

IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF DEVELOPMENT BANKS IN NEPAL

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of the requirements for the Master's Degree

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CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Impact of Capital Structure on Profitability of Development 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 the dissertation.

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LIST OF ABBREVIATIONS

CV	Coefficient of variation
D/E	Debt to equity
DTA	Debt to assets
EPS	Earnings Per Share
ETA	Equity to total asset
ETTA	Equity to total asset
F-stati	F-statistic
FY	Fiscal Year
GDP	Gross Domestic Product
LTTA	Liquidity to total asset
MM	Modigliani and miller
MV	Market value
N	Number of observation
NI	Net income
NIM	Net interest margin
NOI	Net operating income
NPV	Net present value
RDCP	The Total debt to equity ratio
ROA	Return on Asset
ROE	Return on Equity
RSG	The general solvency ratio
RSP	The equity solvency ratio
SEM	Structural Equation Modelling
Sig.	Significant
Std.	Standard
WACC	Weighted average cost of capital

ABSTRACT

This study investigates the impact of capital structure on the profitability of development banks in Nepal over a nine-year period from 2070/71 to 2078/79. Utilizing data from nine development banks, the study employs both descriptive and causal-comparative research designs to analyze the relationship between capital structure variables are equity to total assets (ETTA), liabilities to total assets (LTTA), liquidity, bank size, inflation, and gross domestic product (GDP) and profitability indicators are return on assets (ROA) and return on equity (ROE). The analysis reveals a strong positive correlation between ROA and ROE, suggesting that banks more efficient at generating income from assets tend to offer higher returns to equity. Interestingly, while a higher equity ratio (ETTA) correlates negatively with ROE, indicating that higher equity may not always enhance profitability, a higher proportion of liquidity to total assets (LTTA) is associated with increased profitability for both ROA and ROE. Further, liquidity is positively and significantly related to profitability, highlighting the advantage of liquid banks in capitalizing on profitable opportunities and managing short-term obligations efficiently. The study also finds that larger banks tend to be more profitable, reflecting potential benefits from economies of scale. Conversely, the impact of inflation and GDP growth on profitability appears more complex, with inflation showing a positive but not statistically significant relationship with ROA, yet a significant positive relationship with ROE. GDP growth presents a positive but not statistically significant effect on both ROA and ROE. These findings underscore the importance of a balanced capital structure, liquidity management, and scale in enhancing the profitability of development banks in Nepal, while also pointing to the nuanced influence of macroeconomic factors.

Keywords: *Capital Structure, Profitability, Leverage ratio, Interest rate, Economic Condition.*

CHAPTER I

INTRODUCTION

1.1 Background

In the rapidly changing and highly competitive business environment, the financial decisions companies make are critical to daily operations and overall performance. These decisions affect nearly every level of the company's operations. Among the many topics in financial sector, the concept of capital structure is one of the biggest debates among academics and experts.

Capital structure is defined as a company's mix of debt and equity finance its long-term operations. In this regard, 'capital' specifically denotes the long-term or permanent financial strategies of a company, consisting of the sum of long-term financial obligations listed on the liability side of the balance sheet, excluding current liabilities (Khan & Jain, 1997).

Financial managers face a major challenge in determining the debt-to-equity ratio. As a general rule, a financial asset should have an appropriate mix of debt and equity. This question is relevant to the capital structure decision. The company finances all its assets through equity and debt capital. Equity capital is ownership capital and consists of shares, paid-up capital, reserves, surplus reserves. A loan is a fixed bond loan on which interest will be paid at regular intervals. Therefore, balance sheet debt consists of short-term liabilities, long-term liabilities and equity. The combination of short-term debt, long-term debt and equity is called a financial model, and the capital model is only one part of it. Capital structure is the combination of debt and equity that a company uses to operate. The capital structure represents a combination of long-term investments. Long-term debt and equity are the long-term investments. Therefore, the capital of a company is a combination or ratio of long-term capital represented by long-term debt, preferred stock and common equity (Shubita & alsawalhah, 2012).

The capital structure decision of the economy can be seen from the following theories: Modigliani-Miller theory, financial pecking order theory and economic theory. In modern theory, financial institution theory begins with the non-disruptive capital model of Modigliani and Miller (1958). Before them there was no general theory of capital structure. The debate about how and why companies choose their capital began in 1958, when Modigliani and Miller (1958) published their famous arbitrage argument showing that the market value of a company is independent of its

resources. Modigliani and Miller's theory start from the assumption that the company has a unique set of income. When a business chooses a combination of debt and equity to finance its assets, all it does is distribute cash flows among its investors. Investors and companies are considered equal in financial markets that allows the use of domestic funds. Therefore, the work done by the company has no impact on the market value of the company (Barges, 2009).

Using high debt to gain tax advantages and to maximize profits. The most important benefit of using debt is that the interest on the debt is tax deductible, which creates a shield for the company. High use of debt in the capital structure increases the profitability of the company by reducing the after-tax profit of capital. However, using more debt may increase operating costs and risk (Modigliani & Miller, 1963).

The study of capital structure attempts to identify the combination of securities and funds that companies use in real finance (Myers, 1977). Capital structure concepts include equity capital, debt capital, and hybrid capital. The capital model is a financial system that recognizes its assets through a combination of debt, equity or hybrid securities (Saad, 2010). Capital structure directly affects investment decisions and business decisions. Determining the capital structure is an important financial decision that must be taken into account in the proposal because it affect investment and business decision. The goal of business organizations today is to make the company profitable or unprofitable (Modigliani and Miller, 1958, 1963). A company's capital structure relates to its ability to meet the needs of its stakeholders. Modigliani and Miller (1958) present a strong argument that capital structure is unrelated to firm value. Modigliani and Miller (1963) modified the original argument and put forward the argument of the relationship between the capital structure and market value of the enterprise and proved that the market value of the enterprise is related to long-term debt., If the company's income tax and the cost of capital decrease. Companies that do not plan their investment in the long term will face conflicting problems in raising money through offerings (Wipper, 1966).

Weston and Bingham (1978) defined capital structure as the funds used by the company, such as long-term debt, preferred shares, and assets. There are different views on the investment model that can actually be used, but all researchers agree on some tools such as long-term debt and all-stock fair, which is a stable investment. Total equity capital includes stock, preferred stock, surplus and stock. Among all the issues in the financial sector, capital structure is important because it is

related to the capital structure that the company can determine the needs of the stakeholders. In finance, the capital model is the way a business finances its assets through equity, debt, and hybrid security (Saad 2010).

The company's profit measures its income during the operating period. Most management decisions are ultimately about increasing the company's profits. A company's results measure the effectiveness of its operations and management. Shareholders and managers, as well as creditors, want to know about the health of the company. While business owners want to understand their revenue or profits, managers want to understand how well their business is doing. It is not surprising that higher returns mean higher risk (Chechet and Olayiwola, 2014).

As a rule, banks make financial intervention to make it more efficient and distribute money to real businesses. Although there are other financial institutions involved in the intermediation process, banks are considered the most important financial institutions. The purpose of the company is to maximize the profitability or value of the company (Miller and Modigliani, 1958, 1963; Miller, 1977). The relationship between capital structure and profitability has been an important topic in different thoughts over the last decade. In the article cited by MM (1958), they claimed the opposite view, that the capital structure does not affect the price of the firm. MM (1963) argued that in the presence of company income and capital costs, the market value of the company has a positive effect on the long-term debt used in the investment model.

It maximizes the current value of a company's market share. Key to this goal is management's ability to determine the company's capital structure. Optimal capital structure is important because it helps reduce the total cost of capital, which increases shareholder value (Goyal, 2013).

Banks, therefore, the aim of this study is to determine the positive relationship between capital structure and income. Many studies have been conducted to examine the determinants of capital of different companies in Nepal; however, these are not specific to companies growing in Nepal. This study contributes to the literature on capital structure and banking performance in Nepal by using a larger sample size compared to previous studies that focused only on banks in Nepal. This study will also guide banks in identifying their best investments to achieve high levels of business profitability, thereby achieving the objective of business maximization. It will also serve as the basis for policy makers such as Nepal Bank to examine the appropriate level of capital for banks. It can also provide information to researchers at other financial institutions. This study is one of

the few studies on investment patterns and sustainability in specific industries in Nepal and will guide future research on other industries in Nepal. Therefore, the bank's performance is important not only for the benefit of its members, but also for the overall financial health of the country. Banks must select and adjust their business mix strategy to ensure that their operations are not over- or under-utilized to maximize profitability and achieve a good capital structure.

1.2 Problem Statement

The choice of capital structure is one of the most important financial decisions of a business. But it went through a lot of discussion and research. Debate continues about what drives investment decision models and their impact on profits. Since the pioneering work of Modigliani and Miller (1958), many theoretical papers have been developed, leading to the creation of other theories such as static exchange theory, financial pecking order theory, and agency pricing. These issues relate to certain factors that can affect the company's capital structure and performance, such as size, tangibility, growth, risk, performance, maturity and dividends, and how capital or financial decisions affect the value of the company.

What distinguishes the banking sector from other sectors is that its primary role is to create financial transactions through borrowing, lending and spending. These are also trading companies, financial intermediaries and regulatory bodies. The nature of the incentive caused by management policy determines the difference between the company's capital and its behavior. Business decision-making models are more important for banks because the consequences of bank failure are more devastating than other financial failures. Many studies on this subject have been conducted in developing countries with stable economies. However, in developing economies such as Nepal, where the business environment is unstable, government policies change frequently, inflation is high, exchange rates are high, and companies have to pay taxes on their income, the MM method theory will not be accurate. Therefore, this research aims to investigate whether company resources affect company performance.

Capital structure is an important point for the financial decisions of the company as it affects the earnings before interest and tax and causes changes in the market capitalization and market value of the company. The concept of capital structure has been a subject of debate since the publication of Modigliani and Miller's classic article in 1958. This has led to the emergence of many competing

theories of capital, such as economic strategy, organization theory, and financial pecking order theory.

In addition, the value theory of the organization explains that one of the problems that causes conflict between managers and members is free income. Companies with good profits and free money available to managers may increase debt as a means of reducing the number of managers until departmental company resources are no longer used for personal gain (Weston and Brigham, 1996).

Trade-off theory and organizational costs show that benefits are positively related to effort. According to trade-off theory, agency cost theory, the tax rate, and the economic crisis, many profitable companies are being pushed to increase their use of debt. Jensen and Meckling (1976) In the organizational model in Easter's (1984) and Jensen's (1986) book, more power helps manage the organization's problems. To avoid problems in the workplace, profitable companies will hire more people to pay more (Weston and Brigham, 1996).

Most research indicates a negative correlation between profitability and leverage. Within this context, Niresh (2012) found a long-term debt and total debt were determined to be insignificant in ROE, Singh & Singh (2016) found a significant negative relationship between debt and profitability. Nyonges & Margaret (2023) found that capital structure choices have a negative and statistically significant impact on the profitability of large-scale retail supermarkets in Kenya. Musah (2018) also found that there is a negative relationship between bank's profitability and customer deposit growth and significant relationship with performance and ownership structure, age of the bank had a significant relationship with ROA. Ali. et al. (2016) also conclude that banks in Pakistan rely more on debt than equity capital and are on debt than equity capital and are highly leveraged institutions. Gebremichal (2016) loan to deposit ratios, spread, and asset size also demonstrated statistically significant and positive relationships with profitability. Revanthy and Santhi (2016) found debt equity ratio has a negative impact on profit in all 3 stage and it has a direct effect in the growth consolidated stage whereas current ratio has a negative impact on profit in the positive in the second half. Noor and Umara (2019) found there is a negative correlation between ROA and leverage.

