DETERMINANTS OF PROFITABILITY OF COMMERCIAL BANKS IN NEPAL

A Thesis

Submitted to the Department

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Faculty of Humanities and Social Sciences, Tribhuvan University,

in Partial Fulfillment of the Requirements

for the Degree of

MASTER OF ARTS

in

ECONOMICS

By

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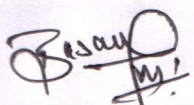
DECLARATION

I, BASANTA ARYAL, hereby declare that this thesis entitled "DETERMINANTS OF PROFITABILITY OF COMMERCIAL BANKS IN NEPAL" submitted to the Department of Economics, Birendra Multiple Campus is my own original work unless otherwise indicated or acknowledged in the thesis. The thesis does not contain materials which has been accepted or submitted for any other degree at the University or other institution. The results of this thesis have not been presented or submitted anywhere else for the award of any degree or for any other proposes. I assure that no part of the content of this thesis has been published in any from before.



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LETTER OF RECOMMENDATION

This thesis entitled "DETERMINANTS OF PROFITABILITY OF COMMERCIAL BANKS IN NEPAL" has been prepared by MR. BASANTA ARYAL under my guidance and supervision. I, hereby, recommend it in partial fulfillment of the requirements for the Degree of MASTER OF ARTS in ECONOMICS for final examination.

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APPROVAL SHEET

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Basanta Aryal

ABSTRACT

A research thesis is an integral part of the postgraduate study at Tribhuvan University. The study is conducted on the topic "DETERMINANTS OF PROFITABILITY OF COMMERCIAL BANKS IN NEPAL". It has been under taken to examine and analyze the relationship of bank profitability with bank specific variables of commercial banks and to find out their impact on banks' profitability. The banking sector's performance is seen as the replica of economic activities of the nation as a healthy banking system acts as the bedrock of social, economic and industrial growth of a nation. Banking institutions in our country have been assigned a significant role in financing the process of planned economic growth.

This study includes nine commercials bank as a sample and ten years period from 2011/12 to 2020/21 for data requirement within the framework of descriptive and analytical research design. The analysis is based on the secondary data published by Nepal Rastra Bank (NRB) and commercial banks.

The paper reveals that the ROE and ROA are the major indicators of bank profitability. The trend line describes that ROA and ROE are downward sloping during the sample period. Joint venture banks have higher ROA whereas public banks have higher ROE. Among three banks, joint venture banks have higher profitability. Public banks have higher overhead but their ROE is significantly higher than joint venture and private banks but they compromise with low assets quality and also low capital adequacy ratio. Private and joint venture banks have better assets quality as well as they are able to meet the CAR norms during the sample period. ROA of private banks are lower than public and joint venture banks which reveal that income earned on each unit of shareholders capital by private banks are low.

The study also uses some inferential tools and econometric models for better analysis of data. The inferential investigation of the relation between bank profitability and bank performance in Nepalese commercial bank provides several important results. In order to understand how commercial bank's profitability relates to bank specific factors

different models has been adopted. Model I explained the effect of ROA on bank profitability. Likewise, model II explained the effect of ROE on bank profitability. Asset size (Ln A) has negative relationship with ROA and ROE. Operating efficiency (CIR) has also negative impact on bank profitability. It shows negative association with both ROA and ROE. Capital requirement (CAR) has negative and insignificant relationship with ROE whereas it has positive and significant relationship with ROA. TL/TA (liquidity risk) has negative association with both ROA and ROE but it is significantly related with ROE. NPL/TL (Asset quality) has positive and insignificant relationship with ROA and ROE. LLP/TL (credit risk) shows negative relationship with ROA and with ROE.

Finally, 12.40 percent of variations in ROA and 19.90 percent of variations in ROE are explained by bank specific control variables. These findings show that the level of bank profitability is determined by other factors which include the bank specific variables and the macroeconomic control variables. Hence, commercial banks that are keen on making high profit should concentrate on other factors.

Keywords: Profitability, capital adequacy ratio, asset quality, operational efficiency, credit risk and liquidity management

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ACRONYMS AND ABBREVIATIONS

AD : Anno Domini

ADBL : Agriculture Development Bank Limited

ANOVA : Analysis of Variance

CAR : Capital Adequacy Ratio

CBs : Commercial Banks

CDR : Credit to Deposit Ratio

CIR : Cost to Income Ratio

FIs : Financial Institutions

GDP : Gross Domestic Product

GDPR : Gross Domestic Product Growth Rate

GMM : Generalized Method of Moments

HBL : Himalayan Bank Limited

INF : Inflation Rate

IV : Independent Variable

KBL : Kumari Bank Limited

LAXMI : Laxmi Bank Limited

LLP : Loan Loss Provision

NABIL : Nabil Bank Limited

NBL : Nepal Bank Limited

NGOs : Non-Government Organizations

NIBL : Nepal Investment Bank Limited

NIDC : Nepal Industrial Development Corporation

NIFRA : Nepal Infrastructure Development Bank Limited

NII : Non-Interest Income

NIM : Net Interest Margin

NPA : Non-Performing Assets

NPL : Non-Performing Loan

NRB : Nepal Rastra Bank

OPEX : Operating Expense Ratio

POLS	: Pooled Ordinary Least Square
RBB	: Rastriya Banijya Bank Limited
RI	: Real Interest Rate
ROA	: Return on Assets
ROE	: Return on Equity
SCBL	: Standard Chartered Bank Limited
SPSS	: Statistical Package for Social Science
TA	: Total Assets
TL	: Total Loan
Vs	: Versus

CHAPTER I

INTRODUCTION

1.1 Background of the Study

A bank is a licensed and regulated financial institution that lends money, accepts deposits and carries out other financial transactions for its clients. Bank is a financial institution which deals with money. Bank is an institution which collects the money from those who have it to spare and who are saving it out of their income and lends their money out to those who require it. Financial sector is the backbone of economy of a country. It works as a facilitator for achieving sustained 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.

Banks cannot function without being profitable, that not only helps them to cover the expenses and losses but also rewards the investors and depositors. Therefore, it is important to study the factors, which have an impact on the profitability of banks (Riaz & Mehar, 2013). Several studies have reported that Bank profitability is a key factor shaping financial development and economic growth (Osuagwu, 2014). The profitable banks positively participate in the Gross Domestic Product (GDP) of a country. Therefore, it is essential to study the indicators that have any impact on the profitability of banks as the ever-changing social, legal and macroeconomic environment may cause these factors to change (Owoputi et al., 2014). The profitability of the banking sector of any country is important because the financial system of a country is largely based on banking system (Ali et al., 2011).

Bank profits are necessary to attract new capital to make possible the expansion and improvement of banking services. If the return of existing capital is not comparable to the returns on other investments, in the long run capital will be attracted to other economic pursuits. An important function of profits in banking is to provide reserves for contingencies and losses that may occur incidentally to the business of banking. Finally, profits in banking, just as in other business, act as a stimulant to management

to expand and improve the business, reduce costs, and improve services (Reed et. al., 1976). Low profitability weakens the ability and willingness of banks to finance the wider economy (Garcia & Trindade, 2019).

Stock market has been dominated by the commercial banks since a decade. Not only the stock market, but the commercial banks have also been major contributors to the revenue of the country. They have been paying a large amount of tax every year. Performance evaluation is the important approach for enterprises to give incentive and restraint to their operators and it is an important channel for enterprise stakeholders to get the performance information (Sun, 2011). The performance evaluation of a commercial bank is usually related to how well the bank can use its assets, shareholders' equities and liabilities, revenues and expenses.

Profitability is critical to the survival of commercial banks. Firstly, dividends are paid from profits (cash profits) and secondly, profit is an important source of retained earnings. Retained earnings are residual profits after dividends are paid. These earnings are important component of bank capital. The relevance of the study on the profitability of commercial banks therefore is based on the fact that it is the largest sector in the banking industry. Thus, failure in the banking system may have deep economic repercussion for the economy at large. Secondly, banking sector reforms are likely to affect the way banks operate and thus their performance. Finally, bank profitability is an important source of retained earnings; a very important component of bank capitalization, providing a margin of protection during recessionary periods, and enabling the banks to be more resilient against external shocks. Due to the changing banking environment, profitability which is one of the most important criteria to measure performance of banks has come under intense pressure.

Financial intermediaries perform key financial functions in economies; provide a payment mechanism, match supply and demand in financial markets, deal with complex financial instruments and markets, provide markets transparency, perform risk transfer and risk management functions. Banks are the most important financial intermediaries in the most economies that provide a bundle of different services. As financial

intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system (Athansasoglou et.al., 2008). Therefore, it is important to understand the determinants of banking sector profitability.

Since the investment of banking sector is quite challenging job, because the huge portion of earning is from investment itself. To maximize earning of banking sectors they should timely revised their management policy. Both external and internal factors have been affecting the profitability of banks over time. Identifying the key success factors of commercial banks allow to formulate policies for improving the profitability of the banking industry. Therefore, the determinants of bank profitability have attracted the interest of academic research as well as bank management, financial markets and bank supervisors. Finally, the study of bank performance becomes even more important; also, in view of the ongoing financial and economic crises, which will have a fundamental impact on the banking industry in many countries around the globe.

1.2 Statement of the Problem

Banking is a rapidly growing industry and Nepalese banking has experienced drastic and comprehensive reforms. The reform has achieved phased success, while challenges remain. Apparently, there is need for an in-depth and comprehensive study to provide performance and efficiency assessment of the Nepalese commercial banking industry (Jha, 2014). Bank performance is the capacity of the bank to generate sustainable profitability.

Profitability in commercial banks is determined by the ability of the banks to retain capital, absorb loan losses, support future growth of assets and provide return to investors. The largest source of income to these banks is the interest income which is earned through lending activities less interest paid on deposits and debt (Xuezhi, 2012). Bank of Tanzania (2007) has set some standard measures of profitability such as:

Return on equity (ROE) which directly reflects corporate competitiveness strength and sustainable growth. It is an important indicator to show the attractiveness of the equity to the investors. The other one is Return on Assets (ROA), which effectively reflects corporate profitability and it, can be used to evaluate the performance of management in the utilization of the assets.

The primary objective of financial institutions is the value maximization of shareholders. Since commercial banks being the public limited companies, they have the obligations to numerous shareholders for which they have to give return on equity. In the current Scenario, profitability of the banks has been in increasing phase after the post Covid-19 pandemic. Though profit is in increasing phase, more and more amount is to be kept aside as a provision of non-performing assets. In such scenario, it has become hard for the banks to convince their shareholders to assure return.

Murerwa (2015) observed that several factors affect profitability of bank. The profitability performance and changes in profitability of a bank, regardless of its ownership are determined by internal variables and external variables. The internal variables are related to the bank itself and they are influenced by the working and performance of the management. The external variables are the result of the macroeconomic environment in which the bank is operating.

Basically, this study has focused on the profitability determinants of sample banks in Nepal. In Nepal, many banks and financial companies were opened up within a span of few years. However, after the promulgation of Merger Laws 2011 and bylaws 2015, the number of bank and financial institutions are decreasing. Although joint venture 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.

There are various research works done in the past about the profitability of banks, but those studies are mainly focused on either public banks or private banks or joint venture banks taking a very few samples size. A very few research was done on profitability of

banks comprising the Public, Joint venture and Private Banks but they were done before many years. Further Nepalese banking industry possesses complexity due to competition, service proliferation, intense use of information technology, service diversification with new markets and many more. The earlier literature disclosed that there is no uniformity in findings as it varies with the time and policy laid down by central bank and also the policy adopted by commercial banks.

The financial health of FIs cannot sustain without the political stability and sustainable real growth with sound health. However, the intensity of contagious effect of these macro variables may vary from one individual FI to another. Therefore, health of individual FI should be checked up regular to know the intensity of such effect. The study is directed to resolve the following research questions:

i. What is the profitability trend of commercial banks in Nepal?
ii. What are the significant determinants of profitability across public, joint venture and private commercial banks in Nepal?
iii. What is the relationship of bank profitability with capital, asset quality, operational efficiency, asset size, credit risk and liquidity management of the commercial bank in Nepal?

1.3 Objective of the Study

Our activities should be motivated to achieve specific goals, which is a desired outcome. The main objective of the study is to examine and analyze the profitability determinants of Nepalese Commercial Banks. The specific objectives of the study are as follows:

i. To analyze the profitability trend of commercial banks in Nepal.
ii. To compare the significant determinants of profitability across public, joint venture and private commercial banks in Nepal.
iii. To examine the relationship of commercial bank's profitability with its determinants.

1.4 Operational Definitions

This study analyzes the profitability determinants of Nepalese commercial banks taking the bank specific variables. The key words used in this study are defined below.

i. *Bank performance*: Bank performance is usually measured by the return on average assets and return on equity is expressed as a function of internal and external determinants.

ii. *Bank specific variables:* Banks specific variables are those which incurred in banks or are in controlled of banks or firms. Overhead, capital, assets quality etc. are example of bank-controlled variables.

iii. *Credit risk*: Credit risk is the possibility that the actual return on an investment or loan extended will deviate from that, which was expected.

iv. *Loan losses ratio (LLR)*: Loan loss reserves/total loan measure the risk of the bank. The percentage of the total loan portfolio that has been set aside for bad loans.

v. *Non-performing loan:* The non-performing loan to loan ratio measures the share unproductive sector investment by the bank.

vi. *Public banks:* Public banks are those banks which established with share of government.

vii. *Joint venture banks:* Joint venture banks are those banks which are established with an agreement between two or more parties who invest in a single business or property. Here, the banks with joint investment of both foreign institutions and local investors are joint- venture banks.

viii. *Private banks:* Those banks established from private source other than the government source.

ix. *Return on assets*: It measures the firm's return on investment of financial resources. It is the ratio of net income after tax to total assets.

x. *Return on equity*: It measures the firm overall profitability by establishing relationship between net income and total equity capital. Return on equity is the major indicator of profitability. This ratio shows that how well the firm has used the resource of the owner's in making profit.

1.5 Significance of the Study

The profitability analysis is an effective managerial evaluation of performance. It studies the effect on the shareholders' return and risk. Consequently, the effect on market value of the share can be verified with profitability analysis. A proper profit planning considerably contributes to improve the overall financial performance and leads the organization toward success. In this study, an attempt was made for drawing the overall picture of selected commercial banks of Nepal. Data of fiscal years as per the availability and viability are presented systematically and analyzed. The major significance of the study are as follows:

i. This study will benefit the management on the key issues where to put more effort on to come up with good earnings of the bank.
ii. The study will compel the management of the bank for self-assessment of what they have done in the past and provide guidance for their future plans and program.
iii. The study will enlighten the shareholders, depositors, creditors, NRB, tax office etc. about the financial performance of the banks.
iv. This study will also be valuable for researcher, students who want to investigate into profitability of the selected commercial banks of Nepal.
v. Any employee of the banks will know what the career at the concern bank will be by knowing the future.
vi. Policy makers, the government and NRB at macro level will be benefited regarding the formulation of further policies to facilitate economic development of the country.

1.6 Limitations of the Study

This study is conducted in the partial fulfillment of the requirement for the degree of Master of Arts in Economics. The major limitations of this study will be as follows:

i. This study will be limited to commercial banks of Nepal. So, the findings may not be applicable for other licensed financial institutions such as development banks, finance companies and microfinance.

ii. The study will consider only ten years of data and study of ten years data may not be enough to know the profitability policy adapted by the commercial banks and determinants of profitability may not be accurate.

iii. The study only uses the quantitative technique approach and focuses on the description of the outputs from SPSS and EXCEL, so other qualitative aspects regarding determinants of profitability are not considered.

iv. 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 only.

v. The study is only based on secondary data.

1.7 Organization of the Study

This study has been organized into Five chapters. They are as follows:

Chapter 1: Introduction

This chapter includes overview of the entire work of thesis. It includes background of the study, statement of the problem, objective of the study, research question, significance of the study, assumption of the study and limitation of the study. It explains the determinants of profitability of commercial banks in Nepal.

Chapter 2: Literature Review

This chapter includes reviews of relevant and pertinent research conduct till date by other researches and makes an attempt to relate this research with them. It presents summary and finding of previous researches carried out by other researches. Furthermore, it presents the research gap in the field of study.

Chapter 3: Research Methodology

This chapter explains in detail the method and procedures applied in conducting research: sampling, data collection, data analysis, tools and techniques used.

Chapter 4: Results and Discussion

This chapter consists of systematic presentation and analysis of financial statement employing financial and statistical tools. It also includes the major findings.

Chapter 5: Summary, Conclusion and Recommendations

This chapter presents the summary of the findings obtained from data analysis in the previous chapter. The findings are interpreted and given meaning to derive solid conclusions and implication of the study. It also provides recommendations to the stakeholder of the research subject.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

A literature review is a comprehensive summary of previous research on a topic. In this chapter, the researcher shall review briefly about some of the earlier published articles and studies conducted on “Profitability Determination of Commercial Banks.” The purpose of reviewing the literature is to develop some expertise in one's area, to see what new contributions can be made, and to receive some ideas for developing research design. The conceptual reviews, theories were presented first followed by theoretical framework and last existing literatures are reviewed.

2.2 Conceptual Review

In conceptual review, several issues concerning determinants of banks profitability and performance are discussed. The conceptual review contributes to a better understanding of the concept and meaning of financial intermediation of commercial banks and its functions, history of banking in Nepal, major determinants of profitability of Nepalese commercial banks and its impact on profitability performance of commercial banks. Concept and meaning about these factors from different sources are linked together to formulate a meaningful and magnificent material in this section.

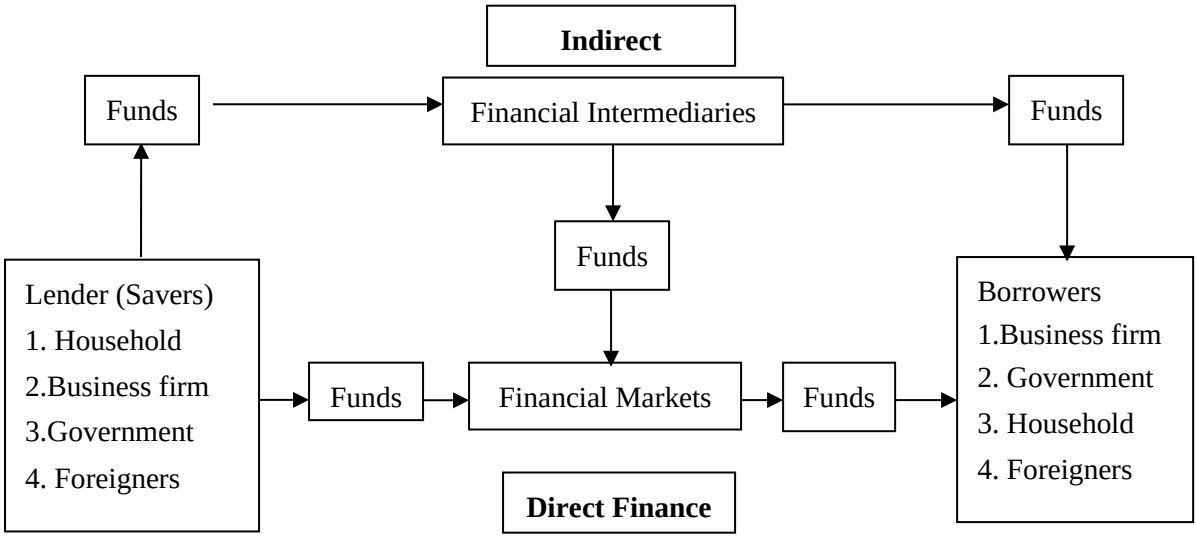
2.2.1 Financial Intermediation and Commercial Bank

Financial system is complex, comprising many different types of financial institutions, including banks, insurance companies, mutual funds, financial companies, and investment banks, all of which are regulated by the government. Financial institutions or intermediaries are the organization that channel the savings of government businesses, and individuals into loans or investments. The role of financial institution is to accumulate funds from various savers and lend those funds to borrowers and thus they actively participate in the money market and capital market. Financial market is a place where financial assets are traded. Financial markets perform the essential economic function of channeling funds from people who have saved surplus funds by

spending less than their income to people who have shortage funds because they wish to spend more than their income. This function is shown schematically in figure 2.1 below.

Figure 2.1:

Flows of Funds through Financial System



Source: Gurung (2004)

In above figure the arrows show that funds flow from lender-savers to borrower-spenders via two routes i.e., indirect finance and direct finance. The upper part of figure shows that flow of fund from lender to borrowers by the indirect process through banking channel, the lower part of figure shows direct flow of fund through financial market by selling and buying financial instruments (Gurung, 2004).

A bank is a business organization that offers acceptance of deposits, which is subject to withdrawal on demand (either through cheque or electronic transfer or both) and grants loans to private individuals and business firms on commercial basis. It is not a small financial co-operative or a finance company but large institution with adequate monetary resources which are mobilized to uplift the economic status of the country. Bank is an economic institution whose main aim is to earn profit through exchange of money and credit instrument

Banks are the important representative of financial intermediaries. As the name suggest financial intermediaries are entities that intermediate between provider and users of the

financial capital. Bank is an institution, which deals with money & credit. It accepts deposits from public, makes fund available to those who need them and helps in remittance of fund from one place to another. Commercial banks have been playing great role for the economic development of the country directly or indirectly. The main function of the commercial banks is accepting the deposit and lending it in the productive industries and service sector. Commercial banks perform the following functions:

i. Accepting Deposits
ii. Granting Loans
iii. Credit Creation
iv. Financing Foreign Trade
v. Providing Agency Services
vi. General Utility Functions
vii. The Merchant Banking Functions
viii. The Investment/Financial Planning Functions
ix. The Real Estate and Community Development Functions
x. The Cash Management Functions
xi. Other Miscellaneous Services

2.2.2 History of Banking in Nepal

Though the institutional development of financial market in Nepal has very short history compared to other countries like Britain, Italy, France, Germany, some crude banking operations were known to have been practiced even in the ancient times. It is however difficult to trace their origin and development through ages. The little information available regarding the subject is the matter of great historical interest and importance. It is assumed that the regular history of coinage in Nepal began from the 5^{th} century A.D. The advent of 12^{th} century marked a new period in economic history of Nepal. Silver coinage was introduced in this period, which widened the scope for trade, the scope for trade. The second major logical order of development was found in the innovation of interest-bearing private debt such as bonds, mortgages and loans.

