CAPITAL STRUCTURE AND FIRM PERFORMANCE OF HYDROPOWER COMPANY

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment of the requirements for the Master's Degree

By

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CERTIFICATION OF AUTHORSHIP

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

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REPORT OF RESEARCH COMMITTEE

Ms. Sharada Gharti has defended research proposal entitled **"Capital Structure and Firm Performance of Hydropower Company"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidelines of supervisor Jhabindra Pokharel submit the thesis for evaluation and viva-voce examination.

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APPROVAL SHEET

We, the undersigned, have examined the thesis entitled **" Capital Structure and Firm Performance of Hydropower Company "** presented Sharada Gharti candidate for the degree of Master of Business Studies (MBS Semester) and conducted the Viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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Abbreviations

API	=	Api Power Company Limited
AT	=	Assets Tangibility
ATM	=	Automatic Tailor Machine
BAFIA	=	Bank and Financial Institution Act
BARUN		Barun Hydropower Company Limited
BPLC	=	Butwal Power Company Ltd.
CEO	=	Chief Executive Officer
CHCL	=	Chilime Hydro Power Company Limited
DER	=	Debt Equity Ratio
L & A	=	Loan and Advance
No.	=	Number
ROE	=	Return on Equity
TA	=	Total Assets

ABSTRACT

This research purpose is to examine the relationship between asset tangibility, debt to equity ratio (DER), short-term debt to total assets (STDTA), and the profitability of hydropower companies in Nepal. The study utilizes a causal comparative research design and employs correlation and regression analyses to explore the capital structure and its impact on profitability. The findings reveal that the debt-to-equity ratio exhibits a negative but statistically significant relationship with return on assets (ROA). However, there is a significant positive association between STDTA and ROE, indicating that an increase in short-term debt relative to total assets leads to higher profitability for hydropower companies. Furthermore, the analysis demonstrates a significant negative relationship between asset tangibility (AT) and ROE, suggesting that a higher proportion of tangible assets is linked to lower profitability. These findings provide insights into the capital structure management and profitability dynamics within the hydropower sector in Nepal. The implications of this research suggest the importance of maintaining a balanced capital structure and prudently managing short-term debt levels for hydropower companies. Moreover, optimizing the asset composition by considering the mix of tangible and intangible assets can contribute to enhanced profitability. The study's findings have implications for financial decision-making, policy formulation, and future research directions in the field. Overall, this research project contributes to the understanding of the relationship between capital structure and profitability in the hydropower industry of Nepal, providing valuable insights for stakeholders and policymakers in making informed decisions to maximize profitability and sustainable growth.

Keywords: *Capital Resources, Debt Policy, Profitability.*

CHAPTER I
INTRODUCTION

1.1 Background of the study

Nepal has enormous hydroelectric potential, and the country's prosperity economically is correlated with its water resources (Lohani, 2023). Although Nepal has used hydropower since 1911 AD, private sector growth wasn't allowed until 1992 AD. Promoting private sector involvement in power generating is one of the key initiatives in the power industry. The management's financial choices have a big impact on choosing the best capital structure. It is crucial that the company's management choose how to design their capital structure in order to enhance the value of the company. Firms have varying levels of leverage, but managers work to find the right combination to create an ideal capital structure.

The combination of long-term funding sources, such as debentures, long-term debt, preference share capital, and equity share capital, including retained earnings, is referred to as the capital structure(Nguyen et al., 2023). Because of how capital structure interacts with other financial decision factors, it is one of the most complicated areas of financial decision making. The choice of capital structure affects the firm's capacity to manage competitive advantage. Every company has a unique capital structure because they make different financing decisions, and choosing a capital structure is difficult since sometimes using more debt is advantageous while other times using more stock is advantageous. Therefore, it has to be designed properly to save costs and increase the firm's worth.

The ratio of debt to equity that the company utilizes to run its business is known as the capital structure. A company's capital structure is made up of a variety of securities. In general, businesses have a wide range of capital structures to select from. Companies may set up lease financing, employ warrants, issue convertible bonds, and agree to advance contracts, or engage in bond swap trading, as examples. To increase total market value, businesses can also issue a huge variety of unique securities in limitless combinations (Abor, 2005).

Due to its interdependence with other financial decision-making factors, capital structure is one of the most difficult aspects of financial decision-making. The primary factor in the financial choice is profitability. Because it directly affects an enterprise's profitability, the

capital structure decision is the most important of the several capital investment decisions. As a result, adequate care and attention must be used while choosing the capital structure. The net present value of projects might be decreased and more of them can become unsatisfactory as a result of poor capital structure decisions leading to a high cost of capital. Effective capital structure choices may reduce the cost of capital, raising net present value and expanding the number of projects that are acceptable and so raising the firm's worth. Any company's management must make a critical decision on the best capital structure. Making a capital structure decision necessitates determining the ideal ratio of debt to owners' equity that a firm needs for capital financing. This choice must be carefully considered because it will have a significant impact on the company's overall success (Abor, 2005) .

The company's two key areas of decision-making are funding and investing. Capital structure choice refers to the process through which a company is financed using a combination of debt and equity. The directors of the company are interested in selecting the optimal capital structure, which is the best capital structure for the business. The company's administrative team makes leverage choices, which are also among the most crucial ones. Capitalization, leverage ratio, capital structure, and financial structure are all terms with the same meanings that refer to the types of resources and sums of money that the company has employed to build them and acquire assets (Barges, 2009).

The ratio of debt to equity that the company utilizes to run its business is known as the capital structure. A company's capital structure is made up of a variety of securities. According to Brigham and Gapenski (1996), a company's capital structure determines how it finances its activities, which may be done through debt, equity, or a mix of the two. The ratio of debt to equity on a company's balance sheet is referred to as capital. It is typically challenging for commercial organizations to choose the ideal debt and equity ratio. A company has a variety of potential financial structures to select from. It has the option of issuing either a significant amount of debt or very little debt. Lease financing, the usage of warrants, and the issuance of convertible bonds, the execution of forward contracts, and the trading of bond swaps are all options. It can issue a variety of unique securities in limitless combinations, but it tries to identify the specific combination that will increase its total market worth (Brigham & Gapenski, 1996).

The best capital structure is one in which the overall cost of capital is lowest and the firm's value is highest. The optimum debt to equity ratio is the one that maximizes the

value of the company. It strikes a compromise between lowering the firm's cost of capital and maintaining the appropriate debt to equity ratio. By lowering the cost of capital, this structure aims to help the corporation become less reliant on debtors and increase its ability to fund its main business. To identify the degree of risk that causes the expected return on capital to exceed the cost of capital, the weighted average cost of capital must be determined (Bhattarai, 2020).

Capital structure can be measure by analyzing the liquidity (current assets), assets tangibility, debt to equity ratio, size, short-term debt to total assets, sales and operating expenses of the company.

A tool for evaluating a company's performance that may take into account both its own efficiency and the market in which it competes. It is often referred to as financial stability or financial health in the financial industry. It is possible to assess a company's success using a variety of financial metrics. Revenue, return on equity, return on assets, profit margin, sales growth, capital sufficiency, liquidity ratio, and stock prices are a few examples of popular financial measurements. It is crucial to keep in mind that investors and stakeholders view the firm's performance to be a key signal. This refers to the idea that a company's performance tells investors whether they should invest in it or not. For instance, investors are willing to spend money in companies that have strong marketing results, but weak marketing results point to issues that companies may be having with their company development. Due to their uncertainty about their return on investment and the substantial risks involved with such investments, investors steer clear of investing in underperforming firms.

Firm performance can be measured by the analysis of the different financial variables like profitability, ROA, ROE, leverage, debt ratio, and so on. The term "ROA" stands for return on assets, which refers to how profitably a corporation uses its assets. ROA can be obtained by dividing the net income by total assets of the company. ROE stands for return on equity. Businesses look at ROE as an indicator of how well a firm is using its shareholders' money. Based on the company's average shareholder equity throughout a year, it calculates the return on the investments made by the shareholders.

Klein (1998), employee return on assets (ROA) and Lo (2003) uses return on equity (ROE) as an operating performance indicator. Brown and Caylor (2009) use ROE and ROA as their two operating performance measures. We can measure the operating

performance of a firm through the ROA ratio which shows the amount of earnings have generated from an invested capital asset (Epps & Cereola 2008). Managers are directly responsible for the operations of the business and therefore the utilization of the firms' assets. ROE is a measure that shows an investor how much profit a company generates from the money invested from its shareholders.

The study on capital structure and company efficiency in Nepalese businesses aids in detecting possible issues with these two factors. In contemporary corporate finance, the capital structure is still a contentious subject. The whole financial system depends on the non-financial sector. Non-financial businesses, in addition to financial institutions, make significant contributions to the financial intermediation of the economy.

1.2 Statement of problem

Companies must manage their optimal capital structure to reduce risk for a given level of return and to maximize return for a given level of risk. The Nepalese companies do not take the notion of capital structure seriously. Therefore, there is no such thing as an ideal capital structure. Very few of the firms that are listed on the stock exchange use loan capital, despite the fact that some of these companies are destroyed by the excessive cost of borrowed capital. Typically, each firm has its own guidelines for choosing the capital structure needed to conduct operations. Some businesses solely utilize loan money, some only use equity capital, and some blend both types of capital. As a result, the choice of capital structure is heavily influenced by corporate strategy and capital costs. The majority of businesses use low-cost capital arrangements. Unfortunately, the Nepalese business organization lacks a model for defining capital structure. Due to the high interest rates, companies choose not to employ loans during their first stages and instead use just equity capital.