Habibniya et al. (2022) found total liabilities to total assets has a significant effect on ROA, whereas the ratios of total liabilities to total assets and total equity to total asset have no impact on

ROE. Msxim (2023) found a significant positive correlation between ROA and capital structure and insignificant relation of ROA and RDCP with correlation, Bhatt and Jain (2020) found that ROE is negatively correlated with short-term debt and total debt, while the results are positively correlated with bank size. Jaishi (2020) found that total debt and equity have a positive impact on ROA, while equity has a negative impact on ROA relative to total capital and revenue. Kharel (2020) found that a negative impact of total asset and debt equity ratio and negative relationship of interest coverage ratio to bank profitability, Chalise & Adhikari (2022) found negative relation between ROA and EPS with capital structure and positive relation with ROA and EPS with total assets.

The following research questions were created for this research;

1. What is the present condition of capital structure and profitability in Nepalese development banks?
2. What is the connection between capital structure and profitability of development banks?
3. Does bank capital structure affect profitability of the selected development banks?

1.3 Objectives of the Study

The main purpose of this study is to analyze the effect of capital structure on the profitability of growth banks. Therefore, the specific objectives are as follows:

1. To evaluate the bank capital structure and profitability of Nepalese development banks.
2. To investigate the connection between capital structure and the bank profitability.
3. To assess the influence of capital structure on profitability of development banks.

1.4 Rationale of the Study

Since the researchers did not find any study on the capital structure and results of Nepal Development Bank, this study will be the first to show the economic impact of these investment models in Nepal. It is expected to be useful to makers, regulators and researchers. Additionally, this study will be useful for banks to improve their operations and allocate resources as effectively as possible to improve results. On the other hand, the relationship between capital structure and profit cannot be ignored; because the long-term survival of the company depends on the

development of its profits. Interest on debt is tax deductible, so adding debt to the capital structure will increase the company's profitability. Understanding the relationship between the capital structure and the company's results is important in determining the capital structure.

In addition, many studies have been conducted to explain the effect of capital structure on business profitability in developed and developing countries. In developing countries, Habibniya et al. (2022) did research on Telecom Industry in the United States. The majority of capital structure research has been conducted in emerging nations. (2012) Niresh conducted research on Sri Lankan bank, Ahmad (2014) did research on cement sector of Pakistan, Ali. et al. (2016) did research on Pakistan commercial banks listed on Karachi Stock Exchange, Gebremichal (2016) did research on commercial bank of Ethiopia, Revanthy and Santhi (2016) did research on the manufacturing companies in India, Singh and Singh (2016) did research on cement companies in India. Mushal (2018) did research on commercial bank in Ghana, Noor and Umara (2019) did research on Islamic and Conventional banks of Pakistan, Nyonges and Margaret (2023) did research on large-scale retail supermarkets in Kenya, MSXIM (2023) did research on retail companies within the Romanian market, Bhatt and Jain (2020) did research on commercial bank of Nepal. Jaishi (2020) did research on Nepalese insurance companies, Kharel (2020) did research on Nepalese Commercial bank, Chalise and Adhikari (2022) did research on Nepalese commercial bank.

Consequently, this research will assist financial experts in understanding the effects of capital formation on a firm's profitability. Additionally, it will help bank managers and stakeholders gain deeper insights into the impact of capital structure and the sensitivity of debt and equity on firm operations. This study will offer guidance to financial managers on designing an optimal capital structure to minimize capital costs, enhance profitability, and ultimately maximize shareholder wealth. Furthermore, this research will enable investors to better comprehend how choices in capital structure affect their returns and help them formulate an optimal capital structure.

1.5 Limitations of the Study

Nothing in our world is flawless; there are always going to be limitations with human endeavors. Thus, each study project has its own limits. Several attempts were not made to conduct research during this study's process for a variety of reasons. Because of this, the study was finished within specific parameters, leaving the opportunity to conduct more research in the future. The following will be the study's limitations:

1. Since the study only looks at nine development banks, it could not be representative of Nepal's overall banking sector.
2. The accuracy of the relevant bank's annual report has significant impact on the reliability of the secondary data.
3. The study's data comes from bank annual reports over just nine years.
4. Data collection was made from development bank of Nepal.

CHAPTER II

LITERATURE REVIEW

2.1 Theoretical Review

Theoretical review facilitates the identification and evaluation of key themes and issues that are present in the literature and provides comprehensive overview of the research findings in a particular area. It assists to gain a deeper understanding of the existing literature of the topic and develop new insights and ideas for further study.

2.1.1 Capital structure relevance theory

The study addresses the ideas that are consistent with the analysis of capital structure in this section. Among these theories are: The theory of Net Income as well as traditional theory.

Net Income Approach

This theory was postulated by David Durand, who put forward the idea of increasing the proportion of debt in the overall capital structure. According to him, debt is a fund source because it has a lower interest rate, eliminating the risk factor and playing a significant role in deducting expenses for income tax. This theory is also known as “Fixed ‘Ke’ theory.”

Three assumptions form the foundation of the Net Income Theory of Valuation. Taxes are negligible in the first place, and debt is less expensive than equity. Capitalization votes on equity costs: it was discovered that the use of debt does not affect investors' perceptions of risk. The fact that investors' perceptions of financial risk remain unchanged whether debt is introduced or when leverage changes suggests that neither the cost of debt nor the cost of equity will alter as a result of leverage changes. The three underlying assumptions of the Net Income Theory imply that as leverage rises, so does the capital structure's percentage of debt, which is a less expensive source of funding. The weighted average cost of capital consequently tends to decrease, raising the firm's overall worth. Although the cost of debt and the cost of equity are constant, using more debt, or increasing leverage, will enhance shareholder earnings and, in turn, the market value of the shares that are now in existence. (Pandey, 1992)

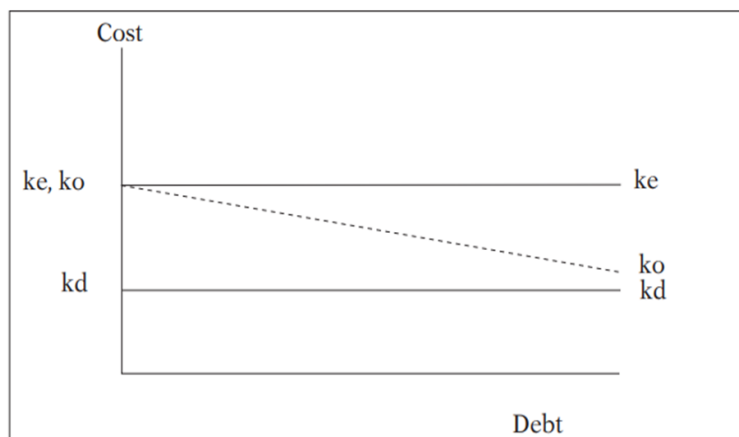
According to this approach, capital structure decision is relevant to the value of the firm. Raising the financial leverage, or the debt proportion, can result in a decrease in the weighted average cost of capital (WACC) and an increase in both the firm's value and the market price of ordinary shares.

As per NI Approach:

- K_d and K_e will remain constant.
- K_0 will decrease with the help of use of Debt.
- MV of equity and firm will increase with the help of use of debt.

Figure 1

Net Income Approach



Traditional Approach

Among net income and net operating income theory, traditional theory lies in the middle. It incorporates elements from both of these theories. Another name for it is the intermediate theory. The argument that the cost of capital and the overall worth of the company are not independent of the capital structure is similar to that of the net income theory. However, it rejects the idea (of NI theory) that a company's value will always rise at all levels of leverage. It is similar to the net operating theory in another way: when leverage exceeds a certain point, the cost of capital rises generally, lowering the firm's overall worth. It does not, however, contend that the weighted average cost of capital remains constant for all levels of leverage, which is how it varies from the net operating theory.

The basic principle of the traditional view on leverage and valuation is that a company can lower its overall cost of capital by raising its entire value and using loan to equity proportion correspondingly. This opinion is supported by the argument that debt is a more affordable source of funding than common shares. By altering the leverage, or substituting more debt for equity, comparatively more affordable funding sources take the place of comparatively more expensive ones. Consequently, it is evident that this lowers the total cost of capital. A larger debt-to-equity ratio would make the company riskier financially, which would make investors penalize the company by requiring a higher rate of equity capitalization. However, the benefit of employing less expensive debt may not be offset by the increase in the equity capitalization rate. Stated differently, the benefits of using debt are so great that they continue to outweigh the costs of using a more expensive source of funding even after compensating for a greater equity capitalization rate.

However, if debt is taken on further, two likely outcomes are that equity rates will rise significantly due to the increased financial risk and the company will become very risky in the eyes of creditors, who also want a higher return, thus driving up the cost of debt. Therefore, using debt in excess will increase the weighted average cost of capital (WACC) and, in turn, the firm's value. Therefore, using debt will increase a company's worth up to a certain amount of leverage; after that, using debt will decrease its value. The capital structure is the best capital structure for that debt-to-equity ratio level.

The traditional method was created by Ezra Solomon. Between the net income approach and the net operating approach, it is also referred to as the intermediate strategy. It makes the assumptions that there is an ideal capital structure and that a company is able to maximize its overall value by using leverage (Van Horn, 1999).

Under this approach a company can begin to reduce its cost of capital and increase its total cost by using debt even if investors increase the required return. To be fair, the increase in capital costs is not all about the use of cheap capital. From the consequences of debt. As progress is made, investors increasingly penalize companies for the required return on equity until this benefit is enough to offset the use of cheaper debt (Aryal, 2017).

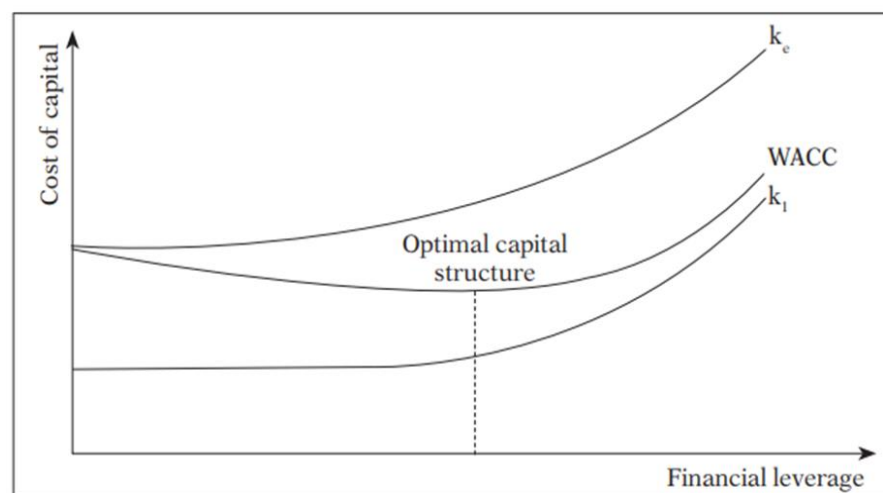
This method encourages that as a result of financial leverage up to some point, cost of capital comes down and value of firm increases. However, beyond that point, reverse tends emerge.

As per traditional approach:

- K_d, K_e, K_0 and MV of equity and MV of firm are variable.
- Company has to select capital structure with lowest K_0 or highest MV of firm.

Figure 2

Traditional Approach



2.1.2 Capital Structure Irrelevance Theory

The study explores the ideas that are consistent with the analysis of capital structure in this section. Among these theories are: Modigliani-Miller Theory and Operating Income Theory.

