

# **FINANCIAL PERFORMANCE ANALYSIS: A COMPARATIVE ANALYSIS**

## **A Thesis**

Submitted to the Office of the Dean, Faculty of Management,  
Tribhuvan University, Kirtipur, Kathmandu, Nepal  
In the Partial Fulfilment of the Requirement for the Degree of  
**Master of Business Studies (MBS)**

**BY**

**KABITA SINGH**

**T.U. Registration No.: 7-2-551-95-2013**

**Symbol No.: 7320/18**

**Campus Roll No.: 32/074**

**People's Campus**

Kathmandu, Nepal

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## **CERTIFICATION OF AUTHORSHIP**

I hereby corroborate that I have researched and submitted the final draft of thesis entitled “Financial Performance Analysis: A Comparative Analysis”. The work of this thesis 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 thesis.

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Kabita Singh

02-03-2022

## **REPORT OF RESEARCH COMMITTEE**

Ms. Kabita Singh has defended a research proposal entitled “Financial Performance Analysis: A Comparative Analysis” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per and submit the thesis for evaluation.

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Supervisor

**Dissertation Proposal Defended Date:**

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## APPROVAL SHEET

This thesis entitled “Financial Performance Analysis: A Comparative Analysis” submitted by **Ms. Kabita Singh** to the faculty of Management, Tribhuvan University, in partial fulfillment of the requirements for the degree of Master of Business Studies has been found satisfactory in scope and quality. Therefore, we hereby certify that the thesis is acceptable for the award of degree.

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Dissertation Supervisor

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Chairperson Research Committee

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This study entitled “Financial Performance Analysis: A Comparative Analysis” has been prepared for partial fulfillment of requirements for the degree of Masters of Business Studies (MBS). It is directed towards the trend of financial performance of public and private banks affected by capital adequacy, assets quality, management efficiency and liquidity management made by four studied banks (two public banks and two private banks) for the past ten years. This would not have been possible without the kind support and help of many individuals. Therefore, I would like to thank all the members who directly or indirectly helped and supported me while completing this report.

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Furthermore, I am thankful to all the administrative and library team of People’s Campus. I would like to thank my friends for their support in many ways. Last not the least, my special thanks to my family for their never-ending moral support to complete this thesis. I would like to take the responsibility of any possible mistakes that may have occurred in this report. I would be glad to welcome readers for their suggestion and recommendation to improve the report.

Kabita Singh

March, 2022

## ABSTRACT

*This study was aimed at measuring the financial performance of some selected public and private banks in Nepal from 2011 to 2020. The financial performance of selected banks has been measured by using the four important components of financial measures; those are capital adequacy, asset quality, management capacity and liquidity of banks. The collected secondary data have been analyzed by using a ratio analysis model. In line with comparison of selected private banks and public banks each other, the study revealed the following results. A quantitative method is used for this research with four companies as research object, measured by purposive sampling techniques. The descriptive, correlational and regression has been employed in this study. Bank Performance was taken as dependent variables and whereas Capital Adequacy (CA), Assets Quality (AQ), Management Efficiency (ME) and Liquidity Management (LM) were independent variables. The data were collected from the Banking and Financial Statistics and Supervision Report published by Nepal Rastra Bank, and annual reports of selected banks. The regression models were estimated to test the effect of bank specific variables on performance of Nepalese financial institutions. The study recommended that the public and private banks board of directors, chief executive officer and marketing officer, stakeholders are taken carefully decision about capital adequacy, assets quality, management efficiency, liquidity management variable to increase the performance of bank.*

*Key words: Capital adequacy, Asset quality, Management efficiency, Liquidity management, Financial performance*

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## **ABBREVIATIONS**

ASEAN: Association of Southeast Asian Nation

AQ: Assets Quality

BFI: Banking and Financial Institution

CAMEL: Capital adequacy, Asset quality, Management, Earnings, Liquidity

CAR: Capital Adequacy Ratio

CCR: Core Capital Ratio

DEA: Data Envelopment Analysis

GDP: Gross Domestic Product

LM: Liquidity Management

MBS: Masters of Business Studies

ME: Management Efficiency

NEPSE: Nepal Stock Exchange

NIM: Net Interest Margin

NPA: Net Present Assets

NPV: Net Present Value

NRB: Nepal Rastra Bank

ROA: Return on Asset

ROE: Return on Equity

SEBON: Security Board of Nepal

SPSS: Statistical Package for the Social Sciences

SSA: Sub- Saharan Africa

# CHAPTER I

## INTRODUCTION

### 1.1 Background of the study

Banking sector plays an important role in sustaining financial markets and has a significant impact on the success of economy. Sound financial health of a bank is the guarantee not only to its depositors but is equally significant for the shareholders, employees and whole economy as well. As a broadcast to this maxim, efforts have been made from time to time, to measure the financial position of each bank and manage it efficiently and effectively (Din, 2010). Public sector banks are the banks in which the government has a major holding. Private sector banks are those banks in which the equity is held by private shareholders, i.e., there is no government shareholding (Hempell, 2002). Public sector banks dominated the Indian banking industry in the initial stages. Financial sector reforms made many changes in banking industry and private sector banks with the help of advanced technology and professionalized management achieved a challenging position thereby causing a great threat to the public sector banks (Kuchhal, 2008).

In developing countries like Nepal, banks play a major role in financial development. This is especially true since stock and corporate bond markets are usually underdeveloped (Saunders and Cornett, 2004). Moreover, the development of banking system and improving of its financial performance is related to higher economic growth of a country. In Nepal, commercial banks contribute to economic growth through their financial intermediation role. Better performance of commercial banks is pro foundation for product innovation, diversification and efficiency of the commercial banks (Hempell, 2002). The stability of commercial banks as whole in the economy depends on better financial performance. Better financial performance level has tendency to absorb risks and shocks that commercial banks can face.

Commercial banks in Nepal have undergone immense regulatory and technological changes since financial sector reforms. Nepalese banks are faced with increasing competition and rising costs as a result of regulatory requirements, financial and technological innovation, entry of large foreign banks in the retail banking environment and challenges of the recent financial crisis. Hirtle and Lopez (1999) found that CAMEL model is highly confidential to project business strategy for the bank's senior

management and supervisory staff. These changes had a dramatic effect on the performance of the commercial banks in Nepal. Studies on bank performance in Nepal had focused on bank efficiency using Data Envelopment Analysis (DEA). This study compares and evaluates financial performance of small, medium and large Commercial banks in Nepal for the period from 2015-2019 using financial ratio analysis. The present study is different from earlier studies in two ways: sample coverage and methodology. The study is motivated by the fact that, the measurement of financial performance of the banking sector is important for several reasons (Sahajwala, 2000). First, financial performance is a vital factor for financial institutions wishing to carry out their business successfully, given the increasing competition in the financial markets. Second, in the rapidly changing and more globalized financial marketplace, governments, regulators, managers and investors are concerned about how efficiently banks transform their expensive inputs into various financial products and services. Third, the financial performance measures are critical aspects of banking sector that enable us to distinguish banks that has the capability to survive and prosper from those that may have problems with competitiveness. Additionally, financial ratios enable us to identify unique bank strengths and weaknesses, which in itself inform bank profitability, liquidity and credit quality.

Countries whether developing or developed, will achieve its economic growth when the business is succeeded. Cole and Gunther (1995) carried out a study as a pioneer by using CAMEL model in rating bank's performance. Business will be succeeded when they operate efficiently and effectively and maximize the wealth of the owners. For efficient operation, financial information plays an important role in making planning and controlling decisions. This information is obtained from the financial statement of the firm. Firms prepare financial statements to provide it for internal users to make decisions that will enable them to plan for future and take corrective actions based on actual results and for external users i.e investors, banks, creditors, government, and other interested users (Sahajwala, 2000).

Financial sector is the backbone of economy of a country. It works as a facilitator for achieving sustainable economic growth through providing efficient monetary intermediation. A strong financial system promotes investment by financing productive business opportunities, mobilizing savings, efficiently allocating resources and makes easy the trade of goods and services. Banking system is considered as the heart of an

economy because of its contribution toward the mobilization of savings and thus to the utilization of this country's resources. Commercial banks play important role for the development of the countries through the resource mobilization (Naceur, 2013). They channel funds from savers to borrowers continuously. They should generate sufficient income to cover their operational cost they incur in the due course. The financial performance of banks has critical implications for economic growth of countries. How well a financial institution is performing is of great importance for the resource providers for making correct investment decisions. Good financial performance rewards the shareholders for their investment. This, in turn, Wheelock and Wilson (2000) encouraged additional investment and brings about economic growth. On the other hand, poor banking performance can lead to banking failure and crisis which have negative repercussions on the economic growth. Profitability of financial institution is one of the important parameters from which funds providers can understand performance of the institutions. Financial performance depends on various factors. Some of them are Capital Adequacy, Asset Quality, Management Efficiency, Liquidity, Gross Domestic Product etc. Therefore, in order to ensure sound financial performance banks should focus on the factors likely to affect profitability and the extent of their influence.

Financial performance analysis of commercial banks has been of great interest to academic research since the Great Depression Intern the 1940's (Gopinathan, 2009). In the last two decades studies have shown that commercial banks in Sub-Saharan Africa (SSA) are more profitable than the rest of the world with an average Return on Assets (ROA) of 2 percent. The performance of commercial banks can be affected by internal and external factors. These factors can be classified into bank specific (internal) and macroeconomic variables. The internal factors are individual bank characteristics which affect the bank's performance. These factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks (Dahiyat, 2012). Furthermore, the evaluation of a company's performance has been focusing the operational effectiveness and efficiency, which might influence the company's survival directly.

The empirical results of the researches explained that a company, which has better efficiency, it does not mean that always it will show the better effectiveness. Alam

(2011) concluded that ranking of banks differ as the financial ratio changes. They noted that interest expenses divided to total loans can be measured as the bank management quality. Ability to support the present and future operations of a bank depends on the quality of its earnings and profitability profile. Tarawneh (2006) found that the banks having high total capital, deposits, credits, or total assets does not always mean that has healthier profitability and performance. The operational efficiency and asset management, in adding to the bank size, positively influenced the financial performance of these banks. Gopinathan (2009) has presented that the financial ratios analysis can spot better investment options for investors as the ratio analysis measures various aspects of the performance and analyzes fundamentals of a company or an institution. Banking has become an important feature, which renders service to the people in financial matters, and its magnitude of action is extending day by day. It is a major financial institutional system in Nepal, which accounted for more than 70% of the total assets of all the financial institutions. NRB uses return on total assets as an indicator of profitability of a commercial bank.

The main purpose of this study is to analyze the financial performance of commercial banks in Nepal. Specially, it examines the performance of commercial banks through capital adequacy ratio, liquidity ratio, management efficiency, asset quality and gross domestic product. The financial sector plays an important role for the economic development of any nation (Levine, 1997). Financial institutions especially depository institutions collect saving from those who have saving and provide loan for those who need fund. Hence, banking industry serves as the backbone of the financial sector (Suyanto, 2007). Due to financial liberalization policies introduced in the late 1980s, several joint venture banks were established. As a result, large number of domestic investors also started investing in the banking industry. After introduction of merger and acquisition policies and mandatory requirement to increase paid up capital, merger and acquisition takes place among financial institutions resulting into decrease in number of bank and financial institutions, BFIs.

Financial analysis is the process of evaluating financial statement of a firm through the application of various techniques to detect financial strengths and weaknesses of a firm (Kuchhal, Financial management: An analytical and conceptual approach, 2008). Hence, financial performance analysis is also termed as financial health check-up of any business concern. Regular financial health check-up any financial institution is

necessary to maintain and protect the interest of depositors, lenders, shareholders and other stakeholders (Chowdhury, 2002). International monetary authorities such as International Monetary Fund and World Bank directed their member countries to conduct regular financial health check -up of FIs to reform financial sector. In order to reform financial sector, the World Bank is constantly providing technical and financial support to reengineer Nepal Rastra Bank (NRB) and restructure Nepal Bank Ltd. and Rastriya Banijya Bank.

Health of individual FIs affects the health of financial sector. Micro and macro factors affect the financial health of individual FIs. Political stability and the real sector growth are major macro factors whereas capital base, quality of assets, liquidity position, management quality, market sensitivity and earnings are micro factors (Saunders and Marcia, 2004). There are so many techniques available today to evaluate financial performance of banks and financial institutions. Among them, CAMEL model of financial analysis is considered more efficient. Under CAMEL model, five (now six) critical dimensions are used to evaluate financial performance regarding bank's operations and performance. CAMEL is an effective tool to analyze financial performance for examiners and regulators. Different aspects of a bank based on various information are used under CAMEL model to detect financial soundness. The CAMEL model is highly confidential to project business strategy for the bank's senior management and supervisory staff. Cole and Gunther (1995) carried out a study as a pioneer by using CAMEL model in rating bank's performance. They proved the effectiveness of this model to analyze financial performance of commercial banks and financial institutions. This study, therefore, attempts to examine the financial performance analysis based on CAMEL components and their influence on the profitability of the Nepalese BFIs.

## **1.2 Problem statement**

Establishment of banks concentrate only in urban area, like Kathmandu, Pokhara, Birgung, Hetauda, Biratnagar, etc. has raised certain questions. This application is not able to contribute the socio- economic development of the country where around 80% people live in rural and 79% of the population depends upon agriculture. These banks should expand their operation in rural areas. NRB, as the central bank has ruled that banks should invest 10% of their total investment in the rural areas. These banks are inclined to pay fines rather than investing their resources to such less profitable sector.

The main objective of the bank is to collect deposits as much as possible from the customer and to mobilize into the most profitable and preferable sector.

The present study basically focused on the financial performance of Nepal Bank Ltd. (NBL), Agricultural Development Bank Ltd (ADBL), Himalayan Bank Ltd. (HBL) and Everest Bank Ltd (EBL). In Nepal, many banks and financial companies have opened up within a span of few years. Although, these three banks have managed to perform better than other local commercial banks within the short period of time they have been facing a neck competition against one another. Therefore, it is necessary to analyze the profitability position of NBL, ADBL, HBL and EBL. Thus, the present study seeks to explore the efficiency and comparative financial performance of NBL, ADBL, HBL and EBL. In Nepal, the profitability rate, operating expenses and dividend distribution rate among the shareholders has been found different in the financial performance of the three banks in different period of time. The problem of the study will ultimately find out the reasons about difference in financial performance. In spite of rapid growth, some indicators show performance is not much encouraging towards the service coverage. In such a situation the study tries to analyze the present performance of banks, which would give the answers of following queries.

- a. How is the performance of selected private and public banks under the study in terms of capital adequacy, assets quality, management efficiency, liquidity management?
- b. What is the relationship of capital adequacy, assets quality, management efficiency, liquidity management with performance of banks?

### **1.3 Objectives of the study**

Our activities should be motivated to achieve specific goals, which is a desired outcome. The main objective of this study is to analyze the relationship of capital adequacy, assets quality, management quality and liquidity with performance of bank (public and private banks) in Nepal with reference to NBL, ADBL, HBL and EBL respectively and the extent to which they impact on performance. The main objective of this study is to relationship of capital adequacy, assets quality, management quality and liquidity with performance of bank. It seeks to empirically examine the relationships between Bank performance (the dependent variable) and a wide range of independent (explanatory) variables. This study analyzes the impact of Capital

Adequacy, Assets Quality, Management Efficiency of listed companies in the Nepal Stock Exchange (NEPSE).

The study has excluded some of the variables stated in the literature as determinants or drivers of firm value as they have multicollinearity and/or similarity with each other.

1. To analyze the relationship of capital adequacy, assets quality, management quality and liquidity with performance of bank.

2. To analyze the impact of capital adequacy, assets quality, management quality and liquidity on performance of bank.

#### **1.4 Hypothesis of the study**

The focus of research based on the formulation of the problem and the hypothesis of this study is the relationship between variables, which indicate a causal relationship complex and tiered. These relationships involve endogenous variables, namely the Capital Adequacy, Assets Quality, Management Efficiency, Liquidity Management; exogenous variables, namely Financial Performance.

Ho<sub>1</sub>: There is no significant relationship of capital adequacy with bank performance.

Ho<sub>2</sub>: There is no significant relationship of assets quality with bank performance.

Ho<sub>3</sub>: There is no significant relationship of management efficiency with bank performance.

Ho<sub>4</sub>: There is no significant relationship of liquidity management with bank performance.

Ho<sub>5</sub>: There is no significant impact of capital adequacy on bank performance.

Ho<sub>6</sub>: There is no significant impact of assets quality on bank performance.

Ho<sub>7</sub>: There is no significant impact of management efficiency on bank performance.

Ho<sub>8</sub>: There is no significant impact of liquidity management on bank performance.

#### **1.5 Rationale of the study**

The study attempted to analyze the relationship of capital adequacy, assets quality, management quality and liquidity with performance of bank along with its impact on performance of bank. The findings may provide more elaborate and contemporary evidence that is supportive to corporate managers when formulating corporate policies

that are likely to increase firm value. It also examines the relationship of value of firm by determining financial performance. The study will work as framework for the provide practitioners and academicians to understand the financial performance of Nepalese companies. The significance of the studies is:

1. The study may well provide more elaborate and contemporary evidence that is supportive to corporate managers when formulating corporate policies that are likely to increase firm value.
2. It helps to maximize the value of the banks by understanding the financial performance from the banking sectors.
3. This study will provide practitioners and academicians with a synopsis of the applicability of performance of banks for Nepalese companies that may produce better bank performance.

### **1.6 Limitations of the study**

This study is conducted for the partial fulfillment of Master in Business Studies (MBS). So, it possesses some limitations of its own kind which is constraints of data, information etc. The main limitations of the study will be as:

1. This study will be focused only on financial aspects and not on the operational aspects of the sample banks. So, the conclusion derived from this study will solely depend upon financial aspects but will be completely free from operational aspects.
2. The study is limited to the comparative study of financial performance among selected private and public banks. Thus, the findings may not be generalizable for the whole banks.
3. The study deals with only certain financial tools such as statistical tools so that the interpretation from other tools can be different.
4. Only four independent variables i.e. Capital Adequacy, Assets Quality, Management Efficiency, Liquidity Management have been considered in the entire study.
5. The study is carried out within limited time period (2011-2019).
6. The study is based on secondary data.

## **1.7 Chapter plan**

This study has been divided into five chapters: introduction, literature review, research methodology, results and discussion, summary and conclusion. The first chapter includes the introduction part of the study. It includes background of the study, problem statement, objectives of the study, hypothesis of the study, rationale of the study, limitation of the study and chapter plan of the study. The second chapter deals with conceptual framework of study and reviews of major empirical work in the area. This study is based on the framework provided by the chapter. The third chapter carries out research design, nature and source of data, data gathering process, population and sample and tools for data analysis. The fourth chapter presents the analysis of data and discussion in the form of variables and figures and fifth chapter summarizes the whole spectrum of the study. It also offers recommendation for the improvement in future.

Likewise, at the front part of the study, table of contents, acknowledgement, list of tables and figures, abbreviation are included where references and annexure are included at the end of the study.

## **CHAPTER II**

### **LITERATURE REVIEW**

A literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. It reviews the main banking profitability and performance theories that have been developed and used by the researchers and discuss their relevance to this study. So that past studies, their conclusions and deficiencies may be known and for further research to be conducted. It consists of review of empirical literature and related theories of the research. The main reason for a full review of research is to know the outcomes of those research in areas where similar concepts and methodologies had been used successfully. This Chapter highlights the literature that is available in concerned subject as to my knowledge, research work, and relevant study on this topic, review of journals and articles and review of thesis work that has previously performed. It enables a researcher to find out about the existing bodies of knowledge on the topic of his/her interest. It helps to find out the areas yet to be studied in the concerned topic and need for additional research. It states the findings from previous researches hence enabling a researcher to generate the hypothesis for the research.

#### **2.1 Theoretical Review**

The theoretical framework is the basis of foundation upon which the theory is established. It is within the framework of this theory that the entire study proceeds. Since, the general purpose of research is to develop theories about problems and questions, it is important that the theoretical framework be carefully developed and presented. A theoretical model may be presented in graphic form, which reflects the variables or characteristics selected for inclusion in the investigation.

