CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF HYDRO POWER COMPANIES IN NEPAL

A Dissertation Submitted to the Office of the Dean, Faculty of Management in partial fulfilment of the requirement for the Master's Degree

By

Harikrishna Bhatt

Roll No.: 3930/075

Exam Roll No.: 13378

Registration No.: 7-2-39-909-2014

Shanker Dev Campus

Putalisadak, Kathmandu

May, 2024

CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF HYDRO POWER COMPANIES IN NEPAL"**.** The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that 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.

……

Harikrishna Bhatt

Date:……..

REPORT OF RESEARCH COMMITTEE

Mr. Harikrishna Bhatt has defended research proposal entitled "CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF HYDRO POWER COMPANIES IN NEPAL" successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidance of supervisor Mr. Rishi Raj Gautam and submit the thesis for evaluation and viva voce examination.

…….
Rishi Raj Gautam
Dissertation Supervisor

Dissertation Proposal Defended Date:

……

Dissertation Submitted Date:

……

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

Dissertation Viva Voce Date:

……

APPROVAL SHEET

We, the undersigned, have examined the dissertation entitled **"**CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF HYDRO POWER COMPANIES IN NEPAL**"** presented by Harikrishna Bhatt, a candidate for the degree of **Master of Business Studies (MBS Semester)**. We hereby certify that the dissertation is acceptable for the award of degree.

……

Rishi Raj Gautam

Dissertation Supervisor

……..

Internal Examiner

……..

External Examiner

……..

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Chairperson, Research Committee

…….

Asso. Prof. Dr. Krishna Prasad Acharya

Campus Chief

ACKNOWLEDGEMENT

This research entitled "CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF HYDRO POWER COMPANIES IN NEPAL" has been prepared for the partial fulfillment of the requirement for the Degree of Masters of Business Studies. The general purpose of the study is to analyze, examine and evaluate the capital structure and profitability of hydro power companies in Nepal, the relationship between capital structure and profitability, profit of the Nepalese hydro power companies.

The Completion of the study is a result of help and support of several hands. Therefore, I would like to express my heartfelt gratitude to all those respondents for their help and support.

I would like to express my warm appreciation to Mr. Rishi Raj Gautam, my research supervisor, for this patient guidance, enthusiastic encouragement and useful critiques throughout this research work. Similarly, I wish to acknowledge the help provided by all the concerned members of Butwal Power Company Limited (BPCL), Radi Bidyut company limited (RADHI), Sanima Mai hydro power company Limited (SHPL), Api power company limited (API), Anku khola Jalvidhyut company Limited (AKJCL) and National hydro power company limited for their contribution in providing the required information available in the concerned websites. They also deserve appreciation and special thanks.

I would like to express my sincere thanks to my parents, family members and friends who always encouraged and inspired me continuously in whatever way it is possible.

Harikrishna Bhatt

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

%	Percentage
<	Less Than
>	Greater Than
A.D	Anno Domini
A.M.	Arithmetic Mean
AKJCL	Akhu Khola Jalvidhyut Company
API	Api Power Company Limited
Asso.	Associated
B.S.	Bikram Sambatt
BPCL	Butwal Power Company Limited
C.V.	Coefficient of Variation
CHCL	Chilime Hydro Power Company Limited
DAR	Debt to Assets Ratio
DCL	Degree of Combined Leverage
DER	Debt to Equity Ratio
DFL	Degree of Financial Leverage
DOL	Degree of Operating Leverage
Dr.	Doctor
F/Y	Fiscal Year
GPM	Gross Profit Margin
i.e.	That Is
MBS	Master's in Business Studies
NEPSE	Nepal Stock Exchange
NHPCL	National Hydro Power Company Limited
NPM	Net Profit Margin
NPTAR	Net Profit to Total Assets Ratio
NPTDR	Net Profit to Total Deposit Ratio
Prof.	Professor
RADHI	Radhi Hydro Power Company Limited
ROA	Return On Assets
ROE	Return On Equity
S.D	Standard Deviation
SE	Shareholder's Equity

SHPL	Sanima Mai Hydro power Company Limited
SPSS	Statistical Package for the Social Sciences
TU	Tribhuvan University

ABSTRACT

This study has analysed the capital structure and profitability of selected listed hydro power companies in Nepal. The main objective of this study is to analyse and examine the capital structure and profitability and their relationship as well as the trend of overall performance in of Nepalese hydro power companies. The research design was based on descriptive and casual cooperative and sampled were collected by using based on hydro power companies established. Data collected and used secondary data from the annual report statements of the Nepalese hydro power companies. Analysis was based on data extracted from annual reports of the hydro power companies for the relevant period. Correlation and regression analysis were employed to examine the capital structure and profitability and their impacts.

The return on assets and debt to equity ratio was used to measure profitability status whereas total debt to assets ratio & total debt to equity ratio was used to measure Efficiency position. The study covered seven listed hydro power (i.e., CHCL, BPCL, RADHI, SHPL, API, AKJCl and NPHC) in Nepal over a period of past 7 fiscal years from 2070/71 to 2076/77.

Key Words: *Capital Structure and Profitability Analysis of Hydro Power Companies in Nepal.*

CHAPTER I
INTRODUCTION

1.1 Background of study

Capital structure stands as a cornerstone within a company's operational framework, serving as the bedrock upon which firms make strategic decisions regarding their financial composition. Capital structure epitomizes the amalgamation of equity and debt instruments employed by a company to fuel its financial operations. Capital structure embodies the financial framework through which an organization obtains funding, incorporating a mix of enduring capital sources like ordinary shares, reserves, preference shares, debentures, bank loans, convertible loan stock, in addition to transient obligations such as bank overdrafts and trade creditors. The prosperity or downfall of a business hinges primarily on the adeptness of management in making astute financial choices. Among these decisions, determining the capital structure stands out as one of the most intricate areas owing to its interconnectedness with other financial variables. To realize the overarching objective of maximizing the wealth of owners, financial managers must possess the acumen to evaluate the company's capital structure comprehensively, discerning its intricate interplay with risk, return, and intrinsic value. Attaining an optimal capital structure necessitates a thorough analysis of risk and return across diverse leverage positions. The risk of bankruptcy is significantly influenced by operational or business risk, underscoring the importance of understanding and mitigating these inherent risks. Conversely, the return on equity is contingent upon operational efficiency, highlighting the critical role of efficient operations in enhancing shareholder value hence; the ideal ratio of debt to equity is contingent upon the unique attributes of the business and the particular investments it engages in. However, beyond these considerations, capital structure decisions are also shaped by a myriad of other factors such as the prevailing capital market conditions, management and investor interests in maintaining control, the company's liquidity position, operational efficiency, as well as regulatory compliance with company acts and regulations. Making a prudent capital structure decision entails carefully weighing these diverse factors to optimize the company's overall value. Indeed, there exist multiple sources of capital, each differing in nature and associated costs. Any company's success is largely dependent on its capital structure, which essentially

outlines how different long-term financing options such as debentures, preference share capital, and equity share capital interact with one another. Every corporation faces the extremely important issue of financing its assets, which should typically be done with a suitable ratio of debt to equity capital. The capital structure typically influences the earnings accessible to equity shareholders, even when it has no effect on the company's overall earnings. A balanced capital structure is the prerequisite for successful business organization but it is lacking in almost all companies in Nepal. The capital structure of Nepalese company is of diverse nature, as no company seems to have followed a particular capital structure policy. Some of the companies' are using only equity capital and some are using both debt and equity irrespective of maximization of the firm. A firm's capital structure is then the composition or 'structure' of its liabilities (Nirajini & Priya, 2013).

The ground breaking research conducted by Modigliani and Miller (1958) on capital structure provided a substantial boost in the development of the theoretical framework within which various theories were about to emerge in the future. Modigliani and Miller (1958) concluded to the broadly known theory of "capital structure irrelevance" where financial leverage does not affect the firm's market value.

Because of its interdependence with other variables in financial decisions, capital structure is one of the most complicated areas of decision-making. The primary factor in the financial decision is profitability. Since the choice of capital structure has a direct impact on an organization's profitability, it is the most important of all the capital investment decisions. Therefore, while choosing the capital structure, due consideration and care must be taken. The company's two primary decision-making domains are funding and investing. The capital structure decision-making process is the method by which the business is financed by a combination of debt and equity. The directors of the company are interested in selecting the ideal capital structure for their business while making funding decisions.

Choosing how much leverage to use is another crucial decision that the administration of the organization makes. The terms capitalization, leverage ratio, capital structure, and financial structure all refer to the same thing: they all describe the types of sources and sums of money that the company has used to build these structures and acquire assets (Barges, 2009).

The mix of debt and equity that a company uses to fund its operations defines its capital structure. A company's capital structure determines how it finances its activities; it may do so entirely through equity capital, loan capital, or a combination of the two (Brigham and Gapenski, 2004).

The term capital denotes the proportion of debt and equity in a company's balance sheet. It is usually difficult for business firms to identify the right combination of debt and equity. A firm can choose among many alternative capital structures. It can choose to either issue a large amount of debt or very little debt. It can arrange lease financing, use warrants, issue convertible bonds, sign forward contracts or trade bond swaps. It can issue many distinct securities in countless combinations; however, it attempts to find the particular combination that maximizes its overall market value (Brigham and Gapenski, 2004). Exactly, the Optimal Capital Structure is the configuration of debt and equity where the overall cost of capital is minimized, and the value of the firm is maximized. Achieving this balance ensures that the firm is efficiently financed, maximizing returns for shareholders while minimizing the cost of raising capital. It is the best debt to equity ratio that maximizes the firm's value. It offers a balance between the ideal debt to equity range and minimize the firms cost of capital. This structure seeks to lower the cost of capital so that firm is less dependent on creditors and more able to finance its core operation. Weighted average cost of capital has to be calculated to determine the level of risk that makes the expected return on capital greater than the cost of capital (Bhattarai, 2017).

One of the most perplexing issues faced by financial managers is the relationship between capital structure, which is the mix of debt and equity financing, and stock prices. It is very commonly known that the value of a firm can be maximized by minimizing its cost of capital. Therefore, one of the major goals in current strategic management is to identify the optimal capital structure. The optimal capital structure exists only when the debt and equity combine to reduce the cost of capital and enhance the firms' profitability. The management of the firm itself has to set their capital structure in a way to maximize their firm value, and this decision is really important (Tailab, 2014). Modigliani and Miller (1958) demonstrated the irrelevance of capital structure in deciding firm value, although the assumption is valuable only in perfect market conditions, where all investors have free access to market information,

and there are zero transaction costs and no tax difference between dividends and capital gains. However, real economies are far from perfect, and thus many financing decisions theories were developed over time in order to demonstrate the purpose of capital mix and its role in company value. A few years after the irrelevance theory, Modigliani and Miller (1963) revised the conditions and explained that interest expenses are tax deductible and, therefore, the value of the firm should increase with a higher debt ratio (Singh and Bagga, 2019).

inside the context of financial management theory, the concept of capital structure refers to how debt and equity are distributed inside a corporation. A company's financing decision pertains to the ratio of debt to equity that is selected to fund the required investment, and a proper balance between risk and return to shareholders is required. A suitable ratio of debt to equity in an optimal capital structure can serve to enhance the firm's worth and, ultimately, the wealth of its owners (Wippern, 1996).

Certainly, there are varying viewpoints among financial analysts regarding the influence of capital structure on firm value. Some argue that increasing leverage, or the proportion of debt, can lead to higher returns for shareholders, thereby enhancing firm value. Conversely, others advocate for adopting an optimal capital structure, which balances the benefits of debt with the associated risks, to maximize firm value. These differing perspectives highlight the complexity of capital structure decisions and the importance of considering various factors when determining the appropriate financing mix for a company. Numerous theories have been proposed on the relationship and influence of capital structure decisions on the performance and profitability of the firm. Notable theories include the MM theory (1958 and 1963), Agency cost theory (1976), Trade-off theory (1977), and Pecking order theory (1984).

The ability of management to make sound financial decisions is the primary factor that determines whether a business succeeds or fails. Because of its interdependence with other financial decision variables, choosing a capital structure is one of the most difficult aspects of financial decision making. The financial manager needs to be able to evaluate the capital structure of the company and comprehend how risk, return, and value are related. The study of risk and return on different leverage positions is crucial for the best possible capital structure. Operating risk, also known as business risk, has a significant influence on the likelihood of bankruptcy, and operating efficiency affects return on equity.

As a result, the ideal debt to equity ratio relies on the type of business and, consequently, the type of investments the company undertakes. However, the choice of capital structure is also influenced by a number of other factors, such as the state of the company's capital market, investor and management control interests, liquidity position, operational effectiveness, company act and regulation, etc. The company's worth will be maximized if a prudent capital structure decision is made while taking into account a number of factors.

Of course, there are other sources of capital, each with a different nature and cost. Any business's ability to succeed is also significantly influenced by its capital structure. It is merely the connection between different long-term financing structures, such equity share capital and debenture preference share capital. Every corporation faces the extremely important issue of financing its assets, which should typically be done with a suitable ratio of debt to equity capital. The capital structure typically influences the earnings accessible to equity shareholders, even when it has no effect on the company's overall earnings.

A good company organization requires a balanced capital structure, which practically all Nepali enterprises lack. Since no company appears to have adhered to a specific capital structure policy, Nepalese companies' capital structures are different. Regardless of the firm's goal, some businesses simply use equity capital, while others use both debt and equity.

Nepalese hydro companies are facing significant challenges that are impacting their performance. The issues you mentioned, such as poor infrastructure, technological limitations, political instability, and global economic downturns, can indeed have a profound effect on the profitability and sustainability of these companies. In such a complex environment, capital structure decisions become crucial for the survival and growth of these companies. Optimal capital structure, which involves finding the right balance between debt and equity financing, can help mitigate risks and maximize returns for shareholders. Leverage decisions, which determine the level of debt a company takes on, are also vital. While debt can provide tax advantages and amplify returns, too much leverage can increase financial risk, especially during economic downturns or when operating in volatile sectors like energy.

The government's policy initiatives and regulatory measures are important in creating a conducive environment for the hydro companies to thrive. These measures can include incentives for investment, improving infrastructure, addressing political instability, and fostering innovation and technological advancement. Overall, navigating the challenges faced by Nepalese hydro companies requires a strategic approach to capital structure decisions, prudent management of leverage, and collaboration between the government, industry stakeholders, and investors to create a more resilient and competitive environment (Barges, 2009).

Hydropower projects in Nepal have often been considered expensive due to the inclusion of additional costs such as access roads and power evacuation transmission lines. Addressing these challenges requires a multi-faceted approach, including strategic planning, innovative financing mechanisms, and policy interventions. Investing in infrastructure development, streamlining regulatory processes, and fostering public-private partnerships can help reduce the costs associated with hydropower projects and improve their competitiveness in the energy market. Additionally, exploring technological advancements such as micro-hydropower systems or improving efficiency in transmission and distribution can also contribute to making hydropower more economically viable in Nepal and similar regions with challenging geographical conditions.

1.2 Problem statement

To mitigate risk while aiming for a specific level of return, or to maximize returns while managing a certain level of risk, companies must strategically manage their optimal capital structure. This entails finding the right balance between debt and equity financing to achieve the company's financial objectives while minimizing risk exposure. The observation that Nepalese hydro power companies may not prioritize the concept of capital structure seriously suggests that the attainment of an optimal capital structure may be lacking in these firms. Without due consideration of capital structure, companies may fail to optimize their financing mix, potentially missing out on opportunities to enhance value and manage risk effectively. Thus, it's essential for Nepalese hydro power companies to recognize the importance of capital structure and strive to establish an optimal structure that aligns with their financial objectives and the prevailing market conditions.