Net Operating Income Approach (NOI)

David Durand also proposed this strategy. According to this method, the choice of capital structure has no bearing on the firm's worth. Leverage changes do not affect the firm's value or the total cost of capital. It is expected that when leverage increases, the cost of equity will rise linearly. Consequently, the weighted average cost of capital and the firm's total value stay unchanged. The capital structure of the company has no bearing on its total value. Any advantages resulting from debt financing will be responded by an increase in the cost of equity, meaning that the overall cost of capital stays the same regardless of the level of financial leverage. As a result, there is no ideal capital structure, and investors don't care whether it changes (Paramasivan & Subramanian, 2009).

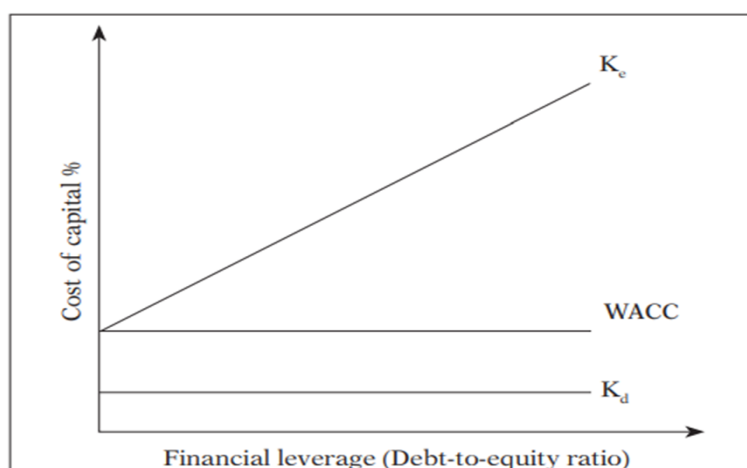
Under this perspective, the capital structure decisions of a company do not affect its value. Changes in leverage do not impact the total value of the firm or the market price of its shares, because the overall cost of capital remains unchanged regardless of the level of leverage.

As per NOI Approach

- K_d , K_0 and MV of firm will remain constant in case of without tax structure.
- K_d will remain constant in case of with tax structure, with the increase in Debt, MV of firm will increase and K_0 will decrease.

Figure 3

Net Operating Income Approach



Modigliani–Miller theory

The Modigliani-Miller theorem was proposed by Franco Modigliani and Merton Miller in 1958 and formed the basis of modern capital structure theory. It is often considered a purely theoretical conclusion as it ignores many important factors in the investment process, such as the volatility and uncertainty that may occur in the financial standard of the company. The theorem states that in a perfect market, the way a company receives financing does not affect the value of the company. This result forms the basis for the analysis of the main reason for the capital structure, that is, the value of the company is affected by the capital structure it uses. Some of the reasons for this include market costs, organizational costs, taxes, and information asymmetries. This analysis can be

continued to see if there really is an optimal investment: the one that maximizes the value of the company.

Imagine a perfect business (no operating or bankruptcy fees; perfect information and people being able to borrow at the same interest rate without taxes; assuming capital is best is a mirage and unachievable, Modigliani and Miller say).

Modigliani's Miller theorem is an important part of economic theory. It forms the basis of modern capital structure theory. The main theorem states that in an efficient market where there are no taxes, transaction costs, agency costs and information asymmetry, the market value of the company is not affected by the company's financing. This should not be confused with the company's cost of equity. Because a company's value does not depend on its dividend policy or its decision to raise money by issuing shares or selling debt, Modigliani's Miller theorem is often said to be unaffected by the resource model.

Under these conditions, Modigliani and Miller made two discoveries. Their first "claim" is that a company's value is independent of its resources. The second "consensus" states that a leveraged firm's cost of equity is equal to an unleveraged firm's cost of equity plus the additional cost of the financial risk maker. That is, as a promotion, risk is transferred between different classes of investors, while all fixed risks remain the same and therefore have no additional value.

Their analysis goes on to include the effects of taxes and corporate debt. According to classical tax law, tax exemption on interest makes debt useful, that is, as the percentage of debt in the capital structure increases, the cost of capital decreases. The best model is an investment model with almost no equity, say 99.99% debt.

The Modigliani-Miller theorem was established in an essentially tax-free world. However, if we enter the world with taxes, when debt interest is deducted and other frictions are ignored, the value of the company will increase as well as the expenses. Value added equals the total reduction in future taxes saved through issuing debt rather than equity.

Assumption

- Capital market is perfect.
- All investors are rational.

- Non- existence if corporate tax
- There are no transaction costs

Modigliani–Miller theory Without Taxes

It is known as capital structure irrelevancy theory, argues that a firm's value has no bearing absolutely on its capital structure in a capital market free of taxes. The theory is that a company's worth is determined by its earnings and the risk associated with its assets rather than by its capital structure, meaning that the value of a leveraged company is comparable to the value of an unlevered company. The above approach supports up the NOI approach's explanation of the relationship between cost of capital and leverage. It advocates the concept that either the capital structure or the average costs of capital are affected by the firm's ideals. It is predicated on the absence of corporate tax and transaction costs. With this strategy, the firm's worth will not change regardless of the ratio of equity to debt.

Proposition I

$$V_U = V_L$$

Where:

V_U is the value of an unleveraged company = the purchase price of a company formed by equity, and V_L is the value of a leveraged company = the purchase price of a company formed by the combination of debt down payment and fairness. Another word for lever is gear, which has the same meaning.

To understand why this is true, imagine an investor is considering purchasing one of two companies, U or L. The ultimate return on these investments will be the same. Therefore, the value of L must equal the value of U minus the credit received from B; this is the value of L's guarantee.

This discussion also explains the role of some theorems. We implicitly assume that investors' borrowing costs are similar to firm costs, but this assumption is not necessarily true when there is asymmetric information, an efficient market is absent, or investors face different risks.

Proposition II

Proposition II (with high-risk debt). Leverage (D/E) grows without changing the WACC (k_0 .) says that in order to make up for the greater risk that comes with carrying more financial leverage, the cost of equity increases proportionately with the increase in leverage. This is done by charging a premium. Stated differently, the cost of equity for any firm, whether leveraged or not, within a particular risk class is determined by multiplying the spread between the constant average cost of capital and interest rate by the debt-to-equity ratio, which represents the premium of financial risk. It is able to be stated as follows:

$$K_e = K_0 + \frac{D}{E}(K_0 - K_d)$$

Where:

- K_e is the expected return on equity or cost of equity capital for a leveraged company.
- K_0 is the company's unlevered cost of equity (unlevered cost of equity or return on assets when $D/E = 0$).
- K_d is the repayment amount of the loan or the debt amount.
- $\frac{D}{E}$ is the debt-equity ratio.

The higher the debt ratio, the higher the value of required equity capital because shareholders of a company with debt face a higher risk. This formula originates from the weighted average cost of capital (WACC) theory.

This strategy is based on the following assumptions:

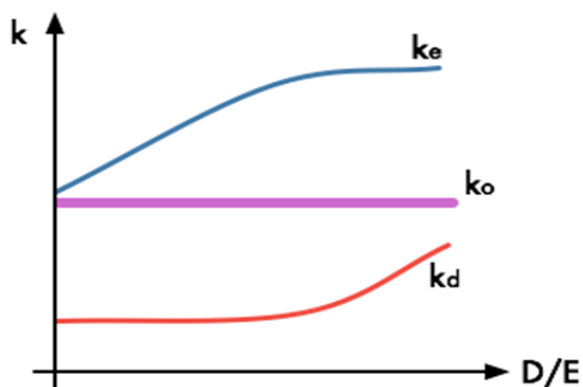
- There is no transaction fee
- Individuals and businesses access loans at identical interest rates.

Although the conditions of the theorem may not align with real-world scenarios, making it seem irrelevant, it remains a crucial area of study. This is because it underscores the importance of capital structure, particularly through the lens of violated assumptions. The theorem provides guidance on

identifying the key determinants of optimal capital structure and understanding how these determinants influence it.

Figure 4

Modigliani–Miller theory Without Taxes Proposition II



Modigliani–Miller theory with taxes

According to this theory, a company's debt ratio increases and increases the cost of equity capital, but the total cost of capital decreases as a result of corporate tax subsidies for debt. By include the possibility of a corporation going bankrupt after raising huge amounts of money through debt, this model expands the original concept. It was maintained that a company's risk of going bankrupt increases with the amount of debt it uses. A company's cost of equity increases due to the increased risk of using its debt and the shareholders' opinion of the company's future, in which they have invested.

Proposition I

According to proposition I, a company's worth is ascertained by capitalizing its net operating income before taxes at a rate that corresponds to its risk category. Interest paid on debt reduces taxes when taxes are taken into account since interest is subtracted from net income when calculating taxes. As a result, the present value of the debt tax shield will be greater for a leveraged company than for an unlevered one. Stated otherwise, the present value of the debt tax shield plus the value of the unlevered firm equals the value of the levered firm. The accompanying equation illustrates this.

$$V_L = V_U + T_C D$$

Where:

- V_L is the value of a levered firm.
- V_U is the value of an unlevered firm.
- $T_C D$ is the tax rate (T_C) x the value of debt (D)"

Derivation of T_C -

Amount of Annual Interest = Debt x Interest Rate

Annual Tax Shield = Debt x Interest Rate x Tax Rate

Capitalization Value (Perpetual Firm) = (Debt × Interest Rate x Tax Rate) ÷ Cost of Debt

- the term $T_C D$ assumes debt is perpetual

This indicates that since businesses may deduct interest payments, having leverage has benefits for businesses. Leverage thereby reduces tax payments. Payments of dividends are not deductible.

Proposition II

According to Pradhan (1996), the cost of debt for a leveraged firm stays constant since debt is thought to carry less risk, but the cost of equity increases with the leverage ratio to offset the additional leverage risk. In light of this, the cost of equity is determined as follows:

$$K_e = K_0 + \frac{D}{E}(K_0 - K_d)(1 - T_C)$$

where:

- K_e is the required rate of return on equity, or cost of levered equity = unlevered equity + financing premium.
- K_0 is the company cost of equity capital with no leverage (unlevered cost of equity, or return on assets with $D/E = 0$).
- K_d is the required rate of return on borrowings, or cost of debt.
- $\frac{D}{E}$ is the debt-to-equity ratio.

- T_C is the tax rate.

The previously mentioned relationship—which states that as leverage increases, so does the risk to equity—remains true and the cost of equity increases accordingly. On the other hand, the formula affects the variation with the WACC. Their second effort at a capital structure that took taxes into account found that the level of the WACC decreased as the amount of gearing increased, i.e., cheap debt replaced equity, and that there is, in fact, an ideal capital structure at 100% debt.

The following assumptions are made in tax application:

- The company pay taxed at the rate T_C on income after interest,
- no transaction fee and
- individuals and business borrow at the same interest rate.

2.1.3 Other Theories

Trade-off theory

According to the trade-off theory of capital structure, a business weighs the costs and advantages of using different levels of debt and equity financing to choose how much of each to employ. The traditional version of the theory dates back to Kraus and Litzenberger, who attempted to strike a balance between the tax benefits of debt and the deadweight costs of bankruptcy. Agency costs are frequently included to the balance as well. This hypothesis is frequently presented as a rival theory to the cost of capital pecking order theory. A review of the trade-off theory and the data to support it is presented by Frank, Sanati, and Ai.

According to the trade-off theory, businesses balance the advantages of debt financing with the costs of borrowing. The cost of borrowing consists of bankruptcy fees and interest payments. The tax deductibility of interest payments is one advantage of debt financing, and the firm's worth is equal to that of an unlevered firm plus the value of its side effects, which include the tax shield and anticipated expenses related to financial trouble (Brigham & Ehrhardt, 2005).