##### **2.1.1 Dependent Variables**

###### **A. Return on Assets (ROA)**

The measures of bank performance may be varied and the choice of the specific performance measure depends on the objective of the study. In theoretical literature the performance measures could be found such as: traditional measures of performance (ROA - return on assets, ROE - return on equity, cost to income ratio, 17 net interest margin), economic measure of performance (EVA- economic value added, RAROC-

risk adjusted return on capital) and market based measure of performance (total share return, price-earnings ratio, price-to-book value, credit default swap). This study has used ROA as dependent variables to represent bank performance. ROA measures the profit earned per dollar of assets and reflect how well bank management uses the bank's real investments resources to generate profits. For banks with similar business risk profiles, ROA is a useful statistic for comparing the profitability of banks because it avoids distortions that are introduced by differences in financial leverage. Return on assets (ROA) is a comprehensive measure of overall bank performance from an accounting perspective. It seems more suitable for comparing the banks in the same industry than other measures of performance. Thus, return on assets (ROA) is chosen as the performance measure for this study. It shows the effectiveness of management in the utilization of the assets of a commercial bank. It is analyzed that bank performance is influenced by the credit risk indicators like: capital adequacy ratio, non-performing loan and cost per loan assets with controlling the effect of cash reserve ratio and leverage.

Return on Asset (ROA) is a financial ratio that shows the financial performance of a bank. The return on assets (ROA) is the net income for the year divided by total assets, usually the average value over the year. This ratio measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen (2010) stated that a higher ROA shows that the company is more efficient in using its resources.

$$\text{ROA} = \text{Total Income} / \text{Total Assets}$$

### **2.1.2 Independent Variables**

An independent variable is defined as the variable that is changed or controlled in a scientific experiment. It represents the cause or reason for an outcome.

#### **A. Capital Adequacy**

This is an independent variable for the determination of the performance and is considered as the core measure of a bank's financial strength from a regulator's point of view. Capital adequacy is the amount of capital a bank or other financial institution

has to ensure that institutions are not involving in or holding investments that amplify the risk of default. In addition, to guarantee that financial institutions have enough capital to sustain operating losses while honoring withdrawals. It is a measure of the amount of bank's capital expressed as a percentage of its risk weighted exposure. It consists of the types of financial capital considered the most reliable, primarily shareholders' equity. Theoretically, banks with good capital adequacy ratio have a good performance. A bank with a strong capital adequacy ratio is also able to absorb possible loan losses and avoid bank's insolvency and failure. Bank capital increases the capital to raise non-insured debt and the bank's ability to limit the effect of a drop in deposits on lending. Since, higher capital reduces bank risk and creates a buffer against losses, it makes funding with noninsured debt less information sensitive. Thus, capital adequacy can enhance bank performance. However, empirical studies on the relationship between firms' performance and capital adequacy ratio have shown mixed results.

Capital adequacy is one of the major components of CAMEL model. It is used to find out the bank's ability to meet operational losses. It protects bank from going to bankrupt and to maintain the confidence of the depositors in the bank. Sound capital base enable the bank to maximize profit whereas poor capital base give birth to many defects. In order to measure capital adequacy, bank capital is divided into Tier I and Tier II. Tier I (core/primary) capital is the summation of paid-up capital, share premium, nonredeemable preference share, general reserve fund, accumulated profit, capital redemption reserve, capital adjustment fund, and other free reserve. Amount of the goodwill, fictitious assets, and investment in the financial instruments issued by an organized organization in excess to the limit specified by NRB should be reduced to obtain core capital.

Capital Adequacy= Total Capital / Total Assets

## **B. Asset Quality**

Credit risk is one of the factors that affect the health of an individual financial institution. The extent of the credit risk depends on the quality of assets held by an individual financial institution. The quality of assets held by a financial institution depends on exposure to specific risk, trends in nonperforming loans, and the health and profitability of bank borrowers especially the corporate sector. We can use a number of

measures to indicate the quality of assets held by financial institutions. ADB suggests these measures loan concentration by industry, region, borrower and portfolio quality related party policies and exposure on outstanding loan, approval process of loan, check and balance of loans, loan loss provision ratio, portfolio in appear, loan loss ratio and reserve ratio of checking the quality of assets of a financial institution.

NRB uses composition of assets, nonperforming loan to total loan ratio, net nonperforming loan to total loan ratio as the indicators of the quality of assets of commercial banks. NRB has directed the commercial banks in regards to the concentration of the loan. Any licensed financial institution can grant the fund base loan to a single borrower or borrowers related to the same business group up to the 25 percent of its primary capital. In the same vein, it can provide non fund base loan up to 50 percent of its core capital (NRB, 2071).

To interpretation for the degree of non-Performing loan in the portfolios of the banks and the degree of damage this specific asset class may have on the financial performance. Asset quality measure by impaired loan to the gross loan. This measurement of CAMEL analysis takes the portfolio risk the banks are exposed to and the effects it could have on the general presentation of the banks

Asset quality rating refers the evaluation of credit risk associated with a particular asset. The asset quality of the banks can be measured using gross non-performing loan -to- gross loan ratio, non-performing loan -to- total asset ratio, investment –to asset ratio and so on. Under this study the asset quality of banks is measured by using the following ratios. Non-performing loan-to- gross loan ratio: -this ratio measures how much of funds extended are under risk of default in relation to the total loan made. Non-performing loan refers the amounts of loan extended to customers and past due more than 60 days. This ratio can be calculated by dividing the total non-performing loan to the total loans of the bank. A lower ratio indicates the efficiency of the bank in credit management. The following table indicates the nonperforming loan-to-gross loan ratio for the five selected private commercial banks of Ethiopia.

Poor assets quality creates pecuniary problems and weaken capital base. Loan and advances occupy largest portion of asset side of the balance sheet and earnings made from such loans and advance take up a major part of income statement of financial institutions. Default loans have negative effects on bank's earning because these loans

are not earning income. The banks with poor performing assets are often exposed to big losses. The maximum limit of fund-based loan provided to a single borrower is 25 percent of its primary capital. Similar, bank can provide the non-fund base loan up to 50 percent of its core capital (NRB, 2019). NRB has directed BFIs to classify loans into performing loan and non-performing loans. Performing loan consists of pass loan and watch list loan. The loans that are not due and past due for a period up to three months fall under performing loans and the loans that are past due more than three months falls under non-performing loans. Non-performing loans include three categories of loan. They are: substandard, doubtful, and bad debt/loss.

Assets Quality= non-performing loans / Total Loans

### **C. Management Quality**

Sound management is the key to bank performance but 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 an indicator of management quality. ADB recommends cost per unit of money lent as a proxy of management quality. But this cannot be used as an indicator of management quality in Nepal. Since the data on amount of the total loan mobilized during a particular fiscal year is not available in published financial statements and annual reports. As stated earlier, NRB has skipped up this component in the performance evaluation of commercial banks. The management aspect in CAMEL investigation has supposed much significant position like not ever before. To capture the potential dynamics of management effectiveness affecting the financial performance of the bank's subsequent ratios that reflected the Operating expense as a percentage of total assets.

Management efficiency is used to measure efficiency and effectiveness of the bank's management. Success or failure of any organization largely depends upon managerial capability regarding business affairs. Higher the managerial efficiency, higher will be the organizational success and vice versa. There are so many parameters to judge management efficiency of the bank. It is really difficult to find an independent indicator. However, Wheelock and Wilson (2000) incorporate measures of management efficiency that are also frequently used in practice. Expenses ratio, earning per

employee, cost per loan, average loan size, credit to core capital and deposit ratio can be used to evaluate management quality. Credit to core capital and deposits ratio (CCD ratio) indicates the ability of the BFIs to convert the deposits and core capital into high yielding advances. Hence, this study uses CCD ratio (credit as a percentage of core capital and deposits) is used to evaluate management efficiency.

Management Quality= Total Operating Revenue / Total Profit

#### **D. Liquidity**

Liquidity management in banks has a supposed significance due to competitive pressure and the relaxed flow of external capital in the local markets. The influence of liquidity emergency in the banks can badly influence the financial performance of the banks. The incapability of the banks to accomplish its short-term liquidity liabilities and loan obligations can badly impact the performance of the banks by significantly increasing its cost of fund and over disclosure to the unrated asset class. Also, the cash flow from principal and interest expenses could vary for the sorts of loans on the balance sheet effect the liquidity situation. The higher average value of the ratios becomes ranked greater. The liquidity ratio calculates at a net loan to the total asset.

Liquidity risk threatens the solvency of financial institutions. In the case of commercial banks, first type of liquidity risk arises when depositors of commercial banks seek to withdraw their money and the second type does when commitment holders want to exercise the commitments recorded of the balance sheet. Commercial banks have to borrow the additional funds or sell the assets at fire sale price to pay off the deposit liabilities. They become insolvent if sale price of the assets is not enough to meet the liability withdrawals. The second type of liquidity risk arises when demand for unexpected loans cannot be met due to the lack of the funds. Commercial banks can raise the funds by running down their cash assets, borrowing additional funds in the money markets and selling off other assets at distressed price. Both liability side liquidity risk (first type risk) and asset side liquidity risk (second type risk) affect the health of commercial banks adversely. Therefore, financial institutions should strike the tradeoff between liquidity position and profitability so that they could maintain their health sound.

One of the components which enables measuring the performance of banks referred liquidity. Liquidity measures how firms are able to meet its financial obligations as they

come due. Liquidity of banks is measured by loan-to-deposit ratio, cash-to-deposit ratio, current ratio, etc. However, measuring the liquidity of banks is somehow challenging because much of their assets are composed of cash and this cash is subjected to the extension of credit. In this study, the researcher measures the liquidity of the selected banks by using the following ratios. Cash-to-deposit ratio: this ratio measures how much cash is hold by the bank to pay back the deposits made by customers and other banks. The ratio will be computed by dividing cash to total deposit. A higher ratio is an indicator of strong liquidity. In this study the cash –to- deposit ratio for the selected banks is presented below.

Liquidity Management= Total Loans / Total Customer Deposit

## 2.2 Empirical review

The study is carried out to demonstrate the factors affecting on firm value among commercial banks. These studies supported that the value of firm depends on various factors such as dividend policy, profitability, company size, company growth. The study has reviewed some of the articles on related subject matter. The summary of the major articles on this subject matter is presented in *Table 1*.

Table 1

### *Review of empirical studies*

Study	Major Findings
Anteneh, Arega, and Yonas (2011)	<ul style="list-style-type: none"> <li>Found that independent variables in CAMEL framework have highly explained the performance variables i.e., return on assets and return on equity</li> </ul>
Shiphoo and Olweny (2011)	<ul style="list-style-type: none"> <li>Found that the quality of asset has got a negative significant effect on commercial bank's financial performance in Kenya</li> </ul>
Liu (2011)	<ul style="list-style-type: none"> <li>Determined the effect of CAMEL variables on the bank performance in Chinese banking sector. return on assets and return on equity were taken as dependent variables and capital adequacy, asset quality, management, earning and liquidity were taken as independent variables.</li> </ul>
Jha and Hui (2012)	<ul style="list-style-type: none"> <li>Found that public sector banks are significantly less efficient than their counter-part however domestic private banks are equally efficient to foreign-owned (joint venture) banks</li> </ul>

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|-------------------------------|--|
| Alkhatib and Harsheh (2012)   | <ul style="list-style-type: none"><li>• Studied statistically insignificant impact of bank size, credit risk, operational efficiency and asset management on financial performance of Palestinian commercial banks</li></ul>   |
| Fanta, Kemal, and Waka (2013) | <ul style="list-style-type: none"><li>• Indicated that board size and existence of audit committee in the board had statistically significant negative effect on bank performance whereas bank size and capital adequacy ratio had statistically significant positive effect on bank performance</li></ul> |
| Ifeacho and Ngalawa (2014)    | <ul style="list-style-type: none"><li>• Found that asset quality has a significant negative effect on ROE</li></ul>  |
| Hakuduwal (2014)              | <ul style="list-style-type: none"><li>• Concluded that there is positive significant impact of total assets, total deposits and loan and advance on profitability indicator ROA in Nepalese finance companies</li></ul>  |
| Yesmine and Bhuiyah (2015)    | <ul style="list-style-type: none"><li>• Suggested that the bank capitalization as well as the best managerial efficiency have positive and significant impact on the bank performance</li></ul>  |
| Maharjan (2016)               | <ul style="list-style-type: none"><li>• Concluded that capital adequacy and liquidity position play significant role to influence profitability</li></ul>  |
| Musyoka (2017)                | <ul style="list-style-type: none"><li>• Revealed that there is a negative and insignificant relationship between assets quality and commercial banks in Kenya financial performance</li></ul>  |
| Pradhan and Parajuli (2017)   | <ul style="list-style-type: none"><li>• Examined the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. They found that there is positive relationship between bank sizes with return on asset (ROA)</li></ul>  |
| Bhattarai (2018)              | <ul style="list-style-type: none"><li>• Concluded that bank specific variables play major role to influence ROA as compared to macroeconomic variables</li></ul>   |
| Gwachha (2019)                | <ul style="list-style-type: none"><li>• concluded that asset size and deposit to asset have a significant positive effect, and loans portfolio have a significant negative impact on profitability of bank</li></ul>   |
| Etab and El-Moslemany (2020)  | <ul style="list-style-type: none"><li>• Found that Islamic banks performed better in terms of operational efficiency (Management quality), asset quality, and liquidity. CAMEL framework can perform the comparison of banks</li></ul>   |
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Bhatt and Ghosh (1992) observed that the profitability of commercial banks depends on several factors some of them are endogenous and some exogenous. The endogenous factors represent control of expenditure, expansion of banking business, timely recovery of loans and productivity. The exogenous factors consist of direct investments such as SLR (Statutory Liquidity Ratio), CRR (Cash Reserve Ratio) and directed credit programs such as region wise, population wise guidelines on lending to priority sectors. The regulated and restricted regime in the operation of banking system in terms of investment, credit allocation, branch expansion, interest rate determination and internal management eroded the productivity and profitability of commercial banks.

Al-Shamrari and Salirni (1998) found that the profitability ratio especially return on equity (ROE) signals the earning capability of the organization. They also suggest that higher return on equity (ROE) ratio is appreciable as it is the primary indicator of bank's profitability and functional efficiency. They stated that there is no universally accepted operational definition of performance measures. In broad sense performance level of an enterprise can be measured by the extent of its organizational effectiveness. In the context of services rendered towards public the performance of an organization can be viewed as the extent to which its work is carried out within established specifications for goods and services produced, to the general satisfaction of the clientele served, within given cost and time constraints, and in such a manner as to support or contribute to the achievement of the organization objectives.

Several research works have been conducted on financial soundness and performance of banking sector throughout the world by using variety of approaches. Levine (1997) has reported that the efficacy of a financial system to reduce information and transaction costs plays an important role in determining the rate of savings, investment decisions, technological innovations and hence the rate of economic growth. Hassan and Bashir (2003) conducted a study covering Islamic banks worldwide during 1994-2001 to identify the determinants of Islamic banks' profitability. The study concluded that high capital and loan-to-asset ratios lead to higher profitability and implicit and explicit taxes affect the bank performance measures negatively while favorable macroeconomic conditions impact performance measures positively. A study was carried out by Kosmidou (2008) to examine the relationship between performance of UK banks and credit risk measured in terms of loan loss reserves. Findings indicate that loan loss

reserves are positive on net interest margin, but have negative insignificant effect on bank profits.

The academic studies have been done regarding the performance evaluation whether extent private supervisory information is useful in the supervisory monitoring of banks or not. Barker and Holdsworth (1993) found the evidence that CAMELS ratings are useful with regard to estimating bank failure, even after controlling for a wide range of publicly available information about the condition and performance of banks. According to some studies, viability of information of CAMELS ratings is short lived. It also found that even if CAMELS ratings contain useful information, they depreciate quickly. Moreover, CAMELS can be used for past ratings. The utility of past CAMELS ratings for evaluating banks' current conditions. Choosing intervention thresholds to maintain adequate incentives for bank risk taking and study the effects of ex-post

Berger and Humphrey (1997) indicated that, "evaluating the performance of a financial institution can inform government policy by assessing the effects of deregulation, mergers and market structure on efficiency". Bank regulators screen banks by evaluating banks' liquidity, solvency and overall performance to enable them to intervene when there is need and to gauge the potential for problems. Casu, Molyneux and Girardone (2006). On a micro-level, bank performance measurement can also help improve managerial performance by identifying best and worst practices associated with high and low measured efficiency.

The measurement of bank performance particularly commercial banks is well researched and has received increased attention over the past years (Seiford and Zhu, 1999). There have been a large number of empirical studies on commercial bank performance around the world. However, little has been done on bank performance in Ethiopia. However, with the deteriorating health of the banking institutions and the recent surge of bank failures as a result of the current global financial crisis, it is justified that bank performance receives increased investigation from both scholars and industry specialists. In the Gulf, Samad (2004) investigated the performance of seven locally incorporated commercial banks during the period 1994-2001. Financial ratios were used to evaluate the credit quality, profitability, and liquidity performances.

Chowdhury (2002) observed that the banking industry of Bangladesh is a mixed one comprising nationalized, private and foreign commercial banks. Many efforts have

been made to explain the performance of these banks. Understanding the performance of banks requires knowledge about the profitability and the relationships between variables like market size, bank's risk and bank's market size with profitability. Indeed, the performance evaluation of commercial banks is especially important today because of the fierce competition. The banking industry is experiencing major transition for the last two decades. It is becoming imperative for banks to endure the pressure arising from both internal and external factors and prove to be profitable. In the context of Nepal, few studies have been carried out on the financial analysis of Nepalese financial institutions in the framework of CAMEL. Baral (2002) used CAMEL model with reference to joint venture banks in Nepal. He concluded that though joint venture commercial banks are well capitalized, their capital base relative to the risk weighted assets is not strong. Quality of assets of joint venture banks is satisfactory. Management quality and earning/profitability of joint venture banks are above industry average.

Chantapong (2003) analyzed the comparative study of the performance of domestic and foreign banks in Thailand in terms of profitability and other characteristics after the financial crisis. This study is based on a micro bank-level panel data on financial statements by pooling cross-bank time-series data with the major balance sheet and income statement ratios for domestic and foreign banks in Thailand for 1995-2000. The estimation results of this study indicate that foreign bank profitability is higher than the average profitability of the domestic banks. Importantly, the study concluded that in the post-crisis period, the gap between foreign and domestic profitability become closer. It is recommended to balance its desire to control inflation with the need to maintain lasting viability of the banking industry.

When looking to improve their performance, banks compare the performance of their peers and evaluate the trend of their financial performance over time. Tarawneh (2006) measured the performance of Oman commercial banks using financial ratios and ranked the banks based on their performance. The study utilized Financial Ratio Analysis (FRA) to investigate the impact of asset management, operational efficiency and bank size on the performance of Oman commercial banks. The findings indicated that bank performance was strongly and positively influenced by operational efficiency, asset management and bank size.

Jahangir, Shill, and Haque (2007) stated that the traditional measure of profitability through stockholder's equity is quite different in banking industry from any other sector of business, where loan-to-deposit ratio works as a very good indicator of banks' profitability as it depicts the status of asset-liability management of banks. But banks' risk is not only associated with this asset liability management but also related to growth opportunity. Smooth growth ensures higher future returns to holders and there lies the profitability which means not only current profits but 24 future returns as well. So, market size and market concentration index along with return to equity and loan-to-deposit ratio grab the attention of analyzing the banks' profitability.

Suyanto (2007) has evaluated inter-bank performance of Bank Muamalat Indonesia in profitability, liquidity, risk and solvency, and community involvement for the period 2000 – 2004. Financial ratios (Return on Asset, Return to Equity, Profit Expense Ratio, Non Net Interest Margin Cash to Deposit Ratio, Loan to Deposit Ratio, capital Adequacy Ratio, Debt to Asset Ratio and Non-performing loan to Total Loan Ratio) were applied in measuring these performances. The study found that the Bank Muamalat Indonesia (BMI) relatively had more profit and commitment to community development but had less liquidity compared to the conventional banks.

