

# **IMPACT OF CAPITAL STRUCTURE ON THE PROFITABILITY OF COMMERCIAL BANKS IN NEPAL**

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

**By**

**Parwoti Kumari Sharma**

**Campus Roll No: 3163/76**

**Exam Roll No: 23687/20**

**T.U. Regd. No: 7-2-926-97-2014**

**Shanker Dev Campus**

**Group: Finance**

**Kathmandu, Nepal**

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## **CERTIFICATION OF AUTHORSHIP**

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “**Impact of Capital Structure on the Profitability of Commercial Banks in Nepal**”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of this dissertation.

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Parwoti Kumari Sharma

Date:

**REPORT OF RESEARCH COMMITTEE**

Ms. Parwoti Kumari Sharma has defended research proposal entitled “**Impact of Capital Structure on the Profitability of Commercial Banks in Nepal**” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidelines of supervisor Mikha Shrestha submit the thesis for evaluation and viva-voce examination.

.....  
Mikha Shrestha  
Dissertation Supervisor

Dissertation Proposal Defended Date:  
.....

Dissertation Submitted Date :  
.....

.....  
Asso. Prof. Dr. Sajeeb Kumar Shrestha  
Head, Research Department

Dissertation Viva-voce Date:  
.....

## APPROVAL SHEET

We, the undersigned, have examined the thesis entitled “**Impact of Capital Structure on the Profitability of Commercial Banks in Nepal**” presented by Parwoti Kumari Sharma, a candidate for the degree of Master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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Mikha Shrestha  
Dissertation Supervisor

.....

Internal Examiner

.....

Internal Expert

.....

External Expert

.....

Asso. Prof. Dr. Sajeeb Kumar Shrestha  
Chairperson, Research Committee

.....

Acting Joginder Goet  
Campus Chief

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# TABLE OF CONTENTS

	<b>Page No.</b>
<i>Title Page</i> .....	<i>i</i>
<i>Certification of Authorship</i> .....	<i>ii</i>
<i>Report of Research Committee</i> .....	<i>iii</i>
<i>Approval Sheet</i> .....	<i>iv</i>
<i>Acknowledgements</i> .....	<i>v</i>
<i>Table of Contents</i> .....	<i>vi</i>
<i>List of Tables</i> .....	<i>viii</i>
<i>List of Figure</i> .....	<i>ix</i>
<i>Abbreviations</i> .....	<i>x</i>
<i>Abstract</i> .....	<i>xi</i>
<b>CHAPTER-I INTRODUCTION</b>	
1.1 Background of the Study	1
1.2 Problem Statement	4
1.3 Objectives of the Study	5
1.4 Rationale of the Study	6
1.5 Limitations of the Study	7
<b>CHAPTER II LITERATURE REVIEW</b>	
2.1 Theoretical Review	8
2.1.1 Concept of Capital Structure	8
2.1.2 Capital Structure Mix	10
2.1.3 Profitability Ratios	10
2.1.4 Determinants of Profitability	12
2.1.5 Optimal Capital Structure	15
2.1.6 Relationship between Capital Structure and Financial Performance	15
2.1.7 Theories of Capital Structure	19
2.2 Empirical Review	23
2.3 Research Gap	38

## **CHAPTER-III RESEARCH METHODOLOGY**

3.1 Research Design	40
3.2 Population and Sample, and Sampling Decision	41
3.3 Nature and Sources of Data, and the Introduction of Data Collection	41
3.4 Method of Data Analysis	41
3.5 Data Analysis Tools	41
3.6 Research Framework and Definition of Variables	47

## **CHAPTER IV RESULTS AND DISCUSSION**

4.1 Results	52
4.1.1 Descriptive Statistics	52
4.1.2 Correlation Analysis	54
4.1.3 Regression Analysis	57
4.1.4 Regression Analysis	60
4.2 Major Findings	64
4.3 Discussion	65

## **CHAPTER V SUMMARY AND CONCLUSION**

5.1 Summary	68
5.2 Conclusion	70
5.3 Implications	71

## **REFERENCES**

## **APPENDICES**

## LIST OF TABLES

	<b>Page No.</b>
Table 1 Summary of Empirical Review	32
Table 2 Descriptive Statistics	52
Table 3 Correlation Analysis	55
Table 4 Model Summary of ROA	57
Table 5 ANOVA Table	58
Table 6 Regression Coefficients	59
Table 7 Model Summary of ROE	60
Table 8 ANOVA Table	61
Table 9 Regression Coefficients	62

## LIST OF FIGURE

	<b>Page No.</b>
Figure 1 Research Framework of the Study	32

## ABBREVIATIONS

D/E Ratio	:	Debt to Equity Ratio
EAT	:	Earning AfterTax
EBIT	:	Earning Before Interest and Tax
FY	:	Fiscal Year
L	:	Levered Firm
NI	:	Net Income
NRB	:	Nepal Rastra Bank
ROA	:	Return on Total Assets
ROE	:	Return on Equity
S	:	Total Market Value of Shares
S.D	:	Standard Deviation
STD	:	Short Term Debt
T.U.	:	Tribhuvan University
TA	:	Total Assets
TC	:	Corporate Tax Rate
U	:	Unlevered Firm
V	:	Total Market Value of Firm
VL	:	Valued of Levered Firm
Vu	:	Value of Unlevered Firm
WACC	:	Weighted Average Cost of Capital

## ABSTRACT

This study investigates the impact of capital structure on the profitability of commercial banks in Nepal. The primary objective of the study is to assess the impact of capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) on the profitability of selected commercial banks in Nepal. and also, examines the existing position of capital structure and the profitability of commercial banks in Nepal. The main purpose of this study is to analyse the relationship between capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio, and capital ratio) and the profitability of selected commercial banks in Nepal. The descriptive and causal research design was employed in this study. This study covers ten years of data collected from annual reports of sampled organizations. The collected data has been analyzed by using some statistical tools such as mean, standard deviation, correlation analysis, ANOVA and regression analysis. The collected information and the numerical data have been analyzed by using the Excel 2016 version to show the data and results clearly.

From the regression analysis, the value of the R square of return on assets and return on equity is 0.5318 and 0.5710 respectively which indicates 53.18% and 57.10% of the systematic variation in return on assets and return on equity can be explained by independent variables such as debt-equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, bank size, and capital ratio. The remaining percentage is due to the effect of other factors.

The analysis suggests that certain financial ratios, particularly the Debt Equity Ratio, Loan to Deposit Ratio, and Size, have a statistically significant negative impact on ROA. Other variables in the model do not appear to have a statistically significant effect on ROA. The standard error shows the deviation between the actual value and the estimated value of dependent variables. The Debt Equity Ratio, Loan to Deposit Ratio, and Size are statistically significant predictors of ROE, with negative coefficients indicating that increases in these variables are associated with decreases in ROE. The Debt Ratio, Liquidity Ratio, and Capital Ratio do not show statistically significant relationships with ROE in this model, suggesting that their effects on ROE may not be substantial or distinguishable from random variation.

**Keywords:** *Debt Equity Ratio, Debt Ratio, Liquidity Ratio, Profitability, Commercial Banks*

# CHAPTER-I

## INTRODUCTION

### 1.1 Background of the Study

The financing sector of Nepal is expanding day by day. In recent days, the nation has been facing a lot of obstacles. In this situation the manufacturing and trading sector is also running slowly, besides that, banks are increasing and they are expanding their market, so Capital is essential. Capital is the backbone of every organization. Various factors affect the capital structure. Stability and growth rates, cost of capital, management attitude, taxes, investment opportunity, control and flexibility etc. This study will be helpful to the company's overview of their capital structure management and to formulate future strategies to do much better in their horizon.

Capital structure refers to the combination of debt and equity a firm uses to finance its long-term operations, excluding current liabilities. It is a critical decision for businesses, aiming to optimize shareholder value and ensure organizational resilience in a competitive environment. Business managers strive to determine the optimal mix of debt and equity to minimize financing costs and enhance value maximization (*Khan and Jain, 1997*). The role of capital structure in firm performance and economic stability is significant. Using debt can boost profitability because interest payments are tax-deductible, which increases shareholder profits. Within corporate decision-making, funding and investment are crucial areas, and determining the optimal capital structure—how a firm is funded through debt and equity is a strategic aspect. Decisions related to leverage also shape the company's financial structure. Terms like capitalization, leverage ratio, capital structure, and financial structure are interchangeable, reflecting the sources and amounts of money a firm uses to build and acquire assets (*Berges, 2009*).

The Optimum Capital Structure is characterized by the lowest overall cost of capital and the highest firm value. It represents the optimal debt-to-equity ratio that maximizes the value of the firm, striking a balance within the ideal range while minimizing the cost of capital. The primary goal of this structure is to reduce the cost of capital, thereby decreasing the firm's reliance on creditors and enhancing its ability to fund core operations. To ascertain the appropriate level of risk that ensures the expected return on

capital surpasses the cost of capital, the calculation of the weighted average cost of capital becomes essential (*Bhattarai, 2017*).

Financial structure refers to the allocation of funds in a business, encompassing both short-term and long-term sources. A subset of financial structure is capital structure, which specifically focuses on the proportion of long-term financing sources. The goal is to arrange these funding sources in a balanced manner, considering their relative size and distribution. Long-term debt, preferred stock, and net worth are components of a company's capital structure, representing the enduring financing of its assets. Unlike short-term borrowing, capital structure implies a degree of permanency. Each element in the capital structure incurs distinct costs for the firm, and the decisions made in this regard are crucial for optimizing returns and influencing the firm's competitive position. Capital structure decisions significantly impact a business's performance (*Birru, 2016*), making them essential for navigating the competitive landscape (*Abor, 2005*). Businesses can choose between debt and equity capital to finance their assets, but an optimal strategy often involves a balanced mix of both. The significance of the decision between debt and equity may diminish for company owners in cases where interest isn't eligible for tax deductions. Conversely, when interest payments are tax-deductible, owners may aim to enhance their organization's value by favoring a substantial reliance on 100% debt financing (*Champion, 2000*).

The capital structure of a company outlines how it funds its assets. By obtaining or increasing capital through avenues like preferred shares, common shares, or retained earnings, a company can mitigate debt-related risks, lowering the likelihood of bankruptcy. On the other hand, opting for debt financing enables the owner to maintain control, potentially boosting returns on operations. Corporate bonds, long-term loans, and short-term debt are the three types of debt that can directly impact working capital. For example, a company's debt-to-equity ratio, which shows its leverage, is 70% if it relies 70% on loan financing and 30% on equity financing. Skilful management of debt and equity financing is crucial, as an attractive ratio becomes a key factor for potential investors. The connection between capital structure and financial performance is particularly significant in the banking industry, where changes in financial leverage, given its relatively low level of equity capital compared to total assets, can have a substantial impact (*AL-Kayed et al. 2014*).

Profitability is a measure of how effectively an organization can generate profit in comparison to its expenses. An efficient organization achieves a higher percentage of profit relative to its costs than a less efficient counterpart, which incurs higher expenses to achieve the same profit. Additionally, banks face strict regulations regarding their capital structure. When deciding on capital structure, a critical consideration is determining the optimal capital structure for the firm, as highlighted by (*Chandra and Sharma, 2015*).

In Nepal banking, activities were started after the establishment of Nepal Bank Limited (NBL) in 1937. In 1955, the Central Bank was established with the objectives of supervising, protecting and directing the functions of commercial banking activities. Rastriya Banijya Bank was established in 1966 as the second commercial bank owned by the government. The Commercial Bank Act of 2031 BS and the Company Act of 2063 BS both regulate the establishment of commercial banks. However, Nepal Rastra Bank (NRB), which oversees banks and other financial organizations, has the authority to set the capital requirements as well as other specifications. Since it is Nepal's central bank, NRB is obligated to pay close attention to depositors' interests. It should be remembered that the commercial banks of Nepal collected more than Rs. 435.87 billion from depositors in the Middle of March 2023/2024, according to the current macroeconomic and financial situation of Nepal published by Nepal Rastra Bank ([www.nrb.org.np](http://www.nrb.org.np)). Such a large sum of money needs to be secured, and NRB is primarily responsible for doing so. The banking sector significantly influences a country's economic development, making the performance of commercial banks vital for shareholder value maximization and the nation's financial health. Banks need to optimize their capital structure, avoiding being overly or insufficiently geared, to achieve this goal. This study focuses on the relationship between capital structure and profitability of Nepalese commercial banks, specifically examining return on equity (ROE). Although numerous studies have analyzed capital structure determinants in various corporations in Nepal, none have specifically targeted listed commercial banks. The study aims to identify potential issues in performance, profitability, and capital structure within the competitive banking sector. Its findings are expected to guide the selection of an optimal capital structure to maximize bank profitability.

## 1.2 Problem Statement

Capital structure is a crucial strategic financial decision for companies. It involves the combination of long-term funding sources, including both debt and equity securities, which represent the enduring financing of the company. Long-term debt, preference share capital, and shareholder cash are all included in this combination. The capital structure functions essentially as the framework for financing an organization's assets. In practice, it is evident that some firms obtain funds without conducting thorough analyses, putting their sustainability at risk in the highly competitive modern business environment.

Examining the impact of capital structure on the profitability of commercial banks in Nepal is a crucial research area, given these institutions' pivotal role in the country's economic landscape. The capital employed by commercial banks significantly affects their financial health, operational efficiency, and overall sustainability. However, there is a noticeable gap in the current literature concerning a comprehensive understanding of how the specific composition of capital influences the profitability dynamics of these banks within the Nepalese context. Recent economic and regulatory shifts have brought substantial changes to Nepal's banking sector, particularly commercial banks. The evolving financial markets and regulatory framework emphasize the necessity for a nuanced exploration of the relationship between capital structure and profitability. As highlighted by (*Shakya and Subba, 2018*), while studies have delved into various aspects of banking in Nepal, there is a distinct lack of research addressing the intricate interplay between capital structure choices and the financial performance of commercial banks.

The lack of a comprehensive analysis creates a challenge for policymakers, banking professionals, and academics, as there is no clear understanding of the optimal capital structure that suits the distinctive characteristics and challenges faced by commercial banks in Nepal. The scarcity of research on this specific subject hinders the formulation of targeted strategies aimed at improving the profitability and sustainability of these banks. Furthermore, the majority of research that has already been done has focused on factors like risk and liquidity, which has left a significant void in our knowledge of how capital structure affects Nepalese commercial banks' profitability directly (*Shrestha and Rai, 2023*).

Therefore, it is essential to fill this research gap by thoroughly investigating the complex relationship between capital structure and profitability in the context of Nepal Commercial Bank. The aim of this study is to provide valuable insights, contribute to the existing body of knowledge and lay the foundation for evidence-based decision-making in the banking sector.

This study analyzes the banking industry in Nepal by carefully examining the determinants of capital structure and its impact on key profitability indicators such as return on assets (ROA) and return on equity (ROE). It aims to provide practical recommendations to stakeholders. Therefore, it is important to engage in capital structure discussions, especially among selected banks in Nepal, and determine whether building the right mix of capital structures will contribute to competitive advantage. A research question was formulated to guide this study:

- What is the capital structure and profitability position of commercial banks in Nepal?
- What is the relationship between capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) and profitability of commercial banks in Nepal?
- How does capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) affect the profitability of selected commercial banks in Nepal?

### **1.3 Objectives of the Study**

This study focuses on the relationship between capital structure and profitability of selected Nepalese commercial banks, specifically examining return on assets (ROA) and return on equity (ROE). The study aims to identify potential issues in performance, profitability, and capital structure within the competitive banking sector. Its findings are expected to guide the selection of an optimal capital structure to maximize bank profitability. The specific objectives of the study are given below;

- To examine the existing position of capital structure and profitability of Nepalese commercial banks in Nepal.

- To analyse the relationship between capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) and profitability of commercial banks in Nepal.
- To assess the impact of capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) on the profitability of selected commercial banks in Nepal.

#### **1.4 Rationale of the Study**

Capital structure is a crucial aspect of a company's financial decision-making, significantly influencing profitability. This study examines the impact of capital structure on the cost of capital and aims to provide valuable insights to academic institutions, bank employees, trainees, investors, policymakers, and others involved with banks. In Nepal, where the financial sector is evolving, understanding the optimal mix of debt and equity financing can enhance banks' financial health, resilience, and competitiveness, thereby supporting broader economic development by fostering a stable financial environment. Given the country's recent economic challenges and reduced government funding for development, commercial banks must carefully consider their investment decisions. This study seeks to evaluate the adequacy and effectiveness of current investment policies of commercial banks in Nepal and determine whether they have appropriately managed their investable funds.

Furthermore, profitability is a key indicator of a bank's operational efficiency and financial performance. Analyzing the relationship between capital structure and profitability can help identify strategies that maximize returns while maintaining prudent risk management practices. For policymakers and regulatory bodies, this study provides valuable data to formulate policies that promote sustainable banking practices and financial inclusion. For investors and stakeholders, understanding these dynamics aids in making informed decisions regarding their investments. In the context of Nepal, where commercial banks play a crucial role in economic development, such a study can contribute to creating a more robust and dynamic banking sector that drives long-term growth and prosperity.

### **1.5 Limitations of the Study**

The limitations of the study are given below;

- This study is only focused on the impact of capital structure on the profitability of commercial banks in Nepal.
- This study covers only ten years of commercial bank data.
- This study covers only five commercial banks among the twenty commercial banks.

## **CHAPTER II**

### **LITERATURE REVIEW**

The main purpose of this chapter is to develop some expertise in one's area, to see what contributions can be made, and to receive some ideas for developing a research design. This chapter helps to take adequate feedback to broaden the information based on inputs to my study. This chapter is divided into three different parts such as conceptual review, empirical review and research gap.

