

# **CHAPTER-I**

## **INTRODUCTION**

### **1.1. Background of the Study**

The capital structure refers to the proportion of debt and equity capital. This has an important place in the theory of financial management. The financing decision of a firm relates to the choice of proportion of debt and equity to finance the investment requirement of which a proper balance is necessary to ensure a trade off between risk and return to the shareholder. An optimal capital structure, which consists of reasonable proportion of debt and equity, can help to maximize the value and ultimately the shareholders wealth.

In Nepal, some companies do not plan capital structure and it develops of the financial decisions taken by the financial manager without any formal planning. Those companies may prosper in the short-run, but ultimately they will face great difficulties in raising funds to finance their activities. The unplanned capital structure of the companies will also fail to economize the use of their funds. Thus, it is being increasingly realized that a company should plan its appropriate capital structure to maximize the use of funds and be able to adapt more easily to changing conditions.

Composition of capital structure is one of the most important components of solvency analysis. Capital structure refers to a company's sources of financing and its economic attributes. Capital structure is usually measured in terms of the relative magnitude of the various financing sources. A company's financing stability and risk of insolvency depend on its financing sources and the types and sizes of various assets its own. Common size and ratio analysis of capital structure are preliminary measures of the risk of the company's capital structure. The higher the proportion of debt, the larger the fixed charges of interest and debt repayment and the greater the likelihood of insolvency during period of earnings decline or hardship. Capital structure measures serve as screening devices (Bernstein and Wild, 1997:58). This study is directed towards analyzing the effect of capital structure on the value of the firm in the context of Nepalese manufacturing.

The research is concerned with the study of capital structure management of some selected manufacturing companies. To describe the capital structure of any firm the long-term source of funds is necessarily used. Well financial performance depends on optimal capital structure. The term capital refers to the long-term funds like debt equity. The capital mix, which leads to the maximum value and minimum cost of capital, is optimal capital structure, which can be obtained by changing the financing mix.

## **1.2. Meaning of Manufacturing Industries**

Industry can be defined as “Productive enterprises specially manufacturing or certain service enterprises such as transport and communication which require relatively large amount of capital and labor. The term is often used in a collective sense referring for example to the productive activities of the entire country or other area. It is also identifying a special industry. The Phrase “Commerce and industry being used if reference is made both to industry as defined above and to buying and selling”

Industrialization is one of the most important tools of the less developed countries, by which the tempo of economic development can be speeded up. “Industrialization is a process of economic development in which a growing part of the national resources mobilized to develop a technically up-to-date diversified, domestic economic structure characterized by dynamic manufacturing consumer goods and capable of assuring a high rate of growth for the economy as a whole and achieving economic and social process.

For underdeveloped countries, industrialization has been a magic word of the mid twentieth century, which opens a new Horizon in the process of economic development. So perhaps political thinkers said, “Real progress must ultimately depend on Industrialization” Today it is being recognized that industrialization is the answer to the problem of agro-based underdeveloped countries. In modern age of technology, only the agriculture sector cannot speed up a nation’s economic progress. Even the agricultural development cannot proceed further without a corresponding rate of industrialization because it is industry, which provides all the scientific tools to agricultural sector. Realizing the fact our late king Mahendra Shah Dev stressed that it is the key to progress and there can be no development of society without

industrialization. Industrial developed helps to fulfill the large gap between developed and undeveloped countries. Industrialization offers substantial dynamic benefits to a developing economy and also removes the problem of disguised employment exist in agricultural sector for a rapidly increasing labor force. Again, in underdeveloped country like Nepal, as the process of industrialization can run faster and faster, the private entrepreneurs and new innovators will increase in the economy which will help as an effective means of stimulating indigenous scattered property to give fruitful result.

In underdeveloped country like Nepal, there have been various problem of economic development such as compulsion of exporting raw materials and import of foreign product. Liberalization from such problems can be attained from industrialization, which will push up economy towards prosperity. Again, increased industry decreases population dependent on agricultural sector, and gradually it creates a base of industrial infrastructure for economic development. So, industrialization has a significant role in the economic development of both developed and developing countries. Clamors for industrialization is notable in all countries of the region when the intellectually elite say their countries underdeveloped they mean in the first instant, that they have too little industry.

Thus it is necessary to develop industry especially in underdeveloped country because there is a scope of internal and external economic being higher and it would help creating economic surplus for future investment. Industrialization can substitute the meaning of economic development. Thus it is industrialization which finally made them developed and underdeveloped.

It is clear from the fact that some Asiatic regions, Japan, Russia and America, Canada have been flourishing their economy only because of their industrial development. Japanese experience in industry also shows that industry can occupy in important place in a modern economy. Perhaps China ease governments have been introduced “A big leap” in their economy and she has chosen to play important role in our countries industrialization.

Thus the goal of industrialization in Nepal is to stimulate the establishment of industry to give reshape of economic and thereby to improve Nepalese living standards.

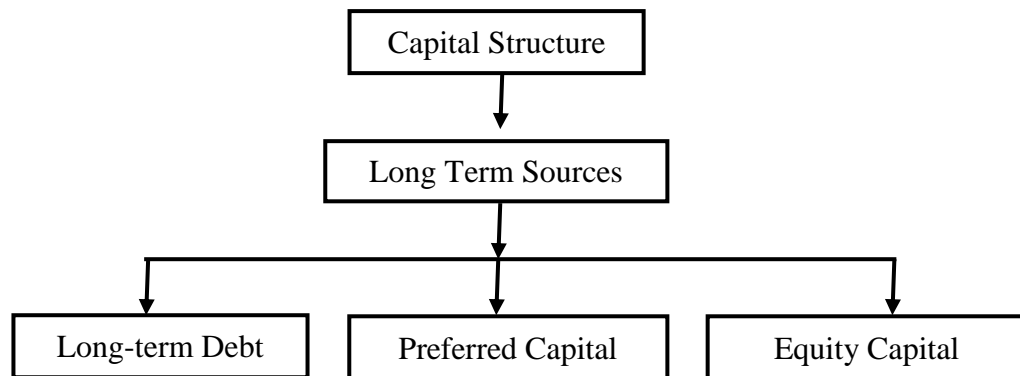
Manufacturing sector refers to all the business activities involved in fabricating assembling the component into finished products on a fairly large scale, or the activities of making things by industrial process. It is the key sectors of all types of economy. But the contribution of manufacturing sector in gross domestic product has been decreasing from the recent past in the world. The same is true for Nepal too. In Nepal industrial development and commercial activity in the country as result in 1936 Biratnagar Jute Mill was seen as the first modern industry of Nepal. At present, there are 3557 manufacturing concerns in Nepal but only 29 have fulfilled the criteria of the Nepal Stock Exchange (NEPSE). So they are listed under NEPSE. The manufacturing sector in Nepal is very small and its contribution to Gross Domestic Product (GDP) is only 9 per cent. It is declining in recent years.

Nepalese manufacturing companies are not performing well. Many large, companies have been closed and some are about to close. Almost companies are able to earn profit but the margin of the profit is low. Out of 29 listed companies, only 11 are operating in profit and remaining are going throughout the losses. Thus due to the several reasons Nepalese manufacturing sector has not been succeed to earn profit. Financial manager of manufacturing companies of Nepal must consider the capital structure.

The word “Capital Structure” refers to the combination of long-term sources of fund such as debentures, long-term debt, preference share capital, and equity share capital including reserves and surplus i.e. retained earnings. Capital structure represents the relationship among different kind of long-term sources of capital and their amount. Normally, a firm raises long-term capital through the issue of common shares and sometimes it is accompanied by preference shares capital. The share capital is often supplemented by debt securities and other long term borrowed capital. In some cases, the firm accepts deposits. In a going concern retained earnings or surpluses too form a part of capital structure.

Except for the common shares, different kinds of external financing i.e. preference shares as well as the borrowed capital carry fixed return to the investor.

## Flow Chart of Capital Structure



A firm fulfills its financial needs using different sources of financing. These sources of financing may be short term and long term. Short-term sources of financing mature within one year or less where as fund raised from long-term sources of financing can be used for several years. When a firm expands its business or activity, it needs capital. The term capital denotes the long term fund of the firm. Excluding current liabilities, all the items on the liabilities side of the firm's balance sheet are the sources of capital.

The total capital can be divided into two components i.e. debt capital and equity capital. Equity capital provides the ownership of the firm to the shareholder whereas debt capital includes all the long term borrowing incurred by the firm. Debentures, bonds, long-term debts etc are the major sources of debt or borrowed capital. A firm employs substantial amount of debt capital because of tax deductibility of interest payment, flexibility and lower effective cost. However excess amount of debt exposes high risk.

Thus the term capital structure refers to the proportion of debt and equity capital, which has an important place in the theory of financial management. The financial decision of the firms relates to the choice of proportion of debt and equity to finance the investment required of which the proper balance is necessary to ensure a tradeoff between risk and return to the shareholder.

### **1.3. An Overview of the Manufacturing Companies**

#### **1.3.1 Unilever Nepal Limited**

UniLever Nepal Limited (UNL) was formed as a subsidiary company of Hindustan Lever Limited, India. The factory is situated at Basamadi Village Development Committee (VDC) of Makawanpur district, which is about six kilometers far from Hetauda municipality, and its Corporate Office is situated at Heritage plaza II, Kamaladi, Kathmandu. Unilever Nepal Ltd was established in 1994 as a joint venture company between Hindustan Lever Limited, India and Nepali Promoters under the Company Act 2021. It is the subsidiary company of foreign investment and technology transformation. A notice was issued dated on 18 Feb 2005 (07 Falgun 2061 BS) in the Kathmandu Post to inform all concerned about the change in the name of the company from Nepal Lever Limited, to Unilever Nepal Limited as per the approved decision taken by eleventh Annual General Meeting (AGM) held on 13 Dec 2004 (28 Mangsir 2061 BS) under the special resolution. The change in name has been approved by the company registrar office/Government of Nepal (GoN) with effect from 9 Feb 2005 (27 Magh 2061 BS) binding Unilever Nepal Limited to bear assumes all the tax and other payable liabilities towards all the movable and immovable assets existing in the company's former name. The main objectives of the company is to manufacture soaps, detergent, cosmetics, toiletries, oleaginous, detergent, and other chemical products and marketed them in and outside the country under the brand name of the products of Hindustan Lever Limited.

The company has authorized share capital of Rs.300 million and paid up value per share is Rs.100. It has issued capital and paid up capital is Rs.92.07 million.

#### **1.3.2. Bottlers Nepal Limited**

Bottlers Nepal Limited was established as a private limited company under the company Act 1964 in 1973 AD. It was converted to public limited company in 1984 AD. It is one of the manufacturing and processing companies, which are manufacturing soft drinks, under the brand name coca-cola company. The company also makes the sales of the soft drinks under the registered trade name of Coca Cola Company. Its registered office is located at Balaju, Kathmandu. The company has

established a subsidiary company, Bottlers Nepal (Terai) limited in Chitwan District. The main objective of the company is to produce and to market soft drinks under the brand name of Coke, Fanta and Sprite etc in the country. Raw materials for the production are imported from France and Atlanta. Flavour of the coke is prepared by the company secretly and is sold without disclosure. These are brought from countries like Singapore, India and Germany. It has production capacity of 430 bottlers per minute.

The company has authorized share capital of Rs.500 million and paid up value per share is Rs.100. It has issued capital of Rs370 million and paid up capital is Rs.194.889 million.

#### **1.4. Statement of the Problem**

Generally, every company has its own policy in determining capital structure for operating business activities. Some of the business use only equity capital some use only debt capital and some combine both equity and debt capital. Therefore, determination of the capital structure largely depends upon the company policy on cost of capital. Most of the companies make low cost capital structure.

As underdeveloped country, Nepal has many manufacturing companies established and yet few are running and majority closed down. There is no doubt that they need to seek for long term profits and be transparent in their strategy, policy and management so as to contribute more to country's GDP.

This research attempts to have the answer of following question:

- a) How are the companies managing their financing needs?
- b) Are they having optimal capital structure management?
- c) What is the quality of financial management good in manufacturing companies?
- d) Does the relationship between cost of capital and return on capital affect the capital structure management?

## **1.5. Objective of the Study**

The main objective of this study is to analyze, evaluate and interpret the capital structure employed by the selected manufacturing company. The specific objectives of the study are pointed out as under:

- a) To examine the capital structure of selected companies.
- b) To assess the debt servicing capacity of the selected companies.
- c) To analyze cost of capital and return on capital in relation to the capital employed.
- d) To analyze the relationship between capital structure and cost of capital in selected Nepalese manufacturing companies.

## **1.6. Significance of the Study**

Since capital structure is essential indicator of company's financial decision making, it is to a large extent a determinant of company's profitability. Thus the analysis of selected company's capital structure through this study leads to shed light on their financial performances. This gives an overview of status of manufacturing companies of Nepal and the linkage between successful operations and capital structure. In addition to this, the study helps to provide a glimpse of manufacturing company in Nepal and their historical trends.

## **1.7. Limitations of the Study**

The limitations of the study are stated as follows.

- a) This study carried on the basis of secondary data therefore; reliability of conclusion of the study is based on the accuracy of secondary data.
- b) The research is focused as a sample only two manufacturing companies
- c) This consistency of the result is strictly based on the information provided to us by the companies.
- d) The main purpose of the study is to fulfil the partial requirement of MBS thesis.
- e) The study covers only the latest seven fiscal years.

## **1.8. Organization of the Study**

This study report contains the following five main chapters and necessary sub chapters as per Tribhuvan University's prescribed specimen of master thesis.

### **Chapter I: Introduction**

This chapter contains general background, statement of the problem, objectives, significance, limitation of the study and organization of the study.

### **Chapter II: Literature Review**

This chapter covers the review of previous studies, works related to this study.

### **Chapter III: Research Methodology**

This chapter describes the research methodologies including the research design, nature and source of data selection, collection of data, method of analysis, statistical tools used for the study.

### **Chapter IV: Presentation and Analysis of Data**

This chapter deals with the presentation and analysis of data. It contains the analysis of capital structure of these two manufacturing company in Nepal.

### **Chapter V: Summary, Findings and Recommendations**

The last chapter of the study covers the summary and conclusion of the study and also present with the major findings and their comparison with theory and other empirical evidence to the extent possible and suggestions for further study on this area.

At the last part of the study, a bibliography has been included.

## **CHAPTER - II**

### **REVIEW OF LITERATURE**

This chapter covers the review of literature. Review of literature means reviewing research studies of other relevant proposition in the related area of the study so that all the past studies, their conclusion and deficiencies may be known and further search can be conducted.

It will be known about the capital structure management as a brief to find out previous condition of the manufacturing company, which gives the proper equipments to forecast the future of the manufacturing companies. So, the review of literature is the most necessary chapter.

For the study of capital structure management of manufacturing companies of Unilever Nepal Limited and Bottlers Nepal Limited previous investigation from mater's students have been consulted which dissertation are presented by various researcher about the capital structure management.

#### **2.1 Conceptual Framework**

Capital structure is the permanent financing of the firm represented preliminary by long term debt, preferred stock and common equity, but excluding all the short term credit. The capital structure is the combination of the long term debt and equity; it is a part of financial structure, comprised of total combination of preferred stock, common stock and long term debt and current liabilities. If current liabilities are removed from it we get capital structure.

The capital structure involves long term loan financing decision or choice between debt and equity capital. Selection of appropriate mix of debt and equity tends to minimize cost of capital and maximize and value of firm or shareholders wealth. The cost of capital and value of the firm varies with changes in capital structure. The cost of capital and capital structure are interrelated and has a joint impact upon the value of the firm.

Capital structure refers to the combination of long term sources of funds, such as debentures, long term debt, preference share capital and equity share capital including reserves and surpluses. Capital structure represents the relationship among different kinds of long term sources of capital and their amount. Normally, a firm raises long term capital through the issue of common shares sometimes accompanied by preference shares. The share capital is often supplemented by debt securities and other long-term borrowed capital. In some cases, the firm accepts deposits. In going concern, retained earnings or surplus to form a part of capital structure. Except for the common shares, different kinds of external financing i.e. preference as well as borrowed capital carry fixed return to the investors.