A measure of liquidity is the simplicity with which an asset or security may be changed into cash at a price that corresponds to its true worth. The company's current assets are thought of as its liquid assets, which may be instantly transformed into cash. An engaging discussion in financial management has been the trade-off between a company's liquidity and profitability. The decisions made by any company regarding liquidity management should have an impact on profitability. The results of the correlation research indicated that there is a negative but not significant association between the performance of SMEs and their liquidity ratios. The findings of the pooled regression analysis demonstrated that

the profitability of certain small and medium-sized businesses is significantly impacted by liquidity management (SMEs). Additionally, in a group of SMEs, there is a negative correlation between the explanatory variables (current ratio, quick ratio, and cash ratio) and the profitability metrics (net profit margin, return on assets, and return on capital employed) (Mohanty & Mehrotra 2018). Rajbanshi (2019) found that there is negative influence on the total debt decision of the Nepalese Hydropower companies.

Similarly, the debt-to-equity ratio is used to measure a company's financial leverage. It indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity. Total debt to equity has an insignificant negative relationship with the profitability of the company (Bhatt, 2021). According to the Lamichhane and Shrestha (2021) total debt to capital has a positive impact with financial performance of the companies. Rouf (2015) found that debt Equity Ratio has negatively and significant relationship with profitability.

Short-term debt to total assets ratio shows how much of the enterprise's total assets are financed using loans and financial debts lasting for one year or less. Total debt is the combination of the short-term debt and long term debt. Tifow and Sayilir (2015) states that short term debt to total assets has a significant negative relationship with profitability.

Sales growth is the increment in the sales from the previous period sales. Increase in the sales level will have positive impact in the profitability of the company. Sales is the crucial variable for the profitability. Its found that there is significant positive relationship between the growth and the financial performance (profitability). Sales growth is significant factor in determining the profitability of the company (Jaishi & Poudel, 2019).

Operating expense is an expense a firm has as a result of ongoing operations is referred to as an operational expense. OE plays a significant role in determining the level of the profit. With the lower OE company will have high level of profit and vice versa. Operating expenditure management is the most significant internal element affecting bank profitability (Curak et al., 2012). Ahmad & Noor, 2011 found that there is positive and statistical significant relationship between the profitability and operating expenses.

A tangible asset is an asset that has a finite monetary value and usually a physical form. Tangible assets can typically always be transacted for some monetary value though the liquidity of different markets will vary. Jaishi and Poudel (2019) states that tangibility is the significant factor in determining the profitability of the company. Tangibility has

significant positive relationship with the financial performance (profitability) (Pouraghajan et al., 2012). There are some studies conducted in capital structure and firm performance of different companies. The study suggests there is an association between capital structure and profitability (Johannes, 2022). For Nepal most of the studies are based in financial ratio analysis. Most of based previous studies are chiefly focused either on the financial ratios or the capital structure this study specially deals with the following problem.

i. How does companies' asset tangibility, DER, STDA related with the profitability Hydropower Companies in Nepal?
ii. Are firm assets tangibility, debt to equity ratio, and STDA effect the profitability of Hydropower Companies?
iii. What is situation of capital structure and profitability of hydropower companies in Nepal.

1.3 Objectives of the study

The major objectives of the study is to examine and analyze the capital structure and firm performance of sample Hydropower Company Nepal. Mentioned below objective are the base objective of this study.

1. To examine the relationship between companies' asset tangibility, DER, STDA, with the profitability of Hydropower Company in Nepal.
2. To measure the effect of asset tangibility, DER, STDA, with the profitability Hydropower Company in Nepal.
3. To study of the capital structure on profitability of Nepalese Hydropower Company.

1.4 Hypothesis of the study

Research hypothesis are guessed statement yet to prove. Generally, research hypothesis is formed in two ways i.e. null hypothesis and alternative hypothesis. The null hypothesis explains there is significant relationship between dependent variable and independent variable. Whereas alternative hypothesis explains the significant relationship between the dependent variable and independent variable.

H1: There is positive relationship between asset tangibility and profitability (ROA, and ROE).

H2: There is significant relationship between DER and profitability (ROA, and ROE).

H3: There is positive relationship between STDA and profitability (ROA, and ROE).

1.5 Rationale of the study

The capital structure deeply impacts over the cost of capital and long –term financial position of the firm. The earning nature of the firms helps to adopt appropriate mix of debt and equity in the capital structure on account of this significance. The capital structure and firm performance is justified as specific subject matter for the study. The finding of this study are based on the pooled data of selected hydro-company. The study helps the researchers, investors, creditors and other stakeholders to analyze the financial position of the firm and they also may know the impact of capital structure on profitability of firm. Capital structure analysis of hydro company is the main focus of this study. Any entity firm depends on the proper management of capital structure.

A company's strengths and weaknesses can be discovered by analyzing its capital structure, which also helps to steer the business in the right direction. The essential duty of a corporation is to keep these many stakeholders satisfied because they each have their own interests and needs. Only the company's healthy capital structure makes it feasible. This study's significance is to ascertain the elements involved in managing capital structures that serve as a guidance for financial managers. This research is crucial for people interested in investing, as well as for owners, creditors, and shareholders to maintain a positive outlook.

1.6 Limitation of the Study

Due to a lack of resources, time, and knowledge, every study project has its own restrictions and limitations. The project is finished up to the point of its restriction. Despite the researcher's best efforts, there are several limitations to this study. The following list of limitations applies to this study as well:

i) This study is based on secondary data. Thus, the result of the analysis depends on accuracy of available information.

ii) The study covers only the latest five years data. Sample companies' information limits determined the years chosen.

iii) This study is mainly conducted on the basis of secondary sources of data. (Annual reports of various hydropower company and government publications and other related journals, the primary data will be included where matters.)

iv) The study only covers the capital structure management and its impact profitability of Hydropower Company.

v) Standard normal performance level is not available as benchmark, especially in Nepalese context, so interpretations of data depend upon judgment.

CHAPTER II
LITERATURE REVIEW

A literature review has an organizational structure that includes summary and synthesis; it goes beyond just summarizing the sources. A summary is a recap of the main information of the source, whereas a synthesis is a re-organization, or a reshuffling, of that material. It might provide a fresh interpretation of dated information or blend fresh and outdated perspectives. Or it might outline the field's intellectual history, including significant arguments. The literature review may also assess the sources and advice the reader on which are the most topical or relevant, depending on the circumstances.

2.1 Theoretical Review

The capital structure of the financial leverage choice should be assessed in light of how it will affect the firm's value. However, there are two competing hypotheses that attempt to explain how the capital structure and business value are related. Traditionalists contend that the choice of capital structure has an impact on the firm's value, however Modigliani and Miller disagree, claiming that capital structure has no bearing on the firm's value. There are, broadly speaking, two theories: relevance theory and irrelevancy theory. According to relevance theory, the decision to combine debt and equity has an impact on the firm's value; this indicates that the firm's worth changes depending on the decision to combine debt and equity. However, according to the irrelevancy argument, combining debt and equity decisions has no impact on the firm's value.

2.1.1 Net income approach

It is also called relevancy theory of capital structure because the capital structure decision is relevant to the valuation of the firm. According to this idea, changes in the leverage ratio have an impact on the firm's market value and total cost of capital. In response to a change in the firm's debt equity ratio, neither the attitude of the shareholders nor the debt holders towards their needed rate of return has changed. In accordance with this idea, the cost of debt is higher than the cost of equity and the two costs are stable, meaning that as the proportion of debt increases, the cost of equity falls and the firm's value likewise rises (Harris & Raviv, 1991)

When the leverage ratio changes, neither the cost of debt capital nor the cost of equity capital changes. Due to the low level of risk, the needed rate of return for debt holders is considerably lower than for stock. Additionally, the proportion of debt in the capital structure that is raised results in a decrease in the total cost of capital, a rise in the firm's value, and a consistent cost of equity and debt.

The net income approach is based on following assumption:

1. Cost of debt is less than cost of equity (kd < ke). 10

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.

MPS=EPS⁄Ke

Where, MPS = Market price of stock

EPS = Earnings per share

Ke = Cost of equity.

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.

V= NOI⁄Ko = EBIT⁄Ko

Where,

V = Market value of the firm

NOI = Net operating income

Ko = Overall cost of capital

Thus, a firm can maximize its market price of stock or value by achieving the optimal capital structure through judicious mix of debt and equity (Weisbrod & Hansen, 1968)

Net operating income approach

It is also termed irrelevancy theory of capital structure since capital structure choice is unrelated to the valuation of the business. It suggests that the capital structure of the company has no bearing on its overall worth. Leverage ratio changes won't affect the firm's worth or total cost of capital in any way.

This method assumes that the cost of debt is larger than the cost of equity and that the cost of debt is fixed while the cost of equity is not, keeping the firm's value and the total cost of capital constant. According to this strategy, a change in the capital structure of the company cannot affect its value. This is because if the total amount of debt is increased, shareholders would be exposed to greater risk. As a result, equity shareholders would demand higher returns in exchange for taking on greater risk. The cost of equity will increase as a result. The advantage of lower cost of debt will be counter balance by the higher cost of equity due to such balancing effect overall cost of capital would remain same and value of the firm will remain same. Net operating income has following assumptions:

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.

This approach suggest that both the earning per share and equity capitalization rate increases on same proportion with the increasing debt ratio, so the market price of stock remain unchanged on any leverage. The total market value of the company also remains unchanged, since as previously said that the net operating as well as overall cost of capital does not vary with the leverage. The market value of the company is obtained as below:

V = NOI/Ko

Where,

V = Value of the firm

NOI = Net operating income

Ko = Overall capitalization rate.