#### **2.1 Theoretical Review**

A theoretical review provides a critical examination and synthesis of existing theories relevant to the capital structure and the profitability of selected commercial banks in Nepal. It involves analyzing the strengths and weaknesses of different theoretical frameworks, assessing their applicability, and identifying gaps or inconsistencies in the current understanding. This review aims to clarify the theoretical foundations of the capital structure and the profitability of selected commercial banks, highlight significant debates, and suggest directions for future research. By integrating diverse perspectives, a theoretical review offers a comprehensive overview of the conceptual landscape, guiding researchers in refining their hypotheses and methodologies. This section discusses shortly about the theoretical concept regarding the theories of capital structure.

##### **2.1.1 Concept of Capital Structure**

Capital structure involves the mix of long-term funding sources, such as debt, equity, and convertible bonds, aiming to optimize firm value and earnings per share while minimizing capital costs (*Sharma, 2011*). It includes all financial options and debt-equity available for financing business activities, with debt disintegrated into long and short-term periods to scrutinize individual effects. Firms heavily financed by debt offer less protection to creditors in bankruptcy, with short-term debt indicating performance efficiency. Long-term instruments include preferred shares, term loans, and bonds, collectively termed "non-current liabilities" (*Sharma, 2011*). An optimal capital structure mix lowers capital costs and enhances market value, profitability, and retained earnings, with a focus on maximizing shareholder equity (*Swain et al., 2013*).

The concept of capital structure determination is not an easy subject, as it determines the optimal capital structure of a firm. It remains a controversial issue in modern corporate finance. A firm can raise funds either through debt or equity, or a mixture of both. Capital structure refers to the sources of long-term funds. Capital structure represents the relationship between different kinds of long-term sources of capital and their amount. Normally, a firm raises long-term capital through the issue of common shares, preference shares, and debts. Preferred shares as well as the borrowed capital carry fixed returns on the investors and common shares provide variable return to the investors (Sharma, 2018). Capital structure is the combination of financing forms such as retained earnings, long-term debt, and equity used by a firm to finance its overall operations and assets. Capital structure has a bearing on the value of both large and small firms (Kumar, *et al.* 2019).

A company's capital structure comprises various types of equity and debt used for funding decisions, focusing on determining the optimal mix to maximize firm value and minimize capital costs. Sharif and Muhammad (2019) emphasize that capital structure is crucial as it affects the company's financial position and stakeholders' value. Managers are expected to choose the optimal level of debt and equity to maximize organizational benefits or profits.

Capital structure is the integration of various sources of funds within or outside the firm's terrain in financing its worthwhile investments and projects with positive net present value. It implies how a firm finances its overall operations and sustains its growth by using different sources of funds. Debt can either be a loan form or in the form of sale of bonds, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt such as working capital requirements is also considered to be part of the capital structure. Capital structure means a firm funds its operations using some blend of equity plus debt. (Tsai, 2010) define it as the technique an establishment applies for financing based on a blend of long-term capital (ordinary and preference shares, debentures, loans, loan stock, etc.) in addition to short-term obligations like overdrafts and other payables. Also, opined that capital structure is the mixture of diverse securities utilized by a company in financing its profitable ventures. What is common to the above definition is that capital structure reflects each component of finance from equity to debt that a company uses in financing its operations. Capital structure denotes a mixture of

suitable components of capital either in the form of debt or equity to fund organizational long-term investment opportunities for maximum returns.

### **2.1.2 Capital Structure Mix**

The capital structure comprises all financial options and debt-equity available for a firm to finance its business activities. Capital structure composition includes all varieties of debt, equity, and convertible bonds. Debt is disintegrated into long short-term periods to scrutinise the individual effect. Firms deeply financed by debt offer creditors less protection in the event of bankruptcy. Short-term financing instruments collectively infer a firm's current liabilities. Mirza et al. (2013), Fosu (2013), Thamila et al. (2013), and Adesina et al. (2015) revealed that short-term debt indicates a firm's performance efficiency. Long-term financing instruments include preferred shares, term loans, and bonds of various types, collectively referred to as "non-current liabilities of the firm. The best capital structure mix lowers capital utilisation costs and increases the firm's market value, profitability, and retained earnings. Swain et al. (2013) argued that a firm's financing structure should be chosen with an interest directed toward maximising shareholder equity.

### **2.1.3 Profitability Ratios**

Rose (2002) defined bank profitability as a bank's net after-tax income or net earnings (often divided by a measure of the bank's size). The profitability of a bank can be determined in a number of methods. The approach that is most frequently utilized is determined to be financial ratios. This is the most significant factor considered when assessing the bank's profitability and performance. They include:

#### **Return on Assets**

The profitability performance of banks is evaluated using a comprehensive financial ratio called return on assets (ROA). It calculates how well the banks are performing generally. A ROA is calculated by dividing net revenue by total assets, as stated by Rose (2002). Our understanding of the management's potential revenue from the assets is provided by ROA. Therefore, ROA may be utilized to show how well bank management turns assets into income (Goddard et al., 2004). Higher return on assets (ROA) is preferred because it indicates strong bank performance and efficient profit-making by the management.

it is defined as net income divided by total assets. The return on assets which is often called the firm's return on total assets, measures the overall effectiveness of management in generating profit with its available assets. Return on assets measures the profit earned per dollar of assets and reflects how well bank management uses the bank's real investment resources to generate profits (Naceur, 2003). Nassar, 2016) revealed that a high level of debt negatively affects a firm's return on assets. (Antoniou, et al. 2008) revealed that the leverage ratio declines with the increase of a firm's profitability, and finds that the degree and effectiveness of profitability as a determinant is dependent on the country's legal and financial traditions. (Phung and Le 2013) found that firm performance such as ROA and ROE has a negative impact on capital structure return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. Another name for this ratio is "Return on Investment." It gauges how successfully the bank invests in assets to generate profits. Better still, the ratio should be higher. But here's how the rate is determined:

Return on Assets = Net Profit after Taxes/Total Assets (Al-Abdallah, 2017)

### **Return on Equity**

It is the net assets determined by subtracting the company's total liabilities from its total assets. Reserves, paid-up capital, retained earnings, and treasury shares make up the owners' equity, also known as "shareholders' rights" (Matar, 2010). The rate of return on the common stock owners' ownership stake, or shareholders' equity, is measured by ROE. It gauges how well a company makes money off of each unit of shareholders' equity, sometimes referred to as net assets or assets less liabilities. ROE demonstrates how effectively a business generates earnings growth using investment money (Gul et al., 2011).

it is a good performance proxy (Akeem et al.; Salim and Yadav; 2012). ROE measures the effectiveness of shareholders' funds used by the executive bank management team. The study also applies ROA as it has been used before in several past studies (Rouf, 2015). Furthermore, the study uses the net interest margin as a performance proxy as well because it has been used in past studies (Dermirguc-kunt and Huizinga, 1999). Finally, the study uses the cost-to-income ratio as another performance proxy since it measures the efficiency of a bank (Pasiouras and Kosmidou, 2007).

This ratio, which is calculated as follows, assesses the return the bank has obtained by using owners' equity.

Return on Equity = Net Income/Total equity (*Al-Abdallah, 2017*).

#### **2.1.4 Determinants of Profitability**

In the literature examining factors that influence bank profitability, return on assets (ROA), and return on equity (ROE), are often considered. The determinants of bank profitability are usually categorized into internal and external variables. The term "internal variables" refers to elements like liquidity risk, credit risk, bank size, leverage, and cost management that affect business choices and policy goals within a bank. Conversely, industry-specific and macroeconomic factors are the sources of external variables, which include things like real per capita income, rates of inflation, unemployment, concentration, and competitiveness. A company's profitability is affected by a variety of determinants, each of which can have a positive or negative impact on the company's overall profitability. Against this background, this study investigates the determinants of profitability, focusing on liquidity, firm size, debt, and efficiency.

#### **Liquidity**

Liquidity refers to the ability to meet financial commitments immediately and can be defined in two ways: the ability to trade assets at their current price and the capacity of financial institutions to meet cash and collateral obligations without significant loss (*Shrestha, 2012*). An organization's liquidity is indicated by the relationship between cash assets and assets quickly convertible to cash, compared to short-term liabilities. Higher investments can reduce liquidity, potentially leading to penalties. For banks, liquidity comes from public, institutional, and company deposits in demand and term deposits (*Arif & Ahmed, 2012*).

Liquidity in commercial banks represents the capacity to fulfil the immediate financial obligation. The contractor needs to pay the funds for its obligation at the time of maturity of contracts, including the borrowing, investments, withdrawals, of deposits and accrued liabilities (*Mutahhar, 2016*). Liquidity is a measure of the availability of cash for use in the day-to-day business. A liquid asset is cash or can easily be turned into cash. Liquidity plays a crucial role to both internal and external analysts because of its close relationship with the day-to-day operations of a business (*Bhunja, 2010*). A weaker liquidity position

poses a threat to the solvency as well as the profitability of a firm and makes it unstable. The current ratio and quick ratio are two common measures of the liquidity of a company. Usually, a high current ratio is considered to be an indicator of the firm's ability to promptly meet its short-term liabilities.

Liquidity refers to the status and portion of assets used to meet obligations, viewed either as balance sheet liquidity or liquidity from purchased funds. It depends on the relationship between cash assets and those quickly convertible to cash versus liabilities awaiting payment (*Bhandari, 2013*). The definition of liquidity varies globally, influenced by the development of the monetary sector. A firm's liquidity position is satisfactory if it can meet current obligations when due, as reflected in its liquidity ratios. These ratios are crucial for credit analysis by banks and suppliers for short-term loans.

Liquidity is defined as current assets divided by current liabilities. Excessive amounts of current assets owned by a firm would perhaps increase the chances of internal funding resulting in a relation between leverage and liquidity (*Bhunja and Das 2012*). Liquidity involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short-term obligations on the one hand and avoids excessive investment in these assets on the other hand. Furthermore, sufficient liquidity has an impact on the financial strength of a firm. The banking sector, liquidity is a measure of performance, at least for two reasons; to meet regulatory requirements and to guarantee enough liquidity to meet customers' unannounced withdrawals. Current assets therefore must be sufficient to allow daily operations.

### **Firm Size**

Bank size, defined by the total value of assets held, including loans, investments, and deposits, impacts a bank's network, customer base, and range of services. Larger banks benefit from economies of scale, access to more funding, and greater market influence but face complexity, regulatory scrutiny, and systemic risks (*Sritharan, 2015*). Firm size, measured by total assets, shows a significant but weak positive influence on firm leverage (*Pervan & Visic, 2012*). Larger firms often achieve higher economic performance due to economies of scale though some studies reveal a negative effect of firm size on financial leverage due to diversification and stable cash flow. There is generally a positive relationship between firm size and leverage (*Alzomaia, 2014*).

Bank size is often considered an important determinant of its profitability. As in most studies in banking and even other studies that use non-banks firm size usually have a positive relationship with profitability. The reason for this positive relationship is because larger firms enjoy economics of scale and economics of scope and this is expected to translate into superior profits. For instance, argues that larger banks can increase their market power and take advantage of huge investment deals that smaller banks cannot take. These are some of the reasons the Bank of Ghana gave when it increased the minimum capital requirement for commercial banks in Ghana. Larger banks benefit from diversification which reduces the impact of volatility and also be able to take on more debt. Small-size business firms' capital structure generally consists of loans from banks and retained profits. On the other hand, big companies that have goodwill, stability and an established profit can easily go for the issuance of shares and debentures as well as loans and borrowings from financial institutions (*Adeoye and Olojede, 2019*).

### **Leverage**

According to Raja and Alslehat (2014), the use of fixed costs in the production process also affects the capital structure. The high operating leverage-use of a higher proportion of fixed cost in the total costs over some time can magnify the variability in future earnings. Both the bankruptcy cost theory and agency cost theory suggest the negative relationship between operating leverage and debt level in capital structure. The bankruptcy cost theory contends the higher the operating leverage, the greater the chance of business failure and the greater the weight of bankruptcy costs on enterprise financing decisions. Similarly, as the probability of bankruptcy increases, the agency problems related to debt become more aggravating. Thus, these theories suggest that as operating leverage increases, the debt level in the capital structure of the enterprises should decrease.

Leverage refers to the percentage of debt in a company's capital structure, where higher leverage increases financial risk but can offer greater rewards. Maintaining a suitable debt level, typically a 40% debt to 60% equity ratio, is crucial for long-term solvency. Abor (2005) found that businesses with higher debt percentages are highly leveraged. Empirical research shows diverse opinions on the profitability-leverage connection. Studies by (*Robb and Robinson, 2009*) indicate a positive correlation between profitability and leverage. The idea that using debt increases a corporation's market value. Financial

leverage positively impacts return on equity by comparing the firm's earning potential to its interest expenses. Also found a positive link between debt and profitability, suggesting that high debt levels can maximize shareholder wealth (*Abor, 2005*).

### **2.1.5 Optimal Capital Structure**

The optimal capital structure maximizes the price of the firm's stock, and this generally calls for a debt ratio that is lower than the one that maximizes expected EPS. Capital structure decision is one of the most important decisions that are taken by financial managers. This is because the capital structure decision affects the weighted average cost of capital (WACC), value of the firm and risk position of the firm. A firm, therefore, should try to find out the structure, which maximizes the WACC and risk and maximizes the value of the firm. The optimal capital structure is the combination of debt, preferred stock, and common equity that minimizes the WACC. At the capital structure where the WACC is minimized, the value of the firm's securities (or value of the firm) is maximized. As a result, the minimum cost of capital structure is called optimal capital structure (*Sharma et al., 2018*).

The overall cost of capital is minimized; theoretically at least, when the firm reaches its optimum capital structure. The optimum capital structure strikes a balance between the risk and returns and thus maximizes the price of the price of the stock." Optimum capital structure can be properly defined as that combination of debt and equity that attains the stated managerial goals maximises the firm's market value, and minimizes the firm's cost of capital, As the existence of an optimum capital structure implies the simultaneous optimization of both the cost of capital and the firm's market value, occupies a central position in the theory of financial management" (*Phillipatos, 1974*)." An optimum capital structure would be obtained at the combination of debt and equity that maximizes the total value of the firm (value of shares plus value of debt) or minimizes the weighted average cost of capital" (*Panday, 1999*).

### **2.1.6 Relationship between Capital Structure and Financial Performance**

The relationship between capital structure and profitability has been widely debated in the Sri Lankan context, with several studies presenting contrasting findings. Nimalathasan and Brabete (2010) found that the debt-equity ratio was significantly and positively related to profitability metrics such as gross profit, operating profit, and net profit ratios in

Sri Lankan manufacturing companies. However, Prahalathan and Ranjani (2011) contradicted this, showing no significant impact of debt ratios on performance indicators like return on equity (ROE) and return on assets (ROA). Similarly, Pratheepkanth (2011) revealed no significant relationship between capital structure and gross profit, though a negative correlation was observed with net profit, ROE, return on investment, and ROA. Mukhiya (2024) found that their leverage ratio significantly and negatively impacts Nepal's commercial banks' NIM. NIM's negative and negligible effects on bank size have persisted. The Liquidity Ratio has a noteworthy and favourable impact on NIM. NIM is significantly and favourably impacted by the capital ratio. Banks ought to respect the importance of other factors, though. Hjissaid (2023) found a negative correlation between return on equity (ROE) and short-term debt to total assets (SDA). Additionally, there is a positive association found between profitability and total debt (DA), but a negative correlation between long-term debt to total assets (LDA) and return on equity (ROE). Oli et al. (2023) showed that firms in the oil and gas sector rely on short-term debt to finance their operational and business endeavours. A positive nexus between retained earnings and capital structure was observed. This finding implied that firms with higher earnings retention tend to experience faster growth prospects. An inverse nexus was observed between long-term debt, retained earnings, market value, and performance indicators.

Gofe and Asfaw (2023) suggested that there is a discrepancy between the variables examined in the study and previous literature, and citations of the study were limited. Studies focusing on several variables have yielded contradictory results regarding the theory supporting the factors that influence the capital structure decisions of commercial banks in Ethiopia. Kunwar and Jnawali (2023) showed that the most significant bank-specific factor influencing Nepalese commercial banks' profitability is bank size. Furthermore, the results revealed that the bank-specific factors namely bank size, credit risk, deposit-to-total assets, capital adequacy ratio, and credit-to-deposit ratio significantly increase net interest margin (NIM). Regarding the macroeconomic factors, the findings explored that interest rates, inflation, economic growth, and the size of the money supply all significantly affect NIM. However, when it comes to ROA, the data demonstrated that, aside from interest rate, all macroeconomic factors significantly affect the bank's profitability as determined by ROA. Neupane (2023) revealed that the development of the banking sector, GDP growth, inflation, exchange rate, concentration ratio, and other factors all had a significant and opposite impact on the profitability of Nepalese

development banks as determined by Return on Assets (ROA). Internal variables that affect ROA, such as bank size, capital base, loans, deposits, off-balance sheet activities, and branch count, did not, however, show a discernible effect.

Chalise and Adhikari (2022) the capital structure (debt/equity) and ROA and EPS showed a negative relationship, according to the data. On the other hand, it demonstrated a favourable correlation between ROA and EPS with size (total assets). The results provide proof in favour of the high-level equity capital used in Nepalese commercial banks' capital structures. Alshinti (2022) indicated that return on equity, which is a measure of profitability, is impacted negatively by other variables but favourably by investment and quick ratio. Similarly, return on assets, a measure of profitability, exhibited a negative correlation with other factors but a positive link with both the durability rate and the investment rate. Rutanga et al. (2021) showed that using debt as a source of funding had a negative impact on a company's ability to manage its finances and function well. On the other hand, utilizing share capital significantly increases a company's return on assets, operational and financial sustainability, and sustainability. The prudent and constructive utilization of retained earnings enhances a company's financial viability. The results of sample splits indicate that SACCOs are more likely than MFIs to suffer negative effects from debt financing. The two groups differ significantly in terms of share capital.

