CHAPTER - I

INTRODUCTION

1.1   Background of the Study

The Superstructure of any enterprise could only be built on a sound financial base. Finance is necessary for the commencement, continuance and growth of corporate enterprises. Hence, without adequate and timely provision of finance from cheaper sources, it would not be possible for an enterprise to successfully operate and expand. In the area of finance, management of capital structure is one of the most important functions of finance executive because it affects the price of shares in the stock market and return to the shareholders. A financial manager has to plan the corporate capital structure properly in such a way that the plan would give the maximum benefits to the owners. This proper design can be arrived at only when long-term debt and equity is properly blended to result into an optimum capital structure.

Economic development of a country is a pillar for development of a nation in the present age of globalization industrialization is the way of raising productivity and creates employment. Unfortunately, the growth of industries in Nepal has been a slow process. Nepal started its planned development in 1956. Since then, the country has accumulated a rich experience of formulating and implementing the various plans. The growth of industries during the various plan periods has been mixed.

The Industrial Enterprise Act, 1992 has classified the industries based on both nature of business and scale of operations. Based on nature of

business it has classified into nine different categories, which comprises Manufacturing, Energy based, Agro and Forest based, Minerals, Tourism, Service and Construction, Electricity, Gas and Water, Transport and Communication and finally Finance and Real estate. Manufacturing and tourism are the main two pillars of industrial development in Nepal as well as banking or financial sector also plays a vital role for development. It plays a very supportive role in the development of both manufacturing and non-manufacturing sector. Over viewing the facts, manufacturing, tourism and financial sectors are very important industries, but establishment of different industries is not an easy job. It needs basic infrastructure, huge amount of investments, development of technology etc. Moreover, raw materials and efficient manpower, good management and effective product market are the essential factors in the process of industrialization. Among them capital is the key factor. Without huge investment nothing can be done. Because capital is only one factor by which all the other factors can be achieved.

The capital structure consists of two words i.e. capital and structure. It means that capital is the fund raised from different sectors to finance different assets, short-term or long -term. While the term structure, is the management of capital as well as other components. Thus, capital structure is the mix of long term sources of funds, such as debentures, long-term debt, preference share capital and equity share capital including reserves and surpluses. A mix of a company's long-term debt, specific short-term debt, common equity and preferred stock is capital structure, in totality. The capital structure is how a firm finances its overall operations and growth by using different sources of funds. Debt

comes in the form of bond issues or long-term notes payable, while equity is classified as common stock, preferred stock or retained earnings. A company's proportion of short and long-term debt is considered when analyzing capital structure. When people refer to capital structure they are most likely referring to a firm's debt-to-equity ratio, which provides insight into how risky a company is. Usually a company more heavily financed by debt poses greater risk, as this firm is relatively highly levered.

Capital structure is the mixture of sources of funds a firm uses (debt, preferred stock, common stock). The amount of debt that a firm uses to finance its assets is called leverage. A firm with a lot of debt in its capital structure is said to be highly levered. A firm with no debt is said to be un levered. Capital structure can be viewed as the permanent financing the firm represented primarily by long-term debt, preferred stock, and common equity but excluding all short-term credit. The proportions of debt and equity used to finance the firm's assets, has implications for stockholder value. Additionally, capital structure affects leverage, which, in turn, affects the expected return and risk facing owners and creditors of the firm. A firm's capital structure is determined by the proportion of debt and equity capital used in financing the firm's assets. A proper balance between debt and equity is necessary to ensure a trade- off between risk and return to the shareholders. A capital structure with a reasonable proportion of debt and equity capital is called optimal capital structure. Financial manager should try to construct optimal capital structure, which minimize cost of capital through risk reduction and ultimately increase value of firm. Optimal capital structure is achieved by

balancing financing so as to achieve lowest average cost of long- term financing. This in turn produces maximum market value for corporate income (Guthmann and Dougall, 1966).

Cost of capital is significant in the capital structure decision. Each source of funds finance by companies includes implicit and explicit cost. The cost of capital refers to the discount rate that would be used in determining the present value of the estimated future cash proceeds and eventually deciding whether the project's worth undertaking or not (Barges, 1963). The cost of capital for the firm is a weighted sum of cost of equity and cost of debt. Cost of capital of the firm depends on risk free rate of that firm, business risk, and financial risk. The cost of capital helps management in moving towards its target capital structure or an optimal capital structure provided; there exists a relationship between two. Costs of capital can often reduced when two firms merge because of issuing securities are subject to economies of scale. Thus, cost of capital is weighted average cost of debt and cost of equity. The capital and cost of capital both are important in wealth maximizing of the shareholders.

Financing the firm's asset is a very crucial problem in every business and as a general rule there should be a proper mix of debt and equity capital in financing the firm's assets. Though the capital structure cannot affect the total earning of the firm, it generally affects the earning available to equity shareholders. In managing the capital structure the finance manager's goal should be to maximize the shareholder's wealth

A balance capital structure is the prerequisite for successful business organization but it is lacking in almost all companies in Nepal. The

capital structure of Nepalese companies is of diverse nature, as no companies seem to have followed a particular capital structure policy. Some of the companies are using equity capital only and some are using both debt and equity irrespective of maximization of the value of the firm.

1.2 Focus of Study

The capital is considered to be very essential factor from the beginning of a business organization. In the absence of the capital, the organization has to halt their daily operational activities. The success of the organization depends upon proper composition of debt-equity helps to generate high return to the firm and helps in long- term solvency.

Investors invest their funds either in ownership securities or debt securities of the firm with expectation of getting favorable return in the future. In absence of proper utilization of capital it fails to meet their expectation and damages the creditworthiness of the firm and leads to fall market value of the firm.

The banks are such business organization which deals with others money and the study of capital structure incase of the banks are very crucial. This study mainly focuses on the capital structure and its impact on cost of capital of the sampled joint venture commercial banks exist at present in Nepalese economy.

1.3 Statement of Problem

At present, commercial banks and other financial institutions are the backbone of Nepalese economy. The establishment of the joint venture banks in this sector has added more bricks in the construction of Nepalese economy. The establishments of joint venture banks became possible only after the introduction of the "Financial Sector Reforms" by the Government in 1980. In the year 1987-88, the Government adopted liberalization policy in interest rate structure directing only for interest spread. This led increment in commercial banks and other financial institutions.

