlation coefficient between them is

-0.030. It indicates that an increase in Liquidity results in a decrease in the ROA of the bank and vice versa.

Correlation between ROE and CAMEL indicators

Table 14

Correlation between ROE and CAMEL indicators

Variables	ROE	C	A	M	E	L
ROE	1					
C	.207	1				
A	.003	-.855**	1			
M	-.078	.849**	-.697*	1		
E	.088	.553	-.351	.764*	1	
L	.145	-.538	.678*	-.608	-.207	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 14 shows the correlation between the dependent variable ROE and all independent variables, i.e., Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity of RBBL. It reveals that Capital Adequacy, Asset Quality, Earning Quality, and Liquidity are positively correlated with ROE, as their correlation coefficients are 0.207, 0.003, 0.088, and 0.145, respectively. It indicates that if the Capital Adequacy, Asset Quality, Earning Quality, and Liquidity of a bank increase, the ROE of the bank also increases, and vice versa. Whereas there is a negative correlation between ROE and Management Efficiency, (Lal & Gupta, 2023)as it has a negative correlation coefficient of -0.078, which means if Management Efficiency of a bank increases, ROE of the bank decreases, and vice versa. The table also shows that the relationship between ROE and all the variables is insignificant.

4.1.4.3 Correlation Analysis of ADBL

This section explores the correlation between the dependent variables (ROA and ROE) and the independent variables (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity) for ADBL.

Correlation between ROA and CAMEL indicators

Table 15

Correlation between ROA and CAMEL indicators

Variables	ROA	C	A	M	E	L
ROA	1					
C	-.203	1				
A	.500	-.186	1			
M	.432	-.020	.641*	1		
E	.634*	-.092	.857**	.591	1	
L	-.048	.474	-.593	-.354	-.477	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 15 shows that Assets Quality, Management Efficiency and Earning Quality of ADBL are positively correlated with ROA of ADBL as their correlation coefficient are 0.500, 0.432 and 0.634 respectively. This implies that an improvement in Asset Quality, Management Efficiency, and Earning Quality results in an increase in the bank's ROA, and conversely, a decline in these factors leads to a decrease in ROA. There is a negative correlation between ROA and Capital Adequacy; ROA and Liquidity as correlation coefficient between them are -0.203 and -0.048 respectively. It shows that an increase in Capital Adequacy and Liquidity results decrease in ROA of bank and vice versa. Table 15 also shows that there is a significant positive correlation between ROA and Earning Quality at significance level 0.05. This means there is 95% chance of having a positive correlation between them.

Correlation between ROE and CAMEL indicators

Table 16

Correlation between ROE and CAMEL indicators

Variables	ROE	C	A	M	E	L
ROE	1					
C	-.431	1				
A	.304	-.186	1			
M	.148	-.020	.641*	1		
E	.434	-.092	.857**	.591	1	
L	-.074	.474	-.593	-.354	-.477	1

Note. Estimation from SPSS

*$p < 0.05$, two-tailed. ** $p < 0.01$, two-tailed.

Table 16 shows that Assets Quality, Management Efficiency and Earning Quality of ADBL are positively correlated with ROE of ADBL as their correlation coefficient are 0.304, 0.148 & 0.434 respectively. It implies that an increase in Assets Quality, Management Efficiency and Earning Quality leads to an increase in ROE of bank and vice versa. There is a negative correlation between ROE and Capital Adequacy; ROE and Liquidity as correlation coefficient between them are -0.431 and -0.074 respectively. It shows that an increase in Capital Adequacy and Liquidity results decrease in ROE of bank and vice versa. The table also shows that the relationship between ROE and all the variables is insignificant.

4.1.5 Regression Analysis

As stated earlier in research design, this study employs two multiple regression models to analyze the impact of Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity on the profitability of Nepalese government owned commercial banks. First regression model shows the relationship between ROA and explanatory variables (CAMEL). Second model shows the relationship between ROE and explanatory variables (CAMEL).

4.1.5.1 Regression Analysis of NBL

This section analyzes the regression between the dependent variables (ROA and ROE) and the independent variables (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity) for NBL.

Regression Analysis between ROA and CAMEL indicators

Table 17

Model Summary of Regression Analysis between ROA and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.941	.886	.743	.45041

Note. Estimation from SPSS

Table 17 shows that the coefficient of multiple determination R^2 is 0.886, which indicates that 88.60% of total variation in ROA can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 11.40% is because of another factor.

Table 18

ANOVA table of Regression Analysis between ROA and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.289	5	1.258	6.200	.051
	Residual	.811	4	.203		
	Total	7.100	9			

Note. Estimation from SPSS

Table 18 shows that F-Value is 6.200 and its significance is 0.051 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROA.

Table 19

Coefficient of Regression Analysis between ROA and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.671	5.000		.334	.755
	Capital Adequacy	.010	.070	.091	.146	.891
	Assets Quality	-.562	.502	-.784	-1.120	.325
	Management Efficiency	-.030	.054	-.362	-.549	.612
	Earning Quality	.916	.212	.798	4.318	.012
	Liquidity	.029	.030	.183	.948	.397

Note. Estimation from SPSS

The beta coefficient of Capital Adequacy is 0.010 with p (sig) value 0.891, which is greater than expected significance value 0.05. It means that there is a positive but statistically insignificant relationship between Capital Adequacy and ROA. Positive beta coefficient shows that unit change in Capital Adequacy leads to an increase in ROA by a factor of 0.010 units.

The beta coefficient for Assets Quality is -0.562, indicating a negative impact on ROA for NBL. This means that a one-unit increase in Assets Quality results in a decrease in ROA by 0.562 units. The p-value is 0.325, which exceeds the 0.05 threshold, suggesting that the relationship between ROA and Assets Quality is statistically insignificant.

Similarly, the coefficient for Management Efficiency is -0.030, indicating a negative effect on ROA. This implies that a one-unit increase in Management Efficiency leads to a decrease in ROA by 0.030 units. The p-value is 0.612, which is greater than 0.05, demonstrating that the relationship between Management Efficiency and ROA is statistically insignificant.

The beta coefficient for Earning Quality is 0.916, indicating a positive relationship with ROA. This means that a one-unit increase in Earning Quality results in an increase in ROA by 0.916 units. The p-value is 0.012, which is less than 0.05, indicating that the relationship between Earning Quality and ROA is statistically significant.

The positive beta coefficient for Liquidity is 0.029, indicating a positive relationship with ROA. This means that a one-unit increase in Liquidity results in an increase in ROA by 0.029 units. However, the p-value is 0.397, which is greater than the 0.05 threshold, suggesting that the relationship between Liquidity and ROA is positive but statistically insignificant.