Bhatta and Jain (2020) showed that while the return on equity is negligibly negative regarding short-term and total debt, it is negligibly positively related to long-term debt and deposits. Profitability and bank size are substantially positively correlated in all regression models, meaning that the bigger the bank, the better the return to shareholders. Kukaj et al. (2020) revealed that the profit margin and return on equity of commercial banks in Kosovo positively influence the return on equity. Conversely, an increase in the ratio of net sales to net assets negatively impacts the return on equity. This paper's practical value lies in its comprehensive examination of Kosovo's commercial banks' profitability and its capacity to identify the most lucrative domestic and foreign-owned banks through comparative analysis. Parvin et al. (2020) showed that the variables influencing NIER include Size, Risk, Debt to Loan Ratio (DTL), and Equity to Asset Ratio (EAR). Moreover, ROA is positively impacted by EAR and DTL and negatively impacted by risk. By assembling a portfolio of capital sources from market-based funding sources, MFIs will be able to optimize their capital structure, improve their financial

performance, and serve low-income clients without the need for collateral according to the study's conclusions.

Khatri (2020) showed that asset quality was positively and significantly correlated with ROE but negatively and significantly correlated with ROA. There was a slight but favourable correlation between ROA and ROE and the Cash Deposit Ratio (CADR). On the other hand, there was a negative and negligible correlation between the Credit-Deposit Ratio (CDR) and ROE and a positive but insignificant correlation with ROA. The study's conclusions help to clarify the intricate relationship that exists between profitability and liquidity indicators in the context of Nepalese commercial banks. Timilsina (2020) indicated positive correlations between bank size and assets tangibility with total debt to total assets, while return on assets, assets growth, and liquidity showed negative correlations with total debt to total assets. Similarly, return on assets, bank size, assets tangibility, asset growth, and liquidity exhibited negative correlations with total debt to total equity. Sivalingam and Kangatharan (2018) showed that while bank deposit growth was considerably and favourably associated with ROE, the ratio of total debt to total assets was significantly adversely related to ROE. Size, long-term debt to total assets ratio, and short-term debt to total assets ratio had no discernible relationship with ROE. The study's findings advise financial managers to consider financing from internal sources as opposed to putting a lot of emphasis on borrowed capital in their capital structure. To optimize their return on investment, practitioners, investors, and decision-makers may find value in the study's findings.

More recent research by Abewardhana and Magoro (2017) compared the impact of capital structure on firm performance in South Africa and Sri Lanka. They found that short-term debt negatively affected firm performance in Sri Lanka, whereas long-term debt had a positive impact. Given the varied outcomes from these studies, especially in sectors like manufacturing and banking, there is a need for further research to clarify the relationship between capital structure and financial performance in Sri Lankan commercial banks, which play a critical role in the country's economy.

## **2.1.7 Theories of Capital Structure**

### **1. Modigliani and Miller (MM) Theory**

Modigliani and Miller provided the seminal in capital structure under certain assumptions including taxes, homogenous expectations, perfect capital markets, and no transaction costs. This theory also known as “capital structure irrelevance” states that the relationship between capital structure and cost of capital is irrelevant. This means that an increase in debt does not affect the cost of capital. As a result, the expectations of the investor's future benefits are dependent on firm value and cost of capital. The academic debate on the irrelevance of capital structure began with a study, which argued that capital structure is irrelevant in frictionless capital markets. This theory, later known as the "Theory of Irrelevance," suggests that no capital structure mix is superior to another (*Schwartz & Aronson, 1967*). Modigliani and Miller's Proposition II explained that the increased rate of return from higher debt ratios is precisely offset by the associated risk, making the financing mix irrelevant (*Sivalingam and Kengatharan, 2018*). This debate continues, with new dimensions added over time.

Modigliani and Miller later introduced new evidence that the cost of capital affects capital structure, and thus affects firm value when taxes are taken into consideration as an assumption. This is referred to as borrowing giving a tax advantage because the interest will be taken from the tax which serves as a tax shield. This in turn reduces the cost of debt thereby maximizing the firm’s performance (*Abor, 2005; Obuobi et al., 2020*).

### **2. Pecking Order Theory**

The pecking order theory was suggested by Myers and Majluf. They stated that when a firm issues new equity, it sends a signal to investors that share prices are overvalued because it makes managers issue new equity. Then, investors will sell their shares and eventually make the stock price drop. Thus, firms prefer to use debt rather than equity if they need external financing. When firm insiders have more information than investors about the firm's value, equity may be mispriced, leading to potential under-investment as new investors could capture more than the net present value of projects. To mitigate this, firms follow a financial pecking order, preferring internal finance first, then safe debt, risky debt, convertibles, and finally common stocks. This theory suggests there is no specific target debt-equity ratio; rather, the observed ratio reflects a firm's cumulative

external financing needs, indicating that capital structure is path-dependent (*Obuobi et al., 2020; Sivalingam and Kengatharan, 2018*).

The Pecking Order Theory applies to banks, where increasing deposits is easier and less risky than issuing new equity. Issuing new equity can signal overvaluation and dilute voting rights, leading investors to prefer deposits over equity (*Ahmadinia, et al. 2012*). The theory arises from asymmetric information, suggesting businesses prioritize internal funding, such as surplus liquid assets or retained profits, before external funding. When internal financing is insufficient, firms may seek external funding, preferring debt first, then preferred stock, and finally common stock. This approach helps manage the additional costs of asymmetric information (*Adeoye and Olojede, 2019*).

### **3. Trade-off Theory**

The second proposition by Modigliani and Miller introduces the trade-off theory. This theory of capital structure assumes that a company's management will always choose how much debt and equity to use in financing the operations of the entity and that this is obtained by balancing off the cost and benefits associated with each source of finance. According to the theory, firms should select an optimum capital structure that balances the benefits and risks of both debt and equity. Trade-off theory is an extension of the MM theory developed by Modigliani and Miller. The theory suggests that the firm's optimal capital structure includes the trade-off among the influences of firms and personal taxes, agency costs bankruptcy costs, etc. This theory requires companies to choose debt levels to balance interest-tax shield advantages with future financial distress or current financial rigidity costs (*Obuobi et al., 2020*).

The Trade-off Theory of Capital Structure suggests that when the banks have more deposits, they can use that amount to lend more to make a profit because lending is the most important operation of banks. Thus, it may increase the profitability. However, if the over-accumulation of deposits is compared to the loan amount (credit constraints), the banks can face some difficulties because of the liquidity risk: the deposits will mature, and it costs the banks more to repay the deposits to customers. Thus, in general, there is a trade-off of using deposits (*Adeoye and Olojede, 2019*).

#### **4. Agency Cost Theory**

Jensen and Meckling stated that managers and shareholders sometimes don't share the same interests. This idea would cause the principal-agent problems. Debt financing is used as a method to reduce the conflict between them which decreases the agency's cost. When a firm starts borrowing from banks, managers have to comply with the debt discipline which can increase transparency and sustainability and somehow align their goals with the shareholders. Thus, shareholders can use debt as a method to control managerial behaviour (*Boodhoo, 2009*).

When a firm starts to use borrowings, they have to comply with the lender's regulation. Thus, they have to increase their transparency to meet the requirements which may reduce the principal-agent problem. However, this mechanism is more complicated for banks. The bank must maintain its good reputation for safety to attract more customers. Thus, they need to improve their management first. When banks have more deposits (increasing leverage) which means they have more customers, their exceeded funding will be bigger; they need to improve their corporate governance to maintain their operation. These improvements can lead to a decrease in moral hazard to improve its profitability (*Adeoye and Olojede, 2019*).

Agency cost theory which was developed by Jensen and Meckling actually discusses the conflict of interest between principals (shareholders) and decision-makers (agents) of firms (managers, board members, etc.). This conflict arises from differences in behaviour, decisions or points of view. Each side part (agents and shareholders) often has different goals and different tolerances toward risk. In this case, the managers who are responsible for the day-to-day management of the firm towards the achievement of the organizational goal might put their personal goals first rather than maximizing shareholders' wealth. Hence, what shareholders do is to ensure that managers (agents) do not invest the free cash flow in unprofitable projects. This usually creates a conflict between the parties. As a result, it is believed that increasing the debt-to-equity ratio would help put managers on their toes to work in the interest of the firm to maximize shareholders' wealth (*Obuobi, et al. 2020*).

## **5. Net Income Theory**

The Net Income Theory posits that a company can lower its overall cost of capital by increasing debt, which reduces the weighted average cost of capital and raises the firm's value and stock price. This theory is based on three key assumptions: no taxes, the cost of debt is lower than equity, and investor risk perception remains unchanged with varying debt levels. As the proportion of cheaper debt increases, the weighted average cost of capital decreases, enhancing shareholder returns and market value. While higher debt can elevate risk, it also potentially increases return on equity, with stock prices reflecting this balance between risk and reward. Financial leverage is crucial in optimizing a company's capital structure to maximize its stock price while managing risk (Pandey, 1992). Furthermore, the overall cost of capital for a business is reduced by an ideal capital structure.

### **Assumption of Net Income Approach**

The following are the basic assumptions of the net income approach. To calculate the value of a firm and WACC, these assumptions are constantly used.

- a. There are no taxes.
- b. The cost of debt is less than the equity capitalization rate or the cost of equity ( $K_d < K_e$ ).
- c. Cost of equity and cost of debt remain constant.
- d. The use of the debt does not change the risk perception of investors.
- e. Net operating income remains constant.
- f. Overall cost of capital decreases as leverage increases (*Bhattacharai, 2006*).

## **6. Net Operating Theory**

The foundation for calculating net operational income (NOI) is used to assess the profitability of real estate investments that generate money. To calculate NOI, deduct all running costs that are deemed reasonably reasonable from the property's revenue. This is a pre-tax figure that does not include depreciation, capital expenses, or loan principal and interest payments.

In the real estate sector, this ratio is frequently employed; in other sectors, it is known as earnings before interest and taxes. The net operational income theory, which stands in sharp contrast to the net income theory, is an alternative explanation to capital structure. This idea claims that capital structure decisions are irrelevant for a corporation. It is

believed that changes in leverage will not have an impact on the company's total worth, stock market value, or overall cost of capital. These financial considerations are not considered when determining the level of leverage.

### **Assumption of Net Operating Approach**

The following are the assumptions of the net operating approach.

- a. The overall cost of capital remains constant.
- b. The cost of debt remains constant.
- c. Cost of debt is less than cost of equity ( $k_d < k_e$ ).
- d. The required return on equity increases linearly with an increase in debt ratio.
- e. Total operating profit remains constant.

## **2.2 Empirical Review**

Mukhiya (2024) analyzed the capital structure and profitability of commercial banks in Nepal. The researcher used correlation analysis and multiple regression to look into how capital structure affects a Nepalese commercial bank's profitability. The outcome showed that their leverage ratio significantly and negatively impacts Nepal's commercial banks' NIM. NIM's negative and negligible effects on bank size have persisted. The Liquidity Ratio has a noteworthy and favourable impact on NIM. NIM is significantly and favourably impacted by the capital ratio. Banks ought to respect the importance of other factors, though.

Hajisaaid (2023) analyzed the effect of capital structure on the profitability of basic materials in Saudi Arabian firms. Various statistical techniques were used, including regression analysis, fixed effects models, random effects models, and Hausman tests to investigate the relationship between capital structure and profitability of eight companies. The independent variables are the total debt-to-total-assets ratio (DA), the long-term debt-to-total-assets ratio (LDA), and the short-term debt-to-total-assets ratio (SDA). Return on equity (ROE) is chosen as the dependent variable. The findings demonstrated a negative correlation between return on equity (ROE) and short-term debt to total assets (SDA). Additionally, there is a positive association found between profitability and total debt (DA), but a negative correlation between long-term debt to total assets (LDA) and return on equity (ROE).

Oli et al. (2023) conducted research on the effect of capital structure on profitability: evidence from oil and GAS firms in Nigeria. The main objective of the study was to examine the capital structure in the financial and manufacturing sectors. The PGM/ARDL (Pooled Group Mean Autoregressive Distributed Lag Model) approach was employed to test individual effects. The findings revealed a durable nexus between capital structure, retained earnings, market value, and performance in the long run. The results showed that firms in the oil and gas sector rely on short-term debt to finance their operational and business endeavors. A positive nexus between retained earnings and capital structure was observed. This finding implied that firms with higher earnings retention tend to experience faster growth prospects. An inverse nexus was observed between long-term debt, retained earnings, market value, and performance indicators. This study supports trade-off theory, pecking order theory, and relevant MM 1963 capital structure propositions.

Gofe and Asfaw (2023) analyzed the factors influencing capital structure decisions of commercial banks in Ethiopia. The objective was to identify existing gaps and assess the state of research in this area in order to provide direction for future research. Various keywords were used to locate articles, and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework guided the analysis. Inclusion and exclusion criteria were specified in the study protocol, and descriptive analyzes were performed using different parameters. This result suggested that there is a discrepancy between the variables examined in the study and previous literature, and citations of the study were limited. Studies focusing on several variables have yielded contradictory results regarding the theory supporting the factors that influence the capital structure decisions of commercial banks in Ethiopia. Existing banking literature lacks comprehensive coverage of banks' capital structure, including how banks decide on their capital structure and what variables influence firms' financing behaviour. There is confusion. This study recommended a detailed study of banks' capital structure decisions and identifying relevant factors to improve our understanding of this area.

Kunwar and Jnawali (2023) conducted a research on the impact of macroeconomic and bank-specific variables on the profitability of commercial banks in Nepal. The study's main objective was to investigate how macroeconomic and bank-specific factors affect Nepalese commercial banks' profitability. The researcher used a random effect model to

analyze the data. The result showed that the most significant bank-specific factor influencing Nepalese commercial banks' profitability is bank size. Furthermore, the results revealed that the bank-specific factors namely bank size, credit risk, deposit-to-total assets, capital adequacy ratio, and credit-to-deposit ratio significantly increase net interest margin (NIM). Regarding the macroeconomic factors, the findings explored that interest rates, inflation, economic growth, and the size of the money supply all significantly affect NIM. However, when it comes to ROA, the data demonstrated that, aside from interest rate, all macroeconomic factors significantly affect the bank's profitability as determined by ROA.

Neupane (2023) examined the determinants of profitability in Nepalese development banks. The research employed descriptive statistics to depict the profitability of Nepalese banks and its influencing factors. Furthermore, the study computed correlation coefficients to evaluate the relationship between several profitability measures and their determinants. The research used a panel data regression model that included both the Fixed Effect Model and the Random Effect Model to get deeper into the factors and how they affected profitability. The investigation revealed that the development of the banking sector, GDP growth, inflation, exchange rate, concentration ratio, and other factors all had a significant and opposite impact on the profitability of Nepalese development banks as determined by Return on Assets (ROA). Internal variables that affect ROA, such as bank size, capital base, loans, deposits, off-balance sheet activities, and branch count, did not, however, show a discernible effect. The study revealed that the only factors that significantly impacted Net Interest Margin (NIM), another profitability metric, were capital adequacy, the total number of branches, and the rate of inflation. The study concluded that while macroeconomic variables have a smaller but still considerable impact on the profitability of Nepalese development banks, external factors—particularly those peculiar to the industry had a major impact on ROA.

Chalise and Adhikari (2022) investigated the impact of capital structure and firm size on the financial performance of commercial banks in Nepal. The main purpose of the study was to examine the impact of capital structure and firm size on the financial performance of Nepalese commercial banks. The researcher used regression analysis to analyse the data. the findings indicated that the capital structure (debt/equity) and ROA and EPS showed a negative relationship. On the other hand, it demonstrated a favourable

correlation between ROA and EPS with size (total assets). The results provide proof in favour of the high-level equity capital used in Nepalese commercial banks' capital structures.

Alshantti (2022) investigated the impact of bank liquidity management on the profitability of commercial banks in Jordan. The independent variables considered were investment ratio, quick ratio, capital ratio, net credit facilities to total assets, and liquidity ratio, and the dependent variables were return on equity (ROE) and return on assets (ROA). Regression analysis tools were employed together with the development of hypotheses. The findings indicated that return on equity, which is a measure of profitability, is impacted negatively by other variables but favorably by investment and quick ratio. Similarly, return on assets, a measure of profitability, exhibited a negative correlation with other factors but a positive link with both the durability rate and the investment rate.

Rutanga et al. (2021) examined the capital structure and the financial sustainability of microfinance institutions (MFIs) in Rwanda. The researcher's main purpose of the study was to assess the effect of capital structure on the financial sustainability of microfinance institutions (MFIs). The fixed effect OLS regression model was adopted to find out the main result of the study. The study showed that using debt as a source of funding had a negative impact on a company's ability to manage its finances and function well. On the other hand, utilizing share capital significantly increases a company's return on assets, operational and financial sustainability, and sustainability. The prudent and constructive utilization of retained earnings enhances a company's financial viability. The results of sample splits indicate that SACCOs are more likely than MFIs to suffer negative effects from debt financing. The two groups differ significantly in terms of share capital.

Bhatt and Jain (2020) investigated the capital structure and profitability of commercial banks in Nepal. The main purpose of the study was to examine the relationship between the capital structure and the probability of commercial banks in Nepal. The researcher used descriptive statistics, correlation analysis and regression analysis to analyze the data. The findings showed that while the return on equity is negligibly negative regarding short-term and total debt, it is negligibly positively related to long-term debt and deposits.

Profitability and bank size are positively correlated in all regression models, meaning that the bigger the bank, the better the return to shareholders.