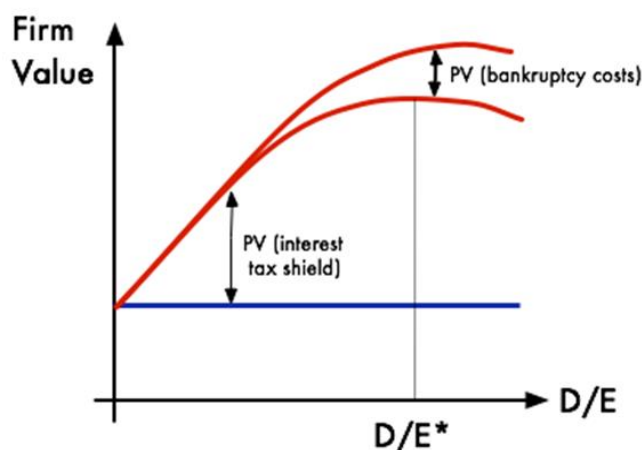
According to this idea, it is advantageous for corporations to finance themselves through debt because it strikes a balance between the tax benefits they receive and the costs associated with filing for bankruptcy because doing so entails taking on more debt. The tax benefit arises from the

interest deduction from pre-interest and tax earnings. This reduces taxable income, which in turn lowers the company's corporation tax liability. The primary advantage of debt financing is that it offers a tax haven; nevertheless, the primary drawback is the possibility of bankruptcy (Brigham & Ehrhardt, 2005).

A key goal of the theory is to clarify why corporations typically use a combination of debt and equity for financing. It states that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy cost of debt and non-bankruptcy costs (e.g., staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, etc.). As a firm increases its debt, the marginal benefits of further borrowing decrease, while the marginal costs increase. Thus, a firm focused on optimizing its value will carefully consider this trade-off when deciding the proportion of debt and equity in its financing strategy.

Figure 5

Trade-off theory



As the debt-to-equity ratio, or leverage, rises, a trade-off emerges between gaining an interest tax shield and facing potential bankruptcy risks, leading to an optimal capital structure, denoted as D/E^* . The top curve shows the tax shield gains of debt financing, while the bottom curve includes that minus the costs of bankruptcy.

The Pecking Order Theory

The pecking order theory, initially proposed by Donaldson in 1961 and later refined by Stewart C. Myers and Nicolas Majluf in 1984, posits that companies prioritize their sources of financing based on the cost of financing, with equity being the least preferred option. According to this theory, firms prefer internal funds first, then debt, and finally equity as a last resort. This preference arises from the notion that the cost of financing increases with asymmetric information.

Internal funds are utilized first, followed by debt issuance. Equity is considered the financing option of last resort. Companies adhere to this hierarchy of financing sources, preferring internal funds when available, and resorting to debt over equity if external financing is necessary. The choice of debt over equity can signal the firm's need for external finance. Pecking order theory is premised on the notion of asymmetric information, where managers have greater insight into their company's future, risks, and overall value compared to external investors. This disparity in information influences the decision-making process regarding whether to use internal resources or seek external funding, and whether to opt for issuing debt or equity. Consequently, this leads to a prioritized sequence in financing choices for new projects, known as the pecking order.

The pecking order theory, popularized by Myers and Majluf in 1984, posits that equity is generally considered a less favorable option for raising capital. This stems from the assumption that managers have a deeper understanding of the firm's true condition than external investors. When managers issue new equity, investors often interpret it as a signal that the managers believe the firm is overvalued and are attempting to exploit this overvaluation. Consequently, this perception leads investors to assign a lower value to the new equity issuance.

Agency Cost Theory

The expenses connected to the interaction between a "principal" (an organization, individual, or group of individuals) and an "agent" are referred to as agency costs in economics. The authority to decide on behalf of the principle is granted to the agent. But the agent usually has more information, and the two sides could have different motivations. The principal lacks the ability to explicitly guarantee that its agent is consistently operating in the principle's best interests. The cause of agency costs is this possible conflict of interest.

Common examples of this consist of:

- In accordance with the Friedman doctrine, the price paid by shareholders (the principals) when corporate management (the agent) invests in vanity projects or acquires other businesses to increase its authority rather than maximize the corporation's value.
- The price paid by the district's voters (the principals) to a politician (the agent) when the politician (the helper) approves legislation that benefits big campaign givers instead of the voters.

The phrase "agency cost" is most frequently employed in business situations, even though its effects are present in all agency relationships.

The relevance of capital structure can be explained by three different forms of agency costs.

- **Asset substitution effect:** Management is encouraged to start on riskier initiatives with potentially negative net present value (NPV) when the debt-to-equity ratio rises. This is due to the fact that in the event of a project's success, stockholders' profit, while in the event of its failure, borrowers suffer. (Alicia Tuovila, 2021)
- **Underinvestment problem** or debt overhang issue: If a project has risky debt (such as debt in a growing firm), debt holders will profit from it rather than shareholders. Therefore, even though positive NPV projects have the potential to raise firm value, management is encouraged to reject them. Hayes, Adam (2021)
- **Free cash flow:** Without returning free cash flow to investors, management is encouraged to reduce the value of the company by constructing empires, offering costly benefits, etc. Leverage forces management to exercise financial restraint.

2.2 Empirical Review

2.2.1 Review of International Studies

Aloy (2012) investigated the impact of capital structure on profitability of Sri Lankan bank over the 8-year period from (2002-2009). Regression analysis was used to investigate how capital structure affected profitability. Net profit, return on capital, ROE and net interest margin are dependent variable whereas debt/equity ratio and debt to total funds ratio are independent variable.

It was shown that total debt had a significant impact on net profit and return on capital which means bank of Sri Lanka is less dependent on equity capital and more on debt (long-term loans). The study discovers that Total debt and long-term debt were determined to be irrelevant when making decisions ROE, no significant impact on dependent variable. The study's conclusions may help banks, loan creditors, and policy planners create better policies in the relevant areas. These findings suggest that bank must not be only interested in concerned with utilizing these deposits effectively and efficiently.

Ahmad (2014) studied the impact of capital structure on Pakistan's cement industry's profitability. A panel of sixteen companies listed on the Karachi Stock Exchange over period of 6 year (2005-2010). Fixed and Random effect methodology is used for analysis of study. The primary objectives of this investigation are to determine the current optimum capital structure and collect empirical data on the impact of a firm's capital structure decisions on profitability. Finding of the study revealed that long-term debt had negative impact on ROE, short-term debt had negative impact on profitability and debt-equity ratio is significantly negative associated with ROE. The implication is that firms using more equity resource instead of debt.

Ali. et al. (2016) using a fixed and random effect on panel data of 15 listed commercial banks from 2005 to 2014, the impact of capital structure on the profitability of Pakistani commercial banks listed on the Karachi Stock Exchange. Debt to assets and debt to equity as independent variable while dependent variable is ROE, ROA, return on capital employed sustainable growth rate, net profit margin, net interest margin, and bank size. The panel data method combines cross-sectional and time series analysis. The outcome showed that capital structure has a negative impact on profit since rising debt requires higher interest rates, which lowers profitability. As a result, banks in Pakistan rely more on debt financing than equity financing and are on debt than equity capital and are highly leveraged institutions.

Gebremichal (2016) conducted the impact of capital structure on profitability of commercial bank of Ethiopia. The data were obtained from the audited financial statement of commercial bank of Ethiopia over period of 5 year (2009-2013) which used panel data of commercial bank to achieve objective of study. The data used for the study is descriptive statistics and regressions analysis. The dependent variable is net interest margin, and the independent variables are total debt to assets, deposit to assets, loan to deposit, spread, growth, and asset size. The finding revealed that capital

structure as measured by total debt to total assets has statistically significant insignificant, though it has positive impact, whereas deposit to asset had statistically significant positive impact on profitability of core business operations of commercial banks. Additionally, the study revealed that loan-to-deposit ratios, spreads, and asset size all have statistically significant positive correlations with profitability. However, growth found to have statistically insignificant impact on profitability. Therefore, bank should give due consideration to manage its debt properly, mobilize deposit sufficiently, increase loan advances, spread, and size in their financing decisions.

Revanthy and Santhi (2016) investigated the impact of capital structure on profitability of the manufacturing companies in India. The researcher has taken 70 companies for the study spread over 3 phases i.e., Pioneering stage, growth stage and consolidation stage in the post liberalization era. Structural Equation Modelling (SEM) is used to develop a model for analyzing impact of capital structure on profitability. Multi stage sampling technique is used. The study found debt equity ratio has a negative impact on profit in all 3 stage and it has a direct effect in the Growth and consolidated stage whereas current ratio has a negative impact on profit in the positive in the second half.

Singh and Singh (2016) analyzed the impact of capital structure on firm's profitability of cement companies in India. This study is based on secondary data i.e., 5-year period from 2009 to 2014, financial statement collected from PROWESS data base of CMIE. The objective of this study is to explore the relationship of debt-to-equity ratio with gross profit ratio, return on capital employed and ROE. The study uses 10 companies which capture almost 90% of the total market share of cement industry in India. The study identified a significant negative correlation between debt levels and profitability, indicating that companies with a higher ratio of debt generally experience lower profitability.

Mushal (2018) investigated the influence of capital structure on Ghanaian commercial banks' performance over a 6 years period (2010-2015). The study sample 23 banks and applied Multiple Regression models. The result revealed the short-term debt to long-term debt ratio and bank profitability in Ghana are negatively correlated. The findings are consistent with those of Gatsi and Akoto (2010) about Ghana's commercial banks and imply that there is no debt return on assets in the country's banking sector. The outcome demonstrates that debt financing can boost a bank's profitability in Ghana—but only if the correct kind of debt is taken on. Leverage and profitability

have a negative connection, which runs counter to the tradeoff theories proposed by Myers and Majluf (1984). Size and risk diversification are related, and this will affect the product selection and increase profitability. However, bank deposit growth rate is 55% a year but bank is unable of converting the majority of their money into assets, which decreased profit which shows there is a negative relationship between bank's profitability and customer deposit growth. There is a significant relationship with performance and ownership structure, age of the bank had a significant relationship with ROA. The findings imply that foreign ownership increases efficacy and efficiency, which is in line with research on emerging markets.

Qayyum and Noreen (2019) examined the capital structure's effect on Pakistan's conventional and Islamic banks' profitability by using regression analysis model. The study uses a sample of 10 banks i.e., 5 Conventional bank and 5 Islamic banks over period of (2006-2016). The main objective of this study is to maximize the wealth of shareholders and to maintain firm value and profitability of bank. The study shows that there is a negative correlation between ROA and leverage. The connection's outcome supports the pecking order theory, which holds that leverage and profitability have a negative relationship whereas ROE and leverage have a direct link. The conclusions of EPS's analysis of profitability and leverage are inconsistent. Conventional banks exhibit a direct correlation between profitability and performance, but Islamic banks demonstrate an indirect correlation. Because banks with the longest market ages tend to perform better than younger banks because they have larger client bases, make larger investments, and have a more diverse customer base, EPS and bank size have a positive correlation, demonstrating the economics of scale. The results therefore demonstrate that capital structure affects the profitability and performance of commercial as well as Islamic banks, and managers should carefully modify the capital structure to optimize profit.

Habibniya et al. (2022) researched the impact of capital structure on profitability of Telecom Industry in the United States. The study used a sample of 42 firms over 8 year (2012-2020) by using pooled panel regression, univariate analysis, correlation and descriptive statistic models. The objective of this study is to earn profit by maximizing shareholder value and to examine the capital structure and profitability relationship with empirical evidence. The finding revealed that the ratio of total liabilities ROA is significantly impacted by total equity to total assets, and total equity to total assets is significantly impacted by ROA. However, total liabilities to total assets and total

equity to total asset have no impact on ROE. The implication of this study is taking sample from the global industry.