Regression Analysis between ROE and CAMEL indicators

Table 20

Model Summary of Regression Analysis between ROE and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613	.376	-.404	141.98538

Note. Estimation from SPSS

Table 20 shows that the coefficient of multiple determination R^2 is 0.376, which indicates that 37.60% of total variation in ROE can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 62.40% is because of other factor.

Table 21

ANOVA table of Regression Analysis between ROE and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48594.831	5	9718.966	.482	.778
	Residual	80639.397	4	20159.849		
	Total	129234.228	9			

Note. Estimation from SPSS

Table 21 shows that F-Value is 0.482 and its significance is 0.778 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROE of NBL.

Table 22

Coefficient of Regression Analysis between ROE and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1307.721	1576.218		.830	.453
	Capital Adequacy	5.616	22.208	.368	.253	.813
	Assets Quality	-121.142	158.284	-1.252	-.765	.487
	Management Efficiency	-14.313	17.066	-1.292	-.839	.449
	Earning Quality	39.714	66.854	.257	.594	.584
	Liquidity	-4.522	9.590	-.212	-.472	.662

Note. Estimation from SPSS

The beta coefficient of Capital Adequacy is 5.616 with p (sig) value 0.813, which is greater than expected significance value 0.05. It means that there is a positive but statistically insignificant relationship between Capital Adequacy and ROE. Positive beta coefficient shows that unit change in Capital Adequacy leads to an increase in ROE by a factor of 5.616 units.

The beta coefficient of Assets Quality is -121.142, which shows that the impact of Assets Quality is negative on ROE of NBL and that one unit increase in Assets Quality leads to a decrease in ROE by 121.142 unit. The corresponding p-value is 0.487, which is greater than 0.05, which shows that there is an insignificant relationship between ROE and Assets Quality.

Similarly, the coefficient for Management Efficiency is -14.313, indicating a negative impact on ROE. This suggests that a one-unit increase in Management Efficiency results in a decrease in ROE by 14.313 units. The p-value is 0.449, which exceeds 0.05, indicating that the relationship between Management Efficiency and ROE is statistically insignificant.

The beta coefficient for Earning Quality is 39.714, indicating a positive relationship with ROE. This suggests that a one-unit increase in Earning Quality results in an increase in ROE by 39.714 units. Despite this positive relationship, the p-value is 0.584, which exceeds 0.05, indicating that the relationship between Earning Quality and ROE is statistically insignificant.

And negative beta coefficient of Liquidity i.e. -4.522, shows a negative relationship between Liquidity and ROE. One unit increase in Liquidity results in a decrease in ROE by 4.522 unit. The corresponding p-value is 0.662, and it is greater than the expected significance value of 0.05. It means there is negative and statistically insignificant relationship between Liquidity and ROE.

4.1.5.2 Regression Analysis of RBBL

Regression analysis between dependent variables (ROA & ROE) and independent variables (Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity) of RBBL are analyze respectively in this section.

Regression Analysis between ROA and CAMEL Indicators

Table 23

Model Summary of Regression Analysis between ROA and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.731	.535	-.046	.66551

Note. Estimation from SPSS

Table 23 shows that the coefficient of multiple determination R^2 is 0.535, which indicates that 53.50% of total variation in ROA can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 46.50% is because of another factor.

Table 24

ANOVA table of Regression Analysis between ROA and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.038	5	.408	.920	.547
	Residual	1.772	4	.443		
	Total	3.809	9			

Note. Estimation from SPSS

Table 24 shows that F-Value is 0.920 and its significance is 0.547 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROA.

Table 25

Coefficient of Regression Analysis between ROA and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.426	3.688		-.115	.914
	Capital Adequacy	.155	.091	1.701	1.697	.165
	Assets Quality	.773	.435	1.431	1.775	.151
	Management Efficiency	-.048	.073	-.723	-.661	.545
	Earning Quality	.350	.603	.371	.581	.593
	Liquidity	-.071	.093	-.449	-.769	.485

Note. Estimation from SPSS

The beta coefficient of Capital Adequacy is 0.155 with p (sig) value 0.165, which is greater than expected significance value 0.05. It means that there is a positive but statistically insignificant relationship between Capital Adequacy and ROA. Positive beta coefficient shows that unit change in Capital Adequacy leads to an increase in ROA by a factor of 0.155 units.

The beta coefficient for Assets Quality is 0.773, indicating a positive impact on ROA for RBBL. This means that a one-unit increase in Assets Quality results in an increase in ROA by 0.773 units. However, the p-value is 0.151, which is greater than 0.05, suggesting that while the relationship between ROA and Assets Quality is positive, it is statistically insignificant.

Similarly, the coefficient for Management Efficiency is -0.048, indicating a negative impact on ROA. This means that a one-unit increase in Management Efficiency results in a decrease in ROA by 0.048 units. The p-value is 0.545, which is greater than 0.05, indicating that the relationship between Management Efficiency and ROA is statistically insignificant.

The beta coefficient for Earning Quality is 0.350, indicating a positive relationship with ROA. This suggests that a one-unit increase in Earning Quality results in an increase in ROA by 0.350 units. However, the p-value is 0.593, which is greater than 0.05, indicating that the relationship between Earning Quality and ROA is statistically insignificant.

The negative beta coefficient for Liquidity is -0.071, indicating a negative relationship with ROA for RBBL. This means that a one-unit increase in Liquidity results in a decrease in ROA by 0.071 units. The p-value is 0.485, which is greater than 0.05, suggesting that the relationship between Liquidity and ROA is both negative and statistically insignificant.

Regression Analysis between ROE and CAMEL Indicators

Table 26

Model Summary of Regression Analysis between ROE and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761	.579	.052	38.63923

Note. Estimation from SPSS

Table 26 shows that the coefficient of multiple determination R^2 is 0.579, which indicates that 57.90% of total variation in ROE can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 42.10% is because of other factor.

Table 27

ANOVA table of Regression Analysis between ROE and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8204.195	5	1640.839	1.099	.477
	Residual	5971.962	4	1492.990		
	Total	14176.157	9			

Note. Estimation from SPSS

Table 27 shows that F-Value is 1.099 and its significance is 0.477 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROE of RBBL.