At the extreme degree of financial leverage, hidden costs become very high and hence the firms 'cost of capital and its market value is not influenced by the use of additional cheaper debt fund.

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

The traditional view

Soloman (1989) is also known as an intermediate approach is a compromise between the net income approach and the net operating approach. This approach contends that overall cost of capital of the firm can be minimized by judicious mix of debt and equity capital. This view clearly implicates that the cost of capital decreases within the reasonable limit of debt and the increases with leverage. Thus, an optimum capital structure exists and it occurs when the cost of capital is minimum or the value of the firm is maximum. This theory carries the clear implication that the cost of debt plus the increased cost of equity, together on a weighted basis, will be less than the cost of equity which existed on equity before debt financing. According to the traditional position, the manner in which the overall cost of capital reacts to changes in capital structure can be divided into three stages:

First stage: Increasing value

The first stage begins with the initiation of debt in the total capital. At the beginning, the cost of equity, Ke, remains constant or rises slightly with debt and it does not increase fast enough to offset the advantage of low-cost debt(Margaritis & Psillaki, 2010). Here, the cost of debt, Kd, remains constant or rises negligibly. Thus, the value of the firm, V increases and the overall cost of capital declines with increasing leverage.

Under the assumption that Ke remains constant within the acceptable limit of debt, the value of the firm will be:

$V = S + D$

Thus, as long as Ke and Kdare constant the V increases at a constant rate (Ke –Kd)/Ke, as the amount of debt increases,

$Ko = X/V\ Ke- (Ke – Kd\ ) D/V$

This implies that, with Ke>Kd, the average cost of capital will decline with leverage.

Second stage: Optimum value

Once the firm has reached a certain degree of leverage, further application of debt will increase the cost of equity due to added financial risk that offsets the advantages of low cost debt. Thus, the total market value of the firm remains constant. Within that range or at the specific point, the value of the firm will be maximized or the cost of capital will be minimized.

Third stage: Declining value

Beyond the acceptable limit of leverage, the value of the firm decreases with leverage or the cost of capital increases with leverage. This occurs because investors perceive a high degree of financial risk and demand a higher equity-capitalization rate, which offsets the advantage of low-cost debt. The overall effect of above three stages is to imply that the cost of capital is a function of leverage. At first it declines with leverage and after entering a minimum level it starts rising. The relation between cost of capital and leverage is graphically shown in figure no. 2.3, where the overall cost of capital curve, Ko, is saucer-shaped with a horizontal range. It indicates that there is a range of capital structures in which the cost of capital is minimized, Ke is assumed to increase slowly at first and then at a faster rate.

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

The capital structure irrelevancy theory holds that a firm's value has no effect on its capital structure in a capital market without taxes. The claim is that the business's earnings and asset risk, not its capital structure, determine its value, hence a corporation that is leveraged will have a similar value to one that is not.

The NOI approach's explanation of the connection between leverage and cost of capital is supported by this strategy. It argues that neither the firm's values nor the capital structure's average capital costs are impacted by either factor. It makes the assumption

that there aren't any transaction fees or company taxes. With this strategy, the firm's value will remain constant regardless of the ratio of debt to equity.

According to this approach value of levered firm is equal to the value of the unlevered firm. If the value of levered firm is higher than the value of unlevered firm or vice versa it will be compensate by arbitrage process i.e. it will reach in balance through the arbitrage process.

The MM cost of capital hypothesis can be best expressed in terms of their proposition I and II. However the following assumption regarding the behaviour of the investors and capital market, the action of the firm and tax environment are crucial for the validity of MM hypothesis.

i. Securities are traded in perfect capital market.
ii. Firms can be grouped in the homogenous risk class.
iii. Dividend pay-out ratio is 100 percent.
iv. Corporate income tax doesn't exist.
v. Investors have homogenous expectation about expected future corporate earnings also the riskiness of their earnings.
vi. The variance of return may differ from investor to investor.

Proposition: I

The MM proposition- 1 states that the market value of a firm is independent of its capital structure. It is because the value of the firm is determined by capitalizing the net operating income at a rate appropriate for the firms risk class. It is identical to the NOI approach. The value of firm is obtained by:

$V = NOI / Ko$

Where,

V = Value of the firm

NOI = Net operating Income

Ko = Risk Adjusted Capitalization rate

Proposition: II

According to proposition II, the cost of equity increases proportionately as financial leverage increases in order to provide compensation in the form of premium for taking on

greater risk as a result of the increasing leverage. In other words, the cost of equity for any company, whether leveraged or unleveraged, in a given risk class is equal to the constant average cost of capital plus an additional premium for financial risk, which is calculated by multiplying the debt-to-equity ratio by the difference between the constant average cost of capital and the interest rate. It can be expressed as follows:

$Ke = Ko + (Ko – Kd)\ D/E$

Where,

Ke = Cost of equity

K0 = Average cost of capital

Kd = Cost of debt or interest rate

D/E = Debt equity ratio.

2. Under MM approach with taxes

According to this idea, the cost of equity capital rises as a company's debt ratio rises, but because the cost of debt is subsidized by corporate taxes, the cost of capital as a whole decreases. This model expands on the first concept by taking into account the possibility of a corporation filing for bankruptcy after borrowing a significant sum of money. They believed that utilizing greater debt would make a company more vulnerable to bankruptcy. Because of the increased risk of using the company's debt and the shareholders' opinion of the company's future, a company's cost of equity increases. It can also be shown in proposition I and II.

Proposition I

As per proposition – I, the value of a firm is determined by capitalizing the net operating income before tax at a rate that is appropriate to its risk class. Where tax is considered, interest payment on debt makes a tax saving since interest is deducted from net income for the tax calculation. Thus the value of levered firm will be more by the present value of the debt tax shield than that of unlevered firm. In other word value of levered firm is equal to the value of the unlevered firm plus present value of debt tax shield. This can be shown in following equation:

$VL = Vu + T*B$

Where,

VL = Value of levered firm

Vu = Value of unlevered firm

T = Tax

B = Amount of Debt

Proposition II

It states that the cost of equity of levered firm rises with leverage ratio to compensate for the additional leverage risk while the cost of debt remain constant because the debt is assumed to be risk less (Pradhan, 2014). Accordingly the cost of equity is calculated as follows:

Kel = Keu + (Keu – Kd) (1- T) D/ E 16

Where,

Kel = Cost of equity of levered firm

Keu = Cost of equity of unlevered firm

Kd = Cost of debt

T = Tax rate

D/E = Debt Equity ratio

It indicates that cost of equity increase with D/E ratio. On the other hand the tax deductibility of interest on debt lowers the cost of debt but still remains constant irrespective of debt – equity ratio. This reduction in the cost of debt as a result of tax saving outweighs the increased cost of equity, forcing the average cost of capital to decline with every unit of additional debt financing. As a result the weighted average cost of capital of the firm does not remain unchanged when there is a change in D/E ratio. This can be seen in following equation.

Kol = Kel (Es / V) + KD (1-T) D/E

Where,

KO = Overall cost of capital of levered firm

Kel = Cost of equity of levered firm

E = Equity amount

V = Total Value

T = tax rate

D/E = Debt equity ratio

Thus, it can be concluded that MM Theory with taxes is identical. To net income approach, this says that the value of the firm increases with every additional unit of debt financing.

2.1.2 Trade-off Theory

Trade-off theory focuses on the balance between the cost and benefit of the debt. The company should consider the cost and benefit attached to the debt and should try to get the optimal capital structure. The benefit an organization can take by adding some debt in its capital structure is the benefit of the tax shield. On the other hand, the costs, attached to the debt, are bankruptcy cost and no bankruptcy cost like the cost of investors, cost of employees, cost of suppliers, and cost of customers etc. Trade-off theory suggests a positive relationship between a firm's performance and debt. The same positive relationship between profitability and leverage is shown by researchers and thus proves the relevancy of trade-off theory.

Appiadjei (2014) examined the influence of capital structure on performance of the firms for all 35 companies listed on Ghana stock exchange for the period 2004-2008 and observed that there was a direct relation between short term debt and profitability and positive relation between long term debt and profitability.

Moreover, Zafar et al. (2016) investigated the influence of capital structure on banking performance for 25 banks listed on Karachi stock exchange and found the positive relationship between debt to assets and performance indicators such as ROA, ROE and EPS.

In addition to that, Addae et al. (2013) examined the association between profitability and capital structure during 2005-2009 for Ghana. A regression model was used for the estimation of data. The result revealed that there was a positive association between short term debt and profitability.

Similarly, Rajha and Alslehat (2014) tested the influence on performance by capital structure of Jordanian Islamic banks during 1998 to 2012. The relationship between dependent and independent variables was found out by multiple regressions. The result

showed that equity ratio, total asset and financing to total assets had a direct effect on performance.

According to the Static Trade-off hypothesis, an ideal capital structure may be achieved when the tax benefits of debt financing are equal to the costs of leverage, which can include financial hardship and bankruptcy, while keeping investment choices and company assets unchanged. According to the Pecking Order hypothesis, corporations employ equity capital first, followed by debt, and then equity to finance new projects, making it challenging to establish the optimal level of capital. At both the top and bottom of the hierarchy, equity capital is present. The Agency Cost hypothesis concludes by arguing that an ideal capital structure may be achieved by minimizing the costs brought on by disputes between managers and owners. Jensen & Meckling, (2007) argued that leverage level can be used to monitor the managers to pursue the overall firms' objectives and not theirs. By so doing, cost is reduced leading to efficiency which shall eventually enhance firm performance (Buferna et al., 2005).