Nyonges and Margaret (2023) investigated the Kenyan large-scale retail supermarkets' capitalization and profitability. The research employed a sample of 9 supermarket over period of 2017-2021. This study's goal is to evaluate how capital structure choices affect the bottom line of major retail supermarkets in Kenya. The study was based on the pecking order theory. Using both descriptive and inferential statistics, panel data was examined. The study's conclusions demonstrated that decisions about capital structure had a statistically significant detrimental effect on the profitability of Kenya's major chains of large retail supermarkets. This is corroborated by the regression coefficient of -0.3479 and P-value of 0.050. The study suggests that retail store management should create the best possible financial structure that promotes profitability by striking a balance between debt and equity financing.

Mxsim (2023) conducted the impact of capital structure on Romanian retail business entities' profitability. The study was conducted used a sample of 476 companies over a period of 10 years (2012-2021). The results of the research demonstrated a significant positive correlation between the dependent variable, ROA, and the independent variables the fact that represent the capital structure (RSG, or total debt to total assets, and RSP, or equity/total capital), but not between ROA and RDCP, or debt to equity.

Table 1

Summary and Empirical Review at International Article

S.N.	Authors	Variables	Methodology	Major findings
1.	Aloy (2012)	Debt/Equity, Debt to total funds are the independent variables. Net Profit Ratio, Return on Capital Employed, ROE, Net Interest Margin are the dependent variables.	Regression analysis was used.	Sri Lankan banks rely less on equity investment and a greater dependence on long-term loans. It turned out that total debt and long-term debt did not have any bearing on ROE. It was discovered that total debt had an enormous effect on net profit and return on capital employed.

2.	Ahmad (2014)	Debt to Equity ratio, Debt ratio, Interest Coverage ratio, Short-term debt to assets, long term debt to assets are the independent variables. ROE is the dependent variable.	Panel data regression analysis, Fixed and Random effect was used.	The study shows positive relationship between short-term debt and ROE and negative relationship between long-term debt and ROE. The cement business uses more short-term debt since interest rates are low, and most cement companies lose money because they use too much long-term debt and have expensive overhead.
3.	Ali. et al. (2016)	Debt to assets, Debt to equity are the independent variables. Net Profit Margin, ROE, ROA, NIM, return on capital employed are the dependent variables.	Panel data regression analysis method was used.	Panel data reveals that capital structure has a negative effect on profit. The impact of capital structure is favorable. on bank size it means banks are depending more and more on debt to finance their assets.
4.	Gebremichal (2016)	Total debt to assets, Deposit to assets, loan to deposit, Spread, Growth, Asset Size are the independent variables. NIM is dependent variable.	Panel data regression analysis method was used.	Leverage, measured as the debt-to-asset ratio, shows a negative correlation with positive outcomes. Loan to deposit, bank size and spread had a positive and statistically significant relationship with profitability. Growth had statistically insignificant relationship with profitability.
5.	Revanthy and Santhi (2016)	Debt equity ratio, Debt ratio are the independent variables. Current ratio, total expenses-total income are the dependent variables.	Structural Equation Modelling was used.	A higher debt-to-equity ratio tends to negatively affect profitability. Current ratio has a negative impact on profit in first half and has positive in second half.

6.	Singh and Singh (2016)	Debt equity, Debt to total fund are the independent variables. Gross profit, return on capital, ROE are the dependent variables.	Pearson product correlation analysis was used.	Firms do not have sound debt-equity composition in their capital structure and hence failed to enjoy benefit of leverage properly. Debt has a significant negative relation with profitability.
7.	Musah (2018)	Short-term debt ratio, long-term debt ratio, Total debt ratio, size of bank, bank growth ownership, age of the bank are the independent variables. ROA, ROE are the dependent variables.	Regression analysis was used.	Debt has a significant effect on ROA. The profitability of Ghanaian banks is negatively correlated with their short- and long-term debt ratios, suggesting that there are no debt returns on assets in the country's banking sector. Total debt showed positive relationship with ROA and ROE and relationship between capital total debt ratio and profitability. There is a negative correlation between the total debt ratio and profitability. There is positive relationship between total debt and NIM even though the relationship with ROA and ROE were not statistically significant. Size, growth, ownership, age of the bank has significantly positive relationship with profitability.
8.	Qayyum and Noreen (2019)	Debt and equity, debt and assets, equity and assets and major bank independent variables. ROA, ROE, EPS are the dependent variables.	Regression analysis model was used.	The economics of scales is demonstrated by the positive correlation between EPS and bank size. There is a negative relationship between ROA and leverage.

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|-----|------------------------------|--|--|--|
| 9. | Habibniya et al. (2022) | Total liabilities to total asset, total equity to total asset, non-current asset to total asset, size, current asset current liabilities, inflation are the independent variables. ROA, ROE are the dependent variables. | Panel data analysis was used. | Total liabilities to total asset have a significant and negative impact on ROA where total equity to total asset has a significant and positive impact on ROA.

ROE is unaffected by the ratio of total liabilities to total assets or total equity to total assets. |
| 10. | Nyonges and Margaretn (2023) | Debt-equity ratio is the independent variable. Net Profit Margin is the dependent variable. | Cross-sectional research design was used. | Capital structure decision is negatively and significantly affecting the profitability of large-scale retail supermarket. |
| 11. | Mxim (2023) | Total debt to equity ratio, the general solvency ratio, the equity solvency ratio are the independent variables. ROA is the dependent variables. | Correlation matrix, multiple regression for panel data was used. | With a p-value of less than 0.1, there is a substantial connection between the dependent variable ROA and the independent variables RSP, RSG, and RDCP.

The solvency ratio of the companies and the rate of return on assets (ROA) have a modest but moderately significant positive correlation.

The rate of return on total assets was significantly, weakly, and negatively correlated with the debt-to-equity ratio. |
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2.2.2 Reviewed of National Studies

Bhatt and Jain (2020) examined the connection between Nepal's commercial bank's profitability and capital structure. Eighteen commercial banks are chosen as a sample which represent more than 60% of total population over period of 10 year (2010-2019). Purposive sampling is the method used to choose the samples. Multiple regression model is used. The results showed that profitability is significantly positively correlated with bank size, meaning that the larger the bank, the higher the return to shareholders. However, profitability is negatively correlated with short-term debt and total debt, while it is insignificantly positive correlated with long-term debt and deposits.

Jaishi (2020) analyzed the connection between Nepalese insurance companies' capital structures and their financial results. The independent variables include size, liquidity, tangibility, equity to total assets ratio, total debt ratio, and ROA and EPS. The dependent variables are these ratios. 14 insurance firms make up the study's sample, consisting of 7 life insurance businesses with 10 years of history and 7 non-life insurance companies chosen at random sampling over time period of 6 year from the fiscal year 2013/14 to 2018/19. The studies use descriptive statistic, correlation and regression method of analysis. The finding revealed that, while equity has a negative effect on ROAs due to its size and liquidity, total debt and asset tangibility have a beneficial impact. Beta coefficients are negative for ETA, size and liquidity on EPS and the beta coefficients for the total debt ratio, tangibility, and ROA on EPS are all positive, indicating that when financial performance increases, so does the debt ratio, tangibility, and ROAs on EPS. The Nepalese insurance company can boost its tangible assets and total debt while lowering its equity, firm size, and liquidity if it wants to improve its financial performance.

Kharel (2020) investigated the relationship between the Nepalese Commercial Bank's profitability and capital structure. The study's sample is 10 commercial banks over period of 2009-2019 by using regression analysis method. The result revealed that there is a negative impact of total asset and debt equity ratio to impact on bank profitability, negative relationship of interest coverage ratio to bank profitability.

Chalise and Adhikari (2022) studied the impact of capital structure and firm size on financial performance of Nepalese commercial bank. The study used a sample of 14 commercial banks over period of six years (2013/14-2018/19). Regression analysis is used. ROA and EPS were used as the financial performance indicators. The studies revealed a negative relation of ROA and EPS

with capital structure (Debt/ Equity), positive relationship of ROA and EPS with total assets (size). The finding revealed that, high level equity capital employed in the capital structure of Nepalese commercial bank.

Table 2

Summary and Empirical Review at national Article

S.N.	Authors	Variables	Methodology	Major findings
1.	Bhatt and Jain (2020)	ratios of short-term to long-term debt, deposits to total debt, size, and growth of assets are the independent variables. ROE is the dependent variables.	Regression analysis method was used.	Profitability and bank size are substantially positively correlated, suggesting that a larger bank will generally provide a higher return to shareholders. While ROE has a negligible negative relationship with short-term debt and total debt, it has an insignificant positive relationship with long-term debt and deposits
2.	Jaishi (2020)	Equity to total asset, debt ratio, size, liquidity, tangibility are the independent variables. ROA, EPS are the dependent variables.	Descriptive and Casual comparative research design was used.	ROA is benefited by both the total debt ratio and the tangibility of the assets. Size, liquidity, and equity to total asset have a negative effect on ROA. Beta coefficient is negative for equity to total asset, size and liquidity on EPS. The beta coefficient of the total debt ratio, tangibility, ROA, EPS are positive that indicates an increase in debt ratio, tangibility and ROA increase EPS as financial performance.
3.	Kharel (2020)	Interest Coverage ratio Debt to total asset ratio are the independent	Descriptive research design was used.	Total debt to total asset and debt equity ratio has negative significant impact on bank profitability.

		variables. ROA, ROE, NIM are the dependent variables.		Interest coverage ratio shows positive significant relationship on bank profitability.
4.	Chalise and Adhikari (2022)	Debt/equity ratio, size are the independent variables. EPS, ROA are the dependent variables.	Descriptive research design was used.	There is a negative relation of ROA and EPS with capital structure (Debt/equity). There is a positive relationship of ROA and EPS with total asset, size.

2.3 Research Gap

It is impossible to overlook the link between capital structure and profitability since the firm's long-term survival depends on increased profitability. The company will be more profitable if it adds debt to its capital structure because interest payments on debt are tax deductible. Therefore, in order to make wise capital structure decisions, it is crucial to evaluate the relationship between capital structure and the firm's profitability.

Diverse findings were obtained by numerous academics that examined the effect of capital structure on the profitability of businesses. Certain studies found a positive correlation, some found a negative correlation, while still others found no correlation at all between capital structure and the success of the firm. This contentious finding gives researchers the opportunity to investigate the relationship between capital structure and firm profitability in more detail.

On the other hand, despite of several empirical studies on impact of capital structure on profitability in South Asian countries, there is limited research comparing these findings with other regions or countries. In context of Nepal, only a few empirical studies focus on impact of capital structure on profitability. After reviewing the literature, it was discovered that manufacturing companies rather than banks and financial institutions are the subject of the majority of studies on capital structure and profitability. Although a survey of the literature reveals that other variables have been studied, this study also takes EPS into account as a dependent variable and attempts to examine how the composition of the capital structure affects shareholders' wealth.

CHAPTER III

RRSEARCH METHODOLOGY

3.1 Research Design

Descriptive and causal-comparative research designs were used in this study. In order to obtain sufficient information regarding the underlying problems related to the capital structure and financial performance characteristics of Nepalese development banks, a descriptive research design has been used. It clarifies the facts, circumstances, and real-life situations. The cause-and-effect relationship between the capital structure and profitability of the Nepalese development bank has been established through the use of a casual-comparative study methodology. The impact of the total debt ratio, equity to total assets, and return on equity (ROE) on return on assets (ROA) is specifically examined in this paper. Various statistical and financial tools have been employed to analyze the topic.

3.2 Population and Sample

Due to resource constraints, it is impractical to study all 17 development banks in Nepal. Therefore, judgmental sampling was employed, and 9 development banks were chosen for research purposes. This sample size of 9 banks was selected due to limitations in available resources.