Sufian and Habibullah (2009) examined the performance of 37 Bangladeshi commercial banks between 1997 and 2004. The study revealed that bank loans intensity, credit risk, and cost have positive and significant impacts on bank performance whereas bank size exhibits a negative impact on return on average equity (ROAE). Furthermore, the study also examined the impact of macroeconomic indicators and concluded that the variables have no significant impact on bank profitability except inflation which has a negative relationship with Bangladeshi banks profitability. Chowdhury and Ahmed (2009) concluded that the prospect of private commercial banks in Bangladesh is very bright as they have observed a stable growth of branches, employees, deposits, loans and advances, net income, earnings per share during the period of 2002-2006.

There are two broad approaches used to measure bank performance, the accounting approach, which makes use of financial ratios. Traditionally accounting methods primarily based on the use of financial ratios have been employed for assessing bank performance (Ncube, 2009).The performance of the seven commercial banks was

compared with the banking industry in Bahrain which was considered a benchmark. The article applied a student's t-test to measure the statistical significance for the measures of performance. The results revealed that commercial banks in Bahrain were relatively less profitable, less liquid and were exposed to higher credit risk than the banking industry, in which wholesale banks are the main component.

Bakar and Tahir (2009) evaluated the performance of the multiple linear regression technique and artificial neural network techniques with a goal to find a powerful tool in predicting bank performance. Data of thirteen banks in Malaysia for the period 2001-2006 was used in the study. ROA was used as a measure of bank performance and seven variables including liquidity, credit risk, cost to income ratio, size, concentration ratio, were used as independent variables. They note that neural network method outperforms the multiple linear regression method but it lacks explanation on the parameters used and they concluded that multiple linear regressions, notwithstanding its limitations (i.e. violations of its assumptions), can be used as a simple tool to study the linear relationship between the dependent variable and independent variables. The method provides significant explanatory variables to bank performance and explains the effect of the contributing factors in a simple, understood manner. This study adopted this approach together with the correction analysis to determine the effects of banking sectoral factors on bank profitability in Kenya.

According to (Streeter, 2010) , management of asset quality in banks is among the key problems of management. In the year 2001 founded on questionnaires administered to the American Bankers Association Board members in the United States banks; the survey outcome proved that management of asset quality is a key matter for bankers in practice. Similarly, executives such as Gene Miller (CEO of America Corp.) think of asset quality as the second most vital issue of management and formed a team to handle specifically rising bad assets risk. Said and Tumin (2010) utilized the return on average assets (ROAA) a return on average equity (ROE) as the proxy to examine the performance of commercial banks in Malaysia and China from 2001-2007. The findings imply that the financial ratios have different impact on the performance of banks in both countries except for capital and credit ratios. It shows that the bank performance in China tends to be influenced by the operating ratios but there is no significant influence on the bank performance in Malaysia. Pant Radish argued that after 2010, there will be new international entrants in the market, we must remain very

competitive, and we have to operate at international standards. However, he does not think we need to fear. He believed combined capital of all Nepalese commercial banks would not even equal to the capital of a small bank in developed countries. It somehow, Nepal is able to capitalize on the growth of China and India, there is no turning back for the banking sector. There will be opportunities for all types of banks. So, we need to work together to address the challenges of that WTO." 2008 was an extraordinarily tumultuous year, full of shocks & surprises. None of us have even quite seen the scale of dislocation & disruption in financial market that we have experienced this year. To put things in perspective, there has been more volatility in the US equity market in the three months since Lehman went bankrupt in the mid- September, than in the previous 45 years put together. Moreover, with the disappearance or effective nationalization of several major players, and the demise of the US broke, dealer model, the global industry has changed fundamentally & irreversibly.

Olweny and Shipho (2011) studied the impact of commercial bank's specific contributors on commercial bank's financial performance in Kenya. Explanatory method was employed by the use of panel research design. The study was interested in the periods 2002 to 2008 where financial statements of 38 commercial banks in Kenya were obtained from the CBK and commercial bank survey data for 2009. Multiple linear regression method was used to analyze data and to show the relationship between the study variables. The study found that the quality of asset has got a negative significant effect on commercial bank's financial performance in Kenya. However, the study did not conduct diagnostics tests before carrying out inferential analysis. In addition, the above study failed to include the moderating effects of inflation in the relationships between the variables sought.

Anteneh, Arega, and Yonas (2011), the pioneer researches made the evaluation of the performance of the selected commercial banks of the Ethiopia using the CAMEL framework for the period of 2000-2010 and they found that independent variables in CAMEL framework have highly explained the performance variables i.e., return on assets and return on equity. The usefulness of the previous CAMEL rating for assessing the bank's present situation. The focused was on the confidentiality of the CAMEL rating to senior management only for protecting the business strategies and appropriate supervisory of staff. Over the period of 1989 to 1995, it indicates that the private supervisory information during the last on-site exam remains useful with the respect to

the current condition of the bank up to 6 to 12 quarters. In conclusion, it summarizes those CAMELS rating is clearly useful in supervisory monitoring of current condition.

The academic studies have been done regarding the performance evaluation whether extent private supervisory information is useful in the supervisory monitoring of banks or not. Barker and Holdsworth (2011) found the evidence that CAMELS ratings are useful with regard to estimating bank failure, even after controlling for a wide range of publicly available information about the condition and performance of banks. According to some studies, viability of information of CAMELS ratings is short lived. A similar question and found that even if CAMELS ratings contain useful information, they depreciate quickly. Moreover, CAMELS can be used for past ratings. Also examined the utility of past CAMELS ratings for evaluating banks' current conditions. They have supervisors choosing intervention thresholds to maintain adequate incentives for bank risk taking and study the effects of ex-post liquidity assistance and forbearance.

Said and Tumin (2011) utilized the return on average assets (ROAA) and return on average equity (ROE) as the proxy to examine the performance of commercial banks in Malaysia and China from 2001-2007. The findings imply that the financial ratios have different impact on the performance of banks in both countries except for capital and credit ratios. It shows that the bank performance in China tends to be influenced by the operating ratios but there is no significant influence on the bank performance in Malaysia. The findings imply that the financial ratios have different impact on the performance of banks in both countries except for capital and credit ratios. It shows that the bank performance in China tends to be influenced by the operating ratios but there is no significant influence on the bank performance in Malaysia.

Liu (2011) carried out a study to determine the effect of CAMEL variables on the bank performance in Chinese banking sector. return on assets and return on equity were taken as dependent variables and capital adequacy, asset quality, management, earning and liquidity were taken as independent variables. Multiple linear regression analysis was used to examine relationship between dependent and independent variables. On the basis of analysis, he concluded that capital adequacy ratio, NPL to total loans ratio, costs to income ratio, net interest rate margins, and loans to deposits ratio are the major determinants of return on assets. Similarly, costs to income ratio, operating expenses to

assets ratio, and Loans to deposits ratio are the major determinants of return on equity. They made research from independent variables of CAMEL Approach on bank performance on China's banking sector. The study made on 13 Chinese banks listed in Shanghai Stock Exchange for the period of 2008 to 2011 was based on the internal determinants of CAMEL rating and bank performance. The measurement of these determinants using multiple regression model result to the findings that shows the return on assets can be influenced by shareholder's risk-weighted capital adequacy ratio, NPL to total loan ratio, cost to income ratio, net interest rate margins, and loans to deposits ratio.

Malhotra (2011) analyzed the performance of commercial banks in India during the period 2005 to 2009. This period covers the pre-credit crisis and the crisis time period. Specifically, the paper examines the behavior of profitability, cost of intermediation, efficiency, soundness of the banking system, and industry concentration for public and private sector Indian commercial banks. The empirical results show that competition in the Indian banking industry has intensified. While the net interest margin has improved, cost of intermediation is actually rising and banks are responding to the increased costs with higher efficiency levels. The results showed that an increase in non-performing loan and loan loss provision reduce profitability (ROA) of banks while an increase in total loan and advances lead to increase profitability.

For assessing the financial performance of Palestinian commercial banks, Alkhatib and Harsheh (2012) took five Palestinian commercial banks listed on Palestine Securities Exchange covering the period 2005-2010. By employing the multiple regression, the study found statistically insignificant impact of bank size, credit risk, operational efficiency and asset management on financial performance of Palestinian commercial banks. Kolapo and Ayeni (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010). The results showed that an increase in non-performing loan and loan loss provision reduce profitability (ROA) of banks while an increase in total loan and advances lead to increase profitability. Choong, Thim, and Kyzy (2012) studied the Performance of Islamic Commercial Banks of Malaysia and analyze their performance. Choong, Thim, and Kyzy (2012) found a positive effect of credit risk, concentration and liquidity on the performance of 13 Malaysian Islamic commercial banks. The empirical results indicated that credit risk, liquidity rate and

concentration of Islamic commercial banking are the most contributing factors in the performance of local Islamic commercial banks in Malaysia.

Dahiyat (2012) examined each parameter of CAMELS system (Capital adequacy, asset quality, management quality, earning, liquidity and sensitivity to market risks) by conducting literatures and empirical studies, and relying on interviews with responsible persons in Jordan securities commission and brokerage firms. Barr (2012) described the CAMELS rating system used by bank examiners and regulators; and finds that banks with high efficiency scores also have strong CAMELS ratings. Jha and Hui (2012) examined financial performance of public sector, joint venture and private sector commercial banks in Nepal with the help of CAMEL model. They found that public sector banks have poor financial performance as compared to private sector and joint venture banks. Private sectors banks are equally likely as compare to joint venture banks. The regression analysis showed that capital adequacy ratio (CAR), interest expenses to total loan and net interest margin (NIM) have significant relationship with return on assets, ROA. Likewise, capital adequacy ratio has considerable effect on return on equity, ROE.

Kolapo and Ayeni (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010). The results showed that an increase in non-performing loan and an increase in loan loss provision reduce profitability (ROA) of banks while an increase in total loan and advances leads to increase profitability. The study recommended that banks in Nigeria should enhance their capacity in credit analysis and loan administration while the regulatory authority should pay more attention to banks' compliance to relevant provisions of the Bank and other Financial Institutions Act (1999) and prudential guidelines.

Jha and Hui (2012) compared the financial performance of different ownership structured commercial banks in Nepal based on their financial characteristics and identify the determinants of performance exposed by the financial ratios, which were based on CAMEL Model. Eighteen commercial banks for the period 2005 to 2010 were financially analyzed. In addition, econometric model (multivariate regression analysis) by formulating two regression models used to estimate the impact of capital adequacy ratio, non-performing loan ratio, interest expenses to total loan, net interest margin ratio

and credit to deposit ratio on the financial profitability namely return on assets and return on equity of these banks. The result shows that public sector banks are significantly less efficient than their counter-part however domestic private banks are equally efficient to foreign-owned (joint venture) banks. Furthermore, the estimation results reveal that return on assets was significantly influenced by capital adequacy ratio, interest expenses to total loan and net interest margin, while capital adequacy ratio had considerable effect on return on equity. Pant Radish argued that after 2010, there will be new international entrants in the market, we must remain very competitive, and we have to operate at international standards. It somehow, Nepal is able to capitalize on the growth of China and India, there is no turning back for the banking sector. There will be opportunities for all types of banks. So, we need to work together to address the challenges of that WTO." 2008 was an extraordinarily tumultuous year, full of shocks & surprises. None of us have even quite seen the scale of dislocation & disruption in financial market that we have experienced this year. To put things in perspective, there has been more volatility in the US equity market in the three months since Lehman went bankrupt in the mid-September, than in the previous 45 years put together. Moreover, with the disappearance or effective nationalization of several major players, and the demise of the US broke, dealer model, the global industry has changed fundamentally & irreversibly.

Naceur (2013) used a sample of 10 Tunisian banks from 1980 to 2000 and a panel linear regression model, reported a strong positive impact of capitalization to ROA. Sufian and Chong (2008) also reported the same results after examining the impact of capital to the performance of banks in Philippines from 1990 to 2005. The banking sector in Kenya provides an interesting case to examine the impact of capital because the minimum statutory requirement has been upgraded to Ksh, 1 billion in 2012. Capital adequacy is divided into Tier I and Tier II. Tier I capital is primary capital and Tier II capital is supplementary capital, but this study will focus on total equity of the banks as opposed to the minimum requirements.

Fanta, Kemal, and Waka (2013) assessed the relationship between selected internal and external corporate governance mechanisms, and bank performance as measured by return on equity (ROE) and return on assets (ROA) covering the period 2005 to 2011. The study indicated that board size and existence of audit committee in the board had statistically significant negative effect on bank performance whereas bank size and

capital adequacy ratio had statistically significant positive effect on bank performance. Yesmine and Bhuiyah (2015) studied 10 commercial Tunisian banks during the period 1998 to 2011 period to identify factors explaining Tunisian bank performance. This study incorporated bank-specific as well as industry-specific and macroeconomic factors affecting bank performance. The findings suggested that the bank capitalization as well as the best managerial efficiency have positive and significant impact on the bank performance. The study also concluded that industry-specific factor such as the concentration has a negative and a significant impact on performance. Moreover, macroeconomic indicators do not have a significant impact on bank performance.

Fayed (2013) analyzed and compared the performance of Islamic and conventional banking in Egypt and to find out which of the banking streams is performing better than the other. To make appropriate comparative analysis, three Islamic banks (Faisal Islamic Bank, EI Baraka Misr, and National Bank for Development) and six conventional banks (National Bank of Egypt, Banque Misr, Bank of Alexandria, National Societe Generale Bank, Arab African International Bank, Commercial International Bank) were used during the period from 2008 to 2010. Financial ratios were estimated from annual reports and financial statements. Seven financial ratios were used to gauge profitability, liquidity and credit risk; and a model known as “Bank-o-meter” was used to gauge solvency. This study found the superiority of conventional banks over Islamic ones in profitability, liquidity, credit risk management as well as solvency. The study found that the comparison of financial measures, expressed in terms of various financial ratios, indicates the superiority of conventional banks over Islamic ones in profitability, liquidity, credit risk management and solvency. The findings conclude that Islamic banks still have a long way to go. The government is also recommended to balance its desire to control inflation with the need to maintain lasting viability of the banking industry.

In sub-sahara Africa, Ezra (2013) studied the determinants of the profitability of commercial banks in sub-Saharan Africa. The study focused on the period 1999 to 2006 where an unbalanced panel comprising of 216 commercial banks were utilized which were drawn from 42 countries in SSA. The analysis of the study was done within the framework of random effect panel methods. The variables included in the study were capital adequacy, bank size, operational efficiency, liquidity ratio, inflation rate and GDP. Findings of the study indicate that asset quality a negative significant effect on

the commercial bank's profitability. The study reviewed above focused on cross country analysis while the current study concentrated on the local Kenyan analysis hence presenting specific local Kenyan findings.

Zaman and Sagevan (2013) researched the comparison between conventional and Islamic bank of Pakistan in terms of CAMEL parameters and found that Islamic banks performed better in terms of operational efficiency (Management quality), asset quality, and liquidity. CAMEL framework can perform the comparison of banks. The measurement of these determinants using multiple regression model result to the findings that shows the return on assets can be influenced by shareholder's risk-weighted capital adequacy ratio, NPL to total loan ratio, cost to income ratio, net interest rate margins, and loans to deposits ratio. The impact of CAMEL rating changes on the parent holding company's stock price. They separated stock price changes into two component a private information' effect (which identified the public's awareness of new information discovered by examiners), and a 'regulatory discipline' effect which valued a regulators' presumed ability to force a bank to changes its behavior). The empirical results provided only weak evidence of a regulatory discipline effect, but they found a strong private information effect. However, the information effect applied only to CAMEL downgrades, which tend to precede stock prices declines. There found no movement in the stock price following a CAMEL upgrade.

Hunjra and Bashir (2014) examined the financial performance of Islamic and Conventional banks to support depositors, bank managers, shareholders, investors, and regulators by providing true picture of financial position of Islamic as well conventional banks in Pakistan. This study used ratio analysis technique to analyze financial performance of both banks. Data is collected from annual financial statements i.e. Balance sheet and Income statement for the period of 2008- 2012. Nineteen ratios were estimated to measure these performances in terms of profitability, liquidity, risk and solvency, capital adequacy, operational, deployment and cash flow. Independent sample t test was used to determine significance of mean differences of these ratios between two banks. This study found that Conventional banks are more profitable, deployed and operationally efficient while less liquid and riskier as compared to Islamic Banks and also found a significant mean difference in profitability, capital adequacy, and cash flow ratio of both banks. The banks are recommended to increase performance

of banks should conduct internal evaluation to improve its activities and to overcome weaknesses.

Ifeacho (2014) investigated the impact of bank-specific variables and selected macroeconomic variables on the South African banking sector for the period 1994-2011 using the capital adequacy, asset quality, management, earnings, and liquidity (CAMEL) model of bank performance evaluation. The study employs data in annual frequency from South Africa's four largest banks, namely, ABSA, First National Bank, Nedbank, and Standard Bank. These banks account for over 70% of South Africa's banking assets. Using return on assets (ROA) and return on equity (ROE) as measures of bank performance, the study finds that all bank-specific variables are statistically significant determinants of bank performance. Specifically, the study shows that asset quality, management quality, and liquidity have a positive effect on both measures of bank Performance, which is consistent with a priori theoretical expectations.

Maryam and Yusef (2014) reviewed the financial performance of Mellat Bank using CAMEL model and each of the model dimensions examined using trend analysis method and both mean and standard deviation statistics. In the process they determined all the model criteria had an ascending trend in the period under study. In the inferential statistics section, again the relationship between model variables and the financial performance of Mellat Bank was studied and examined using two linear and multiple regressions as well as OLS method. Results of the study indicate that there is a positive significant relationship between the indices of liquidity, quality of management and earnings with financial performance. Yet, no relationship was seen between capital adequacy and assets quality with bank financial performance and multiple regression test showed only a positive significant relationship with financial performance in management quality section. As a result, Mellat Bank has better financial performance in management quality section.

Haque (2014) compared the financial performance of Islamic and Conventional banks in Pakistan from 2006 to 2009 by employing independent sample t-test and ANOVA to determine the significance of mean differences of financial ratios between and among banks, eighteen financial ratios were estimated to measure the performances in term of profitability, liquidity, risk and solvency, capital adequacy, deployment and operational efficiency. The results of the study indicated that, Islamic banks proved to be more

liquid, less risky and operationally efficient than conventional banks. This study used ratio analysis technique to analyze financial performance of both banks. Data is collected from annual financial statements i.e. Balance sheet and Income statement for the period of 2008- 2012.

Azizi and Yusef (2014) examined the financial performance of Mellat Bank using CAMEL model. They concluded that there is positive significant relationship between liquidity, management quality and earnings with the bank's profitability. But there is no relationship between capital adequacy and assets quality with bank financial performance. This finding was just opposite the findings of (Liu, 2011) . Ifeacho and Ngalawa (2014) examined the effect of bank-specific micro variables and macroeconomic variables on bank performance as measured by return on assets (ROA) and return on equity (ROE) in South African banking sector. The study found that all bank-specific variables such as asset quality, management quality, and liquidity have significant positive relationship with ROA and ROE. The most surprising is that capital adequacy has significant negative relationship with ROA, while its relationship with ROE is significant and positive.

In the context of Nepal, Shrestha (2015) found that that non-performing loan to total loan, capital adequacy ratio, GDP and inflation are the major determinants of bank profitability. Hakuduwal (2014) concluded that there is positive significant impact of total assets, total deposits and loan and advance on profitability indicator ROA in Nepalese finance companies. Review of previous literatures reveal that number of studies has been done in the context of financial performance. However, in the context of Nepal no sufficient studies have been found. Hence, an attempt has been made to fill this research gap. Therefore, the objective of this study is to identify the determinants of the financial performance of commercial banks operating in Nepal.

Anand (2015) described banks form a fundamental component of the financial system and are also active players in financial markets. An efficient banking system capable of mobilizing the savings and channeling them to productive purposes are essential for the development of any economy. This study used ratio analysis technique to analyze financial performance of both banks. Data is collected from annual financial statements i.e. Balance sheet and Income statement for the period of 2008- 2012. Besides providing financial resources for the growth, banks can also influence the direction in which these

resources are to be utilized. Post liberalization era has spread new colors of growth and development in India. At the same time, it has also created many challenges.