In the Nepalese chronicle, it was recorded that the new era known as 'Nepal Sambat' was introduced by Shankhadhar Swakhawa, a Sudra merchant of Kantipur in 879 or 880 A.D. after having paid all the outstanding debts in the country. This is considered to be an adequate basis for a logical reference and conclusion that the money lending operations were in practice on an extensive scale during that period. The term '*Tanka Dhari*' meaning 'Money Dealer' was used at the end of the 14th century. '*Tanka Dhari*' was one of the 64 castes classified on the basis of occupation, indicating money changing was adopted as a profession by a section of people in Nepal at that time. For many years, the indigenous individuals, wealthy agriculturists, landlords, merchants and traders conducted some banking activities as a side business to their normal business activities. In 1877 A.D. Prime Minister Ranoddip Singh introduced many financial and economic reforms; the '*Tejarath Adda*' was to provide credit facilities to the general public at a very concessional interest rate. The '*Tejarath Adda'* disbursed credit to the people on the basis of collateral of gold and silver. All employees of government were also eligible for this type of loan, which was settled by deducting from their salary. Under the Prime Ministership of Chandra Shamsher, '*Tejarath Adda'* extended its services outside the Kathmandu Valley. Legal provision was made to prevent the practice of capitalization of interest on loans extended by private dealers. Hence, the establishment of *'Tejarath Adda'* is regarded as the foundation of modern banking in Nepal. However, *'Kaushi Tosh Khana'* established during the regime of King Prithvi Narayan Shah is also considered as the first step towards initiating banking development in Nepal (Shakya & Sitoula 2017).

'Tejarath Adda' extended credit only; it did not accept deposits from the public. Hence, the Adda finally faced financial crisis making it impossible to meet the credit need of the general population of the country. Prior to the establishment of Nepal Bank Limited, people relied on borrowings from the corrupt moneylenders, who charged very high interest rates and added other dues. These money lenders extended loans on the collateral of land, house and precious metals like gold and silver.

With the cooperation of imperial Bank of India, Nepal Bank Ltd. came into existence under the Nepal Bank Act 1937. Nepal Bank ltd. played a dual role of a commercial bank and the central bank. Until the establishment of Nepal Rastra Bank on 26th April, 1956, it carried all the functions of a central bank. Nepal bank was semi government bank so it was unwilling to go to many sectors where the government felt the need of providing banking services. Hence, Rastriya Banijya Bank, a fully government owned bank was established on 23rd January 1966. Until 1984, the Nepalese financial sectors were dominated by the above two commercial banks. Commercial banking Act 1974 was amended in 1984 to increase competition among commercial banks. Hence, provision was made to allow private sectors including foreign investments to open commercial banks. As a result, Nepal Arab Bank ltd (Nabil Bank) was established on July 12, 1984, with the partnership of Dubai Bank ltd., Dubai (Bhandari & Bista, 2021).

Before 1985, only public enterprises such as two Development Banks NIDC and ADBL, and in the form of non-bank financial institutions: Employees Provident Fund and National Insurance Corporation were established. So, to increase the financial activities of the country, Finance Company Act 1985 was introduced which promoted people to establish many Financial Institutions in the country.

The very marketing concept of Nabil has made it one of the most successful banks in Nepal. Having observed the success of Nabil and also because of liberal economic policy adopted by the successive governments/Nepal Rastra Bank, 27 commercial banks came into being by mid July 2021 (Table 1.1). A couple of financial institutions have already got an approval for conversion to commercial banks and some applications for license have also been filed at NRB.

After restoration of democracy in 1990, a wave of setting up other financial institutions has also increased. As at mid-July 2021, there are 27 commercial banks, 18 development banks, 17 finance companies, 70 microfinance financial institutions and 1 infrastructure development bank (i.e. NIFRA). Thousands of other cooperatives are also operating today in the country but they are not under the supervision of NRB.

2.2.3 Profit and Profitability

Profit is the reward for entrepreneurship. It is the excess amount of revenue over total expenses and provisions. Profitability is the capacity to earn profit. Profitability is a very important element, which influences the overall activities of any kind of business. If there is no profit, it is impossible to run any organization. In the case of bank, if bank cannot earn profit, no one can expect that a bank makes their payment of interest on deposits maintain by them. Profit is the resource left to the firm for future growth and expansion or reward to be distributed to the entrepreneurs in the form of dividends etc. Profit is reflected in reduction in liabilities, increase in assets, and/or increase in owners' equity. It furnishes resources for investing in future operations, and its absence may result in the extinction of a company.

Profit is the lifeblood of each type of business. Every business organization should earn profits to survive and grow over the long period of time. An organization will have no future if it is unable to make reasonable profit from its operation. As a matter of fact, the overall efficiency of an organization is reflected in its profit. Profit to the managements is the test of efficiency and a measurement of control; to the owners, a measure of worth of their investment; to the creditors, the margin of safety; to the employees, a source of fringe benefits; to the Government, a measure of fixed paying capacity and the basis of legislative action; to the customers, a hint to demand for better quality and price cuts; to a bank, less burdensome source if finance existence and finally to the country, profit is the index of economic progress. Thus, if an organization fails to make profit, capital invested erodes and if this situation prolongs it ultimately cease to exist.

The term 'Profitability' is composed of two words, 'Profit' and 'Ability'. The second component part of the term profitability is 'ability' which reflects the capacity of power of company to earn profit. This ability is also referred to as ‘earning capacity' or 'earning power' of the concerned investment. Thus, the term ‘profitability' may be taken as the ability of a company to earn profit. According to Howard and Upton, "The word profitability may be defined as the ability of a given investment to earn return on its use (Howard and Upton, 1961).

The term ‘profitability’ is distinguished from the word profit as profit refers to the absolute quantum of profit whereas profitability alludes to the ability to earn profit. The profit, on

other hand is an absolute measure. It indicates the overall amount of profit earned by transaction. As the profitability is the relative measure, it is used to judge the degree of operational efficiency of management. Furthermore, it is essentially employed to measure the relative efficiency of different trading systems or different investments within one system. In profitability analysis, the profit-making ability of an organization is measured in terms size of investment in it or its sales volume. Such an analysis of profitability reveals how particular such a position stand as a result of transactions made during the year. It is particularly interesting to the suppliers of funds who can evaluate their investment and take necessary decision thereon.

Banks today are under great pressure to perform to meet the objectives of their stockholders, employees, deposits, and borrowing customers, while somehow keeping government regulators satisfied that the banks policies, loans, and investments are sound" (Rose, 1991). The majority of the needs of the stakeholders are related with the profitability of the banks. For example, in case the bank earns profits, the investors get dividends, employees get bonus, government gets benefits in forms of taxes etc. Thus, the foremost objective of the banks is the profit maximization. As other types of business entity, commercial banks are also inspired by the profit. The major source of funds of the bank is the public deposit. Commercial banks invest public deposits on those sectors where they can attain the maximum income or higher rate of return as the bank is liable to pay certain rate of interest to the public in their deposits. Hence the investment or granting of loan and advance by them are highly influenced by profit margin.

The purpose of profitability measurement is to see whether a bank has effectively used its resources to achieve its profitability objectives. The profitability objectives refer not to the maximum profit the business can produce but to the minimum it must produce. The minimum profit is the profit at the minimum rate required for the desired type of investment in the bank. However, there mustn't be enough profit to yield the capital in the market rate of return on money, which is already sunk in business, but also to provide additional capital needed to cover the cost of staying in business. Profitability is a technical term, used to compare performances analysis of different trading systems or different investments within one system. This is computed for each system or investments being compared over the same

period long enough to include significant “ups” and “downs”. So, analysis of the profitability of the business is very essential which can be used to measure the overall efficiency of the business.

2.2 Review of Empirical Research

Under this section of literature review, various research papers like articles, journals, thesis and dissertations, books, newspaper etc. conducted on national and international context concerning the subject matter of the study has been reviewed.

2.2.1 Review of Empirical Research in Nepalese Context

Mishra, Kandel & Aithal (2021) has conducted a study on ‘Profitability in Commercial Bank – A Case from Nepal’. This study aims to assess the impact, contribution and relationship of size, loans and deposit, inflation and capital on the profitability of the banks. This is an analytical business research conducted to signify the contribution of Bank Size, Loan Ration, Deposit Ratio, Capital Ratio and Inflation as determinants of Profitability. The study is mainly based on secondary data from 2013 to 2019 of seven commercial banks of Nepal. Further the study also collected primary data as a questionnaire survey. The correlation and regression along with ratio analysis have been used to assure a contributory association among return on assets (ROA), return on equity (ROE) and net interest margin (NIM).

As per the research findings/results, the size of banks is in increasing trend. The decreasing trend of standard deviation showed that the size of Nepalese commercial banks has lower variation in the use of total assets as the year increases. There is a negative relation between ROA and ROE with loan ratio, deposit ratio and capital ratio, while there is positive relation with bank size and inflation. However, in case of NIM, bank size, loan ratio, deposit ratio and inflation exhibit a positive relation while the capital ratio shows the negative relationship with NIM. Majority of the respondents feel that the publication of financial reports is one of the major influencing factors of bank profitability.

Neupane (2020) has made a study on 'Profitability Determinants of Nepalese Commercial Banks'. The study is based on quantitative information of 20 commercial banks for the period of 11 years (2010-2020). The purpose of this study is to examine the key determinants of profitability of Nepalese commercial banks. This study employs descriptive statistics to describe the profitability of Nepalese banks and its determinants. Further, the degree of correlation among different indicators of profitability and its determinants has been assessed by calculating correlation coefficient and a panel data regression model (Fixed effect model and Random effect model) to investigate the determinants and their impact on profitability of Nepalese commercial banks.

The analysis reveals that the bank profitability measured by ROA of Nepalese commercial banks is significantly affected by concentration ratio, banking sector development, GDP growth, inflation and exchange rate significantly in opposite direction rather it is not significantly affected by the internal factors like bank size, capital base, deposit, loan, off-balance sheet activities and number of branches. Another indicator of bank profitability; NIM is significantly affected only by capital adequacy, absolute number of branches and inflation rate. This study concluded that the profitability of Nepalese commercial banks measured by return on assets is significantly influenced by the external factors. Among external factors, industry specific factors have high degree of impact on return on assets whereas macroeconomic variables have quite a weak degree but significant impact on profitability of Nepalese commercial banks as measured by return on assets. Further, the profitability measured by net interest margin (NIM) is significantly influenced only by capital adequacy, absolute number of branches and annual inflation rate.

Khadka (2020) has made a study on "Determinants of Profitability of Commercial Banks in Nepal". The main purpose of the study is to identify the major determinants of profitability performance in Nepalese commercial banks. This study applies various ratio analysis tools, descriptive statistical tools like mean, median, standard deviation, coefficient of variation, correlation and regression methods. This study also applies hypothesis testing methods in order to reach to the conclusion of research work. This

study has investigated the determinants of commercial banks' financial performance analysis of the Nepalese context. The pooled data of six commercial banks for the period 2013/14 to 2017/18 have been analyzed using regression model.

The regression results reveal that bank size has significant positive effect on loans and advances whereas liquidity ratio, investment portfolio and cash reserve ratio have significant negative effect on banks' loan advances. This study concludes that the major determinants of commercial banks' financial performance analysis of Nepal are bank size, liquidity, investment portfolio, and cash reserve ratio. Average ROE of Nepal Investment Bank Limited is higher than other sample banks and standard deviation of HBL is higher than other bank and coefficient variance of HBL is higher than other sample banks. The results indicate that bank financial policy indicator is significantly positively correlated with bank size and cash reserve ratio. The result further implies that large size bank with enough cash reserve can provide more loans and advances to their clients.

Rai (2019) has made a study on 'Determinants of financial performance of commercial banks in Nepal'. This study was undertaken with the objective to examine the factors or determinants that influence and impact on bank performance by defining profitability as performance measure. The study is based on various financial and statistical tools for analysis of secondary data of 5 banks with 25 observations for the period 2013/14 to 2017/18.

By using the analysis tools coefficient of correlation test and multiple regression models, gross domestic product growth rate (GDPR) has positive relationship with return on asset (ROA) and net interest margin (NIM). Likewise, inflation rate (INF) has positive relationship with return on equity (ROE). This result indicates that higher the gross domestic product growth rate (GDPR), higher would be the return on asset (ROA) and net interest margin (NIM) and vice versa. Likewise, higher the inflation rate (INF), higher would be the return on equity (ROE) of the commercial banks in Nepal. However, to the small extent and uneven way, there is the influence of internal variables- capital adequacy ratio (CAR) and bank size (SIZE) as well. Based on the

aforementioned relationships results, gross domestic product growth rate (GDPR) is the major factor that affecting the profitability performance of commercial banks in Nepal then followed by inflation rate (INF). Moreover, it is evident that bank's profitability performance is more affected by macroeconomic factors than bank specific factors.

Hamal and Adhikari (2019) have conducted research on “Financial Performance of Nepalese Public Sector and Joint Venture Banks Using CAMEL Model”. This study analyses the relative performance of selected public and joint venture commercial banks of Nepal using CAMEL rating system and provides a relative ranking under each of the parameters independently. This study also uses descriptive staistics and t-test as a tool of data analysis. This study is based on the historical data obtained from annual reports of commercial banks and it covers the study periods of five years from July 2015 to July 2019. Out of the 28 commercial banks in operation, all public banks viz. Rastriya Banijya Bank, Nepal Bank and Agricultural Development Bank, and three joint-venture banks viz. Standard Chartered Bank, Everest Bank and Himalayan Bank were selected under the study.

As per the research findings HBL was found to be able to maintain a higher level of capital and EBL to maintain a higher level of good performing loans and earnings efficiency, as well as SCB, was found to be able to maintain a higher level of managerial efficiency and ADBL to maintain a higher level of liquidity but RBB has a lower amount of liquidity as compared with others. The results of independent sample t-test showed no significant mean difference in capital adequacy, earning performance, and liquidity between public and joint-venture banks, but showed a significant mean difference in asset quality, and management quality between public and joint-venture banks has found. Thus, from this study it can be concluded that Joint venture banks of Nepal have better asset quality by reducing non-performing loans and management quality by utilizing the human resource efficiently.

Bhattarai (2018) in his study "Impact of Bank Specific and Macroeconomic Variables on Performance of Nepalese Commercial Banks" studied by defining return on asset (ROA) as performance measure variable with the annual data period of 2011 o 2016.

While default risk, capital adequacy ratio and cost person assets as bank specific independent variables. Likewise, annual growth rate of GDP, exchange rate and inflation rate as the macroeconomic independent variables. He has used regression models to test the impact of importance of bank specific and macro-economic variables on bank performance. In his study, the estimated regression models revealed that cost per loan assets was significantly negatively associated with banks' profitability. However, exchange rate was found significantly negatively associated to profitability. Therefore, he has concluded that the commercial banks profitability in Nepal is mainly influenced by cost per loan assets. The macroeconomic variables were not found significant determinant during his study period.

Pradhan and Parajuli (2017) studied about the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. They had found the evidence for a positive relationship of bank size with return on asset (ROA), which mean larger the banks, higher would be the ROA. On the other hand, the study observed that there is a negative relationship of capital adequacy, equity capital with ROA. This means that higher the capital adequacy lower would be the ROA. The result also showed that there is a positive relationship of capital adequacy, bank size and debt to equity ratio with ROE. This means that higher the capital adequacy, higher would be the ROE. Similarly, the study also observed that larger the bank, higher would be the ROE. This study was based on the secondary data collected from 20 Nepalese commercial banks through 2009-10 to 2014-15 leading to a total of 120 observations.

Pradhan (2016) has made a study on 'Bank specific and macroeconomic determinants of bank profitability'. The study is based on pooled cross-sectional analysis of secondary data of 22 banks with 154 observations for the period 2005/06 to 2011/12. This study hypothesizes that the profitability of the banks depends on several firm specific and macro-economic variables such as, credit deposit ratio, market share, GDP, inflation, liquidity and non-performing loans.

The study revealed that average return on equity was 16.18 percent while the average return on assets was 14.42 percent. The average ratio of non-performing loan to total

loans was observed to be 4.23 percent. The beta coefficients for inflation, liquidity, and non-performing loans were negative, while they were positive for credit to deposit ratio, market share and GDP. However, the coefficients were significant for credit deposit ratio and liquidity only at 5 percent level of significance. Thus, this study concludes that credit to total deposit ratio and liquidity are the major determinants of profitability of Nepalese commercial banks.

2.2.2 Review of Empirical Research in International Context

Ozili (2021) conducted study on 'Bank profitability determinants: Comparing the United States, Nigeria and South Africa'. The findings reveal that cost efficiency, the size of non-performing loans and overhead cost to total asset ratio are significant determinants of the banking sector profitability. In the comparative analysis, the findings from South Africa show that the cost efficiency ratio, overhead cost to total asset ratio and non-performing loans are significant determinants of the banking sector profitability. In the United States, capital adequacy ratio and the size of non-performing loans are significant determinants of its banking sector profitability. In Nigeria, the overhead cost to total asset ratio and cost efficiency ratio are significant determinants of the banking sector profitability. The descriptive analysis reveals that bank net interest margin and return on asset are higher in Nigeria and lowest in the United States which suggests that the Nigerian banking sector is more profitable than the US banking sector. Return on equity is higher in South Africa and lowest in the United States.

Sakib & Hossain (2020) carried out a study on 'Determinants of profitability of commercial banks in Bangladesh with a view to provide the determinants of profitability where the profitability is denoted by ROE. The study takes 30 listed commercial banks for the period 2010 to 2017 using multiple regressions to determine impact of significant variables on profitability.

The study finds that net interest margin (NIM) is the prime source of profitability which is statistically significant and positive. The variable asset size (LOGA) has negative impact on the profitability which is also statistically significant. The capital adequacy ratio (CAR) is not statistically significant but has a positive impact on profitability

where the higher the level of equity relative to total asset, the higher the level of profitability. Loans to total assets ratio (AE) has a negative impact on profitability though not significant. Non-performing loans (AQ) is an important factor. Though it has no significant impact on bank profitability, it negatively affects the profitability. This finding is relevant to policy. Non-performing loan is increasing day by day and this leads to reduction in profitability. Deposit to total asset ratio is not statistically significant but has a positive impact on profitability. So, banks should take initiatives to increase the deposits. This result shows that investment to total asset ratio negatively impacts on profitability after a certain extent. Operating expense ratio (OPEX) has significantly negative impact on profitability. At last, debt to equity ratio (LEV) has a positive impact on profitability which is not significant statistically. This analysis makes it clear that to a certain level, increasing debt will increase the profitability until the cost of debt is equal to the cost of equity. When cost of debt is greater than the cost of equity, this will decrease the profitability. From additional analyses part, capital adequacy ratio and asset quality ratio are statistically significant with return on assets. Here, if capital adequacy ratio increases, return on assets will also increases and if asset quality ratio increases, return on assets decreases. Again, capital adequacy ratio and deposit to total asset ratio is statistically significant with return on operating assets. If capital adequacy ratio and deposit to total asset ratio increases, return on operating assets will also increases.

Al-Homaidi et al., (2018) conducted study on 'Bank-specific and macro-economic determinants of profitability of Indian commercial banks. This study uses a panel data approach of 69 Indian commercial banks over a period of 2008 to 2017. This study aims at finding out the determinants of Indian commercial banks profitability. Profitability of Indian banks is measured by three important variables namely, return on assets (ROA), return on equity (ROE) and net interest margin (NIM). The study also uses a set of independent variables such as bank-specific factors which include bank size, assets quality, capital adequacy, liquidity, operating efficiency, deposits, leverage, assets management and the number of branches. Pooled, fixed and random effects

models and generalized method of moments (GMM) are built on panel data of 10 years for more than 60 commercial banks of India.

The study also takes into account gross domestic product (GDP), inflation rate, interest rate and exchange rate as macroeconomic determinants. The results of the study show that all bank-specific factors, except the number of branches, exhibited significant impacts on profitability as measured by NIM. The findings also show that all macroeconomic determinants used in the study are found to be significant with negative impacts on Indian commercial banks profitability. Furthermore, the results show that bank size, number of branches, assets management ratio and leverage ratio are highly significant variables of profitability in the context of Indian commercial banks as measured by ROA.

Ahmet Karakuza (2017) examined bank-specific determinants of profitability in Turkish banks. ROA was the measure used as a proxy for profitability. The bank-specific variables that served as the independent variables include equity to asset ratio, total deposit to total assets, total loans and receivables to total assets, net interest income total assets, provision for loan loss to total assets, liquidity assets to total assets and consumer loans to total assets. The results indicated that the ratio of net interest income to operating income influenced ROA positively. Non-interest income to total assets affected the profitability of Turkish banks positively and significant. Consumer loans to total loans negatively and significantly affect the profitability of banks in Turkey.