Capital structure is made up of debt and equity securities which comprise a firm's finance of its assets. It is the permanent financing of the firm represented by long term debt plus preferred stock plus net worth. Capital structure decision is one of the most important decisions that are taken by financial manager. Once the financial manager is able to determine the best combination of debt and equity, he or she must raise the appropriate amount through best available sources.

### **2.1.1 Optimal Capital Structure**

The optimal capital structure is the structure or the combination of debt and equity that maximizes the price of the firm's stock. Optimum capital structure minimizes the company's cost of capital. The value will be maximized and the cost will be minimum when the margined cost of each source of the funds is same. The optimal capital structure is combination of debt, preferred stock and common equity at which the weighted average cost of capital optimal. Optimal capital structure is defined as that combination of debt and equity where the value of the firm is maximized.

The optimal capital structure may be defined as the relationship of debt and equity securities that maximizes the value of firm's equity stock. There should be balance between risk and return borne by equity shareholders. The objectives of optimal capital structure are as follows.

- a) To maximize return on equity capital.
- b) To minimize cost of capital.
- c) To maintain control power.

- d) To increase flexibility.
- e) To employ high-grade securities.

### **2.1.2 Financial Structure and Capital Structure**

Financial structure refers to the composition of sources and amount of funds collected to use or invest in business. The various means used to raise funds represent the financial structure of an enterprise. The financial structure of an enterprise is shown by the left hand side (liabilities plus equity) of the balance sheet. Traditionally short term borrowing are excluded from the list of methods of financing the firm's capital budgeting decisions and therefore the long – term claims are said to represent the proportionate relationship between debt and equity. Equity includes paid up share premium and reserves and surplus- retained earnings (Pandey, 1994: 529). Financial structure is different form capital structure as capital structure includes only the long-term sources of financing while financial structure includes both long-term and short-term sources of financing.

### **2.1.3 Factors Affecting Capital Structure**

After the overview of the capital structure management, we can point out the following factors, which affect the capital structure of any organization. Following factors should be taken into consideration while designing the optimal capital structure.

#### **a) Growth and Stability of Sales**

Firms that are growing rapidly generally need larger amount of external capital. The floatation costs associated with debt are generally less than those for common stock, so rapidly growing firms tend to use more debt. At the same time, however, rapidly growing firms often face greater uncertainty which tends to reduce their willingness to use debt. Firms whose sales are relatively stable can use more debt and incur higher fixed charges than a company with unstable sales.

**b) Competitive Structure/Stability of Profit Margin**

Firms with high rate of return on investment use relatively little debt. Their high rate of return enables them to do most of their financing with retained earnings. If profit margin is constant more debt is used.

**c) Cash Flow Ability**

The selection of capital structure is also influenced by the capacity of the business to generate cash inflows, stability, and certainty of such inflows. Regularity of cash inflows is much more important than the average cash inflows. A company with unstable and unpredictable cash inflows can no longer afford to depend on debts.

**d) Cost of Capital**

If the cost of capital is too high, borrowing is costly. So at that situation equity capital is preferable. As compared with other securities, the equity shares are more economical because they have least cost of capital. In the processing of trading, no more floatation costs, brokerage costs etc are incurred.

**e) Control**

The consideration of retaining "Control" is also very important. The ordinary shareholder can elect the directors of the company. If company sells the common stock, it will bring new voting investors into the firm, making the control difficult. To maintain control within the hand of limited members, a firm has to use more amount of debt or preferred stock because they have no management and voting right. If the firm wants to more equity shares the management right will be diversified.

**f) Marketability or Lender's Attitude**

The term 'Marketability' refers to the readiness of investors to purchase a security in a given period of time. The capital markets keep changing continuously. The capital structure will have to be customized to the attitudes of investors prevailing at the time of issue of capital. If investors demand preference shares, firm must have issue of preference share capital. Due to the changing market sentiments, the company has to decide whether to raise funds with a common shares issue or with a debt issue.

**g) Size of the Company**

The availability of funds is greatly influenced by the size of the enterprises. A small company finds it difficult to raise debt capital. The terms of debentures are less favourable to small companies so they have to rely on equity share and retain earning for funding business. Large companies are generally considered to be less risky by the investors and, thus, they can issue common shares, preference shares and debentures to the public.

**h) Floatation Cost**

Floatation costs take place only when the funds are externally raised. Floatation costs consist of some or all of the following expenses; printing of prospectus, advertisement, underwriting and brokerage etc. Generally, the cost of floating a debt is less than the cost of floating an equity issue. This may lure the company to issue debt than common shares. The company will save in terms of floatation cost if it raises funds through large issue of securities but the company should raise only that much of funds which can be employed profitably. In large companies floatation cost is not a significant consideration.

**i) Development of Capital Market**

It's an important factor in capital structure. It refers to extend which the capital market is developed i.e. Equity or debt market. More developed equity market means more equity used and less developed equity means less equity used. Similarly, more developed debt market means more debt used and vice versa.

**j) Growth Opportunities**

The growth opportunities of business can be either tremendous or very low. Depending upon the growth opportunities the debt ratio fluctuates. Higher growth opportunities exist then higher debt is used otherwise vice versa.

**k) Agency Costs**

While determining capital structure, having least agency cost is preferred but if there is agency problem than debt is used largely for funding the business.

#### **l) Other Sources of Tax Shield**

In order to take the advantage of low tax, borrowing is preferable for a firm because interest is considered as deductible expenditure according to the income tax law. But dividends are not considered deductible expenses and they are paid out of profits after tax.

#### **m) Level of Economic Development**

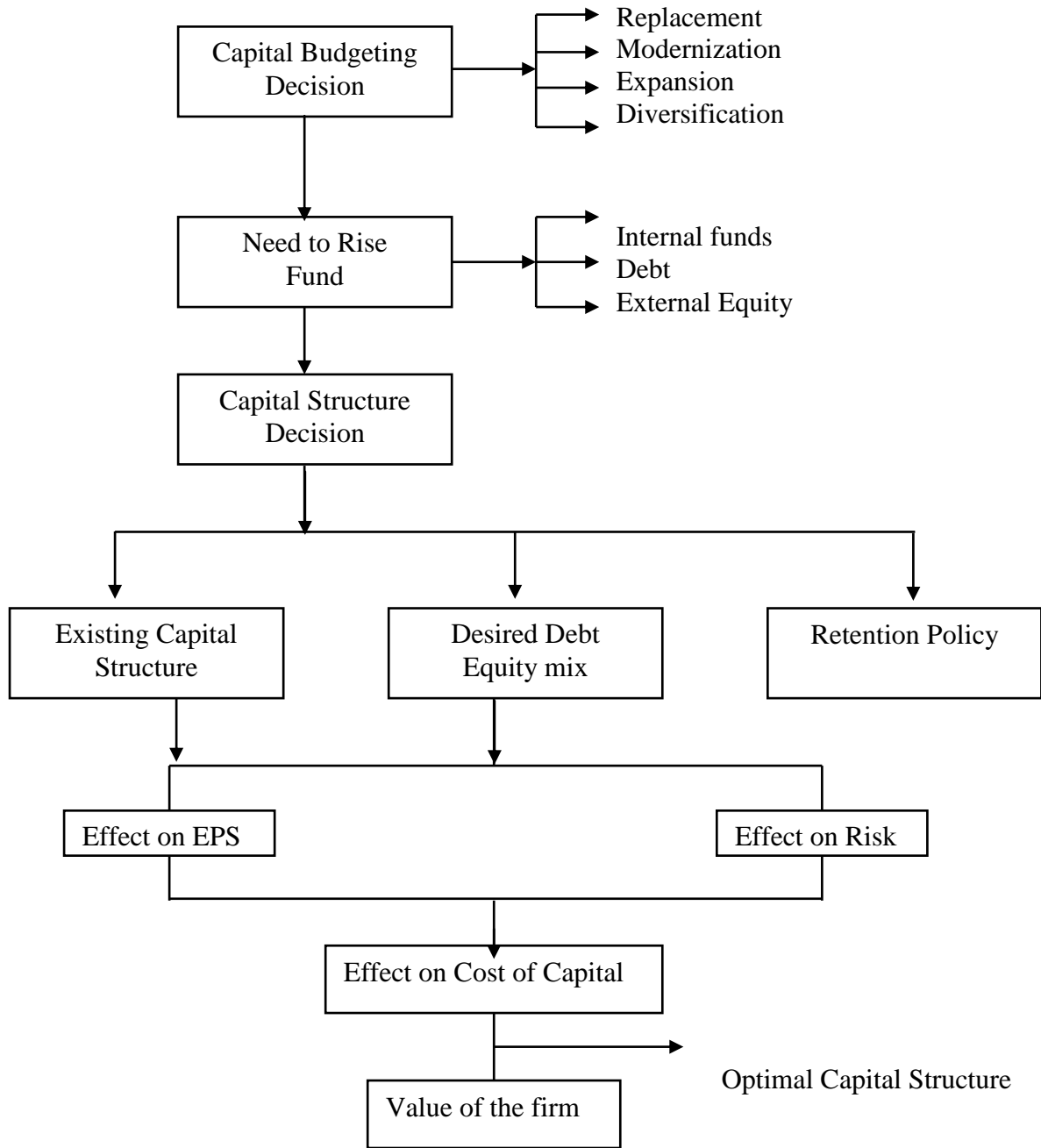
If the level of economic development is high then more debt is required. Level of economic development plays significant role in capital structure. In Nepal investors are shifting to India. Since India is becoming economic giant, Nepali investors are also investing in Indian organization.

### **2.1.4 The Capital Structure Decision**

Capital is a scarce resources and much more essential to maintain smooth operation of any firm. The available capital and financial resources should be utilized so efficiently that it could generate maximum return.

Capital structure is considered as that mix of debt and equity and to operate in long run prospect. A firm must concentrate in its proportion. A firm can raise required fund by issuing various types of financial instrument. Investors and creditors being the key suppliers of capital, they hold greater degree of risk and hence have claims over firm's assets and cash flow.

Capital structure decision can be identified into existing capital structure, desired debt equity mix and payout policy out of which existing capital structure and desired debt equity mix will directly effects on risk and return in the firm and also effects on cost of capital. Capital structure decision ultimately increases the value of the firm if the decision on the management of the capital is maintained properly and gives result to the optimum capital structure.



**Figure 2.1 Capital budgeting decision (Sources: Pandey; 1992: 204)**

In the above chart, the main objective of the firm is to maximize the value of the firm with limited optimum capital structure. For capital budgeting decision funds need for the replacement of the capital, modernization of the capital, expansion of the capital and diversification of the capital. Once the capital decision is made the firm needs to raise funds either from the internal funds, debts or from external equity from which capital structure decision is made.

Either fund is raised by debt or equity financing risk is associated in proportion of its uncertainty is being paid off. The required rate of return expected by investors according to their risk is cost of capital. Therefore a firm should try to obtain necessary fund at lower cost. This cost of capital is fully dependent upon the proportion of debt and equity i.e. financial leverage, which is actually the capital structure used by the firm.

The capital structure decision affects the overall cost of capital, total value of the firm and earnings per share. Therefore it should be well planned. It aims to maximize value of firm and earnings per share by minimizing cost of capital without effecting operating earnings of the firm.

There are four dimensional lists when thinking about the capital structure decision:

**a) Taxes**

If the company is the taxpaying and increase in leverage reduces the income tax paid by the company and increase the tax paid by the investor. If the company has large accumulated loss, as increase in leverage cannot reduce corporate tax but does increase personal taxes.

**b) Bankruptcy Cost**

With presence of bankruptcy cost, financial distress is costly other things equal, distress is more likely for the firms generally issue less debt.

**c) Assets Type**

The cost of distress is likely to be greater for firms whose value depends on growth opportunity of intangible assets. These firms are more likely to go for profitable opportunities and default occurs, their asset may erode rapidly. Hence, firms whose assets are weighted forward intangible assets should borrow significantly less on average their firms holding assets you can kick.

#### **d) Financial Slack**

In the long operating decision than on financing therefore, you want to make sure your firm was in sufficient financial slacks, so that financing is quickly accessible when good investment opportunities arises. Financial slack is most valuable firm that has able positive NPV growth opportunity. That is another reason why growth companies usually aspire to conservative capital structure.

### **2.1.5 Capital Structure Theory**

The theory of capital structure is closely related to the firm's cost of capital. Many debates over whether an optimal capital structure exists are found in the financial literature. Argument between those who believe there is an optimal capital structure for each firm and among those who believe in the absence of such optimal capital structure began in late 1950's and there is yet no resolution of the conflict. Modigliani and Miller logically admitted that the value of the firm or the cost of capital is independent of capital structure decision of the firm. On the other hand, according to the traditionalist's view, the value of the firm or the cost of capital is affected by the capital structure change. So, in order to understand how firms should adhere the target capital structure decision, it is important to have some idea of major elements of capital structure theory.

The history presents several theories on capital structure management. In order to analyze the capital structure of any company four theories are considered.

These theories are:

- Net income (NI) approach.
- Net operating income (NOI) approach.
- Traditional approach; and
- Modigliani-Miller (M-M) theory
- Without tax
- With tax

### **Common Assumptions of Capital Structure Theory:**

- There are only two sources of funds used by a firm: Perpetual risk less debt and ordinary shares.
- There are no corporate taxes or personal income taxes and no bankruptcy costs. This assumption is removed later.
- The dividend-payout ratio is 100%. That means that the total earning is paid out as dividend to the shareholders and there are no retained earnings.
- The firm's total assets are given and do not change. The investment decisions are, in other words, assumed to be constant.
- The firm's total financing remains constant. The firm can change its degree of leverage (capital structure either by selling shares and use the proceeds to retire debentures or by raising more debt and reduce the equity capital.
- The operating profits (EBIT) are not expected to grow.
- All investors are assumed to have the same subjective probability distribution of the future expected EBIT for a given firm.
- The firm's business risk is constant over time and is assumed to be independent of its capital structure and financial risk.
- Perpetual life of the firm.

In the theoretical analysis of capital structure one shall use the following symbol

B = Total market value of debt

S = Total market value of stock

V = Total market value of firm (B+S)

$K_e$  = Equity capitalization rate

$K_d$  = Cost of debt/Yield on the debt

$K_o$  = Overall capitalization rate

I = Total amount of annual interest

EBIT= Earnings before interest & taxes

- a.  $K_d = I/B$  (where  $K_d$  is the yield on the company's debt, assuming this debt to be perpetual, I=Interest & B=debt.

b. Cost of equity =  $\frac{\text{EBIT} - I}{S}$  or  $\frac{\text{NOI} - I}{S}$

The earning/price ration is the required rate of returns for the investors in the firm whose earnings are no expected to grow and whose dividend payout ratio is 100 percent.

c. Overall cost of capital i.e.  $K_o = \text{NOI}/V$  (Where  $V = B + S$ , overall capitalization rate is defined as the weighted average cost of capital)

Or,

$$K_o = K_d (B/V) + K_e (S/V)$$

d. Value of the firm i.e.  $V = B + S$

#### 2.1.5.1 Net Income (Ni) Approach

Net Income Approaches focuses the increase in total valuation of the firm through the reduction in the cost of capital leading to an increase in the cost of capital leading to an increase in the degree of leverage. It is also known as dependent hypothesis of capital structure. The essence of this approach is that the firm can reduce its cost of capital by using debt. “The approach is based on the crucial assumption that the use of debt does not change the risk perception of the investors. Consequently, the interest rate on debt ( $K_d$ ) and the equity capitalization rate ( $K_e$ ) remains constant to debt (I.M Pandey; 1992: 47).

The emphasis is on EBIT is measure how the degree of leverage brings change in valuation of the firm. Assuming a constant equity capitalization rate, the increase in cheaper debt funds lowers the weighted average cost of capital and there by rising the value of the firm and the increasing in debt may not increasingly risky.

The crucial assumptions of NI approach are:

- The use of debt does not change the perception of investors, as a result, the equity-capitalization rate,  $K_e$  and the debt-capitalization rate;  $K_d$  remains constant with change in leverages.
- The debt capitalization rate is less that the equity capitalization rate (i. e.  $K_d < K_e$ ).
- The corporate income taxes do not exist.