Shah (2015) discussed about the comparative analysis on performance of new private sector banks and the public sector banks of India during the period 2011-2015 on many key parameters such as the P/E Ratio, Dividend Payout ratio, Return on equity ratio, Capital adequacy ratio, Credit deposit ratio. The above period is chosen since it is very important to know how different banks performed during the recession and inflation duration. We have done a field study taking ICICI bank as private sector bank and SBI Bank as public sector bank to better understand the above argument.

Karri, Meghani, and Mishra (2015) carried out a comparative study of public sectors - Bank of Baroda and Punjab National Bank through CAMEL model using 14 CAMEL variables. They concluded that both banks maintained higher level of CAR than the prescribed level, 10%. Out of 14 ratios, Bank of Baroda is the best for (6 ratios) followed by Punjab National Bank (5 ratios). Narwal (2015) discussed the different determinants of productivity and profitability of banks functioning in India. The performance of public and private sector banks in terms of productivity and profitability is being assessed in two different time periods (2003-04 to 2008-09 and 2009-10 to 2013-2014). The decomposition of total factor productivity into pure technical and scale efficiency is done to get a comprehensive insight of the effect of these two on the overall productivity. Further, regression analysis discovers the determinants of different bank groups. This study found that the study disclose that private sector banks are more productive than public sector banks over the whole study period. The study recommended that the banks invest more in interest bearing assets, mainly loans, to fully utilize their revenue generating capacity.

Desta (2016) analyzed the financial performance of the African banks. Only seven banks were observed among the 30 African best banks as identified by the Global Finance Magazine. These banks have completed and consolidated financial statements for a period of the recent three fiscal years (i.e., 2012 to 2014). It has applied the CAMEL composite and component rating. This study found that the banks are rated as strong and satisfactory when rated in terms of capital adequacy ratio and earnings ability. Conversely, they were rated as less satisfactory, deficient and critically deficient when rated in terms of asset quality, management quality and liquidity. The banks are

recommended to employ the CAMEL composite and component rating on a periodic basis in order to withstand business fluctuations and vulnerability to outside influences.

Meena (2016) conducted a study on financial analysis of selected banks using CAMEL approach with reference to Indian banking. This study concluded that out of 17 CAMELS variables which are taken as independent variables, profit per employee, debt-equity ratio, total advances-to-total deposits ratio, net NPA's-to-total advances ratio are the major determinants of performance of the banks as measured by ROA. There is negative relationship between NPA to total advance and ROA and positive relationship between profit per employee, debt equity ratio, total advances-to-total deposits ratio and ROA. Maharjan (2016) examined the impact of bank specific micro variables and macroeconomic variables on profitability of Nepalese commercial banks for the period of 2009 to 2014. He concluded that capital adequacy and liquidity position play significant role to influence profitability. The result showed that capital adequacy, credit risk, and bank size have positive relationship with return on assets, return on equity and net interest margin.

Balaji and Kumar (2016) analyzed the comparative financial performance of selected public and private sector banks in India. The study is based on secondary data that has been collected from annual reports of the respective banks, Reserve Bank of India website. This research study covers a period of five years i.e. from financial year 2011-2012 to 2015-2016. This study used a quota sample method to select ten banks i.e. five from public sector and five from private sector has been selected and the criteria is based on highest market capitalization generated by banks during 2015- 2016. T-Test, mean and graphs are used to analyze the data. This study found that there was increase in profitability for both sector banks the rate of growth is higher for private sector banks. Public sector banks are lagging in many financial parameters and they are facing many challenges also. This study found that public sector banks must redefine their strategies by considering their strengths and weakness and the type of market they are operating. This study recommended that the profitability for both sector banks should increase the rate of growth is higher for private sector banks.

Musyoka (2017) studied the effect of asset quality on financial performance of commercial banks in Kenya. The results revealed that there is a negative and insignificant relationship between assets quality and commercial banks in Kenya

financial performance. This is an indication that there is no significant relationship between commercial banks in Kenya financial performance and assets quality. Jeanne (2017) however, suggested that asset quality is a key determinant of future earnings and, therefore, capital generation or erosion. The author argued that bank's asset is loans and they determine a greater percentage of the firm's income hence the quality of the loans is key.

Rani (2017) examined the financial performance of Axis and ICICI Bank, both are private sector bank. This study is descriptive and analytical in nature. The data used 12 for this study was entirely secondary nature. This study is conducted to compare the financial performance of Axis and ICICI Bank on the basis of ratios such as credit deposit, net profit margin etc. The period of study taken is from the year 2012-13 to 2016-17. This study found that Axis is performing well and financially sound than ICICI Bank but in context of deposits and expenditure ICICI bank has better managing efficiency than Axis bank. This study concluded that Axis Bank is more profitable deployed and operationally efficient than ICICI Bank. It is recommended that the banks invest more in interest bearing assets, mainly loans, to fully utilized their revenue generating capacity.

Pradhan and Parajuli (2017) examined the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. They found that there is positive relationship between bank sizes with return on asset (ROA). On the other hand, there is a negative relationship between capital adequacy and ROA. The result also showed that there is positive relationship of capital adequacy, bank size and debt to equity ratio with ROE. Singh & Rastogi (2017) used CAMEL model based on longitudinal study to analyze performance analysis of public and private sector banks. The study was conducted in between five years gap of earlier study on same set of sample banks. The study showed that there is no uniformity regarding financial performance in between five years gap. Rank of HDFC Bank, PNB, Axis Banks and SBI are changed.

Rahim, Kadri, and Ling (2018) examined the financial determinants of bank performance in Taiwan from the period of 2005-2007 (pre-crisis period) and during 2008-2010 (post-crisis period). The findings show that the relationship between the return on assets and certain CAMEL ratios remain strong. Moreover, in terms of asset

quality, it shows that there is high protection against external shocks during the pre- and post- crisis period.

Rahma (2018) identified whether there is any difference regarding financial performance between state-owned banks and private commercial banks of Bangladesh or not. To justify this statement CAMEL Analysis has been used. A sample of six banks from each category has been selected altogether. For the study, 5 years data (2010 to 2014) have been collected. Different statistical tools especially independent sample t-test is used. This study found that significant differences in case of capital adequacy and liquidity management among all the elements of CAMEL between these two sectors and found no differences among the rest of the elements. It is recommended that the study may be helpful for the bankers and bank stakeholders.

Bhattarai (2018) used regression models to test the impact of bank specific and macro-economic variables Financial Performance Analysis of Nepalese Financial Institutions in the Framework of CAMEL on bank performance, ROA. He concluded that bank specific variables play major role to influence ROA as compared to macroeconomic variables. The importance of this study may be viewed from its contribution to add value to the existing body of the literature. Most of the studies were concentrated on financial analysis of selected bank and financial institutions but the study on financial analysis of whole financial institutions needs to be addressed in Nepalese context. This study therefore will address the research gap on the same.

Sharma and Chopra (2018) evaluated and compared the financial performance of selected public and private sector banks. For the study 30 banks in total i.e. top 15 public and private sector banks each according to financial rating agency Money Control have been selected. Data related to CAMEL Model indicators has been collected from Indian banking association website and the bank's websites for the period of 4 years i.e. 2014-2017. Ranking, t-test and Mann-Whitney U test have been used to meet the objectives. This study found that the present study indicates that private sector banks perform better than the public sector banks in India on all parameters of CAMEL Model. Public sector banks display low soundness as compared to private sector banks. The theoretical implications of the study are that it provides basis for future comparisons and the practical implications of the study is to provide the reasons for poor performance and suggestions to improve the financial performance of banks.

Similarly, Gwachha (2019) has analyzed bank-specific and macroeconomic determinants of the profitability of Nepalese banking sector over the time period from 2004 to 2013. Gwachha used return on assets (ROA), return on equity (ROE) and net interest margin (NIM) to measure the profitability of the bank and used total asset, ratio of equity capital to total assets, ratio of total loan to total assets, ratio of total deposit to total assets, ratio of total liquid assets to total assets as bank specific factors and used gross domestic product, consumer price index, real interest rate and stock market capitalization as macroeconomic factors. Gwachha concluded that asset size and deposit to asset have a significant positive effect, and loans portfolio have a significant negative impact on profitability of bank. Furthermore, Gwachha found a positive impact of real interest rate and stock market capitalization on the performance of banks.

Etab and El-Moslemany (2020), the research of comparison between conventional and Islamic bank of Pakistan in terms of CAMEL parameters and found that Islamic banks performed better in terms of operational efficiency (Management quality), asset quality, and liquidity. CAMEL framework can perform the comparison of banks. Capital adequacy, however, exhibits a surprising significant negative relationship with ROA, while its relationship with ROE is significant and positive as expected. Except for interest rates (in the ROA model), unemployment rate (in the ROA model), and the rate of inflation (in the ROE model), the rest of the macroeconomic variables are statistically insignificant. The study reveals that bank performance is positively related to interest rates and negatively related to unemployment rates and interest rates.

Ghimire (2020) focused on bank-specific and macroeconomic factors affecting the liquidity of Nepalese commercial banks. The significant findings that significantly impact liquidity in the Nepalese commercial bank are provided through secondary data analyses. Also, it provides consistent findings with other studies as well. This study uses the GDP, INF, TB as macroeconomic factors, whereas NPL, ROA, CAR, and BS are bank-specific variables. The dependent variables used to measure liquidity are liquid assets to total assets and liquid assets to total deposits. The results are based on the secondary data collected for ten commercial banks from 2010/11 (2011) to 2018/19 (2019).

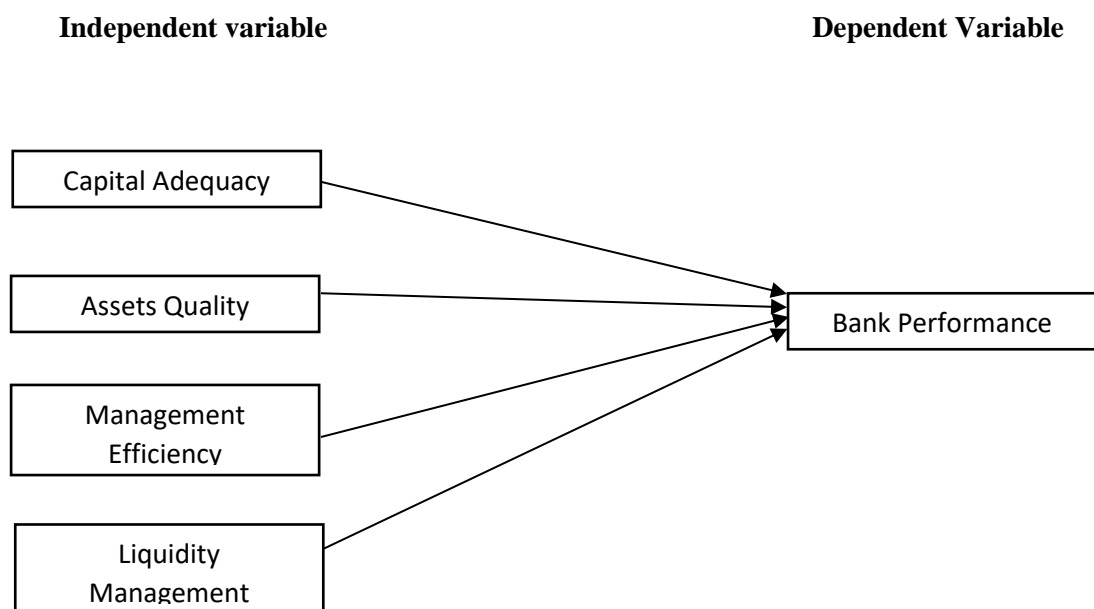
## CHAPTER III

### RESEARCH METHODOLOGY

A research method is a systematic plan for conducting research. Sociologists draw on a variety of both qualitative and quantitative research methods, including experiments, survey research, participant observation, and secondary data. Quantitative methods aim to classify features, count them, and create statistical models to test hypotheses and explain observations. Qualitative methods aim for a complete, detailed description of observations, including the context of events and circumstances. Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: How was the data collected or generated? How was it analyzed?

#### 3.1 Research framework and definition of the variables

A research framework has been used to help focus on the variables in the study. Financial Performance is a function of independent variables such as Capital Adequacy, Assets Quality, Management Efficiency, Liquidity Management. The concept of analysis of the factors is explained by the following framework:



*Figure 1 Research framework of the study*

### 3.1.1 Capital adequacy

Capital adequacy refers the amount of capital funds that the bank or other financial institutions expected to have as required by the financial regulator of the country. It is a measure of banks and other financial institution's ability to pay its debts if people or organizations are unable to pay back the money they have borrowed from bank. The capital adequacy of firms can be measured by equity to asset ratio, debt to equity ratio. Capital adequacy ratio advances to total asset ratio. The capital adequacy of banks under investigation are presented and analyzed. A higher capital adequacy ratio indicates the bank as a safer and more interesting. Capital adequacy is one of the major components of CAMEL model. It is used to find out the bank's ability to meet operational losses.

Capital adequacy ratio (CAR) measures the adequacy of the firms in case of unexpected risk for creditors and depositors. This ratio is computed by dividing the sum of firm's tier 1 and tier 2 capitals to a risk weighted assets of banks. It protects bank from going to bankrupt and to maintain the confidence of the depositors in the bank. Sound capital base enable the bank to maximize profit whereas poor capital base give birth to many defects. In order to measure capital adequacy, bank capital is divided into Tier I and Tier II. Tier I (core/primary) capital is the summation of paid-up capital, share premium, nonredeemable preference share, general reserve fund, accumulated profit, capital redemption reserve, capital adjustment fund, and other free reserve. Amount of the goodwill, fictitious assets, and investment in the financial instruments issued by an organized organization in excess to the limit specified by NRB should be reduced to obtain core capital. Similarly, Tier II (supplementary) capital is the summation of general loan loss provision, assets revaluation reserve, hybrid capital instruments, subordinated term loan, exchange equalization reserve, excess loan loss provision, and investment adjustment reserve (NRB, 2019). Commercial banks (Class A) need to maintain CAR 11% based on Capital Adequacy Framework, 2015, whereas Development banks and Finance companies (Class B and Class C) need to maintain CAR 10% based on Capital Adequacy Framework, 2007 (Updated July 2008). Core capital ratio (CCR), capital adequacy ratio, (CAR), debt equity ratio etc. can be used to examine capital adequacy. In this study capital adequacy ratio, CAR (total capital as a percentage of risk weighted assets) is used to examine the capital adequacy position of BFIs.

### 3.1.2 Asset quality

To interpretation for the degree of non-Performing loan in the portfolios of the banks and the degree of damage this specific asset class may have on the financial performance. Asset quality measure by impaired loan to the gross loan. This measurement of CAMEL analysis takes the portfolio risk the banks are exposed to and the effects it could have on the general presentation of the banks. Asset quality rating refers the evaluation of credit risk associated with a particular asset. The asset quality of the banks can be measured using gross non-performing loan -to-gross loan ratio, non-performing loan -to- total asset ratio, investment –to asset ratio and so on. Under this study the asset quality of banks is measured by using the following ratios. Non-performing loan-to- gross loan ratio: -this ratio measures how much of funds extended are under risk of default in relation to the total loan made. Non- performing loan refers the amounts of loan extended to customers and past due more than 60 days. This ratio can be calculated by dividing the total non-performing loan to the total loans of the bank. A lower ratio indicates the efficiency of the bank in credit management. The following table indicates the nonperforming loan-to-gross loan ratio for the five selected private commercial banks of Ethiopia.

In normal conditions most of the assets of a bank consists of a loan and other assets which can generate or become an income source for the bank so that assets of the type are productive assets. According to (Syahputra and Ahsanul, 2018). The assessment builds on performance of the income property owned by the bank's income ratio that is grouped into production assets. To measure the level of opportunity to receive back invested funds, this ratio is used. Non-Performing Loans is to see how much the level of non-performing loans is disbursed by the bank. Bank Indonesia provides a maximum standard rule of 5% for the value of Non-Performing Loans, so that this assessment is based on the Non-Performing Loan set by Bank Indonesia, the calculation is as follows:

Another major component of CAMEL model to analyze management evaluation and bank's performance is asset quality. It is an indicator of financial solvency of banks. Poor assets quality creates pecuniary problems and weaken capital base. Loan and advances occupy largest portion of asset side of the balance sheet and earnings made from such loans and advance take up a major part of income statement of financial institutions. Default loans have negative effects on bank's earning because these loans are not earning income. The banks with poor performing assets are often exposed to big

losses. The maximum limit of fund-based loan provided to a single borrower is 25 percent of its primary capital. Similar, bank can provide the non-fund base loan up to 50 percent of its core capital (NRB, 2019). NRB has directed BFIs to classify loans into performing loan and non-performing loans. Performing loan consists of pass loan and watch list loan. The loans that are not due and past due for a period up to three months fall under performing loans and the loans that are past due more than three months falls under non-performing loans. Non-performing loans include three categories of loan. They are: substandard, doubtful, and bad debt/loss. Financial institutions need to maintain one percent provision for pass loan, five percent for watch list loan, 25 percent for substandard loan, 50 percent for doubtful loan and 100 percent for bad loan (NRB, 2016). Loan loss provision set aside for performing loans is defined as general loan loss provision and loss provision set aside for non-performing loan is defined as specific loan loss provision. NRB uses composition of assets, nonperforming loan to total loan ratio, net nonperforming loan to total loan ratio as the indicators of the quality of assets of BFIs. In this study, non-performing loan ratio (non-performing loan as a percentage of total loan and advance) is used to assess assets quality.

### **3.1.3 Management quality**

The management aspect in CAMEL investigation has supposed much significant position like not ever before. To capture the potential dynamics of management effectiveness affecting the financial performance of the bank's subsequent ratios that reflected the Operating expense as a percentage of total assets. Management efficiency is used to measure efficiency and effectiveness of the bank's management. Success or failure of any organization largely depends upon managerial capability regarding business affairs. Higher the managerial efficiency, higher will be the organizational success and vice versa. There are so many parameters to judge management efficiency of the bank. It is really difficult to find an independent indicator.

However, Wheelock and Wilson (2000) incorporate measures of management efficiency that are also frequently used in practice. Expenses ratio, earning per employee, cost per loan, average loan size, credit to core capital and deposit ratio can be used to evaluate management quality. Credit to core capital and deposits ratio (CCD ratio) indicates the ability of the BFIs to convert the deposits and core capital into high yielding advances. Hence, this study uses CCD ratio (credit as a percentage of core capital and deposits) is used to evaluate management efficiency.

### 3.1.4 Liquidity management

Liquidity management in banks has a supposed significance due to competitive pressure and the relaxed flow of external capital in the local markets. The influence of liquidity emergency in the banks can badly influence the financial performance of the banks. The incapability of the banks to accomplish its short-term liquidity liabilities and loan obligations can badly impact the performance of the banks by significantly increasing its cost of fund and over disclosure to the unrated asset class. Also, the cash flow from principal and interest expenses could vary for the sorts of loans on the balance sheet effect the liquidity situation. The higher average value of the ratios becomes ranked greater. The liquidity ratio calculates at a net loan to the total asset.

Liquidity indicates the ability of the bank to meet its financial obligations in a timely and effective manner. They state that “liquidity is the life and blood of a commercial bank” There should be adequacy of liquidity sources compared to present and future needs, and availability of assets readily convertible to cash without undue loss. It emphasizes that “the liquidity expresses the degree to which a bank is capable of fulfilling its respective obligations”. For this study liquidity ratio will be calculated as total customer deposits to total assets.

One of the components which enables measuring the performance of banks referred liquidity. Liquidity measures how firms are able to meet its financial obligations as they come due. Liquidity of banks is measured by loan-to-deposit ratio, cash-to-deposit ratio, current ratio, etc. However, measuring the liquidity of banks is somehow challenging because much of their assets are composed of cash and this cash is subjected to the extension of credit. In this study, the researcher measures the liquidity of the selected banks by using the following ratios. Cash-to-deposit ratio: this ratio measures how much cash is hold by the bank to pay back the deposits made by customers and other banks. The ratio will be computed by dividing cash to total deposit. A higher ratio is an indicator of strong liquidity.