Table 3

List of samples of selected Development Banks

S. N	Name	Date of establishment	Paid-up Capital
1.	Mukti Nath Bikash Bank	Paush 19, 2063 BS	Rs. 642.09 crore
2.	Garima Bikash Bank	Mangsir 7, 2064 BS	Rs. 518.77 crore
3.	Jyoti Bikash Bank	Bhadra 9, 2070 BS	Rs. 439.58 crore
4.	Shine Resunga Development Bank	Ashad 5, 2058 BS	Rs. 428.39 crore
5.	Kamana Sewa Bikash Bank	Shrawan 20,2074	Rs. 314.26 crore
6.	Sangrila Development Bank	2061 BS	Rs. 301.07 crore
7.	Miteri Development Bank	Ashwin 27, 2063	Rs. 101.50 crore
8.	Sindhu Bikash Bank	Bhadra 24, 2067	Rs. 55.75 crore
9.	Green Development Bank	Shrawan 2070 BS	Rs. 51.90 crore

Source: Website of Selected sample, As, per Mid-April, 2023

3.3 Nature and Sources of Data

Because the focus of this study is on how capital structure affects profitability, accounting and financial reports are analyzed. As a result, secondary data from both public and unpublished sources is used in this investigation. To ensure that the research yields accurate and truthful results, secondary data have been gathered. Every feasible and valuable piece of information has been gathered. A bank's published annual report is considered the primary source of information. Similarly, the secondary source of data is the information received from books, magazines, journals, articles, reports bulletins, and Nepal Rastra Bank, related website from internet etc. as well as supplementary data.

3.4 Data Procedures

The data collections are the major part of this study since it plays a key role in the analysis. The study is totally based on the secondary data so, the accuracy in result depends upon the accuracy of secondary data. This research was conducted by collecting secondary data from the website of respective banks.

3.5 Methods of Data Analysis

During the collection of research data, those data must be analyzed in order to interpret the findings. The gathered data and facts must be processed in order to bring them down to a workable level. Following such processing, the statistical analysis and significant After interpretation, a theory of finding is developed; as a result, data processing—which includes editing, coding, categorization, and tabulation was completed. The following statistical tools are employed for the analytical analysis.

3.5.1 Descriptive Statistics

Several methods of statistical analysis have been employed in this work to compare the Figures and derive one statistically significant result. Here are brief explanations of the statistical instruments.

Mean

The arithmetic mean is the most often used and well-liked metric for summarizing all of the data in one variable. It is computed by dividing the total number of things by the sum of all the items. The average value during the study period is represented by the means of the various variables.

Maximum

The maximum value in a dataset is the largest number. If all the numbers are negative, the maximum is the one closest to zero. Each number is ranked, and the maximum takes the top position, with ties considered equal.

Minimum

The minimum value, on the other hand, is the smallest number in the dataset, meaning it is less than or equal to all other numbers in the set.

Standard Deviation

Dispersion is the degree of the variation of the individual items about a central value the absolute dispersion is measured by the standard deviation. The standard deviation increases with the degree of dispersion. A high level of observational regularity and series homogeneity is indicated by minimal standard deviations, and vice versa. The standard deviation is calculated by taking the square root of the variance and reflects how spread out the data points are around the mean. By calculating the deviation of each data point from the mean, the standard deviation may be computed as the square root of variance.

Co-efficient of Variation

A statistical indicator of how widely apart data points are from the mean in a data series is the co-efficient of variation (CV). Even when the means of two data series are very unlike from one another, the co-efficient of variation which is the ratio of the standard deviation to the mean is a helpful statistic for comparing the degree of variation between them.

3.5.2 Correlation Analysis

One statistical method for describing how closely one variable is related to another is correlation analysis. The current investigation has employed simple correlation. The correlation coefficient

between the ensuing financial variables has been calculated, analyzed, and showed in a matrix form. We can measure correlation coefficient between two variables X and Y using following formula.

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

Where:

r = The correlation coefficient of X and Y properties between two variables

Proprieties:

- a) It is located between -1 and +1
- b) If r = +1, A perfect positive correlation exists.
- c) If r = -1, A perfect negative correlation exists.
- d) If r = 0, then there is no association.
- e) If r = 0.7 to 0.99 (or -0.7 to -0.99) There is a significant level of positive or negative correlation.

Coefficient of Determination (r²)

A measure of the degree of linear relationship or correlation between two variables one of which is dependent and the other independent is called the coefficient of determination. To put it another way, r² calculates the overall percentage variation in the dependent variables. There are values for the coefficient of determination that range from zero to one. Only when the unexpected variation is zero, or when every data point in the scatterplot falls precisely on the regression line, can a value of one occur.

t- Statistics: It was developed by W.S. Gosset (Pen name Student) in 1908. Then this distribution is explained by R.A. Fisher. To test the validity of assumption of the study for small samples, t-test is used. To use the t-distribution, t-values are first calculated and then compared with critical values at a specified significance level, based on the degrees of freedom. If the computed value of 't' exceeds the table value (say t 0.05), it is known that the difference is significant at 5 percent level of significance but if t-values are less than the corresponding critical of the 't' distribution, the difference is not termed as significant.

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

Where, r = Sample correlation between two variables

r^2 = Coefficient Determination

n = No of Pair of observations

Level of significance: Level of significance $\alpha = 5\%$

Critical Value: Tabulated or critical value of t at α % level of significance for (n - 2) degree of freedom obtain from 't' tables.

Decision: If calculated 't' is less than or equal to tabulated value of 't' it falls in the accepted region and the null hypothesis is accepted and if the calculated 't' exceeds the tabulated 't', the null hypothesis is rejected.

3.5.3 Regression Analysis

Regression analysis indicates movement direction but not relative movement in the variables under investigation. We can determine the relative movement in the variables with the use of regression analysis. simple regression analysis is a function that allows an analyst or statistician to make predictions about one variable based on the information that is known about another variable. Linear regression can only be used when one has two continuous variables an independent variable and a dependent variable. The independent variable is the factor used to predict or determine the outcome, which is known as the dependent variable. In a multiple regression model, this concept is expanded to include several explanatory variables.

The intent of this study is to determine how capital structure affects the sampled banks' profitability. Three financial ratios establish capital structure: debt to assets (DTA), equity to assets (ETA), and return on equity (ROE). Three other financial ratios affect profitability and performance: earnings per share (EPS), return on assets (ROA), and return on equity (ROE). The model utilized in this investigation is as follows:

$$Y_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 D_{it} + e_{it}$$

where Y = dependent variable, β_0 shows intercept, β_1 = slope, D = explanatory variable, e shows error term, I = no. of banks and t = no. of periods. Where “ I ” represents the cross-sectional element of the study while “ t ” represents the time series element in this study.

Model 1: Return on asset

$$ROA = \beta_0 + \beta_1ETTA + \beta_2LT TA + \beta_3Liquidity + \beta_4Bank\ Size + \beta_5Inflation + \beta_6GDP + e_{it}$$

Model 2: Return on equity

$$ROE = \beta_0 + \beta_1ETTA + \beta_2ETA_{it} + \beta_3Liquidity + \beta_4Bank\ Size + \beta_5Inflation + \beta_6GDP + e_{it}$$

3.6 Research Framework

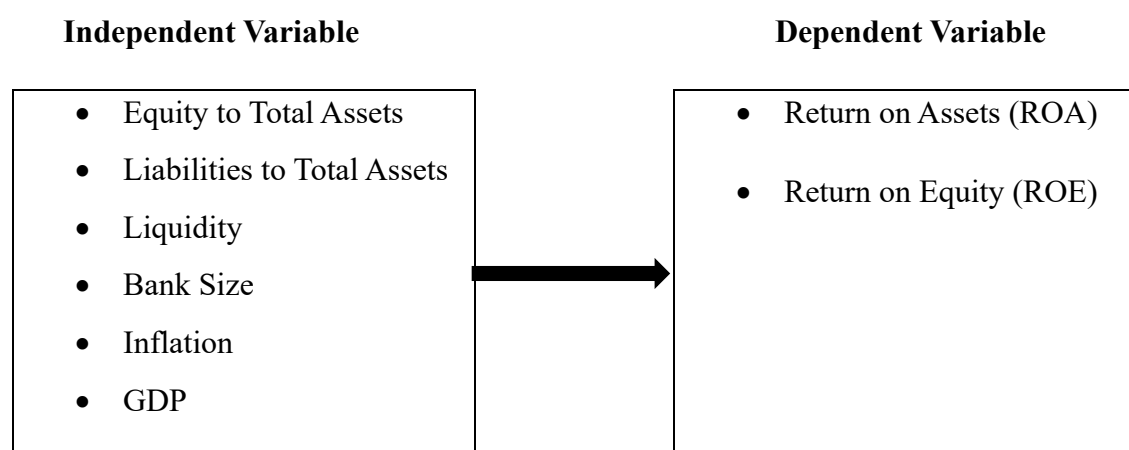


Figure:6 Research Framework

Source: Habibniya al. (2022)

Return on Assets

the financial ratio, called return on assets (ROA), shows a business's profits compared to its total assets. ROA is a useful metric for investors, analysts, and business management to measure how well a company uses its resources. A company's revenue and average assets are often used to express the indicator as a percentage. A high return on assets (ROA) indicates that the company is able to manage its balance sheet and generate a good profit, while a low ROA indicates that there is still room for growth.

Return on Equity

Return on Equity (ROE) evaluates a company's financial performance by dividing its net income by shareholder equity. Essentially, shareholder equity is the difference between total assets and total liabilities. ROE illustrates a company's capacity to generate profits from its equity base. Generally, a higher ROE indicates that a company's management is more effective at using equity financing to foster growth and increase profits. This metric is particularly valued for assessing a firm's profitability and managerial efficiency.

Liabilities to Total Assets

The liabilities-to-total-assets ratio is a measure of solvency that assesses the proportion of a company's assets that are financed through liabilities. A high ratio may suggest a risk of solvency issues, as it indicates a lower proportion of shareholder equity. Companies that are in a phase of rapid growth frequently exhibit higher ratios, due to increased borrowing to fuel expansion.

Total Equity to Total Assets

The Equity to Set ratio measures the amount of equity a company has in relation to its total assets. It is one of the most important financial metrics that business owners and investors use to analyses the financial health of a company.

The equity to assets ratio is a crucial measure because it provides insight on a company's financial health. A business with a high equity to assets ratio is likely to be financially sound and less reliant on debt financing. As a result, the business is better able to withstand financial shocks. A low equity to assets ratio, on the other hand, shows that a business is more reliant on debt financing and has a weaker financial situation. This makes the company more vulnerable to financial shocks and increases the risk of default.

Liquidity

Liquidity describes how quickly and easily an asset can be sold for cash without impacting its market value. Cash is the ultimate liquid asset since it is already in money form. The ability to convert assets into cash swiftly is a key driver of market efficiency.

Assets with high liquidity can be converted into cash easily and efficiently. Conversely, assets with low liquidity require more time and may incur greater costs during conversion.

Bank Size

This ratio indicates how many assets a bank owns. When banks have a higher ownership of assets, they are typically able to provide a broader range of financial services at a reduced cost.

Inflation

Inflation refers to the rise in the prices of goods and services over time, which results in a decrease in purchasing power. It is often measured as the average increase in prices of a chosen set of goods and services during a specific period. The driving forces behind inflation can be categorized into three types: demand-pull inflation, cost-push inflation, and built-in inflation. As prices increase (often expressed as a percentage), the value of currency declines, meaning the same amount of money buys fewer goods and services than before. Deflation, the opposite of inflation, occurs when prices decrease, leading to an increase in the purchasing power of money.