Kukaj et al. (2020) examined the profitability analysis of banks: a comparative study of domestic and foreign banks in Kosovo. The main purpose of the study was to compare the financial performance of domestic and foreign banks in the banking sector. The STATA software programmer was used to process the data using GMM modeling, fixed effects, random effects, Hausman-Taylor regression, and linear regression. All independent variables (profit margin, return on equity, and the ratio of net sales to net assets) were significant at the 5% statistical confidence level, according to the major findings based on the empirical results. The study revealed that the profit margin and return on equity of commercial banks in Kosovo positively influence the return on equity. Conversely, an increase in the ratio of net sales to net assets negatively impacts the return on equity. This paper's practical value lies in its comprehensive examination of Kosovo's commercial banks' profitability and its capacity to identify the most lucrative domestic and foreign-owned banks through comparative analysis. comprises figuring out the capital bank.

Parvin et al. (2020) conducted research on capital structure, financial performance, and sustainability of microfinance institutions (MFIs) in Bangladesh. The main purpose of the study was to study the relationship between capital structure and financial performance of micro-finance institutions. The researcher used the random effect model and fixed effect model to analyze the data. The results showed that the variables influencing NIER include Size, Risk, Debt to Loan Ratio (DTL), and Equity to Asset Ratio (EAR). Moreover, ROA is positively impacted by EAR and DTL and negatively impacted by risk. By assembling a portfolio of capital sources from market-based funding sources, MFIs will be able to optimize their capital structure, improve their financial performance, and serve low-income clients without the need for collateral according to the study's conclusions.

Obuobi et al. (2020) analyzed the relationship between capital structure and banks' performance; evidenced by banks listed on the Ghana Stock Exchange. The main purpose of the study was to examine the influence of capital structure on the financial performance of banks. Descriptive Statistics, Correlation Analysis, and Multiple Linear Regression analysis were adopted in this study. The findings showed a statistically

significant negative relationship between DR and ROA. Furthermore, it was evident that DR had a small but detrimental impact on ROE and EPS.

Khatri (2020) analyzed the impact of liquidity on the profitability of Nepalese commercial banks. The study focuses on investigating the relationship between the liquidity and the profitability of commercial banks in Nepal. Indicators of liquidity such as asset quality, cash-deposit ratio, and credit-deposit ratio were considered, while return on equity (ROE) and return on assets (ROA) were used as stand-ins for profitability. The results of the Hausman test and the fixed effects approach showed that asset quality was positively and significantly correlated with ROE but negatively and significantly correlated with ROA. There was a slight but favourable correlation between ROA and ROE and the Cash Deposit Ratio (CADR). On the other hand, there was a negative and negligible correlation between the Credit-Deposit Ratio (CDR) and ROE and a positive but insignificant correlation with ROA. The study's conclusions help to clarify the intricate relationship that exists between profitability and liquidity indicators in the context of Nepalese commercial banks.

Timilsina (2020) investigated the determinants of capital structure in Nepalese commercial banks. The study main objective of the study was to examine the determinants of capital structure in Nepalese commercial banks. The study employed regression modelling and the computation of Pearson's correlation coefficients to evaluate the influence and importance of bank-specific variables on the capital structure of Nepalese development banks. The findings indicated positive correlations between bank size and assets tangibility with total debt to total assets, while return on assets, assets growth, and liquidity showed negative correlations with total debt to total assets. Similarly, return on assets, bank size, assets tangibility, asset growth, and liquidity exhibited negative correlations with total debt to total equity. These results suggested that higher asset growth, return on assets, and liquidity were associated with lower total debt to total assets and total debt to total equity. Conversely, a higher bank size and assets tangibility were linked to higher total debt to total assets. The study concluded that return on assets, bank size, and asset tangibility were the most influential factors, while asset growth and liquidity were the least influential factors affecting the capital structure of Nepalese development banks affecting the capital structure of Nepalese development banks.

Adeoye and Olojede (2019) conducted a research on the effect of capital structure on the financial performance of listed banks in Nigeria. The main objective of the study was to examine the relationship between capital structure and financial performance. The researcher used Descriptive Statistics, Correlation Analysis, and Multiple Linear Regression to analyse the collected data. The outcome showed a negative correlation between financial performance and capital structure. According to the regression analysis, there was a substantial negative impact of debt to equity on return on equity and return on assets. Age also had a substantial influence on return on assets and a negligible impact on return on equity. The tangibility of the assets had a significant impact on the return on assets but an insignificant impact on the return on shareholder's equity.

Khalifa (2019) analyzed the impact of capital structure on financial performance using two main sets of variables. Profitability is assessed using return on assets (ROA) and return on equity (ROE) as proxies, while capital structure is represented by variables such as short-term debt, long-term debt, total debt, and debt-to-equity ratio. size. Smart PLS (partial least squares) version 3 was used for data analysis, and multiple regression revealed that 10% of ROE and 34% of ROA were predicted by the independent variables. Specifically, total debt had a significant negative impact on both ROE and ROA, while only sales had a significant negative impact on ROE. On the other hand, short-term debt had a positive impact on ROE. The relationships between long-term debt, debt-to-equity ratio, total asset size, and profitability showed insignificant or mixed results. This study acknowledged the limitations of small sample size and recommended that future studies examine longer time frames with larger sample sizes and include additional independent variables such as taxation and concentration.

Pokharel and Pokharel (2019) examined the liquidity management and profitability in Nepalese commercial banks. The main objective of the study was to explore the influence of liquidity on the profitability of Nepalese commercial banks. Descriptive statistics, correlation analysis, and regression analysis were employed to analyse the data. The research concluded that the bank's liquidity ratios are below the prescribed standard. The CRR and IGSCA are positively correlated with ROA while CRR and CBBISD are inversely correlated with ROA. In the case of liquidity-ROE Relation, CR is inversely correlated to ROE but all other ratios (CRR, CBBISD and IGSCA) are positively

correlated with ROE. It also has been reported there is a significant relationship between liquidity ratios with profitability, except between IGSCA and ROA.

Serwadda (2019) conducted research on the effect of capital structure on banks' performance, from the Ugandan perspective. The main purpose of the study was to investigate the effect of capital structure on banks' performance in Ugandan banks. The researcher used the panel regression model to analyse the data. Results portrayed that there is a positive relationship between capital structure variables and bank performance. It's between long-term debts, and total debt with a net interest margin. There is also a positive relationship between total debt and return on assets. It is still the same between total debt and returns on equity. However, there is a negative relationship between short-term debt and return on assets. The results also signify a positive relationship between bank size and net interest margin. It is still the same between bank size and returns on equity plus return on assets. There is a negative relationship between the tangibility of assets and net interest margin. It is also the same with return on equity. The findings propose that profitable banks rely more on debt financing as their financing option. This is advanced by the fact that approximately 68 % of total assets are represented by short-term debts for Uganda's commercial banks. This further implies that Ugandan banks largely depend on short-term debt financing for their business operations compared to long-term debt. Hence the study recommended that executive banking management teams plus policymakers should design prudent financing decisions aimed at reducing overreliance on debts to yield optimal capital structure levels. This will enable banks to remain at the top of the profitability game competitively in the banking industry.

Siyalingam and Kangatharan (2018) conducted research on capital structure and financial performance: a study on commercial banks in Sri Lanka. The main objective of the study was to examine the relationship between capital structure and financial performance of listed commercial banks. The researcher used descriptive statistics, correlation analysis, fixed effect model and random effect model to analyze the data. The results showed that while bank deposit growth was considerably and favourably associated with ROE, the ratio of total debt to total assets was significantly adversely related to ROE. Size, long-term debt to total assets ratio, and short-term debt to total assets ratio had no discernible relationship with ROE. The study's findings advise financial managers to consider

financing from internal sources as opposed to putting a lot of emphasis on borrowed capital in their capital structure. To optimize their return on investment, practitioners, investors, and decision-makers may find value in the study's findings.

Profitability Musah (2017) conducted research on the impact of capital structure on the of commercial banks in Ghana. The study focused on examining the effect of capital structure (measured as short-term debt ratio, long-term debt ratio and total debt ratio) on profitability (measured by ROA and ROE) in commercial banks. Descriptive statistics, correlation analysis and panel regression analysis were adopted to find the result of the study. The results of the regression study showed a negative correlation between the profitability of Ghanaian banks and both the short- and long-term debt ratios. On the other hand, there was a positive correlation between Ghanaian banks' profitability and their overall debt ratio. In contrast to the rise in client deposits, which had a negative correlation with bank profitability, the control variables of company size, foreign ownership, and bank age all showed positive relationships with bank profitability. The findings indicate that commercial banks in Ghana should refocus their financing efforts from deposits to other sources since their dependence on short-term financing, or deposits, lowers their profitability. The study concluded that businesses must select the ideal balance between short- and long-term debt to optimize bank profitability.

Pinto et al. (2017) analyzed the capital structure and financial performance of banks. The main objective of the study was to examine the impact of capital structure on the financial performance of banks. The regression analysis was adopted in this study to draw the findings. The study's findings showed that the capital structure significantly affects the Indian banks' financial performance.

Birru (2016) conducted research on the impact of capital structure on the financial performance of commercial banks in Ethiopia. The main objective of the study was to investigate the impact of capital structure on the financial performance of selected commercial banks. The researcher used multiple regression analysis to analyze the data. The findings showed that capital structure proxies like DER, SIZE, and TANG are substantially and adversely correlated with financial success, as measured by both ROA measures, whereas DR has a negative correlation.

Zafar et al. (2016) conducted the impact of capital structure on banking profitability. The main theme of the study was to acknowledge whether capital structure is an appropriate policy to bring the financial sector, especially in the banking sector. The researcher used multiple regression analysis to conclude the study. The study's conclusions confirmed that factors influencing capital structure and banking sector performance are positively correlated.

Gohar and Rehman (2016) conducted research on the impact of capital structure on banks' performance: empirical evidence from Pakistan. The main objective of the study was to test the significance of the impact of capital structure on the financial performance of the banks. The researcher used a regression model in this study to analyze the data. the result showed that the performance of banks is inversely correlated with their capital structure in Pakistan. Since none of the null hypotheses could be accepted at the 0.01 significance level, all estimators had a meaningful relationship with performance.

Nirajini and Priya (2016) analyzed the capital structure and financial performance, examining the financial years from 2006 to 2010 for listed Trading Companies in Sri Lanka. The study's data was taken from the sample companies' annual reports, and multiple regression and correlation analyses were used for analysis. The results showed that capital structure and financial performance were positively correlated. This study demonstrates that a company's capital structure has a major effect on its financial performance and that long-term debt, the leverage ratio, and gross profit margin (GPM) are all connected with net profit margin (NPM) and return on capital employed. At the significant level of 0.05 and 0.1, it was also demonstrated that there is a relationship between return on equity (ROE), return on assets (ROA), and return on equity (ROE).

Table 1

*Summary of Empirical Review*

<b>Authors</b>	<b>Topic</b>	<b>Objective</b>	<b>Methodology</b>	<b>Findings</b>
Mukhiya (2024)	Capital structure and profitability of commercial banks in Nepal	To look into how capital structure affects a Nepalese commercial bank's profitability	Correlation Analysis, Multiple Regression Analysis	The outcome showed that their leverage ratio significantly and negatively impacts Nepal's commercial banks' NIM. NIM's negative and negligible effects on bank size have persisted. The Liquidity Ratio has a noteworthy and favourable impact on NIM. NIM is significantly and favorably impacted

				by the capital ratio. Banks ought to respect the importance of other factors, though.
Hjissaid (2023)	Capital structure and profitability of basic material sectors in Saudi Arabia	To analyse the relationship between capital structure and the profitability in Saudi Arabia's basic material sector	Regression Analysis, Fixed Effect Model, Random Effect Model, Hausman Tests	The findings demonstrated a negative correlation between return on equity (ROE) and short-term debt to total assets (SDA). Additionally, there is a positive association found between profitability and total debt (DA), but a negative correlation between long-term debt to total assets (LDA) and return on equity (ROE).
Oli et al. (2023)	The effect of capital structure and profitability: evidence from oil and gas firms in Nigeria	To examine the capital structure in the financial and manufacturing sectors.	PGM/ARDL (Pooled Group Mean Autoregressive Distributed Lag Model)	The results showed that firms in the oil and gas sector rely on short-term debt to finance their operational and business endeavors. A positive nexus between retained earnings and capital structure was observed. This finding implied that firms with higher earnings retention tend to experience faster growth prospects. An inverse nexus was observed between long-term debt, retained earnings, market value, and performance indicators.
Gofe and Asfaw (2023)	Factors influencing capital structure decisions of commercial banks in Ethiopia	To identify existing gaps and assess the state of research in this area in order to provide direction for future research	Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)	This result suggested that there is a discrepancy between the variables examined in the study and previous literature, and citations of the study were limited. Studies focusing on several variables have yielded contradictory results regarding the theory supporting the factors that influence the capital structure decisions of commercial banks in Ethiopia. Existing banking.
Kunwar and Jnawali (2023)	The impact of macroeconomic and bank-specific variables on the profitability of commercial banks in Nepal	To investigate how macroeconomic and bank-specific factors affect Nepalese commercial banks' profitability	Random Effect Model	The result showed that the most significant bank-specific factor influencing Nepalese commercial banks' profitability is bank size. Furthermore, the results revealed that the bank-specific factors namely bank size, credit risk, deposit-to-total assets, capital adequacy ratio, and credit-to-deposit ratio significantly increase net interest margin (NIM). Regarding the macroeconomic factors, the findings had explored that interest rates, inflation, economic growth, and the size of the money supply all significantly affect NIM. However, when it comes to ROA, the data demonstrated that, aside from interest

				rate, all macroeconomic factors significantly affect the bank's profitability as determined by ROA.
Neupane (2023)	The determinants of profitability in Nepalese development banks	To evaluate the relationship between several profitability measures and their determinants	Fixed Effect Model, Random Effect Model	The investigation revealed that the development of the banking sector, GDP growth, inflation, exchange rate, concentration ratio, and other factors all had a significant and opposite impact on the profitability of Nepalese development banks as determined by Return on Assets (ROA). Internal variables that affect ROA, such as bank size, capital base, loans, deposits, off-balance sheet activities, and branch count, did not, however, show a discernible effect.
Chalise and Adhikari (2022)	The impact of capital structure and firm size on the financial performance of commercial banks in Nepal	To examine the impact of capital structure and firm size on financial performance of Nepalese commercial banks	Regression Analysis	The capital structure (debt/equity) and ROA and EPS showed a negative relationship, according to the data. On the other hand, it demonstrated a favourable correlation between ROA and EPS with size (total assets). The results provide proof in favor of the high-level equity capital used in Nepalese commercial banks' capital structures.
Alshintti (2022)	The impact of bank liquidity management on the profitability of commercial banks in Jordan	To investigate the impact of bank liquidity management on the profitability of commercial banks	Regression Analysis	The findings indicated that return on equity, which is a measure of profitability, is impacted negatively by other variables but favorably by investment and quick ratio. Similarly, return on assets, a measure of profitability, exhibited a negative correlation with other factors but a positive link with both the durability rate and the investment rate.
Rutanga et al. (2021)	Capital structure and financial sustainability of Microfinance Institutions (MFIs) in Rwanda	To assess the effect of capital structure on the financial sustainability of microfinance institutions (MFIs)	Fixed Effects OLS Regression Model	The study's conclusions showed that using debt as a source of funding had a negative impact on a company's ability to manage its finances and function well. On the other hand, utilizing share capital significantly increases a company's return on assets, operational and financial sustainability, and sustainability. The prudent and constructive utilization of retained earnings enhances a company's financial viability. The results of sample splits indicate that SACCOs are more likely than MFIs to suffer negative effects from debt financing. The two groups differ

					significantly in terms of share capital.
Bhatt and Jain (2020)	Capital structure and profitability of commercial banks in Nepal	To examine the relationship between the capital structure and the profitability of commercial banks in Nepal	Descriptive Statistics, Correlation Analysis, Regression Analysis		The findings showed that while the return on equity is negligibly negative regarding short-term and total debt, it is negligibly positively related to long-term debt and deposits. Profitability and bank size are substantially positively correlated in all regression models, meaning that the bigger the bank, the better the return to shareholders.
Kukaj et al. (2020)	The profitability analysis of banks: a comparative study of Domestic and Foreign banks in Kosovo	To compare the financial performance of domestic and foreign banks in the banking sector	GMM modelling, fixed effects, random effects, Hausman-Taylor regression, linear regression		The study revealed that the profit margin and return on equity of commercial banks in Kosovo positively influence the return on equity. Conversely, an increase in the ratio of net sales to net assets negatively impacts the return on equity. This paper's practical value lies in its comprehensive examination of Kosovo's commercial banks' profitability and its capacity to identify the most lucrative domestic and foreign-owned banks through comparative analysis. comprises figuring out the capital bank.
Parvin et al. (2020)	Capital structure, financial performance, and Sustainability of Micro-finance Institutions (MFIs) in Bangladesh	To study the relationship between capital structure and financial performance of micro-finance institutions	Random Effect Model, Fixed Effect Model		The results showed that the variables influencing NIER include Size, Risk, Debt to Loan Ratio (DTL), and Equity to Asset Ratio (EAR). Moreover, ROA is positively impacted by EAR and DTL and negatively impacted by risk. By assembling a portfolio of capital sources from market-based funding sources, MFIs will be able to optimize their capital structure, improve their financial performance, and serve low-income clients without the need for collateral according to the study's conclusions.
Obuobi et al. (2020)	Relationship between capital structure and banks' performance; evidence of banks listed on the Ghana Stock Exchange	To examine the influence of capital structure on the financial performance of banks	Descriptive Statistics, Correlation Analysis, Multiple Linear Regression		The findings showed a statistically significant negative relationship between DR and ROA. Furthermore, it was evident that DR had a small but detrimental impact on ROE and EPS.
Khati (2020)	The impact of liquidity on the profitability of	To investigate the relationship between the	Hausman Test, Fixed Effects Approach		The findings showed that asset quality was positively and significantly correlated with ROE but negatively