The main objective of commercial banks is to maximize profit and reduce its cost in effective way within the constraints of limited resources. In doing so, it must take care of different factors that affect profitability and cost of capital of the firm hence, capital structure is one of the major factors. Capital structure refers to the proportion of different types of securities issued by the firm like common shares, long-term debt, preference share capital, debenture and retained earnings. Effective capital structure is a key to successful banking. The capital structure to the firm affects the profitability position and cost of capital. So, every firm has to maintain its capital structure effectively.

The concept of capital structure has been the subject of the controversy since the publication of Modigliani and Millers classic paper in 1958. They hold the view that costs of capital to the firms remain invariant to capital structure change. Alternatively, the traditional belief is that the cost of capital is the function of capital structure (Soloman, 1969:65). Many empirical studies exist supporting and refusing the M-M and

traditional view. "Barges (1963) used simple regression technique in his study to analyze cost of capital and leverage and between the stock yield and debt equity ratio and utilized cross section data from different industries. Similarly, by using British data of three unregulated industries, Davenport (1971) tried to test M-M cost of capital proposition and regression equations were estimated and his result supported the traditional view. Pandey (1981) computed multiple regression equation to test the validity of M-M proportion and his result concluded the cost of capital is the function of capital structure. Furthermore, Weston (1963) used M-M's cost of capital model for his sample of 59 utilities in 1959 and found regression coefficient of leverage to be positive and significant. However, when multiple regressions were run the result was constant with the traditional views. The study of evolution of finance clearly indicates that useful theoretical developments have not been uniform accords all area of financial decision making within an organization (Suecpeer, 1968). The effect of capital structure on the cost of capital is one of them.

The capital structure and the cost of capital help to maximize the value of the firm. In the underdeveloped country as Nepal, the relationship between capital structure and cost of capital is not yet clearly known and expressed. There are many studies conducted in Capital Structure Management of different companies of Nepal and most of the studies are based in financial ratio analysis. It is the subject of curiosity for the students, researchers, and other interested parties to know what is the actual position of Nepalese companies regarding, theories of capital structure and cost of capital. This study is devoted to examine the relationship between capital structure and cost of capital of selected joint

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venture commercial banks; they are N pal Bank Limit , Nabil Bank Ltd., Standard Chartered Bank Nepal Ltd., Himalayan Bank Ltd. and Everest Bank Limited. This study specially deals with the following problem.

1. Whether or not Nepalese commercial banks are practicing process of capital structure and to what extent?
2. Is the capital structure of the sampled banks sound?
3. Whether the cost of the capital declines with leverage in Nepalese commercial banks?
4. What is the affect of other factors like assets composition, corporate size, debt servicing capacity and earning rate of capital structure?

1.4 Objective of the Study

The major objective of the study is to examine and analyze the effect of the capital structure on cost of capital in the context of Nepal. Following are some specific objective of the study.

1. To analyze the capital structure and leverage position of sampled commercial banks.
2. To analyze the cost of capital and return on capital in relation to the capital employed.
3. To examine the relationship between capital structure and debt equity ratio with reference to financial variables such as debt servicing capacity, earning rate, assets composition, corporate size.

1.5 Significance of Study

The capital structure deeply impacts over the cost of capital and long-term financial position of the firm. The earning nature of the firm helps to adopt appropriate mix of debt and equity in the capital structure. On account of this significance, the capital structure and cost of capital of the firm is justified as specific subject matter for the study. Simple and multiple regression approaches are used to test this relationship. The findings of this study are based on the pooled data of selected banks.

The study helps the researchers, investors, creditors and other stakeholders to analyze the financial position of the firm and they also may know the impact of capital structure on cost of capital. This study is based on the annual accounting data collected, basically from the profit and loss account and balance sheet.

1.6 Limitation of the study

This study is conducted within some limitations and constraints. Being an academic research, this research has been done under time and financial constraints. Findings are based on secondary data; mainly the data provided by sampled banks. Therefore, the reality of the study is fully depending on secondary sources of data.

The main limitations of the study are as follow:

1. The study is based on secondary data. Hence accuracy depends upon the data provided by banks.

2. The study covers the data of the five fiscal years from F.Y. 2005 to 2010.The data available in published annual reports by Nepal Rastra Bank, AGM Reports of commercial banks have been assumed to be authentic and reliable.

1.7 Organization of the Study

This study has been organized into five chapters. Each is developed to some aspects of the study to the effect of capital structure on cost of capital. The title of each chapter is as follows.

Chapter One   Introduction

Chapter Two   Literature Review

Chapter Three   Research Methodology

Chapter Four   Data Analysis and Interpretation

Chapter Five   Summary and Conclusion

Chapter One deals with the subject matter of the study consisting Background of the Study, Focus of the study, Statement of the problem, Objectives of the study, Limitation of the study and Organization of the study.

Chapter Two deals with literature review. It includes a discussion on the conceptual framework i.e. cost of capital, financial leverage, capital structure theories and review of major empirical works relating to the capital structure and cost of capital.

Chapter Three deals with research methodology, it consist of methodology adopted to achieve the objective i.e. research design, population and sample, specification of variables and data analysis method.

Chapter Four deals with the analysis and interpretation of data by using different statistical and financial tools used in analysis

Chapter Five deals summary, conclusion and recommendation of the study.

CHAPTER - II
REVIEW OF LITERATURE

2.1   Introduction

This chapter covers the review of literature. So far as the analysis of capital structure in the context of Nepalese enterprises is concerned, some studies have been undertaken by the management experts and studies of M.B.A. and M.B.S. describing the capital structure of the enterprises. There are many studies related to the financial performance of manufacturing, commercial and trading companies. The available literatures are reviewed relating to the field of this study. The literature reviews relating to this study are presented below.