GDP

GDP, or Gross Domestic Product, quantifies the total economic output of a country by tallying the value of all final goods and services those purchased by the ultimate consumer produced within a nation during a specific timeframe, such as a quarter or a year. It encompasses market-based production and also accounts for non-market activities, like government-provided services in defense and education. This measurement includes everything produced within a country's borders.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter analysis, and interpretation of data are the key topics of this chapter. The data from the study are presented in this chapter using tables. The data that has been gathered is presented and examined in this chapter. It intends to analyze the data collected from various sources and present the finding of the analysis. This chapter includes descriptive statistics, correlation matrix and regression analysis. It is organized as follows: first, the variables are subjected to a descriptive statistical analysis. The second result of the correlation analysis. The result of a regression analysis is the third. Presenting the findings, analysis, and discussion of the financing is the primary goal.

4.1 Descriptive Statistics

The descriptive statistics of dependent and independent variables for selected development bank in Nepal for fiscal year (FY) 2070/71-2078/79 was presented on the following table to measure minimum, maximum, mean, standard deviation, co-efficient of variation of different variables such as dependent variable ROA, ROE and independent variable ETTA, LTTA Liquidity, Bank Size, Inflation, GDP.

Table 4

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	CV
ROA	81	-5.28	3.60	1.4198	1.1853	0.8348
ROE	81	-13.95	28.00	12.6885	7.7355	0.6096
ETTA	81	6.67	45.23	13.3968	6.2057	0.4632
LTTA	81	54.77	98.52	86.7385	6.3444	0.0731
Liquidity	81	1.27	45.00	14.0643	12.1168	0.8615
Bank Size	81	5.99	11.08	9.8658	.8485	0.0860
Inflation	81	3.63	8.80	5.9656	1.8699	0.3134
GDP	81	-2.37	8.95	4.6367	3.3824	0.7295
Valid N (listwise)	81					

Source: Annual Report of Sample Development Banks

The Table 4 indicates descriptive statistics minimum, maximum, mean, standard deviation, co-efficient of variation of the variable under the period of 2070/71-2078/79 for the 9 development banks of Nepal with 81 observations.

The average asset return is 1.4198 percent. The sample development bank's average value in relation to its assets is shown, with a standard deviation of 1.1853 percent and a coefficient of variation of 0.8348. The return on assets has a minimum of -5.28 percent and a maximum of 3.60 percent. It shows the sample development banks' lowest and greatest returns.

Return on equity shows wider range and higher variability, suggesting differences in how efficiently equity is used across banks. The mean value of return on equity is 12.6885 percent and standard deviation is 7.7355 percent and co-efficient of variation is 0.6096. The return on equity has a minimum of -13.95 percent and a high of 28.00 percent. It shows the lowest and greatest return that certain development banks will provide throughout the given time frame.

The percentage of total assets to equity is 13.3968 on average. It has standard deviation is 6.2057 percent and co-efficient of variation is 0.4632. The minimum and maximum value is 6.67 percent and 45.23 percent. The mean value of liability to total assets is 86.7385 percent. It has standard deviation is 6.3444 percent and co-efficient of variation is 0.0731. The minimum and maximum value is 54.77 percent and 98.52 percent. Liability to total assets show high levels suggesting significant portion of assets are in loans

The mean value of liquidity is 14.0643 percent. It has standard deviation is 12.1168 percent and co-efficient of variation is 0.8615. The minimum and maximum value is 1.27 percent and 45.00 percent. It has higher standard deviation and wider range which indicates significant differences in bank ability to meet short term obligations.

The mean value of bank size is 9.8658 percent. It has standard deviation is .8485 percent and co-efficient of variation is 0.0860. The minimum and maximum value is 5.99 percent and 11.08 percent. The mean value of inflation is 5.9656 percent. It has standard deviation is 1.8699 percent and co-efficient of variation is 0.3134. The minimum and maximum value is 3.63 percent and 8.80 percent. The mean value of GDP is 4.6367 percent. It has standard deviation is 3.3824 percent and co-efficient of variation is 0.7295. The minimum and maximum value is -2.37 percent and 8.95 percent.

4.2 Correlation Analysis

To determine the correlation between a capital structure variable and the profitability of Nepal's development banks. In this section banks correlation analysis has been performed with banks dependent and independent variable such as ROA, ROE, Liquidity, Bank Size, equity to total assets, liability to total assets, Inflation and GDP.

Table 5

Relationship among dependent and independent variable

	ROA	ROE	ETTA	LTTA	Liquidity	Bank Size	Inflation	GDP
ROA	1							
ROE	.853** (<.001)	1						
ETTA	-.237* (.033)	-.431** (<.001)	1					
LTTA	.264* (.017)	.456** (<.001)	-.981** (<.001)	1				
Liquidity	.350** (.001)	.355** (.001)	-.188 (.093)	.216 (.053)	1			
Bank Size	.257* (.021)	.305** (.006)	-.506** (<.001)	.481** (<.001)	.184 (.099)	1		
Inflation	.066 (.558)	.223* (.045)	-.069 (.541)	.090 (.427)	-.116 (.302)	-.262* (.018)	1	
GDP	.095 (.397)	-.003 (.975)	.105 (.349)	-.107 (.341)	.016 (.886)	-.102 (.366)	-.358** (.001)	1

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

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

The Table 5 indicates the correlation coefficients of profitability determinants i.e. return on assets (ROA), return on equity (ROE) with capital structure with bank specific factors such as equity to

total assets, liability to total assets, liquidity, bank size, inflation and GDP. Correlation coefficients range from -1 to 1, with positive values indicating a positive relationship, negative values indicating a negative relationship, and zero indicating no correlation.

ROA and ROE have a very strong positive correlation (.853**), indicating that as the ROA increase, the ROE also increase significantly. This is expected as both are measures of profitability but from different perspective. ROA have weakly positively correlated with LTTA (0.264*) and negatively correlated with ETTA (-0.237*). ROE have weakly negatively correlated with ETTA (-0.431**).

ETTA and LTTA show a very strong negative correlation (-.981**) which is highly significant, indicating that banks with a higher ratio of equity to total assets tend to have a lower ratio of liability to total assets. This suggests a tradeoff between equity financing and loan creation in banks asset's structure. Liquidity is positive correlation with both ROA (.350**) and ROE (.355**) suggesting that higher liquidity levels are associated with higher profitability. However, the correlation coefficients are not as strong as those between profitability measure themselves indicates other factors also play significant roles in determining profitability. Bank size shows a modest positive correlation with ROE (.305**) and a smaller positive correlation with ROA (.257*), suggesting larger bank may achieve slightly higher ROE and ROA but the effect is not as pronounced. Inflation shows a weak positive correlation with ROE (.223*), implying that in times of higher inflation equity returns might slightly increase, although this correlation is not very strong. Inflation have weakly negatively correlated with liquidity (-0.116) and GDP (-0.358**). GDP show a very strong negative correlation with inflation (-.358**), indicating that higher GDP growth is associated with lower inflation rates. GDP have weakly positively correlated with ROA (0.095) and negatively correlated with ROE (-0.003). However, GDP does not show a significant correlation with most bank specific metrics like ROA and ROE suggesting that macroeconomic growth does not directly translate to higher profitability metrics for banks on individual level.

4.3 Regression Analysis

One statistical tool for predicting the influence of a relationship between the dependent and independent variables is multiple regression analysis. Using known values for the independent variables, multiple regression analysis aims at forecasting the value of the single dependent

variable. To find the estimation equation, two variables' correlation is insufficient. In order to ascertain the estimation equation that provides a more accurate description of the relationship.

Table 6

Effect of Capital Structure on Profitability (ROA)

Variable	Beta Coefficient	Std. Error	t-value	Sig.
Constant	-14.591	10.421	-1.400	.166
ETTA	.099	.104	3.949	.046
LTTA	.109	.101	2.075	.026
Liquidity	.029	.010	2.775	.007
Bank Size	.371	.180	2.061	.043
Inflation	.144	.076	1.905	.061
GDP	.072	.039	1.855	.068
Adjusted R ²				.175
F-statistic				3.830
Sig(F-stati)				.002 ^b

a. Dependent Variable: ROA

The Table 6 represent the regression analysis which shows the relationship between the return on assets as the dependent variable and several independent variables, including ETTA, LTTA, Liquidity, Bank Size, Inflation, and GDP. The table provides the beta coefficients, standard errors, t-values, and p-values (Sig.) for each independent variable.

Beta coefficient for ETTA is 0.099. This suggests that for a one-unit increase in ETTA, we expect ROA to increase by 0.099 units, holding all other variables constant. The standard error associated with the coefficient of ETTA is 0.104. This represents the precision of the estimated coefficient. A lower standard error indicates a more precise estimate. The t-value for ETTA is 3.949, and the associated p-value is 0.046. Since the p-value is less than 0.05, ETTA is considered statistically significant in predicting ROA at the 0.05 significance level. The beta coefficient for Liquidity is 0.029. This suggests that for a one-unit increase in Liquidity, we expect ROA to increase by 0.029 units, holding all other variables constant. The standard error associated with the coefficient of Liquidity is 0.010. The t-value for Liquidity is 2.775. The p-value associated with the t-test for

Liquidity is 0.007, indicating that Liquidity is statistically significant in predicting ROA at the 0.05 significance level.

The beta coefficient for Bank Size is 0.371. It suggests that for a one-unit increase in Bank Size, we expect ROA to increase by 0.371 units, holding all other variables constant. The standard error associated with the coefficient of Bank Size is 0.180. The t-value for Bank Size is 2.061. The p-value associated with the t-test for Bank Size is 0.043, indicating that Bank Size is statistically significant in predicting ROA at the 0.05 significance level. The beta coefficient for Inflation is 0.144. The standard error associated with the coefficient of Inflation is 0.076. The t-value for Inflation is 1.905. The p-value associated with the t-test for Inflation is 0.061, indicating that Inflation shows some indication of significance in predicting ROA, although it does not reach conventional levels of significance. The beta coefficient for GDP is 0.072. The standard error associated with the coefficient of GDP is 0.039. The t-value for GDP is 1.855. The p-value associated with the t-test for GDP is 0.068, indicating that GDP shows some indication of significance in predicting ROA, although it does not reach conventional levels of significance.

The beta coefficient for LTТА is 0.109. It suggests that for a one-unit increase in LTТА, we expect ROA to increase by 0.109 units, holding all other variables constant. The standard error associated with the coefficient of LTТА is 0.101. The t-value for LTТА is 2.075. This value is obtained by dividing the beta coefficient by its standard error. The p-value associated with the t-test for LTТА is 0.046. Since this p-value is less than 0.05, LTТА is statistically significant in predicting ROA.

Based on the table, ETTA, LTТА, Liquidity and Bank Size have statistically significant effects on ROA at the 0.05 significance level, as their p-values are less than 0.05. Inflation and GDP also show some indication of significance with p-values close to 0.05. The adjusted R-squared (R^2) in the table indicates the proportion of the variation in return on assets (ROA) that is explained by the independent variables included in the regression model. The adjusted R-squared value is 0.175, indicating that approximately 17.5% of the variability in ROA is accounted for by the independent variables such as ETTA, LTТА, Liquidity, Bank Size, Inflation, and GDP. The F-statistic is 3.830, with a significance level of 0.002, suggesting that the overall regression model is statistically significant.