Few listed companies on the stock exchange use loan capital, and as a result, some of these companies fail due to the excessive burden of debt capital costs. Generally speaking, each business has its own capital structure policy for conducting operations. While some businesses only utilize loan capital, others employ equity capital in addition to debt capital. As a result, the cost of capital and corporate policy have a major role in determining the capital structure. The majority of businesses create inexpensive capital structures. Sadly, there isn't a model available in Nepalese commercial organizations to determine capital structure. Any company wants to employ just equity capital during its early stages and does not utilize solely equity capital; debt should not be a part of their capital because of the high interest rates. Capital structure refers to a company's policy about the mixed proportion of debt and equity. Each form of company capital has advantages and downsides when it comes to use. Therefore, a thorough analysis is required to find a good composition. One of the simplest ways for a business to get capital is through bank debt; on the other hand, issuing new equity is the most challenging (Aulia and Gandakusuma, 2019).

Nepal has enormous hydropower potential. The prospects of becoming a prosperous country can be realized provided this energy source could be tapped prudently and efficiently at the capital structure is a fundamental aspect of a firm's financial structure, and determining the appropriate mix of debt and equity financing is crucial for achieving optimal outcomes. Balancing the use of debt and equity impacts various facets of a firm's financial position, including its risk profile, cost of capital, and overall financial health. Too much debt can increase financial risk and interest expenses, while too much equity can dilute ownership and potentially limit returns to shareholders. Moreover, the allocation of funds between short-term and long-term financing components is a critical aspect of capital structure design. This decision affects a company's liquidity, financial stability, and ability to meet its obligations over different time horizons. Short-term financing options may offer flexibility but come with higher risk, while long-term financing provides stability but may tie up capital for extended periods. The maturity structure of a firm's financing plan is indeed influenced by the nature of its assets. For instance, long-term assets such as infrastructure or equipment may be better suited for long-term financing to match their useful life, whereas short-term assets like inventory or accounts receivable may be financed with short-term sources. In summary, effective capital structure

management involves carefully weighing the trade-offs between debt and equity, short-term and long-term financing, and aligning the financing plan with the nature and lifecycle of the firm's assets to achieve a balanced and sustainable financial structure earliest.

It is NEA's primary duty as the nation's power sector leader to take the required actions to accomplish this aim. A business's most crucial functional areas are finance and skilled labor. It addresses the production, distribution, transmission, and other operations of any company, including the production of independent power products (Neupane, 2011).

Using panel data analysis, Salim and Yadav (2012) investigated the impact of capital structure on the financial performance of 237 Malaysian listed businesses between 1995 and 2011. The study employed three measures for capital structure as independent variables: short-term debt divided by total assets, long-term debt divided by total assets, and total debt ratios. Size and growth were used as control variables. The four performance metrics that the researchers used were earning per share, return on equity, and return on asset. the results show that while growth has a favorable impact on financial performance for all 30 sectors, firm performance, as measured by ROA, ROE, and EPS, has a negative impact on the long-term debt ratio (LTD), short-term debt ratio (STD), and total debt ratio (TD). Furthermore, Tobin's Q has a noteworthy and favorable effect on both long-term debt (LTD) and short-term debt (STD).

In wealthy nations with stable economies, numerous research have been conducted on this subject. However, the theory of the MM approach might not hold true in the case of a developing country like Nepal, where the business environment is unstable, there are frequent changes in government policy, there is a high rate of inflation and currency exchange, and companies must pay taxes on their revenue. Therefore, the purpose of this study is to determine whether the company's financial structure influences its performance.

Therefore, hence the research attempts to raise the following issues;

i. What is the current status of capital structure and profitability of selected hydro Power companies in Nepal?
ii. What is the relationship between capital structure and profitability?

iii. How does capital structure affect profitability of selected hydro power companies in Nepal?

1.3 Objectives of the study

The main objective of this study is to assess the impact of capital structure on the profitability of the hydropower companies in Nepal. Furthermore, the study aims to achieve the following specific objectives:

i. To examine the current status of capital structure and profitability of selected hydro power companies in Nepal.
ii. To analyse the relationship between capital structure and profitability of hydro power companies in Nepal.
iii. To analyse effect of capital structures on profitability of selected hydro power companies in Nepal.

1.4 Rationale of the study

Every day, Nepal's hydro power industry is expanding and growing significantly. There is a dearth of research and studies on capital structure and profitability that are explicitly geared toward hydro power firms in Nepal. Decisions about the application, investment, and hiring of the company's capital fund are crucial for the financial managers to make since they impact the capital structure of the business. Given its significant influence on the profitability and long-term sustainability of a company, capital structure is unquestionably an important component of every business.

This study will benefit not just the sampled companies but also the other companies in the population. Additionally, this study may aid concerned academics, professionals, investors, and scholars. Additionally, this study will assist in educating decision-makers on the value of capital structure management for their continued success.

Analyzing a company's financial structure can assist identify its strengths and weaknesses and steer the business in the proper direction. Maintaining the satisfaction of various stakeholders is a primary obligation of a firm, as each has their own set of interests and objectives. Only the company's robust capital structure makes it feasible. Finding the variables associated with capital structure management and providing guidance to financial managers is the significance of this work. This research holds

significance for individuals with an interest in investments, as well as owners, creditors, and shareholders, in fostering a positive mindset.

1.5 Limitations of the study

The study was conducted using a limited number of hydro power companies listed on the Nepal Stock Exchange due to constraints in time and financial resources, preventing a comprehensive coverage of all hydro power firms.

i. The sample has taken only from listed hydro power companies in NEPSE.
ii. There are total eleven listed hydro power companies with seven years financial statements, out of which only seven hydro power companies are selected.
iii. This study concentrates on relationship between capital structure and profitability of seven hydro power companies.
iv. This study is based on secondary data. Thus, the result of the analysis depends on accuracy of available information.

CHAPTER II
LITERATURE REVIEW

2.1 Introduction

Capital structure refers, the financing arrangement of an organization, comprising a blend of long-term capital sources (such as ordinary shares, reserves, preference shares, debentures, bank loans, convertible loan stock, etc.) as well as short-term liabilities like bank overdrafts and trade creditors. A firm's capital structure refers to the composition or arrangement of its liabilities.

2.2 Theoretical review

Before explanation capital structure and profitability it is necessary to understand about capital structure and profit. So, these two components are explained separately below.

Decisions about financial leverage and capital structure should be assessed in light of how they will affect the firm's worth. Nonetheless, there are two opposing ideas about how capital structure and business value are related. While Modigliani and Miller contend that capital structure has no bearing on a company's value, traditionalists maintain that decisions about capital structure directly affect the firm's worth. There are two main theories: relevance theory and irrelevancy theory, to put it broadly. According to relevance theory, decisions about the mix of debt and equity have an impact on the firm's value; that is, the firm's worth varies depending on how the mix of debt and equity changes.

However, irrelevancy theory states that combination of debt and equity decision doesn’t affect the value of the firm.

A. Capital structure

Capital structure is the mix of debt and equity financing utilized by a firm. As you rightly mentioned, capital structure refers to the combination of different securities, such as bonds, loans, and stocks that a company uses to finance its operations. The decision regarding the optimal capital structure is a crucial one for businesses, as it directly influences various aspects of their operations and financial performance.

Striking the right balance between debt and equity financing can affect the firm's risk profile, cost of capital, flexibility, and ultimately, its ability to maximize shareholder value. It's worth noting that determining the ideal capital structure is often a complex and challenging task for businesses. Factors such as industry dynamics, market conditions, regulatory environment, and the company's own financial position and growth prospects all play a role in shaping capital structure decisions. Indeed, businesses have a range of alternative capital structures to choose from, each with its own set of advantages and drawbacks. Finding the optimal mix that aligns with the firm's strategic objectives, risk tolerance, and financial constraints requires careful analysis and consideration (Gapenski, 2004).

B. Profitability

Profit typically refers to a unique gain or surplus, representing the excess of returns earned over the expenditures incurred. Profit does not just occur usually because it is not only the contribution of a single factor of production. Profit plays a great role in measuring utility and allocating it along with maximizing social-economic welfare. Generally, profit requires a good deal of managerial capability and managerial talent.

According to a particular perspective on profit, the entrepreneur is considered a distinct type of labour, and profit is viewed as a specialized form of wages received by the entrepreneur for their unique role in the business. Precisely, the entrepreneur earns profit by organizing and coordinating the various factors of production, including land, labour, and capital, to create value and generate surplus returns.

Absolutely, profit can be viewed as the reward for undertaking the risks associated with venturing into business. Profit can be seen as the compensation for the risk of investing capital with the expectation of selling it later at a higher value. But all economists do not agree the profit arise due to risk. These are after all several different interpretations of the term "Profit". An economist will say that the profit is the reward for entrepreneurship for risk taking. A labor leader might say that it is a measure of how efficiently labor has produced and it is providing a base for negotiating a wage increase. An investor will view it as a gauge of the return on his or her money. An internal review agent might regard it as the base of determining incomes taxes. Accountant typically defines profit as the surplus of a firm's revenue

over the expenses incurred in generating that revenue during a specific fiscal period. Profit is a signal for the allocation of resource and a yardstick for judging managerial efficiency.

2.2.1 Net income approach

Because it highlights how important the choice about the capital structure is to the firm's valuation, the idea is sometimes referred to as the relevance theory of capital structure. According to this hypothesis, variations in the leverage ratio—that is, the percentage of debt in the capital structure—have a big effect on the firm's market value as well as the total cost of capital. According to this idea, a change in the firm's debt-to-equity ratio has no effect on the opinions of debt holders and stockholders regarding their needed rate of return.

This theory states that since the costs of debt and equity are fixed and the cost of debt is greater than the cost of equity, an increase in the percentage of debt results in a decrease in the cost of equity and an increase in the firm's value. When the leverage ratio changes, neither the cost of debt capital nor the cost of equity capital changes. The debt holder's necessary rate of return is comparatively lower than that of equity because of the lesser degree of risk. Additionally, when the cost of debt and equity remain constant, the overall cost of capital decreases as the amount of debt in the capital structure increases. This lowers the overall cost of capital and raises the firm's value.

2.2.2 Principle of net income approach

1. Cost of debt is less than cost of equity.
2. The use of debt does not change the risk perception of investors.
3. There is no change in cost of debt and cost of equity.

According to this assumption, the increases in debt ratio magnify the earning per share. In the given capitalization rate, the increase in EPS makes an increase in market price of stock.

In other words, the increase in debt ratio cause decline in overall cost of capital and decrease on overall cost of capital enhances the market value of the firms or company i.e. firm can maximize its market price of stock or value by achieving the optimal capital structure through judicious mix of debt and equity.

2.2.3 Net operating income approach

The Net Operating Income (NOI) approach is a method used in real estate valuation to determine the value of an income-producing property. It's particularly common in commercial real estate. It is also called irrelevancy theory of capital structure because capital structure decision is irrelevant to the valuation of the firm. The NOI approach is indeed used to value income-producing real estate properties, focusing on the property's net operating income as a key determinant of its value. In this context, the capital structure of the property (i.e., the mix of debt and equity financing used to fund its purchase) is not explicitly considered in the valuation process. Instead, the focus is on the property's ability to generate income and its operational expenses.

This method maintains that the value of the company and the total cost of capital stay constant because the cost of debt is higher than the cost of equity and because the cost of debt is fixed while the cost of equity is not. This method suggests that a change in the capital structure cannot alter the firm's value because an increase in debt would expose shareholders to greater risk, and equity shareholders would therefore demand a higher return in exchange for taking on greater risk. The cost of equity will rise as a result. Because of this balancing effect, the benefit of decreased loan costs will be counterbalanced by increased equity costs, maintaining the same overall cost of capital and company value. The following presumptions apply to net operating income (Jensen, 2002).

1. Cost of debt is assumed constant.
2. The change in the proportion of leverage affects the required rate of return on equity as financial risk changes.
3. Cost of equity changes linearly with the change in leverage
4. Overall cost of capital remains constant.

According to this strategy, the market price of stocks stays constant regardless of leverage since both the earnings per share and the equity capitalization rate rise proportionately with an increase in the debt ratio. Since the net operating and total cost of capital do not change with leverage, the company's total market value likewise stays constant, as was previously stated. The deployment of more affordable debt funds has no effect on a company's cost of capital or market value when financial

leverage reaches an excessive level since hidden costs rise sharply (Chakraborty, 1977).

Thus, this approach suggests that there is no optimal capital structure.

2.2.4 Traditional approach

Ezra Solomon, an economist and professor at Stanford University, indeed made significant contributions to the field of corporate finance. However, the "traditional approach" to capital structure is not specifically associated with him. The traditional approach to capital structure predates Solomon's work and encompasses various theories and principles that were prevalent in corporate finance before the advent of more modern theories like the Modigliani-Miller theorem. It is also known as intermediate approach between Net income approach and Net operating approach. According to this assumption, firms can increase their total value by utilizing leverage (i.e., debt financing) in an optimal manner. The reasoning behind this is rooted in the trade-off theory of capital structure, which suggests that there are costs and benefits associated with different levels of debt. The traditional approach assumes that firms seek to strike a balance between these competing factors to determine their optimal capital structure. By increasing leverage up to the point where the marginal benefits of debt are equal to the marginal costs, a firm can theoretically maximize its total value (Van Horn, 1999).

It's important to note that while the traditional approach assumes the existence of an optimal capital structure, the actual determination of this optimal structure can be complex and may vary depending on factors such as industry dynamics, market conditions, and the firm's specific financial characteristics. If the proportion is increased for other the overall cost of capital tends to increase because of very high cost of debt.

According to this approach, firms can initially lower their weighted average cost of capital (WACC) and potentially increase their total value by incorporating debt into their capital structure. Eventually, the increasing costs associated with financial distress can outweigh the tax advantages of debt, leading to an optimal capital structure where the marginal benefits of debt are balanced against the marginal costs.

At this point, further increases in leverage may decrease the firm's overall value due to the escalating costs of financial distress (Aryal, 2017).

The assumptions of this approach are as follows:

1. Equity holders adjust their required rate of return proportionately for every unit of debt inclusion.
2. Debt holders do not really care for the level of debt inclusion and do not demand any premium for the leverage risk at least in the beginning.
3. The expected outcome of the behaviour of equity holders is the benefit of cheaper debt financing causes the cost of equity and debt increases.

According to this approach, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three stages (Friendman, 1959).

Stages I

In the traditional approach to capital structure, the analysis often begins with the introduction of debt into the firm's total capital structure. This initial step involves considering the impact of debt financing on the firm's overall cost of capital and valuation. Initially, as a firm introduces debt into its capital structure, the cost of equity may remain relatively constant or increase only slightly. This occurs because debt financing typically comes with lower costs compared to equity financing, primarily due to the tax advantages associated with interest payments. During this stage of introducing debt into the capital structure, the cost of debt remains relatively stable or may increase negligibly as the market perceives the firm's use of debt as reasonable and prudent. This allows the firm to benefit from the advantages of debt financing, such as the tax shield benefit, without significant increases in financing costs (Pandey, 2001).