2.2 Empirical Review

Several empirical studies around the world have been conducted to measure the relationship between capital structure and company profitability In most cases researcher come up with mixed results, some revealed a positive relationship between the variable other revealed the negative relationship while some other shows the contradictory results between study variables. These type of result shows that the topic is still debatable hence it’s high time to measure such relationship in Nepalese Hydropower Company listed in Nepal stock exchange. During study, several thesis works has been carried out by the previous students. Among them some research are found to be relevant for this study. They are presented as follows:

Abor (2005) conducted research investigate the relationship between capital structure and profitability of listed firms on the Ghana Stock Exchange (GSE) during a five-year period. With the help of regression analysis, the findings show a statistically significant positive correlation between ROE and the percentage of short-term debt to total assets. The ratio of long-term debt to total assets, on the other hand, was found to be negatively correlated with ROE. The findings indicate a considerably favorable correlation between the ratio of total debt to total assets and return on equity in terms of the link between total debts and return rates.

Pouraghajan et al. (2012) conducted research on the title the Relationship between Capital Structure and Firm Performance Evaluation Measures: Evidence from the Tehran Stock Exchange with the objective of s to investigate the impact of capital structure on the financial performance of companies listed in the Tehran Stock Exchange. With this study, the researcher examined and evaluated 400 firm-years from companies listed in between 2006 and 2010, 12 industrial organizations traded on the Tehran Stock Exchange. Variables of the return on assets ratio (ROA) and the return on equity ratio were used in this study. (ROE) is a metric used to assess a company's financial performance. The findings indicate that asset turnover, company size, asset tangibility ratio, and growth prospects have a substantial positive association with financial performance of enterprises and a significant negative link with debt ratio. However, there is no statistically significant correlation between ROA and ROE measurements and company age. Moreover, a few of the examined industries have an impact on firm performance. In addition, research results shows that by reducing debt ratio, management can increase the company's profitability and thus the amount of the company's financial performance measures and can also increase shareholder wealth.

2.2.1 Review of articles, journals

Salim and Yadav (2012) investigated on the topic Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies by using panel data procedure for a sample of 237 Malaysian listed companies on the Bursa Malaysia Stock exchange during 1995-2011. The research employs Tobin's Q, return on assets, earning per share, and return on equity as its four performance metrics. The five capital structure measure, which includes overall debt ratios, growth, long-term debt, and short-term debt, as an independent variable a controlling variable is size. The information is broken down into six categories: construction, consumer goods, industrial goods, plantations, real estate, trading, and services. The findings show that short-term debt (STD), long-term debt (LTD), and total debt (TD), as independent variables, have a negative connection with company performance, as evaluated by return on asset (ROA), return on equity (ROE), and earning per share (EPS). Additionally, there is a good correlation between performance and growth across all industries. According to Tobin's Q, there is a strong correlation between short-term debt (STD) and long-term debt (LTD). Additionally, it notes that total debt (TD), in a manner similar to the study above, has a substantial negative link with the firm's performance.

Shubita & Alsawalhah, (2012) conduct research to Examine the impact of capital structure on profitability of the industrial businesses listed on the Amman Stock Exchange over a six-year period will help this study expand the results of Abor (2005) and Gill (2011) about the relationship between capital structure and profitability (2004-2009). Does capital structure have an impact on industrial Jordanian companies? Is the issue statement that has to be examined in this study? There are 39 firms in the research sample. Correlations and multiple regression analysis were used to arrive at the results, which show a pronounced inverse relationship between debt and profitability. This implies that prosperous businesses rely more on equity as their primary source of funding.

Chechet and Olayiwola (2014) examined capital structure and profitability of the Nigerian listed firms from the Agency Cost Theory perspective with a sample of seventy (70) out of population of two hundred and forty-five firms listed on the Nigerian change (NSE) for a period of ten (10) years: 2000 - 2009 with the aid of the NSE Fact Book covering the period under review. Panel data for the firms are generated and analyzed using fixed-effects, random-effects and Hausman Chi Square estimations. Two independent variables which served as surrogate for capital structure were used in the study: debt ratio and equity financing while profitability as the only dependent variable. The result show that DR is negatively related with PROF, the only dependent variable but EQT is directly related with PROF. The study by these findings, indicate consistency with prior empirical studies and provide evidence against the Agency Cost Theory.

Hasan et al. (2014) primarily examined how a firm's capital structure affects its performance. During this study, carried out on a sample of 36 Bangladeshi companies registered on the Dhaka Stock Exchange between 2007 and 2012. Earnings per share (EPS), return on equity (ROE), return of asset, and operating margin are the four performance metrics we used.(ROA), Tobin's Q, and the three capital structure ratios of short-term debt, long-term debt, and equity serve as dependent variables. as independent variables, and overall debt ratios. We discovered that EPS using the pooling panel data regression approach is substantially correlated with short-term debt while being significantly correlated with long-term debt in the positive direction. However, aside from the positive correlation between EPS and STDTA, we may conclude that capital structure does not statistically significantly correlate with firm performance as evaluated by ROE and Tobin's Q structure has a detrimental effect on a firm's performance, which is consistent with the Pecking Order Theory's thesis.

Mutyaba (2014) investigate on the topic the impact of the capital structure of electricity generation projects on electricity tariffs in Uganda to examine how financial structure affects power production plants' rates in Uganda after adjusting for additional elements like operating and maintenance expenses, technology, and the installed capacity of power plants, project development expenses, and utilized for production taxes. Using cross-sectional data as of September 2014 from 29 firms, for estimate, bootstrap linear regression analysis was performed. The study's findings showed that the generating tariff decreases as the debt part of the capital structure increases. Though, the capital structure's effect of debt was not statistically significant. What was notable is that compared to non-renewable technologies, renewable technologies have a substantially cheaper producing tariff.

Mitreva and Georgiev (2015) conducted research on the title Determinants of Capital Structure: Evidence from the Global Renewable Energy Sector. The objective is to determine the factors that significantly influence the capital structure decisions in the global renewable energy sector during the period 2005-2013, This investigation is carried out utilizing a quantitative methodology using panel data model, when the dependent variable is leverage, governed by a collection of company-specific, sector-specific, tax-related, and independent macroeconomic variables. Regression analysis of the research shows that size, tangibility, and median industry leverage are the factors that are positively and strongly connected with leverage. In our research, we discover that profitability, market-to-book assets, SG&A costs to sales, dividends to Leverage has a bad and substantial relationship with assets, listed businesses dummies, and common law dummies. Overall, the bulk of factors influencing capital structure decisions in the investigated industry were not significantly impacted by the global financial crisis. Our findings are in line with the dynamic trade-off theory's conceptual framework.

Vătavu (2015), investigate with the aim to determine, over an eight-year period, the link between capital structure and financial performance in 196 Romanian businesses working in the industrial sector that are listed on the Bucharest Stock Exchange (2003-2010). Cross sectional regressions are the foundation of the study. Long-term debt, short-term debt, total debt, and total equity are the capital structure indicators, whereas return on assets and return on equity are performance proxies. Previous research suggests that the capital structure of Romanian manufacturing enterprises is influenced by factors including taxation, risk, liquidity, and inflation. According to the data, Romanian

businesses do better when they avoid debt and rely solely on equity. However, it appears that manufacturing organizations do not efficiently utilize their assets and lack the internal finance necessary to make lucrative developments. Profitable businesses sell off a portion of their assets to lower their expenses when taxes and inflation are rising. Across industrial businesses, there is evidence of risk-taking behavior. This demonstrates a predilection for debt while facing tough financial times and significant company risks, or when running out of funds makes it impossible to pay off obligations. Those regression findings for long-term debt ratios are not statistically significant because there are missing data. Moreover, the regression models referring to return on equity explain a reduced proportion of its variation.

Leonid (2017), studied on the topic Impact of capital structure on firm performance: evidence from Russian companies found there is negatively relationship of leverage with firm performance. This result is found by utilizing the descriptive statistics and correlation matrix between the dependent and independent variable. ROE, ROA, Tobin's Q and P/E ratio are the dependent variable which measure the profitability of the firm, whereas Debt ratio and long term debt to assets are independent variable representing the capital structure.

Dhodary (2018), conducted the study on capital structure in Nepalese non-financial enterprises. The study is 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), has conducted a study on "A Study on Working Capital Management of Dairy Development Corporation". During his study, he had basically used the secondary data and mainly financial tools are embodied for analyzing the working capital management of DDC. He had derived following major findings from his study. The objectives of the study were as to analyze 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 analyze 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 favorable condition. It is because of inefficient utilization of current assets, total assets and shareholders wealth.

To examine and analysis of debt, sources of debt and differences in debt Shrestha (2019) investigate on the topic Analysis of Capital Structure in Power Companies in Asian Economies. A synthetic credit rating were done by gathering data from company's annual report. Each country's debt to equity ratio and each company's debt to equity ratio were compared. Additionally, a multiple regression is carried out to determine the degree to which each independent variable depends on the capital structure. Tax rate, interest rate, market capitalization, ROE, ROA, size of energy output, and energy source are among the factors included in the study. A debt case study is completed for the businesses with distinctive traits in their debt to equity ratio. Form this investigation researcher found that tax rates, interest rates, and other factors have a big influence on the debt-to-equity ratio. Financial Market Development, company size, ROE and ROA, and company type. However, In addition to the deciding elements, it is well known that the more secure a commercial enterprise is the corporation borrows more from the government. Large businesses do not always indicate they have unless it is guaranteed by the government, a higher debt.