2.2 Concept of Capital Structure

Capital structure, known as financial plans refers to the composition of long term debt, preference share capital and equity share capital including reserves and surplus. Capital structure is concerned with the analyzing the capital composition of the company. In other words of the well knows professor Weston and Brigham "capital structure is the permanent financing of the firm, representing primarily by long term debt, preferred stock and common stock, but excluding all short term credit .Thus a firm's capital structure in only a part of its financial structure" The capital structure of the firm, defined as the mix of financial instruments used to finance the firm, is simplified to include only long term interest bearing debt and common stock, excluding short term liabilities. Capital structure is the combination of the long-term sources of funding, i.e. preferred

stock, common stock that are used to finance the firm. Similarly capital structure is the mix of long-term debt and equity maintained by the firm. Optimum capital structure can be defined as that mix if debt and equity which will maximize the market value of a company, i.e. aggregate value of the claims of ownership interest represented as the credit side of the balance sheet.

In the study of capital structure, a change in one capital source due to the changing source of another capital can be studied under leverage. Similarly, in the profit planning process, firm analyses the ways of increasing amount of profit, considerably attentions are given to different kinds of leverage. Thus, the financial leverage measures the responsiveness of EPS to change in EBIT. As the objective of the firm should be directed towards the maximization of the value of the firm, the capital structure decision should be examined from the point of view of is impact on the value of the firm. If the value of the firm be affected by capital structure, a firm should prefer a capital structure, which maximizes the value of the firm.

The value of a firm depends upon its expected earning streams and the rate used to discount this stream. The rate used to discount the earning stream is the required rate of return or cost of capital. Thus, the capital structure decision can affect the value of the firm either by changing the expected earnings or the cost of capital both. The cost of capital is the most vital concept in the financial decision-making. The cost of capital is influenced by the change in capital structure. The cost of capital is also called hurdle rate or requited rate of return for investors. The required rate of return of all the assets is not same because of their variability in return and attitude of investors towards them. The required rate of return

of investors is made up of two components i.e. risk free rate of return and market risk premium. According to Capital Assets Pricing Model developed by William Sharp and John Litner, the required rate of return of an investor is the linear function of security market line. The risk free rate of return, which one gets by investing in the government securities, is the same for all assets but the market risk premium may be different for different assets. The market risk premium is the compensation for bearing systematic portion of total risk associated with the given assets. Thus, higher the attachment of systematic risk in the given assets higher will be the market risk premium and hence required rate of return.

From the company's point of view, the required rate of return of an investor is the cost of capital of a firm. The higher the required rate of returns to investors, the higher the cost of capital of a firm and ultimately lowers the value of the firm and vice- versa. Different sources of capital require a specific cost for the use of them in the firm. Therefore, any change incurred in the source of fund of capital structure may cause similar change in the overall cost of capital and value of the firm. Theoretically, the financial manager should plan an optimum capital structure for his company. The optimum capital structure is obtained when the market value per share is maximum or the average cost of capital is minimum. The value of the firm will be maximized or the cost will be minimized when the marginal real cost of each source fund is same. The optimal capital structure is justified by analyzing the solvency of the company. The long- term solvency is measured by various capital structure ratios. The capital structure ratios indicate whether the firm has resorted to an optimal financing mix or it is highly or lowly levered.

2.3 Determinants of the Capital Structure

Capital structure of a firm is determined by the various internal and external factors (Baral; 1996, 161). Capital structure is one of the much crucial decisions that a financial manager has to make as it affects risk, return, and cost of capital and value of firm. The optimal capital structure is one that maximizes the value of the firm or reduces the overall cost of capital. But, in practice the optimal capital structure is governed by many factors beside the cost of capital in the capital structure. The financial manager should set a target capital structure and the subsequent financing decision should be made with a view to achieve target capital structure. Every time when the funds have to be procured, the financial manager needs to weight pros and cons of various sources of finance and selects most advantageous source keeping in view the target capital structure. We may use various methods of analysis, none completely satisfactory in it but taken collectively, they give enough information to make a rational decision.

The negative views stress that relationship between capital structure and size of the enterprises measured by the ratio of total debt to total assets, is very high cost of outside equity funds for a small enterprise. The positive views stress that relationship between size of enterprise and capital structures is sound on the theoretical ground because the larger enterprises are more diversified, have easy access of capital market, receive higher credit ratings for their debt issues and pay lower interest rate, is less prove to bankruptcy. The agency cost is likely to be higher for enterprises in growing industries, which have more flexibility in their choice of future investment. Hence, growth rate is negatively related with

long term debt level, conversely, pecking order theory implies the positive relation between debt level and growth rate of the enterprise. The proportion is based on the reasoning that a higher growth rate implies a higher demand for funds and cetris paribus, a greater reliance on external financing through the preferred source of debt.

Profitability of the firm is one of the important explanatory factors of the capital structure. The static trade-off hypothesis pleads the low level of debt capital of risky firms. The higher profitability of firms implies higher debt capacity and less risky to the debt holders. So as per this theory, capital structure and profitability are positively associated. The non- debt tax shield especially depreciation affects the capital structure of the enterprises. De Angelo and Masuli in their non-debt tax shield model argue that the presence of non- debt tax shields affects the corporate capital structure to the extent to which corporations can gain from the substitution of debt for equity. The higher debt service ratio shows the higher debt capacity of the enterprises. Hence, this theory suggests the positive relationship between the debt service capacity and capital structure of the enterprises.

Similarly, age of enterprises, business risk, collateral value of the assets and operating cash flows also determine the capital structure.

2.4 Capital Structure Theories

In respect of capital structure decision of the firm, several capital structure theories have been developed over the period. The theories introduced in early stage are based on the assumption of investor's view over the degree of leverage. These theories are as follows:

I.   Net Income Approach (NI)

II.   Net Operating Income Approach (NOI)

III.   Traditional Approach

IV.   Modigliani- Miller's Approach

These two divergent views are the variations of the net income approach (NI) and the net operating income approach (NOI) as an originally developed by Durand (Durand, 1958). In 1958 a comprehensive analysis of capital structure by Franco Modigliani and Metro miller published an article on the issue of capital structure irrelevancy. The article is considered to be the most significant work in financial research. In this article M-M logically assert that the value of the firm or the cost of capital is independent of capital structure decision of the firm. However, two conflicting views exist in the relationship between capital structure and cost of capital or the value of the firm (Modigliani and Miller, 1958).