Stage II

Once the firm reaches a certain degree of leverage, further increases in debt financing have diminishing returns and may not significantly impact the firm's value or overall cost of capital. This optimal point represents the balance between the tax benefits of debt and the costs associated with financial distress and increased risk to equity

holders, as discussed in the traditional approach to capital structure. Within the range of such debt level the value of firm will be maximum or the cost of capital will be minimum (Pandey, 2001).

Stage III

Beyond the acceptable limit of leverage, the value of the firm decreases with the leverage or the overall cost of capital increases with the leverage. This happens because the cost of equity increases by more than enough to offset the advantage of low- cost debt (Pandey, 2001). The overall effect of these three stages suggests that the cost of capital and value of the firm are the functions of leverage and there exist optimal capital structure.

2.2.5 Modigliani and Miller approach

This approach is most widely accepted capital structure theory. In 1958, Franco Modigliani and Merton Miller established two propositions for the relation between a firm's capital structure, its market value and cost of capital. This approach is based on MM model without and with taxes.

1. Under MM approach without taxes

This theory encompasses the concept of capital structure irrelevance. Proposed by Franco Modigliani and Merton Miller in the 1950s and 1960s, the Modigliani-Miller theorem states that, under certain assumptions, capital structure is irrelevant to the value of a firm. The argument is that the value of the firm depends on firms' earning and risk of its assets and not its capital structure which means value of levered firm is equal to vale of unlevered firm.

Key assumptions of the Modigliani-Miller theorem include: Perfect capital markets: There are no taxes, transaction costs, or other market imperfections, Investors have access to the same information and can trade securities freely, Firms and investors can borrow and lend at the risk-free rate, No bankruptcy costs or financial distress. Under these assumptions, Modigliani and Miller demonstrated that, in a perfect capital market, the value of a firm is determined solely by its underlying business operations and the cash flows it generates, not by how those operations are financed. The

theorem implies that, in the absence of taxes and other market imperfections, firms cannot increase their value by changing their capital structure. This concept challenges the traditional view that optimal capital structure exists and suggests that firms should focus on their operating activities rather than their financing decisions in such idealized market conditions.

However, it's important to note that real-world markets often deviate from the assumptions of the Modigliani-Miller theorem, and factors like taxes, bankruptcy costs, and market frictions can influence firms' capital structure decisions and overall value. As a result, while the theorem provides valuable insights into the theoretical relationship between capital structure and firm value, its practical applicability may be limited in real-world settings.

2. Under MM approach with taxes

This theory with corporate taxes incorporated, often referred to as the "tax shield" effect. In essence, the tax shield effect suggests that leveraging the firm's capital structure can result in a lower overall cost of capital due to the tax deductibility of interest payments. This provides an incentive for firms to use debt financing to take advantage of the tax benefits, up to a point where the costs associated with financial distress and other factors outweigh the tax advantages of debt. This concept highlights the importance of considering the interplay between taxes and financing decisions in determining the optimal capital structure for a firm, as outlined by the Modigliani-Miller theorem with corporate taxes. It can also be shown in proposition I and II.

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 increase the value of the leveraged firm relative to the unlevered firm. Stated otherwise, the present value of the debt tax shield plus the value of the unlevered firm equals the value of the levered firm.

Proposition II

It suggests that if the D/E ratio rises, the cost of equity does too. Conversely, regardless of the debt-to-equity ratio, the tax deductibility of interest on debt reduces the cost of debt but does not change. With every unit of additional debt financing, the average cost of capital must decrease since the tax savings cause the cost of debt to decrease more than the cost of equity. Because of this, a change in the D/E ratio has an impact on the firm's weighted average cost of capital. We can conclude that MM Theory is the same with taxes. According to the net income strategy, the company's value rises with each new debt financing unit.

2.2.6 Trade off theory

In the trade-off theory, firms weigh the costs and benefits of borrowing to determine their optimal capital structure. This approach acknowledges that there are both advantages and disadvantages associated with the use of debt financing. The benefit of debt financing includes the tax deductibility of interest payments and the firm is equal to the value of unlevered firm plus the value of side effects, which include the tax shield and the expected costs due to financial distress (Brigham & Ehrhardt, 2005).

The trade-off theory suggests that firms seek to strike a balance between the tax advantages of debt and the costs associated with financial distress and agency conflicts. Firms aim to identify the optimal capital structure that maximizes shareholder wealth by leveraging the tax benefits of debt while managing the risks and costs associated with increased leverage. Overall, the trade-off theory provides a framework for understanding how firms make financing decisions and highlights the importance of considering both the costs and benefits of debt financing in determining the optimal capital structure.

According to this argument, it makes sense for firms to borrow money because it strikes a balance between the tax advantages they receive and the expenses of filing for bankruptcy, which come with the risk of 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).

The trade-off hypothesis states that the ideal capital structure is reached when marginal expenses associated with bankruptcy are equal to the marginal tax shelter. Consequently, a company would favor debt over equity until the likelihood of financial difficulty and the associated expenses of bankruptcy begin to matter. According to Van Horne (2000), this idea may hold true for larger companies that are more likely to be able to turn a profit, but it is less likely to apply to small businesses that are less likely to have to use debt financing as a tax shield.

Conversely, a company with a reliable source of income and a solid asset base is less likely to go bankrupt. This company's capital structure can accommodate a somewhat larger degree of leverage.

2.2.7 Concept of capital structure and profitability

The percentage of debt and equity capital that a business uses is referred to as its capital structure, and it is an important concept in financial management theory. A company's financing decision is figuring out the best ratio of debt to equity to meet its investment needs. To guarantee a trade-off between risk and return for shareholders, the right balance must be struck. A suitable ratio of debt to equity in an optimal capital structure can serve to enhance the firm's worth and, ultimately, the wealth of its owners (Wippern, 1996).

2.2.8 Concept of capital structure and profitability

The ratio of debt to equity capital is referred to as the capital structure, and it plays a significant role in the theory of financial management. A company's financing decision pertains to the ratio of debt to equity that is selected to fund the required investment, and a proper balance between risk and return to shareholders is required. A suitable ratio of debt to equity in an optimal capital structure can serve to enhance the firm's worth and, ultimately, the wealth of its owners (Wippern, 1996).

Profit can be seen as the reward for bearing the risks associated with engaging in business activities but all economists do not agree the profit arise due to risk. For the dynamic manufacturing industries for the most telling concept of profits depicts them as the gains in national income that are generated by the managerial desire for destination through creative innovation (Joel, 2008).

2.3 Empirical review

Several empirical studies examining the relationship between capital structure and companies profitability often yield mixed results. It's essential to interpret empirical studies on the relationship between capital structure and profitability with caution and consider the context in which the findings were obtained. While mixed results are common in this area of research, synthesizing findings from multiple studies and considering the underlying factors contributing to variation can provide valuable insights into the complex relationship between capital structure and company performance. Some studies find a positive relationship between the variables, suggesting that firms with higher levels of debt may experience higher profitability. Others find a negative relationship, indicating that excessive debt levels may hinder profitability.

Kaumbuthu (2011) Analyzed the relationship between capital structure and return on equity for the industrial and related sectors listed on the Nairobi Securities Exchange from 2004 to 2008 was investigated by Performance was measured by return on equity, with capital structure represented by the debt-to-equity ratio. Regression analysis was used in the study to discover a negative correlation between ROE and the debt-to-equity ratio.

Baral (2012) Studied the factors that affected the capital structure of the firms listed on the Nepal Stock Exchange Ltd. on July 16, 2010, including size, business risk, growth rate, earning rate, dividend payout, ability to repay debt, and level of operating leverage. A multivariate regression model comprising eight variables has been employed to evaluate the impact of certain explanatory variables on capital structure. Manufacturing firms, commercial banks, insurance businesses, and finance corporations were all included in the early analysis. However, manufacturing enterprises were eliminated in the final analysis because of the peculiar sign problem in the model's constant term.

This study shows that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies.

Baral (2012) examined the determinants of capital structure -size, business risk, growth rate, earning rate, dividend pay-out, debt service capacity, and degree of

operating leverage-of the companies listed to Nepal Stock Exchange Ltd. Eight variables multiple regression model has been used to assess the influence of defined explanatory variables on capital structure. In the preliminary analysis, manufacturing companies, commercial banks, insurance companies, and finance companies were included. However, due to the unusual sign problem in the constant term of the model, manufacturing companies were excluded in final analysis. This study shows that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies. This paper explored the determinants of corporate takeover methods (proxy fights versus tender offers) and their outcomes and price effects. We focus on the effect of leverage on the takeover method and outcome. The model predicts, for example, that the target‘s stock price appreciates less following a successful proxy contest than in a successful tender offer. In addition, we obtain several other results on price effects and on the capital structure changes that accompany contests for corporate control. Some results are compared with the existing empirical evidence

Zuraidah (2012) explored the relationship between the capital structure indicators of short-term debt, long term debt and total debt against performance indicators of return on assets and return on equity. Researcher used panel data of fifty eight firms from 2005 to 2010. The results of the study indicated that only short term debt and total debt had a significant relationship with return on assets and other capital structure variables had a significant relationship with return on equity.

Alom (2013) analysed the effect of debt and equity funding (capital structure) on the financial performance in Malaysia by employing multiple regression analysis. The researchers used a sample of one hundred and thirty over the period 2001-2010. The findings show an adverse and statistical significant relationship between capital structure and companies performance.

Nirajini & Priya (2013) conducted the research on Capital structure and financial performance during 2006 to 2010 (05 years) financial year of listed trading companies in Sri Lanka. For the purpose of this study, the data was extracted from the annual reports of sample companies. Correlation and multiple regression analysis were employed for analysing the data in the study. The findings indicated a positive relationship between capital structure and financial performance in the study.

Leon (2013) examined about the impact of capital structure on financial performance of the listed manufacturing firms in Sri Lanka. Researcher used a panel data of thirty listed manufacturing companies from 2008 up to 2012 to measure the relationship between the variables. The data were analysed and hypotheses were tested using correlation and regression analysis. The finding of his study revealed that there is a significant negative relationship between leverage and return on equity at the same time the relationship between leverage and return on assets showed no relationship.

Nasreem (2013) tested the relationship between firm's capital structure and financial performance in Pakistan using a sample of eighty three companies listed in Karachi Stock Exchange. Researcher used debt to equity ratio as a measure of capital structure while other ratio like EPS, Price earnings ratio, operating profit margin, ROA and ROE were used as process for firm performance. After analysing data using regression model, researcher found that financial performance of a company was significantly affected by their capital structure and their relationship was negative in nature. Also, capital structure showed a negative relationship with company market value.

Toraman (2013) investigated manufacturing companies in Turkey and found a negative relationship between short-term debt to total assets, long-term debt to total assets, and return on assets. The researcher also found no significant relationship between the total debt to equity ratio and return on assets in the study. The researcher employed a regression model to assess the relationship between capital structure and company profitability, utilizing a sample of twenty-eight manufacturing industries.

Abeywardhana (2015) examined the relationship between capital structure and the profitability of non-financial SMEs in the UK for the period of 1998-2008. Using the Two Stage Least Squares, (2SLS) the results show a significant relationship with capital structure and profitability which is negatively related. The size of the firm appears a more important factor that determines the profitability in SMEs in sthe UK. There is consistent evidence for positive size- profitability relationship. The results of this study have shown that the capital structure of the firm has a significant influence on the profitability of SMEs in the UK. Especially, long-term debt to total assets ratio is negatively related with the profitability and this is an indication that SMEs are averse to use more equity because of the fear of losing the control.

Mishra (2015) examined the capital structure management practices of selected manufacturing companies. The specific objectives of this study are to analyse the cost of capital and return on capital in relation to the capital structure employed by manufacturing companies. To assess the capital structure and debt servicing capacity of the company, the researcher employed analytical tools such as ratio analysis, means, standard deviation, coefficient of variation, and correlation coefficient. The study discovered that the average degree of operating leverage (DOL) is negative, suggesting an inefficient earning capacity for the firm. The average DFL is less than one. There is no any consistency in the DOL and DFL for the same types of manufacturing companies. Debt equity and interest coverage ratio for Jyoti Spinning mills Ltd. is negative as the company has negative equity. Interest coverage ratio is negative, its show that the company's earnings are not sufficient even to repay their interest. Due to the use of lower amount of debt, the profit margin for the Joyti Spinning shows negative, which indicate that the company is suffering in losses during almost all the study periods? ROA for Jyoti spinning is negative which indicates that the assets of the company are not generating profit. The higher P/E ratio indicates greater confidence of investor with its future. Average overall cost of capital and cost of equity of Jyoti Spinning is negative and other Nepal lever Ltd. and Bottlers Nepal are positive. Correlation coefficient of debt and shareholder equity for Jyoti spinning negative correlation but Nepal level and Bottlers Nepal are positive correlation. Correlation coefficient between EBIT and net profit for Jyoti spinning mills and Nepal lever Ltd. are negative correlation but Bottlers Nepal Ltd. is positive correlation. Correlation between EBT and net profit for Jyoti Spinning mills and Nepal Liver Ltd is positive correlation and Bottlers Nepal Ltd shows negative correlation. He concluded that the company's policy to increase current liabilities by replacing long term loan is not according to the principle of capital structure management. The use of debt would save the tax if they would be earning but in reality of Jyoti Spinning mills. There is no earning so there is not saving. His recommendation was increase in current liabilities would affect the liquidity aspect of the company. Short-term borrowing is more risky because short term interest rates are little than longer rates. Therefore, there is maintaining proper capital structure be including long term debt.

Taqi, Ajmal & Pervez (2016) examined the nature of capital structure and firm's performance. The time period of the study comprises of ten years i.e. 2006-07 to 2014-15 and the data of eight trading companies listed in Bombay Stock Exchange (BSE) have been analysed. The collected data was entered into the views and multiple regression analysis method was used for analysing and testing of hypotheses. Results of the study reveal that capital structure influences financial performance of firm. The findings show that equity and long term debt have a positive and significant effect, whereas short term debt has a negative impact on financial performance. Thus, from the findings and results it can be concluded that equity and long term debt financing enhances financial performance.

Shah (2016) explored the impact of capital structure on firm performance using 25 cement companies listed on Karachi stock exchange during 2009 to 2013. Researcher found poor performance by cement companies, because about 64.51 percent of total assets of cement companies are financed by debt. Based on the correlation results this study finds a negative relation between debt to assets and firm performance variables (GPM, NPM, ROA, & ROE). It also indicates a positive relation between debt to equity and firm performance variables (GPM & NPM), whereas negative relationship between debt to equity and firm performance variable. (ROA & ROE). Besides, regression results reveal that there is a significant impact of capital structure on firm's performance. Based on empirical literatures and findings the study concludes that there is a significant impact of capital structure on firm's performance. Although business companies generally depend on the debt capital therefore financial analyst and managers should be cautious while using debt as a source of finance, since there exist almost negative relationship between capital structure and firms performance.

Sadiq and Sher (2016) studied and found that in finance literature capital structure received considerable attention as factor affecting the profitability of firms. The aim of this paper is to contribute to literature on this factor (Capital structure) and evaluate its impact and nature of relationship with the profitability of Automobile companies listed in Karachi stock exchange 19 companies were selected as sample. Regression analysis and correlation test is used with the help of statistical package SPSS in order to predict the result. Study concludes that capital structure (Debt/Equity) is negatively associated with the profitability, which implies that an increase in debt capital caused

a decrease in the profitability of the firms and vice versa. These results are supportive for the business companies during the financing of capital.