	Nepalese commercial banks	liquidity and the profitability of commercial banks in Nepal		and significantly correlated with ROA. There was a slight but favourable correlation between ROA and ROE and the Cash Deposit Ratio (CADR). On the other hand, there was a negative and negligible correlation between the Credit-Deposit Ratio (CDR) and ROE and a positive but insignificant correlation with ROA. The study's conclusions help to clarify the intricate relationship that exists between profitability and liquidity indicators in the context of Nepalese commercial banks.
Timilsina (2020)	The determinants of capital structure in Nepalese commercial banks	To examine the determinants of capital structure in Nepalese commercial banks	Correlation Analysis, Regression Analysis	The findings indicated positive correlations between bank size and assets tangibility with total debt to total assets, while return on assets, assets growth, and liquidity showed negative correlations with total debt to total assets. Similarly, return on assets, bank size, assets tangibility, asset growth, and liquidity exhibited negative correlations with total debt to total equity.
Adeoye and Olojede (2019)	Effect of capital structure on the financial performance of listed banks in Nigeria	To examine the relationship between capital structure and financial performance	Descriptive Statistics, Correlation Analysis, Multiple Linear Regression	The outcome showed a negative correlation between financial performance and capital structure. According to the regression analysis, there was a substantial negative impact of debt to equity on return on equity and return on assets. Age also had a substantial influence on return on assets and a negligible impact on return on equity. The tangibility of the assets had a significant impact on the return on assets but an insignificant impact on the return on shareholder's equity.
Khalifa (2019)	The Impact of capital structure on the Financial performance of the US energy companies	To analyze the Impact of capital structure on the Financial performance of the US energy companies	Multiple Regression Analysis	The result revealed that the total debt had a significant negative impact on both ROE and ROA, while only sales had a significant negative impact on ROE. On the other hand, short-term debt had a positive impact on ROE. The relationships between long-term debt, debt-to-equity ratio, total asset size, and profitability showed insignificant or mixed results
Pokharel and Pokharel (2019)	liquidity management and profitability in	To explore the influence of liquidity on the	Descriptive Statistics, Correlation	The research concluded that the bank's liquidity ratios are below the prescribed standard. The CRR and

	Nepalese commercial banks	profitability of Nepalese commercial banks	Analysis, Regression Analysis	IGSCA are positively correlated with ROA while CRR and CBBISD are inversely correlated with ROA. In the case of liquidity-ROE Relation, CR is inversely correlated to ROE but all other ratios (CRR, CBBISD and IGSCA) are positively correlated with ROE. It also has been reported there is a significant relationship between liquidity ratios with profitability, except between IGSCA and ROA.
Serwadda (2019)	The effects of capital structure on banks' performance, the Ugandan perspective	To investigate the effects of capital structure on banks' performance in Ugandan banks	Panel Regression Model	Results portrayed that there is a positive relationship between capital structure variables and bank performance. It's between long-term debts, and total debt with a net interest margin.
Sivalingam and Kangatharan (2018)	Capital structure and financial performance: a study on commercial banks in Sri Lanka	To examine the relationship between capital structure and financial performance of listed commercial banks	Descriptive Statistics, Correlation Analysis, Fixed Effect Model, Random Effect Model	The results showed that while bank deposit growth was considerably and favourably associated to ROE, the ratio of total debt to total assets was significantly adversely related to ROE. Size, long-term debt to total assets ratio, and short-term debt to total assets ratio had no discernible relationship with ROE. The study's findings advise financial managers to consider financing from internal sources as opposed to putting a lot of emphasis on borrowed capital in their capital structure. To optimize their return on investment, practitioners, investors, and decision-makers may find value in the study's findings.
Musah (2017)	The impact of capital structure on the profitability of commercial banks in Ghana	To examine the effect of capital structure (measured as short-term debt ratio, long-term debt ratio, and total debt ratio) on profitability (measured by ROA and ROE) in commercial banks	Descriptive Statistics, Correlation Analysis, Panel Regression Analysis	The results of the regression study showed a negative correlation between the profitability of Ghanaian banks and both the short- and long-term debt ratios. On the other hand, there was a positive correlation between Ghanaian banks' profitability and their overall debt ratio. In contrast to the rise in client deposits, which had a negative correlation with bank profitability, the control variables of company size, foreign ownership, and bank age all showed positive relationships with bank profitability. The findings indicate that commercial banks in Ghana should refocus their financing efforts from deposits to other sources since their dependence

				on short-term financing, or deposits, lowers their profitability.
Pinto et al. (2017)	Capital structure and financial performance of banks	To examine the impact of capital structure on the financial performance of banks	Regression Analysis	The study's findings showed that the capital structure significantly affects the Indian banks' financial performance.
Birru (2016)	The impact of capital structure on the financial performance of commercial banks in Ethiopia	To investigate the impact of capital structure on the financial performance of selected commercial banks	Multiple Regression Analysis	The findings showed that capital structure proxies like DER, SIZE, and TANG are substantially and adversely correlated with financial success, as measured by both ROA measures, whereas DR has a negative correlation.
Zafar et al. (2016)	Impact of capital structure on banking profitability	To acknowledge whether capital structure is an appropriate policy to bring the financial sector, especially in the banking sector	Multiple Regression Model	The study's conclusions confirmed that factors influencing capital structure and banking sector performance are positively correlated.
Gohar and Rehman (2016)	Impact of Capital Structure on banks Performance: empirical evidence from Pakistan	To test the significance of the impact of capital structure on the financial performance of the banks	Regression Analysis	The result showed that the performance of banks is inversely correlated with their capital structure in Pakistan. Since none of the null hypotheses could be accepted at the 0.01 significance level, all estimators had a meaningful relationship with performance.

### 2.3 Research Gap

The previous studies reviewed primarily focused on determining the optimal capital structure or the level of profitability a company should achieve. However, there is a notable absence of efforts to explore the thesis's link between profitability and capital structure. Despite the above empirical works some authors have absorbed a different opinion on the relationship between financial performance and capital structure. For example, (*Nimalathason and Valeriu, 2010*). Profitability or financial performance and capital structure have a positively significant relationship. Apart from the above empirical works, some of the authors found that there is a weak or no impact of capital structure on a firm's financial performance. For instance, confirm this assumption. From the above discussions based on the results of the empirical literature, it is clear that the investigation of the relationship between capital structure and financial performance is inconclusive and requires more empirical work. In order to close this gap, the current study looks into

how capital structure affects profitability while taking the bank's overall profitability position into account as well as the capital structure's composition. While looking over the body of current literature, it becomes apparent that although other studies have explored various variables, the present study uniquely incorporates return on assets (ROA) and return on equity (ROE) as dependent variables. The objective is to analyze how the composition of the capital structure affects not only the financial health of the bank but also the wealth of shareholders (*Saaedi and Mahmoodi, 2011*).

Research on this topic is limited within the context of Nepal. This study aims to fill the existing research gap regarding the analysis of profitability in five selected banks, with a primary focus on commercial banks established in different periods. The study is limited to a ten-year data span, which could potentially affect the accuracy of the findings. Various ratios and trend analysis are employed to evaluate the profitability of the five banks. Additionally, statistical methods such as mean, correlation, and regression analysis are utilized to assess the risk and the impact of capital structure on profitability at a specific commercial bank.

Hence, from an academic and policy perspective, this research has proven valuable for a diverse audience, including individuals, academics, professors, students, and business professionals. The researcher trust that this study will serve as a valuable resource for others engaged in related subjects in the future.

## **CHAPTER-III**

### **RESEARCH METHODOLOGY**

Research Methodology is a systematic way of solving the research problem. It refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. In other words, Research Methodology describes the methods and processes applied to the entire subject of the study. It is a way to solve the research problem systematically. It may be understood as a science of studying how research is done scientifically. The researcher must know not only the research methods/techniques but also the methodology. Researchers not only need to know how to develop certain indicators or tests, and how to calculate the mean, the mode, and the research techniques but they also need to know which of these methods or techniques are relevant and which are not and what would they mean and indicate (*Pant, 2021*).

Research has two important aspects. First, it is sufficiently broad to include all types of investigations requiring solutions to a problem. Second, it explicitly recognizes the systematic nature of the research process in which data are gathered, recorded, analyzed, and interpreted in an orderly manner. The following methodology has been followed to conduct the present study.

#### **3.1 Research Design**

Research design is an overall framework or plan for the collection and analysis of data that focuses on the data-collection methods, the research instruments utilized, and the sampling plan to be followed. Research design is the plan, structure and strategy of investigation conceived to obtain answers to research questions and to control variance. Descriptive and causal research design is used. The problem, the methodology, data gathering, data analysis and report writing are the basic elements of a research design.

This research study attempts to analyze the capital structure and profitability of the banking sector. The research design follows its loan proceeds methods, current scenario of management and future planning for this section. Mostly the analysis is based upon secondary data, i.e. of few years' financial statements of the sample firms, collected directly from those firms and their websites.

### **3.2 Population and Sample, and Sampling Decision**

The population for this study comprises all the commercial banks of Nepal. According to NRB, currently, 20 commercial banks are operating in Nepal. The study deals with the capital structure and the profitability and its impact on the long run of business activities. Five commercial banks are selected as a sample as per their paid-up capital for the study by using random sampling techniques. The sample size of the study is five among them: Global IME Bank Ltd. (GBIME), Nepal Investment Mega Bank Limited (NIMB), Nabil Bank Ltd. (NABIL), Kumari Bank Limited (KBL) and Prabhu Bank Limited (PBL).

### **3.3 Nature and Sources of Data, and the Introduction of Data Collection**

The study is based on secondary data. The required data for analysis are directly collected from the balance sheet, and profit and loss accounts of concerned commercial banks from the annual report provided. It has also taken the NRB research report for comparison to see whether the studied commercial banks going as per the rules and regulations of the central bank or not. The main sources of data assessed under the study include sampled commercial banks.

### **3.4 Method of Data Analysis**

In this study, data analysis is done according to the pattern of data available. Specific financial and statistical tools are used in this research to show the relationship between different variables related to the study. Regarding presentation, the calculated results are tabulated under different headings for ease of reading and then they are compared with each other to interpret the results. Mean, Correlation analysis and regression are done to study the relationship between the variables. Presentation and Analysis of the collected data are the core parts of the research work. The collected raw data are first presented systematically in tabular form and are then analyzed by applying different financial and statistical tools to achieve the research objective. Besides that, some graph charts and tables have been presented to analyze and interpret the study. Various Financial & statistical tools are used for data analysis.

### **3.5 Data Analysis Tools**

Financial as well as statistical tools are used to make the analysis more convenient, reliable and authentic. Their ratio, percentage, mean, standard deviation and coefficients of variations are then calculated and presented in the tables. To study the relationship

between two or more variables, correlation coefficients & regression are also calculated. Likewise, trend analysis is also used to know the trend of various ratios. Following is a brief introduction to the financial and statistical tools used in this study.

### **A. Financial Tools**

To evaluate the financial condition and performance of a company, the financial analyst needs a certain yardstick. The yardstick frequently used is a ratio of index relating two pieces of financial data to each other. Analysis and interpretation of various ratios should give experienced, skilled analysts a better understanding of the financial condition and performances of the firm than they would obtain from analysis of the financial data alone. The type of analysis varies according to the specific interest of the party involved. Trade creditors are interested primarily in the liquidity of a firm. Their claims are short-term, and the ability of a firm to pay these claims is best judged using a thorough analysis of its liquidity. The claims of bondholders, on the other hand, are long-term. Accordingly, they are more interested in the cash flow ability of the company to provide service debt over the long run. The bondholder may evaluate this ability by analyzing the capital structure of the firm, the major sources and uses of funds, its profitability over time, and projections of future profitability.

#### **1. Debt Equity Ratio (DER)**

The debt-to-equity ratio (D/E ratio) is a financial leverage ratio that compares a company's total liabilities to its shareholders' equity. This ratio is used to evaluate how much debt a company is using to finance its operations relative to the value of shareholders' equity. A high debt-to-equity ratio indicates that a company is heavily financed by debt relative to equity, which can imply higher financial risk. However, a lower ratio suggests a more conservative approach with less reliance on debt. Different industries have varying standards for what constitutes an acceptable debt-to-equity ratio. Generally, companies in capital-intensive industries (like utilities or manufacturing) might have higher ratios compared to those in less capital-intensive industries (like technology or services).

The formula for debt to equity ratio is:

$$\text{Debt Equity Ratio (DER)} = \frac{\text{Debt}}{\text{Equity}}$$

## **2. Debt Ratio (DR)**

The debt ratio is a financial metric that indicates the proportion of a company's assets that are financed by debt. It is calculated by dividing a company's total liabilities by its total assets. This ratio provides insight into the level of financial leverage a company is using. A high debt ratio suggests that a large portion of the company's assets are financed by debt, which can indicate higher financial risk. A low debt ratio indicates that a smaller portion of the company's assets are financed by debt, implying a more conservative financial structure and potentially lower financial risk. The ideal debt ratio varies by industry, as some industries tend to operate with higher levels of debt due to their nature and capital requirements.

The formula for the debt ratio is as follows:

$$\text{Debt Ratio (DER)} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

## **3. Loan to Deposit Ratio (LDR)**

The loan-to-deposit ratio (LDR) is a financial ratio used primarily by banks to assess their liquidity and the relationship between their loans and deposits. It is calculated by dividing the bank's total loans by its total deposits. This ratio indicates how well a bank is using its deposits to fund loans. A high LDR suggests that the bank is lending out a significant portion of its deposits, which can increase profitability but might also imply higher liquidity risk. A low LDR indicates that the bank has more deposits than loans, which may imply lower profitability but better liquidity. Banks aim for an optimal LDR that balances profitability and liquidity. The ideal LDR can vary based on regulatory requirements and market conditions.

The formula for the Loan to Deposit Ratio is as follows:

$$\text{Loan to Deposit Ratio (LDR)} = \frac{\text{Total Loan}}{\text{Total Deposit}}$$

## **4. Liquidity Ratio (LR)**

The liquidity ratio measures a firm's ability to fulfil short-term commitments out of its liquid assets. The current ratio measures the extent to which the claims of short-term creditors are covered by short-term assets. This ratio is calculated by dividing current assets by current liabilities. Current assets are viewed as relatively liquid, which means they can generate cash in a relatively short period. Current liabilities are debt that will come due within a year. If the current ratio is too low, the firm may have difficulty in

meeting short-run commitments as they mature. If the ratio is too high, the firm may have an excessive investment in current assets or be underutilizing short-term credit.

The formula for the Current Ratio is as follows:

$$\text{Current Ratio (CR)} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

### **5. Capital Ratio (CR)**

The capital ratio, also known as the equity-to-assets ratio, is a measure of a company's financial stability and strength. It is calculated by dividing the company's equity by its total assets. This ratio indicates the proportion of a company's assets that are financed by shareholders' equity rather than by debt. A higher capital ratio suggests that the company is less reliant on debt, which generally indicates a stronger financial position and lower financial risk. Conversely, a lower capital ratio might suggest higher financial leverage and potentially higher financial risk.

The formula for the Capital Ratio is as follows:

$$\text{Capital Ratio (CR)} = \frac{\text{Equity}}{\text{Total Assets}}$$

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

Return on Assets (ROA) is a financial ratio that measures a company's efficiency in generating profits from its total assets. It provides insight into how well a company is utilizing its assets to generate earnings. ROA is expressed as a percentage. A higher ROA indicates that the company is generating more earnings for each dollar of assets it holds, which is generally a positive sign of efficiency. However, a lower ROA suggests that the company is not effectively utilizing its assets to generate profits.

The formula for calculating Return on Assets is:

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}}$$

### **7. Return on Equity (ROE)**

Return on Equity (ROE) is a financial ratio that measures a company's profitability of its shareholders' equity. It provides insight into how effectively a company is generating profits from the equity invested by its shareholders. ROE is expressed as a percentage. A higher ROE indicates that the company is generating higher profits from the equity invested by shareholders, which is generally a positive sign of strong financial performance. However, a lower ROE suggests that the company is not effectively generating profits from its equity base.

The formula for calculating Return on Equity is:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

## **B. Statistical Tools**

Various statistical tools mentioned below here are used to analyze and interpret the loan management policy of concerned banks. Similarly, statistical tools help to find out the trends of the financial position of the microfinance and to analyze the relationship between variables that help the bank to make appropriate loan management policy regarding profit maximization and deposit collection, fund utilization through providing loans and advances or investment on other companies. In this study, statistical tools such as the coefficient of correlation between different variables, and trend analysis of important variables have been used for analyzing and interpreting the financial data. This basis of statistical analysis related to this study is discussed below: -

### **(i) Arithmetic Mean**

The mean or average value is a single value within the range of the data that is used to represent all the values in the series. Since an average value is somewhere within the range of the data, it is also called a measure of central value. The average value is obtained by adding together all the terms and by dividing this total by the number of items. This formula is given below: -

$$\bar{X} = \frac{\sum X}{n}$$

Where,  $\sum X = X_1 + X_2 + X_3 + \dots + X_n = \text{Sum of given set of observation}$

n = Number of items observed.

X= Variables

### **(ii) Standard Deviations**

Karl Pearson first suggested standard deviation (SD) in 1893 as a measure of dispersion. It is usually denoted by sigma ( $\sigma$ ). The measurement of the scatterness of the mass of figures in a series about an average is known as dispersion and standard deviation measures the absolute dispersion. The greater the amount of dispersion greater the standard deviation and vice versa. A small standard deviation means a high degree of

uniformity of the observation as well as homogeneity of a series. A large standard deviation refers to low uniformity and homogeneity of the series.