Table 28

Coefficient of Regression Analysis between ROE and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	222.811	214.117		1.041	.357
	Capital Adequacy	11.364	5.295	2.048	2.146	.098
	Assets Quality	30.090	25.271	.914	1.191	.300
	Management Efficiency	-7.947	4.216	-1.962	-1.885	.133
	Earning Quality	39.447	34.997	.686	1.127	.323
	Liquidity	-4.122	5.395	-.424	-.764	.488

Note. Estimation from SPSS

Table 28 shows that beta coefficient of Capital Adequacy is 11.364 with p (sig) value 0.098, which is greater than expected significance value 0.05. It means that there is a positive but statistically insignificant relationship between Capital Adequacy and ROE. Positive beta coefficient indicates that unit change in Capital Adequacy leads to an increase in ROE by a factor of 11.364 units.

The beta coefficient for Assets Quality is 30.090, indicating a positive impact on ROE for RBBL. This means that a one-unit increase in Assets Quality results in an increase in ROE by 30.090 units. However, the p-value is 0.300, which is greater than 0.05, suggesting that the relationship between ROE and Assets Quality is statistically insignificant.

Similarly, the coefficient for Management Efficiency is -7.947, indicating a negative impact on ROE. This means that a one-unit increase in Management Efficiency results in a decrease in ROE by 7.947 units. The p-value is 0.133, which is greater than 0.05, suggesting that the relationship between Management Efficiency and ROE is statistically insignificant.

The beta coefficient for Earning Quality is 39.447, indicating a positive relationship with ROE. This means that a one-unit increase in Earning Quality results in an increase in ROE by 39.447 units. However, the p-value is 0.323, which is greater than 0.05, suggesting that the relationship between Earning Quality and ROE is statistically insignificant.

The negative beta coefficient for Liquidity is -4.122, indicating a negative relationship with ROE. This suggests that a one-unit increase in Liquidity results in a decrease in ROE by

4.122 units. The p-value is 0.488, which is greater than 0.05, indicating that the relationship between Liquidity and ROE is both negative and statistically insignificant.

4.1.5.3 Regression Analysis of ADBL

Regression analysis between dependent variables (ROA & ROE) and independent variables (Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity) of ADBL were analyze respectively in this section.

Regression Analysis between ROA and CAMEL Indicators

Table 29

Model Summary of Regression Analysis between ROA and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782	.612	.127	.59852

Note. Estimation from SPSS

Table 29 shows that the coefficient of multiple determination R^2 is 0.612, which indicates that 61.20% of total variation in ROA can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 38.80% is because of other factor.

Table 30

ANOVA table of Regression Analysis between ROA and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.260	5	.452	1.262	.423
	Residual	1.433	4	.358		
	Total	3.693	9			

Note. Estimation from SPSS

Table 30 shows that F-Value is 1.262 and its significance is 0.423 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROA of ADBL.

Table 31

Coefficient of Regression Analysis between ROA and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2.839	5.436		-.522	.629
	Capital Adequacy	-.113	.103	-.397	-1.098	.334
	Assets Quality	-.007	.224	-.021	-.031	.977
	Management Efficiency	.025	.058	.176	.429	.690
	Earning Quality	.482	.379	.778	1.271	.273
	Liquidity	.205	.159	.561	1.287	.267

Note. Estimation from SPSS

The beta coefficient for Capital Adequacy is -0.113, with a p-value of 0.334, which is greater than the expected significance value of 0.05. This indicates a negative and statistically insignificant relationship between Capital Adequacy and ROA. The negative beta coefficient suggests that a one-unit increase in Capital Adequacy results in a decrease in ROA by 0.113 units.

The beta coefficient for Assets Quality is -0.007, indicating a negative impact on ROA for NBL. This suggests that a one-unit increase in Assets Quality results in a decrease in ROA by 0.007 units. The p-value is 0.977, which is greater than 0.05, indicating that the relationship between ROA and Assets Quality is statistically insignificant.

Similarly, the coefficient for Management Efficiency is 0.025, indicating a positive impact on ROA. This means that a one-unit increase in Management Efficiency results in an increase in ROA by 0.025 units. However, the p-value is 0.690, which is greater than 0.05, suggesting that the relationship between Management Efficiency and ROA is statistically insignificant.

The beta coefficient for Earning Quality is 0.482, indicating a positive relationship with ROA. This suggests that a one-unit increase in Earning Quality results in an increase in ROA by 0.482 units. However, the p-value is 0.273, which is greater than 0.05, indicating that the relationship between Earning Quality and ROA is statistically insignificant.

Lastly, the positive beta coefficient for Liquidity is 0.205, indicating a positive relationship with ROA. This means that a one-unit increase in Liquidity results in an increase in ROA by 0.205 units. The p-value is 0.267, which is greater than 0.05, suggesting that while the relationship between Liquidity and ROA is positive, it is statistically insignificant.

Regression Analysis between ROE and CAMEL Indicators

Table 32

Model Summary of Regression Analysis between ROE and CAMEL indicators

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.711	.506	-.111	3.64814

Note. Estimation from SPSS

Table 32 shows that the coefficient of multiple determination R^2 is 0.506, which indicates that 50.60% of total variation in ROE can be explained or accounted for by the variation in Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity the remaining 49.40% is because of other factor.

Table 33

ANOVA table of Regression Analysis between ROE and CAMEL indicators

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.576	5	10.915	.820	.593
	Residual	53.236	4	13.309		
	Total	107.811	9			

Note. Estimation from SPSS

Table 33 shows that F-Value is 0.820 and its significance is 0.593 which is greater than expected significance value i.e. 0.05. It means there is statistically insignificant relationship between CAMEL and ROE of ADBL.

Table 34

Coefficient of Regression Analysis between ROE and CAMEL indicators

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.296	33.134		.341	.750
	Capital Adequacy	-.942	.626	-.614	-1.504	.207
	Assets Quality	-.256	1.365	-.147	-.187	.860
	Management Efficiency	-.039	.351	-.051	-.111	.917
	Earning Quality	2.542	2.312	.759	1.099	.333
	Liquidity	.934	.969	.473	.964	.390

Note. Estimation from SPSS

The beta coefficient of Capital Adequacy is -0.942 with p (sig) value 0.207, which is greater than expected significance value 0.05. It means that there is negative and statistically insignificant relationship between Capital Adequacy and ROE. Negative beta coefficient indicates that unit increase in Capital Adequacy leads to a decrease in ROE by a factor of 0.942 units.

The beta coefficient for Assets Quality is -0.256, indicating a negative impact on ROE for ADBL. This means that a one-unit increase in Assets Quality results in a decrease in ROE by 0.256 units. The p-value is 0.860, which is greater than 0.05, suggesting that the relationship between ROE and Assets Quality is statistically insignificant.