Jaishi and Poudel (2019) examines the relationship between leverage and efficiency of non-financial firms in Nepal. The overall structure of leverage and efficiency, as well as their connection, are examined in this work using both a descriptive and a casual research approach. For the study, secondary data were used, which were 60 observations with a time range of two to fourteen years that were taken from the annual reports of the individual firms. The study's population consists of non-financial institutions that are listed on the Nepal Stock Exchange. The study's stratified cum purposive selection approach was used to pick a sample of fifteen businesses, comprising one from trade, three from the lodging industry, five from manufacturing, and six from hydro. Size, tangibility, growth, profitability, leverage, and efficiency were the criteria that were examined. Regression analysis and descriptive analysis were both utilized to evaluate the relationships between the variables. To test the hypothesis, many models were employed. The majority of Nepalese non-financial institutions use both debt and equity to raise financing. Less efficient businesses utilize high leverage, whereas more productive businesses use less leverage. The scale of Nepalese non-financial organizations, investments in intangible assets, and profitability do not always translate into a rise in the efficiency of the businesses. More investments in tangible assets are justified by the fact that efficiency and tangibility are positively correlated. The correlation between size and growth suggests that a rise in sales accelerates the growth rate of non-financial companies. Within non-financial enterprises, there is little consistency in the effects of size, tangibility, profitability, and growth on leverage. The major conclusion of this study is that size, tangibility, profitability, and growth are the significant factors in determining the efficiency and leverage of Nepalese non-financial firms. The firms having high leverage are less efficient and more efficient firms use low leverage.

Rajbanshi (2019) conducted a research to examine the effect of profitability, liquidity, size, tangibility and tax shield on capital structure of Nepalese Hydropower Companies. Profitability, liquidity, size, tangibility, and tax shield are treated as independent variables, whereas debt ratio and long-term debt to total assets ratio are taken as dependent variables. According to the study, profitability and liquidity have a negative impact on the overall debt choice made by the Nepalese hydropower companies, however tangibles and non-debt tax shield have a good impact. The size variable is not the main driver of overall debt as well as long-term debt, according to the regression coefficients

for size in all regression models, which are neither consistent nor statistically insignificant.

Bhatt (2021) investigate the research on the title Capital Structure and Profitability of Manufacturing and Hydro Companies in Nepal, to find out the relationship of the capital structure and firm performance. The research is based on the secondary data where the sample company were taken as per the convention of the researcher. Researcher utilized the descriptive and analytical research design to find out the relationship between the dependent variable ROA, ROE and Net profit ratio which measure the profitability of the company and total debt to assets ratio & total debt to equity ratio as independent variable representing the capital structure. Form the investigation it was found that ROA has positive insignificant relation with total debt to assets and insignificant negative relationship with total debt to equity. ROE has negative insignificant relation with total debt to equity and positive insignificant relation with total debt to assets. NPM has negative and insignificant relation with total debt to assets and negative and insignificant relationship with total debt to equity.

With the aim of exploring the relationship between the capital structure and firm performance Lamichhane and Shrestha (2021) conducted a research on the title Nexus between Capital Structure and Financial Performance of Nepalese Hydropower Companies. The research focuses on hydropower companies listed on Nepal Stock Exchange (NEPSE) until mid-July 2020. This paper analyzes the nexus of capital structure with the financial performance of hydropower companies for the period 2005/06 to 2019/20. A descriptive and causal research design was used in this study. Short-term debt to capital (SDC), long-term debt to capital (LDC), total debt to capital (TDC), and debt to assets (DR) ratios were the measures of capital structure and were used as explanatory variables. Return on equity (ROE) is used to measure financial performance and is considered a dependent variable. This study showed that the ratio of short-term debt to capital is beneficial to financial performance. The results of this study also showed that total and long-term debt to capital have a considerable favorable influence on the financial performance of Nepali hydropower firms. Financial performance, however, is adversely impacted by the debt-to-asset ratio. In order to maximize financial performance, this study indicates that Nepalese hydropower businesses should enhance short-term, long-term, and total debt to capital ratios and decrease debt to assets. This analysis has implications for the creation of the best capital structure policy. The results

of this study may be used by the hydropower industry in Nepal to create a capital structure strategy that would enhance its financial performance.

Thagunna, (2021) investigate on the topic Working capital management and financial performance: Evidence from non-financial firms listed in Nepal Stock Exchange Limited to examine the impact of working capital management on the financial performance of the non0financial firm listed on the Nepal Stock Exchange (NEPSE). 194 firm-year observations from 23 non-financial enterprises listed in NEPSE from 2001 to 2018 are the basis for the study. The Hausman Test and Wald Test imply that a Fixed Effect Model (FEM) is appropriate when the return on assets (ROA) is used as a dependent variable, but a Random Effect Model (REM) is appropriate when the return on equity is used as a dependent variable. The findings show that the financial performance of non-financial enterprises is severely impacted by longer receivable conversion periods and inventory conversion periods. Additionally, lengthier payment deferral periods have a negative impact on Nepalese non-financial organizations' return on equity, demonstrating that companies may make money by shortening payable deferral periods. The study concludes by demonstrating a statistically significant association between return on assets and the cash conversion cycle.

2.3 Research Gap

Contradictory findings were found by several studies who examined the link between hydropower firm profitability and capital structure. Many found a positive association, some found a negative one, while some found no relationship at all between capital structure and company performance. The opportunity to do more study on this subject by examining the connection between capital structure and business profitability has arisen as a result of this contentious outcome. The hydro industry, sample firms, data presentation, and statistical and financial techniques utilized for data interpretation and analysis distinguish this study from prior studies in those areas. Jaishi & Poudel (2019) examines the relationship between leverage and efficiency of non-financial firms in Nepal. The overall structure of leverage and efficiency, as well as their connection, are examined in this work using both a descriptive and a casual research approach. For the study, secondary data were used, which were 60 observations with a time range of two to fourteen years that were taken from the annual reports of the individual firms. The study's population consists of non-financial institutions that are listed on the Nepal Stock Exchange. There exist methodological gap with present study. Rajbanshi (2019)

conducted a research to examine the effect of profitability, liquidity, size, tangibility and tax shield on capital structure of Nepalese Hydropower Companies. Profitability, liquidity, size, tangibility, and tax shield are treated as independent variables, whereas debt ratio and long-term debt to total assets ratio are taken as dependent variables. There is similar variable with present result but the sample of present study were varied according to purpose of the study. The motivation for this research was the lack of agreement on what would constitute the ideal capital structure in the hydropower sectors. There hasn't been much research done on this subject in Nepal as well, so it's time to evaluate the findings, compare them to capital structure theories, and determine whether there is a connection between capital structure decisions and firm profitability using listed hydro companies on the Nepal Stock Exchange.

CHAPTER III
RESEARCH METHODOLOGY

It is a process of arriving at a solution to a problem by acquiring, analyzing, and interpreting data in a methodical and organized manner. This study attempts to look into " capital structure and firm performance of hydropower company, in Nepal in order to achieve the main purpose. The study approach, data sources, population and sample, data processing procedure, and data analysis tools and techniques are all included in this section. Financial and statistical tools, as well as a quantitative approach, are included.

3.1 Research Design

The research design is descriptive and causal comparative. For a ten-year period (2073/74-2077/78), the study designs were created to describe, examine, and assess the profitability of a selected hydro power companies in Nepal. As a result, the study demonstrates the importance of quantitative research above qualitative research. Descriptive and Causal comparative research design is conducted for a research problem when the researcher has no past data or only a few studies for reference. This type of research is informal and unstructured. It serves as a tool for initial research that provides a hypothetical or theoretical idea of the research problem. If the researcher wants to investigate natural occurring variables that may be unethical or impractical to test experimentally then correlational research is used. A survey means gathering information about the characteristics, actions, or opinions of a large group of people.

3.2 Population and sample and sampling design

This study used non-probability sampling frame and convenience-based sampling design. A subjective (i.e., non-random) way of selecting units from a population is known as non-probability sampling.

Non-probability sampling is a quick, simple, and affordable method of collecting data because it doesn't call for a whole survey frame. In Nepal hydro power company are 124 in operation. Four hydro power companies are used as sample in this study. They are follows:

Table 3.1

Sample of the Study

S. N	Hydro Power Companies	Symbol
1	Butwal Power Company Ltd.	BPCL
2	Api Power Company Limited	API
3.	Chilime Hydro Power Company Limited	CHCL
4.	Barun Hydropower Company Limited	BARUN

Based on their availability and desire to take part, convenience sampling is possibly the simplest technique of sampling. business.

3.3 Nature, sources, and instrument of data collection

This research is based on the secondary data. Required data will be collected from published financial statements of the listed hydropower in the office of Security Board of Nepal. The basic sources of data used are as Annual Reports, Published materials from concerned insurance companies, Financial statements of concerned insurance companies, Related books and journals, Official websites of the sample insurance companies.

3.4 Methods of analysis

In order to obtain relevant findings, numerous financial methods are utilized in the data analysis process to quantify the financial profitability of chosen hydro power project in Nepal. The association between claim management and financial profitability is investigated using correlation analysis. Financial tools such as Excel and SPSS will be used to perform the calculations. The observations will be presented using a variety of graphical techniques, such as bar charts and tables. The analysis is based on data and statistics from the industry.

Zikmund (1997) suggested that the choice of the methods of statistical analysis depends on (a) the type of the question to be answered, (b) the number of variables, and (c) the scale of measurement. Thus, the data have been analyzed by using various descriptive statistics, correlation analysis, multiple regression analysis, ARDL model, and qualitative content analysis.

A) Descriptive Statistical Tools

Descriptive statistics are brief descriptive coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population. They are broken down into measures of central tendency and measures of variability (spread). Measures of central tendency include the mean, median, and mode, while measures of variability include standard deviation, variance, minimum and maximum variables, kurtosis, and skewness.

In the current study, following statistical tools have been used to draw meaningful conclusion.