- As the firm increasing its leverage by increasing its level of debt relative to equity, the overall cost of capital declines. The important of this levered overall cost of capital is that it increases the value of the firm.

Overall cost of capital can be expressed by following formula.

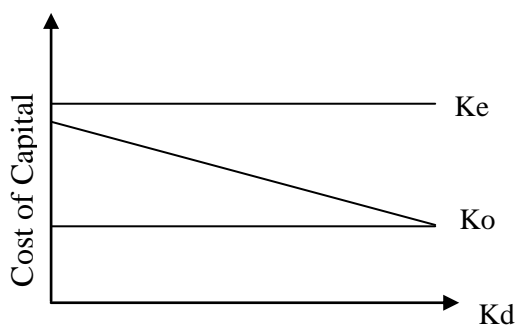
$$\text{Overall cost of capital (K}_o\text{)} = \frac{\text{Net Operating Income}}{\text{Total value of the firm}}$$

$$\text{Or, } \frac{\text{EBIT}}{\text{V}}$$

Another formula for 'K<sub>o</sub>' is:  $K_o = K_e - (K_e - K_d)B/V$

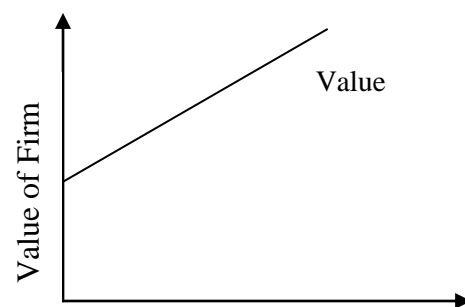
As per assumptions of NI approach, K<sub>e</sub> and K<sub>d</sub> are constant and K<sub>d</sub> is less than K<sub>e</sub>. Therefore, K<sub>o</sub> will decrease as B/V increases. Also, 'K<sub>e</sub>'=K<sub>o</sub> when B/V=0.

This approach is graphically shown in the following figure:



Financial Leverage

(100% Equity D/E ratio 100% Debt)



Financial Leverage

(100% Equity D/E ratio 100% Debt)

**Figure 2.2 NI approach (Cost)**

**Figure 2.3 NI approach (Value)**

From the above figure, it is clear that the cost of debt 'K<sub>d</sub>' and cost of equity 'K<sub>e</sub>' are constant but the overall cost of capital "K<sub>o</sub>" is declining. So, under the NI approach the cost of capital will decline and value of the firm will increase with leverage. The optimal structure would occur at the point where the value of the firm is maximized and overall cost of capital is minimum. That will have the maximum value at the lowest cost of capital since it is all debt financed or has as much as debt as possible. If

the firm is unlevered the overall cost of capital will be just equal to the equity capitalization rate. (i.e.  $K_o=K_e$ ).

**Table 2.1 Overall Capitalization Rate by Net Income (NI) Approach**

'O'	Net Operating Income	.....
'F'	Total Interest ( $K_d \cdot B$ )	.....
'E'	Earnings Available to common shareholder(O-F)	.....
'Ke'	Equity capitalization rate	.....
'S'	Total market value of equity( $E/K_e$ )	.....
'B'	Total market value of debt	.....
'V'	Total value of firm(S+B)	.....
'K <sub>o</sub> '	Overall capitalization rate (O/V)	.....

The calculation is simplified by using above calculation model.

### 2.1.5.2 Net Operating Income (NOI) Approach

The second behavioral approach to capital structure is the Net Operating Income Approach, which is slightly different from the NI approach. It is an independent hypothesis of capital structure decision of the firm is irrelevant. Any change in leverage will not lead to any change in the total value of the firm and market price of share, as the overall cost of capital is independent of the degree of leverage” (Khan and Jain; 1990:495). The NOI approach assumes that the equity holders feel higher degree of financial risk and demand higher rate of return for higher debt to equity ratio. Furthermore, this approach says that the cost of equity increases with the level of debt, and the higher cost of equity offsets the benefit of cheaper debt financing consequently no effect at all on  $K_o$ , in other word overall capitalization rate ‘ $K_o$ ’ as well as the cost of debt ‘ $K_d$ ’ remain constant regardless of the degree of leverage.

The assumption here is that the overall capitalization rate of the firm is constant for all degrees of leverages.

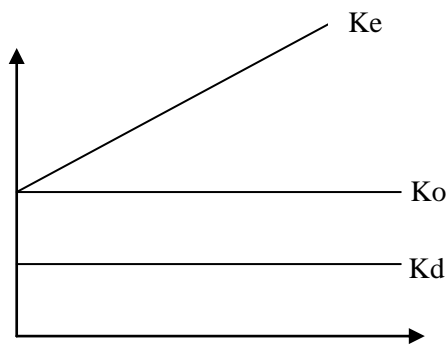
The critical assumption of NOI Approach are: (Pandey; 1992: 47).

- a) The market capitalizes the value of the firm as a whole. Thus, the split between debt and equity is not important.

- b) The market uses an overall capitalization rate  $K_o$ , to capitalize the net operating income.  $K_o$ , depends upon the business risk. If the business risk is assumed to remain unchanged,  $K_e$  is constant.
- c) The use of less costly debt fund increases the risk to the shareholders; this causes the equity capitalization rate to increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate,  $K_e$ .
- d) The debt capitalization rate,  $K_d$ , is a constant.
- e) The corporate income taxes do not exist.

"Under NOI approach the capital structure selected is a more details since the value of the firm is dependent of the firm's capital structure. If the firm increases its use of financial leverage by employing more debt this is directly offset by an increase in the cost of capital.

It can be expressed by the following figures.



Debt - Equity Ratio

**Figure 2.4 NOI approach (Value)**



Debt - Equity Ratio

**Figure 2.5 NOI approach (Cost)**

The above figures show that ' $K_o$ ' and ' $K_d$ ' are constant and ' $K_e$ ' increases with leverage. As ' $K_o$ ' is constant, leverage is optimal. "At the extreme degree of financial leverage hidden cost becomes very high hence, the firms cost of capital and its market value are not influenced by the use of additional cheap debt fund" (Gitman and Pinches; 1982:791).

This can be expressed as:  $K_e = K_o + (K_o - K_d)D/S$

Thus this approach suggested that there is not any optimum capital structure. As the overall cost of the capital is the same at all capital structure, every capital structure is optimal.

**Table 2.2 Market value of stock by Net Operating Income (NOI) Approach**

‘O’	Net Operating Income	.....
‘Ko’	Overall capitalization rate	.....
‘V’	Total Value of the firm (O/Ko)	.....
‘B’	Market value of debt	.....
‘S’	Market value of stock (V-B)	.....

The calculation is simplified by using above calculation model.

### 2.1.5.3 Traditional Approach

The Traditional approach is also known as an intermediate approach compromise between the NI approach and NOI approach. This approach says that the value of the firm can be increased or the judicious mix of debt and equity capital can reduce the cost of capital. In additions the cost of capital, decrease within the reasonable limit of debt and then increase with leverage. Thus an optimal capital structure exists when the cost of capital is minimum or the value of the firm is maximum.

The more sophisticated version of the net income approach is contained in the traditional view. According to this approach, the value of the firm can be increased or the cost of capital can be reduced by a judicious mix of debt & equity capital (Pandey; 1992: 47). In this approach the cost of capital decreases within the reasonable limit of debt and then increase within the leverage.

The crucial assumptions of the traditional approach are:

- The cost of debt ( $K_d$ ) remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate.
- The cost of equity ( $K_e$ ) remains more or less constant or less only gradually up to a certain degree of leverage and rises sharply thereafter.

- The average cost of capital ( $K_o$ ) as a consequence of above behaviour or ' $K_e$ ' and ' $K_d$ ' (i) decreases up to a certain point (ii) remains more or less unchanged for moderate increases in leverage thereafter and rise beyond a certain point.
- According to the traditional position, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three-stages.

### **Stage 1: Increasing Value**

In this first stage, the equity capitalization rate ( $K_e$ ) rises only a certain level of leverage and not before or rises slightly with debt. So that the use of debt does not necessarily increase the  $K_e$ . And the slight increase in  $K_e$  may not be so high as to neutralize the benefit of using cheaper fund. In other words, the advantages arising out the use of debt is so large that even after allowing for higher  $K_e$ , the benefit of the use of the cheaper sources are still available. As a result, the value of the firm,  $V$ , increases while the overall cost of capital falls with the increasing leverage.

Under the assumption that ' $K_e$ ' remains constant within the acceptable limit of debt, the value of the firms will be:

$$\begin{aligned}
 V &= S+B \\
 &= \frac{O-K_d \cdot B}{K_e} + \frac{K_d \cdot B}{K_d} \\
 &= \frac{O-K_d \cdot B}{K_e} + B \\
 &= \frac{O}{K_e} + \frac{(K_e - K_d)B}{K_e}
 \end{aligned}$$

Thus, as long as ' $K_e$ ' and ' $K_d$ ' are constant the value of the firm ' $V$ ' increases at a constant rate.

### **Stage 2: Optimum Value**

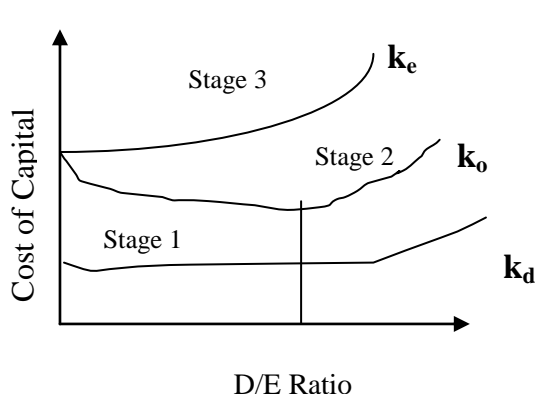
In this stage, once the firm has reached a certain degree of leverage, increases in it have a negligible effect on the value of the firm. This is so because the increase in the cost of equity offsets the advantages of low cost of debt within that range or specific points, the value of the firm will be maximized or the cost of capital will be minimum.

### **Stage 3: Declining Value**

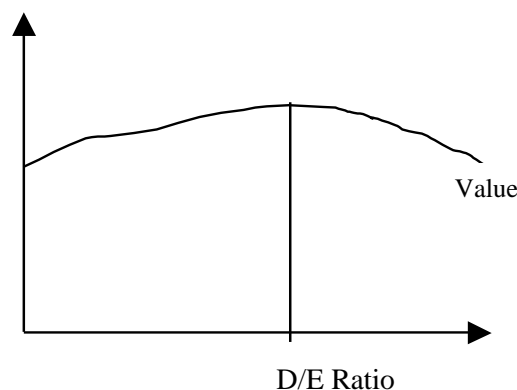
In this stage, after the acceptable degree of leverage, the market value of the firm decreases with leverage or the overall cost of capital increases with leverage. This happens because the cost of debt and equity will tend to rise as a result of increasing the degree of financial risk that will make to increase in the overall cost of capital by more than to offset the advantage of low cost debt. Thus, in the third stage, the market value of the firm will show depressing tendency.

The overall effect of these three stages is to suggest that the cost of capital is a function of leverage. First it declines with leverage and after reaching a minimum point or range it status rising. This minimum point defines the optimum capital structure.

This fact is illustrated in the following figures:



**Figure 2.6 Declining value (Cost)**



**Figure 2.7 Declining value (Value)**

According to this approach, there exists a particular capital structure that is better than any other for the firm. In the above figures, the debt equity ratio at the point 'p' results the overall cost of capital, which consequently maximizes the value of the firm. Therefore, the debt equity ratio is relevant and optimal capital structure exists for the firm.

Thus the traditional position implies that the cost of capital is not independent of the capital structure of the firm and that there is an optimal capital structure. At that optimal structure, the marginal real cost of debt (explicit and implicit) is the same as the marginal real cost of equity in equilibrium. For degrees of leverage, before that point, the marginal real cost of debt exceeds that of equity.

**Table 2.3 Overall Capitalizations by Traditional Approach**

'O'	Net Operating Income	.....
'F'	Total Interest (Ki B)	.....
'E'	Earnings Available to common share-holder(O-F)	.....
'K <sub>e</sub> '	Equity Capitalization rate	.....
'S'	Total Market value of equity (E/K <sub>e</sub> )	.....
'B'	Total market value of debt	.....
'V'	Total Value of firm (S+B)	.....
'K <sub>o</sub> '	Overall capitalization rate (O/K <sub>o</sub> )	.....

The calculation is simplified by using above calculation model.

#### **2.1.5.4 Modigliani-Miller (M-M) Theory**

##### **a) M-M theory (In the World without Taxes)**

Modigliani and Miller (M-M) support the relation between leverage and cost of capital that explained by NOI approach. They argue that in the absence of taxes, total market value and cost of capital of the firm remains invariant to the capital structure change. They make a formidable attack on the traditional position by offering behavioral justification for having the cost of the capital (k<sub>o</sub>) remains constant throughout all degree of leverage. M-M contained that the cost of capital is equal to the capitalization rate of pure equity stream of income and the market value is ascertained by capitalizing its expected income at the appropriate discount rate for its risk class. The M-m cost of capital hypothesis can be best expressed in term of their propositions I and II. However the following assumptions regarding the behavior of the investors and capital market, the action of the firm and the tax environment are crucial for the validity of the M-M hypotheses.

The crucial assumptions of MM preposition are:

- Perfect Capital Market: Information is costless and readily available to all investors. There are no transaction costs, and all securities are infinitely divisible. Investors are assumed to be rational and to behave accordingly.

- The average expected future operating earnings of a firm are represented by subjective random variables. It is assumed that the expected values of the probability distribution of all investors are the same. The M-M illustration implies that the expected values of the probability distributions of expected operating earnings for all the future periods are the same as present operating earnings.
- Firms can be categorized into "equivalent return" classes. All firms within a class have the same degree of business risk. As we shall see later this assumption is not essential for their proof.
- The absence of corporate income taxes is assumed. M-M removes their assumption later.

### **Proposition I**

The M-M Proposition: I state 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 (NOI or EBIT) at a rate appropriate for the firms risk class. Accordingly, the value of the firm is obtained by:

$$V = \text{NOI} / K_o$$

Where,

V= Value of the firm

NOI= Net operating income

$K_o$ = Risk adjusted capitalization rate.

The M-M proposition-I also implies that the weighted average cost of the capital ( $K_o$ ) to any firm (i.e. levered or unlevered) is completely independent of its capital structure and equal cost of equity ( $K_e$ ) to an unlevered firm in the same risk class. Thus there is no relationship between the value of a firm and the way its capital structure is made up, not there is any relationship between the average cost of capital and the capital structure. It is identical to the NOI approach.

### **Proposition II**

This theory states that the cost of equity rises proportionately with the increase in the leverage in order to compensate in the form of premium for bearing additional risk arising from the increase in leverage. It assumes that only the equity holders adjust the capitalization rate for the degree of financial leverage risk. It means that  $K_e$  increases

as debt-equity ratio increases. The  $K_d$  doesn't respond to changes in debt-equity ratio and it remains constant. It is expressed as follows:

$$K_e = K_o + (K_o - K_d)D/E$$

Where,

$K_e$  = Cost of equity

$K_o$  = Average cost of capital.

$K_d$  = Cost of debt or interest rate.

$D/E$  = Debt Equity ratio

The validity of proposition-II depends upon the assumptions that  $K_d$  will not increase for any degree of leverage but in practice  $K_d$  increases with leverage beyond a certain acceptable level. However, M-M mention that even if  $K_d$  is function of leverage,  $K_o$  will remain constant, as  $K_e$  will increase at a decreasing rate of compensate. Thus taking both the propositions I and II together, the M-M theory in the absence of taxes contents the overall cost of capital as well as the value of the firms are independent of capital structure. The theory in a tax free world is identical to the NOI approach. In other words, the value of levered firm  $V_L$  is equal to the value of an unlevered firm  $V_U$  in the same risk class i.e.  $V_L = V_U$ .