Subham and Subhas (2017) investigated the determinants of profitability of private sector banks in India. To study the effect of bank-specific factors they grouped the private sector banks into new and old. The profitability ratios used were net interest income to total income, return on assets and return on equity. Bank specific characteristics used include liquidity, asset quality, financial soundness and management efficiency. The external factors also included inflation, interest rate, and political instability. The results indicated that all the four bank-specific variables related positively to profitability. Also, both GDP and Inflation were positive but insignificant on the profitability of new private sector banks. Inflation influenced old private sector

banks' profitability negatively but significant. Post-crisis is positive though not significant on the profitability of new private sector banks. Concerning old private sector banks, all the variables related to bank-specific except soundness, were positive and significantly related to profitability. GDP had a significant positive impact on profitability whereas inflation had an insignificant impact. Financial crisis affected the profitability of old private sector banks negatively.

Murerwa (2015) conducted thesis research on the topic of "Determinants of banks' financial performance in developing economies: Evidence from Kenyan commercial banks, Nepal is also one of the developing countries like Kenya, the findings of the African developing country can be relatable to Nepalese banking industry. Main objective of his thesis was to evaluate the macroeconomic factors which influence the financial performance of the commercial banks in Kenya. On the basis of his study, he concluded that industry specific factors are regarded as a critical pointer of the financial performance of the Kenyan commercial banks. External market structure indeed affects the financial performance of the Kenyan banks. Moreover, he argues that the impact posed macroeconomic factors on the financial performance is minimal.

Alemu, (2015) studied about the factors affecting on profitability of banks. For the study purpose survey research has been used and 8 banks were taken as sample for the period 2002-2013. The profitability was measured by only ROA on the study. The result indicated that the size of bank is positive and significant to profitability; capital adequacy is positive and significant at 1% significant level; liquidity risk and operational efficiency are negative and significant at 1% significance level; management efficiency is positive and was not statistically significant even at 10% significance level; employee efficiency is negative and was not statistically significant even at 10% significance level; funding cost is negative at 10% significance level; GDP is highly statistical significant and positive impact on ROA at 10% significance level; inflation and foreign exchange rate are positive but were not statistically significant.

Abebe (2014) study examined the determinants of financial performance of commercial banks in Ethiopia over the period 2002-2013. Thus, panel data for eight banks for

twelve years was used for the analysis purpose. The profitability is measured by ROA, and NIM on the study, both capital structure and operating cost negatively and significantly affect performance measured by ROA and NIM. While income diversification significantly affects NIM, it has insignificant impact on ROA. Similarly, tax rate affects ROA negatively and significantly but related with NIM negatively and insignificantly. Moreover, inflation affect both ROA and NIM positively but insignificantly while GDP has insignificant effect on both ROA and NIM it is positively related with ROA but have negative impact on NIM. Furthermore, bank size has positive and significant impact on ROA and NIM.

The study finds that higher total assets may not necessarily lead to higher profits. The negative coefficient of size, significant at the 1 percent level, indicates that this relation might be negative due to diseconomies of scale i.e., possible bureaucratic bottlenecks and managerial inefficiencies suffered by banks having too large size and network. Higher loans contribute towards profitability but their impact is not significant that reveals that more dependence on one major asset, may lead to profitability but with less significant impact on overall profitability. One of the major findings of the study was the negative relationship of loans towards profitability when one of the banks showed a loss. Total deposit to total assets and total equity to total assets showed a positive and significant relationship with profitability indicator ROA. The study concluded that total assets, equity/total assets, deposits/total assets, and loans/total assets are the major internal determinants of profitability of banks in Pakistan.

Weersainghe & Perera (2013) carried out a study on 'Determinants of profitability of commercial banks in Sri Lanka' to investigate the impact of bank specific determinants i.e., size, capital, liquidity, credit risk and operational efficiency on profitability of LCBs in Sri Lanka during the period from 2001 to 2011.

The study finds that the large banks are recorded more profits due to economic of scale than the banks which are well sound with a higher regulatory capital ratio. Further, the results from the panel regression suggest that the liquidity and operating cost efficiency banks were negatively related to the commercial bank profitability in Sri Lanka. In

addition, interest rate found to be having a significant impact on the bank profitability with a negative relationship between the return on assets of a bank implying that lower interest rate scenario would account a higher level of profitability with the expansion of banking activities.

Javaid et al., (2011) conducted a study on 'Determinants of bank profitability in Pakistan: Internal factors analyses to identify the determinants that mostly influence the overall performance of banks in Pakistan. The study aims to give the analysis of the determinants of top 10 banks' profitability in Pakistan over the period 2004 to 2008 using the pooled ordinary least square (POLS) method to investigate the impact of assets, loans, equity, and deposits on one of the major profitability indicators return on asset (ROA).

Alper & Anbar (2011) examine the 'Bank specific and macroeconomic determinants of commercial bank profitability in Turkey' where 10 commercial banks observed over the period 2002 – 2010 consisting of 90 observations. Two key measures of profitability (dependent variables) analyzed in this study comprised of return on average asset (ROA) and return on average equity (ROE) as a function of natural logarithm of total assets, equity to total asset, loan to total asset or loan under follow up to total loan, liquid asset to total, deposit to total asset, net interest income to total asset or non-interest income to total asset which are proxies of asset size, asset quality, liquidity, deposits, income expenditure structure. Three macroeconomic variables are used: Annual real gross domestic product growth rate (GDP), annual inflation rate (INF) and real interest rate (RI). Bank size (log A) is highly significant and positively related to ROA at 1% level of significance. This positive relationship shows that the size of the bank has significant positive impact on profitability. Non-interest income (NII) is found to be significantly affecting the profitability of commercial banks measured by ROA. The results show that the impact of loans/assets ratio (LA) and loans under follow-up/loans ratio (LFA) have a negative impact on profit and significant at 5% level of significance. As for the other bank-specific variables, namely liquidity, deposit volume, capital adequacy and net interest margin, they all show no impact on bank profitability. The macroeconomic variables are not found to have a significant impact on banks'

return on assets. Bank size (log A) shows a positive and significant relationship with profitability, when ROE is used as the dependent variable. Other bank-specific variables do not seem to present any significant effect on return on equity. Among macroeconomic variables, only real interest rate is found to be significantly affecting ROE at 5% level of significance. There is not found relationships between ROE and real GDP growth rate and inflation.

2.3 Theoretical Framework

Theoretical framework serves as the structure and support for the problem, purpose and rationale of the study. This section of the study defines the key concepts concerning the determinants of profitability and performance of commercial banks, proposes relations between them, and discusses relevant theories based on a literature review.

2.3.1 Theories of Bank Profitability

One of the crucial components of the financial systems and the economy are the commercial banks. In the recent years, commercial banks have contributed to a great extent in the financial development of the economy of the region. Banks are responsible for allocation of funds to the organizations and individuals who need them. They deposit the funds of the organizations and individuals who have them in excess. Hence, they are responsible for mobilization of funds. Financial performance of the banks affects the capital allocation, expansion of the firms, economic growth of the industries and development of the economy. Profitability of the banks affects not only the commercial banks but it has impact on the macroeconomic level. In presence of the current environment the profits fetched by the banks reflect their financial performance. Banks come in stable state and they fetch high profits in case of maintenance of the profitability index of the commercial banks (Goddard et al., 2004). Hence, profitability becomes the important part of the performance of the banks which affects many sectors. Hence, factors influencing the performance of the banks in financial sector have grabbed the attention of the many research scholars, bank supervisors and financial markets. Scholars began conducting research on the performance of the banks between

1970 and 1980. They applied two models named as Efficient Structure theory and Market Power theory (Athansasoglou et al., 2008).

There are two distinct approaches within the MP theory; the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP). According to the SCP approach, the level of concentration in the banking market gives rise to potential market power by banks, which may raise their profitability. Banks in more concentrated markets are most likely to make "abnormal profits" by their ability to lower deposits rates and to charge higher loan rates as a result of collusive (explicit or tacit) or monopolistic reasons, than firms operating in less concentrated markets, irrespective of their efficiency (Tregenna, 2009). Unlike the SCP, the RMP hypothesis suggests that bank profitability is influenced by market share. It assumes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits.

The ES hypothesis, on the other hand suggests that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the ES; the X-efficiency and Scale–efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athansasoglou et al., 2008). The scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and higher profits through economies of scale. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability.

The portfolio theory approach is the most relevant and plays an important role in bank performance studies (Nzongang & Atemnkeng, 2006). According to the portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holder’s portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks

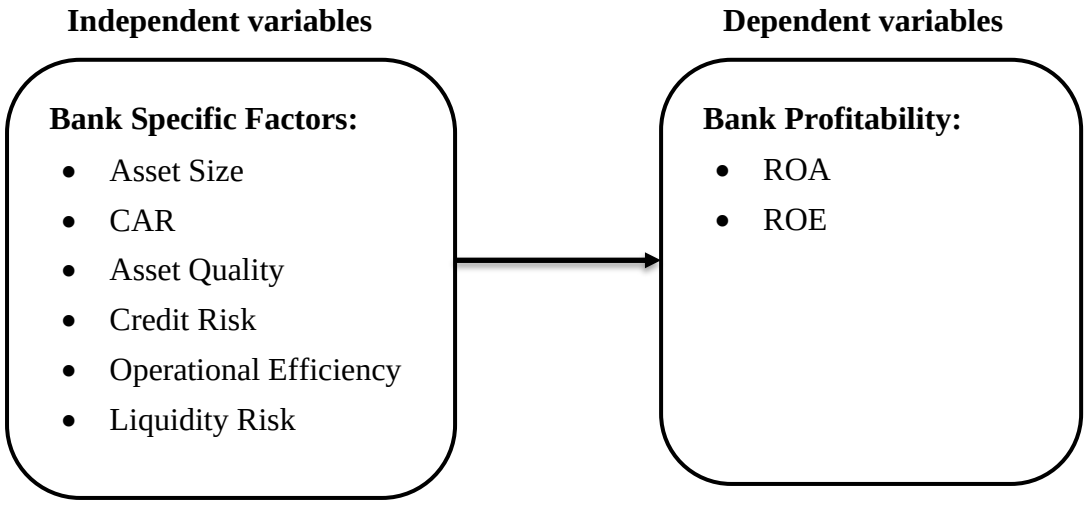
associated with the ownership of each financial assets and the size of the portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets (Nzongang & Atemnkeng, 2006).

2.3.2 Determinants of Bank Profitability

The review of literature has revealed that bank profitability can be influenced by bank-specific factors and external factors. Bank-specific factors are those factors that can be controllable which includes credit risk measure, operational efficiency, liquidity position, asset size and quality while external factors include macroeconomic factors. According to the nature and purpose of each study, different variables could be used. The review of literature also revealed that the multiple linear regressions method is the most used in modeling the relationship of bank profitability. The relevant interrelationships among bank-specific factors and macro-specific factors and their impact on bank profitability as revealed by the reviewed of literature, and depicted in the following figure. The following figure shows most common factors measure which determines the performance of commercial banks.

Figure 2.2:

Schematic Diagram Showing Relationships Between Variables



2.3.3 The Link Between Bank Performance and Bank-Specific Factor

Under this study, ROA and ROE are the main indicators to evaluate bank performance and profitability. They can be explained by bank specific factors.

Al-Homaidi et al., (2018) identified a positive relationship between NIM and profitability. They found that there is a negative association between ROE and leverage ratio, operating efficiency, exchange rate, number of branches, inflation rate and interest rate. However, a positive relationship was exhibited between ROE and asset management ratio, bank size, assets quality ratio, liquidity ratio, and GDP of Indian commercial banks. Sakib & Hossain (2020) showed that asset size decreases the profitability as higher the level of assets in a company, higher the level of inefficiencies and bureaucratic problems exists. This finding suggests that banks should keep minimum assets to conduct its operation. Athansasoglou et al., (2008) indicated that as a result of gaining market share, a bank would increase its earnings which would increase its profitability. It is usually assumed that large banks enjoy economies of scale, so they are able to produce their outputs or services more cheaply and efficiently than smaller banks. As a result, larger banks will earn higher rates of profit if entry is restricted.

Asset quality refers to the performance of the loan portfolio. The asset quality means the capacity of assets to generate income as well as the recoverability of the principal amount. Assets with inherent credit weaknesses are classified as non-performing assets (NPA) or non-performing loan (NPL). A higher share of NPL can impair bank performance in at least two ways. The loan losses immediately reduce the interest revenue, bringing spreads under pressure. Simultaneously, banks are required to make provision for classified loans, thus increasing non-interest expenses results in lower profitability (Afzal & Nawazish, 2010). This explanation of asset quality warrants an inverse relationship between asset quality and banking margins. Banks are likely to charge higher spreads to compensate for the increase in loan loss reserves and consequently an increase in credit risk would result in increasing spreads.

Credit management refers to the performance of the loan portfolio. The credit management means the capacity of assets to generate income as well as the recoverability of the principal amount. Credit risk includes the level of bad loans (non-performing loans), provision for loan losses and credit concentration ratio. A higher share of non- performing loans can impair bank performance in at least two ways. The loan losses immediately reduce the interest revenue and effect on bank performance. Simultaneously, banks are required to make provision for classified loans, thus increasing noninterest expenses and resulting in lower profitability (Afzal & Nawazish, 2010). Bourke (1989) argues that a good measure of credit risk or asset quality is the ratio of loan loss reserve to gross loans because it captures the expectation of management with regard to the performance of loans. Increased exposure to credit risk is normally associated with decreased firm profitability. Indicating that banks would improve profitability by improving screening and monitoring of credit risk.

Capital adequacy is a measure of the value of the capital owned by the shareholder of a financial institution relative to the amount of money has lent. A strong CAR is expected to have a positive impact on bank performance (Norris & Floerkemeier, 2007). Likewise, if banks taken aggressive risk-taking policy increase the interest rate spread and increase ROA significantly and vice versa. Thus, loan pricing policy has important determination of bank performance.

Operational efficiency indicator which is also referred to as expenses by management is given as cost to income ratio. The higher this ratio, the less efficient and bank could adversely be affected in return on assets, depending on the degree of competition in the market. Al-Homaidi et al., (2018) showed that operating inefficiencies appear to be the main determinants of high bank spreads in SSA economies. Brock & Suarez (2000) also established that administrative and other operating costs contribute to the prevalence of high spreads in Latin American countries. Some other studies (Bourke, 1989) revealed a positive relationship between better quality management and profitability in European banks. This variable could therefore have a positive or negative impact on bank profitability, positive with better quality management at reduced costs, negative at higher inefficiency levels at higher costs.

Liquidity risk indicator is measured by bank net loans to total assets or a percentage of assets that comprise the loan portfolio. High ratios may be an indicative of better bank performance because of possible increases in interest income. However, very high ratios could also reduce liquidity and increase the number of marginal borrowers that default and resulting in lower profitability. Goddard et. al., (2004) emphasized the adverse effect of increased liquidity for financial institutions stating that, "although more liquid assets increase the ability to raise cash on short-notice, they also reduce management's ability to commit credibly to an investment strategy that protects investors".

2.4 Research Gap

The review of various literatures in national and international context has revealed that profitability performance of banking sector can be influenced by bank-specific factors and external factors. Correspondingly, in the literatures, the bank's profitability is usually expressed as a function of internal and external determinants. Various studies have been conducted in different countries regarding these variables. The most important internal determinants affecting the profitability performance of banks consist of capital adequacy ratio, assets size, assets quality, loan loss provision, liquidity management, cost per loan, loan and advances and cash reserve ratio.

Banks strength plays an important role in the growth and stability of the economy. And stability of the banks depends on their profitability performance. A study of previous research papers concerning the financial and profitability performance of the banks made us aware of lacking conclusion of relationship between bank specific as well as external economic indicators and profitability performance of commercial banks. Thus, the study tries to examine and analyze the impact of these internal and external variables on the profitability performance of Nepalese commercial banks. It identifies the relationship between the capital adequacy, non-performing loan, loan loss provision, liquidity management and operational efficiency with banks profitability indicators i.e., return on asset (ROA) and return on equity (ROE).

In the previous studies made on determinants of profitability performance of Nepalese commercial banks does not take ownership structure of banks i.e., joint venture, public and private banks in order to examine and compare the profitability determinants of commercial banks. This study examines and compares these indicators on the basis of ownership structure of commercial banks as well. Most of the previous literatures are found to be conducted by having 5 years of data and 4-5 numbers of commercial banks as sample. But this study covers the data of 10 years from FY2011/12 to FY2020/21 of nine commercial banks. Therefore, the study serves as additional complement in reflecting the commercial banking sector of Nepal. This study is different than the previous research study due to the following reasons:

1. This research study covers the 10 years' date from FY2011/12 to FY2020/21.
2. This study takes nine commercial banks operating in Nepal as sample.
3. This study has mainly focused on ownership structure of commercial banks for the analysis and research findings.
4. This study has been mainly focused on bank-specific internal variables

This study examines and analyzes the impact between independent variables (bank specific variables) and performance measures such as ROA and ROE of commercial banks of Nepal. Hence this study fulfills the prevailing research gap about the determinants of profitability performance of Nepalese commercial banks which is the major concern of the stakeholders.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a systematic way to solve a problem which sets out the overall plan related with the study. It refers to the various methods of practices applied by the researcher in the entire aspect of the study. It is the blue print for the research project. Basically, the procedures by which researchers go through their work of explaining, clarifying and predicting phenomena are called research methodology. Before presenting the analysis and interpretation of data, it is necessary that study methodology is to be described first. This chapter contains research design, description of the population and sample, instrumentation and the data collection procedure.

3.2 Research Design

Research design is the plan, structure, and strategy of investigation conceived so as to obtain answer to research questions and to control variance. It includes the overall scheme of program of the research. This research is based on descriptive and analytical research design in order to examine the determinants of profitability performance of commercial bank in case of Nepal. Descriptive research design describes the general pattern of determinants of bank profitability and its impact on bank performance. Analytical approach is used to find out the result employing financial as well as statistical tools. So, the present study emphasis on descriptive and analytical research. Here ratios analysis, central tendency analysis, correlation analysis and testing of hypothesis are done. The research is fully based upon the secondary data and regression model testing as done to examine and analyze the determinants of profitability commercial banks of Nepal.

3.3 Description of Sample

Population: The population for this study comprises all the commercial banks including public, joint venture and private banks operating in the Nepal. At present

there are 27 licensed CBs operating in Nepal (Mid-April 2022). All 27 licensed Nepalese CBs are considered as the total population.

Sample Size: The total population taken for this study includes all the commercial banks operating in Nepal i.e., 27 CBs and as a sample only 9 CBs are taken for study. The sampling technique is convenient. Sample has been taken comprising public, joint venture and private banks. Hence, the sample size for the study is only nine commercial banks and the sample data taken for the study is of last 10 years. Sample banks are taken according to the following criteria:

i. All banks should establish before 2003.
ii. The sample data should be available from 2011/12 to 2020/21 (Ten years).
iii. Data on balance sheets and income statements should be available.

Table 3.1:

List of Selected Nine Commercial Banks of Nepal

S.N.	Name of Bank	Established Date	Bank's Ownership Structure
1.	Standard Chartered Bank Limited	1987 AD	Joint Venture
2.	Himalayan Bank Limited	1993 AD	Joint Venture
3.	Nabil Bank Limited	1984 AD	Joint Venture
4.	Laxmi Bank Limited	2002 AD	Private
5.	Kumari Bank Limited	2001 AD	Private
6.	Nepal Investment Bank Limited	1986 AD	Private
7.	Rastriya Banijya Bank Limited	1966 AD	Public
8.	Nepal Bank Limited	1937 AD	Public
9.	Agriculture Development Bank Limited	1968 AD	Public

Source: Website of banks mentioned above

3.4 Data Collection Procedure/Technique

This study examines and analyzes the determinants of profitability of commercial banks of Nepal. For this purpose, secondary data were used, based on the information

collected from annual financial statement of the selected commercial banks over the period from FY 2011/12 to FY 2020/21. The sources of secondary data have been collected from published annual reports, published bulletins and prospects of concerned organizations, various publications of NRB, various thesis and various papers, journals, magazines and websites. Data from financial statements was considered reliable since financial statements are prepared based on standardized accounting principles in every industry. Mostly the annual reports of the selected sample commercial banks and NRB reports were used as a source of data. The major sources of data and information are as follows;

i. Annual reports of concerned commercial banks
ii. NRB economic report,
iii. Banking, non-banking and financial statistics, NRB
iv. Bank supervision report (FY 2011/12 to FY 2020/21), NRB
v. Previous research studies, dissertation, articles and journal on the subject
vi. Various text books
vii. Different websites related to study

3.5 Data Processing and Presentation

Data collected for the study are presented in various forms. Most of the secondary data are presented in tabular form and some graphical presentation is also used. Data will be analyzed by using Microsoft Excel and SPSS computer software.

3.6 Instrumentation

The financial and statistical tools were applied in order to examine and compute the impact of independent variables on the dependent variables. Microsoft Excel and SPSS computer software are used for data calculation and computation of analysis. The basic descriptive statistics like mean, median, standard deviation, coefficient of variation, coefficient of correlation and coefficient of multiple determinations will be used to analyze the data collected for this study. Similarly, the t-test and f-test statistics will be used for significant of data. Further financial tools like ratio analysis will be used to

analyze the proportion between several factors. This study uses quantitative approach of research.