Liquidity refers to the ability of a bank to meet its short-term obligations and ability to meet own loan commitment. In case of depositary FIs, liability side liquidity risk arises when depositors of FIs unexpectedly withdraw their deposit and assets side liquidity risk arises due to unexpected demand of loan of commitment holders. Both type of liquidity risk are not desirable for FIs. There is negative relationship between size of

liquid assets and risk of distress. Low liquidity threatens the bank's solvency position whereas high liquidity threatens the bank's profitability. Therefore, there must be tradeoff between liquidity and profitability. Purchased liquidity and storing liquidity are the major source to fulfill liquidity requirement. Different ratios such as loan to total deposit ratio, cash and equivalents to total assets ratio, cash and equivalents to total deposit ratio, NRB balance to total deposit ratio, liquid assets to total deposit ratio are used to measure the liquidity position of BFIs. This study uses liquid assets to total deposit ratio to evaluate liquidity position. Liquid assets include cash balance, bank balance with NRB and other BFIs, money at call, placement up to 90 days and the investment in government securities. In order to obtain net liquid assets, borrowings repayable up to 90 days are deducted from liquid assets.

### **3.2 Research design**

Creswell (2014) suggested that in an investigative study there are three familiar types of research approaches to business and social research namely- inquiry within qualitative, quantitative and mixed method approach. Though, each approach has its own strengths and limitations. Moreover, certain types of social research problems call for specific approaches. Hence, in selecting an approach one should take in to account that nature of the research problem, the personal experience of the researcher and the audience for whom the report will be written. Considering the research problem and objectives, the quantitative nature of the data collected, quantitative research approach found to be appropriate for this study. Descriptive and analytical research designs have been used in this study.

This study uses a quantitative approach and is included in the type of explanatory research. The independent variables in this study were Capital Adequacy (X1, CA), Assets Quality (X2, AQ), Management Efficiency (X3, ME), and Liquidity Management (X4, LM). While the dependent variable in this study is the performance of bank (Y, ROA). The type of data in this study uses secondary data types, namely annual report data that has been available on the Nepal Stock Exchange (NEPSE). Data collection was performed by recording each data needed in the annual reports of each company. The data used is a company performance report that has been registered and published from 2011 to 2020. The population of this study were all financial sector companies listed on the Nepal Stock Exchange (NEPSE) for the period 2011-2020. The

sampling technique uses a non-probability sampling method with a purposive sampling technique with the following criteria: Financial sector companies that consistently publish annual reports for the period 31 December 2011- 2020.

Based on these criteria, the number of companies that can be used as samples in this study is three companies. The data analysis technique used is descriptive statistical analysis and panel data regression analysis. In the regression model estimation method using panel data can be done through three approaches, namely pooled least square, fixed effect model, and random effect model. For the selection of the right model, several tests need to be done. After selecting the panel data regression model, the next step is to test the hypothesis. Hypothesis testing aims to find out how far the hypotheses that have been prepared can be accepted based on the data that has been collected. Hypothesis test analysis does not test the truth, but examines whether or not the hypothesis is accepted.

### **3.3 Population and sample, and sampling design**

The population of this study were all manufacturing companies listed in Nepal Stock Exchange from 2011 to 2020. The samples taken to represent the population were all sectors in the stock exchange. Samples were four companies collected by purposive sampling by considering the representativeness of each banking sector. At present, there are 27 commercial banks operating in Nepal. They constitute the total population for the study. Out of them, two public bank and two private banks namely Nepal Bank Ltd, Agricultural Development Bank Ltd and Himalayan Bank Ltd., Everest Bank Ltd. are selected as a sample representative for the study of comparative analysis of financial performance of respective banks.

### **3.4 Nature and sources of data collection**

The study is based on secondary data. Various Journals, books, magazines, newspapers, articles, etc. are the sources of secondary data. The necessary data for the companies based on listed companies of Nepal Stock Exchange are obtained from Nepal Stock Exchange (NEPSE), Security Board of Nepal (SEBON), and Nepal Rastra Bank. The annual report of sample banks is the main source as well as their official website and other information related to Nepalese banking industries. Therefore, the major sources of data include: Annual reports of the selected sample banks, Related bulletins, circulars

and directives, reports, periodically published by various government bodies like: Nepal Rastra Bank, Central Bureau of Statistics etc.

Since this study is using the secondary data as per its need and nature of study, the data have been obtained from various official websites and records of the related banks. Since, various data obtained through different sources can't be used directly for the analysis in their original form. So, they have been re-evaluated, edited and tabulated to bring them into appropriate form for the analysis as per the demand of nature of study. The researcher has made the collected data trust worthier getting them from authorized sources. All the gathered data have been used according to the need and requirement of this study.

### **3.5 Methods of analysis**

This section consists of presentation, interpretation of available data. The data collected from annual report were in the form of raw. They are simplified and converted into the necessary format form according to research objective in understandable manner and shown in appendices. Mainly, the profitability ratio will be calculated and tested with the bank specific variables with the statistical tool correlation and regression analysis to find out their relationships. The data are analyzed with some statistical concepts, formulas and models. In this research study mean, standard deviation, correlation analysis and regression analysis are used to analyze collected data.

#### **3.5.1 Mean ( $\bar{x}$ )**

Mean is the average of sum of total values to the number of observations in the given sample. The arithmetic mean is the most commonly used to derive the central tendency of the data. It is determined by adding all the data points in a population and then dividing the total number of points. It represents the entire data, which lies almost between the two extremes. For this reason, a mean is frequently referred as a measure of central tendency. In this study, mean is calculated to find out the average of the data of different variables. It is calculated with following relationship:

$$\text{Mean } (\bar{x}) = \frac{x_1 + x_2 + x_3 + x_4 + \dots + x_n}{n}$$

Where,

$\bar{x}$  = Arithmetic Mean return

$x_1, x_2, x_3, x_4 \dots \dots \dots x_n$  = Set of Observation

$\Sigma x$  = Sum of given Observation

$n$  = Total number of Observations

### 3.5.2 Standard deviation

Standard deviation is a statistical tool that measures the ranges and size of deviance from the middle or mean. It measures the absolute dispersion. Higher the standard deviation higher will be the variability and vice versa. In other words, it helps to analyze the quality of data regarding its variability. It is calculated as:

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{(x-\bar{x})^2}{n}}$$

Where,

$\bar{x}$  = Arithmetic Mean return

$x$  = Set of Observation

$n$  = Total number of Observations

### 3.5.3 Coefficient of correlation analysis

Coefficient of correlation is widely used in to measure the degree of relationship between two variables. Two variables are said to have correlation when the value of one variable is accompanied by the change in the value of the other. There is some major principle of correlation analysis. The relation between dependent and independent variables whether the relation is positive or negative with each other. Correlation value falls between -1 to +1. Values close to +1 indicates a high degree of positive correlation, and values to -1 indicates a high-degree of negative correlation. We have adopted Karl Pearson's Coefficient analysis method for this study. It is calculated by the following formula relationships of two variables and denoted by small 'r'.

$$\text{Correlation Coefficient } r = \frac{n\Sigma xy - \Sigma x \Sigma y}{\sqrt{n\Sigma x^2 - (\Sigma x)^2} \sqrt{n\Sigma y^2 - (\Sigma y)^2}}$$

Where,

$r$  = coefficient of correlation

$\Sigma XY$  = Sum of product of two series.

$\Sigma x^2$  = Sum of squared of X series

$\Sigma y^2$  = Sum of squared of Y series

n = Sample size

#### **3.5.4 Multiple regressions analysis**

Regression analysis is widely used for prediction and forecasting where its use has substantial overlap with the field of machine learning. Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Every value of the independent variable x is associated with a value of the dependent variable y. On this regression analysis, Bank Performance (dependent) will be tested for the relationship with explanatory variables. The explanatory variables are independent variables, which are taken from bank specific factors such as Capital Adequacy (CA), Assets Quality (AQ), Management Efficiency (ME), Liquidity Management (LM).

## **CHAPTER IV**

### **RESULTS AND DISCUSSION**

This chapter includes analysis of collected data and their presentation. The purpose of this chapter is to analyze and explain the collected data to achieve the objective of the study following conversion of unprocessed data to an understandable presentation. In this chapter, the data have been analyzed and interpreted using financial and statistical tools following the research methodology discussed in the third chapter. In the part of analysis, various tables have been used to present the data collected from various sources that have been converted into the required tables according to their homogeneity. The calculated results of the analysis have been presented in the suitable forms. For this purpose, required secondary data were collected and analyzed in a systematic way so as to derive the empirical findings and determine the financial performance of bank.

#### **4.1 Analysis of data**

This study primarily relies on the analysis of secondary data to derive the empirical findings on the study. Data that has been collected were tabulated and shown on figure for greater visibility and clarity. Data has been presented with time period of last ten years from 2011 to 2020. And it has been analyzed using mean, median, standard deviation, correlation and regression analysis. For analyzing the relationship between dependent and independent variables, Correlation and Regression Analysis were used. The sources of tables presented below are output from SPSS software and edited in excel. This simple line chart presents the trend of the specific factors of firm value of public and private banks in Nepal from 2010/11 to 2019/20. The following figure 2, 3, 4, 5, 6, 7, 8, 9,10 and figure 11 shows the trend of the public and private banks' financial performance for ten fiscal years as expressed by bank performance.

The data related to capital adequacy, assets quality, management efficiency, liquidity management and bank performance were collected and analyzed through various methods in order to answer the various research questions. Data are being analyzed in order to know the significant or insignificant impact of Capital Adequacy (CA) on bank performance, to know the significant or insignificant impact of Assets Quality (AQ) on bank performance, to know the significant or insignificant impact of Management Efficiency (ME) on bank performance and to know the significant or significant impact

of liquidity management (LM) on bank performance. The pattern of yearly CA, AQ, ME, LM, ROA of year 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019 and 2020 are presented below with figures.

#### 4.1.1 Relationship between public bank and private banks with different variables

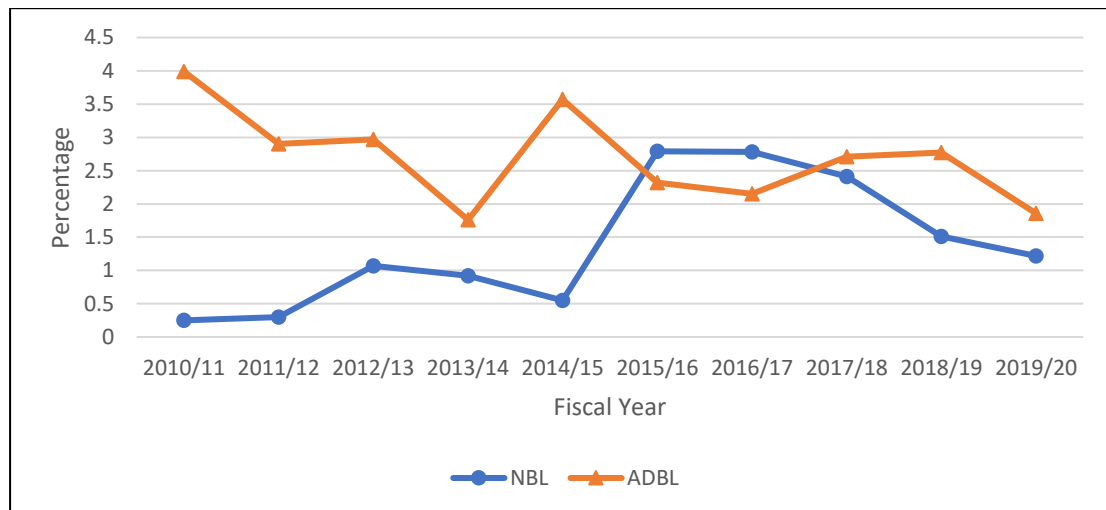
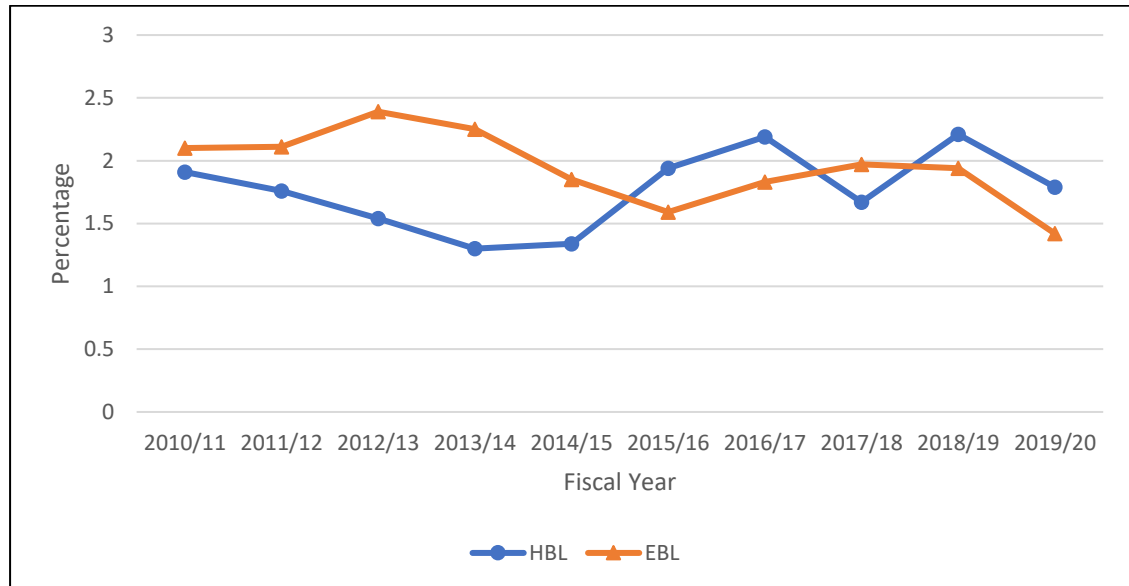


Figure 2 ROA of public banks in last 10 years

Figure 2 shows the pattern of profitability between two selected public banks: Nepal Bank Ltd. (NBL) and Agricultural Development Bank Ltd. (ADBL). As it can be seen in figure 2 that the profitability is measured by ROA (Return on Assets) of two selected public banks which shows slightly downward trend at beginning and suddenly upward at certain point and again face towards downward. Based on figure 2, the (independent variable) profitability represented by ROA (Return on Assets) of two selected public banks are dropping downward which shows negative impact on bank performance. Higher the profitability, higher will be the performance of firm and vice-versa.

In NBL, the profitability slightly increases from 0.25 to 0.3% in year 2011, 2012 respectively whereas drastically increases by 1.07% in year 2013. It elaborates that the profitability of Nepal bank is slightly showing negative response in middle of the year from 0.92 to 0.55 % in 2014 to 2015 respectively. In 2016, it suddenly increases by 2.79% and make constant in 2017 by 2.78%. Afterward, it starts decreasing 2.41 to 1.51 to 1.22% in 2017, 2018, 2019 respectively. Talking about ADBL, it also shows negative from year 2011, 2012, 2013 and 2014 by 3.99, 2.9, 2.97, 1.76% where it shows suddenly positive trend in year 2015 by 3.57% which is significant positive impact on

performance of firm. After that it starts degrading from 2.32 to 2.15 to 2.71 to 2.77 to 1.86% respectively.



*Figure 3 ROA of private banks in last 10 years*

Figure 3 shows the pattern of profitability between two selected private banks: Himalayan Bank Ltd (HBL) and Everest Bank Ltd (EBL). As it can be seen in figure 3 that the profitability is measured by ROA (Return on Assets) of two selected private banks which shows slightly downward trend at beginning and suddenly upward at certain point and again face towards downward. Based on figure 3, the (independent variable) profitability represented by ROA (Return on Assets) of two selected private banks are dropping downward which shows negative impact on bank performance. Higher the profitability, higher will be the performance of firm and vice-versa.

In HBL, it starts decreasing from 1.91 to 1.76 to 1.54 to 1.3 to 1.34% respectively in year 2011 o 2015. There is increment in year 2016 and 2017 by 1.94 to 2.19%. And finally decreasing in 2018 to 2020 by 1.79%. Talking about EBL, the profitability starts increasing from 2.1 to 2.11 to 2.39% in year 2011, 2012, 2013 respectively whereas drastically decrease by 2.25, 1.85, 1.59% in year 2014, 2015, 2016 respectively. Again, starts increasing in year 2017, 2018, 2019 by 1.83, 1.97, 1.94% respectively and finally decrease by 1.42 in year 2020.

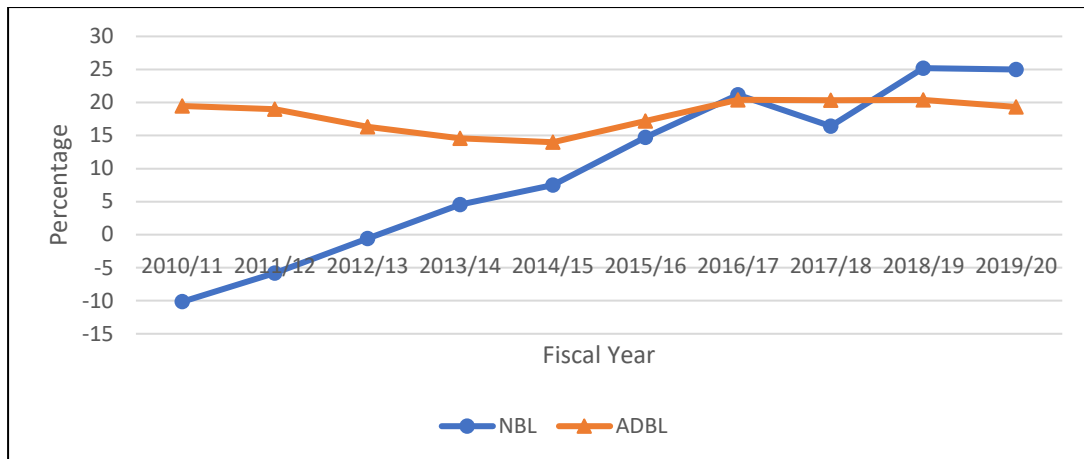


Figure 4 Capital adequacy of public banks in last 10 years

Figure 4 shows the pattern of Capital Adequacy between two selected public banks: Nepal Bank Ltd. (NBL) and Agricultural Development Bank Ltd. (ADBL). As it can be seen in figure 2 that the Capital Adequacy is measured by CA of two selected public banks which shows slightly increasing from beginning to ending. Based on figure 4, the (independent variable) capital adequacy represented by CA of two selected public banks are increasing upward which shows positive impact on bank performance. Higher the Capital Adequacy, higher will be the performance of firm and vice-versa.

In NBL, it starts drastically increases from the beginning from -10.15 to -5.82 to -0.59 to 4.55 to 7.49 to 14.70 to 21.15 to 16.45 to 25.2 to 25.01% respectively in year 2011 to 2020. Talking about ADBL, the capital adequacy starts decreasing slowly at beginning from 19.49, 19, 16.33, 14.57, 13.99% in year 2011 to 2015 respectively whereas drastically increases by 17.18, 20.41, 20.33, 20.37% in year 2016, 2017, 2018 and 2019 respectively. Again, starts decreasing in year 2020 by 19.32%.