Similarly, the coefficient for Management Efficiency is -0.039, indicating a negative impact on ROE. This means that a one-unit increase in Management Efficiency results in a decrease in ROE by 0.039 units. The p-value is 0.917, which is greater than 0.05, suggesting that the relationship between Management Efficiency and ROE is statistically insignificant.

The beta coefficient for Earning Quality is 2.542, indicating a positive relationship with ROE. This suggests that a one-unit increase in Earning Quality results in an increase in ROE by 2.542 units. However, the p-value is 0.333, which is greater than 0.05, indicating that the relationship between Earning Quality and ROE is statistically insignificant.

The positive beta coefficient for Liquidity is 0.934, indicating a positive relationship with ROE. This means that a one-unit increase in Liquidity results in an increase in ROE by

0.934 units. The p-value is 0.390, which is greater than 0.05, suggesting that while the relationship between Liquidity and ROE is positive, it is statistically insignificant.

4.1.6 Major Findings

Based on the analysis and interpretation of data, the following major findings have been drawn:

- The CAR analysis reveals that ADBL has a higher average CAR compared to NBL and RBBL. Specifically, ADBL's average CAR is 17.83%, while NBL and RBBL have average CARs of 9.22% and 7.96%, respectively. ADBL also meets the minimum capital requirements set by the NRB. This indicates that ADBL's performance is satisfactory and demonstrates its financial strength and stability in comparison to the other banks.
- The analysis of the NPA to total advances ratio shows that NBL and ADBL have a decreasing trend, indicating a focus on improving asset quality. In contrast, RBBL's NPA/TA ratio shows fluctuations. Among the banks, NBL has the lowest average NPA/TA ratio at 3.67%, while RBBL has the highest average at 4.92% over the study period. This suggests that NBL has fewer defaulted loans compared to ADBL and RBBL, reflecting better asset quality management.
- The analysis of the management efficiency ratio, specifically the total advances to total deposits ratio, reveals that ADBL has the highest performance in mobilizing its deposits compared to the other two commercial banks. This indicates that ADBL is more effective at utilizing its deposits to generate advances.
- In terms of the Net Interest Income to Total Income Ratio (NII/TA), ADBL leads with the highest average ratio of 5.14%, indicating strong performance and earning potential. Conversely, NBL and RBBL have lower average ratios, with NBL at 3.79% and RBBL at 3.48%, placing them at the bottom among the selected banks in this parameters.
- In term of Liquid Asset to Total Asset (LA/TA) ratio, NBL with highest average of 15.01% is in the top rank among the bank. Whereas, average LA/TA ratio of RBBL and ADBL are 14.90% and 11.95% respectively. Higher ratio indicate better liquidity position of that bank and vice versa.
- In terms of the composite CAMEL rating, both NBL and ADBL achieved equal composite averages and ranked first. ADBL excels in maintaining capital adequacy,

management quality, and earning performance. NBL excels in asset quality and liquidity, securing the top rank in these areas. In contrast, RBBL falls short of the CAMEL rating criteria and ranks last with poor performance across the evaluated aspects.

- The analysis of profitability indicators shows that ADBL has a higher average Return on Assets (ROA), while RBBL has a higher average Return on Equity (ROE). Both ratios exhibit a fluctuating trend throughout the study period.
- The comparative analysis indicates that ADBL demonstrates better financial performance compared to both NBL and RBBL.
- The Return on Assets (ROA) for NBL shows a positive relationship with Capital Adequacy, Management Efficiency, and Earning Quality, meaning that increases in these factors lead to higher ROA. Conversely, Assets Quality and Liquidity have a negative correlation with ROA, indicating that increases in these factors result in a decrease in ROA.
- The Return on Equity (ROE) for NBL shows a positive relationship with Capital Adequacy, Management Efficiency, and Earning Quality, meaning that increases in these factors lead to higher ROE. Conversely, Assets Quality and Liquidity have a negative correlation with ROE, indicating that increases in these factors result in a decrease in ROE. However, the relationship between ROE and all independent variables is statistically insignificant.
- The correlation analysis for RBBL reveals that ROA has a positive relationship with Capital Adequacy, Assets Quality, Management Efficiency, and Earning Quality, while it has a negative correlation with Liquidity. For ROE, Capital Adequacy, Assets Quality, and Earning Quality are positively related, whereas Earning Quality has a negative correlation with ROE. Despite these relationships, the correlations between ROA, ROE, and all independent variables are statistically insignificant.
- The correlation analysis for ADBL indicates that both ROA and ROE are positively correlated with Assets Quality, Management Efficiency, and Earning Quality. This means that increases in these factors lead to higher ROA and ROE. Conversely, ROA and ROE have a negative correlation with Capital Adequacy and Liquidity, implying that increases in these factors result in lower ROA and ROE.
- The regression analysis between ROA and CAMEL of NBL shows the impact of CAMEL on ROA of bank. The coefficient of determination **(**R^2**)** is 0.886 it means

Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity explains about 88.6% of the variation in the dependent variable i.e. ROA and the rest 11.40% are unexplained on determining the ROA of bank. The test of P-value aid to include that at overall, the relationship between explanatory variables and ROA of bank is statistically insignificant since calculated P-value is 0.051, which is greater than P-value of 0.05 at 5% level of significance.

- The regression analysis between ROE and CAMEL of NBL shows the impact of CAMEL on ROE of bank. The coefficient of determination **(**R^2**)** is 0.376 it means Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity explains about 37.6% of the variation in the dependent variable i.e. ROE and the rest 62.40% are unexplained on determining the ROE of bank. The test of P-value aid to include that at overall, the relationship between explanatory variables and ROE of bank is statistically insignificant since calculated P-value is 0.778, which is greater than P-value of 0.05 at 5% level of significance.
- The regression analysis between ROA and CAMEL of RBBL showed that all independent variables i.e. Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity had no significant relationship with the bank's performance in terms of ROA on 5% level of significance. Coefficient of determination **(**R^2**)** is 0.535 it means Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity explains only 53.5% of the variation in the dependent variable i.e. ROA and the rest 46.5% are unexplained on determining the ROA of bank.
- The regression analysis between ROE and CAMEL of RBBL shows the impact of CAMEL on ROE of bank. The coefficient of determination **(**R^2**)** is 0.579, it means 57.9% of variation in the dependent variable, i.e. ROE, caused by independent variables i.e. CAMEL. Rest 42.1% was unexplained. Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity had no significant relationship with the bank's performance in terms of ROE on 5% level of significance.
- The regression analysis between ROA and CAMEL of ADBL showed that all independent variables i.e. Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity had no significant relationship with the bank's performance in terms of ROA on 5% level of significance. Coefficient of

determination **(**R^2**)** is 0.612 it means Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity explains only 61.2% of the variation in the dependent variable i.e. ROA and the rest 38.8% are unexplained on determining the ROA of bank.