#### **b) M-M Theory (In the World with Taxes)**

Under MM theory, the value of a firm is independent of its debt policy is based on the critical assumption that the corporate income taxed do not exists. But in reality, the corporate income taxes exist. But in reality, the corporate income taxes exist, and interest paid to debt holders is treated as a deductible expenses. This makes debt financing advantageous. "In their 1963 article, M-M shows that the value of the firm will increase with debt due to the deductibility of interest charges for tax computation and the value of the levered firm will be higher than of the unlevered firm'. Thus, the value of a levered firm is equal to the value of unlevered firm plus the present value of interest tax-shield as shown below.

Value of a levered firm = Value of an unlevered firm + PV of interest tax shield.

Symbolically,

$$V_L = V_U + PV \text{ of interest tax shield}$$

The value of unlevered firm when corporate taxes exist is,

$$V_u = \frac{NOI(1-T)}{K_{ou}} = \frac{NOI}{K_{eu}}$$

Where,

NI = Net income after tax

$K_{eu}$  = The Equity Capitalization rate of an unlevered firm.

$K_{el}$  = The Equity Capitalization rate of a levered firm.

$K_{ou}$  = The overall capitalization rate of unlevered firm.

$K_{ol}$  = The overall capitalization rate of levered firm.

$V_u$  = Value of unlevered firm.

$V_l$  = Value of levered firm.

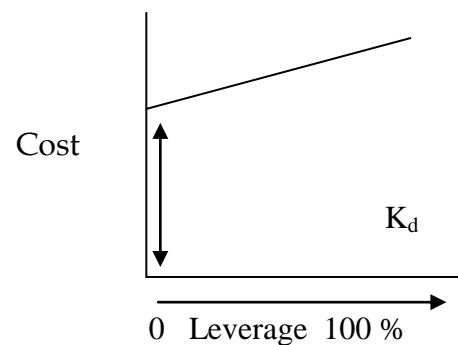
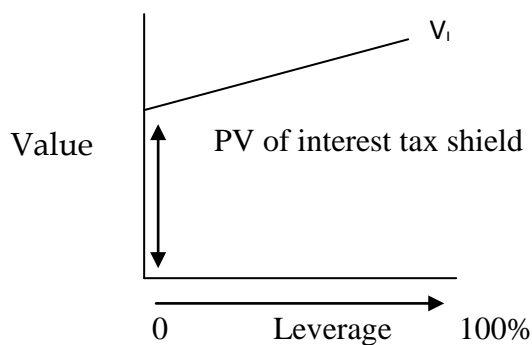
T = Corporate Tax Rate

Also, when a firm is unlevered,  $K_{ou} = K_{eu}$ . Thus,

$$V_l = \frac{NI + Dt}{K_{eu}}$$

The above equation implies that, when corporate tax exists, the value of levered firm will increase continuously with debt. Thus, theoretically the value of the firm will be maximum when it employs 100% debt.

This can be shown as follows:



$$K_{eu} = K_{ou}$$

**Figure 2.8 M-M Theory (Value)**

**Figure 2.9 M-M Theory (Cost)**

Because of the tax deductibility of interest charges, a firm can increase its value or lower overall cost of capital by using cheaper debt funds. Thus, the optimal capital structure is attained when employs 100 percent debt. But in practice firm doesn't employ large amount of debt, nor are the lenders ready to lend beyond the certain limit. Why companies do not employ extreme level of debt or the lenders are ready to lend beyond the certain limit. Why companies do not employ extreme level of debt in practice? The reason behind it is that, the borrowing may involve extra costs (in addition to fixed interest cost) like cost of financial distress, which may offset the advantage of using debt. Another reason may be the personal taxes involved for lenders.

## **2.2 Review of Major Empirical Studies**

This section is devoted to review of important empirical works, concerning capital structure and cost of capital mainly the studies conducted by Modigliani and Miller's first study, Modigliani and Miller's second study, and Booth, Aivazian, Kunt, Maksimovic's study are reviewed here.

### **a) The Modigliani and Miller's First Study (1962)**

In their first study they used previous work of 'Allen and Smith' in support of their independence hypothesis. In the first part of their work, M-M tested their proposition I, the cost of capital is irrelevant to the firm's capital structure by correlating after tax cost of capital with leverage. They found that the correlations are statically insignificant and positive in sign. The regression line does not ancienst a curvilinear, 'u' shaped cost of capital-key of traditional view, when the data are shown in scattered diagram.

In the second part of their study, they tested their proportion II, the expected yield on common shares, is a linear function of debt to equity ratio. The second part of their study is consistent with their views i.e. if the cost of borrowed funds increases, the cost of equity will decline to offset this increase.

### **b) The Modigliani and Miller's Second Study (1963)**

M-M were conducted the second study in 1963 with correcting their original hypothesis for leverage for its tax advantages. They therefore wanted to test whether

leverage had tax advantages or not. For this, they conducted mathematical analysis regarding the effect of leverage and other variables on the cost of capital. They found that the leverage factor is significantly only because of the tax advantages involved.

**c) Weston, J Fred, Eugene F and Brigham (1978) “A Test of Cost of Capital Proposition”**

He made some important improvement in the cost of capital model. He included firm size and growth as additional explanatory variables in his model. When he used MM model, he found the regression coefficient of leverage to be positive and significant. However, when the multiple regressions were run, he found that the correlation coefficient is significant and the regression coefficient of leverage is negative and significant. When the influence of growth is isolated, leverage is found to be negatively correlated with the cost of capital. He concluded that the apparent lack of influence of leverage on the overall cost of capital observed by M-M was due to the negative correlation of leverage with earning growth. Weston also tested M-M proposition II, when he used the M-M's model, his results were found to be consistent with their results, i.e. cost of equity is the linear function of debt equity ratio.

**d) Laurence Booth, Varouj Aivazian, Aslidemirguc-Kunt and Vojislav Maksimovic (2001)**

They conducted a comparative study on "*Capital Structure in Development Countries*". This study used a new data set to assess whether capital structure theory is portable across countries with different institutional structure. This paper uses a new firm level data base to examine the financial structure of firms in sample of 10 developing countries. Those developing Countries Chosen for the study are India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea.

This study's focus is on answering here questions:

- Does corporate financial leverage decision differ significantly between developing and developed countries?
- Are the factors that affect cross-sectional variability in individual countries capital structure similar between developed and developing countries?
- Are the predictions of conventional capital structure models improved by knowledge the nationality of the company?

This study find that the variable that are relevant for explaining capital structure in the United States and European countries are also relevant in developing countries, despite the profound different in institutional factors across these developing countries. However, there are systematic differences in the way these ratios are affected by country factors such as GDP growth rates inflation rates and the development capital markets. This finding suggests that although some of the insight from modern finance theory is portable across countries many remain to understand the impact of different institutional features on capital structure choices.

### **2.3 Review of Nepalese Studies**

M.K. Shrestha (1985), "*An Analysis of Capital Structure in Selected Public Enterprises.*" In this study he has found that the selected public enterprises understudy has a very confusing capital structure since the corporation are not guided by objectives based financial plans and policies. He has further pointed out that the debt equity ratios should neither be highly levered to create too much financial obligations that lies beyond the capacity to meet the target not should it be too low levered to infuse operational strategy to bypass responsibilities without performance.

In his study, he found that neither there exist proper determinant nor standard are developed to justify appropriating capital structure. So, he argues that the public enterprises are the following capital structure and neither government nor public enterprises themselves are serious for the use of appropriate capital structure. Interest obligation seems to financial burden to the existing public enterprises to maintain optimum capital structure because there is no reliable basis ensures sound capital structure. Dr. Shrestha concludes that the selected public enterprises under study have a very confusing capital structure since corporation are not guided by objective based financial plans and policies Finally, he suggested that the debts equity should be highly levered to create too much financial obligation that the lie beyond capacity to meet, nor should it be much low levered to infuse operational lethargy to bypass responsibility without performance.

By reviewing these empirical studies we can make a general conclusion that in respect to imperfect capital market where the corporate tax exists, the use of the debt in capital structure decreases the cost of capital. But, the Nepalese companies do not

have any guideline to make appropriate capital structure and they choose the capital structure randomly. In other words, the relationship between capital structure and cost of capital may not have a definite trend in Nepal. So, there is a need to carry out specific study on the impact of capital structure on the cost of capital this type of study is expected to provide useful information for policy market and implementation at both micro and macro levels

Deepak Khanal (1992), *'The Capital Structure of Industrial Enterprises in Public Sectors'*. For this, he tested the effect of leverage and measured the relationship between capital investment and earnings generation. Under his study, he found that the overall result was unsatisfactory. He has suggested improving their self-efficiency in the financial performance. He has further suggested that the subsidy and donation should be reduced which has been the main cause of inefficiency of the management.

Krishna Pathak (1995), *"A Study on Capital Structure Management of Gorakhakali Rubber Udyog Limited"* he had analyzed all the variables in form of ratio analysis. In his findings especially to the capital structure and profitability position, following issues had drawn. Gorakhakali Rubber Udyog limited was very high as compared to the shareholder's equity and the trend of debt/equity ratio was increasing every year. Company's debt servicing capacity was very poor due to the negative I/C ratio. The operational performance was satisfactory due to negative earnings and low volume of sales revenue. The operational performance was not satisfactory due to negative earnings and low volume of sales revenue. The company was not able to utilize its capacity more than 50% which resulted the huge losses.

At last, he suggested to lower down the amount of debt and obtained additional funds through issue of equity share, improve its capital and reduce over staff, make strategic plans and develop the motivations management.

Poonam Bhattarai (2005), in her research titled "capital structure of manufacturing companies in Nepal". She has conducted that companies do not always plan capital structure and it develops as a result of the financial decisions taken by the financial manager without any formal planning. Moreover some industries even could not meet the interest and other expenses from the income. So they increase loan and become more levered.

She suggested increasing the profitability of the company by reducing the profitability of the company by reducing the burden of interest on debt. The study recommends having the optimal capital structure. Hence, the excessive use of debt should be gradually curtailed in the coming year because the companies have no earning capacities to meet the interest burden.

All the above studies are concerned with the research title "Capital Structure". Some researchers have selected various companies for the research and some have concentrated in only one institution. But this study includes only manufacturing industries to cover the analytical part and fulfil the objectives of the study. Possibly this study may be the first of its kind in the area as the study is concentrated in only two manufacturing companies of Nepal listed in NEPSE. It has also analyzed the Du-Pont system of analysis

## **CHAPTER- III**

### **RESEARCH METHODOLOGY**

“Research Methodology” is composed of two words “Research” and “Methodology”. “Research” is a systematic method of finding out solution to a problem where as “Methodology” is the research method used to test the hypothesis. Thus “Research Methodology is the way to solve systematically about the research problem. It refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view.”

It is significant to have appropriate choice of research methodology that helps to make this research study meaningful and more scientific. Therefore, appropriate methodology has been followed to meet the purpose objectives of the study. So, the methodologies of this research include the research design, the population and sample, nature and source of data, data collection procedure, and presentation for data and method of analysis.

#### **3.1 Research Design**

Research Design is the plan structure and strategy of investigation conceived so as to obtain the answers to research questions and to control variance. It provides a way to reach to research objectives. The research design refers to the entire process of planning and carrying out research study. For this study the required data have been collected from various resources covering a periods of 7 years from 2061/62 to 2067/68 for the two selected manufacturing companies from the Stock Exchange Ltd And Nepal Security Board. It analyses the debt and equity positions in capital investments of related companies. In order to achieve the predetermined objectives of the study, secondary data have been used. In some cases, opinion survey methods are also used. This study tries to make comparison and establish relationship between two or more variables. So the research design of this study is based on descriptive and analytical study.

## **3.2 Source of Data**

This required data for the study are collected from the secondary resources and this study is mainly based on “secondary data”. Thus secondary data are extensively used in this study. Secondary data are directly obtained from the Nepal Stock Exchange Ltd and selected manufacturing companies. Accuracy of data is dependent on the organization, which provides most of the data required for the study. The annual report is the major sources of secondary data.

### **3.2.1 Period Covered**

For the study, only seven years data from the year 2061/62 to 2067/68 of selected two manufacturing companies have been collected. The period of 7 years range is not sufficient for analysis but researcher unable to obtain more than seven years data.

## **3.3 Population and Sample**

There are 228 companies listed in Nepal Stock Exchange Ltd. At the end of fiscal year 2067/68 only 29 manufacturing companies fulfill Nepal security board criteria. Out of 29 manufacturing companies only two manufacturing companies are selected as a sample for the study. For the purpose of the study, the samples companies are as follows:-

- Unilever Nepal Limited
- Bottlers Nepal Ltd

The selections of above two companies are based on my interest area where such type of study had not been taken. The selection of manufacturing company is also based on experts of relevant field. The data is carefully studied and analyzed systematic way to meet the objectives of this study.

## **3.4 Data Analysis**

The main purpose of analyzing the data is to change it from an unprocessed form to an understandable presentation.

### ***Analytical Tools Used***

Financial tools have been used for analyzing capital structure management in Nepalese manufacturing companies.

#### **3.4.1 Financial tool**

Financial tool is a measuring instrument, which can be used in financial analyses and helps to calculate the relationship between two financial variables on ratio and percentage basis. Under these analyses, the following calculations are made:

##### **3.4.1.1 Degree of Leverage:**

a) Degree of Operating Leverage (DOL)

$$= \text{Percentage Change in EBIT} / \text{Percentage Change in Sales}$$

b) Degree of Financial Leverage (DFL)

$$= \text{Percentage Change in EPS} / \text{Percentage Change in EBIT}$$

##### **3.4.1.2 Ratio analysis**

a) Total debt to Total Assets Ratio = Total debt / Total Assets

b) Total Debt to Equity = Total Debt / Shareholders' Equity

c) Proportion of Leverage = Total Debt / Value of Firm

d) Long Term Debt to Equity Ratio = Long Term Debt / Shareholders Equity Ratio

e) Interest Coverage Ratio = Earnings before Interest and Tax / Interest Charges

f) 3.4.1.2.6 Profit Margin = Net Profit / Sales

##### **3.4.1.3 DU-Pont Analysis**

a) Return on Equity (ROE)

$$= \text{Profit Margin} \times \text{Total Assets Turnover} \times \text{Equity Multiplier.}$$

Or

$$= \text{Net Profit} / \text{Sales} \times \text{Sales} / \text{Total Assets} \times \text{Total Assets} / \text{Equity}$$

b) Return on Asset (ROA) = Net Profit / Total Asset

#### **3.4.1.4 Cost of Capital**

- a) Overall Cost of Capital ( $K_o$ ) = Net Operating Income / Total Value of the Firm
- b) Equity Capitalization Rate ( $K_e$ ) = Net Operating Income / Market Value of the share

All the necessary calculations and analysis have been made to arrive to the conclusion of the study and were presented in Annex as per requirements.

## CHAPTER- IV

### DATA PRESENTATION AND ANALYSIS

This chapter deals with the analysis of the finding. The main objective of the study is to present data and analyzed them with the help of various tools. This is also one of the most important chapters for the study. In this chapter, it presents the following calculation of different ratios and their applications in analyzing the capital structure of manufacturing companies of Nepal listed in NEPSE. The data represent and analyses are in the tabular form.

#### 4.1 Analysis of Leverage

Leverage results from the use of fixed cost assets or funds to magnify results of the firm's owners changes in leverage results in change of level of returns and associated risks whereas decreases in leverage results in decreased return and risk. Generally, there are two types of leverage:

- a) Operating leverage, and
- b) Financial leverage

The operating leverage is defined as the extent to which fixed costs arise from employing larger amount of capital, thus permitting the firm to operate with reduced labour and smaller variables.

Financial leverage refers to the firm's use of fixed income securities such as debt and preferred stock and financial risk is the additional risk placed on the common stockholder as a result of using financial leverage.