Table 7*Effect of Capital Structure on Profitability (ROE)*

Variable	Beta Coefficient	Std. Error	t-value	Sig.
Constant	-87.691	61.342	-1.430	.157
ETTA	.385	.613	3.629	.001
LTTA	.691	.595	3.161	.050
Liquidity	.181	.061	2.948	.004
Bank Size	2.252	1.059	2.127	.037
Inflation	1.460	.445	3.279	.002
GDP	.392	.230	1.706	.092
Adjusted R ²				.329
F-statistic				7.536
Sig(F-stati)				.000 ^b

a. Dependent Variable: ROE

The Table 7 appears to present the results of a regression analysis with the dependent variable being Return on Equity (ROE) and several independent variables.

The beta coefficient of ETTA is 0.385 with a standard error of 0.613, resulting in a t-value of 3.629. This variable is statistically significant as its t-value is 0.001. With a LTTA beta coefficient of 0.691 and a standard error of 0.595, the resulting t-value is 3.161 and p-value is 0.050. Liquidity has beta coefficient of 0.181 with a small standard error of 0.061, resulting in a high t-value of 2.948. Therefore, Liquidity is statistically significant as its t-value is large enough to reject the null hypothesis. Bank Size has beta coefficient of 2.252 and a standard error of 1.059, the resulting t-value is 2.127. This variable is statistically significant as its t-value exceeds the critical threshold. Inflation has a beta coefficient of 1.460 with a standard error of 0.445, leading to a high t-value of 3.279. Therefore, Inflation is statistically significant as its t-value exceeds the critical threshold. The beta coefficient for GDP is 0.392 with a standard error of 0.230, resulting in a t-value of 1.706. While the coefficient is positive, the variable is not statistically significant at the conventional significance level.

ETTA, LTTA, Liquidity, Bank Size, Inflation are statistically significant at the 0.05 level, as indicated by their p-values (Sig.) being less than 0.05. Constant, GDP are not statistically significant at the 0.05 level. The adjusted R-square value suggests that approximately 32.9% of the variance in ROE is explained by the independent variables in the model. The model as a whole is statistically significant, as indicated by the low p-value (0.000b) associated with the F-statistic.

4.4 Discussion

The major objective of the study was to assess the bank capital and profitability in Nepalese development bank and to investigate the connection between bank profitability and capital structure and to assess the influence of capital structure on profitability of development banks. The study focuses on different dependent and independent variable. The ROA and ROE are the dependent variable which have to been used to measure the profitability situation of the development bank taken under study and in the other hand ETTA, LTTA, GDP, Liquidity, bank size, inflation have been used as independent variable in this study.

In the Nepalese development bank, there is a strong positive correlation (.853**) suggests that profitability measure is closely linked. Bank with higher returns on assets generally also achieve higher returns on equity, indicating efficient use of assets and equity to generate profits. This relationship underscores the importance of assets and equity management in enhancing bank profitability. In this study ETTA has a moderate negative correlation with ROE (-0.431**) and a weak negative correlation with ROA (-0.237*), suggesting that banks with higher equity to total assets ratios tend to have slightly lower profitability. Liquidity and bank size has moderate positive correlated with ROA and ROE. Higher liquidity level is associated with higher profitability. However, its correlations with other variables are not significant or are weaker indicating that liquidity relationship with profitability does not strongly depend on the structure of assets or bank size. Inflation shows a weakly negative correlated with liquidity and GDP. GDP show a very strong negatively correlation with inflation (-.358**), indicating that higher GDP growth is associated with lower inflation rates. GDP does not show a significant correlation with most bank specific metrics like ROA and ROE suggesting that macroeconomic growth does not directly translate to higher profitability metrics for banks in individual level.

Liabilities to total asset have a significant impact on return on assets which is aligned with the studies of Jaishi (2020), Kharel (2020), Habibniya et al. (2022). Equity to total asset has a

significant impact on return on assets which is aligned with the studies of Habibniya et al. (2022), Jaishi (2020). The variables ETTA, LTTA, liquidity, and Bank Size have significant positive effects on ROA, with significance levels below the conventional 0.05 threshold, indicating a statistically significant relationship. Liquidity and Bank Size have a significant and positive impact on return on assets. The finding is consistent with the findings of Ali. et al. (2016), Musah (2018), Jaishi (2020), Habibniya et al. (2022), Chalise and Adhikari (2022). Inflation and GDP also show positive relationships with ROA but are less statistically significant (p -values slightly above 0.05), suggesting weaker evidence of their impact on profitability in this analysis.

The studies revealed that equity to total assets has statistically significant impact on return on equity. The finding is consistent with the findings of Qayyum and Noreen (2019), Habibniya et al. (2022). Liabilities to total asset has a significant impact on return on assets which is similar to the studies of Singh and Singh (2016), Qayyum and Noreen (2019), Jaishi (2020), Kharel (2020), Habibniya et al. (2022). Gross domestic product has negative insignificant relationship with return on equity. The result for GDP, while positive, indicate a less consistent or direct impact on profitability, at least within the scope of this analysis. Liquidity, bank size and inflation have a significant and positive impact on return on equity. The finding is consistent with the findings of Ali. et al. (2016), Musah (2018), Qayyum and Noreen (2019), Bhatt and Jain (2020).

The results of the study are limited to nine development banks of Nepal. Data obtained from the selected development banks and the accuracy of the relevant bank's annual report has a significant impact on the secondary data's dependability.

The implications are Development banks in Nepal should carefully manage their capital structure, focusing on optimizing equity and liability ratios to maximize profitability. These studies used only two dependent but future researcher can use more than two dependent variables in their research paper. Attention should be given to liquidity management and bank size to enhance profitability and efficiency of the development banks.

CHAPTER V

SUMMARY AND CONCLUSION

The summary, recommendations, and conclusions are covered in this chapter regarding impact of capital structure on profitability of sample development banks in Nepal.

5.1 Summary

Capital structure refers to the combination of debt and equity which a firm uses to finance its long-term operation. Financial decision plays a crucial part in the daily functioning and operations of the company. This study is prepared to find out the impact of capital structure on profitability of Nepalese development bank. The dependent variable of the study is return on assets (ROA) and return on equity (ROE) whereas, independent variable is ETTA, LTTA, Liquidity, Bank size, Inflation, GDP.

As per the objective of these studies, it tries to assess the bank capital structure and profitability in Nepalese development bank, to investigate the relationship between bank profitability and capital structure and to assess the influence of capital structure on profitability in development banks. The research design used in the study is casual comparative with a descriptive approach. Nine development banks have been chosen for this study, which includes all of Nepal's development banks as its population.

The data used in this study were gathered using a secondary approach over the course of a year, specifically from 2070/71-2078/79 This information was gathered from bank websites and yearly reports. Excel and SPSS software have been used to analyze the data using financial tools such as regression analysis, correlation analysis, and descriptive statistics.

Based on the previously discussed descriptive statistics, the study determined that the average return on equity and return on assets are, respectively, 12.6885 percent and 1.4198 percent. The return on equity and return on assets standard deviations, which are 1.1853 and 7.7355 percent, respectively, show how far from the mean each is. ROA and ROE have maximum values of 3.60 and 28%, respectively. ROA and ROE have minimum values of -5.28 and -13.95 percent, respectively. It denotes the lowest and maximum return that the Nepalese Development Bank may achieve. The standard deviation of ETTA and LTTA is 6.2057 and 6.3444.

The correlation table indicates very strong positive correlation between ROA and ROE which indicating that banks that are efficient in generating profits from their assets tend to offer higher returns on equity. ETTA and LTTA shows a very strong negative correlation indicate that banks with a higher ratio of equity to total assets tend to have a lower rate of liability to total assets which suggests a tradeoff between equity financing and loan creation in bank assets structure. Liquidity is positive correlation with ROA which suggest that higher liquidity levels are associated with higher profitability. However, the correlation coefficient is not as strong as those between profitability measure themselves indicting other factors also play significant roles in determining profitability. Larger bank size may achieve higher ROA and ROE. GDP does not show a significant correlation with most bank specific metrics like ROA and ROE suggesting that macroeconomic growth does not directly translate to higher profitability metrics for banks on individual level.

The regression analyses for both ROA and ROE as dependent variables suggest that capital structure significantly affects profitability among the selected development banks. Liquidity and bank size, show significant positive relationships with profitability metrics with p-value OF 0.007 and 0.043 for ROA and p-value of 0.037 and 0.002 for ROE. This indicates that banks with better liquidity management and larger sizes tend to be more profitable. However, the influence of macroeconomic variables like inflation also plays a role, complicating the direct relationship between capital structure and profitability.

5.2 Conclusion

This study looked at the relationship between profitability and capital structure of development bank for the period of nine years i.e. from 2070/71 to 2078/79. The relationship between capital structure and profitability characteristics is examined by researchers.

The result conducted that there is a strong positive correlation between ROA and ROE, indicating that banks which are more efficient at generating income from assets tend to also provide higher return to their equity. A negative correlation between ETTA and ROE suggests that a higher equity ratio may not necessarily contribute to higher profitability. In contrast, LTTA has a positive correlation with ROA and ROE, indicating that banks with a higher proportion of loans to total assets are generally more profitable.

The regression result shows that ETTA and LTTA have a positively significant with ROA and ROE. This suggests that a balanced mix of equity and liability can contribute to a bank's profitability. Liquidity shows a positive and significant relationship with ROA and ROE, indicating that banks with higher liquidity levels tend to be more profitable. This could reflect the ability of liquid banks to seize profitable opportunities quickly and manage short-term obligations more efficiently. Inflation shows a positive but not statistically significant relationship with ROA, whereas there is positive and significant relationship between ROE and inflation. GDP growth also shows a positive but not statistically significant effect on ROA and ROE. There is positive and significant relationship with bank size and profitability which shows the return to shareholders increases with the size of the bank.

5.3 Implication

Based on the findings, the following implications have been made:

- i. Development banks in Nepal should carefully manage their capital structure, focusing on optimizing equity and liability ratios to maximize profitability.
- ii. Additionally, attention should be given to liquidity management and bank size to enhance profitability and efficiency. Development banks in Nepal should carefully manage their capital structure, focusing on optimizing equity and liability ratios to maximize profitability.
- iii. This study had used two different dependent variables ROA and ROE among many; future researchers can use other or add more dependent variables for research.

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Appendix

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.487 ^a	.237	.175	1.07653

a. Predictors: (Constant), GDP, Liquidity, Bank Size, Inflation, LTTA, ETTA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.629	6	4.438	3.830	.002 ^b
	Residual	85.759	74	1.159		
	Total	112.388	80			

b. Dependent Variable: ROA

c. Predictors: (Constant), GDP, Liquidity, Bank Size, Inflation, LTTA, ETTA

Coefficients^a

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-14.591	10.421		-1.400	.166
	ETTA	.099	.104	.517	3.949	.046
	LTTA	.109	.101	.582	2.075	.026
	Liquidity	.029	.010	.295	2.775	.007
	Bank Size	.371	.180	.265	2.061	.043
	Inflation	.144	.076	.227	1.905	.061
	GDP	.072	.039	.207	1.855	.068

a. Dependent Variable: ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.616 ^a	.379	.329	6.33675

a. Predictors: (Constant), GDP, Liquidity, Bank Size, Inflation, LTTA, ETTA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1815.608	6	302.601	7.536	<.001 ^b
	Residual	2971.429	74	40.154		
	Total	4787.038	80			

a. Dependent Variable: ROE

b. Predictors: (Constant), GDP, Liquidity, Bank Size, Inflation, LTTA, ETTA

Coefficients^a

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-87.691	61.342		-1.430	.157
	ETTA	.385	.613	.309	3.629	.001
	LTTA	.691	.595	.567	3.161	.050
	Liquidity	.181	.061	.283	2.948	.004
	Bank Size	2.252	1.059	.247	2.127	.037
	Inflation	1.460	.445	.353	3.279	.002
	GDP	.392	.230	.172	1.706	.092

a. Dependent Variable: ROE

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