- The regression analysis between ROE and CAMEL of ADBL shows the impact of CAMEL on ROE of bank. The coefficient of determination **(**R^2**)** is 0.506 it means 50.6% of variation in the dependent variable, i.e. ROE caused by independent variables i.e. CAMEL. Rest 49.4% was unexplained. Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity had no significant relationship with the bank's performance in terms of ROE on 5% level of significance.

4.2 Discussion

In this section, the result is evaluated and interpreted. Here, the study examines every aspect of the results in terms of related theories and the empirical findings of other researchers. Here the findings are discussed to find out whether they are consistent or inconsistent as predicted by the theory, compare the results with those of other researchers, and try to explore the reasons for the similarity or the contradiction.

The study utilized the CAMEL model to analyze the comparative financial performance of Nepal's government owned commercial banks: NBL, ADBL, and RBBL. The results reveal that ADBL outperformed the other two banks in terms of capital adequacy, management efficiency, and earning parameters. On the other hand, NBL demonstrated better performance in asset quality and liquidity parameters.

The overall financial performance of the banks was evaluated using the composite ranking method, which indicated that both NBL and ADBL were ranked first with an equal composite average, while RBBL was ranked second. However, the study concludes that ADBL exhibits superior financial performance compared to NBL and RBBL, as it surpassed the other banks in key CAMEL parameters (C, M, and E).

In this study, the CAMEL model analysis serves as a primary tool for assessing the financial performance of commercial banks, akin to previous studies by Palamalai and Saminathan (2016), Gawde et al. (2018), Nguyen et al. (2020), and others cited herein. Similarities are

also noted with Magoma et al. (2022), who employed CAR to analyze capital adequacy, NPAs to total loans for assets quality, total loans to total deposits ratio for management efficiency, net interest income to total assets ratio for earning quality, and liquid assets to total assets ratio for liquidity.

Furthermore, this study aligns with studies by Rauf and Lebbe (2016), Palamalai and Saminathan (2016), Rahman and Islam (2018), Ab-Rahim, Kadri et al. (2018), Lad and Ghorpade (2022), and Singhal and Gupta (2020) in rating bank performances using the CAMEL rating system. Rahman and Islam (2018) emphasized the CAMEL rating approach as crucial for identifying bank strengths and weaknesses, while Singhal and Gupta (2020) employed the composite ranking method for assessing overall performance of public sector banks.

Correlation analysis between CAMEL and ROA & ROE of each sampled bank revealed that NBL's ROA & ROE positively correlate with capital adequacy, management efficiency, and earning quality, but negatively with asset quality and liquidity. Only NBL's earnings showed significant positive correlation with NBL's ROA at a 0.01 significance level. The relationship between NBL's capital adequacy and ROE mirrors Jha and Hui (2012) findings, but differs for ROA.

RBBL's ROA demonstrates a positive relationship with capital adequacy, asset quality, management efficiency, and earnings, but a negative correlation with liquidity. These results align with Gautam (2020) for capital adequacy, asset quality, and earnings, and with Jha and Hui (2012) for asset quality, earnings, and liquidity. Similarly, RBBL's ROE is positively related to capital adequacy, asset quality, earnings quality, and liquidity, while negatively related to earnings quality, aligning with Jha and Hui (2012) and Gautam (2020) for capital adequacy and liquidity.

Both ROA and ROE of ADBL positively correlate with asset quality, management efficiency, and earnings, but negatively with capital adequacy and liquidity. Significant positive correlation with ADBL's earnings quality is observed only for ROA. Results for asset quality and earnings align with Jha and Hui (2012) and Gautam (2020), while those for capital adequacy, management efficiency, and liquidity differ.

Multiple regression analysis of NBL's ROA and ROE with CAMEL variables indicates that capital adequacy, earnings, and liquidity have positive but insignificant impacts on ROA, while asset quality and management efficiency have negative but insignificant impacts. These findings partially agree with Jha and Hui (2012), who found insignificant relationships for asset quality, management efficiency, earnings, and liquidity with ROE.

Regression analysis of RBBL shows that capital adequacy, asset quality, and earnings have positive but insignificant relationships with both ROA and ROE at a 5% significance level, while management efficiency and liquidity have negative and insignificant relationships. Results for capital adequacy and asset quality align with Rauf and Lebbe (2016), and for management efficiency, earnings, and liquidity with Jha and Hui (2012).

Regression analysis of ADBL reveals that capital adequacy and asset quality have negative but insignificant impacts on both ROA and ROE, while earnings and liquidity have positive but insignificant impacts at a 5% significance level. Management efficiency negatively impacts ROE but positively impacts ROA. These results for capital adequacy, asset quality, and earnings align with Gautam (2020), while asset management and earnings results align with Lal and Gupta (2023), and capital adequacy and liquidity results contradict Lal and Gupta (2023).

CHAPTER V
SUMMARY AND CONCLUSION

The purpose of this chapter to present an overview of the study in the summarized form along with major findings and the conclusion of the study. Accordingly, it is organized in three sections:

5.1 Summary

Banks and financial institutions are crucial to the economic stability and growth of a country. Their performance can significantly influence the financial and economic well-being of various sectors. With globalization and advancements in information technology, competition among banking institutions has intensified. Therefore, it is essential to evaluate the financial performance of banks to identify their strengths and weaknesses effectively. This study was conducted with the objective of examining and analyzing the comparative financial performance of the government owned commercial banks of Nepal, i.e., NBL, ADBL, and RBBL, on the basis of the CAMEL framework. Ten-year data from fiscal years 2068/69 to 2077/78 were covered in this study. The study is based on secondary data taken from the annual reports of concerned banks, and the data obtained were analyzed using various financial tools. CAMEL is a key technique for evaluating the financial health and soundness of financial institutions. Capital adequacy, asset quality, management efficiency, earnings quality, and liquidity are some of the variables used to assess a bank's financial soundness.