I) Mean: Arithmetic mean of a given set of observations is their sum divided by the number of observations. A mean is value, which represents a group of values. It shows characteristics of the whole group, the mean value lies somewhere in between the two extremes, i.e. the largest and the smallest items.

II) Standard Deviation: Standard deviation is an absolute measurement of dispersion in which the drawbacks present in other measures of dispersion are removed. The high amount of dispersion reflects high standard deviation. The small standard deviations mean a high degree of uniformity of the observation as well as homogeneity of a series and vice-versa. The small standard deviation means the high degree of homogeneity of the observation. The standard deviation (SD) measures the extent of scattering in a set of values, typically compared to the mean value of the set (EI Omda & Sergent, 2021). The calculation of the SD depends on whether the dataset is a sample or the entire population.

B) Coefficient of Correlation (r)

The coefficient provides both the direction and strength of the relationship between a pair of variables. In this study, the strength of association between all pairs of variables was statistically measured by Pearson's correlation coefficient. In statistics, Pearson's correlation coefficient measures linear correlation between two variables ranging from -1 to +1, where 1 is total positive correlation, 0 is no correlation and -1 is total negative

correlation. The bivariate parsons' correlation statistical tools have been employed to know the relationship between variables and correlation analysis involves methods and techniques used for studying and measuring the extent of the relationship between the two variables. The coefficient of correlation, denoted by r is computed as under:

If $r = 0$, then there is no correlation between variables.

If $r > 0$, then there is positive correlation between variables. If $r < 0$, then there is negative relation between variables.

One very convenient and useful way of interpreting the value of coefficient of correlation (r) between the two variables is coefficient of determination, which is denoted by r^2. It explains the total variation in dependent variable is explained by independent variable. The significant of coefficient of correlation (r) is tested with the help of 2 tailed p-value at 1 percent and 5 percent level of significant.

C) Regression Analysis

Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them. It includes several variations, such as linear, multiple linear, and nonlinear. The most common models are simple linear and multiple linear.

The known value which is used for prediction (or estimation), is called independent (or regressed or predictor or explanatory) variable and the unknown value which is to be estimated or predicted by known value is called dependent (or regressed or explained) variable. A line fitted to a set of data points to estimate the relationship between two variables is called regression line. A line fitted by the method of least square is the line of best fit. A line of regression gives the best estimate of one unknown variable for any given value of the other variable.

The econometric model

$$ROE = \beta_0 + \beta_1 AT + \beta_2 DER + \beta_3 STDTA + \varepsilon$$

$ROA = \beta_0 + \beta_1 AT + \beta_2 DER + \beta_3 STDTA + \varepsilon$

Where,

ROE= Return on Equity

ROA= Return on Assets

AT= Assets Tangibility

STDTA= Short Term Debt to Total Assets

ε= Residual error for period of time,

$\beta_0, \beta_1, \beta_2, \beta 3$ the parameters of the variables.

3.5 Research framework and definition of variables

The conceptual framework is an analytical tool with several variations and contexts. It is the basis or foundation upon which the study is established. It is within the framework of this theory that entire study proceeds. The preliminary survey of literature and information provides a solid foundation for developing a theoretical framework. Since the general purpose of the study is to develop theories about the problems and questions, it is important that the conceptual framework be carefully developed and presented.

Independent Variables: Capital Structure **Dependent Variables: Firm Performance**

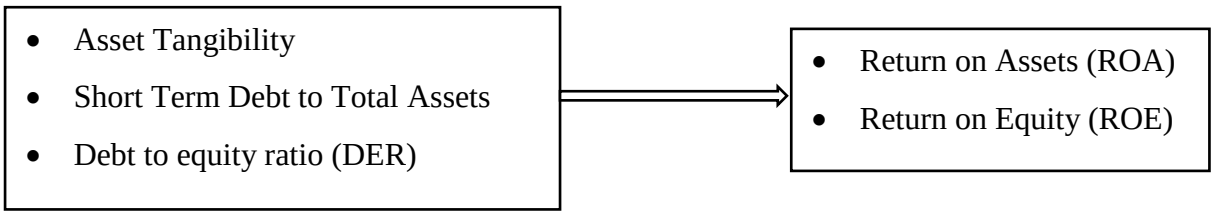

Figure 3.1 Research Framework

3.5.1 Definitions of Variables:

Independent Variables

1) **Assets Tangibility:** A tangible asset is an asset that has a finite monetary value and usually a physical form. Tangible assets can typically always be transacted for

some monetary value though the liquidity of different markets will vary. Tangible assets are the opposite of intangible assets which have a theorized value rather than a transactional exchange value. For example: land, building, inventory, equipment/ machinery, furnishing and fixtures etc. The tangibility of assets is characterized by the effect of the collateral values of assets on the firm's leverage level. The underlying argument behind the use of tangible assets as collateral for debt is the higher liquidation value of these assets in the event of financial distress or bankruptcy(Rajan & Zingales, 1995).

2) **Total debt to equity ratio:** The debt to equity ratio is used to measure a company's financial leverage. It indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity. It is calculated as:

   Total debt to equity ratio = Total debt /Total share holders equit***y***

3) **Short Term Debt to Total Assets:** Short-term debt to total assets ratio shows how much of the enterprise's total assets are financed using loans and financial debts lasting for one year or less. Total debt is the combination of the short term debt and long term debt. Those financial obligation of the company that should be written off with in a period of one year called the short term debt.

Dependent Variables

4) **Return on Equity (ROE):** Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets. ROE is considered a gauge of a corporation's profitability and how efficient it is in generating profits.
5) **Return on Assets (ROA):** It is also called the firm's return on total assets, measure the overall effectiveness of management in generating profit with its available assets.

CHAPTER IV
RESULT AND DISCUSSION

The descriptive analysis, relationship analysis, and discussion parts were all merged into the result and discussion section. This part focuses specifically on the finding's interpretation and SPSS analysis.

4.1 Capital Structure of Hydropower Companies

The exact ratio of debt to equity utilized to fund a company's assets and activities is referred to as its capital structure. From a business's point of view, equity is a more expensive, long-term source of funding with more financial flexibility. This part analyzes and interprets every capital structure variable for the hydropower company.

4.1.1 Shor-term Debt to Total Assets

The ratio of short-term debt to total assets indicates how much of the total assets of the company is financed by loans and financial obligations with maturities of one year or less.

Table 4.1

Shor-term Debt to Total Assets

F/Y	BPCL	API	CHCL	BARUN
2016/17	0.052	0.914	0.026	0.209
2017/18	0.040	0.963	0.025	0.058
2018/19	0.029	0.972	0.037	0.070
2019/20	0.026	0.957	0.045	0.040
2020/21	0.025	0.740	0.064	0.040
Mean	0.04	0.91	0.04	0.08

In Table 4.1 the overall Short-term Debt to Total Assets of hydropower companies and their mean value. In the year 2016/17 BPCL have higher STDTA with value 0.052 and minimum in the year 2020/21 with value 0.025, its interpreted that BPCL using less finance with one year or less maturity, it will lead the efficient operation of firm. Also, API hydro have maximum STDTA in the year 2018/19 with value 0.972 and minimum in the year 0.7408, CHCL have maximum STDTA in the year 2020/21 with value 0.064, minimum in the year 2017/18 with vlue 0.0257. Finally, BARUN have maximum

STDTA in the year 2018/19 with value 0.70 and minimum in the year 0.209. Overall mean value of STDTA of BPCL, API, CHCL, and BARUN is 0.04, 0.91, 0.04, 0.10, and 0.08 respectively. API is using short term finance maximum among others and BPCL, CHCL have minimum STDTA. BPCL, and CHCL have good financial performance among others. Below figure present the overall STDTA of sample company's

4.1.2 D/E Ratio of Sample Hydropower Company

In comparison to the amount of shareholder equity held by the company, the debt-to-equity ratio reveals how much of a corporation is owned by creditors (those from whom it has borrowed money). Along with the debt servicing ratio and the debt-to-total assets ratio, it is one of three computations used to assess a borrower's ability to repay loans.

Table 4.2

Debt to equity ratio

F/Y	BPCL	API	CHCL	BARUN
2016/17	0.222	1.146	1.054	1.455
2017/18	0.180	1.717	1.614	1.233
2018/19	0.151	1.697	2.047	1.124
2019/20	0.119	1.589	2.513	0.965
2020/21	0.096	1.155	2.571	0.672
Mean	0.15	1.46	1.96	1.09

Table 4.2 presents the overall debt to equity ratio of firms. In the year 2016/17, 2017/18, 2020/21, 2020/21 and 2016/17 BPCL, API, CHCL, and BARUN has maximum DE ratio with value 0.22, 1.71, 2.57, 0.62 and 1.45 respectively. It signifies that all firms using long term funds in respective year. Similarly, in the year 2020/21, 2019/17, 2016/17, 2016/17, 2020/21 17 BPCL, API, CHCL, and BARUN operating with minimum DE ratio respectively, companies using no much long term financing for their operation. Overall mean value of DE ratio shows that CHCL using long term financing among others and BPCL using less long term debt. BPCL have better financial performance among others. Below figure shows the overall debt to equity ratio of all hydropower company.

4.1.3 Assets Tangibility

A tangible asset is one that often has a physical form and a limited monetary worth. A higher tangibility demonstrates a firm's superior performance.