I.   **Net Income Approach (NI)**

The Net income approach assumes no change in the attitude of the both stockholders and debt holders regarding the required rate of return in response to a change in debt and equity ratio of the firm. Consequently the interest rate on debt (k_i) and the equity capitalization rate (k_e) remain constant regardless of the leverage. Due to limited degree of risk, the debt holder's required rate of return is relatively lower than that of equity holders: So the debt financing is relatively cheaper than equity. In addition at constant cost equity (k_e) and the cost of debt (k_i), the over all cost of capital (k_o) declines with the increased proportion of the debt in the capital structure. In other word, the increased use of debt results the lower overall cost of capital (k_o) and higher market value of shares. Thus,

this approach is appeared as relevancy theory. Therefore according to this approach, the capital structure decision is relevant to the valuation of the firm and the overall cost of capital. In other words, a change in the financial leverage (proportion of debt in the capital structure) will lead to a corresponding change in the overall cost of capital as well as total value of the firm. So, if we increase the ratio of debt in the capital structure, the weighted average cost of capital will decline and the value of the firm as well as the market price of the ordinary shares will increase. In contrast, a decrease in the debt ratio will cause an increase in the overall cost of capital and a decline in the value of the firm as well the market prices of the equity shares.

There are various assumptions of net income approach, and to calculate the value of a firm and weighted average cost of capital (WACC), these assumptions are constantly used and they are as follows:

1   There are no taxes.

2   The cost of debt is less than the equity-capitalization rate or the cost of equity.

3   Cost of debt and cost of equity remain constant.

4   The use of debt does not change the risk perception of investors.

5   Net operating income remains constant.

6   Overall cost of capital decreases as leverage increases.

II. Net Operating Income Approach

The net operating income approach (NOI) is slightly different from net income approach with respect to the assumption of the behavior of equity holders and debt holders. The NOI approach assumes that the equity holder feel higher degree of financial risk and demand higher rate return

for higher debt equity ratio. Furthermore, this approach says that the cost of equity increases with the debt level, and the higher cost of equity offset the benefit of cheaper debt financing; consequently, no effect at all on overall cost of capital (ko) as well as the cost of debt (ki) remain constant regardless of the degree of the leverage. Thus, this approach argues that the capital structure decision of the firm is irrelevant because, any change in leverage will not lead to any change in the total value of the firm and the market price of shares. This theory assumes that the capital structure (proportion of debt and equity) is irrelevant to the value of firm and the overall cost of capital. Under this approach, net operating income is capitalized as an overall capitalization rate to obtain total market value of the firm. The market value of the debt, then, is deducted from the total market value to obtain the market value of the stock. There are various assumptions of the net operating income approach and they are as follows:

1. The overall cost of capital remains constant.
2. The cost of debt remains constant.
3. Cost of debt is less than cost of equity.
4. The required rate on equity increases linearly with an increase in debt ratio.
5. Total operating profit remains constant.

The function of "k_e" under 'NOI' approach can be expressed in equation as follows.

$$k_e = k_o + (k_o - k_b)D/S \dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (2.1)$$

where, D/S is the debt equity ratio at market values equation (2.1) indicates that if 'ko' and 'kb' are constant 'ke' would increase linearly with debt equity ratio D/S.

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 Pincheas 1975:791).

III. Traditional Approach

Traditional approach assumes the capital structure as relevant matter for the value and cost of capital of the firm. It takes some features of both net income and net operating income approach. This approach strikes a balance between the two different approaches net income and net operating income. Therefore, it is also known as the intermediate approach. It resembles the net income approach in arguing that cost of capital and total value of the firm are not independent of the capital structure. But it does not subscribe to the view of net income approach that a value of a firm will necessarily increase for all degree of leverage. In one respect it shares a feature with the NOI approach that beyond a certain degree of leverage, the overall cost increases leading to a decrease in the total value of the firm.

According to this approach, there is an optimal capital structure therefore; the firm can increase the total value of the firm through the wise use of leverage. The firm initially can lower its overall cost of capital through the use of cheapest cost debt and raise its total value through leverage. But the increase in leverage increases the risk to the debt holders and the debt holders demand high interest rate as a result the overall cost of capital also increases.

"The traditional approach assumes that there exists an optimal capital structure and that a firm can increase its total value through the judicious use of leverage." (Van Horne, 1997; 261).

According to this view, the value of the firm can be increased or the cost of capital can be reduced by the judicious mix of debt and equity capital." (Pandey, 1987; 236).

According to traditional approach, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three stages. (Soloman1969; 94)

Stage 1 - Increasing value

The first stage of traditional begins with the introduction of debt in the total capital. "In this stage, the debt capitalization rate, kd remains more or less constant upto a certain degree of leverage but rises thereafter at an increasing rate". (Prassanna Chandra, 1990; 461). It means, the equity capitalization rate, ke remains constant or rises slightly with debt fund, but when it increases, it does not increase fast enough to offset the advantage of low cost debt. During this stage, the cost of debt (kd) remains constant or rises negligibly since the market views the use of debt as a reasonable policy. As a result, the value of the firm (V) will increase or the overall capitalization rate (ko) falls with increase in leverage.

Under the assumption that 'ke' remain constant with in the acceptable limit of debt, the value of the firm will be:

$$V = S + B = \frac{X - KiB}{Ke} + \frac{KiB}{Ki}$$

$$\frac{X - KiB}{Ke} + B = \frac{X}{Ke} + \frac{(Ke - kI)}{Ke} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2.2)$$

Thus, so long as 'K_e' and 'K_d' are constant, the value of the firm V increases at a constant rate $(K_e-K_i)/Ke$ as the amount of debt increase. When equation (2.2) is solved for X/V we get

$K_o = X/V = K_e - (K_e - K_i) B/V$ ……………………………… (2.3)

This implies that with $k_e > k_i$, the average cost of capital will decline with leverage.

Stage 2- Optimum Value

In the second stage, "The cost of equity capital (Ke) remains more of less constant or raises only gradually upto a certain degree of leverage and rises sharply thereafter." (Chandra, 1990; 461).

Once the firm has reached a certain degree of leverage, further application of debt have a negligible effect on the value of the firm or the overall cost of capital to the firm. This is so because the increase in cost of equity offsets the advantage of low cost of debt. At this specific level of leverage the value of firm will be maximum or the cost of capital will be minimum.