##### 4.1.1 Degree of Operating Leverage (DOL)

The degree of operating leverage (DOL) is defined as the percentage change in operating income (EBIT) associated with a given percentage change in sales. The operating leverage can be measured as the degree of operating leverage (DOL) in the following table.

$$DOL = \frac{\% \text{ Change in EBIT}}{\% \text{ Change in Sales}}$$

Table 4.1 Degree of Operating Leverage (DOL)

Company	FY	EBIT	Change in EBIT	EBIT % Change	Sales	Change in Sales	Sales % Change	DOL	
UNL	2061/62	248.27	-	-	1481.56	-	-	-	
	2062/63	295.47	47.2	19.01	1469.69	-11.87	-0.80	-23.76	
	2063/64	298.34	2.87	0.97	1818.53	348.84	-23.74	0.04	
	2064/65	422.17	123.83	41.51	2144.59	326.06	17.93	2.32	
	2065/66	532.67	110.5	26.17	2625.83	481.24	22.44	1.17	
	2066/67	639.86	107.19	20.12	3055.07	429.24	16.35	1.23	
	2067/68	656.92	17.06	2.67	3556.66	501.59	16.42	0.16	
	Average								-3.14
BNL	2061/62	101.35	-	-	614.74	-	-	-	
	2062/63	98.35	-2.33	-2.33	621.83	7.09	1.15	-2.03	
	2063/64	38.21	-60.78	-61.40	634.19	12.36	1.99	-30.85	
	2064/65	49.23	11.02	28.84	746.58	112.39	17.72	1.63	
	2065/66	131.90	82.67	167.93	1002.72	256.14	34.31	4.89	
	2066/67	360.37	228.47	173.21	1588.15	585.43	58.38	2.97	
	2067/68	294.09	-66.28	-18.39	1852.04	263.89	16.62	-1.11	
	Average								-4.08

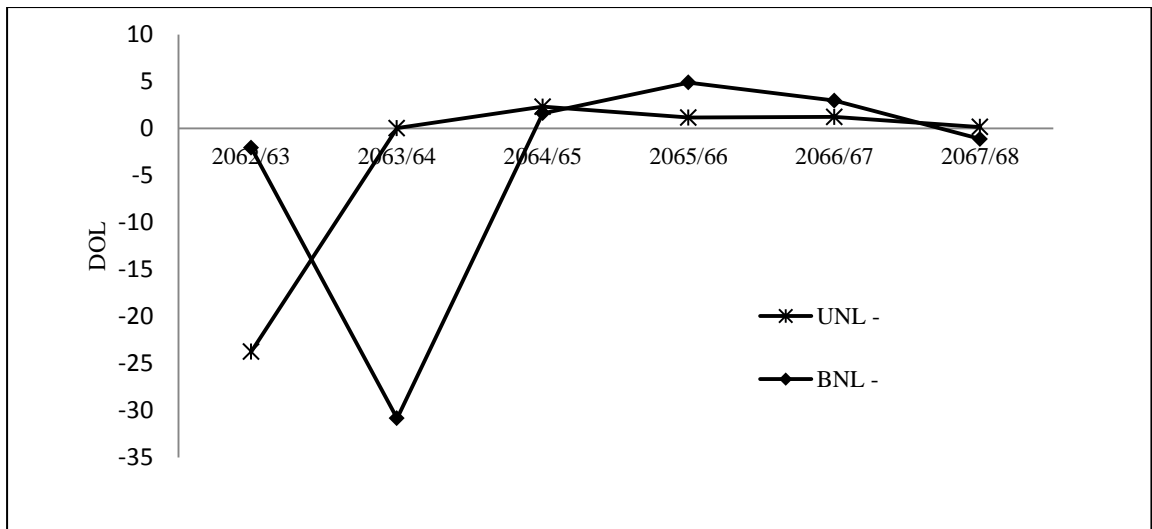


Figure 4.1 Degree of Operating Leverage (DOL)

Table 4.1 shows the degree of operating leverage of two manufacturing companies. The degree of operating leverage can be measured by the study of EBIT and sales revenue. When sales increase and cost remain same EBIT also increase. In that time leverage is constant. It effects to change in sales and EBIT. In the above table, DOL in different manufacturing companies has been calculated.

In the above table, the value of DOL in UNL in the first year itself is negative which indicates the loss in company whereas the value in following years is positive. For example, the value of DOL is -23.76 in 2062/63, 0.04 in 2063/64. Similarly, it is 2.32, 1.17, 1.23, and 0.16 in the fiscal years 2064/65, 2065/66, 2066/67 and 2067/68 respectively. The negative value of DOL (-23.76) in 2062/63 indicates that decrease in sales by 1% causes 23.76% decrease in EBIT. Likewise, the increase of 1 % in sales causes 0.04%, 2.32%, 1.23%, and 0.16% increase in EBIT in the years of 2063/64, 2064/65, 2065/66, 2066/67 and 2067/68 respectively.

The value of DOL of BNL is also negative in the first year. Its value is negative in the years of 2062/63, 2063/64 and 2067/68 and is positive for rest of the three years. The average is also negative. The value of DOL -2.03 in 2062/63, -30.85 in 2063/64 and -1.11 in 2067/68 indicates the situation of loss of the company in those years. The value of DOL 1.63 in 2064/65, 4.89 in 2065/66, 2.97 in 2066/67 suggests that 1% change in sales has an effect of 1.63%, 4.89% and 2.97% change in EBIT respectively in those years.

#### 4.1.2 Degree of Financial Leverage

The degree of financial leverage is another significant financial tool that slows the capital structure pattern of the firm. It is the percentage change in earnings available to common shareholders (EPS) associated with a particular percentage change in EBIT. The degree of financial leverage is calculated and shown in the following table and figures.

$$DFL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}}$$

Table 4.2 Degree of Financial Leverage (DFL)

Company	FY	EPS	Change in EPS	% Change in EPS	EBIT	Change in EBIT	% Change in EBIT	DFL
UNL	2061/62	205.49	-	-	248.27	-	-	-
	2062/63	258.57	53.08	25.83	295.47	47.2	19.01	1.36
	2063/64	285.72	27.15	10.5	298.34	2.87	0.97	10.82
	2064/65	363.00	78.28	27.4	422.17	123.83	41.51	0.66
	2065/66	482.29	118.29	32.5	532.67	110.5	26.17	1.24
	2066/67	626.20	143.91	29.84	639.86	107.19	20.12	1.48
	2067/68	662.42	36.22	5.78	656.92	17.06	2.67	2.16
	Average							2.95
BNL	2061/62	17.83	-	-	101.35	-	-	-
	2062/63	12.81	-5.02	-28.15	98.99	-2.36	-2.33	12.08
	2063/64	-15.54	-28.35	-221.3	38.21	-60.78	-61.4	3.6
	2064/65	17.14	22.68	-210.3	49.23	11.02	28.84	-7.29
	2065/66	10.53	-6.61	-38.56	131.9	82.67	167.93	-0.23
	2066/67	91.07	80.54	764.86	360.37	228.47	173.21	4.42
	2067/68	123.95	32.88	36.1	294.09	-66.28	-18.39	-1.96
	Average							1.77

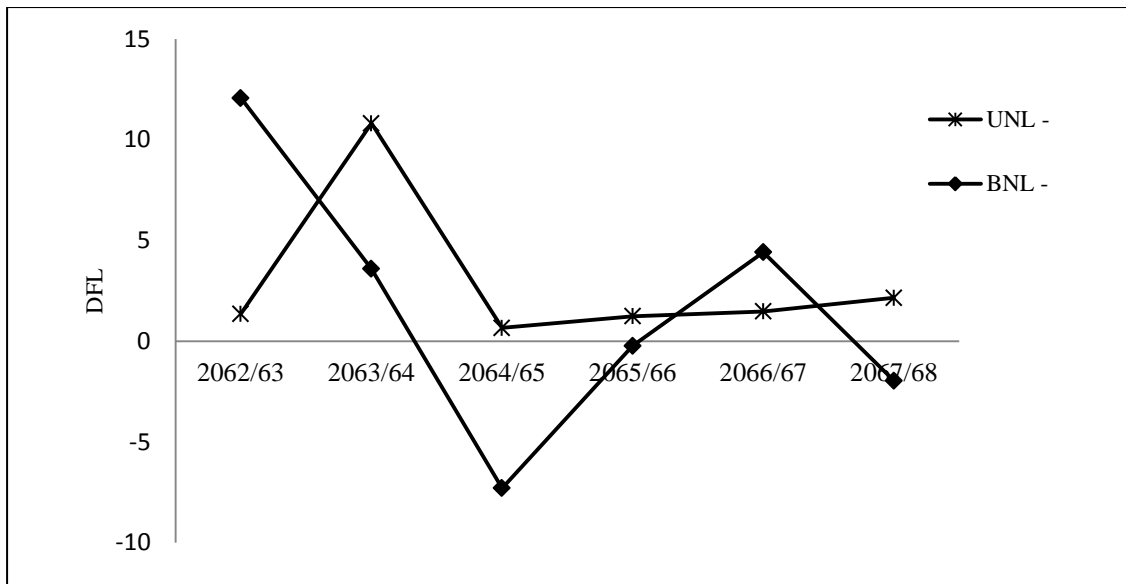


Figure 4.2 Degree of Financial Leverage (DFL)

As mentioned in the above table, the calculation of DFL for UNL in the FY 2062/63, 2063/64, 2064/65, 2065/65, 2066/67 and 2067/68 are 1.36, 10.82, 0.66, 1.24, 1.48 and 2.16 respectively which indicates a change in EBIT by 1% will affect the EPS by 1.36%, 10.82%, 0.66%, 1.24%, 1.48% and 2.16% in those years. The degree of financial leverage in average is 2.95. This shows the consistency of the company in the ratio of change in earnings per share to change in earnings before interest and tax.

The DFL for BNL is also tremendously fluctuating as the EBIT and EPS are also fluctuating. For BNL, the DFL in the FY 2062/63 is 12.08, in 2063/64 is 3.6, in 2064/65 is -7.29, in 2065/65 -0.23, in 2066/67 is 4.42 and in 2067/68 is -1.96. BNL has obtained negative ratio throughout the 2064/65, 2065/66 and 2067/68. This reveals that the interest paid on debt is more than earning of the company and therefore the company lacks money to pay back its fixed obligations. However, in average the ratio of change in EPS to change in EBIT is 1.77 that makes it 1.77%.

In the capital structure of any company, interest expenses and return on equity increases the level of financial position. According to the calculation of DFL in the selected manufacturing companies do not show any positive signal. Negative DFL is not a good sign. Therefore companies should concentrate on restructuring their capital structure.

## 4.2 Ratio Analysis

### 4.2.1 Total Debt to Total Asset Ratio

The amount of debt used for financing the assets of the company is measured by the debt to total asset ratio. A higher debt to total assets ratio indicates that the creditors have the greatest claim on total assets than the owners have higher the ratio, the greater than firm's financial risk and vice versa. Assets equal to total liabilities this ratio is also called debt to total capital ratio. The debt to total assets ratio for the selected manufacturing companies is calculated and presented in the table and figures.

$$\text{Debt to asset Ratio} = \frac{\text{Total Debt}}{\text{Total Asset}}$$

Table 4.3 Total Debt to Total Assets

Company	FY	Total Debt	Total Assets	Ratio	Change
UNL	2061/62	882.02	1098.96	80.26	
	2062/63	742.23	967.15	76.74	-3.52
	2063/64	767.77	1002.55	76.58	-0.16
	2064/65	797.49	1077.97	73.98	-2.6
	2065/66	507.23	1195.09	42.44	-31.54
	2066/67	552.12	1382.49	39.94	-2.5
	2067/68	579.86	1504.52	38.54	-1.4
	Average				61.21
BNL	2061/62	229.00	990.88	23.11	
	2062/63	275.48	1052.05	26.19	3.08
	2063/64	807.24	1255.75	64.28	38.09
	2064/65	708.00.	1190.15	59.49	-4.79
	2065/66	735.55	1255.74	58.58	-0.91
	2066/67	1539.77	1459.81	105.48	46.9
	2067/68	1066.6	1791.30	59.54	-45.94
	Average				56.67

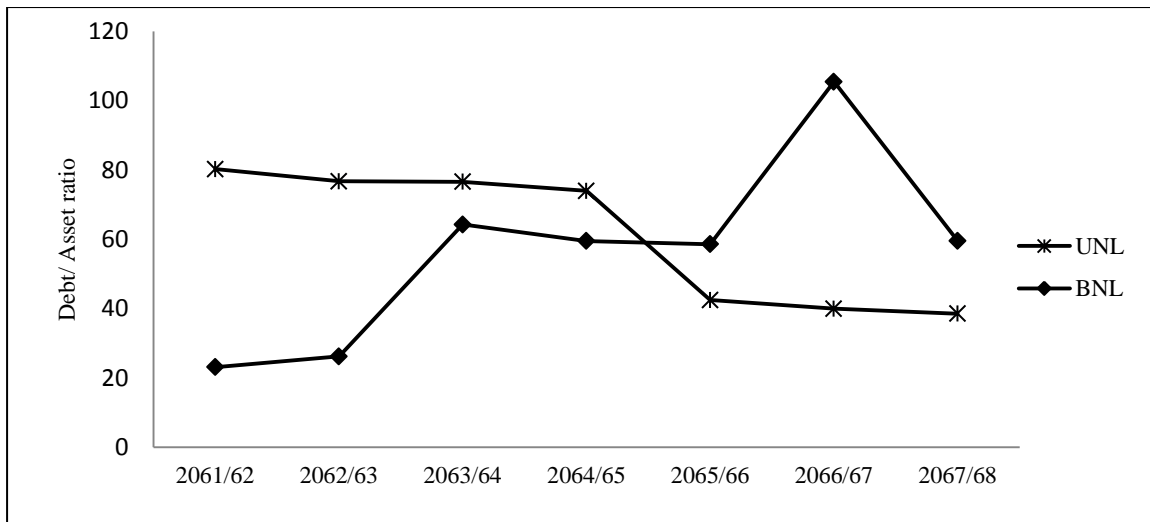


Figure 4.3 Total Debt to Total Assets

The above table shows the ratio of total debt and total assets. In the ratio of debt to total assets of UNL, the amount of debt capital is fluctuating however the value of total assets is increasing in next following years except in the year of 2062/63.

In case of UNL, the average ratio is found to be 61.21% which means the remaining 38.79% of the firm's fund is financed through the equity shareholder of the company.

It can hence be said that UNL has been using its financing mix very optimally which is near 60% to 40% which is said to be the proper mix of debt and equity. The ratios are 80.26% in 2061/62, 76.74% in 2062/63, 76.58 in 2063/64, 73.98% in 2064/65, 42.44% in 2065/66, 39.94% in 2066/67 and 38.54% in the year of 2067/68 which shows that UNL used debt financial in higher proportion than equity.

BNL has been using debt financing and equity financing in fluctuated ratio. BNL has the average ratio 56.67, the highest ratio in the fiscal year 2066/67 which implies that in this year, the company has used debt in extreme proportion even exceeding its total assets in the company has been bearing loss throughout all these consequent fiscal years. BNL has the lowest ratio 23.11% in the fiscal year 2061/62. However the ratios are in 23.11% in 2061/62, 26.19% in 2062/63, 64.28% in 2063/64, 58.58% in 2065/66, 105.48% in 2066/67 and 59.54% in the year of 2067/68. Here BNL also has been giving priority to debt financing rather than equity financing.