Table 4.3

Assets Tangibility

F/Y	BPCL	API	CHCL	BARUN
2016/17	0.922	0.065	0.717	0.815
2017/18	0.701	0.147	0.735	0.829
2018/19	0.883	0.120	0.784	0.871
2019/20	0.829	0.126	0.867	0.887
2020/21	0.749	0.029	1	1
Mean	0.82	0.10	0.82	0.88

Table 4.3 shows that in the year 2018/19, 2017/18, 2020/21, 2020/21, and 2020/21 BPCL, API, CHCL and BARUN has maximum AT respectively. Contrariwise, in the year 2017/18, 2020/21, 2016/17, 2019/20, and 2016/17 BPCL, API, CHCL, and BARUN operating with lower AT. Among all companies BARUN have maximum AT and API have minimum AT. It indicates that BARUN have good tangibility in asset and it is operating better among others.

4.2 Profitability of Hydropower Company

4.2.1 Return on Asset

A financial ratio known as return on assets (ROA) measures a company's profitability in relation to its total assets. ROA can be used by corporate management, analysts, and investors to assess how effectively a company uses its resources to make a profit.

Table 4.4

Return on Asset

F/Y	BPCL	API	CHCL	BARUN
2016/17	12.44	3.07	5.17	10.50
2017/18	9.14	1.78	3.93	1.97
2018/19	9.56	2.08	2.71	-0.41
2019/20	9.30	3.06	2.00	1.19
2020/21	6.53	2.12	1.66	0.49
Mean	9.39	2.42	3.09	2.75

Table 4.4 shows return on asset of hydropower company is presented. In the year 2016/17 BPCL, CHCL, BARUN and API have maximum ROA respectively. Congruently in the year 2020/21 BPCL and CHCL operating with minimum ROA, also in the year 2018/19, 2017/18, and 2018/19 API, and BARUM operating with minimum ROA respectively. In average BPCL have better ROA and API have poor return on asset. Below figure shows the ROA of sample hydropower company.

4.2.2 Return on Equity

Return on equity (ROE) is a metric for evaluating a company's financial performance that demonstrates the connection between earnings and investor returns.

Table 4.5

Return on Equity

F/Y	BPCL	API	CHCL	BARUN
2016/17	15.21	6.58	10.63	25.79
2017/18	10.79	4.83	10.27	4.41
2018/19	11.02	5.61	8.27	-0.88
2019/20	10.40	7.91	7.02	2.34
2020/21	7.16	4.58	5.93	0.82
Mean	10.92	5.90	8.42	6.50

Table 4.5 shows the return on equity of sample hydropower company. In the year 2016/17 all companies have maximum return on equity. Conversely, in the year 2020/21 BPCL, API, and CHCL have minimum return on equity. Similarly, in the year 2017/18 and 2018/19 BARUN have minimum return on equity. In overall BPCL have maximum return on equity and API have minimum. In consideration with ROE, BPCL have better profitability, and good financial performance. Below figure shows the ROE of sample hydropower companies.

4.3 Descriptive Statistics

Brief informative coefficients known as descriptive statistics are used to sum up a particular data set, which may be a sample of a population or a representation of the complete population. Measurements of central tendency and measures of variability make up descriptive statistics (spread). The mean is a measure of central tendency, while the

standard deviation, minimum and maximum value of variable are measurements of variability.

Table 4.6

Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROE	20	-.88	25.7	7.9	5.68
ROA	20	-.41	12.4	4.4	3.78
D/E	20	.09	2.5	1.1	.762
STDTA	20	.02	.20	.06	.049
AT	20	.70	1.0	.85	.096

Table 4.6 shows the variability of the data used in the study. ROA and ROE shows the better variation among all data set, it has minimum in negative and maximum in positive and their SD and mean value is closer.

4.4 Relationship Between Capital Structure and Firm Performance

4.4.1 Pearson's Correlation Results

Table below displays the relationship between the study's capital structure variables (DE, STDTA, AT) and its profitability variables (ROA, ROE) as determined by Pearson's correlation test. Result shows that return on asset have negative significant relationship with company debt to equity ratio. STDTA and AT have no any correlation with dependent profitability factor of company.

Table 4.7

Correlation Results

	ROE	ROA	D/E	STDTA	AT
ROE	1				
ROA	.820**	1			
D/E	-.128	-.594**	1		
STDTA	.389	.032	.347	1	
AT	-.297	-.315	.280	.385	1

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

4.4.2 Relationship Between Return on Equity and Capital Structure

Regression result shows (R value) for this research is 0.653. An indicator of how well a linear regression model fits data is R-squared. This statistic shows how much of the dependent variable's variance the independent variables, taken together, can account for. This indicates there is a moderate variation of dependent and independent variables.

ANOVA indicates that there is significant relationship between dependent variable and independent variable. ROE has significant relationship with independent variables having significant value less than 0.05 is (0.027).

Table 4.8

Regression Results

Coefficients

Model		B	Std. Error	t	Sig.
1	(Constant)	29.591	9.946	2.975	.009
	D/E	-1.622	1.528	-1.062	.304
	STDTA	75.127	24.553	3.060	.007
	AT	-28.679	12.269	-2.337	.033
		$R^{2=}$0.692	F=4.91	Sig.(P)= .013	

a. Dependent Variable: ROE

Source: Appendix

Table 4.8 shows the coefficients for a regression model with the dependent variable ROE (Return on Equity) and independent variables D/E (Debt-to-Equity Ratio), STDTA (Short-term Debt to Total Assets Ratio), and A (Asset Turnover). Here's how to interpret the table:

The constant term (Constant) has a coefficient of 29.591. This represents the estimated value of the dependent variable when all the independent variables are set to zero. The standard error for this coefficient is 9.946. The t-value of 2.975 suggests that this constant term is statistically significant at the 0.05 significance level (p-value = .009).

The coefficient for the variable D/E is -1.622. This indicates that a one-unit increase in the D/E ratio is associated with an estimated decrease of 1.622 units in the ROE. The standard error for this coefficient is 1.528. The t-value of -1.062 suggests that this coefficient is not statistically significant at the 0.05 significance level (p-value = .304). The standardized coefficient (Beta) of -0.218 represents the relative importance of D/E

compared to other variables in the model. The coefficient for the variable STDTA is 75.127. This suggests that a one-unit increase in the STDTA ratio is associated with an estimated increase of 75.127 units in the ROE. The standard error for this coefficient is 24.553. The t-value of 3.060 indicates that this coefficient is statistically significant at the 0.05 significance level (p-value = .007). The standardized coefficient (Beta) of 0.652 represents the relative importance of STDTA compared to other variables in the model.

The coefficient for the variable AT is -28.679. This indicates that a one-unit increase in the AT ratio is associated with an estimated decrease of 28.679 units in the ROE. The standard error for this coefficient is 12.269. The t-value of -2.337 suggests that this coefficient is statistically significant at the 0.05 significance level (p-value = .033). The standardized coefficient (Beta) of -0.487 represents the relative importance of AT compared to other variables in the model.

4.4.3 Relationship Between Return on Asset and Capital Structure

Regression test model summary shows that R value is 0.692. This indicates there is a good variation of dependent and independent variables.

ANOVA result shows that there is significant relationship between dependent variable and independent variable. ROA has significant relationship with independent variables having significant value of 0.013 which is smaller than 0.05. We can look the effect as consideration, the model is good fit for the analysis. b

Table 4.9

Regression Results

Model		B	Std. Error	t	Sig.
1	(Constant)	15.56	6.306	2.467	.025
	D/E	-3.18	.969	-3.292	.005
	STDTA	27.61	15.567	1.774	.095
	AT	-10.73	7.779	-1.379	.187
		$R^{2=}$0.692	F=4.91	Sig.(P)= .013	

a. Dependent Variable: ROA

Source: Appendix

Table 4.9 provides the coefficients for a regression model with the dependent variable ROA (Return on Assets) and independent variables D/E (Debt-to-Equity Ratio), STDTA (Short-term Debt to Total Assets Ratio), and AT (Asset Turnover).

The constant term (Constant) has a coefficient of 15.560. This represents the estimated value of the dependent variable when all the independent variables are set to zero. The standard error for this coefficient is 6.306. The t-value of 2.467 suggests that this constant term is statistically significant at the 0.05 significance level (p-value = .025). The coefficient for the variable D/E is -3.188. This indicates that a one-unit increase in the D/E ratio is associated with an estimated decrease of 3.188 units in the ROA. The standard error for this coefficient is 0.969. The t-value of -3.292 indicates that this coefficient is statistically significant at the 0.05 significance level (p-value = .005). The standardized coefficient (Beta) of -0.642 represents the relative importance of D/E compared to other variables in the model.

The coefficient for the variable STDTA is 27.616. This suggests that a one-unit increase in the STDTA ratio is associated with an estimated increase of 27.616 units in the ROA. The standard error for this coefficient is 15.567. The t-value of 1.774 suggests that this coefficient is not statistically significant at the 0.05 significance level (p-value = .095). The standardized coefficient (Beta) of 0.360 represents the relative importance of STDTA compared to other variables in the model. The coefficient for the variable AT is -10.730. This indicates that a one-unit increase in the AT ratio is associated with an estimated decrease of 10.730 units in the ROA. The standard error for this coefficient is 7.779. The t-value of -1.379 suggests that this coefficient is not statistically significant at the 0.05 significance level (p-value = .187). The standardized coefficient (Beta) of -0.274 represents the relative importance of AT compared to other variables in the model.

4.5 Discussion

The study primary objective is or find out the relationship between companies' liquidity, asset tangibility, DER, STDTA, sales growth and operating expenses related with the profitability of Hydropower Company in Nepal. The present study found that De has negative significant impact on ROA (Beta= -3.18 with P value= .005) Previously, Addae et al. (2013) used for the regression to estimation of data. The result revealed that there was a positive association between short term debt and profitability. The present study found the supportive result with the previous study. Similarly, Rajha and Alslehat (2014) tested the influence on performance by capital structure of Jordanian Islamic banks during 1998 to 2012. The result showed that equity ratio, total asset and financing to total assets

had a direct effect on performance.(Abor, 2005) findings show a statistically significant positive correlation between ROE and the percentage of short-term debt to total assets. The present study found the contrary result with the previous one. The findings indicate a considerably favorable correlation between the ratio of total debt to total assets and return on equity in terms of the link between total debts and return rates the result shows that (STDTA has positive significant impact at p value= .007, and AT have negative on P value=.033).