Kalyani & Mathur (2017) examined the relationship between capital structure and profitability is an important matter of discussion as regular improvement in profitability is important for growth and survival of firm. An attempt has been made in this paper to find out impact of capital structure on overall profitability of a firm. The Corporate financial performance, which is represented by dependent variables ROA (Return on Assets) and Net Profit Ratio, is taken into consideration and the effect of independent variables which are Sales of a firm, Total Assets of a firm, Debt Service Capacity, Dividend Pay-Outs, Degree of Financial Leverage, Degree of Operating Leverage of the firms belonging to the Oil and Natural Gas Industry of India were chosen for study. A sample of seven firms listed in NSE and BSE were selected and the financial data of these companies during the period 2005 and 2015 is used for this study. The Judgement Sampling which is non-random sampling technique is chosen for sample selection in this study. The correlations and regression analyses were used to estimate the functions relating to profitability measured by Return on Assets and Net Profit Ratio with measures of capital structure. The study witness that Log sales, degree of operating leverage and growth of asset are significant variables in determining the profitability when dependent variables are ROA and log assets, degree of financial leverage, Log sales, degree of operating leverage and growth of asset have significant relationship with net profit ratio of the select firms from Oil and Natural Gas Industry of India.

Basit and Irwan (2018) studied the impact of capital structure on firm performance of Malaysia listed industrial product company. The independent variables utilized in this research include the debt-to-equity ratio, total debt ratio, and total equity ratio. Return on asset (ROA), return on equity (ROE) and earnings per share (EPS) are used as dependent variable to measure firm performance. Descriptive statistics and multiple regression analysis were employed in this research to analyze the data. The research concluded that industrial product companies heavily rely on equity finance in their capital structure. In addition, the regression results indicated that the debt-to-equity ratio has a negative impact on return on assets (ROA), while the total debt ratio and total equity ratio have insignificant impacts on ROA. Debt to equity has negative

impact on ROE, total debt has positive impact on ROE and total equity has insignificant impact on ROE. Besides that, debt to equity has negative impact on ROE, total debt has positive impact on ROE and total equity has insignificant impact on ROE. Finally, debt to equity has a negative significant impact on EPS, total debt ratio has positive significant impact on EPS and total debt has insignificant impact on EPS. In conclusion, industrial product company raise debt finance can reduce agency problem and enjoy tax advantage, but debt level over the optimum capital structure will bring a negative impact on firm performance. This research will benefit for the industry, manager, shareholder, investor and future researcher. Future researchers are recommending using large sample size and other variable to identify the impact of capital structure on firm performance.

Dhodary (2018) conducted the study on capital structure in Nepalese non-financial enterprises. The study was based on primary data. A descriptive research design has been adopted for the study. Different descriptive statistical measures such as minimum, maximum, percentage, average, standard deviation and coefficient of variation have been used to analyse. This study is directed towards examining the capital structure policy of Nepalese non- financial firms. The primary information required for the said purpose has been collected through the survey of opinions of board of directors, company secretary, executives, chief fiancé officers and other line managers through administering the well structure multi- part questionnaire. For the purpose of field survey, 90 questionnaires were distributed among the respondents located in Kathmandu using non probabilistic sampling. The survey result shows that preference toward maturity structure of borrowing varied among the Nepalese non-financial firms, and majority of Nepalese firms do not consider interest rate and practice of matching between asset and liabilities structure while they go for borrowing. As proper matching between assets and liabilities structure is required, companies should pay attention towards this aspect. Outside security analysts and comparative industry have only a minimal effect on the development of these targets.

Shrestha (2018) conducted a study on "A Study on Working Capital Management of Dairy Development Corporation". During the study, researcher had basically used the secondary data and mainly financial tools are embodied for analysing the working capital management of DDC. Researcher had derived following major findings from

his study. The objectives of the study were as to analyse the current assets and current liabilities and their impact and relationship to each other, to show the trend of composition of assets and capital structure and to analyse the return on equity and assets. Major findings of the study were The Corporation's investment in the form of working capital has been increasing and DDC followed the conservative working capital policy with respect current assets management. The average investment in current assets is lower with respect to net fixed assets during this study period and DDC has no clear vision about the investment current assets portion. Cash and bank balance holds the second largest portion of the current assets and has fluctuating trend. Other major components of current assets i.e. inventories and receivables are in fluctuating trend. The company does not follow credit sales policy. The overall return position of DDC is negative, not in favourable condition. It is because of inefficient utilization of current assets, total assets and shareholders wealth.

Panthi (2018) conducted a study on "A Comparative Study on Capital Structure Management of Listed Manufacturing Companies: A Case Study of Bottlers Nepal Limited and Unilever Nepal Limited." The main objective of the study is to evaluate the capital structure management by the selected organizations. The specific objectives of the study were pointed out the capital structure of Unilever Nepal Limited and Bottlers Nepal Limited and to examine the cost of capital and return on capital. Descriptive and analytical research design has been employed in the study. The various financial tools were used to measure the financial position. The major findings were the average of DOL for UNL and BNL are 1.72 and 3.29 respectively. As compare to the UNL and BNL, the DOL for UNL is quite good. The higher DOL indicates the riskiness of the company. The average DFL of UNL is 3.12 times whereas for UNL is 1.21 times only. This shows the UNL has greater DFL than UNL. The average of long-term debt as a percentage of total debt for UNL is zero, which means UNL has no long-term debt. For BNL long-term debt as a percentage of total debt in average is 12.448. The average ratio between debt and total assets is above 50 for the UNL and BNL both i.e. 63.29 and 54.48 respectively. This situation indicates that the debt amount is comparatively high for assets financing as per the figure of the ratio. The average ratio between shareholders equity and total assets for UNL is 62.65 and for BNL is 47.31. Those figures indicate that more than 50 percent of assets are financed through the outsider's fund.

Singh & Bagga (2019) analysed the effect of capital structure on the profitability of firm. Many studies have been carried out to examine the effect of capital structure on the profitability of firms, but most of them belong to other parts of the world, and only few studies have been conducted in India. Thus, the present study has been undertaken to evaluate the effect of capital structure on the profitability of Nifty 50 companies listed on National Stock Exchange of India from 2008 – 2017. The data has been analysed by using descriptive statistics, correlation and multiple panel data regression models. Four different regression models have been used to study the relationship between capital structure and profitability. In these models, we study the individual effect of total debt and total equity ratios on profitability, that is, ROA and ROE. All four models have been tested with pooled OLS, fixed effects, and random effects. We conclude that there is significant positive impact of capital structure on firm's profitability.

Miko and Para (2019) conducted the study on effect of financial structure on profitability of manufacturing firms in Nigeria. The study considers a sample size of 39 manufacturing firms in listed on the Nigerian Stock Exchange. The data were analysed using Ordinary Least Square regression technique. The result revealed that debt finance, equity finance and debt to equity finance have significant impact on the profitability of manufacturing firms in Nigeria. The study concludes that financial structure plays a major role in improving the performance of manufacturing firms listed in Nigeria. The study recommended that management should properly manage their debt in such a way to increase profitability.

Rahman, Sarker & Uddin (2019) explored the impact of capital structure on the profitability of publicly traded manufacturing firms in Bangladesh. In this paper, researcher applied the fixed effect regression to find out the correlation among independent variables (debt ratio, equity ratio and debt to equity ratio) and dependent variables (return on asset, return on equity and earnings per share). A sample of 50 observations of selected 10 manufacturing companies listed in Dhaka Stock Exchange has been analyzed over the period of 2013 to 2017. This research reveals that the debt ratio and equity ratio have a significant positive impact but debt to equity ratio has a significant negative impact on ROA. This paper also exposes that, equity ratio has a significant positive impact but debt to equity ratio has a significant negative impact on

ROE. Finally, debt and equity ratio has a significant negative impact on EPS. Findings of this research will help the listed manufacturing companies to maintain an optimum capital structure which will lead to the maximization of stockholders wealth.

Ayalew (2020) analysed the empirical relationship between capital structure, as measured by total and short-term debt ratios, and profitability of private banks in Ethiopia, for the period 2013/14 to 2018/19, using panel fixed effects. Surveys of 16 private banks are included in the study. Based on the regression analysis results, capital structure variables and some bank-specific characteristics explain a substantial part of the variations in bank profitability. Higher profitability measures of ROA and net interest margin tend to be associated with relatively higher total and short-term debt ratios, loan to deposit ratios, and credit risks. Besides, older banks are in a better position than younger counterparts in terms of profitability. The impact of size is found to be significantly negative, at least for the ROA model, implying that Ethiopian private banks are operating below their optimal capacity. Mixed results were observed regarding the coefficient estimates of the cost-income ratio and employee productivity in the study.

Ali and Faisal (2020) conducted the study on impact of capital structure, profitability and financial performance on the success of the business organization. The capital structure of a business organization refers to the mix or proportion of different sources of funds used to finance its operations and investments. These sources typically include both external funds (such as debt) and internal funds (such as equity). In Saudi Arabia, petrochemicals companies are working on equity, but financial performance reflects negative trend for the period 2004 to 2016. The research is based upon secondary data available on the websites of petrochemicals companies of Saudi Arabia. Financial ratio variability analysis and trend indices are two techniques used to assess the stability, variability, and sensitivity of financial ratios over time. These methods provide insights into the financial health, performance, and risk profile of a business organization. Correlation between trend indices of independent variables (such as debt equity ratios) and dependent variables (such as financial performance metrics) can help assess the impact of changes in debt equity on other aspects of the business. The results reveal the unexpected performance of petrochemicals companies due to under-utilization of the resources caused by low demand and lower prices of

the products governed by some internal and external factors. The study finds that size, demand, cost of production, profitable streams of products, and low cost capital in external funds are the factors responsible for overall growth development of the petrochemicals industry of Saudi Arabia.

Hajisaaid (2020) conducted the study on relationship between capital structure and profitability of eight companies working in the basic material sector in Saudi Arabia during the period 2009 to 2018. The statistical techniques used are regression analysis, fixed effect model, random effect model, and Housman test. The dependent variable is the return on equity (ROE). In contrast, independent variables are a short-term debt to total assets ratio (SDA), long-term debt to total assets ratio (LDA), and total debt to total assets ratio (DA). The results illustrate a negative relationship between short-term debt to total assets ratio (SDA) and return in equity ratio (ROE). A negative relationship between the long-term debt to total assets ratio (LDA) and return on equity ratio (ROE) suggests that as the proportion of long-term debt relative to total assets increases, the return on equity decreases. This relationship implies that higher levels of long-term debt may be associated with lower profitability or returns for equity holders.

Summary

Study	Methodology	Major Finding
Kambuthu (2011)	Relationship between capital structure and return on equity for industrial and allied sectors in Nairobi securities exchange during the period 2004 to 2008. This study applied regression analysis. The objectives of this this study is to analyze the relationship between ROE with debt capital.	Negative relationship between debt equity and return on equity.
Salim and Yadav (2012)	Influence of capital structure on company financial	The company performance ROA, ROE and EPS, adversely influence on long

	performance of Malaysian listed companies for the period of 1995 to 2011. Used panel data analysis The objective of this study is to find the overall performance of the company.	term debt ratio (LTD), short term debt ratio (STD) and total debt ratio (TD), while growth positively effects on financial performance for all 30 the sectors. Tobin's Q has positive and significance impact on short term and long term debt.
Zuraidah (2012)	Relationship between the capital structure and performance of Malaysian firms for the period of 2005 to 2010. Used panel data analysis to find relationship between short term and total debt with ROA.	Short term debt and total debt had a significance relationship with return assets and other capital variables had a significance relationship with ROE.
Zuraidah (2012)	Relationship between the capital structure and performance of Malaysian firms for the period of 2005 to 2010. Used panel data analysis to find the relationship between debt with ROE.	Short term debt and total Debt had a significance relationship with return assets and other capital variables had a significance relationship with ROE.
Leon (2013)	Impact of capital structure on financial performance of the listed manufacturing firms in Sir lank during 2008 to 2012. Correlation and regression analysis to find the relationship between leverage and ROE.	Significance negative relationship between leverage and return on equity at the same time the relationship between leverage and return on assets showed no relationship.
Nasreem (2013)	Relationship between firm's capital structure and financial performance in Pakistan during 2008 to 2012.	Financial performance of a company was significance affected by their capital structure and their relationship was negative.

	Regression model was used to find the effect of capital structure with financial performance of the company.	
Toraman (2013)	Relationship between capital structure and company profitability during 2003 to 2012. Regression analysis to analyze the relation between debt and ROA.	Negative relationship between short term debt to total assets, long term debt to total assets and return on assets.
Alom (2013)	Effect on capital structure on financial performance in Malaysia during 2001 to 2010. Multiple regression analysis to analyze relationship between capital structure and companies performance.	Adverse and statistical significant relationship between capital structure and companies performance.
Tailab (2014)	Effect of capital structure on profitability of energy in American firms during 2005 to 2013. Multiple regression analysis to analyze the relationship between capital structure and profitability.	Negative relationship between capital structure and profitability.
Adesina et. al (2015)	Impact of capital structure on the financial performance of Nigeria quoted bank during 2005 to 2012. Ordinary least square regression analysis to analyse the relationship between capital structure and financial performance.	Capital structure has a significant positive relationship with the financial performance of 33 Nigerian banks.
Shah (2016)	Impact of capital structure on	Poor performance by cement company,

	firm performance on Karachi stock exchange during 2009 to 2013. Descriptive, correlation and regression analysis to analysis the firm performance and capital structure.	because 64.51% of total assets are financed by debt. Negative relation between debt to assets and firm performance, positive relation between debt to equity and firm performance and negative relation between debt to equity and firm performance. There is a significant impact of capital structure on firm performance.
Taqi, Ajmal & Pervez(2016)	The present study aims to measure the impact of capital structure on profitability of selected Indian trading companies. The eight trading firms listed in Bombay Stock Exchange of India constituted the sample for the empirical test. Data has been processed by using descriptive statistics containing Mean, S.D. and inferential statistics comprising matrix correlation and regression analysis using E-Views	The two measures of capital structure had different impact on different measures of performance. Furthermore, in some Regression models fixed effect model was found appropriate while in some it was found inappropriate.
Kalyani and Mathur (2017)	Relationship between capital structure and profitability on listed firm in India during 2005 to 2015. Correlation and regression analysis to analysis the relationship between leverage and net profit ratio.	Log sales, degree of operating leverage and growth of asset have significant relationship with net profit ratio of the select firms from Oil and Natural Gas Industry of India.
Basit and Irwan (2018)	The impact of capital structure on firm's performance from	Industrial product heavily rely on equity finance in their capital structure.