## 4.2.2 Total Debt to Equity Ratio

Debt to equity ratio signifies that how much debt has been covered by stockholder's equity. Debt to equity ratio shows the portion of total debt to shareholder's equity. Here, debt comprises the totality of both the long-term debt and short-term debt and shareholder's equity means the assets which has full right of the shareholder.

$$\text{Debt-Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholder's Equity}}$$

Table 4.4 Total Debt to Equity

Company	FY	Total Debt	Equity	Ratio	Change
UNL	2061/62	882.02	216.93	406.59	
	2062/63	742.23	224.93	329.98	-76.61
	2063/64	767.77	234.79	327.00	-2.98
	2064/65	797.49	280.48	284.33	-78.67
	2065/66	507.23	687.87	73.74	-210.59
	2066/67	552.12	830.37	66.49	-7.25
	2067/68	579.86	924.66	62.71	-3.78
	Average				221.55
BNL	2061/62	229.00	761.89	30.06	
	2062/63	275.48	776.57	35.47	5.41
	2063/64	807.24	448.76	179.88	144.41
	2064/65	708.00.	482.18	146.83	-33.05
	2065/66	735.55	539.92	136.23	-10.6
	2066/67	1539.77	628.80	244.87	108.64
	2067/68	1066.6	731.33	145.84	-99.03
	Average				131.31

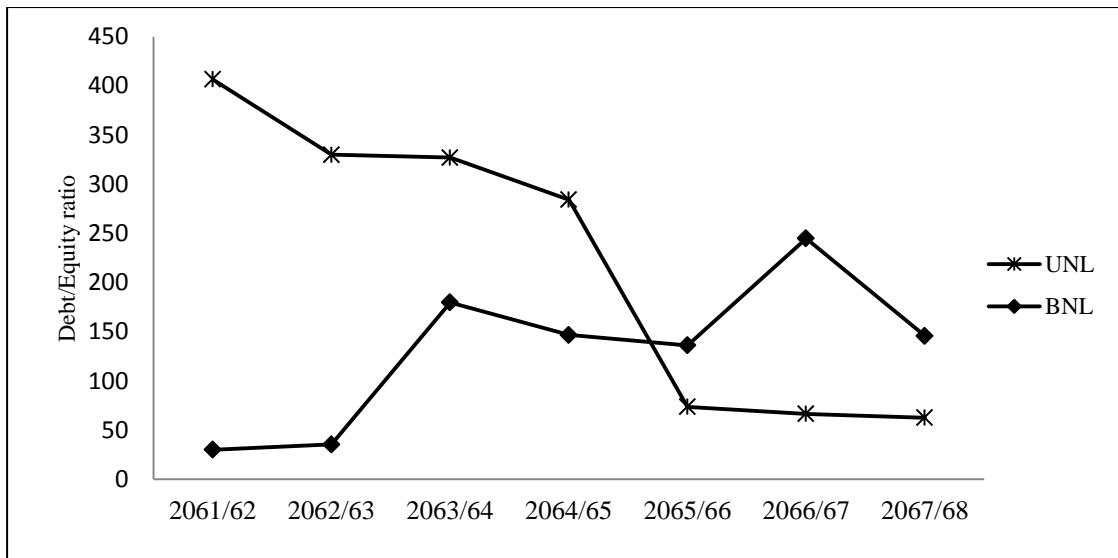


Figure 4.4 Total Debt to Equity

According to the table and figure, Unilever Nepal Limited uses debt and equity in about equal ratio that ranges from 62.17% in the lowest and 406.59% in the highest hereby making it 221.55% in average.

Similarly Bottlers Nepal Limited uses more debt in their capital structure formation than equity. The highest ratio is in the Fiscal Year 2066/67 that is 244.87% and lowest ratio is in the Fiscal Year 2061/62 that is 30.06%. However in average it has the ratio of 131.31%. Both companies use more debt in their capital structure formation than equity.

### 4.2.3 Proportion of Leverage

Proportion of leverage is the rate that is calculated by the value of total debt divided by the value of the firm. Here, value of the firm comprises of value of total debt and value of stock. Therefore, proportion of leverage shows how much does a firm prefer debt in comparison of equity. In other words, proportion of leverage shows the proportion of debt that the company uses in its capital structure. Thus, this is the significant type of leverage that sheds light on the capital structure pattern of the firm.

$$\text{Proportion of Leverage} = \frac{\text{Total Debt}}{\text{Value of the Firm}}$$

Table 4.5 Proportion of Leverage

Company	FY	Total Debt	Value of the firm	Ratio	Change
UNL	2061/62	882.02	1501.66	58.74	
	2062/63	742.23	2301.75	32.25	-26.49
	2063/64	767.77	3130.38	24.53	-7.72
	2064/65	797.49	3443.42	23.16	-1.37
	2065/66	507.23	3912.98	12.96	-10.2
	2066/67	552.12	3914.82	14.10	12.14
	2067/68	579.86	4982.92	11.64	-2.46
	Average				25.34
BNL	2061/62	229.00	1237.54	18.50	
	2062/63	275.48	974.44	28.27	9.77
	2063/64	807.24	974.44	82.84	54.57
	2064/65	708.00.	1564.22	45.26	-37.58
	2065/66	735.55	1551.67	47.40	2.14
	2066/67	1539.77	1498.75	102.74	55.34
	2067/68	1066.6	1428.7	74.66	-28.08
	Average				57.10

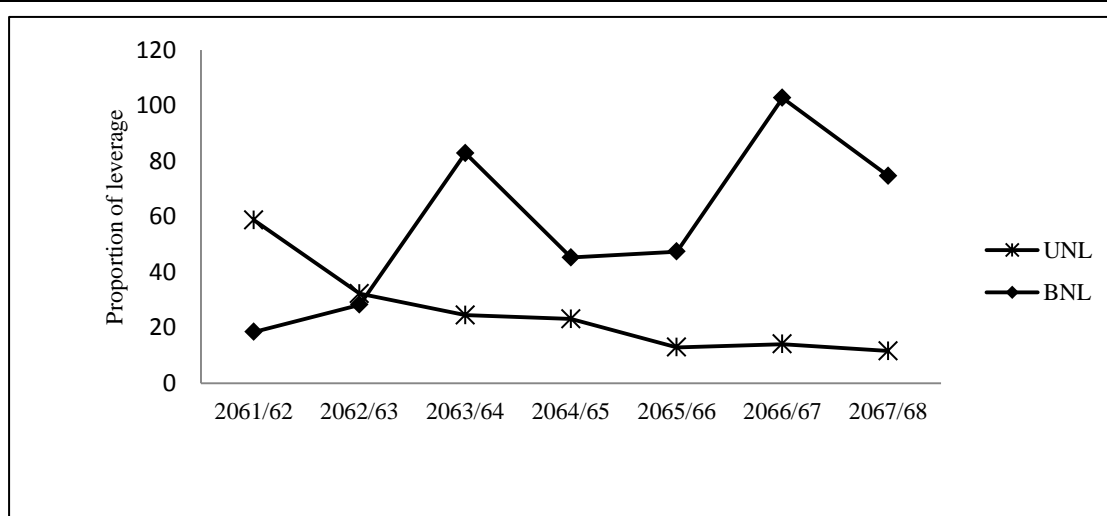


Figure 4.5 Proportion of Leverage

In the above table and figure, the high proportion of leverage indicates that debt is more than equity. Here BNL has the higher value of proportion of leverage than that of UNL. Therefore BNL has more debt than its equity. UNL has average proportion of leverage 25.34% and the average proportion of leverage in BNL is 57.10%. For UNL, the highest value of proportion of leverage is 58.74% in 2061/2062 and the lowest ratio is 11.64% in 2067/68. Similarly, BNL has the highest value of proportion of leverage 102.74% in 2066/67 and lowest ratio 18.50% in the fiscal year of 2061/62.

#### 4.2.4 Long-term Debt to Equity Ratio

It is a measure of a company's financial leverage which is calculated by dividing long-term debt by stockholder's equity. It indicates what proportion of debt and equity the company is using to finance its assets. Long-term debt means secured and unsecured mid-term and long-term loan. Long-term loan have the life of more than one year. It includes bank loan and debentures. Long-term loan is also denoted as deferred liabilities. Long-term debt to equity ratio excludes the calculation of short-term debt unlike debt-equity ratio which helps to know that whether or not the interest bearing funds differentiate the overall value of the company.

$$\text{Long-Term Debt to Equity Ratio} = \frac{\text{Long-Term Debt}}{\text{Shareholder's Equity}}$$

Table 4.6 Long Term to Equity

Company	FY	Long term Debt	Equity	Ratio	Change
UNL	2061/62	0	216.93	0	-
	2062/63	0	224.93	0	-
	2063/64	0	234.79	0	-
	2064/65	0	280.48	0	-
	2065/66	0	687.87	0	-
	2066/67	0	830.37	0	-
	2067/68	0	924.66	0	-
	Average			0	
BNL	2061/62	0	761.89	0	-
	2062/63	0	776.57	0	-

Company	FY	Long term Debt	Equity	Ratio	Change
	2063/64	0	448.76	0	-
	2064/65	200.00	482.18	41.48	-41.48
	2065/66	140.67	539.92	26.05	-15.43
	2066/67	79.96	628.80	12.72	-13.33
	2067/68	7.96	731.33	1.09	-11.63
	Average			11.62	

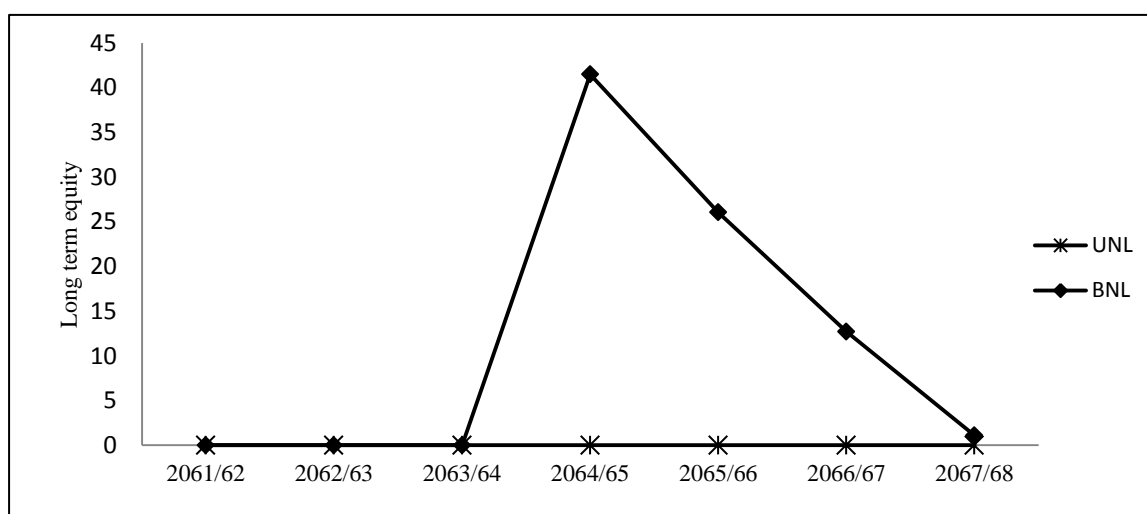


Table 4.6 Long Term to Equity

From the above table for long-term debt to equity ratio, it is clear that Uniliver Nepal Limited do not have long-term debt throughout the financial years 2061/62 to 2067/68 which means that manufacturing company are not using the borrowed fund. Therefore, UNL is the unlevered company.

BNL has not used Long-term debt during the period from 2061/62 to 2063/64. However it has used long-term debt since 2064/65. BNL has the average ratio of 11.62% being 41.48% the highest ratio in the fiscal year 2064/65 and the lowest ratio 1.09% in the year 2067/68 while other ratios are 26.05% and 12.72% in the fiscal year 2065/66 and 2066/67 respectively. Therefore BNL is the levered company.

#### 4.2.5 Interest Coverage Ratio

Coverage ratio is one of the parts of capital structure and leverage ratio. It is concerned with the firm's capacity to pay fixed charges on fixed charge bearing sources of financing. The interest coverage ratio also known as times interest earned.

In general a high coverage ratio may suggest a company is too safe and is neglecting opportunities to magnify earnings through leverage. An interest coverage ratio below 1.0 indicates that a company is not able to meet its interest obligation. It is computed by dividing earnings before interest and tax by interest charge. The comparative picture of manufacturing companies for interest coverage ratio has been presented in the following table and figure.

$$\text{Interest Coverage ratio} = \frac{\text{EBIT}}{\text{Interest Charge}}$$

Table 4.7 Interest Coverage Ratio

Company	FY	EBIT	Interest charge	Ratio	Change
UNL	2061/62	248.27	1.77	140.27	-
	2062/63	295.47	1.79	165.07	24.8
	2063/64	298.34	1.06	281.45	116.38
	2064/65	422.17	0.13	3247.46	2966.01
	2065/66	532.67	0.03	17755.67	14508.20
	2066/67	639.86	1.52	420.96	-17335.00
	2067/68	656.92	1.55	423.82	2.86
	Average			3204.96	
BNL	2061/62	101.35	0.27	375.37	-
	2062/63	98.99	1.33	74.43	-300.94
	2063/64	38.21	8.98	4.26	-70.17
	2064/65	49.23	20.79	2.37	-1.89
	2065/66	131.9	26.19	5.04	2.67

Company	FY	EBIT	Interest charge	Ratio	Change
	2066/67	360.37	20.39	17.67	12.63
	2067/68	294.09	15.23	19.31	1.64
	Average			71.21	

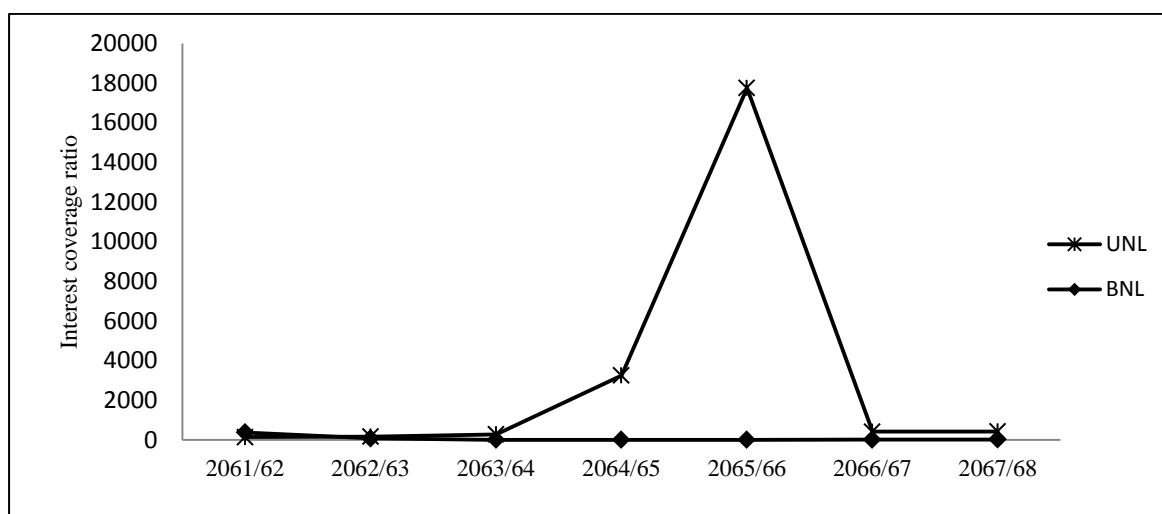


Figure 4.7 Interest Coverage Ratio

The above table shows UNL and BNL both have very attractive interest coverage ratios throughout the fiscal years 2061/62 to 2067/68. This indicates that these companies have sufficient earning to pay its other financial obligations like interest on long-term debt.

The interest coverage ratio for UNL during the study period is fluctuating. The ratios are 140.27, 165.07, 281.45, 3247.46, 17755.67, 420.96 and 423.82 times for the financial year 2061/62, 2062/63, 2063/64, 2064/65, 2065/66, 2066/67 and 2067/68 respectively. From the above calculation, the company is sufficient to repay the interest charge. The average ratio is 3204.96 but the ratio for the fiscal year 2061/62, 2062/63, 2063/64, 2066/67 and 2067/68 are lower than the average ratio. The fiscal year 2065/66 is the safest year for the creditors' point of view due to higher ratio and fiscal year 2061/62 is an unsafe year due to the low interest coverage ratio.

From the calculation of the interest coverage ratio of BNL presented in the above table, it is clear that EBIT is highly fluctuating during the study period. The ratios for

the fiscal year 2061/62, 2062/63, 2063/64, 2064/65, 2065/66, 2066/67 and 2067/68 are 375.37, 74.43, 4.26, 2.37, 5.04, 17.67 and 19.31 respectively. The average coverage ratio is approximately 71.21 times.

The above result shows that the capital structure of the company is not fixed. The lower amount of interest means the use of lower amount of debt capital in the capital structure of the firm and use of higher amount of equity capital. In such circumstance, the company should understand that the high percentage of equity capital means the high tax payment to the government.