Pouraghajan et al. (2012) findings indicate that asset turnover, company asset tangibility ratio, and growth prospects have a substantial positive association with financial performance of enterprises and a significant negative link with debt ratio, the study is in line with present study. However, there is no statistically significant correlation between measurements and company age. Salim, & Yadav, (2012) study shows that short-term debt (STD), long-term debt (LTD), and total debt (TD), as independent variables, have a negative connection with company performance, as evaluated by return on asset (ROA), return on equity (ROE), and earning per share (EPS), Finally, Thagunna, (2021) findings show that the financial performance of non-financial enterprises is severely impacted by longer receivable conversion periods and inventory conversion periods. There is result that ROE have positive relationship with the hydropower business capital stricter, but the study found positive relationship with STDTA and ROA.

CHAPTER V
SUMMARY AND CONCLUSION

5.1 Summary

Present study aimed to investigate the relationship between asset tangibility, debt to equity ratio (DER), short-term debt to total assets (STDTA), and the profitability of hydropower companies in Nepal. A causal comparative research design was utilized to examine the capital structure of four hydropower companies. The study employed Pearson's correlation test to analyze the data. The correlation results revealed that return on assets (ROA) had a significant negative relationship with the company's debt to equity ratio. However, no significant correlation was found between STDTA, asset tangibility (AT), and the dependent variable of profitability. Furthermore, regression analysis was conducted to assess the impact of the independent variables on the dependent variable, return on equity (ROE). The regression coefficients showed that the debt-to-equity ratio had a negative impact on ROE, although it was not statistically significant. On the other hand, STDTA had a positive and significant effect on ROE, indicating that an increase in short-term debt relative to total assets led to higher profitability. Asset tangibility (AT) had a negative and significant impact on ROE, suggesting that a higher proportion of tangible assets was associated with lower profitability.

In summary, the study found that the debt-to-equity ratio, short-term debt to total assets, and asset tangibility were related to the profitability of hydropower companies in Nepal. The debt-to-equity ratio had a negative relationship with return on assets and return on equity, while short-term debt to total assets and asset tangibility had mixed effects on return on equity. These findings provide insights into the capital structure and profitability dynamics of hydropower companies in the Nepalese context.

5.2 Conclusion

In conclusion, this research project, conducted as part of a Master's in Business Studies (MBS) degree, aimed to investigate the relationship between asset tangibility, debt to equity ratio (DER), short-term debt to total assets (STDTA), and the profitability of hydropower companies in Nepal. The study utilized a causal comparative research design and employed correlation and regression analyses to examine the capital structure and its

impact on profitability. The findings of the study suggest that the debt to equity ratio exhibited a negative relationship with both return on assets (ROA) and return on equity (ROE), although the relationship was not statistically significant. This indicates that a higher proportion of debt relative to equity may negatively affect the profitability of hydropower companies.

On the other hand, the analysis revealed a significant positive relationship between STDTA and ROE. This implies that an increase in short-term debt relative to total assets led to higher profitability for the hydropower companies under investigation. This finding highlights the importance of managing short-term debt levels and utilizing these funds effectively to enhance profitability. Additionally, the study found a significant negative relationship between asset tangibility (AT) and ROE. This suggests that a higher proportion of tangible assets was associated with lower profitability. It is important for hydropower companies to carefully consider the composition of their asset base and evaluate the impact of tangible assets on profitability.

Overall, this research project contributes to the understanding of the capital structure and profitability dynamics within the hydropower sector in Nepal. The findings provide valuable insights for managers and policymakers in making informed decisions regarding capital structure management and optimizing profitability in the context of hydropower companies. As a Master's in Business Studies degree research project, this study showcases the ability of the researcher to apply research methods, conduct statistical analyses, and draw meaningful conclusions in the field of finance and corporate performance evaluation. The project demonstrates the researcher's competence in conducting empirical research and contributes to the existing body of knowledge in the area of hydropower company profitability and capital structure management.

5.3 Implications

The findings of this research project have several implications for hydropower companies in Nepal and relevant stakeholders:

1) Capital Structure Management: The study highlights the importance of carefully managing the debt to equity ratio for hydropower companies. Although the relationship was not statistically significant, the negative association between debt to equity ratio and profitability suggests that companies should strive for a balanced capital structure to maximize their profitability.

2) Short-term Debt Management: The significant positive relationship between short-term debt to total assets and profitability implies that hydropower companies can leverage short-term debt effectively to enhance their profitability. However, it is crucial for companies to prudently manage their short-term debt levels to avoid excessive financial risk.
3) Asset Composition: The negative relationship between asset tangibility and profitability emphasizes the need for hydropower companies to evaluate their asset base composition. Companies should consider optimizing the mix of tangible and intangible assets to achieve a higher level of profitability.
4) Financial Decision-making: The research findings can guide financial decision-making processes for hydropower companies. Managers can utilize the insights gained from this study to make informed decisions regarding capital structure adjustments, debt financing, and asset allocation strategies.
5) Policy Implications: The findings have implications for policymakers and regulatory authorities in the hydropower sector. Policymakers can consider the importance of capital structure management and encourage companies to maintain an optimal debt to equity ratio. They can also implement regulations and guidelines that promote prudent short-term debt management and asset allocation practices.

Future Research Direction: This research project opens avenues for further investigation in the field of hydropower company profitability. Future research can delve deeper into the factors influencing capital structure decisions and profitability in the context of the hydropower industry. Additionally, exploring the impact of other variables, such as firm market conditions, and operational efficiency, on profitability can provide a more comprehensive understanding of the sector.

Overall, the implications of this research contribute to enhancing the financial decision-making process, guiding policymakers, and expanding the knowledge base of the hydropower industry in Nepal. By considering these implications, stakeholders can make informed decisions to optimize capital structure and improve the profitability of hydropower companies.

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APPENDICES

1. Data

HydroCompany	FY	ROE	ROA	DE	STDTA	AT
BPCL	2016/2017	15.21	12.44	0.22	0.05	0.92
	2017/2018	10.79	9.14	0.18	0.04	0.70
	2018/2019	11.02	9.56	0.15	0.03	0.88
	2019/2020	10.40	9.30	0.12	0.03	0.83
	2020/2021	7.16	6.53	0.10	0.03	0.75
API	2016/2017	6.58	3.07	1.15	0.07	0.91
	2017/2018	4.83	1.78	1.72	0.15	0.96
	2018/2019	5.61	2.08	1.70	0.12	0.97
	2019/2020	7.91	3.06	1.59	0.13	0.96
	2020/2021	4.58	2.12	1.16	0.03	0.74
CHCL	2016/2017	10.63	5.17	1.05	0.03	0.72
	2017/2018	10.27	3.93	1.61	0.03	0.74
	2018/2019	8.27	2.71	2.05	0.04	0.78
	2019/2020	7.02	2.00	2.51	0.05	0.87
	2020/2021	5.93	1.66	2.57	0.06	1.00
BARUN	2016/2017	25.79	10.50	1.46	0.21	0.82
	2017/2018	4.41	1.97	1.23	0.06	0.83
	2018/2019	-0.88	-0.41	1.12	0.07	0.87
	2019/2020	2.34	1.19	0.97	0.04	0.89
	2020/2021	0.82	0.49	0.67	0.04	1.00

2. Regression Result from SPSS 26

ROE and Dependent Factors

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.653[a]	.426	.318	4.69406755828 5163

a. Predictors: (Constant), AT , D/E , STDTA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	261.628	3	87.209	3.958	.027[b]
	Residual	352.548	16	22.034		
	Total	614.176	19			

a. Dependent Variable: ROE

b. Predictors: (Constant), AT , D/E , STDTA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	29.591	9.946		2.975	.009
	D/E	-1.622	1.528	-.218	-1.062	.304
	STDTA	75.127	24.553	.652	3.060	.007
	AT	-28.679	12.269	-.487	-2.337	.033

a. Dependent Variable: ROE

ROA and Dependent Factors

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692[a]	.479	.382	2.976062285155955

a. Predictors: (Constant), AT , D/E , STDTA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	130.465	3	43.488	4.910	.013[b]
	Residual	141.711	16	8.857		
	Total	272.176	19			

a. Dependent Variable: ROA(%)

b. Predictors: (Constant), AT , D/E , STDTA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	15.560	6.306		2.467	.025
	D/E	-3.188	.969	-.642	-3.292	.005
	STDTA	27.616	15.567	.360	1.774	.095
	AT	-10.730	7.779	-.274	-1.379	.187

a. Dependent Variable: ROA(%)

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ABSTRACT This research purpose is to examine the relationship between asset tangibility, debt to equity ratio (DER), short-term debt to total assets (STDTA), and the profitability of hydropower companies in Nepal. The study utilizes a causal comparative research design and employs correlation and regression analyses to explore the capital structure and its impact on profitability. The findings reveal that the debt-to-equity ratio exhibits a negative but statistically significant relationship with return on assets (ROA). However, there is a significant positive association between STDTA and ROE, indicating that an increase in short-term debt relative to total assets leads to higher profitability for hydropower companies. Furthermore, the analysis demonstrates a significant negative relationship between asset tangibility (AT) and ROE, suggesting that a higher