	Malaysian industrial sector during 2011 to 2015. Descriptive and multiple regression analysis	Debt to equity has negative impact on ROA, ROE and EPS. Total debt and total equity ratio has insignificant impact on ROA. Total debt has positive impact on ROE and total equity has insignificant impact on ROE.
Miko and Para (2019)	Capital structure and profitability of listed manufacturing firms in Nigeria during 2008 to 2017. Ordinary least square regression analysis to analysis the debt financing, equity finance with profitability.	Debt financing, equity financing and debt to equity financing have significance impact on the profitability of manufacturing firm.
Ali and Fisal (2020)	Capital structure and financial performance: A case study of Saudi petrochemical industry during 2004 to 2016. Correlation analysis	Unexpected performance of petrochemicals companies due to under-utilization of the resources caused by low demand and lower prices of the products governed by some internal and external factors. Size, demand, cost of production, profitable streams of products, and low cost capital in external funds are the factors responsible for overall growth development of the petrochemicals industry.
Hajisaaid (2020)	The effect of capital structure on profitability of basic material Saudi Arabia firms during 2009 to 2018. Regression analysis, fixed effect model, random effect model, and hausman test to find relationship between total debt and profitability.	Negative relationship between short term debt to total assets ratio and return on equity ratio. Negative relationship between long term debt to total assets ratio and return on equity ratio. Positive relationship between total debt and profitability.

Ayalew (2021)	The collected data were analyzed both descriptively and using inferential statistics. Simple descriptive statistics on mean, standard deviation, minimum, maximum values, and correlation coefficients of the variables of interest were given in the form of tables to find the impact of capital structure with banks profitability.	The findings of the econometric model estimations revealed that capital structure as measured by total debt ratio and short-term debt ratio has a significant positive impact on bank profitability.

2.4 Research gap

Many researchers who have examined the relationship between capital structure and profitability of firms and companies have generated contradictory results. The findings from these studies have been diverse, with some revealing a positive relationship between capital structure and firm profitability, others indicating a negative relationship, and some suggesting that there is no significant relationship between capital structure and firm performance. Because of this controversial result, researcher gets the chance to do further studies on this topic by testing the relationship between capital structure and firms' profitability. This study is different from other research in term of including hydro companies sector, sample companies, data presentation as well as statistical and financial tools used for interpretation and analysis of data.

The lack of a consensus about what would qualify as optimal capital structure in the service and Hydro power companies has motivated researcher to conduct this research. Also in Nepal, there are few research held on this topic so it has high time to analyse and compare the results with the capital structure theories and see whether there is any relation between capital structure decision and firms' profitability using listed hydro power companies in Nepal Stock Exchange.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Introduction

Research methodology outlines the methods and processes employed throughout the study, encompassing the focus of data, data gathering instruments, and analysis techniques. A systematic approach ensures that the study follows a structured framework to achieve predetermined objectives. Research methodology can be defined as "a systematic process adopted by the researcher to study a problem with specific objectives and perspectives." It encompasses procedures for data collection, tabulation, processing, and methods of analysis. Absolutely, research methodology involves critical thinking processes such as defining and redefining problems, formulating hypotheses or potential solutions, collecting, organizing, and evaluating data, making deductions, and drawing conclusions based on the evidence gathered.

Research methodology serves as a systematic path through which researchers can address research dilemmas, allowing them to methodically achieve the basic objectives of the study. Research methodology typically includes a concise explanation of the research design, the nature and sources of data, methods of data collection, and the analytical tools used for analysing the data.

3.2 Research design

Research design refers to the plan, structure, and strategy of investigations devised to obtain answers to research questions while controlling for variance. Research design serves as a blueprint for conducting the study, providing a structured framework that guides the researcher in achieving the study's objectives effectively and efficiently. Research design entails structuring the conditions for data collection and analysis in a way that balances relevance to the research purpose with efficiency in procedure. Considering this study objectives, the analysis is based on certain research design. To achieve the objectives, a combination of descriptive research design and causal comparative research design has been adopted. Descriptive research design will assist researchers in identifying characteristics within their target market or specific populations. On the other hand, causal comparative research design is utilized to

analyze the relationships among variables and the impact of independent variables on dependent variables. This dual approach allows for a comprehensive exploration of the research questions and objectives. These characters in the populations sample can be identified, observed and measured to guide decisions.

3.3 Population and sample

The population of this study consists of the 49 hydro power companies listed on the Nepal Stock Exchange (NEPSE) as of March 2022. There are only eleven listed hydro power companies have complete seven years data. Out of them seven listed hydro power companies are taken as sample. In Chapter One, the general major objectives of the study are typically presented. These objectives outline the overarching goals or aims that the research seeks to achieve. The sample organizations are as follows:

Table 3.1

Sample of hydro power companies

S.N.	Hydro companies power name
1	Chilime hydropower company Ltd. (CHCL)
2	Butwal power company Ltd.(BPCL)
3	Radhi Bidhyut Company(RBC)
4	Sanima Mai hydropower Company Ltd.(SMHCL)
5	Api Power Company Ltd.(API)
6	National Hydro Power Company(NHPC)
7	Ankhukhola Jalvidhyut Company Limited(AKJCL)

3.4 Nature and source of data, and the instrument of data collection

The research primarily relies on secondary sources of data, which can be obtained through considerable effort, time, and persuasion of the relevant authorities. The main sources of data include published annual reports, information from the Nepal Stock Exchange (NEPSE), data from the Security Board of Nepal, as well as information gathered from journals, magazines, government publications, and university publications. Data obtained from various sources cannot be directly used in their original form as they are raw data. When data will not be presented in understandable and easier way there would be no use of conducting research study or analysis of data.

Analysis part would be difficult to understand to the readers without processing the data. So, to make the study understandable at the first sight data should be processed. A presentation of data means to keep raw data into understandable form by editing, rechecking and using various tools such as tables, charts, figures and trend lines. In this study also data are presented using all the necessary tools so as to make understand the analysis part in proper and easier way.

3.5 Methods of analysis

The thesis incorporates descriptive statistics, correlation analysis, and regression analysis to analyse the data, aiming to draw conclusions regarding the research objectives. To obtain concrete results from this research, the data are analyzed using various tools and techniques. Given the requirements of the topic, emphasis is placed on statistical tools. For this study, the following statistical tools will be utilized: descriptive statistics, correlation analysis, and regression analysis. These tools are chosen to rigorously analyse the data and derive meaningful insights relevant to the research objectives. Financial analysis is indeed the process of assessing the financial strengths and weaknesses of an organization by establishing relationships between the items on the balance sheet and the profit and loss account. This analysis helps stakeholders gain insights into the financial health and performance of the organization. Ratio analysis is indeed a powerful tool of financial analysis. A ratio is defined as the quotient of two mathematical expressions, indicating the relationship between two or more variables. Ratio analysis allows for the comparison and interpretation of financial data, providing insights into the financial performance and health of an organization. In financial analysis, ratios are utilized as benchmarks for evaluating the financial position and performance of a firm. These ratios provide valuable insights into various aspects of the organization's financial health and help stakeholders make informed decisions. To obtain concrete results from this research, mean, standard deviation, and coefficient of variation are calculated. These statistical measures help provide insights into the central tendency, variability, and relative variability of the data, respectively, aiding in the interpretation of the research findings.

3.6 Data processing procedure and data analysis method

The thesis will cover and include the financial and statistical tools to analyse the data in order to reach to the conclusion of the research. In order to get the concrete results from this research, data are analysed, by using different types of tools. As per the topic requirement, emphasis is given on statistical tools, so for this study the following statistical tools are going to be used. Financial Tools Financial analysis is the process of identifying the financial strengths and weaknesses of the organization by properly establishing relationships between the items of the balance sheet and the profit and loss account. Ratio analysis is a powerful tool of financial analysis. A ratio is designed as the indicated quotient of two mathematical expressions and as the relationship between two or more variables. In financial analysis, ratio is used as a benchmark for evaluating the financial position and performance of a firm.

Financial tools

Total debt to assets ratio: The total debt to total assets ratio is a leverage ratio that quantifies the proportion of total debt a company holds relative to its total assets. The total debt to total assets ratio offers valuable insight into the extent to which a company's assets are funded by debt. A higher ratio indicates a larger portion of the company's assets are financed through debt, while a lower ratio suggests a greater reliance on equity financing. This ratio is crucial for understanding the company's financial leverage and risk exposure. It is calculated as:

$$\text{Debt to total assets} = \frac{Total\ debt}{Total\ assets}$$

Total debt to equity ratio: The debt-to-equity ratio is a financial metric used to measure a company's financial leverage. It compares the total amount of debt a company has incurred to the amount of equity held by shareholders. This ratio provides insight into the extent to which a company is relying on debt financing versus equity financing to fund its operations and investments. A higher debt-to-equity ratio indicates higher financial leverage, which may increase the company's risk but also its potential returns. The debt-to-equity ratio quantifies how much debt a company is utilizing to finance its assets relative to the value represented in shareholders' equity. This ratio offers insight into the capital structure of the company

and helps stakeholders understand the degree of financial leverage employed by the company. A higher debt-to-equity ratio suggests a greater reliance on debt financing, while a lower ratio indicates a more conservative approach with less reliance on debt. It is calculated as:

$$\text{Total debt to equity ratio} = \frac{Total\ debt}{Total\ share\ holders\ equity}$$

A class of financial measurements known as profitability ratios is used to evaluate a company's capacity to turn a profit in relation to its costs and other pertinent costs incurred over a given time period. It provides conclusive answers regarding the firm's management effectiveness. The following profitability ratios are computed in this study.

Return on Total Assets (ROA): A financial ratio called return on assets (ROA) gauges a company's capacity to produce a profit in relation to its total assets. By dividing the net income by the average total assets, it is computed. ROA is a measure of how well a business uses its resources to produce revenue. Better asset utilization and profitability are indicated by a greater ROA. It is true that return on assets (ROA) is a gauge of total profitability from asset investments. By dividing net income by total assets, it is computed. This ratio sheds light on how well a business uses its resources to turn a profit. Better profitability in relation to the assets used is indicated by a greater ROA.

The Return on Assets (ROA) ratio is commonly used to assess the efficiency of financial institutions in generating profits from their assets. A higher ROA suggests that a firm is more efficient in utilizing its assets to generate earnings, indicating better overall performance and management of resources. This ratio is crucial for investors, analysts, and regulators to evaluate the financial health and efficiency of firms. ROA is calculated as under;

$$\text{Return on Total Assets} = \frac{\text{Net profit}}{\text{Total assets}}$$

Return on Equity (ROE): Return on equity (ROE) is a financial ratio that measures the return generated on shareholder's equity, which is also known as net worth. It is calculated by dividing the net profit after taxes by the shareholder's equity. ROE

indicates how effectively a company is generating profits from the capital invested by its shareholders. It reflects the company's ability to generate profits from the equity capital contributed by shareholders. A higher ROE indicates that management is effectively utilizing shareholder funds to generate returns, while a lower ROE may suggest inefficiencies in capital utilization or lower profitability relative to the shareholders' investment. It is calculated as under;

$$\text{Return on Equity} = \frac{Net\ profit}{Share\ \text{holders}\ equity}$$

Statistical Tools

Mean: Mean is a fundamental statistical measure that provides valuable insight into the central tendency and concentration of values in a dataset, making it a widely used tool in data analysis and interpretation. An average gives us a point which is most representative of the data. It is sum of all the observations divided by the number of observations.

$$\text{Mathematically, Mean } (\bar{X}) = \frac{\sum X}{n}$$

Standard Deviation: standard deviation is a fundamental statistical measure that provides valuable insights into the variability and dispersion of data points around the mean, making it a widely used tool in various fields such as finance, science, and social sciences. A small value of standard deviation means a high degree of uniformity of the observation. It is denoted by Greek letter called sigma (σ).

Mathematically,

$$\text{Standard deviation } (\boldsymbol{\sigma}) = \sqrt{\frac{(X-\overline{X})}{n-1}}^{2}$$

Coefficient of Variation: The relative measure of dispersion based on standard deviation is called the coefficient of variation. The coefficient of variation is a valuable statistical tool for assessing the relative variability of datasets, providing insights into the consistency or spread of data points relative to their means. It is denote by C.V. Mathematically,

$$\text{C.V.} = \frac{\sigma}{\bar{X}}$$

Where,

σ = Standard Deviation

$\bar{X}$ = Mean Value of Variables

Correlation Coefficient: The correlation coefficient is a statistical measure that quantifies the strength and direction of the linear relationship between two variables. It provides insights into the degree to which the variables move together or co-vary. The correlation coefficient is a valuable statistical tool for assessing the degree of association between variables and understanding their co-movements, making it widely used in fields such as economics, finance, psychology, and epidemiology. It is the measurement of linear relationship between two or more variables. Its values lie between -1 and +1. Mathematically,

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

Regression Analysis: Regression analysis is a statistical technique used to study the relationship between one dependent variable and one or more independent variables. It aims to model the average relationship between variables in terms of the original units of data. Regression analysis is widely used in various fields, including economics, finance, social sciences, and natural sciences, to analyze relationships between variables, make predictions, and test hypotheses. It provides a powerful tool for understanding and interpreting data and making informed decisions based on empirical evidence. Just two variables are used in the simple regression analysis to describe the average relationship. Change is measured per unit. A logical development of the basic linear regression analysis is the multiple regressions. The unknown values of a dependent variable are estimated using two or more independent variables as opposed to a single independent variable.

ROA= $a1$ + $b1$ TDTE + $b2$ TDTA

ROE= $a1$ + $b1$ TDTE + $b2$ TDTA

NPM= $a1$ + $b1$ TDTE + $b2$ TDTA

Where,

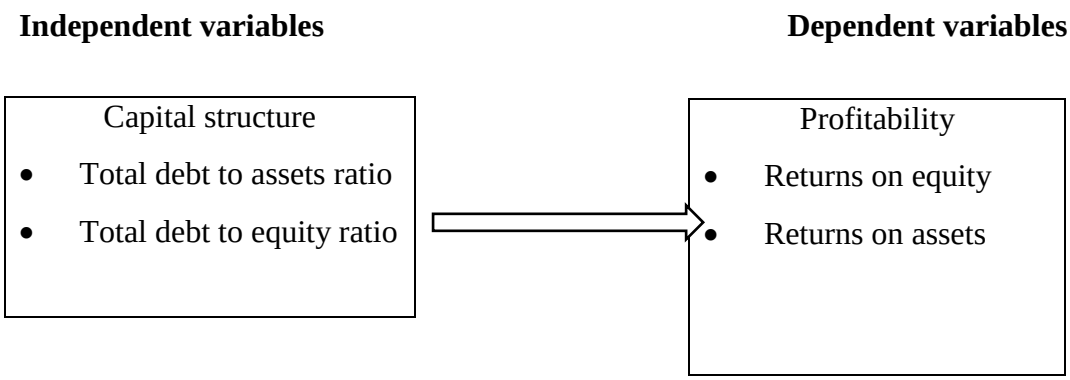
a = Constant

$b1$, $b2$ = Regression Coefficient

The secondary data collected is analyzed with the help of STATA 16 version software and MS excel.

3.7 Research framework and definition of variables

The research framework forms the basis or foundation upon which the study is established. It provides the theoretical underpinnings, concepts, and relationships that guide the research process and shape the study's objectives and outcomes. Within the framework of the chosen theory or conceptual framework, the entire research process unfolds. This framework provides the structure and context for understanding the research problem, developing hypotheses or research questions, collecting and analyzing data, and interpreting the results. It serves as a roadmap for researchers to navigate through the study and draw meaningful conclusions



Source: Kajananthan and Nimalthasan (2013)

Figure 3.1 *Research Frameworks (Relationship between Dependent and Independent Variables)*

In Figure 3.1, total debt to assets ratio and total debt to equity ratio are depicted as independent variables used to assess their impact on return on assets, return on equity, and net profit margin. These financial ratios serve as predictors to understand how changes in debt levels may influence the financial performance metrics of return on assets, return on equity, and net profit margin. Return on assets, return on equity, and net profit margin are utilized as the dependent variables in this analysis. These

financial metrics represent the financial performance of the company and are influenced by changes in the independent variables, such as total debt to assets ratio and total debt to equity ratio.