3.6.1 Variable Definition

The variables under this study of profitability determinants of commercial banks of Nepal consists of dependent and independent variables which are as follows:

i) Dependent Variables

Dependent variables are expected to change as a result of an experimental manipulation of the independent variable or variables. It is the presumed effect. The set of dependent variables under the study represent the bank's profitability which consists of return on assets (ROA) and return on equity (ROE). They are explained in detail below.

a. Return on Assets (ROA)

ROA is a major ratio that indicates the profitability of a bank. It measures the ability of the bank management to generate income by utilizing company assets at their disposal. ROA explains the overall profitability of a bank emanating from its asset portfolio (both advances and investments). In other words, it shows how efficiency the resources of the company are used to generate net income from all the resources of the institution (Khrawish, 2011). The variable measures the relationship between net income and total assets of bank. Higher ratio indicates the higher performance of the banks.

It is a useful tool for comparing profitability of one bank with other or the whole commercial banking system. It measures the profitability of a bank therefore; it is important measure for the study.

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

b. Return on Equity (ROE)

Return on equity (ROE) is the ratio of net income to total equity. ROE measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners. It measures a firm's efficiency at generating profits from every unit of shareholders' equity (also known as net assets or assets minus liabilities). ROE shows

how well a company uses investment funds to generate earnings growth. ROEs between 15% and 20% are considered desirable. It is further explained by Khrawish, (2011) that ROE is the ratio of net income divided by total equity capital.

It represents the rate of return earned on the funds invested in the bank by its stockholders. This ratio measures the overall profitability of the firm by establishing relationship between net income and total equity capital.

$$ROE = \frac{Net\ Profit\ After\ Tax\ (NPAT)}{Total\ Equity\ (TE)} \times 100$$

ii) Independent Variables

The set of independent variables includes bank-specific and macroeconomic variables that might possibly explain bank's performance. Bank-specific variables are classified either as operational or as financial efficiency factors. They are explained in detail below.

a. Assets Size [Ln (TA)]

It is measured by the natural logarithm of total assets. Larger banks are likely to have a higher degree of product and loan diversification than smaller banks. In addition to the higher diversification potential, economies of scale can also arise from a larger size. As diversification reduces risks and economies of scale lead to increased operational efficiency, we expect a positive effect of size on bank profitability. However, it is well known that banks that have become extremely large exhibit a negative relationship between size and profitability due to agency costs, bureaucratic processes and other reasons related to a large firm size.

b. Capital Adequacy Ratio [CAR]

Capital adequacy is one of the elements that indicate the measurement of financial strength of a bank. It is the capital position of the bank which somewhat assure depositors that they will be compensated if any failure occurs. It is important for a bank to maintain depositor's confidence and preventing the bank from going bankrupt. The capital adequacy ratio is based on total risk-weighted assets (TRWA) of the bank. Capital adequacy ratios are a measure of the amount of a bank's capital expressed as a

percentage of its risk weighted credit exposures. Ongore and Kosa (2013) has profound the relationship between capital adequacy and profitability of banks in their researches which reveal that capital adequacy is the determinants of profitability. This ratio is used to examine adequacy of total capital fund and core capital. This variable is obtained from the bank supervision report of NRB.

$$CAR = \frac{(Tier\ I + Tier\ II)\ Capital}{Total\ Risk\ Weighted\ Assets} \times 100$$

Here, Tier I capital is the primary funding source of the bank. Tier 1 capital consists of shareholders' equity and retained earnings. Tier II capital is the supplementary funding source of the bank which includes revaluation reserves, hybrid capital instruments and subordinated term debt, general loan-loss reserves, and undisclosed reserves.

c. Non-Performing Loan to Loan Ratio (NPL/TL)

Non-performing loan ratios are the best proxies for assets quality. Non-performing loan measure the risk of the bank. The non-performing loan to total loan ratio measures the share of unproductive sector investment by the bank. It is the major concern of all commercial banks to keep the amount of nonperforming loans to low level. This is so because high nonperforming loan affects the profitability of the bank. Thus, a low nonperforming loan to total loans shows that the good health of the portfolio a bank. The data of this variable is obtained from the bank supervision report of NRB.

d. Loan Losses Provision to Total Loan (LLP/TL)

Loan loss provision / total loan measure the risk of the bank. LLP is also the percentage of the total loan portfolio that has been set aside for bad loans. Higher loan provisioning is the likelihood of possible future loan losses, though it could also indicate a timely recognition of weak loans by prudent banks. The ratio is one of the measurements of credit risk of the banks. So, the expected sign on this coefficient is ambiguous.

e. Cost to Income Ratio (CIR)

This is a measure of operational efficiency reflecting the cost of running the banks as a percentage of income. This ratio shows the bank's efficiency in running the business substantially. It can also be defined as what occurs when the right combination of

people, process, and technology come together to enhance the productivity and value of any business operation, while driving down the cost of routine operations to a desired level (Shawk, 2008). Operational efficiency is the ability to deliver products and services cost effectively without sacrificing quality. The higher this ratio the less efficient the bank will be, which should adversely affect bank profits, depending on the degree of competition in the market. But generally, a negative relationship with performance is expected.

f. Total Loan to Total Asset (TL/TA)

Total loans/total assets (TL/TA) represent the percentage of assets that comprise the loan portfolio. Higher ratios may be indicative of better bank performance because of increases in interest income. However, very high ratios could also reduce liquidity position of bank and increase the number of marginal borrowers that default. The ratio is the one of the best proxies to know the liquidity position. Again, its effect on bank performance is ambiguous.

The following table summarized the variables and their expected signs as theoretical concept and literature suggest.

Table 3.2:

Expected Sign of Coefficients

Variables	Measurement	Expected Sign	Type
Return on Assets (ROA)	NPAT/TA	+	Dependent
Return on Equity (ROE)	NPAT/TE	+	
Capital Requirement	CAR	+/-	Independent
Asset Size	Total Assets (TA)	+	
Asset Quality	NPL/TL	-	
Credit Risk	LLP/TL	+/-	
Liquidity Management	TL/TA	+/-	
Operational Efficiency	CIR	-	

3.6.2 Statistical Tools

The collected data was analyzed using descriptive statistics, correlations and multiple linear regression analysis. Descriptive analysis is performed to know the basic characteristics of dependent and independent variables and correlation analysis is performed to measure association between them. Regression analysis is applied then, to know the significant determinants of banks performance. The major statistical tools used are:

i. Arithmetic Mean

An arithmetic mean also called the mean or average arithmetic mean is the most popular and widely used method of central tendency. It is sum of all the observations divided by the number of observations. It is calculated from ungrouped data and frequency.

Mathematically,

$$Mean\ (\bar{X}) = \frac{\sum X}{N}$$

Where:

$\bar{X}$= Mean,

$\sum X$= Sum of all observations,

N= Number of observations

ii. Standard Deviation

Standard deviation is the most popular and most useful measure of dispersion and gives uniform, correct and stable results. The main characteristics of standard deviation are that, it is based on mean. Furthermore, a standard deviation is always a positive number and it is superior to the mean deviation. A standard deviation is the positive square root of average sum of squares of deviations of observations from the arithmetic mean of the distribution.

Mathematically,

$$\text{Standard Deviation}(\sigma) = \sqrt{\frac{\sum(X-\bar{X})^2}{N-1}}$$

Where:

σ=Standard Deviation,

$\bar{X}$= Mean

X= Sample Data

N= Number of observations

iii. Correlation Coefficient (r)

For the purpose of comparison and further analysis it is necessary to get a numerical measure for the correlation between two variables. A relative measure of this type is developed by Karl Pearson called Pearson's coefficient of correlation or product movement coefficient. It measures the relationship between two or more than two variables and they are so related that the change in the value of one variable is accompanied by change in the value of the other or it indicates the direction of relationship among others. It is denoted by (r). The correlation coefficient can be calculated as:

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

Where:

N = Number of Observations.

x and y are variables.

The decision criteria are as under:

When,

r = 0, there is no relationship between the variables.

r = 1, the variables are perfectly positive correlated.

r = -1, the variables are perfectly negative correlated.

Model Specification:

Simple linear regression analysis analyzes the linear relationship that exists between a dependent variable and a single independent variable. For performing regression analysis, the significance level is assumed to be 5 percentage. Following tests are used for the analysis of data to achieve the targeted objectives:

1) Simple Regression Model

$Y = \beta_o + \beta_1 X$

Where:

Y= Value of the dependent variable

X= Value of the independent variable

β_o= Population's Y- intercept

β_1= Slope of the population regression line

2) Multiple Regression Model

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

Where:

Y= Value of the dependent variable

X_i= Value of the independent variable

β_o= Population's Y- intercept

$\beta_1, \beta_2, \beta_3$= Slope of the population regression line

3) Correlations

Correlation quantifies the extent to which two quantitative variables, X and Y, "go together." When high values of X are associated with high values of Y, a positive correlation exists. When high values of X are associated with low values of Y, a negative correlation exists. For performing correlation analysis, the significance level is assumed to be 5 percentages.

4) Hypothesis Testing

Hypothesis testing is used to infer a result of a hypothesis performed on sample data from a larger population. Performing a hypothesis test on sample data in an attempt to determine the mean of a population is the same as the mean of the sample. It is a procedure for deciding if a null hypothesis should be accepted or rejected in favor of an alternate hypothesis. A statistic is computed from a survey or test result and is analyzed to determine if it falls within a preset acceptance region. If it does, the null hypothesis is accepted otherwise it is rejected. Types of hypothesis testing are as under:

a) ANOVA

An ANOVA test is a way to find out if survey or experiment results are significant. In other words, they help you to figure out if you need to reject the null hypothesis or accept the alternate hypothesis. Basically, you're testing groups to see if there's a difference between them. One-way or two-way refers to the number of independent variables (IVs) in your Analysis of Variance test. One-way has one independent variable (with 2 levels) and two-way has two independent variables (can have multiple levels). For example, a one-way Analysis of Variance could have one IV (brand of cereal) and a two-way Analysis of Variance has two IVs (brand of cereal, calories).

- H_0: $\mu_1 = \mu_2 = \mu_3 ... = \mu_k$
- H_1: Means are not all equal.
- where k = the number of independent comparison groups

b) T-test

T-test's statistical significance indicates whether or not the difference between two groups' averages most likely reflects a "real" difference in the population from which the groups were sampled. Statistically significant t-test result is one in which a difference between two groups is unlikely to have occurred because the sample happened to be atypical. Statistical significance is determined by the size of the difference between the group averages, the sample size, and the standard deviations of the groups. For practical purposes statistical significance suggests that the two larger populations from which we sample are "actually" different.

c) F- test

F-tests are named after its test statistic, F, which was named in honor of Sir Ronald Fisher. The F-statistic is simply a ratio of two variances. Variances are a measure of dispersion, or how far the data are scattered from the mean. Larger values represent greater dispersion.

3.6.3 Model Specification

The data under the study was collected from the financial statements of nine sampled commercial bank for the period from FY 2011/12 to FY 2020/21. These include information from income statements, balance sheets and other indicator published by concerned commercial banks and NRB.

The empirical test is concerned with the determinants of bank's profitability performance of Nepalese commercial bank. The test uses the balance panel data approach to assess the relationship between independent and dependent variables. The independent variable and bank specific dependent variables were computed in the manner described below. Different models have been found in literature for regression analysis.

The basic framework of a regression model is in form:

$Y_{it} = \alpha_i + X_{it} \beta + \varepsilon_{it}$ $\quad i=1 \ldots n,\ t=1 \ldots n.$

Y_{it} indicates the dependent variable while X_{it} represents the vector of k explanatory variables. β represents the coefficient of explanatory variables. ε_{it} is the disturbance term. ($\varepsilon_{it} \rightarrow N(0, \sigma_\varepsilon^2)$). The bank specific effect is α_i which is taken to be constant over time.

However, the extended model is used for regression analysis as used in different prospective. Here the fixed effect firm and time model has been used. The fixed effect: firm and time model has been adopted in the condition when there is correlation between the individual effect, time effect and explanatory variable. The econometric models employed in this study tries to analyze the relationship between bank specific variables and profitability. The following regression model is used to examine relationship of independent variables and profitability of BIFs. From the conceptual framework, the function of dependent variables (Return on assets, ROA and Return on equity, ROE) takes the following form:

ROA= *f* (CAR, TA, NPL/TL, CIR, LLP/TL, TL/TA)

ROE= *f* (CAR, TA, NPL/TL, CIR, LLP/TL, TL/TA)

The model estimated in the study assumes that return on assets (ROA) and return on equity (ROE) is the dependent variables and capital adequacy ratio (CAR), total assets (TA), non-performing loan to total loan (NPL/TL), cost to income ratio (CIR), loan loss provision to total loan (LLP/TL) and total loan to total assets (TL/TA) are the independent variables. To analyze the impact of bank specific variables on profitability indicators as well as to minimize the problem with auto correlation and multi collinearly, the model has been developed as follows:

Model: I

In this model, ROA is taken as dependent variable. The model is presented as follows:

$$ROA_{it} = \beta_0 + \beta_1 TA_{it} + \beta_2 CAR_{it} + \beta_3 (NPL/TLit) + \beta_4 (LLP/TL_{it}) + \beta_5 CIR_{it} + \beta_6 (TL/TA_{it}) + \varepsilon_{it}$$

Model: II

In this model, ROE is taken as dependent variable. The model is presented as follows:

$$ROE_{it} = \beta_0 + \beta_1 TA_{it} + \beta_2 CAR_{it} + \beta_3 (NPL/TL_{it}) + \beta_4 (LLP/TL_{it}) + \beta_5 CIR_{it} + \beta_6 (TL/TA_{it}) + \varepsilon_{it}$$

Where:

ROA_{it} = Return on Assets of the i^{th} bank in year t

ROE_{it} = Return on Equity of the i^{th} bank in year t

TA_{it} = Assets Size (defined by natural logarithms of total assets) of the i^{th} bank in year t

CAR_{it}= Capital Adequacy Ratio of the i^{th} bank in year t

NPL/TL_{it} = NPL/TL Ratio of the i^{th} bank in year t

LLP/TL_{it} = LLP/TL Ratio of the i^{th} bank in year t

CIR_{it} = Cost to Income Ratio of the i^{th} bank in year t

TL/TA_{it} = TL/TA Ratio of the i^{th} bank in year t

ε_{it} = Error term

β_0 is the constant term of the model and β_1, β_2, β_3, β_4, β_5 & β_6 are the beta coefficients of independent variables.

3.7 Validity and Reliability

Validity refers to the truthfulness of findings. It determines whether the research truly measures the what it was intended to measure or how truthful the research results are. The research report findings are truthful because it is measuring the relationships of profitability with its determinant factors according to methodology by different researchers. The research methods are good enough and are international practices model and procedures. The financial instrument and statistical tools are sufficient to analyze these descriptive and hypothesis testing. Convenient sampling has been used so as to make better result. The data are kept and used standardized measurement tool SPSS software. Therefore, there has less chance that the output in one computer provides some variance in another computer unless and until some manipulation or some technical error. The data are rightly put and operationalized the output. This represents the outcome of this research are good estimator of the current banking business and will helpful to predict the future banking business in Nepal. Regression analysis can be applied to establish criterion validity. The correlation coefficient between the dependent and independent variable/sector is the valid coefficient parameter. The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability, and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

The results of the test are reliable because nine commercial banks are taken as sample. These comprise more than 30% of the total population. All the sample are well established and operated at least 17 years thus outcome can generalize to whole commercial banks of Nepal. Similarly, data are obtained from NRB publication and calculation is done accordance to existing literature. Another thing is that we are applying the financial instrument and statistical techniques for our measurement. If anyone wants to conduct the similar research there will be consistent outcome for the same input. Reliability and validity of secondary data will be done by matching the data with multiple resources. This will help to find out if one source had fed the wrong data mistakenly.

3.8 Analysis Plan

The main purpose of analyzing the data is to change it from an unprocessed form to an understandable presentation. The analysis of the data consists of organizing, tabulating, performing statistical calculations and drawing inferences. The data will be analyzed using tables, charts, graphs, line charts, ratio analysis, percentages, hypothesis testing, correlation analysis and regression analysis. The data set that is used in the estimation is characterized as panel data having firm and time dimension.

Here all kinds of instruments are used which are appropriate in the context and situations as per the demand by this report or methodology. To achieve objectives the selection of appropriate tools is necessary otherwise the presentation will mislead the research findings.

CHAPTER IV

RESULTS AND DISCUSSIONS

This section deals with the presentation, analysis and interpretation of relevant data and information of profitability and commercial banks performance in Nepal. The main purpose of this section is to test relationship between determinants of profitability with profitability indicators (i.e. ROA and ROE) of the commercial banks in Nepal. This section presents the empirical results and analysis. The trend analysis, descriptive statistics is performed first, followed by the correlation and regression analysis.

4.1 Descriptive Statistics

Here data are presented in different dimension to analyze the different fact. The sample data is presented banks wise and comparative analysis in the form of private Vs public Vs joint venture bank is done. Similarly, ROA, ROE, asset size, CAR, CIR, TL/TA, loan losses provision (LLP) and nonperforming loan ratio are graphically presented.

4.1.1 Trend Analysis of Profitability

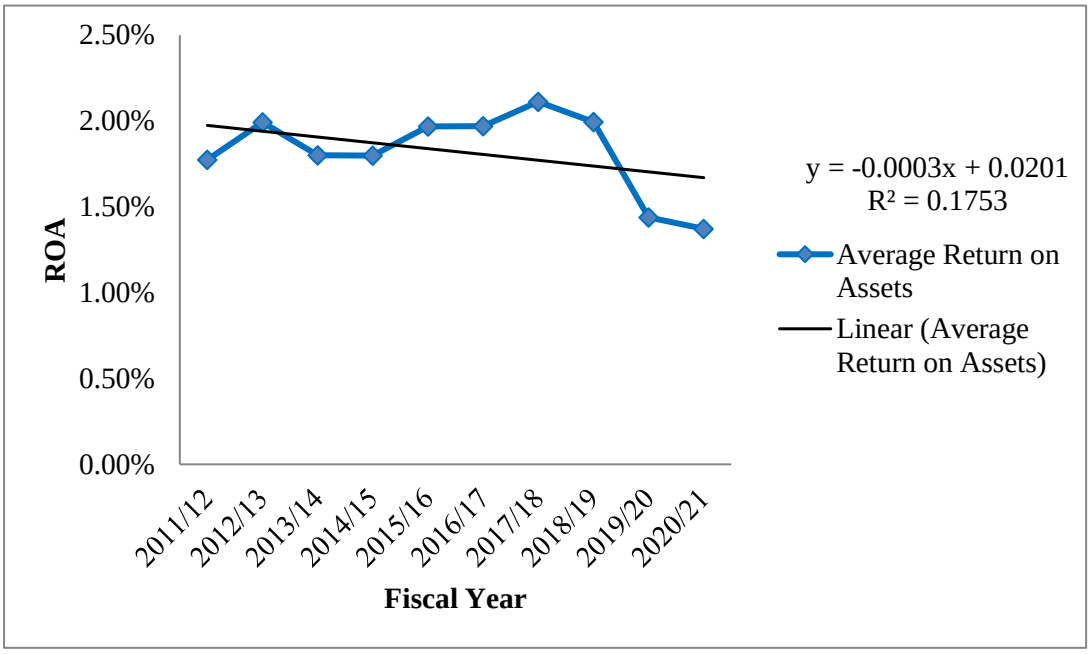
Under this section profitability trend of sampled commercial banks is analyzed taking return on assets (ROA) and return on equity (ROE) as indicators of banks' profitability.

4.1.1.1 Return on Assets

Return on assets (ROA) measures the efficiency of the bank's management in generating profit out of its scarce resources. The higher the profit generated from the employed assets, the more efficient the bank is. Return on assets is the main indicator of the profitability. This ratio indicates how much profit the bank is earning from its assets. During the sample period ROA is increasing until FY 2012/13 and then it is decreasing in FY 2013/14. After that it remains constant at FY 2014/15. Then ROA is in increasing trend until FY 2017/18, achieved the highest average ROA and thereafter it started to decline. During the sample period banks are able to earn highest average ROA in FY 2017/18 and lowest ROA in FY 2020/21. Average return on assets during the sample period is given in the figure 4.1 below.

Figure 4.1:

Average Return on Assets



Source: Author's calculation through Appendix III in Excel

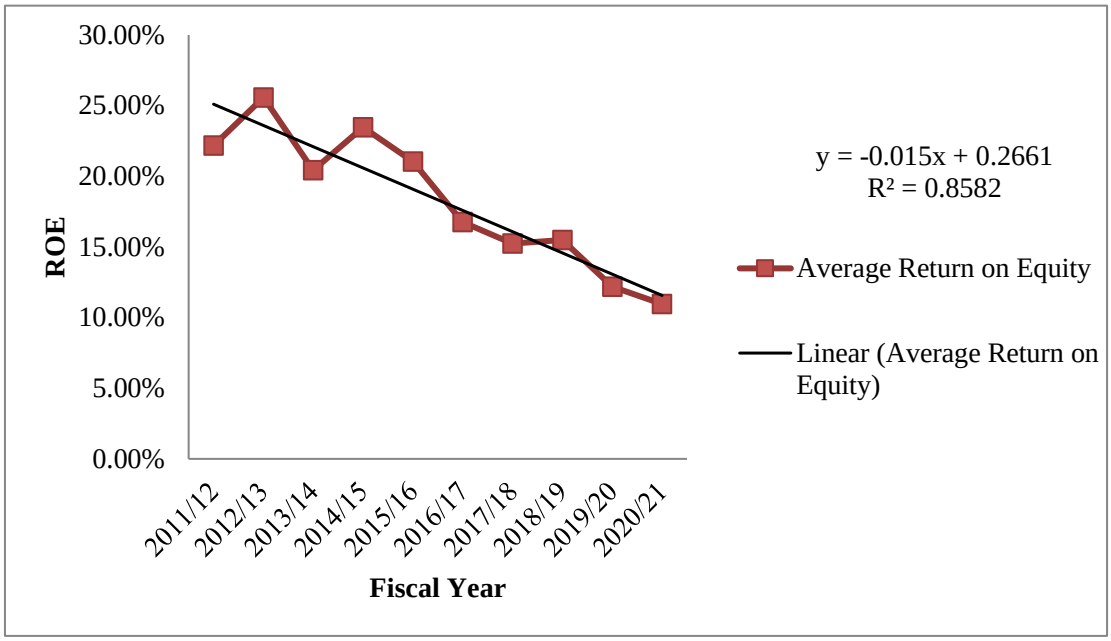
From this trend of average ROA, highest average ROA in FY 2017/18 indicates that the bank efficiently utilized its assets and earned more profit from its assets. The trendline describes that ROA of sampled commercial banks is in fluctuating trend during the sample period. The time period explains around 17.53% of the variation in the dependent variable (i.e., ROA) as indicated by R^2 value of 0.1753.