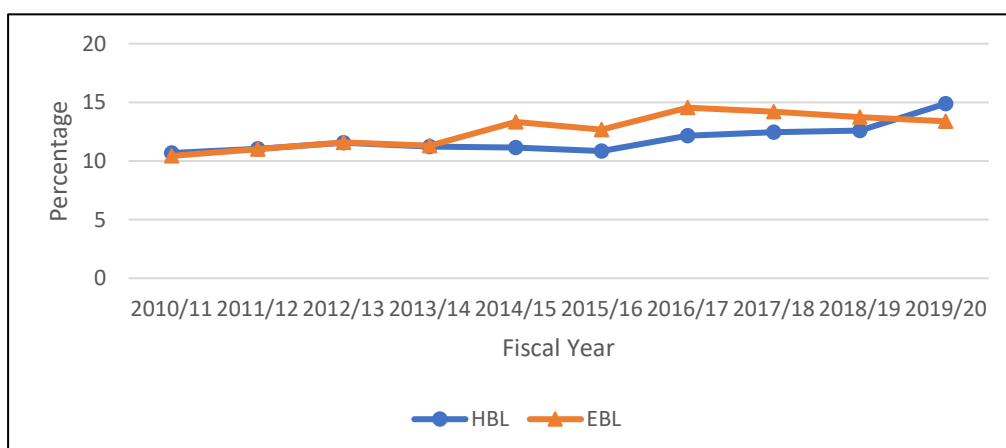
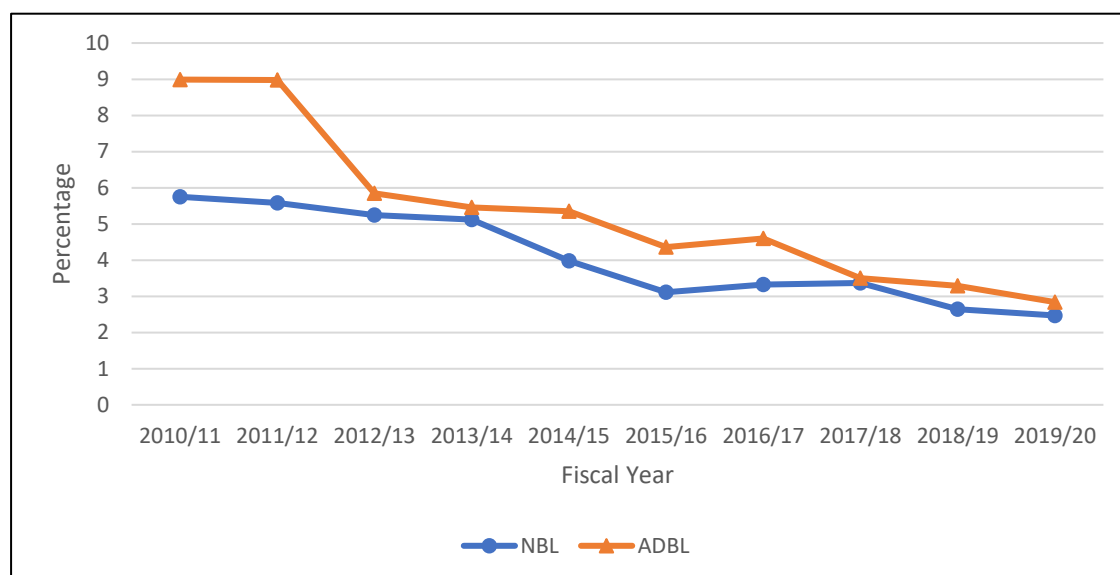


Figure 5 Capital adequacy of private banks in last 10 years

Figure 5 shows the pattern of Capital Adequacy between two selected private banks: Himalayan Bank Ltd (HBL) and Everest Bank Ltd (EBL). As it can be seen in figure 5 that the Capital Adequacy is measured by CA of two selected private banks which shows slightly increasing from beginning to ending. Based on figure 5, the (independent variable) capital adequacy represented by CA of two selected public banks are increasing upward which shows positive impact on bank performance. Higher the Capital Adequacy, higher will be the performance of firm and vice-versa.

In HBL, it starts increases from the beginning from 10.68 to 11.02 to 11.55 to 11.23 to 11.14 to 10.84 to 12.15 to 12.46 to 12.6 to 14.89% respectively from 2011 to 2020. Talking about EBL, it also starts increases from the beginning from 10.43 to 11.02 to 11.59 to 11.31 to 13.33 to 12.66 to 14.54 to 14.2 to 13.74 to 13.38 % respectively from 2011 to 2020 year.

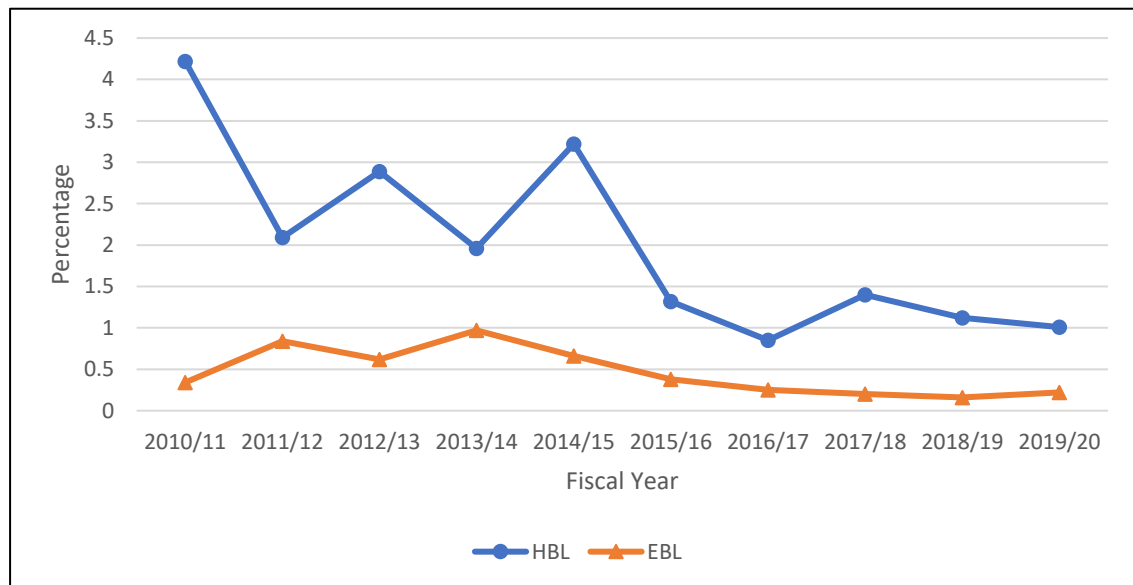


*Figure 6 Asset quality of public banks in last 10 years*

Figure 6 shows the pattern of Assets quality between two selected public banks: Nepal Bank Ltd. (NBL) and Agricultural Development Bank Ltd. (ADBL). As it can be seen in figure 6 that the Assets quality is measured by AQ of two selected public banks which shows gradually decreasing from beginning to ending. Based on figure 6, the (independent variable) Asset quality represented by AQ of two selected private banks are decreasing downward which shows negative impact on bank performance. Higher the Assets quality, higher will be the performance of firm and vice-versa.

In NBL, it starts continuously decreasing from the beginning from 5.75 to 5.58 to 5.24 to 5.12 to 3.98 to 3.11 to 3.32 to 3.37 to 2.64 to 2.47 % respectively in year 2011 to

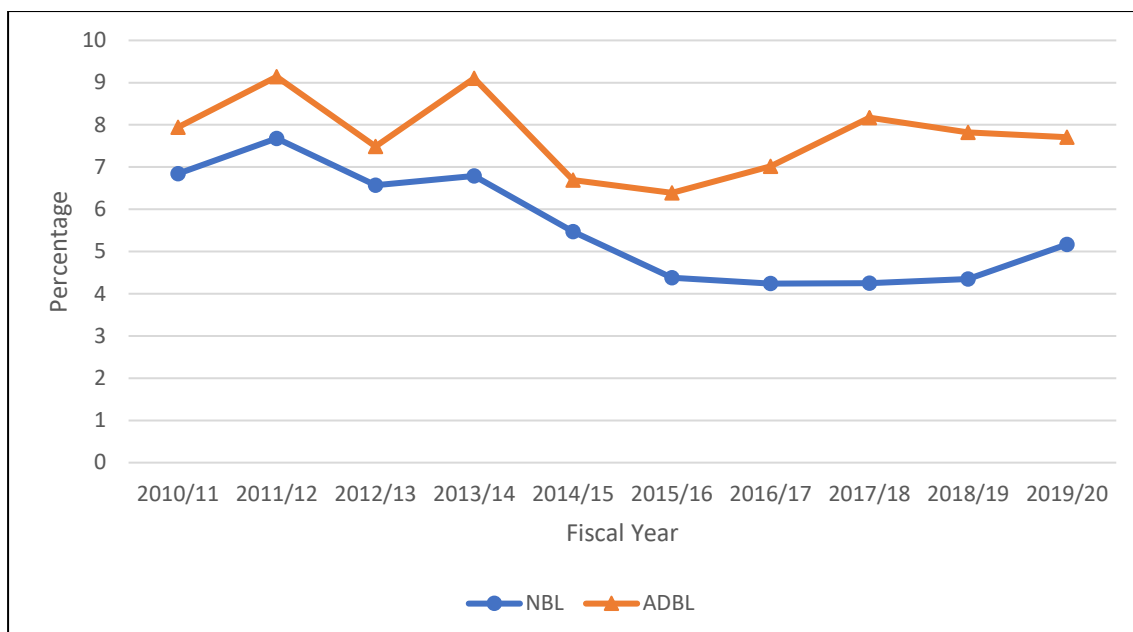
2020. Talking about ADBL, the capital adequacy also starts decreasing from beginning from 8.99 to 8.89 to 5.85 to 5.46 to 5.35 to 4.36 to 4.6 to 3.5 to 3.29 to 2.84% in year 2011 to 2015 respectively.



*Figure 7 Asset quality of private banks in last 10 years*

Figure 7 shows the pattern of Assets Quality between two selected private banks: Himalayan Bank Ltd. (HBL) and Everest Bank Ltd. (EBL). As it can be seen in figure 7 that the Assets Quality is measured by AQ of two selected private banks which shows slightly increasing in middle and decreasing at the ending. Based on figure 7, the (independent variable) assets quality represented by AQ of two selected private banks are decreasing downward which shows negative impact on bank performance. Higher the Assets Quality, higher will be the performance of firm and vice-versa.

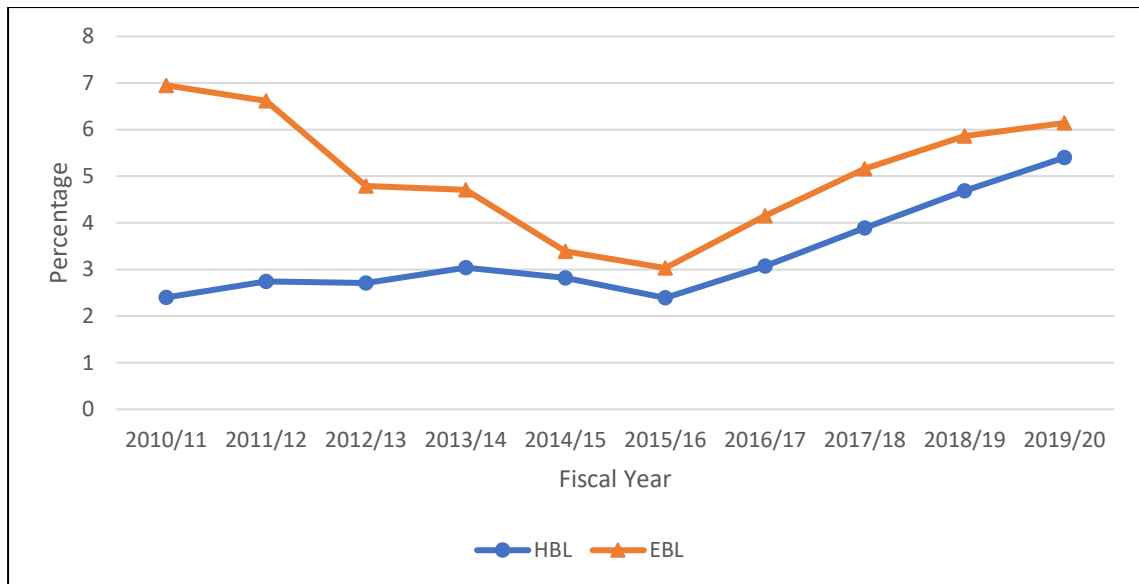
In HBL, it starts suddenly decreases from the beginning from 4.22 to 2.09% respectively in year 2011 to 2012. Then there is up and down from 2.89 to 1.96 and 3.22 to 1.32% in year 2013, 2014, 2015, 2016 respectively. Similarly, in year 2017 to 2022 there is continue of increase and decrease from 0.85 to 1.4 to 1.12 to 1.01% simultaneously. Talking about EBL, the assets quality starts increasing slowly at beginning from 0.34 to 0.84% in year 2011 to 2012 respectively whereas decreases by 0.62% in year 2013. Again, starts increasing in year 2014 by 0.97%. Finally, it starts decreasing from 0.66 to 0.38 to 0.25 to 0.2 to 0.16% in year 2015, 2016, 2017, 2018 and 2019 respectively. However, there is slightly increase in year 2022 by 0.22%.



*Figure 8 Management efficiency of public banks in last 10 years*

Figure 8 shows the pattern of management efficiency between two selected public banks: Nepal Bank Ltd. (NBL) and Agricultural Development Bank Ltd. (ADBL). As it can be seen in figure 8 that the Management Efficiency is measured by ME of two selected public banks which shows slightly increasing from beginning by 6.84 to 7.68% from year 2011 to 2012 respectively. There are ups and downs from 2013 to 2015 year by 6.57 to 6.79 to 5.47% respectively. Likewise, from year 2016 to 2018 ME is decreasing slowly from 4.38 to 4.24 to 4.25% simultaneously. Finally in year 2019 and 2020, there is increase by 4.35 to 5.17% respectively. Based on figure 8, the (independent variable) management efficiency represented by ME of two selected public banks are increasing upward which shows positive impact on bank performance. Higher the Management Efficiency, higher will be the performance of firm and vice-versa.

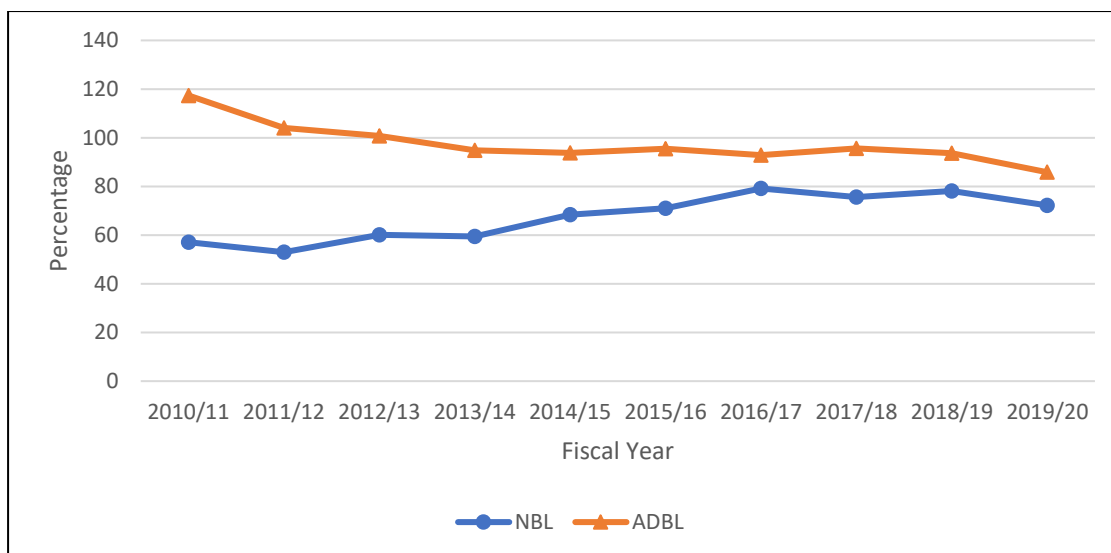
In ADBL, it starts increasing at the beginning from 7.94 to 9.14% respectively in year 2011 to 2012. Talking about ADBL, the management efficiency ups and downs from year 2013 to 2017 by 7.49 to 9.1 to 6.69 to 6.39 to 7.02% respectively whereas again slowly decreases by 8.17 to 7.82 to 7.71% in year 2018, 2019 and 2020 respectively.



*Figure 9 Management efficiency of private banks in last 10 years*

Figure 9 shows the pattern of management efficiency between two selected private banks: Himalayan Bank Ltd. (HBL) and Everest Bank Ltd. (EBL). As it can be seen in figure 9 that the Management Efficiency is measured by ME of two selected private banks which shows slightly increasing in middle and decreasing at the ending. Based on figure 9, the (independent variable) assets quality represented by ME of two selected private banks are decreasing downward which shows negative impact on bank performance. Higher the Management Efficiency, higher will be the performance of firm and vice-versa. The relationship and impact on management efficiency is negative at the beginning of the year whereas both banks of private are increasing at very high speed. It shows the positive sign towards the performance of banks. Therefore, it indicates that higher the management efficiency, higher will be the performance of private bank and vice versa.

In HBL, it starts slowly increasing from the beginning from 2.4 to 2.74 to 2.71 to 3.04% respectively in year 2011 to 2014 respectively. In year 2015 to 2016, there is slightly decrease from 2.82 to 2.39%. However, there is continuously increase in 3.07 to 3.89 to 4.69 to 5.4% in year 2017, 2018, 2019 and 2020 respectively. Talking about EBL, the Management Efficiency starts continuous decreasing from the beginning from 6.95 to 6.62 to 4.79 to 4.71 to 3.39 to 3.03% in year 2011 to 2016 respectively whereas slowly increases by 4.15 to 5.16 to 5.86 to 6.14% in year 2017, 2018, 2019 and 2020 respectively.



*Figure 10 Liquidity management of public banks in last 10 years*

Figure 10 shows the pattern of liquidity management between two selected public banks: Nepal Bank Ltd. (NBL) and Agricultural Development Bank Ltd. (ADBL). As it can be seen in figure 10 that the Liquidity Management is measured by LM of two selected public banks which shows slightly decreasing from the beginning to ending. Based on figure 10, the (independent variable) liquidity management represented by LM of two selected public banks are slightly decreasing downward which shows negative impact on bank performance. Higher the Liquidity Management, higher will be the performance of firm and vice-versa. The relationship of and impact on liquidity management with bank performance is going hand on hand as it is gradually increasing from starting and is slightly decreasing at the end of the fiscal year. This figure shows the positive sign at the initial phase and slightly shows negative at the finishing phase.

In NBL, it starts gradually increases from the beginning from 57.05 to 52.98 to 60.1 to 59.45 to 68.45 to 71.05 to 79.17% respectively in year 2011 to 2017. It indicates that higher the liquidity management, higher will be the performance of public bank and vice versa. However, slowly decreasing from 79.17 to 75.68 to 78.14 to 72.25% in year 2018, 2019 and 2020 respectively. Talking about ADBL, the liquidity management starts decreasing slowly from beginning to ending from 117.38 to 104.06 to 100.81 to 94.8 to 93.77 to 95.46 to 92.9 to 95.64 to 93.62 to 85.84% in year 2011 to 2020 respectively.

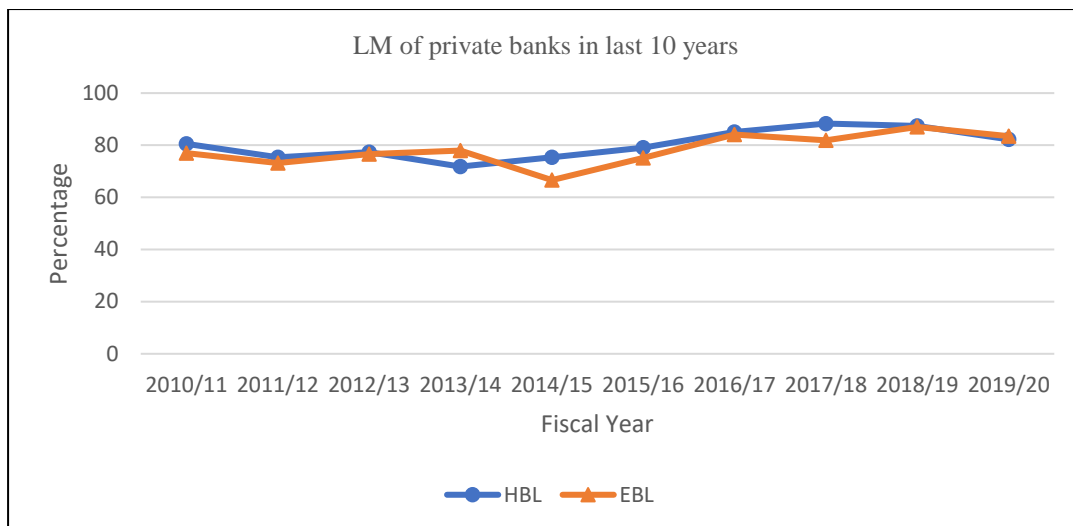


Figure 11 Liquidity management of private banks in last 10 years

Figure 11 shows the pattern of liquidity management between two selected private banks: Himalayan Bank Ltd. (HBL) and Everest Bank Ltd. (EBL). As it can be seen in figure 11 that the Liquidity Management is measured by LM of two selected private banks which shows ups and downs from beginning to ending. Based on figure 11, the (independent variable) Liquidity Management represented by LM of two selected private banks are slightly increasing upward which shows positive impact on bank performance. Higher the Liquidity Management, higher will be the performance of firm and vice-versa.