Stage 3- Declining Value

After the acceptable range of leverage, the value of the firm decreases with leverage or the overall cost of capital increases with leverage. This happens because, the cost of both 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 third stage, the market value of the firm will show depressing tendency. In this stage the overall cost of capital Ko as a consequence of the behavior of cost of equity and cost of debt

- Decrease upto a certain point
- Remains more or less unchanged for moderate increase on leverage thereafter, and
- Rise beyond a certain point.

The overall effects of these three stages are 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 starts rising. Under such a situation, there is a precise point at which the cost of capital would be minimized. This precise point would occur at that optimum degree of leverage, at which marginal cost of debt is equal to the average cost of capital (Soloman, 1969; 94).

IV. **Modigliani - Miller Approach (M-M Approach)**

M-M in their original position advocates that the relationship between leverage and the cost of capital is explained by net operating income approach. They make a formidable attack on the traditional position by offering behavioral justification for the cost of capital; Ko remains constant throughout all degree of leverage. They argue that in the absence of taxes, total market value and the cost of capital of the firm remain invariant to the capital structure change. Simply M-M position is based on the idea that no matter how you divide up the capital structure of a firm among debt, equity and other claims, there is a conversion of

investment value. In view of Srivastava, M-M contended that the cost of capital is equal to the capitalization rate of a 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 assumption s made under this approach is as follows:

- Capital market is perfect. Information is free of cost and readily available to all investors. There are no transaction costs and all securities are infinitely divisible. Investors are assumed 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 distributions of expected operating earnings for all future periods are 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.

- There is no income tax. This assumption is removed latter by M-M.

- Dividend payout ratio is 100%.

Proposition I

Given the above assumption, M-M argued that for firm in the same risk class, the total market value is independent of the debt equity combination and given by capitalizing the expected net operating income by the rate of appropriate to that risk class (Srivastava, 1993;268)

In equation, it can be expressed as:

$$V= (S+D) = (S + D) = \frac{X}{Ko} = \frac{NOI}{Ko} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2.4)$$

Where,

V= the market value of the firm

D= the market value of the debt

S= the market value of the equity

X= the expected net operating income on the assets of the firm

Ko= the capitalization rate of overall cost of capital, X/V, appropriate to the risk classes of the firm.

This case can be expressed in term of cost of capital, X/V, which is the ratio of expected earnings to the market value of securities. That is,

$$\frac{X}{S+D} = \frac{X}{V} = Ko \dots\dots\dots\dots\dots\dots\dots\dots\dots(2.5)$$

If Kd is the expected return on the firm's debt and Ke is the expected return in firm's equity then

$$X = K_o/V = K_e(s) + K_d(d)\dots\dots\dots\dots\dots\dots\dots\dots.(2.6)$$

By definition

$$Ko = \frac{X}{V}$$

Therefore,

$$K_o = K_e(S/V) + K_d(D/V)\dots\dots\dots\dots\dots\dots\dots\dots..(2.7)$$

Since M-M concluded that the total market value of the firm is unaffected by the debt, equity mix, it follows that the average cost of capital to any firm is completely independent of its capital structure. Thus, two firms identical in all respect except capital structure cannot command the different value of the firm of cost of capital, arbitrage will take place

which will enable investors to engage in personal leverage to restore equilibrium in the market (Pandey, 1981; 37-38).

Proposition II

On the basis of proposition I, M-M formulated Proposition II which defines the cost of equity is the linear function of the leverage. The equation form of this proposition can be expressed as follows:

$$K_e = K_o = (K_o - K_e) \text{ B/S} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2.8)$$

Equation (2.7) is derived from the definition of average cost of capital i.e. $K_o = K_e \text{ (S/S+D)} + K_d \text{ (D/S+D)}$. Equation (2.8) shows that for any firm is a given risk class the cost of equity, K_e is equal to the constant average cost of capital and cost of debt times debt equity ratio i.e., premium for financial risk.

Validity of the M-M proposition II depends upon the assumption that K_d will not rise or remains constant for any degree of leverage. But in practice, K_d, increases with leverage beyond a certain acceptable level of leverage. However, M-M maintain that even if K_d is a function of leverage, K_o will remain constant as K_e will increase at a decreasing rate to compensate.

2.5 Concept of Cost of Capital

"The cost of capital is an important concept in formulating a firm's capital structure. It is one on of the basic corner stones of the theory of financial management". (Kuchhal, 1982; 367). It is a crucial part if a dynamic or ever changing financial and operational environment of the corporations. There are different types of risks associated with each investment category. Therefore, it requires certain expected rate of return

in order to provide funds. This required rate of return is called the opportunity cost to the investor for investing his scarce resources else where with equivalent risk. Therefore, the concept of cost of capital has been paid increasing attention in recent years, especially as it affects the proper economic choices among investment opportunities. "As we have seen a firm's cost of capital is essential choice criterion for investment decision making, accordingly, the theory of measurement of cost of capital is of fundamental importance in business finance." (Milton H.Suepcer, 1968; 395).

The cost of capital represents the overall cost of financing to the firm. In operational terms, the cost of capital refers to the discount rate that would be used in determining the present value of the estimated future cash proceeds and eventually deciding whether the project is worth undertaking or not. In this sense, it is defined as the minimum rate of return that a firm must earn on its investment for the market value of the firm to remain unchanged. Each and every corporation must be able to estimate the minimum required rate of return on the projects using the capital funds so that the decision of accepting or rejecting the investment proposal can be done. It is like a vehicle to judge the use of capital in corporation. The project's cost of capital is the minimum acceptable rate of return on funds committed to the projects. "An investment project, for its acceptance, must earn minimum rate of return equal to the cost of capital. In this sense, the cost of capital represents a standard for allocating the firm's funds in the most optimal manner. In theory, it is the rate of return on a project that will leave the market value of shares unchanged." (Van Horne, 1974; 101). In Nepal, majority of corporations

are still not in a position to meet the minimum required rate of return. Many corporations are running at losses and corporations running at profit are also could not maintain the minimum rate of return. "The cost of capital in the minimum risk adjusted rate of return which a project must earn in order to be acceptable to shareholders". (Weston & Copeland, 1990).