Symbolically,

$$SD(\sigma) = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

### (iii) Coefficient of Variation

The relative measure of dispersion based on the standard deviation is known as the coefficient of standard deviation. The coefficient of dispersion based on standard deviation multiplied by 100 is known as the coefficient of variation (CV)

$$CV = \frac{SD}{Mean} \times 100\%$$

The coefficient of variation reflects the relationship between standard deviation and mean. Since C.V. is independent of the unit, two distributions can bitterly be compared with the help of it for their variability. Higher CV denotes higher variability, i.e., lesser uniformity and consistency and vice versa.

### (iv) Correlation Coefficient

Correlation is defined as the "relationship" (of association) between (Among) the one dependent variable (or factor) and one (or more than one) independent variable (s) or factor (s). In other words, correlation is the relationship between (or among) two or more variables (i.e. only one variable dependent and one or more variable (s) independent).

$$\text{Correlation of coefficient, } r = \frac{n \cdot \sum XY - (\sum X)(\sum Y)}{\sqrt{n \cdot \sum X^2 - (\sum X)^2} \cdot \sqrt{n \cdot \sum Y^2 - (\sum Y)^2}}$$

Where,

n Number of pairs of observation.

X= Variable

Y = Variable

r = correlation of coefficient

### (v) Regression Coefficient

Regression is a statistical analysis technique used to model the relationship between a dependent variable and one or more independent variables. It aims to find the best-fitting line or curve that predicts the values of the dependent variable based on the values of the

independent variables. Regression helps in understanding the correlation and quantifying the strength and direction of the relationship between variables, allowing for prediction and inference.

The equation of a linear regression line is given as  $Y = a + bx$ ,

Where,

Y: This is the dependent variable

X: This is the independent variable

b: This is the coefficient or slope of the regression equation.

a: This is the intercept term or the constant term in the regression equation.

### **Multiple Regression Analysis**

Multiple Regression Analysis is a statistical technique used to explore the relationship between a dependent variable and two or more independent variables. It builds upon simple linear regression, which examines the relationship between a dependent variable and a single independent variable. In multiple regression, the goal is to understand how the independent variables collectively impact the dependent variable while controlling for each other's effects.

The equation for a multiple regression model with 'p' independent variables is generally represented as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where:

Y = dependent variable.

X<sub>1</sub>, X<sub>2</sub>, ..., X<sub>4</sub> = independent variables.

$\beta_0$  = Intercept.

$\beta_1, \beta_2, \dots, \beta_4$  = coefficients that represent the effect of each independent variable.

$\varepsilon$  = Error term.

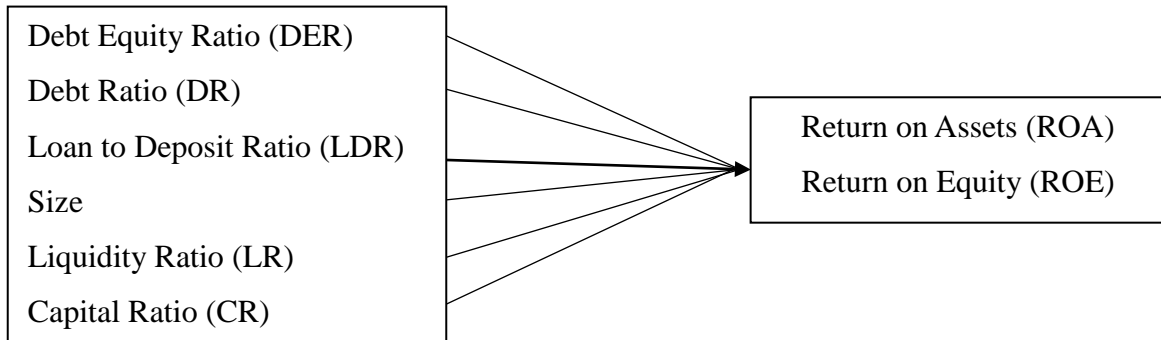
### **3.6 Research Framework and Definition of Variables**

A conceptual framework is a paradigm of research work which is formulated through the researcher's ideas and knowledge related to the subject matter. The theoretical framework forms the cornerstone of the theory's foundation. The entire investigation is conducted within the parameters of this hypothesis. Considering that the primary goal of research is to generate hypotheses regarding issues and investigate. The theoretical framework must

be established and presented with attention to answer the questions. A theoretical model that displays the variables or traits chosen for inclusion may be depicted graphically.

**Independent Variables**

**Dependent Variables**



*(Source: Bhatta, 2024)*

*Figure 1* Research Framework of the Study

The independent and dependent variables of the study topic. If the independent variables increase or decrease, it will affect the dependent variables. The details definitions of both variables are given below:

**Independent Variables**

**Debt to Equity Ratio (DER)**

This ratio uses total liabilities divided by total equity and debt as a measure of capital structure. The result of previous studies on capital structure using total debt provides mixed results. For instance, *Gatsi et al. (2013)* found a positive relationship between total debt and net interest margin even though the relationship between return on assets and return on equity was not statistically significant. *(Yegon, et. 2014)* found no significant relationship between total debt ratio and profitability. However, some studies have shown a negative relationship between total debt ratio and profitability

**Debt Ratio (DR)**

This study takes total debt to total assets as a proxy for the capital structure of the banks. Companies’ capital structure can however be measured by different accounting methods including short-term liability to total assets, long-term liability to total assets and total debt to total assets. For this study, total debt to total assets was used as a proxy for the capital structure of the banks as in the case of *(Onaolapo and Kajola, 2010)*.

### **Loan to Deposit Ratio (LDR)**

It is also known as the Credit-Deposit Ratio (CDR), which is the ratio of outstanding credit to aggregate deposit levels of banks (Mishra & Pradhan, 2019). A high CDR indicates two things, firstly the bank is issuing out more of its deposits in the form of interest-bearing loans; secondly, the bank generates more income (*Rengasamy, 2014*). Alternatively, a very low ratio means the bank is at low risk, at the same time it is not using assets to generate income. According to Shrestha (2018), there is a significant relationship between the Profitability of commercial banks and Credit Deposit Ratio.

### **Size**

Firm size is measured by the total assets of the firm. *Pervan and Visic, 2012*) showed that the firm size has a significant (but weak) positive influence on firm leverage. Similarly, the study of Dogan (2013) indicated a positive relation between size indicators and capital structure of firms. The results showed that the larger firms reached higher economic performance compared with smaller ones. This finding indicates that economies of scale are likely to play an important role in the sector of raising swine (*Kuncova et al., 2016*). However, Olawale et al., (2017) revealed that firm size in terms of total assets has a negative effect on financial leverage. Larger-sized firms usually are more diversified and have more stable cash flow, therefore they are less risky. This will result in lower cost of debt as well as easier access to the external debt markets. The study suggested that there is a positive relationship between size and leverage (*Alzomaia, 2014*). Bank size is often considered an important determinant of its profitability. As in most studies in banking and even other studies that use non-banks firm size usually have a positive relationship with profitability. The reason for this positive relationship is because larger firms enjoy economies of scale and economies of scope and this is expected to translate into superior profits. For instance, (*Anarfo, 2015*) argues that larger banks can increase their market power and take advantage of huge investment deals that smaller banks cannot take. These are some of the reasons the Bank of Ghana gave when it increased the minimum capital requirement for commercial banks in Ghana. Larger banks benefit from diversification which reduces the impact of volatility and also be able to take on more debt.

### **Liquidity Ratio (LR)**

It is defined as current assets divided by current liabilities. Excessive amounts of current assets owned by a firm would perhaps increase the chances of internal funding resulting

in a relation between leverage and liquidity (*Bhunia and Das 2012*). Liquidity involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short-term obligations on the one hand and avoids excessive investment in these assets on the other hand. Furthermore, sufficient liquidity has an impact on the financial strength of a firm (*Bei and Wijewardana, 2012*). The banking sector, liquidity is a measure of performance, at least for two reasons; to meet regulatory requirements and to guarantee enough liquidity to meet customers' unannounced withdrawals. Current assets therefore must be sufficient to allow daily operations. Liquidity in this study will be measured using the current ratio.

### **Capital Ratio (CR)**

The capital ratio is computed by the ratio of total equity to total assets (*Rana-Al-Mosharrafa and Islam 2021*). Equity to Asset Ratio (EAR) indicates the proportion of a firm's total equity contributed to its operation. Equity of financial institutions is the money received from the current owners or potential investors to finance business activities. According to (*Chasnow and Johnson, 2010*), there are two types of investors: Social investors and commercial investors. First, social investors invest with social objectives as a high priority and commercial investors or private equity funders focus more on financial returns from their investments. The members of some banks are considered as the shareholders or owners of the banks.

### **Dependent Variables**

#### **Return on assets (ROA)**

It is defined as net income divided by total assets. The return on assets which is often called the firm's return on total assets, measures the overall effectiveness of management in generating profit with its available assets. Return on assets measures the profit earned per dollar of assets and reflects how well bank management uses the bank's real investment resources to generate profits (*Naceur, 2003*). *Nassar, 2016*) revealed that a high level of debt negatively affects a firm's return on assets. (*Antoniou, et al. 2008*) revealed that the leverage ratio declines with the increase of a firm's profitability, and finds that the degree and effectiveness of profitability as a determinant is dependent on the country's legal and financial traditions. (*Phung and Le 2013*) found that firm performance such as ROA and ROE has a negative impact on capital structure return on assets (ROA) is an indicator of how profitable a company is relative to its total assets.

### **Return on Equity (ROE)**

It is a good performance proxy (Akeem et al.; Salim and Yadav; 2012). ROE measures the effectiveness of shareholders' funds used by the executive bank management team. The study also applies ROA as it has been used before in several past studies (*Rouf, 2015*). Furthermore, the study uses the net interest margin as a performance proxy as well because it has been used in past studies (*Dermirguc-kunt and Huizinga, 1999*). Finally, the study uses the cost-to-income ratio as another performance proxy since it measures the efficiency of a bank (*Pasiouras and Kosmidou, 2007*).

## CHAPTER IV

### RESULTS AND DISCUSSION

Results and discussion of data is a very important stage of the research study. Presentation is the process of organizing the data in tabular form and placing the available data in reasonable form. Analysis is done to portray the financial figures in tabular or graphical form so that recommendations can be given for the remedial measure. The present chapter will discuss the various aspects of factors affecting profitability and their actual output so that recommendations can be given for remedial purposes. For analysis balance sheet and incomestatement of the financial year have been presented.

#### 4.1 Results

##### 4.1.1 Descriptive Statistics

Descriptive statistics summarize and describe the main features of a dataset, offering an overview of its central tendencies and variability. Key measures include the mean, median, and mode, which represent the center of the data, and range, variance, and standard deviation, which reflect its spread. These statistics are crucial for understanding the basic characteristics of data before conducting further analysis and are widely used across various fields to provide clear, concise data summaries.

Table 2

*Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
DER	50	5.2443	17.4570	8.7264	1.9488
DR	50	0.8396	0.9458	0.8937	0.0189
LDR	50	0.5487	1.0226	0.8421	0.0970
LR	50	0.1636	18.6520	4.1285	4.2132
Size	50	0.0206	0.5269	0.1694	0.1294
CR	50	0.0542	0.1601	0.1063	0.0189
ROA	50	-0.0137	0.0259	0.0135	0.0065
ROE	50	-0.2524	0.3039	0.1265	0.0796

*(Source: Appendix II)*

Table 2, shows the descriptive analysis of the data. The dataset consists of 50 observations (N=50) across several financial ratios and company metrics, including Debt Equity Ratio (DER), Debt Ratio (DR), loan-to-deposit ratio (LDR), Liquidity Ratio (LR), Size, Capital Ratio (CR), Return on Assets (ROA), and Return on Equity (ROE). Below is a detailed description and analysis of each variable:

The debt-equity ratio (DER) values range from 5.2443 to 17.4570, indicating significant variability in how companies finance their operations with debt versus equity. The average debt-equity ratio is 8.7264, suggesting that, on average, the companies have 8.7264 units of debt for every unit of equity. The standard deviation of the debt equity ratio is 1.9488, showing moderate variation around the mean, indicating some companies have considerably higher or lower debt levels relative to equity.

The debt ratio (DR) values range from 0.8396 to 0.9458, indicating a narrow range, suggesting that the proportion of debt relative to total assets is relatively consistent across companies. The average DR is 0.8937, meaning that, on average, companies have financed about 89.37% of their assets with debt. The standard deviation of the debt ratio is 0.0189, reflecting minimal variation, suggesting that most companies have a similar debt ratio.

The loan to deposit ratio (LDR) values range from 0.5487 to 1.0226, indicating that some companies are lending out nearly all their deposits, while others are more conservative. The average LDR is 0.8421, suggesting that, on average, companies lend out about 84% of their deposits. The standard deviation value of the loan to deposit ratio is 0.0970, showing moderate variability in lending practices among companies.

The liquidity ratio (LR) values range from 0.1636 to 18.6520, indicating extreme variation, with some companies holding very high liquidity relative to liabilities, while others hold minimal liquidity. The average LR is 4.1285, suggesting that on average, companies have over four times the liquid assets compared to their short-term liabilities. The standard deviation of the liquidity ratio is 4.2132, indicating high variability in liquidity management practices across companies.

The size values range from 0.0206 to 0.5269, suggesting significant differences in the scale of operations among the companies. The average size is 0.1694, reflecting the overall modest scale of the companies in the sample. The standard deviation of size is 0.1294, showing a fair degree of variability in company sizes.

The capital ratio (CR) values range from 0.0542 to 0.1601, indicating a relatively narrow range. This suggests that the companies in the sample have similar levels of equity relative to their total assets. The small variation in CR values implies that most companies maintain a consistent proportion of equity in their capital structure. The average CR is 0.1063, meaning that, on average, companies have equity worth 10.63% of their total assets. This indicates that a significant portion of these companies' assets is financed through debt, with equity playing a smaller role in the capital structure. The standard deviation of 0.0189 reflects minimal variation in the Capital Ratio across the companies. This low variability suggests that most companies in the sample have similar financial structures regarding the proportion of equity used to finance their assets.

The return on assets (ROA) values range from -0.0137 to 0.0259, with the negative minimum indicating that some companies are experiencing losses. The average ROA is 0.0135, suggesting that companies, on average, are generating a modest return of 1.35% on their assets. The standard deviation of return on assets is 0.0065, indicating relatively low variation in the profitability of assets across companies.

The return on equity (ROE) values range from -0.2524 to 0.3039, with the negative minimum indicating significant losses for some companies, while others are highly profitable. The average ROE is 0.1265, suggesting that companies, on average, generate a return of 12.65% on equity. The standard deviation of return on equity is 0.0796, showing considerable variation in equity returns, reflecting differences in company performance.

#### **4.1.2 Correlation Analysis**

Pearson Correlation analysis is used to determine the relation between various independent and dependent variables associated with the research. It measures the linear correlation between any two variables. A positive correlation reveals that the direction of the relationship is positive with one increasing in reaction to the other's increase. Meanwhile, a negative correlation reveals an inverse of the above; an increase in one when the other

decreases. Correlation analysis is a statistical tool which studies the relationship among six variables. It indicates whether the relationship is significant or insignificant and the correlation analysis is used to identify the impact of capital structure on the profitability of commercial banks.

Table 3

*Correlation Analysis*

	DER	DR	LDR	LR	Size	CR	ROA	ROE
DER	1							
DR	0.9434	1						
LDR	-0.7238	-0.6699	1					
LR	0.4642	0.4033	-0.6586	1				
Size	-0.1491	-0.0870	0.2591	-0.4831	1			
CR	-0.9436	0.9999	0.6690	-0.4021	0.0854	1		
ROA	-0.4229	-0.2954	0.0466	-0.0458	-0.2247	0.2956	1	
ROE	-0.2599	-0.0679	-0.0485	0.0091	-0.1733	0.0680	0.9446	1

*(Source: Appendix III)*

Table 3, represents the correlation analysis of capital structure and the profitability of commercial banks. In this analysis, the Return on Assets (ROA) and Return on Equity (ROE) are considered the dependent variables, while Debt to Equity Ratio (DER), Debt Ratio (DR), Loan to Deposit Ratio (LDR), Liquidity Ratio (LR), Size, and Capital Ratio (CR) are independent variables. The goal is to examine how these independent variables correlate with ROA and ROE, providing insights into their potential impact on commercial banks' profitability. Correlation coefficients range from -1 to 1, where, +1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation and 0 indicates no correlation.

The Pearson correlation coefficient of debt equity ratio (DER) is -0.4229, indicating that ROA has a moderate negative correlation with DER. This suggests that higher leverage (more debt relative to equity) is associated with lower returns on assets. Companies with higher debt levels may face higher interest costs, reducing their profitability. The Pearson correlation coefficient of debt ratio (DR) is -0.2954. ROA shows a weak negative

correlation with DR, indicating that as the proportion of debt to total assets increases, the profitability of assets tends to decrease, albeit not as strongly as with DER. The Pearson correlation coefficient of loan to deposit ratio (LDR) is 0.0466. The correlation between ROA and LDR is very weak and positive, suggesting that the way companies manage their loans and deposits has little to no direct impact on asset profitability. The Pearson correlation coefficient of liquidity ratio (LR) is -0.0458. There is a very weak negative correlation between LR and ROA, indicating that liquidity levels have minimal influence on how effectively assets generate returns. The Pearson correlation coefficient of bank size is -0.2247. ROA has a weak negative correlation with Size, implying that larger companies might have slightly lower returns on assets, possibly due to increased complexity, inefficiencies, or higher fixed costs associated with larger operations. The Pearson correlation coefficient of capital ratio (CR) is 0.2956. ROA has a weak positive correlation with CR, suggesting that companies with higher equity relative to their assets tend to have slightly better asset profitability. This could imply that companies with stronger equity positions manage their assets more efficiently.