This study employed a descriptive research design to outline the characteristics and performance of the banks. Additionally, an explanatory research design was utilized to explore and establish the cause-and-effect relationships between the response variables (bank performance indicators, namely ROA and ROE) and the explanatory variables (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity) of commercial banks. This study is based on the research framework that established relationships between independent variables (Capital Adequacy, Assets Quality, Management Efficiency, Earning Quality and Liquidity) and dependent variables (Return on Assets and Return on Equity). The size of the population was 20 commercial banks as of mid-Jan 2024. Three public-sector (government-owned) commercial banks were used as sample banks. So far as the sampling technique is concerned, a convenient

sampling method has been followed to assure representativeness. Therefore, the study samples are based on the non-probability sampling method.

Different ratios derived from CAMEL parameters are utilized as financial tools to evaluate the overall performance of banks. Meanwhile, correlation coefficients and multiple regression models serve as key statistical methods to measure the impact of CAMEL elements on profitability ratios, i.e., ROA and ROE. CAR, NPA/TA ratio, TA/TD ratio, NII/TA ratio, and LA/TA ratio were used to represent and evaluate each parameter of CAMEL, respectively. Microsoft Excel and SPSS version 25 software were used to analyze the data. Financial ratio analysis is used to compare the financial performance of different commercial banks. It often reveals that the same bank may rank differently across various financial ratios. This variability in ranking can highlight different aspects of the bank's performance and financial health.

On the basis of CAMEL analysis, ADBL was found to comply with the standard set by NRB throughout the study period. Whereas, NBL and ADBL failed to comply with the standards set by NRB at the beginning of the study period. However, in the recent study period, both banks were able to keep their capital in accordance with the NRBs' guidelines. NBL has been able to keep their NPA/TA ratio at its lowest in comparison. The highest average TA/TD ratio of ADBL depicts the efficiency of management in mobilizing its deposits. ADBL was also earning good revenue by mobilizing its earning assets in profitable sectors. The liquidity position of NBL was found to be stronger than that of RBBL and ADBL, as it has the highest average LA/TA ratio. NBL is able to tackle sudden demand or withdrawal from its customers. On an overall basis, ADBL's financial performance was found to be better than that of NBL and RBBL. As per the profitability indicator, ADBL was able to earn the highest return from deploying its total assets, and RBBL was able to provide the highest return to its shareholders' investment by mobilizing its assets in profitable sectors.

The correlation analysis of NBL revealed that ROA and ROE of a bank have a positive correlation with Capital Adequacy, Management efficiency, and Earning of the bank, which implies that increasing these variables helps to increase the profitability of the bank. Whereas, Assets Quality and Liquidity have a negative correlation with ROA and ROE of a bank, i.e., the higher the asset quality and liquidity, the lower the ROA and ROE of NBL. Likewise, correlation analysis of RBBL shows that Capital Adequacy, Management

Efficiency, Assets Quality and Earning have positive relationships with the ROA of RBBL. An increment in these variables also results in an increment in the ROA of the bank, and vice versa. The negative correlation between Liquidity and ROA of RBBL shows that an increase or decrease in liquidity results in a decrease or increase in ROA of the bank. Similarly, Capital Adequacy, Assets Quality, Earning and Liquidity have a positive relationship with the ROE of RBBL. An increment in these variables also results in an increment in the ROE of the bank, and vice versa. The negative correlation between Management Efficiency and ROE of RBBL shows that an increase/decrease in Management Efficiency of RBBL results in a decrease or increase in ROE of the bank. And correlation analysis of ADBL revealed that ROA and ROE of bank have a positive correlation with Management Efficiency, Assets Quality and Earning of the bank, which implies that increasing these variables helps increase the profitability of the bank. Whereas, Capital Adequacy and Liquidity have a negative correlation with ROA and ROE of the bank, i.e., the higher the Capital Adequacy and Liquidity, the lower the ROA and ROE of ADBL.

The regression analysis of NBL showed that 88.60% and 37.60% of the total variation in ROA and ROE are explained or caused by the variation in CAMEL, respectively. Likewise, the regression analysis of RBBL showed that 53.50% and 57.90% of the total variation in ROA and ROE are explained or caused by the variation in CAMEL, respectively, and the remaining percentage is caused by other variables. And, the regression analysis of ADBL showed that 61.20% and 50.60% of the total variation in ROA and ROE are explained or caused by the variation in CAMEL, respectively.

5.2 Conclusion

The general objective of the study is to examine and analyze the financial performance of government owned commercial banks in Nepal using the CAMEL model for the period 2068/69 to 2077/78. The specific objectives were to compare the financial performance of selected banks on the basis of CAMEL, to examine and evaluate the relationship between components of the CAMEL and ROA and ROE of each sample banks, and to measure the impact of CAMEL on financial performance of each sample bank.

Though financial ratio analysis compares the financial performance among commercial banks, the same bank had different ranks under the different financial ratios. NBL got first

rank on Assets Quality and Liquidity parameters, second rank on Capital Adequacy, Management Efficiency and Earning parameters. While RBBL got second on the liquidity parameter and third on all other parameters. Likewise, ADBL got first rank on the Capital Adequacy, Management efficiency, and Earning Quality parameters; second rank on the Asset Quality parameter; and third rank on the Liquidity parameter. As per the composite rating of CAMEL, the findings of the study shows that NBL and ADBL banks stood on top with an equal composite average, followed by RBBL. From this analysis, it can be concluded that though NBL and ADBL both have an equal composite average (1.6), ADBL outperformed on more parameters of CAMEL than NBL. So, ADBL shows better financial performance on the basis of CAMEL.

The correlation analysis revealed that NBL needs to focus on maintaining Capital Adequacy, Management Efficiency and Earning of the bank as they help improve profitability. Similarly, RBBL needs to focus on Capital Adequacy, Assets Quality and Earning as an increase in these variables is also helpful in increasing the profitability of the bank. And correlation analysis of ADBL revealed that it should give priority to maintaining and improving Assets Quality, Management efficiency, and Earning of the bank, as increments on these variables also help to increase profitability of the bank.

Furthermore, multiple regression analysis shows the impact of CAMEL indicators on financial performance i.e. ROA and ROE of selected sampled banks. Capital Adequacy has a positive but statistically insignificant impact on the ROA and ROE of NBL and RBBL, and a negative but statistically insignificant impact on the ROA and ROE of ADBL. Asset Quality has a negative but statistically insignificant impact on the financial performance (i.e., ROA and ROE) of NBL and ADBL, while there is a positive but statistically insignificant impact on the ROA and ROE of RBBL. Management Efficiency negatively impacts both ROA and ROE for NBL and RBBL. However, for ADBL, Management Efficiency has a positive impact on ROA but a negative impact on ROE. Earning Quality has a positive and significant impact on the ROA of NBL, while its impact on ROE is positive but statistically insignificant. It also has a positive but insignificant impact on both the ROA and ROE of RBBL and ADBL. Lastly, Liquidity has a positive but insignificant impact on the ROA of NBL and ADBL, whereas it has a negative but insignificant impact on both the ROA and ROE of RBBL, and the ROE of NBL and ADBL.