4.1.1.2 Return on Equity

Return on equity (ROE) is a measure of the company's efficiency in generating profit from every single unit of shareholders equity. ROE is a measure of profitability expressed as a percentage of company net worth. ROE ratio is an essential measure of a company's earnings performance. This ratio shows that how well the firm has used the resource of the owner's in making profit. During the sample period, average ROE is higher in initial FY 2012/13 and fluctuates till 2015/16. After that average ROE is in decreasing trend and it reaches to 10.96% in FY 2020/21.Average return on equity during the sample period is given in the figure 4.2 below.

Figure 4.2:

Average Return on Equity



Source: Author's calculation through Appendix III in Excel

The average ROE in the sampled periods is shown in the above figure. The trendline describes that ROE of sampled commercial banks is downward sloping during the sample period. It means banks are unable to maximize the value of their shareholder's compared to corresponding previous years. The time period explains around 85.82% of the variation in the dependent variable (i.e., ROE) as indicated by R^2 value of 0.8582.

4.1.2 Trend Analysis of Variables and Growth Rate

In this section increasing or decreasing trend of growth rate of variables during the period from FY 2011/12 to FY 2020/21 is analyzed in graphical presentation. Under the study assets size, capital adequacy ratio, non-performing loans to total loans, loan loss provision to total loans, cost to income ratio and total loans to total assets are taken as bank specific independent variables.

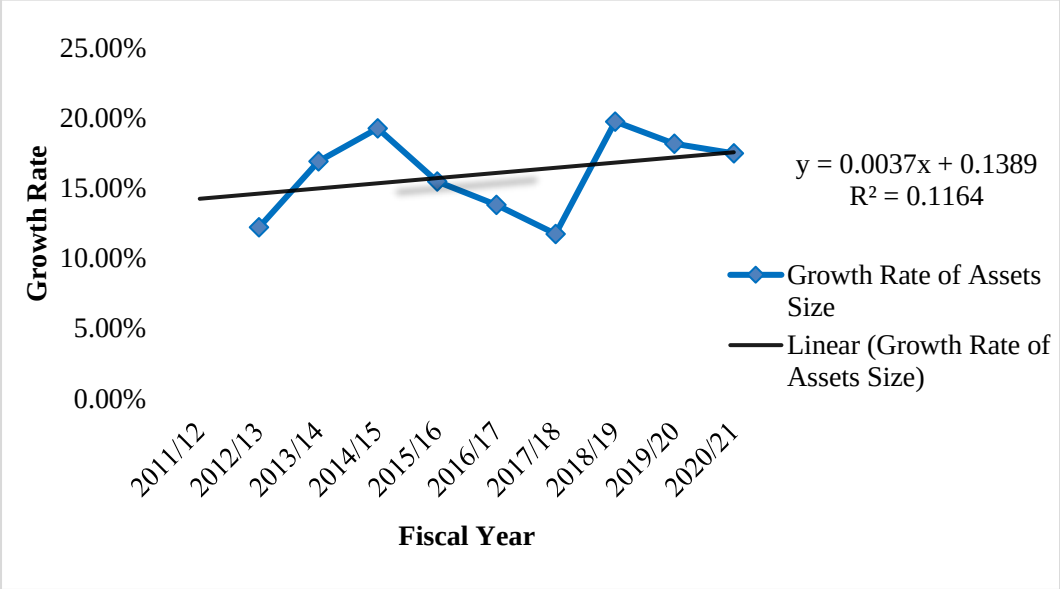
4.1.2.1 Growth Rate of Assets Size

Assets size (natural logarithm of total assets) is an indication of expansion in a banking institution. The bigger the size of the bank, the higher its ability to absorb risk. Larger banks are able to manage better and put in place better financial structures. During the

sample period, growth rate is higher in FY 2018/19 i.e., 19.76% and lower in FY 2017/18 i.e., 11.75%. Initially it increases until FY 2014/15, then it starts to decline until FY 2017/18 and reaches at higher point at FY 2018/19. Growth rate of asset size is presented in the figure 4.3 below.

Figure 4.3:

Growth Rate of Asset Size



Source: Author's calculation through Appendix III in Excel

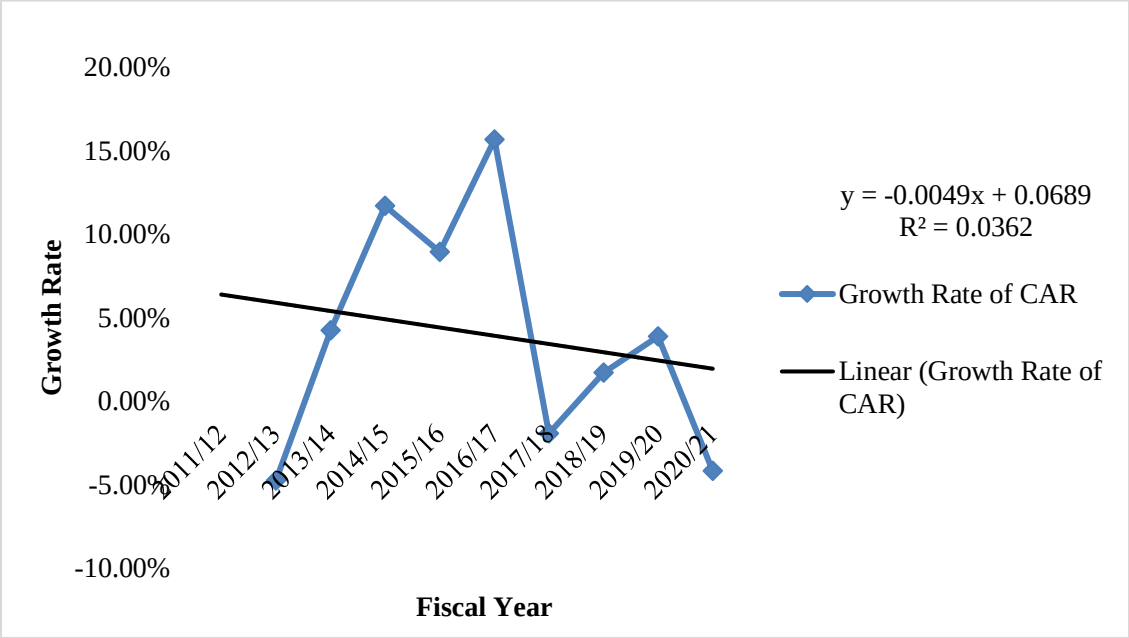
In figure, the linear trend describes that growth rate of assets size of sampled commercial banks is upward sloping during the sample period. The time period explains around 11.64% of the variation in the dependent variable as indicated by R^2 value of 0.1164.

4.1.2.2 Growth Rate of Capital Adequacy Ratio

Capital adequacy is a measure used by banking supervisors to measure the adequacy of a banking institution's level of capital. A bank with adequate capital is in a better position to use high notch technology, and opening of new branches, which results in high efficiency, and achievement of high profitability (Zawadi Ally, 2014). This ratio is used to protect depositors and promote the stability and efficiency of financial systems around the world. During the sample period, growth rate of capital adequacy ratio (CAR) is higher in FY 2016/17 i.e., 15.67%.

Figure 4.4:

Growth Rate of Capital Adequacy Ratio



Source: Author's calculation through Appendix III in Excel

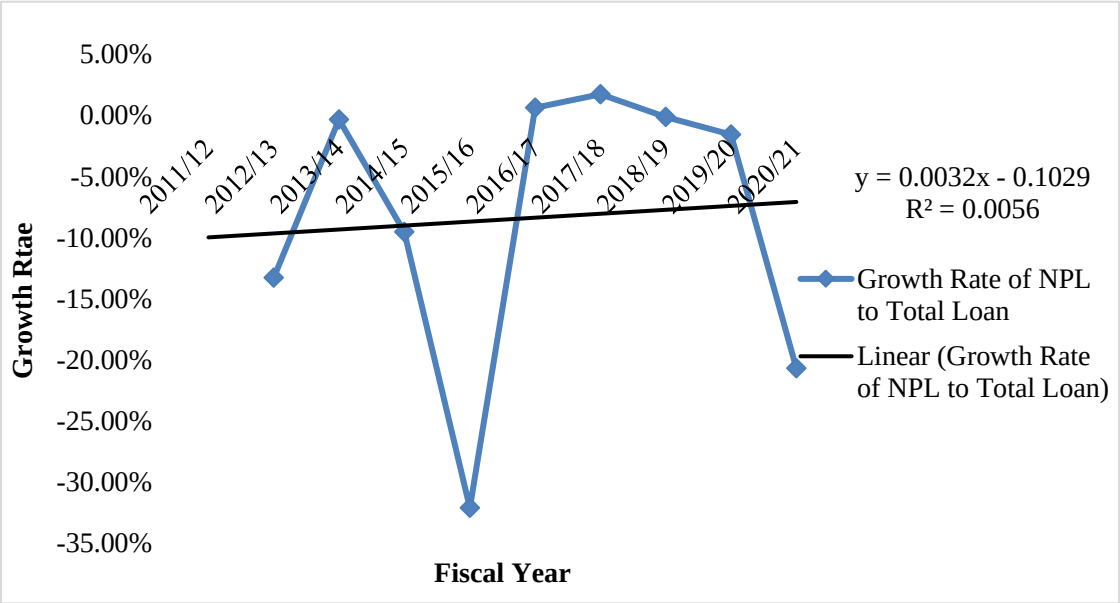
In the figure above, the linear trend describes that growth rate of capital adequacy ratio of sampled commercial banks is downward sloping during the sample period. The time period explains around 3.62% of the variation in the dependent variable as indicated by R^2 value of 0.0362.

4.1.2.3 Growth Rate of Non-Performing Loan

The nonperforming loan (NPL) measures the credit risk of the bank. It indicates the assets quality of the banks. The non-performing loan to total loan ratio measures the portion of unproductive sector investment by the bank. The ratio indicates the portion of the outstanding loans that are not performing. When a loan is nonperforming, it implies that the repayment of both interest and principal has ceased which reduces the revenue of the financial institution. The highest positive growth rate of NPL/TL can be seen in FY 2017/18 i.e., 1.75%. Similarly, the highest negative growth rate of NPL/TL can be seen in FY 2015/16 i.e., -32.11% which states that banks are able to decrease their NPL by 32.11%. Average growth rate of NPL during the sample period is given in the figure 4.5 below.

Figure 4.5:

Growth Rate of Non-Performing Loan



Source: Author's calculation through Appendix III in Excel

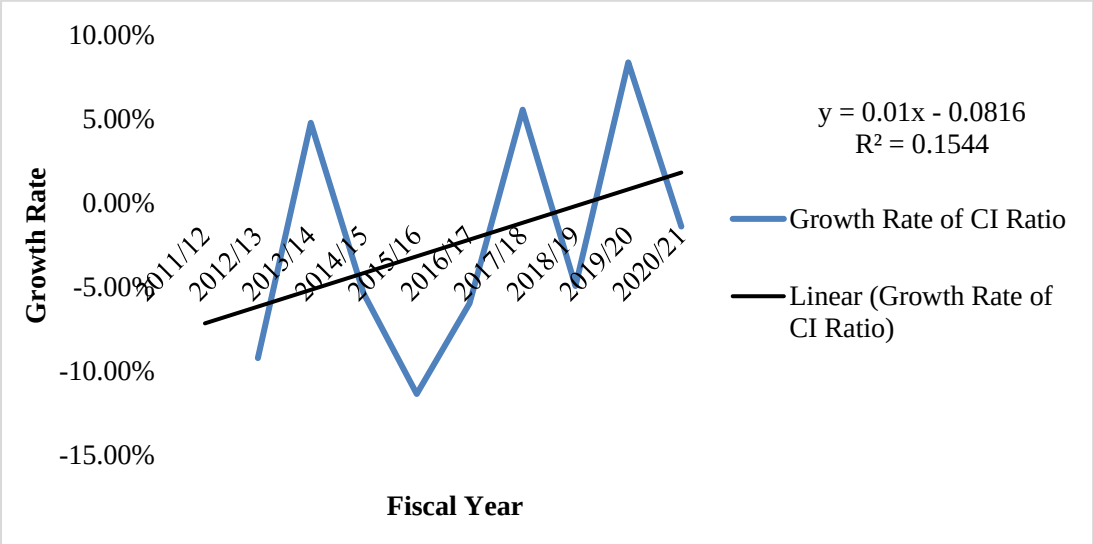
In the initial fiscal years, the growth rate of NPL/TL is most negative that indicates bank is performing well in the initial fiscal years. But in FY 2016/17 and FY 2017/18, growth rate of NPL/TL is positive and also in increasing trend. However, the ratio again starts to decrease after FY 2017/18. In figure, the trendline describes that growth rate of non-performing loan of sampled commercial banks is slightly upward sloping during the sample period. The time period explains around 0.56% of the variation in the dependent variable (i.e., NPL/TL) as indicated by R^2 value of 0.0056.

4.1.2.4 Growth Rate of Cost to Income Ratio

Cost to Income ratio (CIR) is the most important component to measure the operational efficiency of the commercial banks of Nepal. The higher the ratio the less efficient the bank will be, which should adversely affect bank profits. During the sample period, growth rate of cost to income is negative except in the FY 2013/14, FY 2017/18 and FY 2019/20. The figure of CIR is decreasing till FY 2020/21 followed by positive growth in FY 2013/14, FY 2017/18 and FY 2019/20. During the sample period, the banks are able to decrease CI ratio by maximum of 11.37% in FY 2015/16. Average growth rate of cost to income during the sample period is given in figure 4.6 below.

Figure 4.6:

Growth Rate of Cost to Income



Source: Author's calculation through Appendix III in Excel

Cost to income is a measure of operational efficiency reflecting the cost of running the banks as a percentage of income. In the figure below, the trendline describes that growth rate of cost to income of sampled commercial banks is upward sloping during the sample period. The time period explains about 15.44% of the variation in the dependent variable (i.e., CI ratio) as indicated by R^2 value of 0.1544.

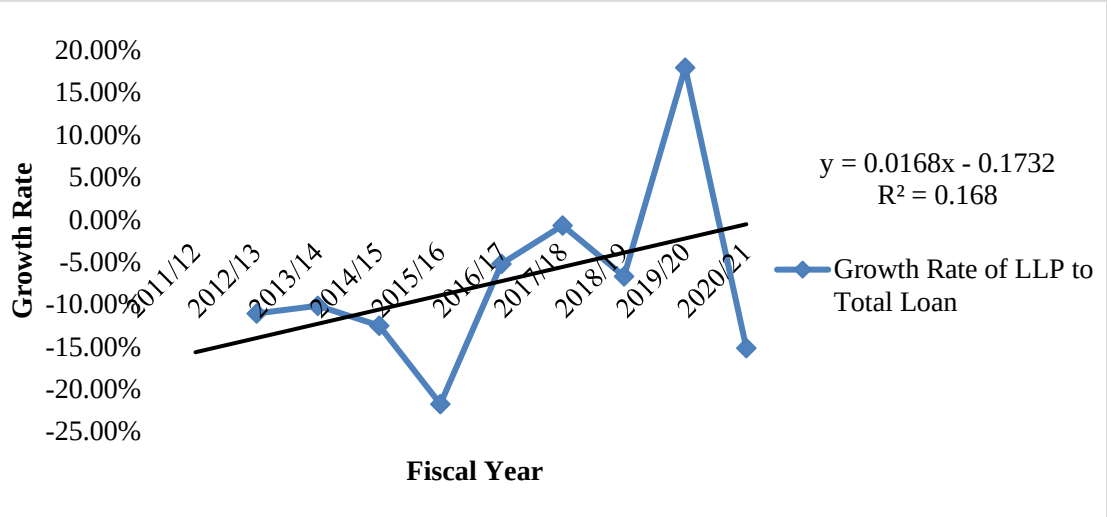
4.1.2.5 Growth Rate of Loan Loss Provision

Loan loss provision (LLP) measures the credit risk of the banks. LLP is also the percentage of the total loan portfolio that has been set aside for bad loans. Loan loss provision ratio entails how much reserve for loan is kept in terms of total loan flown by the banks. This ratio can best describe the asset quality of the bank. During the sample period, except in FY 2019/20 banks has negative growth in LLP/TL indicates that banks has reduced their loan loss provision to total loan ratio that means better performance of the bank.

The figure below explains that, the trendline of growth rate of loan loss provision of sampled commercial banks is upward sloping during the sample period and the time period explains around 16.80% of the variation in the dependent variable (i.e., LLP/TL) as indicated by R^2 value of 0.168.

Figure 4.7:

Growth Rate of Loan Loss Provision



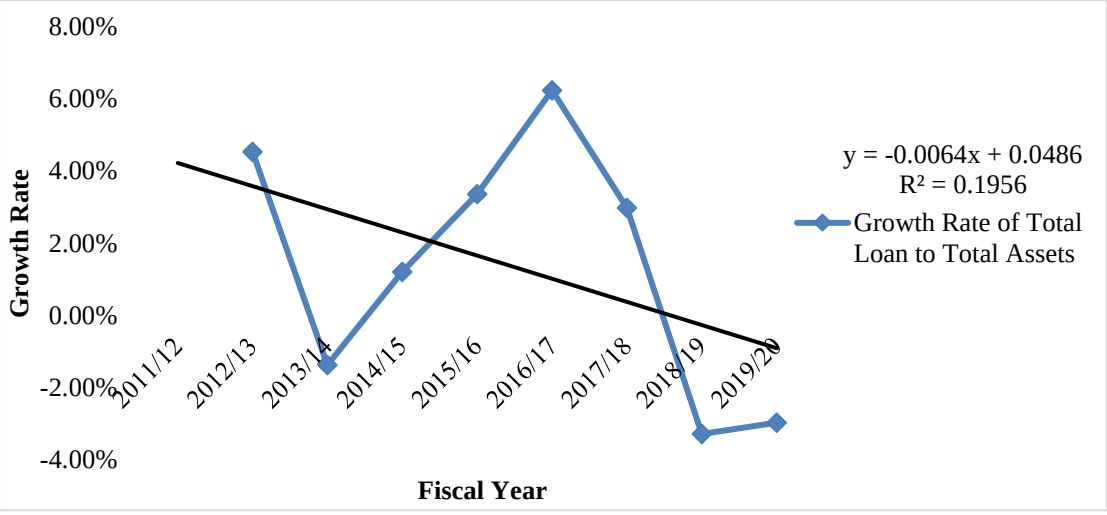
Source: Author's calculation through Appendix III in Excel

4.1.2.6 Growth Rate of Total Loan to Total Assets

Total loan to total assets (TL/TA) is one of the best proxies for measurement of liquidity position of the bank. During the sample period liquidity was decreasing in the initial FY 2013/14 and then it increased in FY 2014/15 until 2017/18. But again, it decreased in recent FY 2018/19 and FY 2019/20. After that it was increasing in FY 2020/21. Average growth rate of TL/TA during the sample period is given in the figure 4.8.

Figure 4.8:

Growth Rate of Total Loan to Total Assets



Source: Author's calculation through Appendix III in Excel

Higher TL/TA ratio may be indicative of better bank performance because of increases in interest income. However, very high ratios could also reduce liquidity and increase the number of marginal borrowers that may default. The trendline describes that growth rate of total loan to total assets of sampled commercial banks is downward sloping during the sample period. The time period explains around 19.56% of the variation in the dependent variable (i.e., TL/TA) as indicated by R2 value of 0.1956.

4.1.3 Bank-Specific Descriptive Statistics

The bank-specific descriptive statistics for FY 2011/12 to FY 2020/21 are reported in Table 4.1.

Table 4.1:

Bank-Specific Average Statistics from FY 2011/12 to FY 2020/21

(Amount in Million Rupees)

Particular	ROA	ROE	Asset size	CAR	NPL/TL	CIR	LLP/TL	TL/TA
NABIL	2.38%	22.95%	150,187.60	12.13%	1.36%	54.55%	2.21%	64.43%
HBL	1.74%	17.92%	106,708.90	12.18%	1.63%	42.03%	2.42%	68.80%
SCBL	2.19%	19.46%	75,770.58	16.77%	0.46%	35.70%	1.39%	51.38%
KUMARI	1.13%	10.88%	74,894.86	13.03%	1.64%	40.78%	2.59%	74.29%
LAXMI	1.34%	12.54%	73,586.02	12.01%	1.05%	41.51%	1.39%	69.94%
NIBL	1.91%	18.42%	139,869.60	12.79%	1.93%	39.87%	2.88%	67.27%
RBB	1.73%	33.62%	179,801.72	9.93%	4.90%	53.41%	4.89%	55.66%
ADBL	2.42%	13.93%	126,390.72	18.20%	4.61%	52.62%	5.94%	71.60%
NBL	1.57%	15.30%	121,339.70	9.22%	3.69%	59.09%	4.34%	58.34%

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

On average, during the sample period public banks RBB, ADBL and NBL reported ROA of 1.83%, 2.42% and 1.57% respectively. The ROA of public bank shows that ADBL has highest ROA i.e., 2.42% during the sample period which is highest among all the sample banks followed by joint venture bank (NABIL) whose ROA is 2.38%. KUMARI has the lowest ROA during the sample period is 1.13%. Also, ROE of KUMARI is the lowest among all the sample banks i.e., 10.88% during the sample period. The RBB has the highest ROE during the sample period that is 33.62%. The highest assets size during the sample period is RBB's total assets and lowest is LAXMI's total assets.