The Pearson correlation coefficient of debt equity ratio (DER) is -0.2599. ROE has a weak negative correlation with DER, indicating that higher leverage might slightly reduce returns on equity. This is somewhat counterintuitive since leverage can amplify returns on equity, but this dataset, suggests that high debt levels might be associated with increased financial risk, which could reduce equity returns. The Pearson correlation coefficient of debt ratio (DR) is -0.0679. ROE shows a very weak negative correlation with DR, implying that the proportion of debt in the capital structure has minimal impact on equity profitability. The Pearson correlation coefficient of loan to deposit ratio is -0.0485. ROE has a very weak negative correlation with LDR, indicating that lending practices have almost no effect on equity returns. The Pearson correlation coefficient of liquidity ratio (LR) is 0.0091. There is virtually no correlation between LR and ROE, suggesting that liquidity levels do not influence equity profitability. The Pearson correlation coefficient of bank size is -0.1733. ROE has a weak negative correlation with Size, suggesting that larger companies might experience slightly lower equity returns, potentially due to similar reasons as with ROA. The Pearson correlation coefficient of capital ratio (CR) is 0.0680. ROE has a very weak positive correlation with CR, indicating that a stronger equity position relative to assets has a minimal impact on increasing equity returns.

### 4.1.3 Regression Analysis

Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modelling the future relationship between them. In this study, ROA is considered the dependent variable and debt equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, size and capital ratio are considered independent variables.

#### 1. Model summary

Table 4

*Model Summary of ROA*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.7292	0.5318	0.4664	0.0048

a. Predictors: (Constant), DER, DR, LDR, LR, SIZE, CR

*(Sources: Appendix IV)*

Table 4, indicates the model summary of regression analysis. R is the correlation coefficient which shows how strong the linear relationship is between the dependent and independent variables. The multiple R of return on assets (ROA) is 0.7292. The value of the R square of return on assets is 0.5318 which indicates that 53.18% of the systematic variation in return on assets can be explained by independent variables such as debt equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, bank size, and capital ratio. The remaining percentage is due to the effect of other factors. The standard error of return on assets (ROA) is 0.00311, which reflects the deviation between the actual value and the estimated value of dependent variables which is the return on assets.

#### 2. ANOVA Analysis

ANOVA (Analysis of Variance) in regression provides insights into the overall significance of the model and individual variables contributions. The following table shows the ANOVA analysis.

Table 5  
ANOVA Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.0011	6	0.0002	8.1387	.000
	Residual	0.0009	43	0.0000		
	Total	0.0021	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), DER, DR, LDR, SIZE, LR, CR

(Sources: Appendix V)

Table 5, represents the ANOVA analysis which shows the significance F of return on assets (ROA) is 0.000, the significance F value of return on assets is lower than the level of significance i.e. 0.05 it is concluded that there is a significant relationship between dependent variable i.e. return on assets and independent variables. The value of F of return on assets is 8.1387, which is a measure used in the analysis of variance (ANOVA) and regression analysis to assess the significance of the difference between group means or the significance of the overall regression model.

### 3. Multiple Regression Coefficient

Multiple linear regression analysis is a statistical technique used to understand the relationship between one dependent variable and two or more independent variables. It extends simple linear regression by allowing for multiple predictors, enabling the model to account for more complexity in the data.

The multiple linear regression model can be represented as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon \dots\dots\dots (i)$$

$$Y (ROA) = 3.7518 - 0.0065DER - 3.6009DR - 0.0410LDR - 0.0003LR - 0.0181SIZE - 4.009CR \dots\dots\dots (i)$$

Where,

Y (ROA) = Return on assets as a dependent variable

$\beta_0$  = Intercept

$\beta_1 \dots \beta_4$  = coefficient of independent variables

$\epsilon$  = Error term

Table 6  
*Regression Coefficients*

	Coefficients	Standard Error	t Stat	Sig
Intercept	3.7518	3.6867	1.0177	0.3145
Debt to Equity Ratio	-0.0065	0.0012	-5.5832	0.0000
Debt Ratio	-3.6009	3.6836	-0.9776	0.3338
Loan to Deposit Ratio	-0.041	0.0120	-3.4036	0.0015
Liquidity Ratio	-0.0003	0.0002	-1.1568	0.2537
Size	-0.0181	0.0061	-2.9431	0.0052
Capital Ratio	-4.0009	3.6933	-1.0833	0.2847

a. Dependent Variable: ROA

(Source: Appendix VI)

Table 6, presents the results of a multiple regression analysis where the dependent variable is Return on Assets (ROA). The independent variables include financial ratios such as the Debt Equity Ratio, Debt Ratio, Loan to Deposit Ratio, Liquidity Ratio, Size, and Capital Ratio.

The intercept i.e. 3.7518 represents the estimated ROA when all independent variables are zero. The regression coefficient of debt equity ratio (DER) is -0.0065 and the significance value is 0.0000, which is less than the level of significance. The negative coefficient suggests that as the Debt Equity Ratio increases, the ROA decreases. The p-value is extremely small (essentially 0.0000), indicating that this relationship is highly statistically significant. The regression coefficient of the debt ratio is -3.6009 and the sig value is 0.3338, which is more than the level of significance i.e. 0.05. While the coefficient is negative, indicating a potential decrease in ROA as the Debt Ratio increases, the p-value is high, suggesting that this relationship is not statistically significant.

The loan to deposit ratio has a negative regression coefficient i.e. -0.041 and the significance value is 0.0015, which is less than the level of significance. The negative coefficient indicates that higher Loan to Deposit Ratios are associated with lower ROA.

The p-value shows that this relationship is statistically significant. The regression coefficient of the liquidity ratio is -0.0003 and the significance value is more than the level of significance i.e.  $0.2537 > 0.05$ . The coefficient is negative, suggesting a small decrease in ROA as the Liquidity Ratio increases. However, the p-value (0.2537) indicates that this relationship is not statistically significant. The bank size has a negative regression coefficient i.e. -0.0181 and the significance value is 0.0052, which is less than the level of significance. The negative coefficient implies that larger entities tend to have a lower ROA. The p-value indicates that this relationship is statistically significant. The regression coefficient of capital ratio is -4.0009 and the significance value is 0.2947, which is more than the level of significance. The Capital Ratio has a negative coefficient, suggesting a decrease in ROA as the Capital Ratio increases. However, the high p-value indicates that this relationship is not statistically significant.

The analysis suggests that certain financial ratios, particularly the Debt Equity Ratio, Loan to Deposit Ratio, and Size, have a statistically significant negative impact on ROA. Other variables in the model do not appear to have a statistically significant effect on ROA. The standard error shows the deviation between the actual value and the estimated value of dependent variables.

#### 4.1.4 Regression Analysis

Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modelling the future relationship between them. In this study, ROE is considered the dependent variable and debt-equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, size and capital ratio are considered independent variables.

##### 1. Model Summary

Table 7

*Model Summary of ROE*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.7556	0.5710	0.5111	0.0557

a. Predictors: (Constant), DER, DR, LDR, LR, SIZE, CR

(Sources: Appendix VII)

Table 7, indicates the model summary of regression analysis. R is the correlation coefficient which shows how strong the linear relationship is between the dependent and independent variables. The multiple R of return on equity (ROE) is 0.7556. The value of the R square of return on equity is 0.5710 which indicates that 57.10% of the systematic variation in return on equity can be explained by independent variables such as debt equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, size and capital ratio. The remaining percentage is due to the effect of other factors. The standard error of return on equity (ROE) is 0.0557, which reflects the deviation between the actual value and the estimated value of dependent variables which is the return on equity.

## 2. ANOVA Analysis

ANOVA (Analysis of Variance) in regression provides insights into the overall significance of the model and individual variables contributions. The following table shows the ANOVA analysis.

Table 8

*ANOVA Table*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.1772	6	0.0295	9.5371	.0000
	Residual	0.1332	43	0.0031		
	Total	0.3104	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), DER, DR, LDR, SIZE, LR, CR

*(Sources: Appendix VIII)*

Table 8, represents the ANOVA analysis which shows the significance F of return on equity (ROE) is 0.000, the significance F value of return on equity is less than the level of significance i.e. 0.05 it is concluded that there is a significant relationship between dependent variable i.e. return on equity and independent variables. The value of F of return on equity is 9.5371, which is a measure used in the analysis of variance (ANOVA) and regression analysis to assess the significance of the difference between group means or the significance of the overall regression model.

### 3. Multiple Regression Coefficient

Multiple linear regression analysis is a statistical technique used to understand the relationship between one dependent variable and two or more independent variables. It extends simple linear regression by allowing for multiple predictors, enabling the model to account for more complexity in the data.

The multiple linear regression model can be represented as;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \epsilon \dots\dots\dots (ii)$$

$$Y (ROE) = 3.7518 - 0.0065DER - 3.6009DR - 0.0410LDR - 0.0003LR - 0.0181SIZE - 4.009CR \dots\dots\dots (ii)$$

Where,

- Y (ROE) = Return on Equity as a dependent variable
- $\beta_0$  = Intercept
- $\beta_1 \dots \beta_4$  = coefficient of independent variables
- $\epsilon$  = Error term

Table 9  
*Regression Coefficients*

	Coefficients	Standard Error	t Stat	Sig
Intercept	49.9949	43.0459	1.1614	0.2519
Debt to Equity Ratio	-0.0968	0.0135	-7.1735	0.0000
Debt Ratio	-47.7792	43.0095	-1.1109	0.2728
Loan to Deposit Ratio	-0.4634	0.1407	-3.2946	0.0020
Liquidity Ratio	-0.0024	0.0028	-0.8559	0.3968
Size	-0.1874	0.0717	-2.6144	0.0123
Capital Ratio	-55.4427	43.1233	-1.2857	0.2054

a. Dependent Variable: ROE

(Source: Appendix IX)

Table 9, the results of a multiple regression analysis where the dependent variable is Return on Equity (ROE). The independent variables include the Debt to Equity Ratio, Debt Ratio, Loan to Deposit Ratio, Liquidity Ratio, Size, and Capital Ratio. The intercept suggests that when all independent variables are zero, the ROE would be 49.9949.

The regression coefficient of the debt equity ratio is -0.0968 and the significance value is 0.0000, which is less than the level of significance. The negative coefficient suggests that an increase in the Debt to Equity Ratio is associated with a decrease in ROE. The p-value is extremely small, indicating that this relationship is highly statistically significant. The regression coefficient of the debt ratio is -47.7792 and the significance value is 0.2728, which is more than the level of significance i.e. 0.05. The negative coefficient implies that an increase in the Debt Ratio may lead to a decrease in ROE. However, the p-value indicates that this relationship is not statistically significant. The loan to deposit ratio has a negative coefficient i.e. -0.4634 and the significance value is 0.0020, which is less than the level of significance. The negative coefficient indicates that higher Loan to Deposit Ratios are associated with lower ROE. The p-value suggests that this relationship is statistically significant. The regression coefficient of the liquidity ratio is -0.0024 and the significance value is 0.3968, which is more than the level of significance. The Liquidity Ratio has a small negative coefficient, indicating a slight decrease in ROE as the Liquidity Ratio increases. However, the p-value (0.3968) indicates that this relationship is not statistically significant.

The bank size has a negative coefficient i.e. -0.1874 and the significance value is 0.0123, which is less than the level of significance. The negative coefficient suggests that larger entities tend to have a lower ROE. The p-value (0.0123) indicates that this relationship is statistically significant. The regression coefficient of the capital ratio is -55.4427 and the significance value is -0.2054, which is more than the level of significance i.e.  $0.2054 > 0.05$ . The Capital Ratio has a large negative coefficient, suggesting a significant decrease in ROE as the Capital Ratio increases. However, the p-value shows that this relationship is not statistically significant.

The Debt Equity Ratio, Loan to Deposit Ratio, and Size are statistically significant predictors of ROE, with negative coefficients indicating that increases in these variables are associated with decreases in ROE. The Debt Ratio, Liquidity Ratio, and Capital Ratio do not show statistically significant relationships with ROE in this model, suggesting that their effects on ROE may not be substantial or distinguishable from random variation. The standard error shows the deviation between the actual value and the estimated value of dependent variables.

## 4.2 Major Findings

The analysis reveals these key findings:

- Banks exhibit a high average Debt-Equity Ratio (DER) of 8.7264, indicating a significant reliance on debt over equity, which may reflect aggressive growth strategies or limited access to equity financing. However, the Debt Ratio (DR) remains consistent across banks, suggesting that despite varying levels of debt relative to equity, companies maintain a similar proportion of debt to total assets.
- The Liquidity Ratio (LR) displays extreme variation, with values ranging from 0.1636 to 18.6520 and a high standard deviation of 4.2132. This indicates that some companies maintain very high liquidity relative to their short-term liabilities, while others operate with minimal liquidity. This wide range and high standard deviation indicate diverse approaches to liquidity management, with some firms prioritizing liquidity as a safeguard and others potentially increasing risk by allocating resources elsewhere.
- Return on Equity (ROE) and Return on Assets (ROA) values range from -0.2524 to 0.3039, and the Return on Assets (ROA) values range from -0.0137 to 0.0259. The negative minimum values indicate that some banks are experiencing losses, while others are highly profitable, especially in terms of equity returns. The significant variation in ROE, with a standard deviation of 0.0796, highlights considerable differences in bank performance, reflecting the diversity in business models, operational efficiency, and market conditions within the sample. This disparity reflects differences in bank performance, operational efficiency, and business models, leading to varied profitability across the sample.
- Both the Debt-Equity Ratio (DER) and Loan to Deposit Ratio (LDR) are statistically significant predictors of profitability, negatively affecting both Return on Assets (ROA) and Return on Equity (ROE). The negative coefficients suggest that as banks increase their reliance on debt (relative to equity) or lend out a higher proportion of their deposits, their profitability tends to decrease. This indicates that higher leverage and aggressive lending strategies may reduce the overall profitability of banks.
- Bank size is also a statistically significant predictor of both ROA and ROE, with negative coefficients for both measures. This suggests that larger banks tend to have lower profitability compared to smaller ones. This could imply that as banks

grow, they may face diminishing returns or encounter inefficiencies that reduce their profitability.

- The Liquidity Ratio and Capital Ratio do not show statistically significant relationships with either ROA or ROE. Despite having negative coefficients, these ratios do not have a substantial impact on bank profitability within this model. This finding suggests that variations in liquidity management and capital structure may not be strong determinants of profitability for these banks.
- Although the Debt Ratio has negative coefficients for both ROA and ROE, indicating a potential decrease in profitability as the Debt Ratio increases, these relationships are not statistically significant. This suggests that the proportion of total assets financed by debt does not have a clearly discernible effect on profitability in this context, making it less of a critical factor compared to other variables like DER, LDR, and size.

### 4.3 Discussion

The debt-equity ratio has a negative and significant impact on the return on assets and return on equity. The finding of this study is partially consistent with the finding of *Chalise and Adhikari (2022)*, that the debt equity ratio had a negative and insignificant impact on return on equity. The result of this study is supported by *Gohar and Rehman (2016)* that the debt-equity ratio had negatively related to the return on assets. The result of this study is not consistent with the findings of *Mukhiya (2024)* that the debt-equity ratio had a positive and significant impact on the profitability of commercial banks in Nepal. which means that the when debt-equity ratio increases, the profitability of commercial banks increases. The result of this study is consistent with the findings of *Birru (2016)*, and *Adeoye and Olojede (2019)* that the debt-equity ratio had a negative and significant impact on banks' profitability.

The debt ratio has a negative but not statistically significant impact on return on assets and return on equity. The finding of this study is supported by *Bhatt and Jain (2020)*, that the debt ratio had a negative and insignificant impact on the profitability of commercial banks in Nepal. The result of this study is not consistent with the findings of *Hajisaaid (2020)*, *Abor (2005)* and *Hamin et al. (2015)* that the total debt to total assets ratio had a positive impact on the return on equity. The findings of this study are not consistent with

the findings of *Serwadda (2019)*, *Nikoo (20215)*, *Gill et al. (2011)*, and *Abor (2005)* that the total debt-to-assets ratio had a positive and significant impact on the profitability of sampled banks. The result of this study is consistent with the finding of *Sivalingram and Kengatharan (2018)* that the total debt to total assets ratio had a negative and statistically significant impact on the return on assets but an insignificant impact on the return on equity of commercial banks.

The loan-to-deposit ratio has a negative and statistically significant impact on return on assets and return on equity. The result of this study is not consistent with the finding of *Khati (2020)* that the credit-to-deposit ratio had a positive but not statistically significant impact on return on assets and a negative and insignificant impact on return on equity. The result of this study is neutral to the finding of *Birru (2016)* that the loan-to-deposit ratio had no clear and statistically proven relation with the financial performance measured by return on assets and return on equity of commercial banks. The liquidity ratio is negative and insignificantly affects the profitability of commercial banks. The result of this study is not in favor of the findings of *Mukhiya (2024)* and *Alipour et al. (2015)* that the liquidity ratio (current assets/current liabilities) had a positive and significant impact on the performance of commercial banks.

The return on assets and return on equity is negative and statistically significantly influenced by bank size. The result of this study is not supported by *Chalise and Adhikari (2022)* and *Bhatt and Jain (2020)* that the profitability of commercial banks is positively and statistically significantly influenced by bank size, indicating larger the size of commercial banks, the higher the return for shareholders. The result of this study is not supported by *Serwadda (2019)*, *Hajisaaaid (2020)*, *Jahan (2012)*, *Rao and Lakew (2012)* and *Flamin et al. (2009)* that the size of the firm had a positive relationship with return on equity. The result of this study is in favour of the finding of *Mukhiya (2024)*, and *Obamuyi (2013)* that the bank size had a negative and statistically significant impact on the performance of sampled banks. the findings of *Sivalingram and Kengatharan (2018)* that the bank size did not show any relationship with return on assets but an insignificant impact on the return on equity. The capital ratio has a negative but not statistically significantly affects the profitability of commercial banks. The result of this study is not consistent with the findings of *Mukhiya (2024)* and *Parvin et al. (2024)* that the capital ratio (equity capital/total assets) had a positive and significant impact on the performance

of sampled banks. The result of this study is partially supported by *Rutanga et al. (2021)* that the capital ratio had a negative and statistically significant impact on profitability.