In economic terms, cost of capital is the cost of acquiring funds required to finance the proposed project. That is, the cost of capital is a borrowing rate of the firm. Cost of capital in terms of lending rate refers to the opportunity cost of funds to the firm, i.e. the rate of return foregone on the next best alternative, investment opportunity of comparable risk. "The cost of capital is the rate of return required by those who supply the capital." (Soloman & Pringle, 19788; 338). Cost of capital can be understood as cut off rate concept. It is a point for the choice of investment proposals in corporations. "From the view point o the capital allocation budget as a whole, the cost of capital provides an objective cut-off point for appropriations." (Soloman, 1969; 30).

The term cost of capital can also defined in terms of hurdle rate concept and structural concept. The hurdle rate is the target rate of return, which must be surpassed if the capital used is to be justified. Corporations while using this investment hurdle rate are communicating their expectations and assure common effort to try to fulfill those expectations. "Allowance must also be made for the risks and uncertainties surrounding the flows, since investors insist on higher expected returns when asked to assume higher level of risk." (Samuel, 1977; 157). One of the requirements of the

investment appraisal system is that it prevents the investment of funds in projects where the target rate of return is less than the cost of capital. In the context of Nepalese corporations, the determination of this "hurdle rate" is not so much in practice but time and situation have already made corporate managers to be cautious and attentive in practicing this 'hurdle rate'.

The structural concept is the fundamental and mostly accepted criteria of investment appraisal system. The cost of capital according to this concept is the extent of capital fund that could be made available through combinations of ownership capital, retained earnings, depreciation funds, reserves and so on. "Funds that could be made available might be from the existing stock of funds or rose freshly from the market, or could be by way of commitment into the future". (Hingorani & Ramnathan, 1974; 460). It is, therefore, necessary that the corporations using borrowed capital should be capable of generating liquid to meet interest obligations.

2.6 Significance of Cost of Capital

The cost of capital is an important element as basic information in capital investment decisions. "The cost of capital concept is significant not only as an investment criterion but can also be used to evaluate the financial performance of top management". (Bhattacharya, 1970). The study on the cost of capital is significant for different purposes. The first one may be to determine the desirability of alternative investments and the second is to serve as a capitalization rate to establish the present value

of cash streams. The significance of the concept of cost of capital can be explained through following points.

- **Capital expenditure decision**

Capital expenditure decisions are also called capital budgeting decisions. The cost of capital, in these decisions, is often used as discount rate on the basis of which the future cash flows of the firms are discounted to find out their present values. It provides a yardstick to measure worth of investment proposals and thus, performs the role of accept -reject criterion. In fact, it provides a rational mechanism for making optimum investment decision. Thus, cost of capital forms the basis of financial appraisal of all capital expenditure proposals. Needless to mention, the decision in respect of a capital expenditure would be irrational and wrong, if the cost of capital is not correctly determined. This is because the business must earn at least at a rate, which equals to its cost of capital in order to make at least breakeven.

- **Capital structure decision**

The cost of capital is also an important consideration in capital structure decisions. The cost of capital is influenced by the capital structure changes. The finance manager must raise capital from different sources in such a was that it optimizes the risk and cost factors. The sources of funds, which have less cost, involve high risk. "In trying to achieve its target capital structure over time, a firm should aim at minimizing the cost of capital and maximizing the market value of the firm." (Pandey, 1987; 163). It is absolutely necessary that cost of each source of funds is carefully considered and compared with risk involved with it. Thus the

significance of the concept of cost of capital can be known in designing the firm's capital structure.

2.7 Functions of Cost of Capital Consideration

The cost of capital always plays a central part in the theory of capital (Soloman, 1955; 241). Basically, it functions as a benchmark for the investment as well as financing decision of an enterprise. In investment decision this is an important element as basic input information. This is its basic function (Soloman, 1969; 30). Moreover, it determines the scale and capital intensity of the project. Thus, it carries out the function of decision criterion through which management can make its decision such a way that the value of enterprise is maximized. All of these functions are dealt with in some length in the ensuing part of this section.

- **Evaluation of the Project**

The primary purpose of calculating the cost of capital is its use as a financial standard for the evaluation of the investment project. It carries out this function in evaluation of investment projects in both private and public sectors. The projects are evaluated by using different criteria that lead the enterprise to their goal of wealth maximization. In NPV method, wealth of shareholders is maximized if it is positive. Cost of capital in NPV method of evaluation of investment project functions as a discount rate. In the public sector investment also, it carries out the functions of social discount rate of costs and benefits of the projects. If the investment projects are evaluated on the basis of internal rate of return, cost of capital is functions as a cut-off rate of return of the project. In this method investment project is carried out if internal rate of return is

greater than the cost of capital. The rationale of this decision criterion is that the project whose internal rate of return is greater than the cost of capital, contributes to the wealth of the stockholders of the enterprises. In profitability index criterion also, it plays the role of discounting rate of costs and benefits of the investment project. Thus, cost of capital is used in evaluation of the investment projects in both private and public sectors. The rationale behind the use of the cost of capital in private and public sector is different from public sector. In private sector enterprise, it leads directly to the private sector goal of wealth maximization. But in the public sector, it should lead to a maximization of social benefits (Soloman, 1969; 30-45).

- **Rationing of the Budget**

The problem of capital rationing does not arise till the funds are available for the investment of the profitable investment opportunities. But in reality, funds might not be available as much as needed for the lucrative investment opportunities. In this case budget constraint imposes the management to shy away from desirable investment opportunities. Management resorts the capital rationing technique in such condition. Such budget constraints, which force the management to hold the capital expenditure to a fixed amount, arise because of the market conditions or self -imposed restrictions in private sector. In public sector, capital rationing arises because of the government's wish to impose either by the market or by constitutional requirements (Soloman, 1969; 175-177). In capital rationing decision also management of an enterprise tries its best to maximize the wealth of shareholders within the available budget constraints. Similarly the management of an enterprise in public sector

also should emphasize to maximize the social benefits with in the available budget ceiling. In both sectors, cost of capital plays the benchmark to allocate the available budget for investment projects and rank the projects in the same way as in their evaluation.