Except few banks, all other banks have maintained the capital adequacy norms of NRB as it should be minimum 11% of total capital fund from year 2015/16 according to Capital Adequacy Framework 2015. From the calculation, except RBB and NBL all other sampled commercial banks have achieved the minimum capital adequacy ratio as prescribed by NRB whose average CAR is more than 11%. RBB and NBL show the lowest average CAR of 9.93% and 9.22% respectively. Among the sample banks, public banks i.e., RBB, ADBL and NBL show the highest NPL i.e., 4.90%, 4.61% and 3.69% respectively. Also, the LLP of those banks are highest among the sample banks i.e., 4.89%, 5.94% and 4.34% respectively. But SCBL has lowest NPL that is 0.46% and its LLP is highest in comparison with NPL, which is 1.39%.

The highest cost to income ratio indicates that less operating efficiency which is found on NBL and NABIL that is 59.09% and 54.55%. The lowest CI ratio is of SCBL's which is 35.70% only. Highest TL/TA may be indicative of better bank performance because of increases in interest income. KUMARI has the highest TL/TA that is 74.29% and able to enjoy with ROA of 1.13%. However, very high ratios could also reduce liquidity position and increase default number of marginal borrowers. SCBL has the lowest TL/TA i.e., 51.38% and able to decrease the default rate i.e., NPL/TL is 0.46%.

4.1.4 Descriptive Statistics on the Basis of Ownership

The table below reveals some interesting facts about the performance and efficiency of three different sectors of banks i.e. joint venture banks, private sector banks, and public sector banks. Among the nine sample banks, NABIL, HBL and SCBL are foreign joint venture banks. KUMARI, LAXMI and NIBL are private sector domestic banks and RBB, ADBL and NBL are public sector banks. Overhead costs are highest for public banks; these high overhead costs are largely reflected in high staff payment and lack of proper management in their large number of bank's branch offices. Even though public banks have higher overhead but their ROA is significantly higher than private banks but lower than joint venture banks.

Also, public bank compromises with low capital adequacy ratio compared to private and joint venture banks. Public sector banks have higher assets than other sectors banks.

ROE of public sector banks is also higher than private sector banks but significantly lower than those of joint venture banks which reveals that income earned on each unit of shareholders capital by public banks are high in compared to those of private sector domestic banks. NPL and LLP of public banks are higher than those of private and joint venture banks that increase the risk to the bank and more provisions are made to overcome the risk of default. Table 4.2 below reports the statistics of banks classified on the basis of ownership structure of the banks.

Table 4.2:

Bank Ownership-Specific Statistics: Joint Venture Vs. Private Vs. Public Banks

(Amount in Million Rupees)

		Variables							
Banks	**Particular**	**ROA**	**ROE**	**Asset size**	**CAR**	**NPL/TL**	**LLP/TL**	**CIR**	**TL/TA**
Joint	**Minimum**	1.22%	9.44%	41,677.05	10.84%	0.15%	1.16%	31.58%	39.93%
Venture	**Maximum**	3.25%	32.78%	291,066.22	22.99%	3.22%	3.52%	68.13%	74.57%
Banks	**Mean**	2.10%	20.11%	110,889.03	13.69%	1.15%	2.01%	44.10%	61.53%
	Std. Deviation	0.52%	5.73%	58,278.21	3.18%	0.82%	0.67%	9.82%	9.08%
	Minimum	0.76%	6.71%	25,131.40	10.81%	0.62%	0.53%	33.79%	62.04%
Private	**Maximum**	2.60%	31.70%	227,930.00	15.35%	3.32%	4.58%	47.59%	84.59%
Banks	**Mean**	1.46%	13.95%	96,116.83	12.61%	1.54%	2.29%	40.72%	70.50%
	Std. Deviation	0.44%	5.76%	59,793.79	1.24%	0.78%	0.98%	4.08%	4.41%
	Minimum	0.30%	-6.05%	60,952.96	-5.82%	1.88%	2.00%	33.95%	43.08%
Public	**Maximum**	3.22%	69.50%	309,990.00	20.41%	8.98%	12.36%	98.25%	76.79%
Banks	**Mean**	1.90%	20.95%	142,510.71	12.45%	4.40%	5.06%	55.04%	61.87%
	Std. Deviation	0.77%	16.65%	62,889.63	6.43%	1.56%	2.36%	17.30%	9.43%

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

4.1.5 Yearly Statistics of Bank-Specific Variables

The credit risk indicator of the banks is continuously improving year by year as NPL in FY 2020/21 is 1.51% as compared to NPL during the FY 2011/12 i.e., 3.57%. The effect of NPL can be seen in LLP as well. LLP in FY 2020/21 is 2.31% which is much lower as compared to the LLP in FY 2011/12 i.e., 4.80%. Similarly, the assets quality of banks is continuously improving year by year as TL/TA in the FY 2020/21 is 68.90% as compared to TL/TA of 59.09% in FY 2011/12. Though the figure exhibited minimum increment, there is huge increment in total portfolio of the banks. The size of

the banks is continuously increasing annually as assets size in FY 2020/21 is Rs. 212,147.00 million as compared to FY 2011/12 i.e., Rs. 55,505.00 million.

Operating efficiency of banks is also improving but in fluctuating trend. CIR during the FY 2020/21 is 44.26% which is a bit lower as compared to the CIR of 55.03% during the FY 2011/12. CAR in FY 2020/21 is 14.62% which is higher as compared to CAR of FY 2011/12 i.e., 10.53%. There is also an improvement in capital adequacy ratio. The average CAR rose up to 15.26% in FY 2019/20 but slightly decreased and reached to 14.62% in FY 2020/21. By the improving trend of all the risk associated ratio and operating efficiency of the banks, ROA also increased up to 2.11% in the FY 2017/18 and thereafter is in continuously decreasing trend and reached to lowest return i.e., 1.37% in FY 2020/21. Trend of ROE seems to be in fluctuating order as the trend is previously increasing until FY 2012/13 and thereafter the trend starts to decline. This indicates that the bank is becoming less efficient in creating more profits and increasing shareholder value in compared to increase in shareholders' fund.

Table 4.3 represents the yearly statistics of bank-specific variables.

Table 4.3:

Bank-Specific Statistics Yearly from FY 2011/12- FY 2020/21

(Amount in Million Rupees)

	Fiscal Year									
Particular	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
ROA	1.77%	1.99%	1.80%	1.80%	1.97%	1.97%	2.11%	1.99%	1.44%	1.37%
ROE	22.17%	25.58%	20.42%	23.47%	21.05%	16.77%	15.25%	15.49%	12.19%	10.96%
ASSET SIZE	55,505	62,285	72,825	86,854	100,310	114,170	127,587	152,800	180,572	212,147
CAR	10.53%	10.03%	10.46%	11.68%	12.73%	14.72%	14.44%	14.69%	15.26%	14.62%
NPL/TL	3.57%	3.09%	3.08%	2.79%	1.89%	1.91%	1.94%	1.94%	1.91%	1.51%
CIR	55.03%	49.95%	52.34%	49.53%	43.90%	41.28%	43.57%	41.42%	44.89%	44.26%
LLP/TL	4.80%	4.27%	3.83%	3.35%	2.62%	2.49%	2.47%	2.31%	2.72%	2.31%
TL/TA	59.09%	61.78%	60.92%	61.65%	63.73%	67.70%	69.72%	67.42%	65.41%	68.90%

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

4.1.6 Summary Statistics of Banks Specific Variables

The summary statistics of all the bank specific variables are presented in Table 4.4 below.

Table 4.4:

Summary Statistics of Bank-Specific Variables

(Amount in Million Rupees)

Particular	Variable	Observation	Minimum	Maximum	Mean	Standard Deviation
Dependent	ROA	90	0.30%	3.25%	1.82%	0.65%
	ROE	90	-6.05%	69.50%	18.33%	11.03%
Independent	ASSET SIZE	90	25,131.40	309,990.00	116,505.52	62,762.37
	CAR	90	-5.82%	22.99%	12.92%	4.19%
	NPL/TL	90	0.15%	8.98%	2.36%	1.83%
	CI	90	31.58%	98.25%	46.62%	13.12%
	LLP/TL	90	0.53%	12.36%	3.12%	2.05%
	TL/TA	90	39.93%	84.59%	64.63%	8.92%

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

The statistics in the table above represent the summary data of 90 observation of each bank specific variables of nine commercial banks during the sample period of FY 2011/12 to FY 2020/21. During the sample period commercial banks were able to earn 1.82% of ROA where the ROA fluctuates in between 0.30% to 3.25% in selected sample commercial banks. The average ROE of commercial banks is 18.33% during the period. Overhead expenses of commercial banks during the 10 years' sample period remained on an average of 46.62% of operating profit. Similarly, NPL and LLP of commercial banks during 10 years' sample period was 2.36% and 3.12% respectively. The banks were able to provide 64.63% of loan out of their total assets during the sample period of FY 2011/12 to 2020/21.

4.2 Inferential Analysis

Here statistical tool is used to analyze the data using the SPSS program. Here correlation matrix, regression and significant test are performed.

4.2.1 Correlation

Correlation analysis tests the relation between the variables selected in the regression analysis. The correlation matrix shows the expected coefficient signs from the regression. This section has given an introduction to correlation analysis among variables expressing different signs. The relationship was explained by the coefficients between the explanatory and explained variables. The coefficients show the magnitude and direction of the relationships, whether it is strong, weak, positive or negative. The higher the values the stronger the relationship, and the smaller the coefficient is an indicator of a weak relationship. The sign also shows the direction of the relationship. The positive sign shows a positive relationship and the negative shows the opposite.

The table 4.5 presented below is the correlation matrix. It is the output of correlation analysis done with the help of the SPSS software. The table shows the significance of correlation between dependent and independent variables. Correlation matrix below shows the correlation between the variables used in the study. In this matrix, assets size (Ln A), capital adequacy ratio (CAR), non-performing loans to total loan (NPL/TL), loan loss provision to total loan (LLP/TL), cost to income ratio (CI) and total loan to total assets (TL/TA) are independent variables while return on assets (ROA) and return on equity (ROE) are dependent variables.

Table 4.5:

Correlation Matrix of Variables

Variables		ROA	ROE	Ln A	CAR	NPL	LLP	CIR	TL
ROA	Pearson Correlation	1							
	Sig. (2-tailed)								
ROE	Pearson Correlation	0.452**	1						
	Sig. (2-tailed)	0.0001							
Ln A	Pearson Correlation	-0.073	-0.037	1					
	Sig. (2-tailed)	0.492	0.732						
CAR	Pearson Correlation	0.357**	-0.240*	0.204	1				
	Sig. (2-tailed)	0.001	0.023	0.053					
NPL	Pearson Correlation	0.055	0.280**	0.082	-0.274**	1			
	Sig. (2-tailed)	0.610	0.008	0.440	0.009				
LLP	Pearson Correlation	0.055	0.212*	0.006	-0.209*	0.927**	1		
	Sig. (2-tailed)	0.605	0.045	0.955	0.048	0.0001			
CIR	Pearson Correlation	-0.151	0.187	0.081	-0.577**	0.587**	0.599**	1	
	Sig. (2-tailed)	0.156	0.077	0.447	0.0001	0.0001	0.0001		
TL	Pearson Correlation	-0.061	-0.437**	0.095	0.319**	-0.181	-0.163	-0.258*	1
	Sig. (2-tailed)	0.568	0.0001	0.375	0.002	0.088	0.126	0.014	

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

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

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

a. Correlation Results for ROA

ROA is positively correlated with CAR, NPL/TL and LLP/TL. The positive coefficient estimates of the correlation implies that there is direct relationship of ROA with CAR,

NPL/TL and LLP/TL that is as the value of CAR, NPL/TL and LLP/TL increases the value of ROA will also increase. Similarly, ROA is negatively correlated with Ln A, CIR and TL/TA indicates that there is inverse relationship between ROA and these variables. The p-value of CAR is 0.001 which is less than 0.01 so there is significant relationship between CAR and ROA. That means at 99% confidence interval, ROA has significant relationship with CAR. ROA has insignificant relationship with Ln A, NPL/TL, LLP/TL, CIR and TL/TA ratio.

b. Correlation Results for ROE

ROE is positively correlated with NPL/TL, LLP/TL and CIR ratio. The p-value of NPL/TL is 0.008 which is less than 0.01 so there is significant relationship between NPL/TL and ROE at 1% level of significance. Similarly, the p-value of LLP/TL is 0.045 which is less than 0.05 so there is significant relationship between LLP/TL and ROE. Though CI ratio is positively correlated with ROE, it has insignificant effect on ROE. Likewise, ROE is negatively correlated with Ln A, CAR and TL/TA. The p-value of CAR is 0.023 which is less than 0.05. Similarly, p-value of TL/TA is 0.0001 which is less than 0.01. That indicates that there is strong significant relationship of CAR and TL/TA with ROE at 95% and 99% confidence interval respectively even though they are negatively correlated with ROE. Ln A has insignificant relationship with ROE.

CAR is found to be significantly affecting the profitability of commercial banks as measured by ROA. Also, while measured with ROE, CAR is found to be significantly affecting the profitability of commercial banks.

4.2.2 Hypothesis Testing

Being based on the objective, the hypothesis results are interpreted below by incorporating one-way ANOVA test using ownership structure of banks as a factor. The table 4.6 below shows the average mean of the selected commercial banks on the basis of ownership structure. For the research findings, null and alternative hypothesis has been tested as under.

Null hypothesis (H_0): There is no significant difference in the profitability by bank types ($\mu1=\mu2=\mu3$).

Alternative hypothesis (H_1): There is significant difference in the profitability by bank types ($\mu1=\mu2=\mu3$).

Table 4.6:

One-Way ANOVA Test using Ownership Structure as Factor

	Average					
Variables	**Joint Venture**	**Private**	**Public**	**Total**	**F-test**	**Sig.**
ROA	2.105	1.458	1.903	1.822	9.274*	0.0001
ROE	20.108	13.945	20.951	18.334	3.836**	0.025
Ln A	11.499	11.263	11.777	11.513	6.687*	0.002
CAR	13.692	12.610	12.447	12.916	0.777	0.463
CIR	44.095	40.718	55.040	46.618	12.239*	0.0001
NPL	1.147	1.540	4.399	2.362	76.061*	0.0001
LLP	2.007	2.287	5.057	3.117	36.698*	0.0001
TL	61.535	70.497	61.865	64.632	12.177*	0.0001

*Significant at 1% level, **Significant at 5% level

Source: Appendix IV

Average mean on the basis of ownership structure shows that there is significant relationship between bank profitability and bank types. Hence, alternative hypothesis has been accepted. Joint venture banks have higher ROA than private and public banks. Similarly, ROE of joint venture banks is higher than that of private banks and a bit lower than that of public banks. It indicates that bank total assets are well invested to earn the profit and the bank has diversified investment portfolio.

Public banks have higher total assets and operating expenses than joint venture and private banks. Higher total assets indicate that public banks invested more in infrastructure, technology, employee training and fixed assets which also increase the banks' expenses and as a result there is decline in profit of the public banks. F-test shows that total assets and operating expenses are positively related with the profitability at 1% level of significance.

Compared to joint venture and private banks, public banks have lower capital adequacy ratio which results in liquidity problem as compared to joint venture and private sector banks that have maintained CAR at higher level. F-test shows that CAR has insignificant effect on profitability though it is positively related with banks profitability.

Among three banks, non-performing loan (NPL) of public banks are higher which shows that public banks lack the proper management and do not wisely follow the lending and investment policy so there is high risk in loan provision which increases the number and amount of NPL. Loan loss provision (LLP) of public banks is also higher than that of both of the banks. F-test indicates that both NPL and LLP are positively related with bank profitability and significant at 1% level.

Hence, the overall average mean of the joint venture and private banks are better than that of the public banks. Public banks works and activities are more bureaucratic so workplace performance is very slow. But the total mean of all the banks is satisfactory.

4.2.3 Regression Analysis

Regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. Regression analysis is a way of mathematically finding out which of the independent variables does indeed have an impact on dependent variable. It answers the questions which factors matter most? Which can we ignore? How do those factors interact with each other? And most importantly, how certain are we about all of these factors?

Regression results are based on return on assets (ROA) and return on equity (ROE) as measures of bank's profitability. Here in this study multiple regression analysis of ROA and ROE with Ln A, CAR, NPL/TL, LLP/TL, CIR and TL/TA is performed based on linear regression to test the overall significance of the model.

Table 4.7:

Model Summary of ROA and Independent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.428[a]	0.183	0.124	0.6062299

a. Predictors: (Constant), TL/TA, Ln A, LLP/TL, CAR, CIR, NPL/TL

b. ROA: Dependent Variable

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/ 2020/21)

From the table 4.7 the value of adjusted R-squared is 0.124; indicating that about 12.40% of the fluctuations in ROA is explained by the bank specific control variables. The adjusted R-squared in the result is reported as the multiple coefficients of the determination basically adjusted to account for the degree of freedom associated with the sum squares in the regression. Besides, Table 4.7 also shows the model summary of R^2 and adjusted R^2. The value of R^2 is 0.183 and adjusted R^2 is 0.124 which indicates that 12.40% of effect on dependent variable is accounted by six independent variables.

Table 4.8:

ANOVA of ROA and Independent Variables

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.844	6	1.141	3.104	0.009[b]
	Residual	30.504	83	0.368		
	Total	37.348	89			

a. Dependent Variable: ROA

b. Predictors: (Constant), TL/TA, Ln A, LLP/TL, CAR, CIR, NPL/TL

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/1 2020/21)

In the table 4.8 the ANOVA analysis was conducted to determine the significance of the regression model. The p-value of the model was 0.009 which was less than the significance level of the study (i.e., $p<0.05$) so, the null hypothesis was rejected. This means there is a significant relationship between ROA and independent variables. The F-value is 3.104 and the significance value is 0.009 which is less than the level of significance 0.05, so, the regression model is overall significant.

Table 4.9:

Coefficients of ROA and Independent Variables

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.976	1.378		1.434	0.155
	Ln A	-0.024	0.123	-0.022	-0.198	0.844
	CAR	0.070	0.022	0.455	3.272	0.002
1	NPL/TL	0.092	0.100	0.261	0.921	0.360
	LLP/TL	-0.034	0.093	-0.108	-0.368	0.714
	CIR	-0.001	0.008	-0.021	-0.133	0.895
	TL/TA	-0.013	0.008	-0.180	-1.707	0.092

a. Dependent Variable: ROA

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

Bank performance = *f (*Ln A, CAR, NPL/TL, LLP/TL, CIR, TL/TA)

More specifically, the given model has been segmented into the following models:

Model I:

$ROA_{it} = \beta_0 + \beta_1 LnA_{it} + \beta_2 CAR_{it} + \beta_3 (NPL/TLit) + \beta_4 (LLP/TL_{it}) + \beta_5 CIR_{it} + \beta_6 (TL/TA_{it}) + \varepsilon_{it}$

Where:

ROA= Return on Assets

Ln A= Assets Size (Natural Logarithms of Total Assets)

CAR= Capital Adequacy Ratio

NPL/TL = Non-Performing Loan to Total Loan

LLP/TL = Loan Loss Provision to Total Loan

CIR = Cost to Income Ratio

TL/TA = Total Loan to Total Assets

ε = Error Term

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

From the table 4.9 above, we can determine the regression model as follows:

ROA=1.976-0.024Ln A+0.070CAR+0.092NPL/TL-0.034LLP/TL-0.001CIR-0.013TL/TA

The empirical result indicates that CAR is statistically significant at 5% level of significance with the p-value of 0.002. However, Ln A, NPL/TL, LLP/TL, CIR and TL/TA are statistically insignificant at 5% level of significance with p-value of 0.844, 0.360, 0.714, 0.895 and 0.092 respectively.

i. The Relationship Between Ln A and ROA:

The t-statistic value Ln A is -0.198 and p value coefficient of 0.844 (i.e., p>0.05) meaning that Ln A is negatively and insignificantly related with ROA. Ln A is a measure of assets size of the banks and negative coefficient value of -0.024 implies that 1 unit increment in Ln A will result in approximately 0.024 units reduction in profitability measured by ROA while other independent variables remain unchanged.

ii. The Relationship Between CAR and ROA:

The t-statistic value of CAR is 3.272 with p-value of 0.002 (i.e., p<0.05) meaning that CAR has positive and significant relationship with ROA. The coefficient of CAR is 0.070 which indicates that 1 unit increase in CAR leads to increase in ROA by 0.070 unit while other independent variables remain unchanged.

iii. The Relationship Between NPL/TL and ROA:

The t-statistic value of NPL/TL is 0.921 with p-value of 0.360 (i.e., p>0.05) meaning that NPL/TL has positive and insignificant relationship with ROA. NPL/TL is a measure of assets quality as well as credit risk of the banks and positive coefficient of 0.092 indicates that 1 unit decrease in NPL/TL leads to increase in ROA by 0.092 unit while other independent variables remain unchanged.

iv. The Relationship Between LLP/TL and ROA:

The t-statistic value of LLP/TL is -0.368 with p-value of 0.714 (i.e., p>0.05) meaning that LLP/TL has negative and insignificant relationship with ROA. LLP/TL is a measure of credit risk of the banks and negative coefficient value of -0.034 implies that

1 unit increment in LLP/TL will result in approximately 0.034 units reduction in profitability measured by ROA while other independent variables remain the same.

v. The Relationship Between CIR and ROA:

The t-statistic value of CIR is -0.133 with p-value of 0.895 (i.e., p>0.05) meaning that CIR has negative and insignificant relationship with ROA. Cost to income (CIR) ratio is used to measure the operational efficiency and the coefficient of -0.001 indicates that 1 unit increase in CIR leads to decrease in ROA by 0.001 unit while other independent variables remain unchanged.

vi. The Relationship Between TL/TA and ROA:

The t-statistic value of TL/TA is -1.707 with p-value of 0.092 (i.e., p>0.05) meaning that TL/TA has negative and insignificant relationship with ROA. TL/TA is a measure of liquidity management of the banks and the coefficient value of -0.013 indicates that 1 unit increase in TL/TA leads to decrease in profitability by 0.013 units measured by ROA while other independent variables remain the same.