5.3 Implications

Based on the findings and conclusions of the study, the following recommendations are made that could be useful to policymakers, practitioners, and the academic community:

- According to the study, the average capital adequacy ratios (CAR) of NBL and RBBL fall below the standard set by NRB, indicating insufficient capital. To improve their capacity to meet obligations and safeguard against bankruptcy, these banks may need to raise additional capital. A higher CAR reflects a stronger ability to fulfill financial obligations and enhances protection against financial distress.
- Overall, NBL and ADBL have demonstrated strong performance in terms of the CAMEL model components. However, RBBL needs to focus on improving its overall performance to meet the desired standards and enhance its financial health.
- Each bank should emphasize improving management efficiency, as effective management is crucial for optimizing other performance elements. Good management practices play a key role in enhancing the overall financial performance of a bank.
- The study focused solely on public-sector banks and used a convenient sampling method, which may limit the applicability of the results to all commercial banks. Future research should consider including a larger and more diverse sample of banks to achieve more accurate and generalizable findings.
- This study relies entirely on secondary data sourced from annual reports published by banks and various reports from the NRB. The validity of the findings depends on the accuracy of the data provided by the banks. Future researchers are encouraged to incorporate both primary and secondary data to enhance the credibility of their research.
- This study examines and analyzes the financial performance of sample banks using the CAMEL model, which is relatively new for assessing commercial banks in Nepal. Future research could explore whether the CAMEL model is suitable for use as a banking supervisory tool in Nepal, evaluating its effectiveness and applicability in this context.
- In this study, limited statistical tools were used to analyze the data. It is recommended to use more advanced and comprehensive statistical tools to obtain more accurate results.

- The study will provide valuable insights for the management of the selected banks, aiding them in making effective managerial decisions. Additionally, the findings will be useful for stakeholders, enabling them to make more informed decisions regarding the banks.

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APPENDICES

Appendix-1

Financial data taken audited annual financial statement of respective banks:

Total Capital Fund (Tier I and Tier II) (in '000')

F.Y.	NBL	RBBL	ADBL
2068/69	-3,190,876	-4,971,793	15,753,172.34
2069/70	-424,917	1,762,609	16,950,971.87
2070/71	3,593,123	2,843,233.57	17,881,568.02
2071/72	4,398,193	76,03,518.52	18,654,158.06
2072/73	7,439,635	89,69,051.76	20,213,273.47
2073/74	12,158,918	1,09,82,752.99	23,448,861.80
2074/75	11,039,740	13,962,000	25,269,454.72
2075/76	22,244,812	20,303,386.62	28,494,067.58
2076/77	23,007,434	20,846,575.46	31,711,667.99
2077/78	27,882,393	28,416,448.22	34,486,326.90

Risk- Weighted Asset (in '000')

F.Y.	NBL	RBBL	ADBL
2068/69	5 4,803,109	50,887,691	82,915,930.23
2069/70	71,433,221	60,020,640	103,760,745.90
2070/71	79,008,725	61,521,110.93	118,524,285.64
2071/72	58,656,402	74,841,286.66	133,372,897.49
2072/73	72,907,713	85,779,465.74	117,766,441.89
2073/74	84,053,201	10,56,71,317.31	114,882,731.82
2074/75	97,993,125	123,855,092	128,520,952.16
2075/76	132,429,132	151,618,466.94	139,856,014.78
2076/77	135,227,950	164,895,505.17	164,092,552
2077/78	165,948,397	211,091,480.14	203,523,603.79

Non-performing Loan (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	1,657,527,630	2,942,202,659	4,040,201,382
2069/70	1,982,323,212	2,610,188,241	3,212,599,021
2070/71	2,109,229,982	3,885,221,127	3,408,954,346
2071/72	2,126,079,148	4,058,087,567	3,862,823,331
2072/73	1,978,531,825	3,636,010,895	3,634,792,121
2073/74	2,469,786,693	4,015,894,682	4,266,110,478
2074/75	2,355,203,000	5,739,769,954	3,545,964,520
2075/76	2,575,371,800	7,092,386,997	3,700,102,626
2076/77	2,696,192,000	5,926,164,352	3,579,992,367
2077/78	2,975,446,985	6,324,343,005	2,912,805,250

Total Assets (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	58,615,520,783	93,905,093,545	63,521,407,442
2069/70	70,776,982,567	101,523,505,998	77,097,348,840
2070/71	77,980,528,805	122,560,787,115	88,519,685,712
2071/72	88,211,085,964	139,560,806,530	100,928,514,481
2072/73	103,479,534,057	166,432,086,120	111,786,100,812
2073/74	112,057,149,438	173,544,760,366	126,866,600,103
2074/75	133,467,201,041	197,332,000,365	135,419,614,689
2075/76	171,515,645,958	226,410,177,881	151,457,730,971
2076/77	191,162,816,827	266,766,261,442	179,320,218,226
2077/78	222,645,477,378	309,987,456,632	222,440,349,244

Total Loan and Advance (In Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	29,698,863,430	40,448,862,846	44,988,369,288
2069/70	37,851,965,743	49,044,912,288	54,918,507,832
2070/71	41,218,297,400	60,854,848,917	62,472,929,711
2071/72	53,388,387,872	75,836,499,116	72,238,515,320
2072/73	63,524,487,255	85,470,370,235	83,418,263,170
2073/74	74,372,886,596	106,431,350,320	92,725,212,976
2074/75	78,075,485,972	119,692,849,508	103,987,229,268
2075/76	95,412,020,453	148,657,897,007	112,465,125,420
2076/77	107,094,775,216	156,518,710,615	126,056,069,278
2077/78	139,654,905,450	180,341,791,772	154,936,449,436

Net profit After Tax (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	176,361,505	1,184,485,497	1,839,924,770
2069/70	755,180,353	1,310,113,981	2,289,319,963
2070/71	716,958,108	1,836,695,515	1,520,806,289
2071/72	483,848,520	4,643,868,021	3,603,370,808
2072/73	2,882,978,165	2,355,287,583	2,464,683,088
2073/74	3,117,893,760	2,776,308,811	2,565,220,197
2074/75	3,215,681,985	3,659,267,174	3,442,323,796
2075/76	2,596,736,045	5,046,520,378	4,191,590,635
2076/77	2,332,888,541	4,377,316,161	3,331,737,575
2077/78	2,961,230,329	3,423,628,296	3,527,536,906