#### **4.2.6 Profit margin**

Profit is the main target for any business organization. The company can find out its profitability with the help of profit margin ratio. Profit margin is very useful when comparing companies in similar industries. A higher profit margin indicates a more profitable company that has better control over its cost compared to competitors. The following table illustrates the profit margin ratios for the manufacturing companies selected for the research.

$$\text{Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

Table 4.8 Profit Margin

Company	FY	Net Profit	Sales	Ratio	Change
UNL	2061/62	189.20	1481.56	12.77	-
	2062/63	238.16	1469.69	16.2	3.43
	2063/64	263.07	1818.53	14.47	-1.73
	2064/65	335.12	2144.59	15.63	1.16
	2065/66	444.04	2625.83	16.91	1.28
	2066/67	576.53	3055.07	18.87	1.96
	2067/68	609.89	3556.66	17.15	-1.72
	Average				16.00
BNL	2061/62	34.74	614.74	5.65	-
	2062/63	24.96	621.83	4.01	-1.64
	2063/64	-30.30	634.19	-4.78	-8.79
	2064/65	33.41	746.58	4.48	9.26
	2065/66	20.53	1002.72	2.05	-2.43
	2066/67	177.50	1588.15	11.18	9.13
	2067/68	241.60	1852.04	13.05	1.87
	Average				5.09

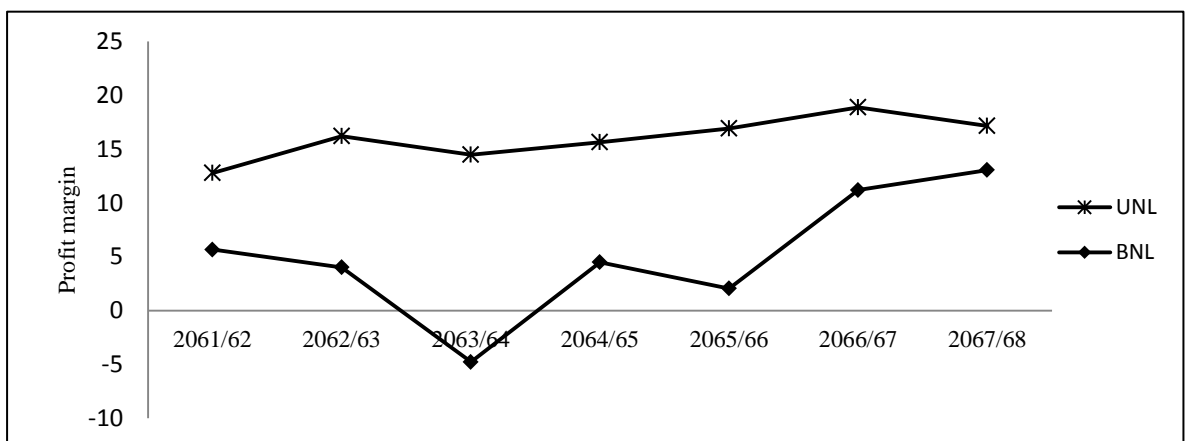


Figure 4.2.8 Profit Margin

The sales volume of UNL is increasing except in the year 2063/64 and net profit is increasing in all years but the profit margin ratio if fluctuating.

In the FY 2061/62 the profit margin ratio is 12.77 with the net profit of NRS 189.2 millions and sales NRS 1481.56 millions. Similarly, the ratio for the succeeding six fiscal years is 16.2, 14.47, 15.63, 16.91, 18.87 and 17.15 respectively. The average profit margin ratio is 16 for the company. On the light of the above data, we can conclude that the FY 2066/67 is the best year from the point of view of profit margin ratio of the company.

The sales volume of BNL is increasing, but the net profit & profit margin ratio are fluctuating. The situation of the company tells us about the inefficiency on smooth running of the business which the management of the company should try to eliminate such problem for success in the long-run.

The calculation of the profit margin ratio for the fiscal year 2061/62, 2062/63, 2064/65, 2065/66, 2066/67 and 2067/68 is 5.65, 4.01, -4.78, 2.05, 11.18 and 13.05 respectively, which indicates that the company is earning a profit of 5.65%, 4.01%, 2.05%, 11.18% and 13.05% respectively from its sales in those years. The negative profit margin of 4.78 in the year 2063/64 indicates that the company was in loss in this year.

The profit margin ratio for BNL is 5.09 on an average. The overall calculation shows that the net profit is fluctuating and the profit margin ratio is also decreasing whereas the sales are increasing. This indicates the company should make such policy to earn high amount of profit from the sales revenue by increasing operating efficiency.

### **4.3 Du-Pont System of Analysis**

The Du-Pont system of ratio is widely used by the financial managers to make classified assessment of firms profit margin, total assets turnover ratio and equity multiplier. It also shows various activities by which these ratios interact to determine profitability. For the first time, Du-Pont Corporation USA used the Du-Pont system. Du-Pont system helps to find out the cause of changing ROE, ROA, and profit margin. We evaluate ROE and ROA for the selected manufacturing companies of Nepal.

### 4.3.1 Return on Equity ((ROE)

The profit of shareholder from their investment is calculated by return on equity. It can be used as a measuring rod companies from the point of view of the investors. It can be calculated by using the following formula.

$$\text{ROE} = \text{Profit Margin} \times \text{Total Assets Turnover} \times \text{Equity Multiplier}$$

or

$$= \text{Net Profit/ Sales} \times \text{Sales / Total Assets} \times \text{Total Assets/ Equity}$$

Hence, net profit margin represents the percent of total revenue that a company keeps as profit after accounting for all other cost, variable and fixed. It can be calculated by dividing net income by sales. A higher profit margin indicates a more profitable company.

Table 4.9 Return on Equity

Company	FY	Profit Margin	Total Assets Turnover	Equity Multiplier	ROE %	Change
UNL	2061/62	12.77	1.35	5.07	87.4	
	2062/63	16.2	1.52	4.3	105.88	18.48
	2063/64	14.47	1.81	4.27	111.83	5.95
	2064/65	15.63	1.99	3.84	119.44	7.61
	2065/66	16.91	2.2	1.74	64.73	-54.71
	2066/67	18.87	2.21	1.66	69.23	4.5
	2067/68	17.17	2.36	1.63	65.97	-3.26
	Average				89.21	
BNL	2061/62	5.65	0.62	1.3	4.55	-

Company	FY	Profit Margin	Total Assets Turnover	Equity Multiplier	ROE %	Change
	2062/63	4.01	0.59	1.35	3.19	-1.36
	2063/64	-4.78	0.51	2.8	-6.83	-10.02
	2064/65	4.43	0.63	2.47	6.97	13.8
	2065/66	2.05	0.8	2.33	3.82	-3.15
	2066/67	11.18	1.09	2.32	28.27	-24.45
	2067/68	13.05	1.03	2.45	32.93	4.66
	Average				10.41	

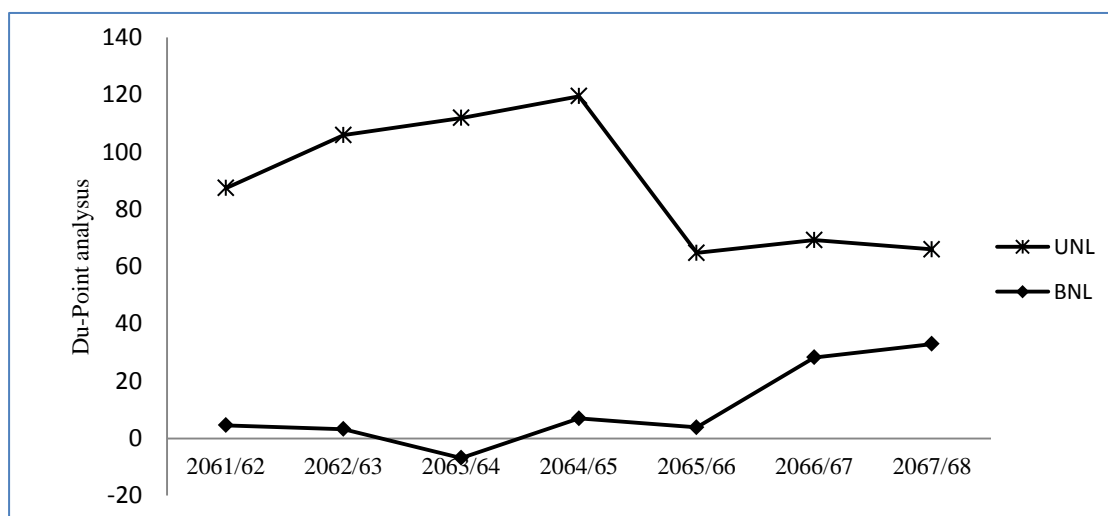


Figure 4.9 : Return on Equity

For UNL the profit margin in the FY 2062/63 is increased to 16.2 which were 12.77 during the FY 2061/62 and in the later years profit margin is fluctuating. But increased profit margin is higher than the decreased one, so there is good planning of sales and net profit. The assets turnover ratio is going on increasing trend which points out about the increasing earning capacity of the assets. The equity multiplier is in fluctuating trend as the shareholders equity is vibrating which shows that the equity

value is also fluctuating in assets financing. Due to the above reasons, the ROE for the company is also irregular. The ROE for the FY 2061/62, 2062/63, 2063/2064, 2064/65, 2065/66, 2066/67 and 2067/68 are 87.4, 105.88, 111.83, 119.44, 64.73, 69.23 and 65.97 respectively. The average ROE for the company is 89.21.

The ROE for BNL shows the fluctuating trend as calculated in the above table. The profit margin indicates that the earning available to shareholders is decreasing from the second the fifth year of the study. The total assets turnover ratio tells us about the ineffective utilization of assets as it is in decreasing trend. The company needs to reevaluate the overall strategies and capital expenditures. Equity multiplier shows that the equity capital position in relation to total assets, which indicates the assets amount more than 100% of equity capital during the entire period of the study.

The ROE for BNL in the FY 2061/62 is 4.55 which decreased to 3.19 in the FY 2062/63 and again decreased to -6.83 in the FY 2063/64. It increased to 6.97 in the FY 2064/65 and decreased to 3.82 in the FY 2065/66. Then it continuously increased to 28.27 in the FY 2066/67 and to 32.93 in the FY 2067/68 providing an average ROE of 10.41 for the company during the seven years period. The situation of the company shows that the shareholders are not receiving their return fixed amount at all. The FY of 2067/68 is the year where the shareholders return on their investment is highest and the FY 2063/64 is the worst year for their investment return.

### **4.3.2 Return on Asset (RoA)**

An indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculate by dividing a company's annual earnings by its total assets. ROA is displaces as a percentage. The higher ROA is better than lower because the company is earning more money on less investment. The following table shows the ROA for the manufacturing companies listed in NEPSE selected for the study.

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

Table 4.10 Return on Assets

Company	FY	Net Profit	Total Assets	Ratio	Change	
UNL	2061/62	189.20	1098.96	17.22	-	
	2062/63	238.16	967.15	24.62	7.4	
	2063/64	263.07	1002.55	26.24	1.62	
	2064/65	335.12	1077.97	31.09	4.85	
	2065/66	444.04	1195.09	37.16	6.07	
	2066/67	576.53	1382.49	41.7	4.54	
	2067/68	609.89	1504.52	40.5	-1.2	
	Average				31.22	
	BNL	2061/62	34.74	990.88	3.51	-
2062/63		24.96	1052.05	2.37	-1.14	
2063/64		-30.30	1255.75	-2.41	4.78	
2064/65		33.41	1190.15	2.81	5.22	
2065/66		20.53	1255.74	1.63	-1.18	
2066/67		177.50	1459.81	12.16	10.53	
2067/68		241.60	1791.30	13.49	1.33	
Average				4.79		

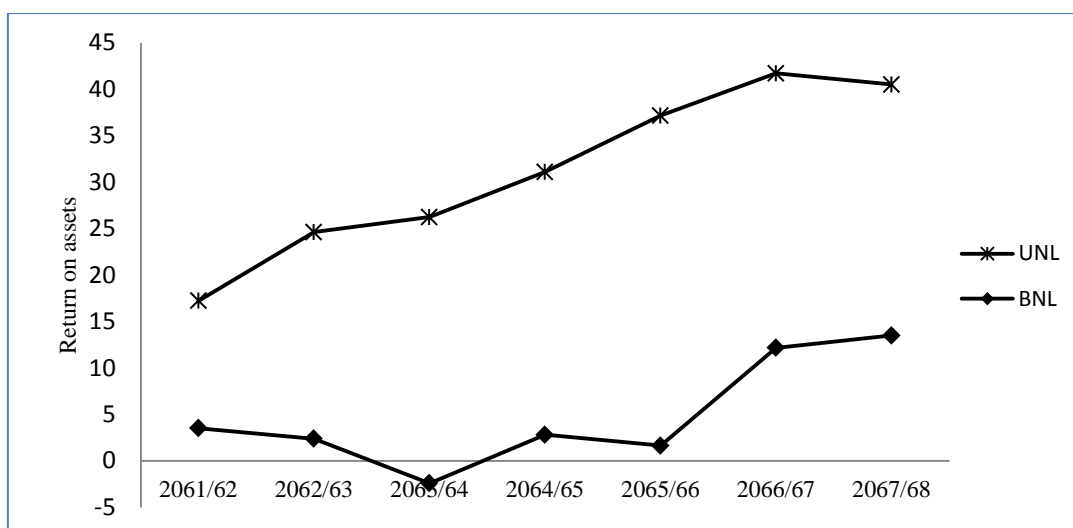


Figure 4.10 : Return on Assets

The ROA for UNL is continuously increased from the FY 2061/62 to 2066/67 whereas the ROA for the FY 2067/68 is 40.54 which decreased from 41.7 in the FY 2066/67. The average ROA for UNL is 31.22 which is above the ROA for FY 2061/62, 2062/63, 2063/64 and 2064/65 and below the ratio for rest of the years during study period. The continuous increase in the ratio from the FY 2061/62 to 2066/67 shows the increasing productivity of the assets in terms of sales overdue and profit.

The calculation of ROA for BNL shows that the net profit and the ROA are in fluctuating trend in spite of the fact that the assets are increasing. This clearly tells us that the productivity of the assets is not satisfactory for the company. The ROA for the FY 2061/62 is 3.51 which decreased in the FY 2062/63 to 2.37 and again decreased in the FY 2063/64 to -2.41. The ratio increased to 2.81 in the FY 2064/65, decreased to 1.63 in FY 2065/66, increased to 12.16 in FY 2066/67 and 13.49 in FY 2067/68. The above figures show that the earning capacity of the assets for the company is in decreasing trend, which may create serious problems for the company if it is not treated in time.

## 4.4 Cost of Capital

Cost of capital is one of the most important dimensions on analyzing the efficient use of capital. For this reason, overall costs of capital and equity capitalization rate of the selected manufacturing companies have been performed.

### 4.4.1 Overall Cost of Capital

The overall capitalization rate means the cost of overall capital collected by the company from various sources. In this research,  $K_o$  is calculated as per the NI approach.

Overall cost of capital can be expressed by following formula.

$$\text{Overall cost of capital (} K_o \text{)} = \frac{\text{Net Operating Income}}{\text{Total value of the firm}}$$

Or  $EBIT/V$

As per the assumptions of NI approach,  $K_e$  and  $K_d$  are constant and  $K_d$  is always less than  $K_e$ . Therefore,  $K_o$  will decrease as  $B/V$  increases. Also, ' $K_e$ '= $K_o$  when  $B/V=0$ .

The following table shows the measures of overall capitalization rates of the sampled manufacturing companies listed in NEPSE. It tells us about the  $K_o$  of two companies. For the both companies the value of  $K_o$  is in very fluctuating trend. The average  $K_o$  for UNL and BNL is 13.47% and 11.15% respectively. UNL has the highest  $K_o$  which indicates that the company can gain loss amount of profit compared to BNL. The company should make an effort to trim down the overall cost of capital ( $K_o$ ) to secure high percentage of return for collected capital. Reducing the debt capital is one of the best ways of reducing the value of  $K_o$ .