Table 4.10:

Model Summary of ROE and Independent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.503[a]	0.253	0.199	9.8751657

a. Predictors: (Constant), TL/TA, Ln A, LLP/TL, CAR, CIR, NPL/TL

b. ROE: Dependent Variable

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

From the table 4.10 the value of adjusted R-squared is 0.199; indicating that about 19.90% of the fluctuations in ROE is explained by the bank specific control variables. The adjusted R-squared in the result is reported as the multiple coefficients of the determination basically adjusted to account for the degree of freedom associated with the sum squares in the regression. Besides, Table 4.10 also shows the model summary of R^2 and adjusted R^2. The value of R^2 is 0.253 and adjusted R^2 is 0.199 which indicates that 19.90% of effect on dependent variable is accounted by six independent variables.

Table 4.11:

ANOVA of ROE and Independent Variables

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	2739.958	6	456.660	4.683	0.0001[b]
1	Residual	8094.069	83	97.519		
	Total	10834.027	89			

a. Dependent Variable: ROE

b. Predictors: (Constant), TL/TA, Ln A, LLP/TL, CAR, CIR, NPL/TL

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

In the table 4.11 the ANOVA analysis was conducted to determine the significance of the regression model. The p-value of the model was 0.0001 which was less than the significance level of the study (i.e., $p<0.05$) so, the null hypothesis was rejected. This means there is a significant relationship between ROE and independent variables. The F-value is 4.683 and the significance value is 0.000 which is less than the level of significance 0.05, so, the regression model is overall significant.

Table 4.12:

Coefficients of ROE and Independent Variables

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	56.115	22.447		2.500	0.014
	Ln A	-0.271	2.007	-0.014	-0.135	0.893
	CAR	-0.226	0.350	-0.086	-0.644	0.521
1	NPL/TL	2.939	1.636	0.487	1.797	0.076
	LLP/TL	-1.451	1.514	-0.269	-0.958	0.341
	CIR	-0.071	0.128	-0.085	-0.558	0.578
	TL/TA	-0.477	0.125	-0.386	-3.823	0.0001

a. Dependent Variable: ROE

Source: Author's calculation based upon the Annual Reports of Sample Banks (2011/12-2020/21)

More specifically, the given model has been segmented into the following models:

Model 2:

$ROE_{it} = \beta_0 + \beta_1 LnA_{it} + \beta_2 CAR_{it} + \beta_3 (NPL/TLit) + \beta_4 (LLP/TL_{it}) + \beta_5 CIR_{it} + \beta_6 (TL/TA_{it}) + \varepsilon_{it}$

Where:

ROE= Return on Equity

Ln A= Assets Size (Natural Logarithms of Total Assets)

CAR= Capital Adequacy Ratio

NPL/TL = Non-Performing Loan to Total Loan

LLP/TL = Loan Loss Provision to Total Loan

CIR = Cost to Income Ratio

TL/TA = Total Loan to Total Assets

ε = Error Term

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

From the table 4.12 above, we can determine the regression model as follows:

ROE =56.115-0.271Ln A-0.226CAR+2.939NPL/TL-1.451LLP/TL-0.071CIR-0.477TL/TA

The empirical result indicates that TL/TA is statistically significant at 5% level of significance with the p-value of 0.000. However, Ln A, CAR, NPL/TL, LLP/TL and CIR are statistically insignificant at 5% level of significance with p-value of 0.893, 0.521, 0.076, 0.341 and 0.578 respectively.

i. The Relationship Between Ln A and ROE:

The t-statistic value Ln A is -0.135 with p value of 0.893 (i.e., p>0.05) meaning that Ln A has negative and insignificant relationship with ROE. The negative coefficient value of -0.271 implies that 1 unit increment in Ln A will result in approximately 0.271 units reduction in profitability measured by ROE while other independent variables remain unchanged.

ii. The Relationship Between CAR and ROE:

The t-statistic value of CAR is -0.644 with p-value of 0.521 (i.e., p>0.05) meaning that CAR has negative and insignificant relationship with ROE. The coefficient of CAR is

-0.226 which indicates that 1 unit increase in CAR leads to decrease in ROE by 0.226 unit while other independent variables remain unchanged.

iii. The Relationship Between NPL/TL and ROE:

The t-statistic value of NPL/TL is 1.797 with p-value of 0.076 (i.e., p>0.05) meaning that NPL/TL has positive and insignificant relationship with ROE. The positive coefficient value of 2.939 implies that 1 unit decrease in NPL/TL will result in approximately 2.939 units increment in profitability measured by ROE while other independent variables remain unchanged.

iv. The Relationship Between LLP/TL and ROE:

The t-statistic value of LLP/TL is -0.958 with p-value of 0.341 (i.e., p>0.05) meaning that LLP/TL has negative and insignificant relationship with ROE. The negative coefficient value of -1.451 implies that 1 unit increment in LLP/TL will result in approximately 1.451 units decrease in profitability measured by ROE while other independent variables remain the same.

v. The Relationship Between CIR and ROE:

The t-statistic value of CIR is -0.558 with p-value of 0.578 (i.e., p>0.05) meaning that CIR has negative and insignificant relationship with ROE. The coefficient of CIR is -0.071 which indicates that 1 unit increase in CIR leads to decrease in ROE by 0.071 unit while other independent variables remain unchanged.

vi. The Relationship Between TL/TA and ROE:

The t-statistic value of TL/TA is -3.823 with p-value of 0.000 (i.e., p<0.05) meaning that TL/TA has negative and significant relationship with ROE. The negative coefficient of TL/TA is -0.477 which indicates that 1 unit increase in TL/TA leads to decrease in ROE by 0.470 unit while other independent variables remain unchanged.

Being based on the objective, the hypothesis results are summarized below on the basis of Simple Linear Regression analysis above:

Table 4.13:

Hypothesis Results on Regression Analysis (ROA)

	Statement of Null Hypothesis	P value	Decision
H_{01}	There is no significant relationship between Ln A and ROA of commercial banks.	0.844	Accepted
H_{02}	There is no significant relationship between CAR and ROA of commercial banks.	0.002	Rejected
H_{03}	There is no significant relationship between NPL/TL and ROA of commercial banks.	0.360	Accepted
H_{04}	There is no significant relationship between LLP/TL and ROA of commercial banks.	0.714	Accepted
H_{05}	There is no significant relationship between CIR and ROA of commercial banks.	0.895	Accepted
H_{06}	There is no significant relationship between TL/TA and ROA of commercial banks.	0.092	Accepted

Table 4.14:

Hypothesis Results on Regression Analysis (ROE)

	Statement of Null Hypothesis	P value	Decision
H_{01}	There is no significant relationship between Ln A and ROE of commercial banks.	0.893	Accepted
H_{02}	There is no significant relationship between CAR and ROE of commercial banks.	0.521	Accepted
H_{03}	There is no significant relationship between NPL/TL and ROE of commercial banks.	0.076	Accepted
H_{04}	There is no significant relationship between LLP/TL and ROE of commercial banks.	0.341	Accepted
H_{05}	There is no significant relationship between CIR and ROE of commercial banks.	0.578	Accepted
H_{06}	There is no significant relationship between TL/TA and ROE of commercial banks.	0.000	Rejected

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is the final portion of the thesis. This research work investigates the profitability determinants of commercial banks of Nepal. The study in this context was mainly focused on the performance of the banks in terms of profitability. Additionally, the major conclusions are discussed in separate section of this chapter which is followed by some implications and the recommendations regarding the analysis of profitability determinants of commercial banks in Nepal.

5.1 Summary

The growth of banking industry is one of the most important factors of economic development of a country. Since economic liberalization, the banking sector is growing rapidly and countries having efficient banking system are able to manage the financial distress and contribute to the overall development of the economy. Banks play the crucial role in the economy of the country. Integrated and speedy development of country is possible only when competitive banking service reach all nooks and corners of the country. Banking sector, being the backbone of economy has to be regulated and monitored properly. The failure of bank adversely impacts on public confidence. A regulation on the banking sector to monitor its performance is necessary because the performance of banks is associated with the interest of general public.

Commercial banks are mechanisms of mobilizing funds in returnable resources. They offer financial support to all types of business through providing various types of loans and other financial services. Commercial banks aid the economic development of the nation. Commercial banks pool together the savings of the community and use the funds productively through prudent investments. The profitability of commercial bank plays an important role in any economy and Nepal is no exception. In recent years, several financial institutions collapsed because of profitability problems. The banking has gone quite volatile and less secure. Hence, the studies devoted to the profitability

determinants of commercial banks in Nepal assumes a greater significance. This study aims at determining the factors affecting profitability of Nepalese commercial banks. The financial data used for the study was obtained from secondary sources. They are gathered from the annual reports of selected commercial banks in Nepal for the period of 10 years from FY 2011/12 to FY 2020/21. This study has employed descriptive and analytical research design as it deals with the identification and analysis of profitability determinants of commercial banks in Nepal. The relationship between dependent and independent variables are tested and analyzed using simple and multiple regression analysis. More specifically, return on assets (ROA) and return on equity (ROE) are considered as dependent variables and asset size (Ln A), capital adequacy ratio (CAR), non-performing loan to total loan (NPL/TL), loan loss provision to total loan (LLP/TL), cost to income ratio (CIR) and total loan to total assets (TL/TA) are considered as independent variables i.e., bank specific controlled variables.

The descriptive analysis shows that, ROA and ROE are the major indicators of bank profitability. Based on the analysis of data, the major findings are summarized as under:

i. In the initial years ROA of banks is increasing until FY 2012/13 and then it is decreasing in FY 2013/14. After that it remains constant at FY 2014/15 and then it is in increasing trend until FY 2017/18, achieved the highest average ROA and thereafter it again started to decline. The highest average ROA in FY 2017/18 indicates that the bank efficiently utilized its assets and earned more profit from its assets. The trendline describes that ROA of sampled commercial banks is in fluctuating trend during the sample period. The time period explains around 17.53% of the variation in the dependent variable (i.e., ROA) as indicated by R^2 value of 0.1753.
ii. During the sample period average ROE is in fluctuating trend. Average ROE is higher in initial FY 2012/13 and fluctuates till FY 2015/16. After that average ROE is in decreasing trend and it reaches to 10.96% in FY 2020/21. It means that banks are unable to maximize the value of their shareholder's compared to corresponding previous years. The trendline describes that ROE of sampled

commercial banks is downward sloping during the sample period. The time period explains around 85.82% of the variation in the dependent variable (i.e., ROE) as indicated by R^2 value of 0.8582.

iii. The growth rate of asset size of the bank is in up and down trend during the sample period. Growth rate is higher in FY 2018/19 i.e., 19.76% and lower in FY 2017/18 i.e., 11.75%. The linear trendline describes that growth rate of assets size of sampled commercial banks is upward sloping during the sample period. The time period explains around 11.64% of the variation in the dependent variable as indicated by R^2 value of 0.1164.

iv. During the sample period, growth rate of capital adequacy ratio is positive except for FY 2012/13, FY 2017/18 and FY 2020/21 i.e., -4.75%, -1.92% and -4.17% respectively. Growth rate of CAR is higher in FY 2016/17 i.e., 15.67%. The linear trendline describes that growth rate of capital adequacy ratio of sampled commercial banks is downward sloping during the sample period. The time period explains around 3.62% of the variation in the dependent variable as indicated by R^2 value of 0.0362.

v. In most of the fiscal years during the sample period growth rate of NPL is negative which indicates that banks are able to decrease its NPL which is beneficial to the bank. The NPL means borrower are not making interest payment or repaying any principal within the specified time period. But in the FY 2016/17 and FY 2017/18, growth rate of NPL/TL is positive and also in increasing trend. However, the ratio again starts to decrease after FY 2017/18. The trendline describes that growth rate of non-performing loan of sampled commercial banks is slightly upward sloping during the sample period. The time period explains around 0.56% of the variation in the dependent variable (i.e., NPL/TL) as indicated by R^2 value of 0.0056.

vi. During the sample period, growth rate of cost to income is negative except in the FY 2013/14, FY 2017/18 and FY 2019/20. The figure decreasing till FY 2020/21 followed by positive growth in FY 2013/14, FY 2017/18 and FY 2019/20. Banks are able to decrease CI ratio by maximum of 11.37% in FY 2015/16. The trendline describes that growth rate of cost to income of sampled

commercial banks is upward sloping during the sample period. The time period explains about 15.44% of the variation in the dependent variable (i.e., CI ratio) as indicated by R^2 value of 0.1544.

vii. During the sample period, except FY 2019/20 banks has negative growth in LLP/TL which indicates that banks has reduced their loan loss provision to total loan ratio which shows better performance of the bank. The trendline of growth rate of loan loss provision of sampled commercial banks is upward sloping during the sample period and the time period explains around 16.80% of the variation in the dependent variable (i.e., LLP/TL) as indicated by R^2 value of 0.168.

viii. During the sample period liquidity was decreasing in initial FY 2013/14 and then it increased in FY 2014/15 until 2017/18. But again, it decreased in recent FY 2018/19 and FY 2019/20. After that it was increasing in FY 2020/21. The trendline describes that growth rate of total loan to total assets of sampled commercial banks is downward sloping during the sample period. The time period explains around 19.56% of the variation in the dependent variable (i.e., TL/TA) as indicated by R2 value of 0.1956.

ix. On average during the sample period ROA of public bank shows that ADBL has highest ROA i.e., 2.42% which is highest among all the sample banks followed by joint venture bank (NABIL) whose ROA is 2.38%. KUMARI has the lowest ROA during the sample period i.e. 1.13%. Also, ROE of KUMARI is the lowest among all the sample banks i.e., 10.88%. The RBB has the highest ROE during the sample period that is 33.62%. The highest assets size during the sample period is RBB's total assets and lowest is LAXMI's total assets.

x. Except RBB and NBL all other sampled commercial banks have achieved the minimum CAR as prescribed by NRB as it should be minimum 11% of total capital fund from year 2015/16 according to Capital Adequacy Framework 2015. Among the sample banks, public banks i.e., RBB, ADBL and NBL show the highest NPL of 4.90%, 4.61% and 3.69% respectively. LLP of those banks are also highest among the sample banks. But SCBL has lowest NPL that is 0.46% and its LLP is highest in comparison with NPL i.e. 1.39%. The highest

CI ratio is the indicative of less operating efficiency which is found on NBL and NABIL that is 59.09% and 54.55%. SCBL has lowest CI ratio.

xi. Highest TL/TA may be indicative of better bank performance. KUMARI has highest TL/TA that is 74.29% and able to enjoy with ROA of 1.13%. SCBL has the lowest TL/TA i.e., 51.38% and able to decrease the default rate i.e., NPL/TL is 0.46%. Overhead costs are highest for public banks. Even though public banks have higher overhead costs, their ROA and ROE is significantly higher than private banks but lower than that of joint venture banks. Also, public bank compromises with low capital adequacy ratio compared to private and joint venture banks. NPL and LLP of public banks are higher than those of private and joint venture banks that increase the risk to the bank and more provisions are made to overcome the risk of default.

xii. As per the yearly statistics of bank-specific variables, the credit risk indicator of the banks is continuously improving year by year as NPL in FY 2020/21 is 1.51% as compared to NPL during the FY 2011/12 i.e., 3.57%. LLP in FY 2020/21 is 2.31% which is much lower as compared to the LLP in FY 2011/12 i.e., 4.80%. Similarly, the assets quality of banks is continuously improving year by year as TL/TA in the FY 2020/21 is 68.90% as compared to TL/TA of 59.09% in FY 2011/12. The size of the banks is continuously increasing annually. Operating efficiency of banks is also improving but in fluctuating trend. There is also an improvement in capital adequacy ratio. ROA of banks also increased up to 2.11% in the FY 2017/18 and thereafter is in continuously decreasing trend and reached to lowest return i.e., 1.37% in FY 2020/21. Trend of ROE seems to be in fluctuating order as the trend is previously increasing until FY 2012/13 and thereafter the trend started to decline.

xiii. The descriptive statistics of bank specific variables of each of the nine commercial banks during the sample period shows commercial banks were able to earn 1.82% of ROA where the ROA fluctuates in between 0.30% to 3.25% in selected sample commercial banks. The average ROE of commercial banks is 18.33% during the period. Overhead expenses of commercial banks during the 10 years' sample period remained on an average of 46.62% of operating

profit. Similarly, NPL and LLP of commercial banks during 10 years' sample period was 2.36% and 3.12% respectively. The banks were able to provide 64.63% of loan out of their total assets during the sample period of FY 2011/12 to 2020/21.

xiv. Correlation results for ROA reveals that ROA is positively correlated with CAR, NPL/TL and LLP/TL ratio whereas it is negatively correlated with TA, CIR and TL/TA ratio. The p-value of CAR is 0.001 which is less than 0.01 indicates that there is significant relationship between CAR and ROA. ROA has insignificant relationship with TA, NPL/TL, LLP/TL, CIR and TL/TA ratio

xv. Correlation results for ROE reveals that ROE has positive and significant relationship with NPL/TL and LLP/TL. Though CIR is positively correlated with ROE, it has insignificant effect on ROE. Similarly, ROE is negatively correlated but have strong significant relationship with CAR and TL/TA. TA has insignificant relationship with ROE.

xvi. Under the regression analysis, ROA and ROE has been taken to examine the overall banks' profitability. Model I explained the effect of ROA on bank profitability and model II explained the effect of ROE on bank profitability.

xvii. Regression results for ROA indicates that CAR is statistically significant at 5% level of significance with the p-value of 0.002. The coefficient of CAR is 0.070 which indicates that 1 unit increase in CAR increases the ROA by 0.070 unit while other variables held constant. However, Ln A, NPL/TL, LLP/TL, CIR and TL/TA are statistically insignificant at 5% level of significance with p-value of 0.844, 0.360, 0.714, 0.895 and 0.092 respectively.

xviii. Regression results for ROE indicates that TL/TA is statistically significant at 5% level of significance with the p-value of 0.000. The coefficient of TL/TA is -0.477 which indicates that 1 unit increase in TL/TA decreases ROE by 0.470 unit while other variables remain same. However, Ln A, CAR, NPL/TL, LLP/TL and CIR are statistically insignificant at 5% level of significance with p-value of 0.893, 0.521, 0.076, 0.341 and 0.578 respectively.

xix. As per the regression results and findings, both of the regression models i.e model I and model II are overall significant at 5% level of significance as their

significance value are less 0.05. Model I show that CAR and NPL/TL are positively related with ROA whereas other variables are negatively related with ROA. Similarly, model II shows that NPL/TL is positively related with ROE whereas all other variables are negatively related with ROE.

5.2 Conclusion

The present research and analysis have revealed many interesting issues with respect to the latest profitability condition of nine commercial banks which are operating and standing in the middle to represent all the commercial banks operated in a nation. The study concludes that the profitability can be described in terms of capital, assets quality, assets size, operating efficiency, credit risk and liquidity position of the commercial banks. The analysis of data up to ten years till FY 2020/21 for nine sample commercial banks has shown the overwhelming results.

It can be concluded from this entire report; ROE and ROA are the major indicators of bank's profitability. The linear trend describes that ROA and ROE are downward sloping during the sample period. The trendline shows the growth rate of all the bank-specific independent variables except capital adequacy and total loan to total assets ratio are upward sloping showing the growth rate is in increasing trend. Joint venture banks have higher ROA whereas public banks have higher ROE. Among three banks, joint venture banks have higher profitability. Public banks have higher overhead but their ROE is significantly higher than joint venture and private banks but they compromise with low assets quality and also low capital adequacy ratio. Private and joint venture banks have better assets quality as well as they are able to meet the CAR norms during the sample period. ROA of private banks are lower than public and joint venture banks which reveal that income earned on each unit of shareholders capital by private banks are low.

The study also uses some inferential tools and econometric models for better analysis of data. The inferential investigation of the relation between bank profitability and bank performance in Nepalese commercial bank provides several important results. In order to understand how commercial bank's profitability relates to bank specific factors

different models has been adopted. Model I explained the effect of ROA on bank profitability. Likewise, model II explained the effect of ROE on bank profitability. Asset size (Ln A) has negative relationship with ROA and ROE. Operating efficiency (CIR) has also negative impact on bank profitability. It shows negative association with both ROA and ROE. Capital requirement (CAR) has negative and insignificant relationship with ROE whereas it has positive and significant relationship with ROA. TL/TA (liquidity risk) has negative association with both ROA and ROE but it is significantly related with ROE. NPL/TL (Asset quality) has positive and insignificant relationship with ROA and ROE. LLP/TL (credit risk) shows negative relationship with ROA and with ROE.