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Results

In this chapter, the analysis focuses on evaluating the capital structure and profitability of the selected hydro power companies. The aim is to assess how these companies have structured their financing and how profitable they are relative to their capital structure. By examining these factors, insights can be gained into the financial health and performance of the hydro power companies. Various financial metrics and ratios may be used to conduct this analysis, providing a comprehensive understanding of the relationship between capital structure and profitability in the hydro power sector. For this major variable affecting capital structure are considered for analysis. The analysis of data consists of organizing, tabulating and assessing financial and statistical result.

4.1.1 Analysis of total debt to shareholder's equity

This ratio measures the relative claims of outsiders (creditors) and owners (shareholders) over the firm's assets. It compares the amount of debt financing to the amount of equity financing in a company's capital structure. A higher debt-to-equity ratio indicates that the company is relying more on debt to finance its operations, while a lower ratio suggests a greater reliance on equity. The total debt to equity ratio indicates the relative contribution of debt capital and equity capital to the total investment in a company. It compares the total amount of debt financing to the total amount of equity financing in the company's capital structure. This ratio provides insights into the degree of leverage or financial risk undertaken by the company. A higher ratio suggests a greater reliance on debt financing, while a lower ratio indicates a larger proportion of equity financing.

A debt-to-equity ratio of 1 would indicate that investors and creditors have an equal stake or claim in the business's assets. This means that the company's total debt is equal to its total equity. In other words, the company is financed equally by debt and equity. This ratio signifies a balanced capital structure where both debt and equity play an equal role in funding the company's operations and investments. A lower debt-to-equity ratio typically implies a more financially stable business and is

generally considered less risky. This ratio indicates that the company has a smaller proportion of debt relative to its equity, which means it relies less on borrowed funds for its operations. A lower debt-to-equity ratio suggests that the company has a stronger equity base to support its operations and is less susceptible to financial distress or default. Investors often perceive companies with lower debt-to-equity ratios as more stable and less vulnerable to economic downturns or fluctuations in interest rates.

Table 4.1

Total debt to total equity ratio

Year	Hydro power companies						
	CHCL	BPCL	RADHI	SHPL	API	AKJCL	NHPC
2071	0.21	0.35	3.81	2.54	1.21	13.77	0.11
2072	0.31	0.31	1.34	3.08	0.76	4.60	0.11
2073	1.05	0.22	0.92	1.87	16.47	5.15	0.20
2074	1.61	0.18	1.65	1.02	1.72	4.22	0.16
2075	2.05	0.15	0.67	0.05	1.70	2.76	0.11
2076	2.51	0.12	0.49	0.71	1.59	2.71	0.08
2077	2.99	0.10	0.43	0.57	0.03	2.67	0.05
Mean	1.54	0.20	1.33	1.41	3.35	5.13	0.83
Sd	0.44	0.04	0.48	0.46	2.37	1.61	0.31
Cv	0.28	0.19	0.36	0.32	0.71	0.31	0.09

(Sources: data output from excel analysis)

According to Table 4.1, CHCL's debt to equity ratio ranges from 0.21-2.99, with a mean of 1.54 on average and a coefficient of variation of 0.28. Comparably, BPCL's debt-to-equity ratio spans 0.35 to 0.10, with a mean of 0.20 on average and a coefficient of variation of 0.19. The range of RADHI's debt to equity ratio is 3.81-0.43, with a mean of 1.1.33 and a coefficient of variation of 0.36. The range of SHPL's debt to equity ratio is 2.54-0.57, with a mean of 1.41 on average and a coefficient of variation of 0.32. The API debt to equity ratio is 0.1.21-0.03, with a mean of 3.35 on average and a coefficient of variation of 0.71.

AKJCL's debt-to-equity ratio spans 13.77–2.67%, with a mean of 5.13 and a coefficient of variation of 0.31. The NHPC debt-to-equity ratio has a coefficient of variation of 0.91 and an average mean of 0.83, with a range of 0.11-0.05. Here, AKJCL has the greatest mean and highest coefficient variation (CV), while BPCL has the lowest mean (CV = 0.19). Among CHCL, BPCL, RADHI, SHPL, API, and AKJCL, NHPC is the most financially sound company since a lower debt to equity ratio is preferred.

4.1.2 Analysis of total debt to total assets ratio

It is computed by dividing the total debt of the firm by its total assets. This ratio measures the proportion of a company's assets that are financed by debt. It provides insight into the company's financial risk and leverage. A higher debt-to-assets ratio indicates that a larger portion of the company's assets is financed by debt, which may increase financial risk, while a lower ratio suggests a lower level of debt financing and potentially lower financial risk. The total debt of the firm typically comprises both long-term debt and short-term debt. Long-term debt refers to obligations that are due beyond the next 12 months, such as bonds or mortgages, while short-term debt includes obligations that are due within the next 12 months, such as bank loans or accounts payable. On the other hand, the total assets of the firm consist of both current assets and fixed assets. Current assets are assets that are expected to be converted into cash or used up within one year, such as cash, accounts receivable, and inventory. Fixed assets, also known as non-current assets, are assets that are expected to provide economic benefit for more than one year, such as property, plant, and equipment. So, when computing the debt-to-assets ratio, the total debt is compared to the total assets of the firm, which includes both current assets and fixed assets. This ratio provides insight into the proportion of the company's assets that are financed by debt.

It displays the proportion of total assets financed by debt, liabilities, and creditors. The corporation has the same amount of liabilities as assets if its overall debt to assets ratio is 1. The corporation has more debt than assets in its capital structure if the total debt to asset ratio is higher than 1. It does not, however, imply that the company's liabilities exceed its assets in a strict sense. A business that has a debt to asset ratio of

less than one is riskier since it indicates that it has more assets than liabilities and may, in an emergency, sell those assets to pay off its debts.

Table 4.2

Total debt to total assets ratio

Year	Hydro power companies						
	CHCL	BPCL	RADHI	SHPL	API	AKJCL	NHPC
2071	0.18	0.26	0.79	0.72	0.55	0.93	0.10
2072	0.24	0.24	0.57	0.75	0.43	0.99	0.10
2073	0.51	0.18	0.48	0.65	0.94	0.10	0.17
2074	0.62	0.15	0.62	0.50	0.63	0.81	0.13
2075	0.67	0.13	0.40	0.05	0.63	0.73	0.10
2076	0.72	0.11	0.33	0.42	0.61	0.73	0.08
2077	0.75	0.09	0.30	0.36	0.03	0.73	0.05
Mean	0.53	0.17	0.50	0.49	0.55	0.85	0.10
Sd	0.09	0.08	0.07	0.10	0.11	0.16	0.02
Cv	0.18	0.50	0.14	0.20	0.21	0.19	0.15

(Sources: data output from excel analysis)

Table 4.2 shows that the total debt to total assets ratio of CHCL ranges from the 0.18-0.75 with average mean and S.D. 0.53 and 0.09 respectively and coefficient of variation is 0.18. Likewise, the total debt to total assets ratio of BPCL ranges from the 0.09-0.26 with the average mean of 0.17 and coefficient of variation is 0.50. The total debt to total assets ratio of RADHI ranges from the 0.30-0.79 with average mean of 0.50 and coefficient of variation is 0.14. Likewise, the total debt to total assets ratio of SHPL ranges from 0.05-0.75 with the average mean and SD 0.49 and 0.20 respectively. This table also shows that the total debt to total assets ratio of API ranges from 0.03-0.94 with the average mean of 0.55, SD of 0.11 and CV of 0.21 respectively. Likewise the total debt to total assets ratio of AKJCl ranges from 0.10-0.99 with average mean of 0.85, S.D. of 0.16 and CV of 0.19. Also, this table shows that the debt to total assets ratio of the NHPC with the range of 0.05-0.17 with average mean of 0.10 and the SD and CV of 0.02 and 0.15 respectively. Among these seven hydropower companies, AKJCL has highest mean with CV of 0.19. Whereas,

NHPC has lowest mean with CV of 0.15. Here RDHI have lowest CV so it may be preferable as compare to other 6 hydro companies.

Table 4.3

Return on assets

Year	Hydro power companies						
	CHCL	BPCL	RADHI	SHPL	API	AKJCL	NHPC
2071	0.08	0.10	0.04	0.01	(0.004)	(0.04)	(0.01)
2072	0.07	0.12	0.07	(0.01)	0.04	(0.04)	(0.07)
2073	0.05	0.12	0.07	0.06	0.03	(0.003	(0.08)
2074	0.04	0.07	0.08	0.05	0.02	0.01	0.01
2075	0.03	0.10	0.06	0.004	0.02	(0.02)	0.04
2076	0.02	0.07	0.08	0.07	0.03	(0.01)	0.05
2077	0.01	0.05	0.06	0.07	0.02	0.0004	0.36
Mean	0.04	0.09	0.45	0.26	0.16	(0.10)	0.30
Sd	0.01	0.01	0.17	0.10	0.06	0.03	0.13
Cv	0.23	0.12	0.38	0.38	0.38	(0.34)	0.43

(Sources: data output from excel analysis)

Table 4.3 shows that the returns on assets ratio of selected hydro power companies are fluctuating trend during the study period. The average rate of return on assets of CHCL is 0.23, BPCL 0.09, RADHI 0.45, SHPL 0.26, and API 0.16, AKJCL 0.03, NHPC 0.30. This shows RADHI has highest ROA i.e., 0.45 and CHCL has lowest ROA i.e., 0.01 over the study period. C.V. measures the variation among variables. The CV of CHCL is 0.23, BPCL 0.12, RADHI 0.38, SHPL 0.38, API 0.38, AKJCL -0.34 and NHPC 0.43. It shows NHPC has highest CV i.e., 0.43 which indicates highly fluctuation on ROA and AKJCL has lowest CV i.e., 0.34 which indicates more consistency on ROA.

4.1.3 Analysis of return on equity

Return on Equity (ROE) is a financial ratio that measures the amount of net income returned as a percentage of shareholders' equity. It indicates how efficiently a company is using its equity to generate profit. Return on equity measures a

corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. High ratio is preferred.

Table 4.4

Return on equity

Year	Hydro power companies						
	CHCL	BPCL	RADHI	SHPL	API	AKJCL	NHPC
2071	0.09	0.13	0.18	0.01	(0.01)	(0.56)	-0.01
2072	0.09	0.16	0.16	(0.004)	0.08	(0.18)	-0.07
2073	0.11	0.15	0.15	0.02	0.54	(0.02)	-0.10
2074	0.10	0.08	0.08	0.01	0.05	0.06	-0.01
2075	0.08	0.11	0.11	0.001	0.06	(0.07)	0.05
2076	0.07	0.08	0.08	0.02	0.08	(0.05)	0.05
2077	0.06	0.05	0.05	0.02	0.02	0.001	0.38
Mean	0.09	0.11	0.11	0.01	0.12	-0.12	0.04
Sd	0.01	0.02	0.02	0.004	0.08	0.09	0.06
Cv	0.08	0.14	0.07	0.37	0.67	-0.73	0.43

(Sources: data output from excel analysis)

Table 4.4 displays the selected hydro power firms' varying return on equity over the course of the study. In the fiscal year 2077, CHCL's return on equity was 0.06, whereas in the fiscal year 2073, it reached its greatest point of 0.11. With the mobilization of Rs. 100 of shareholders' equity, CHCL was able to earn Rs. 9 in net income, as demonstrated by its average return on equity of 0.09. CHCL has a CV of 0.08. Additionally, the fiscal years 2072 and 2074 saw the highest and lowest returns on equity for BPCL, respectively, at 0.16 and 0.02 respectively. AVHCL's average return on equity was 0.09. AVHCL has a CV of 0.61. With a 0.11 return on equity, SMHCL had the highest.

BPCL had an average return on equity of 0.11. The BPCL's CV is 0.11. The fiscal year 2071 had the highest return on equity (0.0.18) and the fiscal year 2077 had the lowest (0.05). The CV is 0.07 and the average return on equity for RADHI was 0.11. In the fiscal years 2071 and 2074, SHPL's return on equity was at its best point of 0.01 and at its lowest point of -0.04 in 2072. The CV is 0.37 and the average return on equity for RADHI was 0.01. The fiscal years 2073 and 2071 saw the greatest and lowest returns on equity for API, respectively, at -0.01. The CV is 0.67 and the average return on equity for API was 0.12.

The average return on equity for AKJCL was -0.12 and for CV was -0.73. The highest return on equity for AKJCL was 0.06 in fiscal year 2074 and the lowest was -0.56 in fiscal year 2071. In fiscal year 2077, NHPC's return-on-return equity was 0.38, whereas in fiscal years 2071 and 2074, it was at its lowest, -0.01. The NHPC had an average return on equity of 0.04 and a CV of 0.43. By comparing the ROE of the sample hydro businesses, it can be shown that AKJCL has the lowest average ROE (-0.12) and API has the greatest average ROE (0.12). This demonstrates that while the return to shareholders of API was lower, the return to shareholders of AKJCL was the highest.

4.1.4 Descriptive statistics for hydro power companies

The table illustrates the descriptive statistics. It indicates the minimum, maximum and mean of the Return on assets, Return on equity, Net profit margin, Debt to total assets ratio and Debt to total equity ratio and the standard deviation of each of the variable.

Table 4.5

Descriptive statistics for hydropower companies

	Minimum	Maximum	Mean	Std. Deviation
Total Debt to Assets Ratio	0.0512	1.0121	0.4595	0.2871
Total Debt to Equity Ratio	0.1532	12.9113	4.1109	34.1452
Gross Profit	0.4261	1.2107	0.6073	0.3679
Net Profit	0.4193	3.9019	0.4387	0.6527
Return on Assets	0.0801	0.3582	0.0403	0.0638
Return on Equity	0.0504	0.5036	0.0252	0.7471

(Sources: data output from excel analysis)

The minimum value is a basic but essential summary statistic that helps describe the range and distribution of values within a dataset, providing insights into the lowest recorded value for a given variable. The maximum value is a basic but essential summary statistic that helps describe the range and distribution of values within a dataset, providing insights into the highest recorded value for a given variable. The mean is a fundamental statistical measure that provides valuable insights into the central tendency of a dataset, making it a widely used tool in data analysis and interpretation. It is calculated by summing up all the values and dividing by the

number of observations. The standard deviation is a measure of the dispersion or variability of the data. It indicates how spreads out the values is from the mean. A smaller standard deviation suggests that the data points are closer to the mean, while a larger standard deviation suggests greater variability.

This ratio assesses a company's financial leverage by comparing its total debt to its total assets. The dataset includes minimum of 0.0512, a maximum of 1.0121, a mean of 0.4595, and a standard deviation of 0.2871.

This ratio measures the company's leverage by comparing its total debt to its total equity. The dataset observations with a minimum of 0.1532, a maximum of 12.9113, a mean of 4.1109, and a high standard deviation of 34.1452, indicating significant variability in this ratio among the observations.

Return on assets (ROA): ROA measures a company's ability to generate profit from its assets. The dataset with a minimum of -0.0801, a maximum of 0.3582, a mean of 0.040395, and a standard deviation of 0.0638.