Table 4.11 Cost of Capital (Overall Cost of Capital)

Company	FY	EBIT	Total Value of the firm	Overall cost of Capital	Change
UNL	2061/62	248.27	1501.66	16.53	-
	2062/63	295.47	2301.75	12.84	-3.69
	2063/64	298.34	3130.38	9.53	-3.31
	2064/65	422.17	3443.42	12.26	2.73
	2065/66	532.67	3912.98	13.61	1.35
	2066/67	639.86	3914.82	16.34	2.73
	2067/68	656.92	4982.92	13.18	-
	Average				13.47
BNL	2061/62	101.35	1237.54	8.19	-
	2062/63	98.99	974.44	10.16	1.97
	2063/64	38.21	974.44	3.92	-6.24
	2064/65	49.23	1564.22	3.15	-0.77
	2065/66	131.9	1551.67	8.50	5.35
	2066/67	360.37	1498.75	24.04	15.54
	2067/68	294.09	1428.7	20.06	-3.98
	Average				11.15

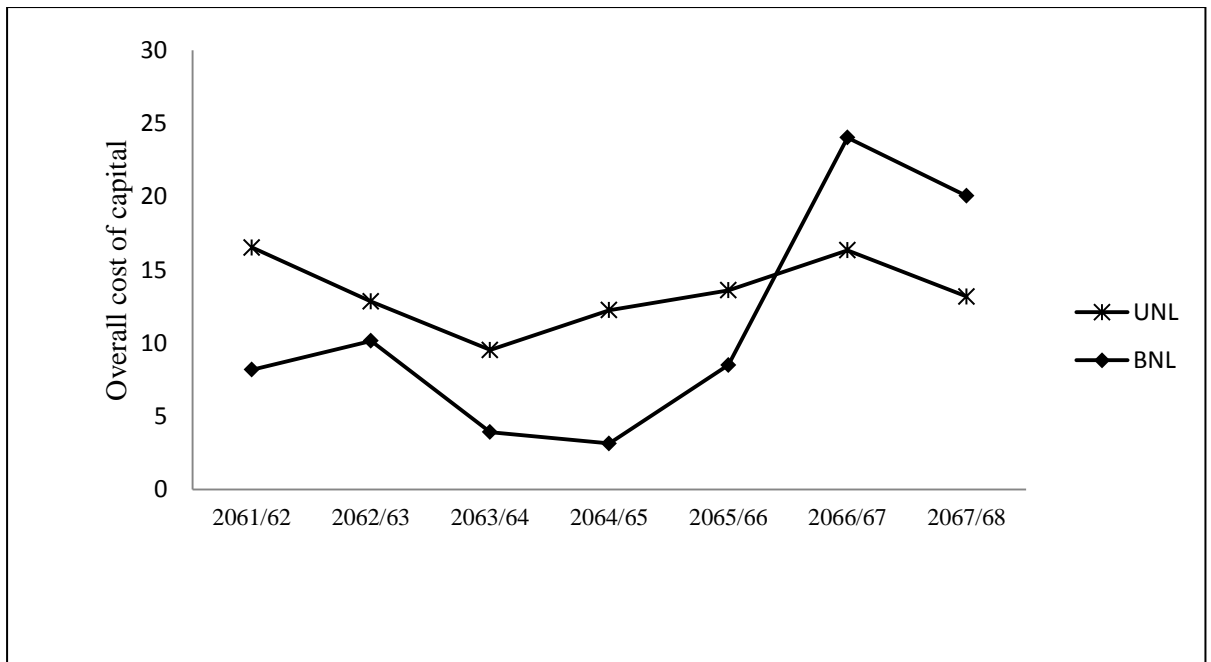


Figure 4.11 Cost of Capital (Overall Cost of Capital)

#### 4.4.2 Equity Capitalization Rate

Equity capitalization rate is another important factor analysis under Net Operating approach which is simply defined as the ratio of earning before tax divided by the value of stock. Net Operating Income approach is that irrelevant theory of capital structure which implies that the market capitalizes the value of the firm as a whole without segmenting it into the value of debt and value of equity. Whenever the less costly debt funds are used it increases the risk of the shareholders which causes the equity capitalization rate to increase. Therefore, the advantage of debt is offset exactly by the increase in the equity capitalization rate.

$$\text{Equity Capitalization Rate Under NOI Approach} = \frac{\text{EBT}}{\text{Value of Stock}}$$

Table 4.12 Equity Capitalization Rate

Company	FY	EBT	Market Value of Stock	Equity Capitalization rate	Change
UNL	2061/62	246.49	1501.66	16.41	
	2062/63	258.94	2301.75	11.25	-5.16
	2063/64	297.28	3130.38	9.50	-1.75
	2064/65	422.04	3443.42	12.26	2.76
	2065/66	532.64	3912.98	13.61	1.35
	2066/67	638.24	3914.82	16.30	2.69
	2067/68	655.17	4982.92	13.15	-3.15
	Average			13.21	
BNL	2061/62	101.09	1237.54	8.17	
	2062/63	97.66	974.44	10.02	2.03
	2063/64	29.33	974.44	3.01	-7.01
	2064/65	28.44	1364.22	2.08	-0.93
	2065/66	105.70	1411	7.49	5.41
	2066/67	339.98	1418.79	23.96	16.47
	2067/68	278.86	1420.74	19.63	-4.33
	Average			10.62	

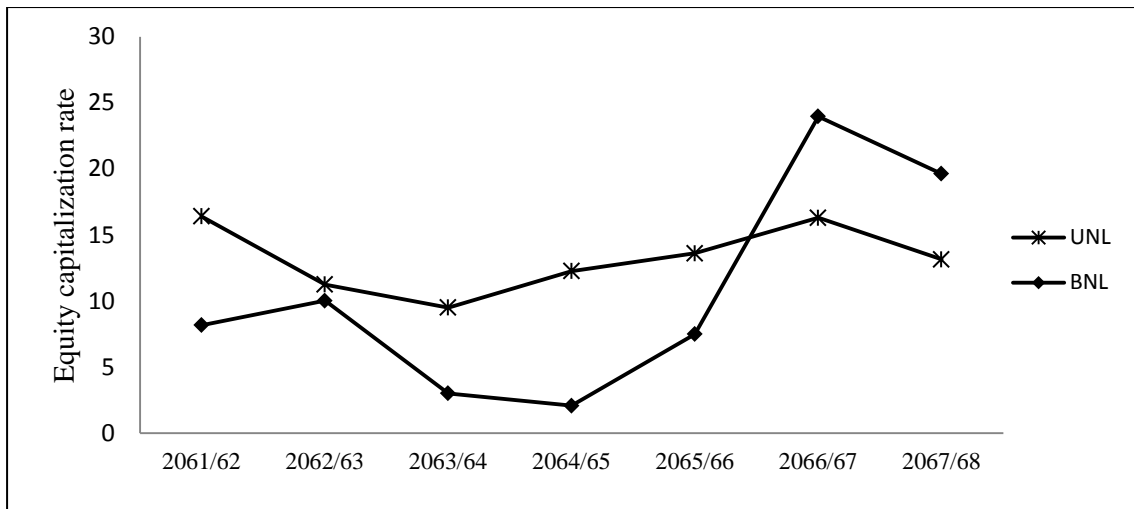


Figure 4.12 Equity Capitalization Rate

The equity capitalization rates for the selected manufacturing companies for 7 years are shown on the above table. The equity capitalization rate tells us about the cost paid to the equity in spite of using the funds. The equity capitalization rate ( $K_e$ ) is fluctuating as the following table is indicating. The cost of equity for UNL is highest than BNL. The average  $K_e$  for UNL and BNL is 13.21% and 10.62% respectively. The equity-based company should pay the higher amount towards the cost of equity whereas a highly levered company has to pay comparatively lower amount towards the cost of equity.

#### 4.5 Major Findings of the Study

The major findings of the study with respect to capital structure of the manufacturing companies are.

- The average DOL of both companies, UNL and BNL is negative representing -3.14 and -4.08 respectively. It means both companies are in good situation because higher average DOL always increases the risk for company. In comparison BNL has low risk than UNL because UNL has slightly higher average DOL than BNL.
- The average DFL for UNL and BNL is 2.95 and 1.77 respectively. Based on DFL UNL is better than BNL. BNL has the negative ratio in the years of 2064/65, 2065/66 and 2067/68.

- Debt to Total Assets ratio for UNL 61.21 is higher than BNL 56.67 which implies that UNL has given more priority to debt financing. Higher the debt to total assets ratio more the risk for company, thus between these two companies BNL is better.
- UNL has the highest debt to equity ratio. The debt equity ratio is highest in comparison to another manufacturing company which show that it can manage its liabilities with its existing equity. The average ratio of total debt to equity for UNL and BNL are 22.55 and 131.31 respectively.
- BNL has the highest proportion of leverage which implies that it uses debt in higher proportion than equity. The average proportion of leverage for UNL and BNL are 25.34 and 57.10 respectively.
- Unilever Nepal Limited does not have any long-term debt but Bottlers Nepal Limited has used long-term debt in some years. So UNL is unlevered company and BNL is levered company .The ratio for ratio for BNL is 11.62.
- The average profit margin for UNL and BNL is 16.0 and 5.09 respectively. A higher profit margin indicates more profitable company that has better control over its costs compared to its competitor. Thus UNL is better in this case.
- The average interest coverage ratio for UNL and BNL is 3204.96 and 71.21 respectively. Due to the use of lower amount of debt, the coverage ratio for UNL is high so comparatively BNL has good coverage ratio than UNL.
- The average Return on Equity for UNL and BNL are 89.21 and 10.41 respectively. Return on Equity measure a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. So the investors of the UNL are getting more returns from their investments.
- The average Return on Assets for UNL and BNL are 31.22 and 4.79 respectively. Return on Assets gives an idea as how efficient management is at using its assets to generate earnings. The average Return on Assets is higher for the UNL indicating the good production power of assets.
- From the calculation of overall capitalization rate, we can see that the UNL has the higher average value of  $K_o$  than BNL. It is because BNL is levered company. The value of  $K_e$  is also higher in an average for UNL between the two

manufacturing companies. The use of less costly debt fund increases the risk to the shareholders; this causes the equity capitalization rate to increase.

The major findings of the study can be summarized as in the following table.

Table 4.13 Summary of Findings

S. N.	Ratios	UNL	BNL
1	DOL	-3.14	-4.08
2	DFL	2.95	1.77
3	Total Debt to Total Assets	61.21	56.67
4	Total Debt to Equity	221.55	231.31
5	Proportion of Leverage	25.34	57.10
6	Long-term Debt to Equity Ratio	0	11.62
7	Interest Coverage Ratio	3204.96	71.21
8	Profit Margin	16.0	5.09
9	Return On Equity	89.21	10.41
10	Return On Assets	31.22	4.79
11	Overall Capitalization Rate (Ko)	13.47	11.15
12	Equity Capitalization Rate (Ke)	13.21	10.62

## **CHAPTER- V**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 Summary**

This study is based upon the capital structure management of two selected manufacturing companies of Nepal. It covers the period of seven years from 2061 to 2068 B.S. It included the data of two manufacturing companies listed with Nepal Stock Exchange Ltd. Kathmandu, Nepal (NEPSE).

The brief introduction of this study has been already presented in the first chapter. In the second chapter the available literature about the capital structure management has been reviewed. Research methodology has explained in the third chapter. And the available data have been presented and analyzed in the fourth chapter.

This is the last chapter of this study. This chapter summarizes the whole study. The main objective of the study is to draw the major findings and conclusions and forwards the recommendation for the better capital structure management of Nepalese manufacturing companies.

This study covered two listed Nepalese manufacturing companies they are Unilever Nepal Limited and Bottlers Nepal Limited. The necessary data on capital structure and related variables were collected for the period 2061 to 2068 for this purpose of the study.

The capital structure has many relevant dimensions. The financing mix is one of them. Other dimensions involve the investment decisions of the firm and the optimal use of leverage, within the constraints imposed by the internal and external environmental conditions. The conceptual framework, different view of different writers, books and journals and articles has been dealt in the Review of literature section.

As per the objective of this study, it tries to analyze the relationship between debt and shareholders' equity of manufacturing companies to provide suggestion on the basis of major findings. To fulfill this purpose, the study follows the analytical and descriptive research design.

Research Methodology is studied in the third chapter. It has included the research design. It presents nature and sources of data, data collection, and processing techniques and financial tools used. Presentation and analysis of data is carried out in the fourth chapter. Average DOL for UNL is higher than BNL whereas the average value of DFL for BNL is higher than for UNL. The average ratio of total debt to total asset for BNL is 56.67 lesser than that of UNL, 61.21. The BNL had relied mainly on owner's capital. The average ratio of total debt to equity for UNL is 221.55 and that for BNL is 131.31. Average value of proportion of leverage for UNL is 25.34 and is 57.10 for BNL. The average interest coverage ratio is 3204.96 times for UNL and 71.21 times for BNL. The profit margin of the companies does not show a satisfactory picture during the study period. The profit margin for UNL is higher. The ROE for UNL is higher than BNL. The average ROA is higher for the UNL than BNL. The overall capitalization rate of UNL is higher than BNL. Cost of equity capitalization ( $K_e$ ) is also higher on an average for UNL than the BNL.

## 5.2 Conclusion

The fact that both manufacturing companies have negative DOL indicates good economic health of both companies. In comparison, the BNL with average DOL -4.08 has better condition than that of UNL with average DOL -3.14 as the higher degree of operating leverage is harmful to the company.

Based on DFL values, it can be concluded that UNL is more consistent than BNL and it has higher value than BNL.

There is no LTD in the capital structure of UNL which means it is unlevered company and its TD is composed of short-term loans which is in a variable trend. In case of BNL, its capital structure consist LTD since last few years.

The average value of debt to equity ratio is higher for UNL than for BNL which shows that the coverage of total debt by shareholders' equity is higher in UNL than in BNL.

In case of proportion of leverage, BNL has the higher value than UNL which implies that BNL uses debt in higher proportion than equity.

UNL has higher profit margin than BNL which tells that it is more profitable company and indicates that it has better control over its costs compared to its competitor.

The amount of interest coverage represents the amount of debt capital and equity capital in the capital structure of the company. The fact that BNL has lower interest coverage than UNL shows the use of lower amount of debt capital in the capital structure of the firm and use of higher amount of equity capital compared to UNL.

The profit margin ratio is fluctuating for both of the companies during the study period however the amount of sales is consistently increasing every year. This indicates that the company should make such policy to earn high amount of profit from the sales revenue by increasing operating efficiency.

The higher value of the ROE for UNL than of BNL suggests that the investors of the UNL are getting more returns from their investments.

The average ROA is higher for the UNL which indicates the good production power of assets. Earnings per share for UNL seem to be higher than that of BNL. So the investors can be attracted by the proposal of UNL.

From the calculation of overall capitalization rate, we can see that the UNL has the higher average value of  $K_o$ . The value of  $K_e$  is also higher in an average for UNL. The use of less costly debt fund increases the risk to the shareholders; this causes the equity capitalization rate to increase.

### **5.3 Recommendations**

Capital structure is taken as one of the most complex and mystifying subject matter of financial management. It is a very difficult decision that involves a complex trade-off among several considerations. The findings of the study show that most of the Nepalese companies lack theoretical and practical knowledge of capital structure and due to which they have not been able to utilize their fund and resources in a proper way. The value of the firm does not only depend upon the best mix of the sources of fund but it is also affected by various other factors whether environmental or non-environmental. The outer environment that surrounds the business firm may be government rules, economic conditions of the nation, and natural disasters. Whenever we happen to shed a light upon the present condition of our country, it is seen to be in turmoil which directly or indirectly affects the functioning of the business firm. Various obstacles that hinder the development of the Nepalese manufacturing companies were discussed in the first chapter. Therefore, in order to overcome all the problems faced by these companies, the managers need to be alert. They should focus their eye in the investment decisions and other decisions too. The management should be updated with all the internal environment of the company. The most vital factor in which the company seeks the proper decision of the management is the choice of the proper mix of the source of fund.

The recommendations regarding the study are given as follows:

- Consistency in the capital structure management should be maintained.
- Optimal capital structure should be determined.
- A careful attention should be given on the features of capital structure and its determinants, before designing the capital structure for the company.
- Any company has to compare its business performance with several other companies similar to it so that it can also improve in the fields where it is weak and the competing firm is strong. This helps the company to work on its weaknesses.

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