This indicates that capital adequacy ratio, non-performing loan, loan loss provision, assets size, operating efficiency (CIR) and liquidity ratio are the most significant bank-specific determinants that influence Nepalese commercial banks' profitability as measured by ROA and ROE.

The present study sought to fill a demanding gap in the existing body of literature of banks on specific determinants of Nepalese commercial banks' profitability by providing new empirical evidence. The outcomes of the present study have significant contributions to the existing stock of literature by comprehensively clarifying and critically analyzing the current state of Nepalese commercial banks' profitability. More specifically, this study provides evidence of the factors that may affect Nepalese banks' profitability during a period ranging from 2011/12 to 2020/21.

The results also indicate that the study is very policy oriented and long run adjustment is required in the determinants to enhance the profitability of bank. The study further demonstrates that banks have very much dependence on the non-performing loans, capital and liquidity to improve their profitability. Commercial bank that is keen on making high profits should concentrate on other factors also like inflation, GDP, money supply etc. which affect the economy of the country. The harmonization among the management, policy makers, and related stakeholders can progress the banks' effective

functioning and profitability which make sure sustainable development of our financial system and make best use of investor wealth.

5.3 Recommendations and Suggestions:

The study has examined and analyzed the profitability determinants of commercial banks of Nepal. There remains enough ground of scope in terms of data, models and methodology for studies in days to come. Based on the findings of the study, the following recommendations and suggestions have been forwarded:

5.3.1 Recommendations and Suggestions to the Bankers, Regulators and Policy Makers:

The study will help the bankers, regulators and policy makers for better performance and profitability of the banking industry. They can concentrate on the other bank's performance related factors like: cash reserve ratio, debt equity ratio, bank age etc.; macro-economic factors like: GDP growth rate, interest rate, inflation rate, tax rate etc., market conditions, political conditions, attractiveness of the industry and other non-financial information for making best policy and better results.

5.3.2 Recommendations and Suggestions for the Future Studies:

This study will contribute more knowledge to the coming researchers who are interested to study on the similar topic in future. The further study can make much more comprehensive by using primary source such as survey, questionnaire, special group discussion etc. Other financial and non- financial institutions like development bank, finance companies, micro-finance, cooperative, insurance companies, etc. which are listed in NEPSE can also be sampled for the wider analysis. Similarly, non-linear statistical tools, bidirectional causality tools and other more robust econometric models can also be used for the study in future.

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Appendix I

List of Banks and Financial Institutions

As of Mid-April, 2022 (Licensed by NRB)

Class: "A" (Commercial Banks) **(Rs. in Crore)**

S.N.	Name	Operation Date (A.D.)	Head Office	Paid up Capital	Working Area
1	Nepal Bank Ltd.	1937-11-15	Dharmapath, Kathmandu	1440.59	National Level
2	Agriculture Development Bank Ltd.	1968-01-21	Ramshahpath, Kathmandu	1862.06	National Level
3	Nabil Bank Ltd.	2021/07/11*	Beena Marg, Kathmandu	1849.62	National Level
4	Nepal Investment Bank Ltd.	1986-03-09	Durbarmarg, Kathmandu	1830.75	National Level
5	Standard Chartered Bank Nepal Ltd.	1987-02-28	Nayabaneshwor, Kathmandu	942.95	National Level
6	Himalayan Bank Ltd.	1993-01-18	Kamaladi, Kathmandu	1296.87	National Level
7	Nepal SBI Bank Ltd.	1993-07-07	Kesharmahal, Kathmandu	982.59	National Level
8	Nepal Bangaladesh Bank Ltd.	1994-06-06	Kamaladi, Kathmandu	1008.54	National Level
9	Everest Bank Ltd.	1994-10-18	Lazimpat , Kathmandu	946.73	National Level
10	Kumari Bank Ltd.	2001-04-03	Durbarmarg, Kathmandu	1471.12	National Level
11	Laxmi Bank Ltd.	2002-04-03	Hattisar, Kathmandu	1155.13	National Level
12	Citizens Bank International Ltd.	2021-07-10*	Narayanhitipath, Kathmandu	1420.10	National Level
13	Prime Commercial Bank Ltd.	2007/09/24	Kamalpokhari, Kathmandu	1865.63	National Level
14	Sunrise Bank Ltd.	2007/10/12	Gairidhara, Kathmandu	1011.89	National Level
15	Century Commercial Bank Ltd.	2011/03/10	Putalisadak , Kathmandu	955.39	National Level
16	Sanima Bank Ltd.	2012/02/15	Nagpokhari, Kathmandu	1132.74	National Level
17	Machhapuchhre Bank Ltd.	2012/07/09*	Lazimpat , Kathmandu	1025.72	National Level
18	NIC Asia Bank Ltd.	2013/06/30*	Thapathali, Kathmandu	1156.40	National Level
19	Global IME Bank Ltd.	2021-04-21*	Kamaladi, Kathmandu	2379.58	National Level
20	NMB Bank Ltd.	2019/09/28*	Babarmahal, Kathmandu	1836.67	National Level
21	Prabhu Bank Ltd.	2016/2/12*	Babarmahal, Kathmandu	1270.87	National Level
22	Siddhartha Bank Ltd.	2016/7/21*	Hattisar, Kathmandu	1252.44	National Level
23	Bank of Kathmandu Ltd.	2016/7/14*	Kamalpokhari, Kathmandu	1062.40	National Level
24	Civil Bank Ltd.	2016/10/17*	Kamaladi, Kathmandu	907.58	National Level
25	Nepal Credit and Commerce Bank Ltd.	2017/01/01*	Bagbazar, Kathmandu	1113.97	National Level
26	Rastriya Banijya Bank Ltd.	2018/05/02*	Singhadurbarplaza, Kathmandu	1194.04	National Level
27	Mega Bank Nepal Ltd.	2018/05/13*	Kamaladi, Kathmandu	1612.05	National Level

Source: NRB, Banking and Financial Statistics, Mid-April 2022.

*Joint operation date after merger.

Paid-up capital based on the financial statement of Mid-April, 2022.

Appendix II

Data of Sample Commercial Banks

Bank	Years	ROA	ROE	TA	CAR	NPL/TL	CI	LLP/TL	TL/TA
NABIL	2011/12	2.80	30.25	63,193.00	11.01	2.33	57.16	3.03	65.84
	2012/13	3.25	32.78	73,241.00	11.59	2.13	48.60	2.75	63.31
	2013/14	2.65	27.97	87,275.00	11.18	2.23	44.95	2.76	62.67
	2014/15	2.06	22.73	115,986.00	11.57	1.82	51.35	2.53	56.47
	2015/16	2.32	25.61	127,300.00	11.73	1.14	42.46	2.13	59.78
	2016/17	2.69	22.41	144,017.86	12.90	0.80	47.16	1.75	64.21
	2017/18	2.61	20.94	160,978.07	13.00	0.55	56.35	1.51	70.58
	2018/19	2.11	17.76	201,138.82	12.50	0.74	63.20	1.64	66.40
	2019/20	1.58	13.82	237,680.03	13.07	0.98	68.13	1.98	64.38
	2020/21	1.71	15.19	291,066.22	12.77	0.84	66.17	1.97	70.61
HBL	2011/12	1.76	20.70	54,364.00	11.02	2.09	46.31	2.87	64.32
	2012/13	1.54	17.81	61,113.00	11.55	2.89	43.54	3.36	65.00
	2013/14	1.30	15.77	73,589.00	11.23	1.96	44.86	2.49	61.59
	2014/15	1.34	15.98	84,753.00	11.14	3.22	45.25	3.52	65.40
	2015/16	1.94	24.53	101,218.00	10.84	1.23	36.03	1.96	68.27
	2016/17	2.19	21.58	108,063.00	12.15	0.85	40.31	1.60	71.85
	2017/18	1.67	14.17	116,462.00	12.46	1.40	47.77	2.22	74.57
	2018/19	2.21	18.34	133,151.00	12.60	1.12	37.18	2.10	73.76
	2019/20	1.79	15.40	155,885.00	14.89	1.01	41.24	2.20	68.83
	2020/21	1.68	14.89	178,491.00	13.89	0.48	37.79	1.89	74.43
SCB	2011/12	2.80	28.36	41,677.05	13.93	0.78	34.25	1.27	47.58
	2012/13	2.67	26.38	45,631.10	12.54	0.77	35.23	1.34	50.71
	2013/14	2.51	26.27	53,324.10	12.27	0.48	35.71	1.34	49.37
	2014/15	1.99	21.69	65,059.04	13.10	0.34	36.76	1.32	39.93
	2015/16	1.98	17.18	65,185.73	16.38	0.32	38.29	1.24	48.63
	2016/17	1.84	11.98	78,356.01	21.08	0.19	36.96	1.17	50.70
	2017/18	2.61	18.66	84,031.56	22.99	0.18	33.93	1.16	55.56
	2018/19	2.61	19.49	93,264.18	19.69	0.15	31.58	1.17	59.65
	2019/20	1.71	15.15	116,438.27	18.51	0.44	33.91	1.87	48.98
	2020/21	1.22	9.44	114,738.76	17.17	0.96	40.42	2.05	62.67
KBL	2011/12	1.10	11.61	25,131.40	13.76	1.12	39.69	2.69	72.03
	2012/13	1.03	10.96	28,222.57	12.20	2.21	35.64	3.73	71.29
	2013/14	1.10	11.53	31,020.60	12.17	3.19	39.61	3.99	73.53
	2014/15	1.06	11.79	37,374.51	11.81	2.49	35.81	3.05	72.43
	2015/16	1.69	17.75	42,416.51	11.69	1.15	38.38	2.08	70.99
	2016/17	1.08	8.18	60,993.26	14.50	1.86	35.83	2.45	74.10
	2017/18	1.26	11.68	82,723.55	13.36	1.05	46.32	1.82	75.84
	2018/19	1.17	11.41	105,311.48	11.75	1.01	45.32	1.79	72.72
	2019/20	0.76	7.18	145,971.94	15.35	1.39	47.59	2.14	84.59
	2020/21	1.04	6.71	189,782.82	13.71	0.96	43.58	2.18	75.36
LAXMI	2011/12	1.48	15.22	25,916.91	11.02	0.62	38.96	1.32	64.43
	2012/13	1.54	16.89	29,807.67	12.23	1.51	36.07	2.02	67.43
	2013/14	1.38	15.35	34,983.50	11.91	1.15	41.95	1.61	66.02
	2014/15	0.94	10.57	45,580.21	10.81	1.30	42.64	1.86	69.24
	2015/16	1.28	12.89	55,194.30	11.15	0.80	37.92	1.81	72.64
	2016/17	1.44	11.69	71,406.16	13.58	0.93	41.30	1.54	73.86
	2017/18	1.43	10.85	84,836.28	12.43	1.29	39.46	1.52	73.08
	2018/19	1.55	12.47	106,995.72	11.83	1.11	43.80	1.11	71.55

Bank	Years	ROA	ROE	TA	CAR	NPL/TL	CI	LLP/TL	TL/TA
LAXMI	2019/20	1.20	10.10	128,898.57	13.02	1.04	45.73	0.61	69.86
	2020/21	1.12	9.33	152,240.86	12.15	0.75	47.26	0.53	71.26
NIBL	2011/12	1.60	20.10	65,756.00	11.10	3.32	45.07	2.96	65.25
	2012/13	2.60	31.70	73,152.00	11.49	1.91	41.76	2.73	65.21
	2013/14	2.30	27.60	86,173.00	11.27	1.77	33.79	2.69	62.04
	2014/15	1.90	24.80	104,345.00	11.90	1.25	42.07	2.17	64.87
	2015/16	1.97	15.66	129,780.00	14.92	0.68	34.48	1.81	65.85
	2016/17	2.06	16.65	150,810.00	13.02	0.83	38.61	1.93	70.74
	2017/18	2.13	14.71	171,890.00	12.66	1.36	46.31	2.26	70.29
	2018/19	1.79	13.00	185,840.00	13.26	2.78	38.78	3.40	68.41
	2019/20	1.19	8.92	203,020.00	13.54	2.91	42.18	4.58	68.96
	2020/21	1.56	11.04	227,930.00	14.71	2.46	35.63	4.24	71.03
RBB	2011/12	1.23	65.34	93,905.00	9.77	7.27	73.52	9.07	43.08
	2012/13	1.26	55.04	101,523.50	2.94	5.32	75.32	7.02	48.31
	2013/14	1.47	30.66	122,557.90	4.62	6.38	63.82	5.85	49.65
	2014/15	3.22	69.50	139,560.80	10.16	5.35	59.42	4.95	54.34
	2015/16	1.42	20.16	166,430.00	10.46	4.25	57.76	4.29	51.35
	2016/17	1.50	22.00	173,540.00	10.39	3.77	44.27	3.80	61.33
	2017/18	2.18	19.19	197,330.00	11.46	4.75	38.39	4.76	61.25
	2018/19	2.23	23.40	226,410.00	13.39	4.59	36.82	3.07	65.42
	2019/20	1.64	18.98	266,770.00	12.64	4.08	40.94	4.08	58.67
	2020/21	1.10	11.93	309,990.00	13.46	3.23	43.87	2.00	63.22
ADBL	2011/12	2.90	13.97	68,646.34	19.00	8.98	62.04	12.36	65.54
	2012/13	2.97	16.10	77,097.35	16.34	5.85	55.02	9.53	71.23
	2013/14	1.76	10.09	88,519.68	14.93	5.46	73.77	8.46	70.58
	2014/15	3.12	21.66	100,812.32	17.16	5.35	54.58	6.26	71.66
	2015/16	2.32	13.60	111,786.10	17.18	4.36	55.87	4.71	74.62
	2016/17	2.15	12.60	128,290.19	20.41	4.60	45.50	4.62	76.16
	2017/18	2.71	13.01	135,419.61	20.33	3.50	48.28	3.81	76.79
	2018/19	2.77	14.71	151,575.00	20.37	3.29	42.17	3.32	73.07
	2019/20	1.86	12.39	179,320.22	19.29	2.84	43.99	3.43	68.58
	2020/21	1.59	11.20	222,440.35	16.94	1.88	44.99	2.88	67.75
NBL	2011/12	0.30	(6.05)	60,952.96	(5.82)	5.58	98.25	7.60	43.80
	2012/13	1.07	22.55	70,776.98	(0.59)	5.24	78.37	5.92	53.48
	2013/14	1.74	18.54	77,980.53	4.55	5.12	92.64	5.30	52.86
	2014/15	0.55	12.49	88,211.09	7.49	3.98	77.86	4.53	60.52
	2015/16	2.79	42.08	103,479.53	10.20	3.11	53.89	3.58	61.39
	2016/17	2.78	23.81	112,057.14	14.47	3.32	41.55	3.53	66.37
	2017/18	2.41	14.03	114,614.86	11.27	3.37	35.36	3.20	69.48
	2018/19	1.51	8.87	171,515.64	16.80	2.64	33.95	3.16	55.81
	2019/20	1.22	7.77	191,162.82	17.01	2.47	40.35	3.58	55.88
	2020/21	1.33	8.91	222,645.48	16.80	2.05	38.67	3.04	63.76
Sum (∑)		163.99	1,650.10	10,485,497.03	1,162.47	212.60	4,195.61	280.53	5,816.88
Count (n)		90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
Minimum		0.30	(6.05)	25,131.40	(5.82)	0.15	31.58	0.53	39.93
Maximum		3.25	69.50	309,990.00	22.99	8.98	98.25	12.36	84.59
Mean		1.82	18.33	116,505.52	12.92	2.36	46.62	3.12	64.63
Median		1.71	15.53	104,828.24	12.57	1.87	42.55	2.61	65.84
Standard Deviation		0.65	11.03	62,762.37	4.19	1.83	13.12	2.05	8.92

Source: Annual Reports of Sample Commercial Banks

Appendix III

Average Return on Assets

	Year									
Particular	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Average Return on Assets	**1.77%**	**1.99%**	**1.80%**	**1.80%**	**1.97%**	**1.97%**	**2.11%**	**1.99%**	**1.44%**	**1.37%**

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Average Return on Equity

	Year									
Particular	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Average Return on Equity	**22.17%**	**25.58%**	**20.42%**	**23.47%**	**21.05%**	**16.77%**	**15.25%**	**15.49%**	**12.19%**	**10.96%**

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Asset size

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	12.22%	16.92%	19.26%	15.49%	13.82%	11.75%	19.76%	18.18%	17.49%

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Capital Adequacy Ratio

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	-4.75%	4.25%	11.70%	8.95%	15.67%	-1.92%	1.72%	3.88%	-4.17%

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Non-Performing Loan

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	-13.28%	-0.32%	-9.52%	-32.11%	0.65%	1.75%	-0.11%	-1.55%	-20.69%

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Cost to Income

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	**-9.23%**	**4.79%**	**-5.38%**	**-11.37%**	**-5.97%**	**5.56%**	**-4.94%**	**8.38%**	**-1.40%**

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Loan Loss Provision

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	**-11.07%**	**-10.05%**	**-12.50%**	**-21.75%**	**-5.20%**	**-0.66%**	**-6.68%**	**17.95%**	**-15.44%**

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Growth Rate of Total Loan to Total Assets

	Year								
Particular	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Growth Rate	**4.54%**	**-1.38%**	**1.20%**	**3.36%**	**6.24%**	**2.98%**	**-3.29%**	**-2.98%**	**5.33%**

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

Appendix IV

Hypothesis Testing

Descriptive Statistics

Particulars		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
ROA	Joint	30	2.105	0.521	0.095	1.910	2.299	1.220	3.250
	Private	30	1.458	0.439	0.080	1.295	1.622	0.760	2.600
	Public	30	1.903	0.773	0.141	1.615	2.192	0.300	3.220
	Total	90	1.822	0.648	0.068	1.686	1.958	0.300	3.250
ROE	Joint	30	20.108	5.730	1.046	17.968	22.247	9.440	32.780
	Private	30	13.945	5.762	1.052	11.793	16.096	6.710	31.700
	Public	30	20.951	16.651	3.040	14.733	27.169	-6.050	69.500
	Total	90	18.334	11.033	1.163	16.024	20.645	-6.050	69.500
CAR	Joint	30	13.692	3.175	0.580	12.506	14.877	10.840	22.990
	Private	30	12.610	1.236	0.226	12.149	13.071	10.810	15.350
	Public	30	12.447	6.431	1.174	10.046	14.849	-5.820	20.410
	Total	90	12.916	4.191	0.442	12.039	13.794	-5.820	22.990
NPL/TL	Joint	30	1.147	0.824	0.150	0.840	1.455	0.150	3.220
	Private	30	1.540	0.776	0.142	1.250	1.830	0.620	3.320
	Public	30	4.399	1.564	0.286	3.815	4.983	1.880	8.980
	Total	90	2.362	1.827	0.193	1.979	2.745	0.150	8.980
LLP/TL	Joint	30	2.007	0.667	0.122	1.758	2.256	1.159	3.520
	Private	30	2.287	0.985	0.180	1.919	2.654	0.526	4.585
	Public	30	5.057	2.357	0.430	4.177	5.937	2.000	12.362
	Total	90	3.117	2.046	0.216	2.688	3.546	0.526	12.362
CI	Joint	30	44.095	9.815	1.792	40.430	47.760	31.580	68.130
	Private	30	40.718	4.080	0.745	39.195	42.242	33.791	47.587
	Public	30	55.040	17.297	3.158	48.581	61.499	33.947	98.250
	Total	90	46.618	13.119	1.383	43.870	49.365	31.580	98.250
TL/TA	Joint	30	61.535	9.076	1.657	58.146	64.924	39.930	74.570
	Private	30	70.497	4.413	0.806	68.849	72.145	62.040	84.590
	Public	30	61.865	9.433	1.722	58.343	65.387	43.080	76.790
	Total	90	64.632	8.921	0.940	62.764	66.501	39.930	84.590
Ln A	Joint	30	11.499	0.484	0.088	11.318	11.680	10.638	12.581
	Private	30	11.263	0.687	0.125	11.007	11.520	10.132	12.337
	Public	30	11.777	0.430	0.079	11.617	11.938	11.018	12.644
	Total	90	11.513	0.579	0.061	11.392	11.634	10.132	12.644

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)

ANOVA Table

Particulars		Sum of Squares	df	Mean Square	F	Sig.
ROA	Between Groups	6.563	2	3.282	9.274	0.0001
	Within Groups	30.785	87	0.354		
	Total	37.348	89			
ROE	Between Groups	877.825	2	438.912	3.836	0.025
	Within Groups	9955.672	87	114.433		
	Total	10833.497	89			
CAR	Between Groups	27.448	2	13.724	0.777	0.463
	Within Groups	1535.824	87	17.653		
	Total	1563.272	89			
NPL/TL	Between Groups	189.055	2	94.527	76.061	0.0001
	Within Groups	108.122	87	1.243		
	Total	297.176	89			
LLP/TL	Between Groups	170.538	2	85.269	36.698	0.0001
	Within Groups	202.145	87	2.324		
	Total	372.683	89			
CI	Between Groups	3363.214	2	1681.607	12.239	0.0001
	Within Groups	11953.293	87	137.394		
	Total	15316.507	89			
TL/TA	Between Groups	1549.260	2	774.630	12.177	0.0001
	Within Groups	5534.336	87	63.613		
	Total	7083.596	89			
Ln A	Between Groups	3.974	2	1.987	6.687	0.002
	Within Groups	25.854	87	0.297		
	Total	29.828	89			

Source: Author's calculation based upon the Annual Report of Sample banks (FY 2011/12 to FY 2020/2021)