Return on equity (ROE): ROE measures a company's profitability relative to its shareholders' equity. The minimum ROE observation is 0.504 and the maximum is 0.536, with a mean of 0.02526, it's not typical to have such a wide range in the dataset statistics. Additionally, a standard deviation of 0.7471 seems unusually high relative to the mean value. Usually, the standard deviation represents the average deviation of each observation from the mean, so having a standard deviation significantly larger than the mean suggests high variability or dispersion among the observations.

Table 4.6

Correlation table of hydro power companies

Correlations

	Total Debt to Assets Ratio	Total Debt to Equity Ratio	Gross Profit	Net Profit	Return on Assets	Return on Equity
Total Debt to Assets Ratio	1					
Total Debt to Equity Ratio	.207	1				
Gross Profit	-.112	-.409**	1			
Net Profit	-.349*	-.091	.238	1		
Return on Assets	-.375**	-.087	.205	.941**	1	
Return on Equity	-.257	-.058	.430**	.271	.281	1

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

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

(Sources: data output from excel analysis)

Table 4.6 contains Pearson Correlation coefficients between different financial ratios and performance measures. Pearson Correlation measures the strength and direction of a linear relationship between two variables, ranging from -1 (perfect negative correlation) to 1 (perfect positive correlation), with 0 indicating no linear correlation. Here's a description of the correlations:

Total debt to assets ratio vs. Total debt to equity ratio: The correlation between these two ratios is 0.207. This suggests a weak positive linear relationship between the total debt to assets ratio and the total debt to equity ratio. Total debt to assets ratio vs. Gross Profit: The correlation between these this -0.112. This indicates a weak negative linear relationship between the total debt to assets ratio and gross profit. Total debt to assets ratio vs. Net profit ratio: The correlation between these two ratios is -0.349. This suggests a moderate negative linear relationship between the total debt to assets ratio and net profit. Total debt to assets ratio vs. return on assets: The correlation between these two is -0.375. This indicates a moderate negative linear relationship between the total debt to assets ratio and return on assets. Total debt to assets ratio vs. return on equity: The correlation between these two is -0.257. This suggests a weak negative linear relationship between the total debt to assets ratio and return on equity. Total debt to equity ratio vs. return on assets: The correlation between these two is -0.087. This suggests a weak negative linear relationship between the total debt to equity ratio and return on assets. Total debt to equity ratio vs. return on equity: The correlation between these two is -0.058. This indicates a very weak negative linear relationship between the total debt to equity ratio and return on equity.

Overall, the correlation coefficients provide insights into how these financial ratios and performance measures are related to each other within the dataset, helping to identify potential patterns or associations.

4.1.5 Regression analysis

A regression analysis test was done to measure a relationship between capital structure and the profitability of the businesses.

Table 4.7

Relationship between capital structure and ROE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.257[a]	.066	.026	.737483

a. Predictors: (Constant), Total Debt to Equity Ratio, Total Debt to Assets Ratio

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.773	2	.887	1.630	.207[b]
	Residual	25.019	46	.544		
	Total	26.792	48			

a. Dependent Variable: Return on Equity

b. Predictors: (Constant), Total Debt to Equity Ratio, Total Debt to Assets Ratio

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.282	.202		1.396	.169
	Total Debt to Assets Ratio	-.667	.379	-.256	-1.759	.085
	Total Debt to Equity Ratio	.000	.003	-.005	-.033	.974

**** p<.01, ** p<.05, * p<.1*

Dependent variable: ROE

Independent variable: Debt TA and Debt TE

(Sources: data output from excel analysis)

Table 4.11 shows that, appears to be the results of an analysis of variance (ANOVA) and regression analysis that examines the relationship between capital structure (specifically, Total Debt to Equity Ratio and Total Debt to Assets Ratio) and Return on Equity (ROE). Let's break down the various components of this analysis:

ANOVA Table:

Model 1 (Regression): This section of the table shows the results of the regression analysis. It indicates that the regression model has a sum of squares of 1.773, 2 degrees of freedom (Df), a mean square of 0.887, an F-statistic of 1.630, and a p-value (Sig.) of 0.207. The F-statistic tests whether there is a significant relationship between the independent variables (Total Debt to Equity Ratio and Total Debt to Assets Ratio) and the dependent variable (ROE). In this case, the p-value is greater than 0.05 (p>.1), suggesting that the model does not have a statistically significant relationship with ROE. Residual: This section shows the results related to the residuals (errors) in the model. It has a sum of squares of 25.019 and 46 degrees of freedom, resulting in a mean square of 0.544. Total: This section provides the total sum of squares, which is 26.792, and the total degrees of freedom, which is 48. Dependent Variable: The dependent variable in this analysis is "Return on Equity (ROE)."Relationship between Capital Structure and ROE: The analysis aims to examine the relationship between capital structure (measured by Total Debt to Equity Ratio and Total Debt to Assets Ratio) and ROE. Regression Model Summary: The summary section provides various statistics related to the regression model: R**:** The coefficient of determination (R-squared) is 0.066, which indicates that approximately 6.6% of the variance in ROE can be explained by the independent variables in the model. Total debt to assets ratios is very low i.e. 085 which means total debt to assets is most significant with dependent variable. Adjusted R Square: This adjusted R-squared value is 0.026, which accounts for the number of predictors in the model. Std. Error of the Estimate: This is the standard error of the residuals, and it is approximately 0.7374. The coefficients table provides information about the estimated coefficients for the independent variables (Total debt to total assets ratio and Total debt to total equity ratio) in the regression model: **(**Constant): The intercept or constant term in the model has a coefficient of approximately 0.282. Total Debt to Assets Ratio**:** This variable has a coefficient of approximately -0.667 and a p-value (Sig.) of 0.085. The negative coefficient suggests that there is a negative relationship between Total Debt to Assets Ratio and ROE, but it is not statistically significant at the 0.05 significance level (p>.05). Total Debt to Equity Ratio: This variable has a coefficient of approximately 0.000, indicating a very weak relationship with ROE. The p-value is 0.974, indicating that this variable is not statistically significant in predicting ROE. The notation at the

bottom of the table ("*** p<.01, ** p<.05, * p<.1") indicates the significance levels for the coefficients. In this analysis, none of the coefficients for the independent variables are statistically significant at the conventional 0.05 significance level. Overall, the regression model does not appear to provide strong statistical evidence of a significant relationship between the capital structure variables (Total Debt to Equity Ratio and Total Debt to Assets Ratio) and Return on Equity (ROE) in this dataset.

Table 4.8

Relationship between capital structure and ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.375[a]	.141	.103	.0604275

a. Predictors: (Constant), Total debt to equity ratio, Total debt to assets ratio

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	.027	2	.014	3.760	.031[b]
	Residual	.168	46	.004		
	Total	.195	48			

a. Dependent Variable: Return on assets

b. Predictors: (Constant), Total debt to equity ratio, Total debt to assets ratio

(Sources: data output from excel analysis)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.079	.017		4.753	.000
	Total Debt to Assets Ratio	-.083	.031	-.373	-2.667	.011
	Total Debt to Equity Ratio	-0.864	.000	-.010	-.071	.943

**** p<.01, ** p<.05, * p<.1*
Dependent variable: ROE
Independent variable: Debt to total assets and debt to equity

(Sources: data output from excel analysis)

Table 4.8 shows that, pertains to a regression analysis examining the relationship between capital structure (specifically, Total debt to equity atio and Total debt to

assets ratio) and Return on Assets (ROA). Let's break down the various components of this analysis:

Regression Model Summary:

The regression model summary provides statistics related to the regression analysis: R: The coefficient of determination (R-squared) is 0.141, indicating that approximately 14.1% of the variance in Return on Assets (ROA) can be explained by the independent variables in the model. Adjusted R Square: This adjusted R-squared value is 0.103, which takes into account the number of predictors in the model. Std. Error of the Estimate: The standard error of the residuals is approximately 0.0604275.

The model summary suggests that there is a relationship between the independent variables (Total debt to equity ratio and total debt to assets ratio) and ROA, as indicated by the R-squared value. However, the adjusted R-squared value is relatively low, suggesting that the model may not be a perfect fit.

ANOVA Table:

Model 1 (Regression): This section of the table shows the results of the regression analysis. It indicates that the regression model has a sum of squares of 0.027, 2 degrees of freedom (Df), a mean square of 0.014, an F-statistic of 3.760, and a p-value (Sig.) of 0.031. The F-statistic tests whether there is a significant relationship between the independent variables (Total Debt to Equity Ratio and Total Debt to Assets Ratio) and ROA. In this case, the p-value is 0.031, which is less than 0.05 ($p<.05$), suggesting that the model may have a statistically significant relationship with ROA.

Residual: This section shows the results related to the residuals (errors) in the model. It has a sum of squares of 0.168 and 46 degrees of freedom, resulting in a mean square of 0.004.

Total: This section provides the total sum of squares, which is 0.195, and the total degrees of freedom, which is 49.

Dependent Variable:

The dependent variable in this analysis is Return on Assets (ROA).

Coefficients Table:

The coefficients table provides information about the estimated coefficients for the independent variables (Total debt to equity ratio and total debt to assets ratio) in the regression model:

(Constant): The intercept or constant term in the model has a coefficient of approximately 0.079. Total Debt to Assets Ratio: This variable has a coefficient of approximately -0.083 and a p-value (Sig.) of 0.011, indicating that it is statistically significant at the 0.05 significance level ($p<.05$). The negative coefficient suggests a negative relationship between Total Debt to Assets Ratio and ROA. Total Debt to Equity Ratio: This variable has a coefficient of approximately -0.864 (which is very close to zero), indicating that it does not have a significant relationship with ROA. The p-value is 0.943, which is greater than 0.05 ($p>.05$).

In summary, the regression analysis suggests that Total Debt to Assets Ratio may have a statistically significant negative relationship with Return on Assets (ROA), but Total Debt to Equity Ratio does not appear to be a significant predictor of ROA in this dataset. The significance of Total Debt to Assets Ratio is supported by the p-value of 0.011 ($p<.05$). However, it's important to note that the relationship is relatively weak, and other factors not included in the model may also influence ROA.

Based on the data provided by the concerned companies the findings of the study with respect to capital structure and profitability of hydro power companies in Nepal are as follows:

i. The proportion of total debt is higher than shareholders equity. SHPL has quite satisfactory debt/equity ratio as compare with other companies' ratios.
ii. The mean average of total debt to total assets ratio of hydro power companies CHCL, BPCL, RADHI, SHPL, AKJCL, NHPC are 53%, 17%, 50%, 49%, 55%, 85%, 10% respectively the results shows that the total debt to total assets of AKJCL is highest among the selected hydro companies. The high ratio indicates that the creditor's margin of safety is very low or they have high risk and creditors' claims in total assets are very high. BPCL,

SHPL and NHPC have 17%, 49% and 10% benefit of the company compared to CHCL, RADHI, and AKJCL.

iii. The average return on total assets of hydro power companies CHCL, BPCL, RADHI, SHPL ,AKJCL,NHPC are 4%, 9%, 45%, 26%, 16%, -10%, 30% respectively. The highest average ROA is NHPC and lowest ROA is AKJCL. The result shows that the average return earned by NHPC was highest in comparison to asset utilized whereas AKJCL was lowest.

iv. The average return on equity of hydro companies CHCL, BPCL, RADHI, SHPL ,AKJCL,NHPC are 9%, 11%, 1%, 12%, -12%, 4% respectively. SHPL have highest ROE and AKJCL have lowest ROE. The result shows that the return on equity utilized was more in SHPL and less in AKJCL among the selected hydro companies on the study. ROE for AKJCL is negative in the in the study period which means there is no return on equity.

v. The average net profit margin of hydro power companies CHCL, BPCL, RADHI, SHPL ,AKJCL ,NHPC are 70%, 93%, 39%, 37%, 40%, -15% and 49% respectively. The results shows that CHCL have highest Net profit margin and AKJCL have lowest net profit margin. I.e. in average AKJCL can't get any net profit during the study period.

vi. The average gross profit margin of hydro power companies CHCL, BPCL, RADHI, SHPL, AKJCL, NHPC are 63%, 42%, 70%, 68%, 95%, 35% and 65% respectively. The result shows that SHPL have highest gross profit margin during the study period among other hydro companies and AKJCL have the lowest gross profit margin ration i.e., 35%.

4.2 Discussion

When making financial decisions, capital structure is essential to maximize the value and performance of the company. The variety of securities that a company issues to finance its operations is referred to as its capital structure. The capital structure of the company refers to these combinations of various financing options that it issues.

This study examined both descriptive and analytical research designs, describing the characteristics of the variables and analyzing the data. Using the convenience sampling method, a sample of seven hydropower firms is selected for investigation of the link between capital structure and profitability. NEPSE, the annual statements of a subset of the sampled companies, and other publications are used to gather data. The

analysis techniques that are utilized to summarize the results are financial ratio, mean, standard deviation, coefficient of variation, correlation coefficient, and multiple regression.

This particular research is being done to examine the capital structure of hydropower businesses. In this study, particular focus is placed on the capital structure and how it affects profitability. Additionally, the profitability performance of a selected group of organizations is compared using Return on Equity (ROE) and Return on Assets (ROA) measurements. The relationship between the profitability of hydropower firms and capital structure indicators, such as the debt to total equity and debt to assets ratios, is examined in this study.

5.13 is the greater total debt to equity ratio, whereas 0.20 is the lower total debt to equity ratio. Which suggests that there isn't the ideal capital structure for the company because some companies employ more debt than others? The ROA and ROE have a negative correlation with the ratio of total debt to total equity. The profitability of the companies is directly impacted by the ratio of total debt to total equity. The ratio of total debt to total assets is 0.10 in the lower ratio and 0.85 in the higher ratio. Which suggests that some businesses use debt greater than their total assets, while others use debt less than that? The ROA and ROE have a negative correlation with the total debt to the total assets.

The profitability of the companies is directly impacted by the ratio of total debt to total assets. The correlation coefficient between return on assets and ROE is positive, while the correlation between total debt and total equity and total debt to total assets is negative. As a result, it demonstrates the negative relationship between capital structure and profitability.

Kaumbuthu (2011) discovered that the profitability and capital structure had a negative link. Comparably, the results of Sadiq and Sher (2016) show that capital structure and profitability have a negative association. However, (Nirajini and Priya, 2013) discovered that there is a positive relationship between capital structure and financial success, which runs counter to our results. Previous studies used multiple regression analysis and correlation, sampling only listed trading companies, and collecting data over a five-year period. This study uses an analytical research design and a sample of publicly traded manufacturing and hydropower enterprises. Data collection took place over a five-year period.

The ratio of total debt to total assets is positively correlated with ROA, while the ratio of total debt to total equity is negatively correlated. When comparing total debt to total assets, ROE is positively insignificant; when comparing total debt to total equity, it is negatively insignificant. The ratio between total debt to total equity and total debt to total assets is known as the net present value, or NPM. The results of (Bist and Irwan, 2018) on ROA and the ratio of total debt to total assets are likewise negligible. (2019, Raman) Significant results were also found for ROA and the ratio of total debt to total equity.

The VIF values are precisely below 10, and the tolerance level is less than or equal to 1. Measures chosen for this study's assessment of the independent variable do not, therefore, reach levels. In their 2013 study, Kajananthan and Nimalthasan found that VIF values are precisely below 10 and that the tolerance level is less than or equal to 1. Therefore, there is little difference between profitability and capital structure. This remark is supported by the research as well.