## **CHAPTER V**

### **SUMMARY AND CONCLUSION**

In this chapter, the summary has been presented along with conclusions and actionable recommendations. This is a brief introduction to all the chapters of the study as well as the overall summary of the analysis of the relevant data. Since a study would not be complete without any suggestive findings, the study has also tried to point out capital structure as well as the corrective suggestions for the elimination of the same, with the hope of giving directions for further growth and improvement in the bank policy.

#### **5.1 Summary**

Nepal's banking sector is expanding, and capital structure is crucial in optimizing profitability and ensuring financial stability. The study explores the relationship between capital structure and profitability, specifically focusing on the return on equity (ROE) of Nepalese commercial banks. It aims to guide banks in selecting an optimal capital structure to maximize profitability, addressing gaps in existing research on the subject.

This study's main purpose is to analyse the relationship between capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) and the profitability of commercial banks in Nepal, and to assess the impact of capital structure (debt-equity ratio, debt ratio, loan-to-deposit ratio, size, liquidity ratio and capital ratio) on the profitability of selected commercial banks in Nepal. While analyzing the capital structure of commercial banks in Nepal, some brief articles, journals and thesis reviews were performed. To find the impact of capital structure on the profitability of commercial banks descriptive and causal research designs were used in this study. Currently, 20 commercial banks are operating in Nepal out of them five commercial banks such as Global IME Bank Ltd. (GBIME), Nepal Investment Mega Bank Limited (NIMB), Nabil Bank Ltd. (NABIL), Kumari Bank Limited (KBL) and Prabhu Bank Limited (PBL) were selected using random sampling technique. In this study, secondary data was used which is available in the respective bank's annual reports posted on the selected commercial bank's websites. This study covers only ten years of data starting from 2013/2014 to 2022/2023. The collected data and information were analyzed by using SPSS 27.0 version software and various statistical tools such as descriptive statistics, correlation analysis,

multiple linear regression analysis as well as financial tools and tables were used to show the result clearly. The debt-equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, bank size and capital ratio were the independent variables and return on assets and return on equity were the indicators of profitability of commercial banks i.e. dependent variables.

The analysis reveals that Return on Assets (ROA) and Return on Equity (ROE) have varying correlations with financial metrics. ROA shows a moderate negative correlation with the debt-equity ratio (DER) and a weak negative correlation with the debt ratio (DR), indicating that higher leverage and debt levels are associated with lower profitability. ROE, however, has a weaker negative correlation with DER and DR, suggesting that higher leverage might slightly reduce equity returns due to increased financial risk. Both ROA and ROE have very weak correlations with loan-to-deposit ratio (LDR) and liquidity ratio (LR), indicating minimal impact on profitability. The analysis also shows weak negative correlations between company size and both ROA and ROE, suggesting that larger companies may experience slightly lower returns. Conversely, the capital ratio (CR) has a weak positive correlation with ROA and a very weak positive correlation with ROE, implying that companies with stronger equity positions may manage assets more efficiently and achieve marginally better returns.

From the regression analysis, the value of the R square of return on assets is 0.5318 which indicates 53.18% of the systematic variation in return on assets and the value of the R square of return on equity is 0.5710 which indicates that 57.10% of the systematic variation in return on equity can be explained by independent variables such as debt equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, bank size, and capital ratio. The remaining percentage is due to the effect of other factors. The standard error of return on assets (ROA) and return on equity (ROE) are 0.00311 and 0.0557 respectively, which reflects the deviation between the actual value and the estimated value of dependent variables which is the return on assets.

The analysis suggests that certain financial ratios, particularly the Debt Equity Ratio, Loan to Deposit Ratio, and Size, have a statistically significant negative impact on ROA. Other variables in the model do not appear to have a statistically significant effect on ROA. The standard error shows the deviation between the actual value and the estimated

value of dependent variables. The Debt Equity Ratio, Loan to Deposit Ratio, and Size are statistically significant predictors of ROE, with negative coefficients indicating that increases in these variables are associated with decreases in ROE. The Debt Ratio, Liquidity Ratio, and Capital Ratio do not show statistically significant relationships with ROE in this model, suggesting that their effects on ROE may not be substantial or distinguishable from random variation.

## **5.2 Conclusion**

In conclusion, the findings of this study reveal that the debt-equity ratio has a negative and significant impact on both return on assets (ROA) and return on equity (ROE), indicating that higher leverage adversely affects a firm's profitability and shareholder value. Conversely, the debt ratio, while also negatively correlated with ROA and ROE, does not exhibit a statistically significant impact, suggesting that its influence on financial performance may be less pronounced or overshadowed by other factors. These results underscore the importance of managing leverage carefully to optimize firm performance and maintain financial stability.

This study demonstrates that the loan-to-deposit ratio has a negative and statistically significant impact on both return on assets (ROA) and return on equity (ROE) for commercial banks. This finding suggests that a higher loan-to-deposit ratio, indicating more aggressive lending relative to deposits, may diminish profitability and reduce overall financial performance. The results highlight the need for banks to carefully balance their lending practices with deposit levels to maintain a healthy profitability margin and sustain long-term growth.

On the other hand, the liquidity ratio, measured as current assets over current liabilities, is found to have a negative but statistically insignificant effect on the profitability of commercial banks. This suggests that while liquidity management is critical, its direct impact on profitability may not be as pronounced or may be influenced by other mitigating factors. The findings underscore the complexity of financial management in banks and the need for a holistic approach that considers multiple dimensions of financial health beyond mere liquidity measures.

The study finds that both return on assets (ROA) and return on equity (ROE) are negatively and statistically significantly influenced by bank size, indicating that as banks grow larger, their profitability tends to decrease. This relationship suggests that increased size may lead to inefficiencies or higher costs that outweigh the benefits of economies of scale, thus adversely affecting the financial performance of larger banks. These findings underscore the importance of managing growth strategically to ensure that expansion does not come at the expense of profitability.

Additionally, the capital ratio, while negatively related to the profitability of commercial banks, does not have a statistically significant impact. This indicates that higher capital ratios, which generally imply greater financial stability, may not directly influence profitability in a significant way. The results suggest that while maintaining adequate capital is crucial for risk management and regulatory compliance, its effect on profitability may be moderated by other factors, requiring banks to consider a broader range of strategies to enhance financial performance.

### **5.3 Implications**

Based on findings and analysis following recommendations are proposed for both banks to perform better;

- The significant negative impact of the debt-equity ratio on both return on assets (ROA) and return on equity (ROE) suggests that firms should carefully manage their levels of debt relative to equity. Excessive leverage may erode profitability, so maintaining an optimal debt-equity balance is crucial for sustaining financial performance.
- The negative and significant influence of the loan-to-deposit ratio on profitability implies that banks should adopt more cautious lending practices. Overextending loans relative to deposits can harm profitability, so aligning lending strategies with deposit levels is essential for maintaining financial health.
- The finding that larger banks experience a statistically significant negative impact on ROA and ROE due to their size suggests that growth strategies should be carefully evaluated. Banks must focus on efficiency and cost control as they expand to avoid the diminishing returns associated with increased size.
- Although the capital ratio (equity/total assets) does not significantly affect

profitability, it remains a critical factor for risk management and regulatory compliance. Banks should balance the need for capital adequacy with other profitability-enhancing strategies to ensure overall financial stability.

- The liquidity ratio's insignificant impact on profitability highlights that while liquidity is important, it may not directly drive profitability. Banks should consider a more holistic approach to financial management that includes but is not solely focused on liquidity measures.
- Given the debt ratio's negative but not statistically significant impact on profitability, banks should still be cautious in increasing their overall debt levels. Even though the effect might not be strong, excessive reliance on debt can still pose risks to financial health.
- This study only focused on five sample banks further researcher can enhance their sample size to find a better result.
- This study investigates only debt-equity ratio, debt ratio, loan to deposit ratio, liquidity ratio, bank size and capital ratio as independent variables and return on assets and return on equity were the indicators of profitability of commercial banks. Further researcher used these variables and also add more independent and dependent variables for their research.

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## APPENDICES

### Appendix I

#### Raw Data

*Bank size in Trillion*

Year	Banks	DER	DR	LDR	LR	Size	CR	ROA	ROE
2013/2014	GBIME	8.7968	0.8979	0.7989	7.2831	0.0600	0.1021	0.0162	0.1590
2014/2015	GBIME	8.4472	0.8941	0.8132	6.7098	0.0692	0.1059	0.0139	0.1312
2015/2016	GBIME	9.0740	0.9007	0.7929	2.4424	0.0877	0.0993	0.0158	0.1588
2016/2017	GBIME	9.3135	0.9030	0.7748	6.8398	0.1166	0.0970	0.0172	0.1775
2017/2018	GBIME	8.4885	0.8946	0.8808	1.8772	0.1288	0.1054	0.0163	0.1548
2018/2019	GBIME	8.2856	0.8923	0.9412	1.7502	0.1517	0.1077	0.0182	0.1691
2019/2020	GBIME	8.4983	0.8947	0.9326	1.4520	0.2739	0.1053	0.0106	0.1009
2020/2021	GBIME	9.6901	0.9053	0.8904	1.3216	0.3454	0.0934	0.0121	0.1291
2021/2022	GBIME	8.5533	0.8953	0.9318	0.9791	0.3605	0.1047	0.0138	0.1314
2022/2023	GBIME	7.9221	0.8879	0.8314	2.0689	0.5269	0.1121	0.0127	0.1134
2013/2014	NIMB	6.5004	0.8667	0.8454	9.0024	0.0206	.1333	0.0149	0.1114
2014/2015	NIMB	7.0352	0.8755	0.8302	11.6111	0.0247	0.1245	0.0140	0.1126
2015/2016	NIMB	8.5434	0.8952	0.8897	8.1819	0.0399	0.1048	0.0138	0.1319
2016/2017	NIMB	6.7817	0.8715	0.8885	4.4584	0.0456	0.1285	0.0174	0.1352
2017/2018	NIMB	5.2443	0.8396	0.9383	0.2127	0.0789	0.1601	0.0167	0.1043
2018/2019	NIMB	6.3095	0.8632	0.9219	0.1636	0.0988	0.1368	0.0165	0.1206
2018/2019	NIMB	7.6303	0.8841	0.8900	3.1650	0.1554	0.1159	0.0102	0.0881
2020/2021	NIMB	7.9241	0.8879	1.0226	1.2931	0.1812	0.1121	0.0128	0.1145
2021/2022	NIMB	6.1914	0.8609	0.8919	1.7342	0.2444	0.1391	0.0155	0.1117
2022/2023	NIMB	7.0248	0.8754	0.8792	3.0368	0.4462	0.1246	0.0083	0.0669
2013/2014	NABIL	10.7703	0.9150	0.7256	3.4129	0.0903	0.0850	0.0258	0.3039
2014/2015	NABIL	11.4687	0.9198	0.6301	9.5295	0.1187	0.0802	0.0177	0.2204
2015/2016	NABIL	10.0083	0.9092	0.6905	2.6484	0.1276	0.0908	0.0221	0.2435
2016/2017	NABIL	8.9268	0.8993	0.7573	2.3364	0.1407	0.1007	0.0259	0.2572
2017/2018	NABIL	7.2130	0.8782	0.8428	2.4810	0.1691	0.1218	0.0236	0.1934
2018/2019	NABIL	7.6740	0.8847	0.8196	2.5533	0.2011	0.1153	0.0211	0.1828
2019/2020	NABIL	8.1926	0.8912	0.8065	2.6170	0.2377	0.1088	0.0146	0.1339
2020/2021	NABIL	7.5966	0.8837	0.9246	1.2806	0.2911	0.1163	0.0156	0.1337

2021/2022	NABIL	6.9238	0.8738	0.9520	1.5887	0.4198	0.1262	0.0101	0.0803
2022/2023	NABIL	7.4551	0.8817	0.8553	2.6093	0.4812	0.1183	0.0133	0.1125
2013/2014	KBL	9.4566	0.9044	0.7940	12.0308	0.0310	0.0956	0.0110	0.1152
2014/2015	KBL	10.1655	0.9104	0.7853	9.9233	0.0374	0.0896	0.0106	0.1179
2015/2016	KBL	9.2753	0.9027	0.9168	1.2867	0.0427	0.0973	0.0186	0.1907
2016/2017	KBL	6.4323	0.8655	0.9133	2.0788	0.0614	0.1345	0.0170	0.1261
2017/2018	KBL	6.8487	0.8726	1.0176	0.8348	0.0827	0.1274	0.0127	0.0993
2018/2019	KBL	7.9863	0.8887	0.9975	0.9283	0.1053	0.1113	0.0117	0.1050
2019/2020	KBL	7.4532	0.8817	0.9500	1.7859	0.1460	0.1183	0.0079	0.0671
2020/2021	KBL	9.0456	0.9005	0.9456	0.9972	0.1898	0.0995	0.0104	0.1043
2021/2022	KBL	9.1493	0.9015	0.8631	2.3717	0.2132	0.0985	0.0121	0.1228
2022/2023	KBL	9.7752	0.9072	0.8573	2.4749	0.3805	0.0928	0.0014	0.0147
2013/2014	PBL	17.4570	0.9458	0.5487	14.2517	0.0212	0.0542	(0.0137)	(0.2524)
2014/2015	PBL	11.5917	0.9206	0.6579	18.6520	0.0465	0.0794	0.0219	0.2757
2015/2016	PBL	9.6217	0.9059	0.7205	9.7077	0.0683	0.0941	0.0164	0.1737
2016/2017	PBL	9.9824	0.9089	0.7275	12.3462	0.0910	0.0911	0.0176	0.1929
2017/2018	PBL	8.2305	0.8917	0.7861	2.7401	0.1160	0.1083	0.0083	0.0769
2018/2019	PBL	8.6285	0.8961	0.8136	1.9073	0.1379	0.1039	0.0129	0.1245
2019/2020	PBL	9.8864	0.9081	0.7721	1.7825	0.1675	0.0919	0.0071	0.0776
2020/2021	PBL	11.5948	0.9206	0.8236	1.2823	0.2155	0.0794	0.0080	0.1006
2021/2022	PBL	11.1556	0.9177	0.8138	0.8810	0.2328	0.0823	0.0082	0.0993
2022/2023	PBL	10.0989	0.9099	0.8100	1.5215	0.3480	0.0901	0.0008	0.0089

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## Appendix II

### *Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
DER	50	5.2443	17.4570	8.7264	1.9488
DR	50	0.8396	0.9458	0.8937	0.0189
LDR	50	0.5487	1.0226	0.8421	0.0970
LR	50	0.1636	18.6520	4.1285	4.2132
Size	50	0.0206	0.5269	0.1694	0.1294
CR	50	0.0542	0.1601	0.1063	0.0189
ROA	50	-0.0137	0.0259	0.0135	0.0065
ROE	50	-0.2524	0.3039	0.1265	0.0796
Valid N (listwise)	50				

## Appendix III

### *Correlation analysis*

	DER	DR	LDR	LR	Size	CR	ROA	ROE
DER	1							
DR	0.9434	1						
LDR	-0.7238	-0.6699	1					
LR	0.4642	0.4033	-0.6586	1				
Size	-0.1491	-0.0870	0.2591	-0.4831	1			
CR	-0.9436	0.9999	0.6690	-0.4021	0.0854	1		
ROA	-0.4229	-0.2954	0.0466	-0.0458	-0.2247	0.2956	1	
ROE	-0.2599	-0.0679	-0.0485	0.0091	-0.1733	0.0680	0.9446	1

## Regression analysis ROA

### Appendix IV

#### Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.729215	0.531754	0.466417	0.004766

a. Predictors: (Constant), DER, DR, LDR, LR, BS, CR

### Appendix V

#### ANOVA analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.001109	6	0.000185	8.138672	.000
	Residual	0.000977	43	0.00002		
	Total	0.002086	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), DER, DR, LDR, BS, LR, CR

### Appendix VI

#### Regression Coefficient Table

	Coefficients	Standard Error	t Stat	Sig
Intercept	3.7518	3.6867	1.0177	0.3145
Debt to Equity Ratio	-0.0065	0.0012	-5.5832	0.0000
Debt Ratio	-3.6009	3.6836	-0.9776	0.3338
Loan to Deposit Ratio	-0.0410	0.0120	-3.4036	0.0015
Liquidity Ratio	-0.0003	0.0002	-1.1568	0.2537
Size	-0.0181	0.0061	-2.9431	0.0052
Capital Ratio	-4.0009	3.6933	-1.0833	0.2847

a. Dependent Variable: ROA

## Regression analysis ROE

### Appendix VII

#### *Model summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.7556	0.5710	0.5111	0.0557

a. Predictors: (Constant), DER, DR, LDR, LR, BS, CR

### Appendix VIII

#### *ANOVA analysis*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.1772	6	0.0295	9.5371	.0000
	Residual	0.1332	43	0.0031		
	Total	0.3104	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), DER, DR, LDR, BS, LR, CR

### Appendix IX

#### *Regression Coefficient Table*

	Coefficients	Standard Error	t Stat	Sig
Intercept	49.9949	43.0459	1.1614	0.2519
Debt to Equity Ratio	-0.0968	0.0135	-7.1735	0.0000
Debt Ratio	-47.7792	43.0095	-1.1109	0.2728
Loan to Deposit Ratio	-0.4634	0.1407	-3.2946	0.0020
Liquidity Ratio	-0.0024	0.0028	-0.8559	0.3968
Size	-0.1874	0.0717	-2.6144	0.0123
Capital Ratio	-55.4427	43.1233	-1.2857	0.2054

a. Dependent Variable: ROE

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