In the NPV method, management uses the cost of capital to discount the costs and benefits of the available investment projects; ranks them from higher NPV to lower NPV and select them keeping the budget constraints and their NPV. The basic goal of the management is to allocate the available budget in such a way that it could maximize the wealth of shareholders in private sector and social benefits in the case of public sector enterprises. The cost of capital plays the same role in the method of cost benefit ratio also. But in internal rate of return it does not play important role in capital rationing. Since, in this method projects are ranked as percent their rate of return and they are selected from higher rate of return to lower one keeping the budget constraints into consideration. In this method cost of capital plays as a role of cut-off rate of the project which is less important in capital rationing decision. For problems of capital rationing arise only when there are available of several independent investment opportunities whose returns are above the cut-off rate and available funds are not enough to finance all lucrative opportunities.

- **Magnitude of the Budget**

In the case of independent projects and in the absence of budget constraints, cost of capital functions criterion role in determining the size of the budget. Soloman has explained very succinctly this function of cost of capital as follows (Soloman, 1969; 30-31).

"The role of the cost of capital as a financial criterion for accepting a capital using proposal, as an integral part of selection of mechanism which choose between two or more competitive ways of doing something and as a cut-off point for determining total capital expenditure." But this function of cost of capital is realized only if there is no external and internal capital constraint and if the available investment projects are independent. In such environment management is interested to invest the capital in all projects that have the rate of return above the cost of capital or have the positive NPV in order to maximize the wealth of the shareholders. The magnitude of the capital expenditure budget is the sum of the investment to be done in all accepted projects. In reality, in both private and public sectors, such a condition rarely happens. In private sector, enterprises are subject to the capital rationing mainly because of the market imperfection, and fear of the losing control of closely held enterprises and their conservative financial policy (Pandey, 1992; 561). In public sector, government does not determine the size of its capital expenditure budget in this way because of capital constraints raised from the same reasons of the capital rationing stated earlier. Further, the capital expenditures and approval of the investment proposals in public sector are made on a purely financial criterion of maximizing the social benefits (Soloman, 1969; 148).

- **Financing Decision**

Given the investment decision of an enterprise management makes the financing decision. The financing decision also should be optimum. In other words, it should lead the enterprises to maximize the value. The value can be maximized when overall cost of capital is minimized. Thus the objective of management in making the financing decision should be to minimize the cost of capital. The minimizing the cost of capital is a legitimate conventional corporate objective.

There are controversial views on the impact of financing decision upon the value of the firm and the cost of capital. The traditional view contends the value of the enterprises can be maximized by the judicious financing decision. Hence, the management can carry out optimal financing decision- composition of long term debt and equity, where the value of the enterprise is maximized. According to this approach, optimal capital structure exists where the rising marginal cost of borrowing is equal to the overall cost of capital. Thus, cost of capital plays a role of benchmark for financing decision. But MM proposition I states that financing decision is irrelevant. Since, the market value of any enterprise is independent of its capital structure. But the assumptions under which this M-M's proposition I become valid are never valid in reality even in the highly developed capital market. In public sector enterprises especially in developing country like Nepal, financing decision of the project is solely based on the government policy, and foreign loans and grants not on the financial goal of minimization of cost of capital (Modigliani and Miller1958; 156).

- **Performance Evaluation of Top Management**

The functions of cost of capital discussed so far are decision perspective. As state earlier all types of decisions- investment, financing, capital rationing, and magnitude of the budget size, should be directed towards the enterprise's goal of maximization of wealth of stockholders in the case of private sector enterprises and of social wealth in public sector's ones. But the problem arises how to evaluate whether enterprises are able to achieve their set objectives in actual operation of their business. This is done by comparing the actual profitability of the investment project measured by return on investment is above the overall cost of capital of the project, management is able to add the additional value to the wealth of existing stockholders by carrying out the investment decision. Conversely, if overall cost of capital is in excess over the rate of return on investment, investment in the new project dilutes the value of the existing owners of enterprises. So, in this case, management's performance is considered not satisfactory. This cost of capital discharges the function of criterion for performance evaluation of top management. But in the case of public sector enterprises, management should not be evaluated only on this perspective. Government should evaluate the performance of public sector enterprise management on the light of the achievement of its goals set in the political and socio-economic framework of the concerned country. So, cost of capital, as a benchmark for the evaluation of the performance of the top management of public sector enterprises should be secondary rather than primary one. But in Nepal, public enterprises are supposed to earn profit enough to sustain their own cost. Moreover, enterprises and their management are

evaluated on the basis of set financial targets rather than the cost of capital.

In summary, cost of capital functions as a financial standard in investment decision, works as a benchmark to allocate the available limited resources for profitable investment projects. Play a criterion role in determining the optimal budget magnitude, helps the management in taking the optimal financing decision and provides the basis for the evaluation of the performance of the top level management of the enterprises.

2.8 Components of Cost of Capital

It is necessary to analyze the cost of specific sources in order to show the basic inputs for determining the overall cost of capital. "The computed value for the cost of capital can be regarded as a fair approximation of the cost of capital inputs consistent with company needs, the conditions under which it is raising its capital, the level of expectations and corporate policy constraints."(Kuchhal 1982; 368). A company may use more than one type of capital. In this situation, the company's composite cost of capital can be determined after the cost of each type of funds has been obtained. The first step, therefore, in the measurement of company's cost of capital is the calculation of each specific cost which is the minimum financial obligation that is incurred in order to secure the use of capital from a particular source. Hampton defines cost of capital as the rate of return the firm requires from an investment in order to increase the value of the firm in the market place.

The cost of capital as a rate of return or discount rate that equates the net cash proceeds, the firm receives with the present value of the capital suppliers.

Mathematically, this can be written as:

$$I = \frac{C_1}{(1+K)^1} + \frac{C_2}{(1+K)^2} + \cdots\cdots \frac{C_n}{(1+K)^n}\cdots\cdots\cdots\cdots(2.9)$$

Where,

I = outflows of funds at period 0

C_n = cash inflow at times

n = time duration over which the funds are provided

K = cost of capital

It is evident from the above mathematical formulation that the cost of capital is the rate of cash flows of the financing opportunity (Porterfield, 1965; 45). The cost of each component is the component cost and overall cost of financing of an organization, is weighted average cost of capital. Capital components are the items on the right hand side of the balance sheets; they include various types of debt, preferred stock and common equity. These are the capital structure components, thus any net increase in assets must be financed by an increase in one or more capital components. The component costs are identified by the following symbols in this study.