In HBL, it starts ups and downs like wave from the beginning to ending from 80.57 to 75.36 to 77.36 to 71.82 to 75.37 to 79.12 to 85.1 to 88.31 to 87.37 to 82.31% respectively in year 2011 to 2020. Talking about ADBL, the liquidity management starts ups and downs from beginning from 76.98 to 73.22 to 76.57 to 78.01 to 66.63 to 75.14% in year 2011 to 2016 respectively whereas drastically increases and decreases by 84.05 to 81.86 to 87.01 to 83.52% in year 2017 to 2020.

#### 4.1.2. Structure and pattern of the variables under study

The structure and pattern of major variables for each variable on private and public bank basis for all the year under study and all the banks in each year basis are analyzed and tabulated. The table 2 depicts the bank and year level mean, standard deviation and coefficient of variation values of bank performance which is measured as the percentage between net profit and total assets at beginning of the year. From the table it is observed that the mean value of bank performance is 1.9475 for the whole sample, whereas at bank level, Everest Bank Ltd (private bank) has the highest return on assets

(ROA) with mean of 1.945 and Nepal Bank Ltd (public bank) has the lowest mean asset tangibility of 1.38.

Table 2

*Structure and pattern of ROA*

*The sample includes two public banks and two private banks and covers the period between 2011 and 2020. The return on assets (ROA) is defined as the percentage between net profits to total asset. The table presents mean, standard deviation and coefficient of variation of ROA of each bank for the whole study period and all 4 banks in each year.*

Bank/Yr	2011	2012	2013	2015	2016	2017	2018	2019	2020	Mean	STD	CV
NBL	0.25	0.3	1.07	0.55	2.79	2.78	2.41	1.51	1.22	1.38	0.97	0.70
ADBL	3.99	2.9	2.97	3.57	2.32	2.15	2.71	2.77	1.86	2.7	0.71	0.26
HBL	1.91	1.76	1.54	1.34	1.94	2.19	1.67	2.21	1.79	1.76	0.31	0.18
EBL	2.1	2.11	2.39	1.85	1.59	1.83	1.97	1.94	1.42	1.94	0.29	0.15
Mean	2.06	1.77	1.99	1.83	2.16	2.24	2.19	2.11	1.57	1.95		
STD	1.53	1.09	0.85	1.23	0.51	0.40	0.46	0.53	0.30			
CV	0.74	0.61	0.43	0.7	0.24	0.18	0.21	0.25	0.19			

The highest variability in ROA (net profits to total asset) is observed for Nepal Bank Ltd. (public bank) with coefficient of variation of 0.70 and least variability is observed for Everest Bank Ltd. (private bank) by 0.15 among all the banks under study. The highest volatility in ROA is observed in the year 2011 with the coefficient of variation of 0.74 and the year 2017 with coefficient of variation 0.17 is observed to be the least variability in ROA.

The table 2 presents the bank and year level mean, standard deviation and coefficient of variation values of ROA of the selected public and private banks which is defined as the percentage of net profit to total assets. From the table it is observed that the mean value of ROA is 1.95 for the whole sample, whereas at bank level, Agricultural Development Bank Ltd. has the highest ROA with mean of 2.7 followed by Everest Bank Ltd. (1.94) and Himalayan Bank Ltd. has the lowest ROA with 1.76 mean of ROA followed by Nepal Bank Ltd. have the (1.38).

The highest standard deviation in ROA is observed for Nepal Bank Ltd. with standard deviation of 0.97 and least variability is observed for Everest Bank Ltd. (0.29) among

all the banks under study. The highest volatility in ROA is observed in the year 2011 with the standard deviation of 1.53 followed by the year 2015 (1.23) and the year 2017 and 2020 are observed to be the least variability in ROA with standard deviation 0.40 and 0.30 respectively.

Table 3

*Structure and pattern of capital adequacy*

*The sample includes two public banks and two private banks and covers the period between 2011 and 2020. The capital adequacy (CA) is defined as the percentage between total capital to total asset. The table presents mean, standard deviation and coefficient of variation of CA of each bank for the whole study period and all 4 banks in each year.*

Bank/Yr	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean	STD	CV
NBL	10.15	-5.82	-0.59	4.55	7.49	14.71	21.16	16.42	25.2	25.01	9.80	12.7	1.29
ADBL	19.49	19	16.33	14.57	13.99	17.18	20.41	20.33	20.37	19.33	18.10	2.43	0.13
HBL	10.68	11.02	11.55	11.23	11.14	10.84	12.15	12.46	12.6	14.89	11.86	1.26	0.11
EBL	10.43	11.02	11.59	11.31	13.33	12.67	14.55	14.2	13.74	13.38	12.62	1.44	0.11
Mean	7.61	8.81	9.72	10.41	11.49	13.85	17.07	15.85	17.98	18.15	13.09		
STD	12.57	10.45	7.23	4.21	2.93	2.72	4.41	3.40	5.91	5.22			
CV	1.65	1.19	0.74	0.40	0.25	0.20	0.259	0.21	0.33	0.29			

The highest variability in CA (total capital to total asset) is observed for Nepal Bank Ltd. (public bank) with coefficient of variation of 1.29 and least variability is observed for Himalayan Bank Ltd. (private bank) and Everest Bank Ltd. (private bank) by 0.11 among all the banks under study. The highest volatility in CA is observed in the year 2011 with the coefficient of variation of 1.65 and the year 2016 with coefficient of variation 0.20 is observed to be the least variability in CA.

The table 3 presents the bank and year level mean, standard deviation and coefficient of variation values of CA of the selected public and private banks which is defined as the percentage of total capital to total assets. From the table it is observed that the mean value of CA is 13.09 for the whole sample, whereas at bank level, Agricultural Development Bank Ltd. has the highest CA with mean of 18.10 followed by Everest Bank Ltd. (12.62) and Himalayan Bank Ltd. has the lowest CA with 11.86 mean of CA followed by Nepal Bank Ltd. have the (9.80).

The highest standard deviation in CA is observed for Nepal Bank Ltd. with standard deviation of 12.7 and least variability is observed for Himalayan Bank Ltd. (1.26) among all the banks under study. The highest standard deviation in CA is observed in the year 2011 with the standard deviation of 12.57 followed by the year 2012 (10.45)

and the year 2015 and 2016 are observed to be the least in CA with standard deviation 2.72 and 2.93 respectively.

Table 4

*Structure and pattern of assets quality*

*The sample includes two public banks and two private banks and covers the period between 2011 and 2020. The Assets Quality (AQ) is defined as the percentage between (non-Performing loans to total loans). The table presents mean, standard deviation and coefficient of variation of AQ of each bank for the whole study period and all 4 banks in each year.*

Bank/Yr	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean	STD	CV
NBL	5.75	5.58	5.24	5.12	3.98	3.11	3.32	3.37	2.64	2.47	4.06	1.25	0.31
ADBL	8.99	8.98	5.85	5.46	5.35	4.36	4.6	3.5	3.29	2.84	5.32	2.17	0.41
HBL	4.22	2.09	2.89	1.96	3.22	1.32	0.85	1.4	1.12	1.01	2.01	1.11	0.55
EBL	0.34	0.84	0.62	0.97	0.66	0.38	0.25	0.2	0.16	0.22	0.46	0.29	0.62
Mean	4.82	4.37	3.65	3.38	3.30	2.29	2.25	2.12	1.80	1.63	2.96		
STD	3.59	3.67	2.39	2.25	1.97	1.78	2.05	1.60	1.42	1.23			
CV	0.74	0.84	0.65	0.67	0.60	0.78	0.91	0.75	0.79	0.75			

The highest variability in AQ (non- performing loans to total loans) is observed for Everest Bank Ltd. (private bank) with coefficient of variation of 0.62 and least variability is observed for Nepal Bank Ltd. (public bank) by 0.31 among all the banks under study. The highest volatility in AQ is observed in the year 2017 with the coefficient of variation of 0.91 and the year 2015 with coefficient of variation 0.60 is observed to be the least variability in AQ.

The table 4 presents the bank and year level mean, standard deviation and coefficient of variation values of AQ of the selected public and private banks which is defined as the percentage of non- performing loans to total loans. From the table it is observed that the mean value of AQ is 2.96 for the whole sample, whereas at bank level, Agricultural Development Bank Ltd. has the highest AQ with mean of 5.32 followed by Nepal Bank Ltd. (4.06) and Everest Bank Ltd. has the lowest AQ with 0.46 mean of AQ followed by Himalayan Bank Ltd. have the (2.01).

The highest standard deviation in AQ is observed for Agricultural Development Bank Ltd. with standard deviation of 2.17 and least variability is observed for Everest Bank Ltd. (0.46) among all the banks under study. The highest standard deviation in AQ is observed in the year 2012 with the standard deviation of 3.67 followed by the year 2011 (3.59) and the year 2020 and 2019 are observed to be the least in AQ with standard deviation 1.23 and 1.42 respectively.

Table 5

*Structure and pattern of management efficiency*

*The sample includes two public banks and two private banks and covers the period between 2011 and 2020. The management efficiency (ME) is defined as the percentage between total operating cost to total assets. The table presents mean, standard deviation and coefficient of variation of ME of each bank for the whole study period and all 4 banks in each year.*

Bank/Yr	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean	STD	CV
NBL	6.84	7.68	6.57	6.79	5.47	4.38	4.24	4.25	4.35	5.17	5.57	1.3	0.23
ADBL	7.94	9.14	7.49	9.1	6.69	6.39	7.02	8.17	7.82	7.71	7.75	0.92	0.12
HBL	2.4	2.74	2.71	3.04	2.82	2.39	3.07	3.89	4.69	5.4	3.31	1.02	0.31
EBL	6.95	6.62	4.79	4.71	3.39	3.03	4.15	5.16	5.86	6.14	5.08	1.32	0.26
Mean	6.03	6.54	5.39	5.91	4.59	4.05	4.62	5.37	5.68	6.10	5.43		
STD	2.47	2.74	2.11	2.62	1.80	1.77	1.69	1.94	1.57	1.15			
CV	0.41	0.42	0.39	0.44	0.39	0.44	0.36	0.36	0.28	0.19			

The highest variability in ME (total operating cost to total asset) is observed for Himalayan Bank Ltd. (private bank) with coefficient of variation of 0.31 and least variability is observed for Agricultural Development Bank Ltd. (public bank) by 0.12 among all the banks under study. The highest volatility in ME is observed in the year 2014 and 2016 with the coefficient of variation of 0.44 and the year 2020 with coefficient of variation 0.19 is observed to be the least variability in ME.

The table 5 presents the bank and year level mean, standard deviation and coefficient of variation values of ME of the selected public and private banks which is defined as the percentage of total operating cost to total assets. From the table it is observed that the mean value of ME is 5.43 for the whole sample, whereas at bank level, Agricultural Development Bank Ltd. has the highest ME with mean of 7.75 followed by Nepal Bank Ltd. (5.57) and Himalayan Bank Ltd. has the lowest ME with 3.31 mean of ME followed by Everest Bank Ltd. have the (5.08).

The highest standard deviation in ME is observed for Everest Bank Ltd. with standard deviation of 1.32 and least variability is observed for Agricultural Development Bank Ltd. (0.92) among all the banks under study. The highest standard deviation in ME is observed in the year 2012 with the standard deviation of 2.74 followed by the year 2014 (2.62) and the year 2020 and 2019 are observed to be the least in ME with standard deviation 1.15 and 1.57 respectively.

Table 6

*Structure and pattern of liquidity management*

*The sample includes two public banks and two private banks and covers the period between 2011 and 2020. The liquidity management (LM) is defined as the percentage between total loans to total customer deposit. The table presents mean, standard deviation and coefficient of variation of LM of each bank for the whole study period and all 4 banks in each year.*

Bank/Yr	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean	STD	CV
NBL	57.05	52.98	60.1	59.45	68.45	71.05	79.17	75.68	78.14	72.25	67.43	9.38	0.14
ADBL	117.38	104.06	100.81	94.8	93.77	95.46	92.9	95.64	93.62	85.84	97.43	8.5	0.09
HBL	80.57	75.36	77.36	71.82	75.37	79.12	85.1	88.31	87.37	82.31	80.27	5.5	0.07
EBL	76.98	73.22	76.57	78.01	66.63	75.14	84.05	81.86	87.01	83.52	78.30	6.02	0.08
Mean	82.99	76.40	78.71	76.02	76.06	80.19	85.31	85.37	86.54	80.98	80.86		
STD	25.15	21.01	16.74	14.71	12.4	10.7	5.68	8.57	6.37	6.00			
CV	0.30	0.27	0.21	0.19	0.16	0.13	0.07	0.1	0.07	0.07			

The highest variability in LM (total loan to total customer deposit) is observed for Nepal Bank Ltd. (public bank) with coefficient of variation of 0.14 and least variability is observed for Himalayan Bank Ltd. (private bank) by 0.07 among all the banks under study. The highest volatility in LM is observed in the year 2011 with the coefficient of variation of 0.30 and the year 2017, 2019, 2020 with coefficient of variation 0.07 is observed to be the least variability in LM.

The table 6 presents the bank and year level mean, standard deviation and coefficient of variation values of LM of the selected public and private banks which is defined as the percentage of total loan to total customer deposit. From the table it is observed that the mean value of LM is 80.86 for the whole sample, whereas at bank level, Agricultural Development Bank Ltd. has the highest LM with mean of 97.43 followed by Himalayan Bank Ltd. (80.27) and Nepal Bank Ltd. has the lowest LM with 67.43 mean of LM followed by Everest Bank Ltd. have the (78.30).

The highest standard deviation in LM is observed for Nepal Bank Ltd. with standard deviation of 9.38 and least variability is observed for Himalayan Bank Ltd. (5.5) among all the banks under study. The highest standard deviation in LM is observed in the year 2011 with the standard deviation of 25.15 followed by the year 2012 (21.01) and the year 2017 and 2020 are observed to be the least in LM with standard deviation 5.68 and 6 respectively.

### 4.1.3 Descriptive statistics

Table 7 summarizes the result of descriptive statistics of the variables under study. Panel A of the table depicts the descriptive statistics (mean, standard deviation, minimum and maximum) values of the variables under study of all sample firms. Panel B, C, D and E of the table depicts the descriptive statistics of the hydropower companies, trading companies, manufacturing and processing companies and hotel companies respectively.

Table 7

#### *Summary of descriptive statistics*

*This table summarizes the descriptive statistics (mean, standard deviation, minimum and maximum) of selected public and private and related exogenous variables for total sample. The sample includes 4 banks where 2 as public banks and 2 as private banks drawn from NEPSE and covers the period of 10 years from 2011 to 2020. Return on Assets is the as the percentage between net profits to total asset; Capital Adequacy is the percentage between total capital to total asset; Assets Quality (AQ) is defined as the percentage between (non-Performing loans to total loans; management efficiency (ME) is defined as the percentage between total operating cost to total assets; liquidity management (LM) is defined as the percentage between total loans to total customer deposit held.*

<b>Panel A: All selected Banks</b>					
Variables	N	Minimum	Maximum	Mean	Std. Deviation
CA	40	-10.15	25.20	13.0937	6.99998
AQ	40	.16	8.99	2.9630	2.30621
ME	40	2.39	9.14	5.4290	1.94558
LM	40	52.98	117.38	80.8570	13.06477
ROA	40	.25	3.99	1.9475	.78343
<b>Panel B: Public Banks</b>					
Variables	N	Minimum	Maximum	Mean	Std. Deviation
CA	20	-20.30	50.40	27.8970	19.71300
AQ	20	2.47	8.99	4.6900	1.84016
ME	20	4.24	9.14	6.6605	1.56097
LM	20	52.98	117.38	82.4300	17.68269
ROA	20	.25	3.99	2.0400	1.07062
<b>Panel C: Private Banks</b>					
Variables	N	Minimum	Maximum	Mean	Std. Deviation
CA	20	20.86	29.78	24.4780	2.74926
AQ	20	.16	4.22	1.2360	1.11891
ME	20	2.39	6.95	4.1975	1.46298
LM	20	66.63	88.31	79.2840	5.69855
ROA	20	1.30	2.39	1.8550	.30918

Panel A of table 7, depicts the descriptive statistics (mean, standard deviation, minimum and maximum) values of the variables of all sample under study with 40 observations of 4 banks (public and private banks) for the period of 10 years from 2011 to 2020. It is observed that the mean value of capital adequacy is 13.0937, which ranges from -10.15 to 25.20 with standard deviation of 6.99998. The mean value of assets quality is 2.9630 with minimum, maximum value and standard deviation of 0.16, 8.99 and 2.30621 respectively. Similarly, the mean value of management efficiency is 5.4290 having minimum value as 2.39, maximum value as 9.14 and standard deviation is 1.94558. For the liquidity management the mean value is 80.8570, minimum value is 52.98 and maximum value is 117.38 and standard deviation is 13.06477. Finally, the mean value of ROA is 1.9475 having minimum value as 0.25, maximum value as 3.99 and standard deviation as 0.78343.

From Panel B, the descriptive statistics (mean, standard deviation, minimum and maximum) values of the variables of all sample under study with 20 observations of 2 public banks for the period of 10 years from 2011 to 2020. It is observed that the mean value of capital adequacy is 27.8970, which ranges from -20.30 to 50.40 with standard deviation of 19.71300. The mean value of assets quality is 4.6900 with minimum, maximum value and standard deviation of 2.47, 8.99 and 1.84016 respectively. Similarly, the mean value of management efficiency is 6.6605 having minimum value as 4.24, maximum value as 9.14 and standard deviation is 1.56097. For the liquidity management the mean value is 82.4300, minimum value is 52.98 and maximum value is 117.38 and standard deviation is 17.68269. Finally, the mean value of ROA is 2.0400 having minimum value as 0.25, maximum value as 3.99 and standard deviation as 1.07062.

Likewise, Panel A of table 7 shows the descriptive statistics (mean, standard deviation, minimum and maximum) values of the variables of all sample under study with 20 observations of 2 private banks for the period of 10 years from 2011 to 2020. It is observed that the mean value of capital adequacy is 24.4780, which ranges from 20.86 to 29.78 with standard deviation of 2.74926. The mean value of assets quality is 1.2360 with minimum, maximum value and standard deviation of 0.16, 4.22 and 1.11891 respectively. Similarly, the mean value of management efficiency is 4.1975 having minimum value as 2.39, maximum value as 6.95 and standard deviation is 1.46298. For the liquidity management the mean value is 79.2840, minimum value is 66.63 and

maximum value is 88.31 and standard deviation is 5.69855. Finally, the mean value of ROA is 1.8550 having minimum value as 1.30, maximum value as 2.39 and standard deviation as 0.30918.

#### 4.1.4 Correlation analysis

A correlation matrix is a table showing correlation coefficients between variables. Each cell in the table shows the correlation between two corresponding variables. A correlation matrix is used as a way to summarize data. For example, height and weight related: taller people tend to be heavier than shorter people. The relationship isn't perfect. Correlations are useful because they can indicate a predictive relationship that can be exploited in practice. This allows us a glance of which variables have correlation in which level of strength and significance. Correlation matrix is presented as following in Table 8. The correlation coefficients are calculated for the period of 2011 to 2020 on capital adequacy (CA), assets quality (AQ), management efficiency (ME), liquidity management (LM) and return on assets (ROA).