Lamichine (2019)examined how listed manufacturing firms' capital structures affected their profitability. The total debt to total assets and the total debt to total equity to ROA, ROE, and ROS were shown to be significantly correlated by the researcher. However, the data does not support this claim.

In above previous research and this research conclusion conform that capital structure affect the profitability capital structure and profitability has negative relationship.

CHAPTER V
SUMMARY AND CONCLUSION

This chapter will handle the summary, conclusion and recommendations of the study.

5.1 Summary

A company's capital structure may consist of a combination of common equity, preferred equity, long-term and short-term debt. When analyzing a company's capital structure, the percentage of short- and long-term debt is taken into account. Analysts typically refer to a company's debt to equity ratio when discussing capital structure since it gives them an idea of how hazardous the business is. A corporation with a high debt load typically has a more aggressive capital structure, which increases investment risk. However, this danger can be the main driver of the company's expansion.

The percentage of capital employed by different types in a business is referred to as its capital structure. Capital can be broadly classified into two categories: loan capital and equity capital. Every kind of capital has advantages and disadvantages, and a significant portion of prudent corporate stewardship and management is trying to identify the ideal capital structure in terms of risk/reward payout for shareholders.

A company's capital structure is influenced by a wide range of factors, including leverage or trading on equity, the company's growth, the nature and scale of its operations, the desire to maintain control, the flexibility of the capital structure, investor requirements, the cost of flotation of new securities, the timing of the issue, the corporation tax rate, and regulatory requirements. Due to many criteria such new securities, timing of offerings, corporate tax rate, and legal restrictions, it is not feasible to rank them. Since each of these factors has a varying degree of importance and because a firm's individual factors might fluctuate in effect over time, it is impossible to rank them. Capital Structure is referred to as the ratio of different kinds of securities raised by a firm as long-term finance.

The word "capital structure" refers to the integration of all long-term funding sources. Equity is a part of it. Preference, Reserve and Surplus, and Share Capital Such long-term funding sources include shares, loans, debentures, and the like. A business must determine how much of its funding should come from outside sources, especially loan financing. The value of a company and its WACC are impacted by the percentage of

finance.

The purpose of this study is to investigate the relationship between the capital structure and profitability position of Nepali hydropower firms. Both profitability and capital structure are essential for the hydropower industry to meet its goals.

Businesses that have an ideal capital structure will run profitably and sustainably. The first chapter covers the study's background and topic matter, which includes the problem statement, goal, importance, and constraints of the research. The relevant literature has been evaluated in the second chapter with regard to the theoretical underpinnings of the principles of hydro businesses, as well as journals, articles, and prior theses.

The research approach utilized to assess the capital structure and profitability condition of the hydro power businesses under investigation is covered in the third chapter. Financial and statistical methods are used to present, analyze, and understand the data and information in the fourth chapter. Ultimately, a summary, conclusion, and suggestions pertaining to the entire study have been made in the fifth and last chapter. Various statistical and financial tools have been employed for study and evaluation. In this case, the profitability ratio and capital structure are financial tools, while the average mean, standard deviation, coefficient of variation, coefficient of correlation, and regression analysis are statistical tools.

Both the total debt to total equity and the total debt to total assets ratios are part of the capital structure. These ratios are useful for analyzing and assessing how hydro firms' capital structure is positioned. Similar to this, profitability statistics including net profit margin, gross profit margin, return on equity, and return on asset help analyze and assess the profitability status of hydropower enterprises.

Data from FY 2071 to FY 2077 have been analyzed using this type of financial and statistical technology. The primary source of data used in this investigation is secondary data. As a result, the study's use of secondary data is inherently limited. The validity of the data supplied and gathered determines the validity of the study. A chapter plan for the study's systematic analysis has been created. The descriptive analysis of the relationship between capital structure and profitability of Nepali hydropower businesses has essentially been the focus of the entire research project.

The goal of this study is to learn more about the relationship between capital structure and profitability, management's operational efficiency, how well the management uses all of its assets, and the strengths and weaknesses of a sample of hydro

companies in relation to their overall capital structure and profitability position. The findings indicated a negative correlation between profitability and capital structure.

5.2 Conclusion

This study looked at the capital structure and profitability of seven listed hydropower firms between 2071 and 2077, or a span of seven years. The relationship between profitability characteristics and capital structure variables was examined by researchers.

This study concludes that among the hydro power firms included in the analysis—HCL, BPCL, RADI, SHPL API, AKJCL, and NHPC—NHPC has the lowest debt to equity ratio, indicating that it is the most performing hydro power company. In addition, the NHPC's total debt to asset ratio is likewise the lowest, indicating that this business is operating profitably. We can also draw the conclusion that RADHI is a well-performing hydro company due to its greatest ROA, and API Hydro Power Company is operating well due to its highest ROE. Even if having more debt has tax benefits, using debt excessively raises interest costs and increases the likelihood that a company would fail during hard times. The gauge is profitability.

It indicates the degree of success in achieving desired profit. It shows entire performance of companies.

In addition to the company performing better than other companies, investors are receiving a higher return on their investment. Every hydropower company's ROA and ROE have positive mean values, indicating that they are all operating profitably and making full use of their resources. Every business returns investors' capital. The researcher finds a mixed association between capital structure characteristics and profitability variables after testing the relationship. ROA has a negligible negative association with total debt to equity and a positive, negligible relationship with total debt to assets.

The relationship between ROE and total debt to equity is insignificantly negative, while the relationship between total debt and assets is negligibly positive.

The findings of this study indicate a negligibly negative relationship between total debt and profitability. These results suggest that a higher debt position is linked to a lower profitability; that is, the higher the debt, the worse the firm's profitability. Financial leverage raises default risk even while it benefits firms tax-wise. Interest

costs are a fixed obligation that rises as a company takes on more debt. If the company is struggling financially, this fixed obligation will exacerbate the situation. If operating income isn't enough to cover interest charges, stockholders will have to make up the difference, and if they can't, the company may be forced to file for bankruptcy.

5.3 Implications

In Nepal, managing hydropower enterprises can be an extremely challenging endeavor given the country's declining economic conditions. Among the issues that need to be resolved are the more liberalized markets, transportation challenges, unstable governments, power outages, and high rates of inflation. In general, Hydro Power Company is essential to the growth of every country's economy. The loan vs. equity decision is one of the most important ones power companies must make. This decision is essential, among other things, for determining a company's profit. To get a competitive edge in their sectors and increase their earnings, hydro companies need to choose their finance carefully.

Based on the major findings of the study of the selected hydro power companies listed in NEPSE, the following recommendations are presented:

i. Increasing debt levels also make hydropower companies riskier; therefore, in order to boost their profitability, they should rely heavily on internal funding sources. This type of funding increases profits and is less hazardous. Debt financing ought to be the last option.

ii. The capital structures of the chosen hydropower businesses are inconsistent, therefore management needs to be more consistent and pay close attention to creating the best possible capital structure because it's crucial to optimize firm value and reduce total cost of capital.

iii. The funds and assets of RADHI and SHPL have been used effectively. It is advised to increase profits for other businesses and to concentrate on making the best use of its resources and funds. The return on assets for NHPC, AKJCL, API, CHCL, and BPCL is a little low. It is advised that the business use its funds and assets wisely and profitably in order to increase profits.

iv. This study mainly based on secondary data. So, further studies can be based on using primary data or both primary and secondary data.

v. A more comprehensive knowledge of the connection between capital structure and profitability is provided by the seven-year study period. Researchers can identify different economic cycles, industry trends, and company-specific characteristics by analyzing data across longer time periods, which may not be seen in shorter ones. Additionally, it can be used to spot long-term patterns and trends, providing deeper insights into how capital structure choices affect profitability over time.

REFERENCES

Abeywardnana, D. (2016). Impact of capital structure on firm performance, *Evidence from Manufacturing Sector SME in UK*. *SSRN Electronic Journal*, *13*(10), 21-39.

Ali, G. & Faisal, S. (2020). Capital structure and financial performance, a case study of Saudi petrochemical industry. *Journal of Asian Financial Economics and Business, 7*(7), 105-112.

Alom, J. (2013). Effect of debt and equity funding (capital structure) on the financial performance in Malaysia by employing multiple regression analysis. *Journal of India Management*, *24*(3), 21-34.

Aryal, R. R. (2017). *An evaluation of capital structure of Bottler Nepal Ltd*. An Unpublished MBS Thesis, Faculty of Management, Tribhuvan University.

Aulia, H. & Gandakusuma, I. (2019). The effect of capital structure on firm performance of manufacturing companies in ASEAN 5 country. *Journal of Advances in Economic, Business and Management Research*, *144*(473), 25-41.

Baral, K. J. (2012). Determinants of capital structure, A case study of listed companies of Nepal. *Journals of Nepalese Business Studies*, *15*(311), 6-9.

Basit, A. & Irwan, N. F. (2018). The impact of capital structure on firm's performance: Evidence from Malaysian industrial sector. *International Journal of Accounting and Business Management*, *5*(2), 289-519.

Bhattarai, P. (2017). *A study of capital structure of manufacturing company in Nepal*. Unpublished Master Level submitted to Faculty of Management. Kathmandu: Tribhuvan University.

Brigham, E. F, & Ehrhardt, M. C. (2005). *Financial management.* Singapore: Harcourt Asia.

Chakraborty, S. K. (1977). *Corporate capital structure and cost of capital*. Calcutta: ICWA.

Dhodary, S. (2018). A survey of capital structure decision of Nepalese non-financial firm. *Journal of Pravaha. 91*(29), 271-315.

Dhodary, S. (2019). Determinants of capital structure on trading and manufacturing enterprise: A case of Nepal. *Journal of NCC, 163*(7), 117-129.

Friendman, M. (1959). The demand for money: Theoretical and empirical results. *Journal of Political Economics, 67*(2), 217-248.

Hajisaaid, A. M. (2020). The effect of capital structure on profitability of basic materials Saudi Arab firms. *Journal of Mathematical Finance*, *147*(10), 631-647.

Jensen, F. (2002). *Management accounting.* London: Macdonald and Evans.

Kaumbuthu, L. (2011). Leverage and the value of the firm. *The Journal of Finance*, *28* (3), 215-221.

Leon, H. (2013). Capital structure on financial performance of the listed manufacturing firms in Sri Lanka. *The Journal of Finance, 32*(2), 261-275.

Miko, N. U. & Para, I. (2019). Capital structure and profitability of listed manufacturing firms in Nigeria. *Journal of Accounting and Management, 2*(5), 1119-2454.

Mishra, S. (2015). *A study of capital structure management of selected manufacturing companies*. An unpublished Master degree Thesis. Kathmandu: Shankar Dev campus, Faculty of Management, Tribhuvan University.

Modligliani, F. & Miller, M. (1958). The cost of capital, corporate firm-theory of investment. *An American Economic Review, 48*(3).

Nasreem, A. (2013). Relationship between firm's capital structure and financial performance in Pakistan. *American Economic Review, 53*(3), 433-443.

Neupane, S. (2011). *Financial performance evaluation of hydro power companies*: *A comparative study on Butwal power and Himal power companies*. An unpublished Thesis Tribhuvan university, Kathmandu.

Nirajini, A. & Priya, K. B. (2013). Impact of capital structure on financial performance of the listed trading companies in Sir Lanka. *International Journal of Scientific and Research Publication, 3*(5), 1-9.

Pandey, I. M. (2001). *Financial management*. Amhmedabd: Vikash Publishing House.

Panthi, A. (2018). *A comparative study on capital structure management of listed manufacturing companies*: *A case study of Bottlers Nepal Limited and Unilever Nepal Limited.* An unpublished thesis. Shanker Dev Campus, Tribhuvan University, Putalisadak, Kathmandu.

Sadiq, M. & Sher, F. (2016). Impact of capital structure on the profitability of firm's evidence from Automobile sector of Pakistan. *Global Journal of Management and Business Research, 16*(6), 2249-4588.

Salim, H. & Yadav, F. (2012*).* Influence of capital structure on company financial performance. *The Journal of Finance, 24*(1), 120-121.

Shah, P. (2016). *Impact of capital structure on firm performance using 25 cement companies listed on Karachi stock exchange.* Unpublished Master Level submitted to Faculty of Management. New Delhi: Delhi University.

Shrestha, B. D. (2018). *A study on working capital management of daily development corporation*. An unpublished Master's Degree Thesis. Kathmandu: Shanker Dev Campus.

Tailab, R. M. (2014). Leverage ratios, industry norms, and stock price reaction. *Journal of Financial Management*, *28*(2), 32-45.

Toraman, G. (2013). Determinant factors of leverage: An empirical analysis of Spanish corporation. *The Journal of Risk Finance*. 16 (1), 56-60

Van Horne, J. C. (1999). *Financial management and policy*. New Delhi: Prentice Hall of India.

Van Horne, J. C. (2000). *Financial management and policy*. New Delhi: Pearson Education.

Wippern, R. L. (1996). Financial structure and value of the firm. *Journals of Finance, 21*(4), 615-633.

Zuraidah, P. (2012). Relationship between the capital structure indicators. *The Journal of Finance*, 25(2), 701-715.

CAPITAL STRUCTURE AND PROFITABILITY ANALYSIS OF...

By: Harikrishna Bhatt

As of: May 26, 2024 11:19:29 AM
22,386 words - 158 matches - 5 sources

Similarity Index

15%

Mode: Summary Report

sources:

2,659 words / 11% - from 16-Feb-2024 12:00AM
elibrary.tucl.edu.np

284 words / 1% - Internet from 11-Jan-2023 12:00AM
elibrary.tucl.edu.np

232 words / 1% - Crossref
Narinder Pal Singh, Mahima Bagga. "The Effect of Capital Structure on Profitability: An Empirical Panel Data Study", Jindal Journal of Business Research, 2019

221 words / 1% - from 30-Dec-2023 12:00AM
fastercapital.com

209 words / 1% - from 06-Mar-2024 12:00AM
repository.ueab.ac.ke

paper text:

ABSTRACT This study has analysed the capital structure and profitability of selected listed hydro power companies in Nepal. The main objective of this study is to analyse and examine the capital structure and profitability and their relationship as well as the trend of overall performance in of Nepalese hydro power companies. The research design was based on descriptive and casual cooperative and sampled were collected by using based on hydro power companies established. Data collected and used secondary data from the annual report statements of the Nepalese hydro power companies. Analysis was based on data extracted from annual reports of the hydro power companies for the relevant period. Correlation and regression analysis were employed to examine the capital structure and profitability and their impacts. The return on assets and debt to equity ratio was used to measure profitability status whereas

total debt to assets ratio & total debt to equity ratio was used **to measure** Efficiency position. **The**

study covered seven listed hydro power (i.e., CHCL, BPCL, RADHI, SHPL, API, AKJCl and NPHC) in Nepal over a period of past 7 fiscal years from 2070/71 to 2076/77. Key Words: Capital Structure and Profitability Analysis of Hydro Power Companies in Nepal. ii CHAPTER I INTRODUCTION 1.1 Background of study Capital structure stands as a cornerstone within a company's operational framework, serving as the bedrock upon which firms make strategic decisions regarding their financial composition. Capital structure epitomizes the amalgamation of equity and debt instruments employed by a company to fuel