Total Deposit (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	56,052,372,757	87,782,195,672	43,264,087,394
2069/70	62,984,350,047	91,093,908,717	54,477,651,530
2070/71	69,337,609,696	107,269,942,364	65,898,412,646
2071/72	77,998,775,919	124,221,662,307	77,035,056,186
2072/73	89,410,018,773	146,207,634,274	87,387,154,947
2073/74	93,944,014,252	153,580,970,975	99,816,272,142
2074/75	99,540,725,763	164,210,303,260	104,216,459,617
2075/76	117,200,788,938	189,255,335,577	118,884,922,831
2076/77	141,530,380,569	230,902,636,884	143,628,524,817
2077/78	162,813,383,867	263,836,765,847	162,814,930,677

Net Interest Income (in Rs) (Interest Earned- Interest expenses)

F.Y.	NBL	RBBL	ADBL
2068/69	1,854,014,796	2,351,661,076	4,120,911,277
2069/70	2,525,371,410	3,287,115,003	4,718,804,374
2070/71	2,823,581,913	3,880,766,303	4,622,209,341
2071/72	3,311,020,338	4,595,256,508	5,644,893,170
2072/73	4,605,071,546	5,549,927,100	6,261,331,028
2073/74	5,798,298,908.00	6,978,366,920	7,099,636,405
2074/75	6,387,746,058	9,114,229,197	6,637,465,768
2075/76	6,189,542,679	9,948,115,762	7,614,991,659
2076/77	5,618,819,041	9,448,401,894	6,716,121,272
2077/78	6,420,441,606	8,209,449,136	6,865,717,970

Liquid Assets (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	14,063,693,115	17,338,752,176	6,206,131,694
2069/70	14,388,421,069	15,538,815,610	9,592,637,400
2070/71	6,659,557,502	24,746,875,540	9,000,332,565
2071/72	9,261,314,911	22,894,590,883	11,570,804,884
2072/73	20,514,381,848	28,739,354,688	10,811,190,503
2073/74	18,873,247,393	20,596,546,980	15,614,533,271
2074/75	9,838,658,382	37,978,612,924	19,497,940,670
2075/76	31,619,589,236	20,928,465,494	19,471,372,267
2076/77	23,804,857,638	25,076,743,133	26,215,334,452
2077/78	26,269,496,223	35,865,152,932	26,232,316,334

Total Equity (in Rs)

F.Y.	NBL	RBBL	ADBL
2068/69	-2,907,776,423	-3,126,637,317	12,972,645,584
2069/70	-208,980,570	1,272,488,144	14,222,913,580
2070/71	3,347,087,672	2,386,572,749	15,076,248,711
2071/72	3,830,936,192	6,675,764,788	16,224,114,617
2072/73	6,713,914,357	8,606,249,451	18,127,314,682
2073/74	11,451,753,780	10,484,033,173	21,796,701,399
2074/75	22,971,994,166	19,070,771,410	26,700,749,211
2075/76	29,281,336,515	21,585,803,588	28,526,486,987
2076/77	30,030,991,537	23,029,537,948	28,425,897,351
2077/78	33,215,146,020	28,674,300,245	32,044,712,424

Appendix-2

Financial Ratio:

Capital Adequacy Ratio (CAR) (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	-5.82	-9.77	19.00
2069/70	-0.59	2.94	16.34
2070/71	4.55	4.62	15.09
2071/72	7.50	10.16	13.99
2072/73	10.20	10.46	17.16
2073/74	14.47	10.39	20.41
2074/75	11.27	11.27	19.66
2075/76	16.80	13.39	20.37
2076/77	17.01	12.64	19.33
2077/78	16.80	13.46	16.94

NPA to Total Advances Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	5.58	7.27	8.98
2069/70	5.24	5.32	5.85
2070/71	5.12	6.38	5.46
2071/72	3.98	5.35	5.35
2072/73	3.11	4.25	4.36
2073/74	3.32	3.77	4.60
2074/75	3.02	4.80	3.41
2075/76	2.70	4.77	3.29
2076/77	2.52	3.79	2.84
2077/78	2.13	3.51	1.88

Total Advances to Total Deposits Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	52.98	46.08	103.99
2069/70	60.10	53.84	100.81
2070/71	59.45	56.73	94.80
2071/72	68.45	61.05	93.77
2072/73	71.05	58.46	95.46
2073/74	79.17	69.30	92.90
2074/75	78.44	72.89	99.78
2075/76	81.41	78.55	94.60
2076/77	75.67	67.79	87.77
2077/78	85.78	68.35	95.16

Net Interest Income to Total Assets Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	3.16	2.50	6.49
2069/70	3.57	3.24	6.12
2070/71	3.62	3.17	5.22
2071/72	3.75	3.29	5.59
2072/73	4.45	3.33	5.60
2073/74	5.17	4.02	5.60
2074/75	4.79	4.62	4.90
2075/76	3.61	4.39	5.03
2076/77	2.94	3.54	3.75
2077/78	2.88	2.65	3.09

Liquid Assets to Total Assets Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	23.99	18.46	9.77
2069/70	20.33	15.31	12.44
2070/71	8.54	20.19	10.17
2071/72	10.50	16.40	11.46
2072/73	19.82	17.27	9.67
2073/74	16.84	11.87	12.31
2074/75	7.37	19.25	14.40
2075/76	18.44	9.24	12.86
2076/77	12.45	9.40	14.62
2077/78	11.80	11.57	11.79

Return on Assets Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	0.30	1.26	2.90
2069/70	1.07	1.29	2.97
2070/71	0.92	1.50	1.72
2071/72	0.55	3.33	3.57
2072/73	2.79	1.42	2.20
2073/74	2.78	1.60	2.02
2074/75	2.41	1.85	2.54
2075/76	1.51	2.23	2.77
2076/77	1.22	1.64	1.86
2077/78	1.33	1.10	1.59

Return on Equity Ratio (in %)

F.Y.	NBL	RBBL	ADBL
2068/69	-6.07	-37.88	14.18
2069/70	-361.36	102.96	16.10
2070/71	21.42	76.96	10.09
2071/72	12.63	69.56	22.21
2072/73	42.94	27.37	13.60
2073/74	27.23	26.48	11.77
2074/75	14.00	19.19	12.89
2075/76	8.87	23.38	14.69
2076/77	7.77	19.01	11.72
2077/78	8.92	11.94	11.01

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