Table 8

#### *Relationship between variables for all samples*

*This table shows the results of correlation analysis for the period of 2011 to 2020 of public banks. Dependent variable is the bank performance and independent variables are CA, AQ, ME, LM. All variables are defined as described in chapter 1. The table presents correlation analysis of whole sample. The values in parentheses are p-value.*

		Correlations				
		CA	AQ	ME	LM	ROA
CA	Pearson Correlation	1				
	Sig. (2-tailed)					
AQ	Pearson Correlation	-.077	1			
	Sig. (2-tailed)	(0.636)				
ME	Pearson Correlation	.029	.565**	1		
	Sig. (2-tailed)	(0.857)	(0.000)			
LM	Pearson Correlation	.664**	.275	.352*	1	
	Sig. (2-tailed)	(0.000)	(0.085)	(0.026)		
ROA	Pearson Correlation	.622**	.188	.196	.784**	1
	Sig. (2-tailed)	(0.000)	(0.245)	(0.226)	(0.000)	

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

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

Table 8 indicates the relationship of independent variables with dependent variable. Here the independent variables are CA, AQ, ME and LM whereas the dependent variable is bank performance (ROA). It shows the impact of CA, AQ, ME and LM on the bank performance. Table 8 shows the Pearson correlation coefficient between

variables taken in the study. It reveals that the bank performance is positively related with capital adequacy, assets quality, management efficiency, liquidity management. It reveals that higher the capital adequacy, assets quality, management efficiency and liquidity management, higher would-be bank performance.

As shown in the table, the correlation for all sample between bank performance (ROA) and capital adequacy (CA) is observed to be positive and significant at 99 percent confidence level with the correlation coefficient of 0.622. The correlation result is positive which means that there is positive relation of capital adequacy with bank performance. It shows that if the capital adequacy increases, the bank performance also increases. Similarly, assets quality and bank performance are found to be having positive relations. They show the positive correlation of 0.188. The correlation result is positive which means that there is positive relation of assets quality with bank performance. If the assets quality increases, the bank performance also increases. Likewise, management efficiency and liquidity management show the significant positive relationship with the bank performance having correlation 0.196. The relationship between the management efficiency and bank performance is found to be positive and significant at 99 percent confidence level with the correlation coefficient of 0.784.

#### **4.1.5 Regression analysis**

Regression analysis helps to find out the impact of independent variables on the dependent variables. The regression analysis is conducted for the whole sample. In the study, regression analysis is done for the different variables on bank performance on Nepalese private and public banks. The factors affecting firm value under study are capital adequacy, assets quality, management efficiency, liquidity management.

This section presents the overall analysis and results of the regression analysis on the determinants of bank performance. In this study CA, AQ, ME, LM were used as a main performance measure. The reason for using those variables as the measurement of firm value was because those independent variables reflect the overall ability of a bank's management to generate profits from the bank's assets and also indicates how effectively the bank's assets are managed to generate revenues. Independent variables are selected as bank specific variables, which is also termed as internal variables. CA, AQ, ME, LM have been taken as the representative independent variables from internal bank specific factors.

The researcher conducted a moderated regression analysis to explain the effect of various factors on the firm value Nepalese banks. The scores to be regressed were computed through factor analysis (data reduction) and then saved as variables. Regression analysis was conducted using Statistical Package for Social Sciences (SPSS).

#### 4.1.5.1 Multivariate Regression Model

Multivariate regression model is an extension of simple linear regression. It is used to predict the value of a dependent variable based on the value of two or more dependent variables.

Table 9

##### *Impact of variables for all samples*

*This table shows the results of correlation analysis for the period of 2011 to 2020 of both public and private banks. Dependent variable is bank performance (ROA) and independent variables CA, AQ, ME, LM. All variables are defined as described in chapter 1. The table presents correlation analysis of whole sample. The values in parentheses are p-value.*

Coefficients	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	Sig.	Adjusted R Square
	B	Std. Error	Beta					
(Constant)	-1.481	0.57		-2.59	0.014			
CA	0.02	0.016	0.179	1.218	0.232			
AQ	0.021	0.044	0.062	0.486	0.63	15.425	.001 <sup>b</sup>	.597
ME	-0.033	0.052	-0.083	-0.64	0.523			
LM	0.041	0.009	0.677	4.319	0.001			

In this case, all the predictor variables except CA ( $p=0.232$ ), AQ ( $p=0.63$ ), ME ( $p=0.523$ ) produced statistically significant results  $p < 0.05$  (LM ( $p=0.001$ )). In this table 9, the beta values indicated the direction of the relationship. A positive or negative sign indicates the nature of the relationship. The significant values (p-value) under sig. column indicate the statistical significance of the relationship or the probability of the model giving a wrong prediction. A p-value of less than 0.05 is recommended as it signifies a high degree of confidence. The results of the regression equation show that if all the predictor variables were rated 0.014, performance of bank in Nepalese banks would be -1.481. However, except ME, the predictors had a positive relationship with the dependent variable. A unit increase in CA would lead to improved performance of bank by 0.02 while a unit increase in AQ and LM would improve performance of bank by 0.021 and 0.041 respectively. A unit decrease in the ME would negative effect on

bank performance by -0.033. In the table, the R value is used to indicate the strength and direction of the relationship between the variables. The closer the value gets to 1, the stronger the relationship. In this case as shown in model 1 in Table 9,  $R = 0.799$ . This means there was an overall strong and positive relationship between the variables. The R-Square in the study was found to be 0.638. This value indicates that the independent variables (capital adequacy, assets quality, management efficiency, liquidity management) can explain 59.7% of the variance in the performance of Nepalese banks and rest with other independent variables.

At 95% confidence interval, a significant value (p-value) of 0.001 and F-value of 15.425 was registered as shown in Table 9. This shows that the regression model has a probability of less than 0.001 of giving the wrong prediction as its significance value (p-value) is less than 5% (i.e. 0.05). Hence, the regression model used above is a suitable prediction model for explaining the factors influencing the performance of Nepalese banks. Likewise, the beta coefficient of ME is negative to bank performance, which implies that larger the beta coefficient of ME, lower would-be performance of bank. Since the p-value of CA, AQ, ME are greater than 5 percent (i.e., 0.05), these results are statistically insignificant at 1 percent whereas p-value (Sig.). Therefore, the CA, AQ, ME has significant negative impact with bank performance which means that the hypothesis is rejected. The  $R^2$  is 0.597 or 59.7 percent which means 59.7 percent of the variation in bank performance is explained by the predictors like capital adequacy, assets quality, management efficiency, liquidity management.

## **4.2 Discussion**

This study is conducted to identify the comparative analysis of financial performance of the public and private banks in Nepal. The major independent variables used for the study are capital adequacy (CA), assets quality (AQ), management efficiency (ME), liquidity management (LM). The finding of the study reveals that CA has positive significant relationship and positive impact on the bank performance which matches with the findings of (Maharjan, 2016). Similarly, assets quality has positive significant relationship and positive impact on the bank performance which matches with the finding of (Hakuduwal, 2014). Management efficiency (ME) has positive significant relationship but negative impact on performance of bank which matches with the finding of (Yesmine and Bhuiyah, 2015). Liquidity Management has positively

significant relationship and positive impact on performance of bank which matches with the finding of (Liu, 2011).

The effect of capital adequacy on bank performance has affected with the coefficient of 0.02 means that the higher capital adequacy of the influence the increase in performance of the company. Descriptive analysis results showed that during the period 2011-2020. It is observed that the mean value of capital adequacy is 13.0937, which ranges from -10.15 to 25.20 with standard deviation of 6.99998. The mean value of assets quality is 2.9630 with minimum, maximum value and standard deviation of 0.16, 8.99 and 2.30621 respectively. Similarly, the mean value of management efficiency is 5.4290 having minimum value as 2.39, maximum value as 9.14 and standard deviation is 1.94558. For the liquidity management the mean value is 80.8570, minimum value is 52.98 and maximum value is 117.38 and standard deviation is 13.06477. Finally, the mean value of ROA is 1.9475 having minimum value as 0.25, maximum value as 3.99 and standard deviation as 0.78343.

## CHAPTER V

### SUMMARY AND CONCLUSION

#### 5.1 Summary

The study evaluates the performance of selected public and private banks operating in Nepal and the study uses the CAMEL framework to examine the relationship between capital adequacy, assets quality, management efficiency, liquidity management variables and bank performance of Nepal. The framework, known to be the best technique for evaluating bank performance. Results from this study suggested four contributing factors for better performance of public and private banking institutions in Nepal, namely capital adequacy, asset quality, management efficiency and liquidity management. The regression analysis of selected data of the public and private banks indicated that all components of relation with return on assets, it observed that one components of liquidity; liquid assets to total deposit significantly influence the return on assets of the bank. Concerning ROA, it shows significant relationship with capital adequacy (advance to assets ratio), assets quality (non-performing assets to total loans and total loan loss provision to non-performing loan) and liquidity (total loans to total deposits).

It shows that various factors affect return on equity resulting better bank's performance. The change in these ratios improves the return on equity, providing more benefits to shareholders and bank's profit. The correlation analysis of CAMEL framework with performance of bank's variables shows similar results. With similar result to regression analysis, ROA is influence by all selected components of earnings and one components of liquidity; liquid assets to total deposit and assets quality (total investment to assets ratios). The change in one percent of liquid assets to total deposit will improve the return on assets by 3.4%. The result from the correlation of independent variables and return on equity observed to be have influence by four factors of CAMEL; assets quality, management efficiency, earnings and liquidity. The assets quality seems to have significant link with performance of banks as per the conclusion drawn.

This study was undertaken with the objective of examining the relationship of capital adequacy, assets quality, management efficiency, liquidity management with financial performance of public and private banks of Nepal. The specific objectives of this study were as: to the capital adequacy, assets quality, management quality and liquidity

position of banks from 2011-2020 and to analyze the impact of capital adequacy, assets quality, management quality and liquidity on the selected banks. The study is based on secondary data available on annual reports on official websites of selected sample banks, Nepal Rastra Bank, Sharesansar.com and investopaper.com. In this study, only selected tools are used. The study covers only ten years' period, i.e. from 2010/11 to 2019/20. The accuracy of secondary data absolutely relies on the annual report of sample banks. The study has carried out only one dependent variable as bank performance. Likewise, four independent variables such as capital adequacy (CA), assets quality (AQ), management efficiency (ME), liquidity management (LM).

The study has been organized in five major chapters- (i) Introduction, (ii) Literature review, (iii) Research Methodology, (iv) Results and discussion and (v) Summary and conclusion. As per the nature of study, secondary data were used to perform the analysis of the bank specific factors. The data were collected as per the requirement study from the annual reports published on official website of selected sample banks, periodical reports of Nepal Rastra Bank, ShareSansar.com, Investopaper.com. The data comprised of five consecutive fiscal years of 2010/11 to 2019/20. As an analysis tool, descriptive statistics were used to examine the data according to the requirement of the objective of the study. Correlation analysis and regression analysis were performed to test the relationship between dependent and independent variables. The bank performance was selected as the dependent variables. Total four independent variables were chosen as explanatory variables- capital adequacy (CA), assets quality (AQ), management efficiency (ME), liquidity management (LM).

The regression models were estimated to test the impact of capital adequacy, assets quality, management quality and liquidity on bank performance of public and private banks of Nepal. The reveals that higher the capital adequacy (CA), higher would be the bank performance and it was found that the CA had the positive and significant coefficient with bank performance. The study also reveals that the bank specific independent variables have half contribution in value of Nepalese banks, since their coefficients were found to be significant with performance of bank. However, still there are many more internal factors that affect the value of commercial banks which was expressed by regression analysis through R square values.

## **5.2 Conclusion**

The result presented the entire objective, which stated in Chapter 1. The main objective was to make CAMEL analysis on performance of banks and to analyze the relationship and impact on capital adequacy, assets quality, management quality and liquidity on bank performance of the selected banks. The outcome of research clearly showed the factors that mainly affect the performance of banks entirely. Other factors too have the influence for the bank's performance; capital adequacy, assets quality and liquidity. The objective of measure bank's performance through the financial indicators of banks were conducted which stated the result of indication to those variables that actually influenced the bank's performance. The result showed that liquidity positions mainly result to the high influence to return on assets while assets quality, liquidity influence more to increase return on equity. As a result, that we can conclude that proper calculation and measurement of these indicator are important for maintaining bank's performance and growth.

## **5.3 Implications**

The researchers and scholars have performed the research an analysis through CAMEL approach and findings of the overall performance of banks are made. As this approach is popular among the scholars and researchers for analyzing the banks performance in the market with the various ratios that indicates the Camels framework. This research too determines the overall performance of the public and private banks selected with various CAMELS approach during the period of 2010/11 to 2019/20. The study highlights the functioning of the public and private banks and their performance in terms of various perspective of CAMEL framework. Though many researchers have already made analysis on these terms, the study of selected banks and the research period and the relationship of share capital, performance of bank, profitability of bank, Net Interest Margin and Profit per employees will be determined. No researchers have done the analysis of relationship and impact of capital adequacy, assets quality, management quality and liquidity on bank performance with selected public and private banks during selected time frame.

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## ANNEXURE

### Appendix 1

#### *Calculation of bank specific internal variables of Nepal Bank Ltd*

Particular	Unit	Fiscal Year									
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ROA= (Net profit/ Total Assets)	%	0.25	0.3	1.07	0.92	0.55	2.79	2.78	2.41	1.51	1.22
CA= (Total Capital/ Total Assets)	%	-20.3	-11.64	-1.18	9.1	14.98	29.41	42.31	32.83	50.4	50.02
AQ= (non-Performing loans/ Total Loans)	%	5.75	5.58	5.24	5.12	3.98	3.11	3.32	3.37	2.64	2.47
ME= (Total Operating Costs/ Total Assets)	%	6.84	7.68	6.57	6.79	5.47	4.38	4.24	4.25	4.35	5.17
LM= (Total Loans/ Total Customer Deposit)	%	57.05	52.98	60.1	59.45	68.45	71.05	79.17	75.68	78.14	72.25

*Source: Annual report of Nepal Bank Ltd*

### Appendix 2

#### *Calculation of bank specific internal variables of Agricultural Development Bank Ltd*

Particular	Unit	Fiscal Year									
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ROA= (Net profit/ Total Assets)	%	3.99	2.9	2.97	1.76	3.57	2.32	2.15	2.71	2.77	1.86
CA= (Total Capital/ Total Assets)	%	38.98	38	32.67	29.15	27.98	34.36	40.82	40.66	40.74	38.65
AQ= (non-Performing loans/ Total Loans)	%	8.99	8.98	5.85	5.46	5.35	4.36	4.6	3.5	3.29	2.84
ME= (Total Operating Costs/ Total Assets)	%	7.94	9.14	7.49	9.1	6.69	6.39	7.02	8.17	7.82	7.71
LM= (Total Loans/ Total Customer Deposit)	%	117.38	104.06	100.81	94.8	93.77	95.46	92.9	95.64	93.62	85.84

*Source: Annual report of Agricultural Development Bank Ltd*

## Appendix 3

*Calculation of bank specific internal variables of Himalayan Bank Ltd*

Particular	Unit	Fiscal Year									
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ROA= (Net profit/ Total Assets)	%	1.91	1.76	1.54	1.3	1.34	1.94	2.19	1.67	2.21	1.79
CA= (Total Capital/ Total Assets)	%	21.36	22.05	23.11	22.46	22.28	21.68	24.3	24.92	25.2	29.78
AQ= (non-Performing loans/ Total Loans)	%	4.22	2.09	2.89	1.96	3.22	1.32	0.85	1.4	1.12	1.01
ME= (Total Operating Costs/ Total Assets)	%	2.4	2.74	2.71	3.04	2.82	2.39	3.07	3.89	4.69	5.4
LM= (Total Loans/ Total Customer Deposit)	%	80.57	75.36	77.36	71.82	75.37	79.12	85.1	88.31	87.37	82.31

*Source: Annual report of Himalayan Bank Ltd*

## Appendix 4

*Calculation of bank specific internal variables of Everest Bank Ltd*

Particular	Unit	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ROA= (Net profit/ Total Assets)	%	2.1	2.11	2.39	2.25	1.85	1.59	1.83	1.97	1.94	1.42
CA= (Total Capital/ Total Assets)	%	20.86	22.04	23.18	22.62	26.66	25.33	29.09	28.4	27.48	26.76
AQ= (non-Performing loans/ Total Loans)	%	0.34	0.84	0.62	0.97	0.66	0.38	0.25	0.2	0.16	0.22
ME= (Total Operating Costs/ Total Assets)	%	6.95	6.62	4.79	4.71	3.39	3.03	4.15	5.16	5.86	6.14
LM= (Total Loans/ Total Customer Deposit)	%	76.98	73.22	76.57	78.01	66.63	75.14	84.05	81.86	87.01	83.52

*Source: Annual report of Everest Bank Ltd*

## Appendix 5

*Descriptive data of sample banks*

S.N	CODE	YEAR	CA	AQ	ME	LM	ROA
1	NBL	2011	-20.3	5.75	6.84	57.05	0.25
2	NBL	2012	-11.64	5.58	7.68	52.98	0.3
3	NBL	2013	-1.18	5.24	6.57	60.1	1.07
4	NBL	2014	9.1	5.12	6.79	59.45	0.92
5	NBL	2015	14.98	3.98	5.47	68.45	0.55
6	NBL	2016	29.41	3.11	4.38	71.05	2.79
7	NBL	2017	42.31	3.32	4.24	79.17	2.78
8	NBL	2018	32.83	3.37	4.25	75.68	2.41
9	NBL	2019	50.4	2.64	4.35	78.14	1.51
10	NBL	2020	50.02	2.47	5.17	72.25	1.22
11	ADBL	2011	38.98	8.99	7.94	117.38	3.99
12	ADBL	2012	38	8.98	9.14	104.06	2.9
13	ADBL	2013	32.67	5.85	7.49	100.81	2.97
14	ADBL	2014	29.15	5.46	9.1	94.8	1.76
15	ADBL	2015	27.98	5.35	6.69	93.77	3.57
16	ADBL	2016	34.36	4.36	6.39	95.46	2.32
17	ADBL	2017	40.82	4.6	7.02	92.9	2.15
18	ADBL	2018	40.66	3.5	8.17	95.64	2.71
19	ADBL	2019	40.74	3.29	7.82	93.62	2.77
20	ADBL	2020	38.65	2.84	7.71	85.84	1.86
21	HBL	2011	21.36	4.22	2.4	80.57	1.91
22	HBL	2012	22.05	2.09	2.74	75.36	1.76
23	HBL	2013	23.11	2.89	2.71	77.36	1.54
24	HBL	2014	22.46	1.96	3.04	71.82	1.3
25	HBL	2015	22.28	3.22	2.82	75.37	1.34
26	HBL	2016	21.68	1.32	2.39	79.12	1.94
27	HBL	2017	24.3	0.85	3.07	85.1	2.19
28	HBL	2018	24.92	1.4	3.89	88.31	1.67
29	HBL	2019	25.2	1.12	4.69	87.37	2.21
30	HBL	2020	29.78	1.01	5.4	82.31	1.79
31	EBL	2011	20.86	0.34	6.95	76.98	2.1
32	EBL	2012	22.04	0.84	6.62	73.22	2.11
33	EBL	2013	23.18	0.62	4.79	76.57	2.39
34	EBL	2014	22.62	0.97	4.71	78.01	2.25
35	EBL	2015	26.66	0.66	3.39	66.63	1.85
36	EBL	2016	25.33	0.38	3.03	75.14	1.59
37	EBL	2017	29.09	0.25	4.15	84.05	1.83
38	EBL	2018	28.4	0.2	5.16	81.86	1.97
39	EBL	2019	27.48	0.16	5.86	87.01	1.94
40	EBL	2020	26.76	0.22	6.14	83.52	1.42

*Result of hypothesis test*

Hypothesis	Results	Tools	Significance level
Ho1: There is no significant relationship of capital adequacy with bank performance.	Rejected	Correlation	0.01
Ho2: There is no significant relationship of assets quality with bank performance.	Rejected	Correlation	0.245
Ho3: There is no significant relationship of management efficiency with bank performance.	Rejected	Correlation	0.226
Ho4: There is no significant relationship of liquidity management with bank performance.	Rejected	Correlation	0.05
Ho5: There is no significant impact of capital adequacy on bank performance.	Rejected	Regression	0.01
Ho6: There is no significant impact of assets quality on bank performance.	Rejected	Regression	0.01
Ho7: There is no significant impact of management efficiency on bank performance.	Rejected	Regression	0.01
Ho8: There is no significant impact of liquidity management on bank performance.	Rejected	Regression	0.01