K_d = component cost of debt before tax

$K_d(1-T)$ = component cost of debt after tax, where T is marginal tax rate.

$K_b(1-T)$ = debt used to calculate the weighted average cost of capital.

K_{ps} = component cost of preferred stock

K_r = component cost of retained earning

K_e = component cost of equity capital

K_o = weighted/ component /overall cost of capital

2.8.1 Cost of Debt Capital

A debt is a long-term obligation and simultaneously a promise to pay the face amount or principal at a designated date of maturity and to pay interest at a specified rate periodically. It is contract made between the corporation and a third party, the trustee, to whom the reference is made in the debt contract. In general, cost of debt capital is same whether the firm uses bank loans, bonds or other sources of loans. It is more reliable to calculate the cost of debt because the amount of interest is known and fixed by the agreement between lender and the firm. Component cost of debt is calculated by dividing the amount of interest by the total amount of loan provided or it is the ratio of interest and principle i.e.

$$Kd = \frac{\text{Total amount of interest(I)}}{\text{Total amount of principle(P)}} \text{........................(2.10)}$$

The above equation provides the before tax annual interest rate. The cost of debt is tax deductible. Thus, after tax cost of debt is less than before

tax, it is equal to before cost of debt times one minus corporate tax rate, i.e.

After tax cost of debt = Kd (1-T) …………………………….. (2.11)

2.8.2 Cost of Preference Capital

Preferred stock is a hybrid form of capital possessing a mixture of debt and common stock characteristics. Preferred stock generally has a perpetual life, although it may have a finite life, and it may have a call price specified and even a sinking fund where the stock is to be repurchased by the firm in the open market. The holders of a corporation's preferred stock get their dividends only if declared by its board of directors. Dividend of the preferred stock is fixed and it is treated as debt. The cost of preferred stock is a discount rate, which equalizes the future expected dividends to the present market price of share. If the preferred stock is callable then the discount rate equates the future expected dividends to the call price. The cost of preferred stock is a function of its stated dividends.

2.8.3 Cost of Equity Capital/ Common Stock

Like other sources of capital equity capital also involves certain cost to the firm. The equity shares must involve a return in terms of dividend expected by the shareholders. The cost of equity capital is defined as the minimum return of rates that a firm must earn on the equity financed portion of its investment in order to leave unchanged the market price of its stock. The cost of equity capital is the rate if discount that equates the present value of all future expected dividends per share to the present price of common stock. It is the return required by the investors. The cost

of equity capital indicates the minimum rate which must be obtained on the projects before their acceptance and the raising the equity capital to finance them i.e. it should lead to an increase in the net present value of their wealth." (Kuchhal 1982; 370). The definitions of cost of equity capital are based on a few key assumptions with respect to the behavior of individuals and their ability to forecast future values (Gitman1982; 456-457).

1 **Share Values : -** The basic assumption on which the cost of common stock is calculated is that the value of a share of stock is equal to the present value of all future dividends expected to be paid out as dividends, but it is expected that those earnings which are retained are reinvested will boost future dividends.

2 **Growth Rate: -** Another necessary assumption is that the rate of growth in dividends and earnings is constant over the infinite time horizon. The growth rate expected is assumed to be measurable, typically on the basis of the past growth in earnings demonstrated by the firm.

3 **Risk Classes: -** A fine assumption made in defining the cost of common stock concerns the riskiness of a firm as viewed by the prospective shareholders. It is assumed that the firms perceived by investors as being equally risky (having the same degree of business and financial risk) would have their expected earnings discounted at the same rate.

Measurement of cost of common stock is more difficult and controversial. Common stock and the retained earnings are the parts of the equity capital Common stock means proceeds received from the issue of new equity, but retained earnings are the retained portions of current earnings of the firm.

A. Cost of Common Stock (External Equity)

The minimum rate of return, which is required on the new investment, financed by the new issue of common shares, to keep the market value of the share unchanged is the cost of new issue of common shares. Cost of new common equity is that rate of return, which is required by the stockholder. New issues of shares are influenced by floatation cost. Floatation costs may consist of under pricing and under writing fees. Due to floatation cost, the cost of common stock is greater than the cost of retained earning.

B. Cost of Retained Earnings (internal Equity)

A firm does not distribute its entire profit to the shareholders but a portion of earned profit is retained in the business for the future expansion of the business. This retained profit serves as internal source of funds for the company. The retained earnings of the corporation have also costs in the form of opportunity cost involved in the alternative investments. If the retained earning could not be utilized, the shareholders feel that the corporations cannot do anything in accelerating their rate of return. Cost of retained earnings is the opportunity cost to the shareholders because when the firm decides to retain the current earnings in the firm, then shareholders give up their cash dividends. Thus, they accept the firm should earn the same rate of return on retained earnings as

it provided on common equity. That means the cost of retained earnings (Kr) is equal to the rate of return on common stock (Ke). (Benton, 1987; 155).

Thus, in the absence of floatation cost, the cost of retained earnings and the cost of common stock are same. "The cost of retained earnings must be viewed as the opportunity cost of the foregone dividends to the existing common shareholders." (Gitman, 1982; 461).

2.9 Overall or Weighted Average Cost of Capital

Measurement of cost of capital is necessary after the calculation of various elements of costs. The composite or overall cost of capital is the weighted average cost of various sources of funds, weights, being the proportion of each source of funds in the capital structure. The cost of capital is found by weighing of the cost of each component of capital structure by their relevant proportion. The weighted average or composite cost of capital is the weighted average of the cost various sources of capital weight in the proportion of each of the sources in the capital structure. In financial decision-making, the term cost of capital is used in the composite sense because a firm's decision to use debt capital to finance its project will lower its cost but also makes more risky. The increased risk to the shareholders will increase the cost of equity. "A firm's cost of capital is the weighted arithmetic average of the cost of various sources of long term financed used to it". (Prasanna Chandra, 1990; 448). The overall cost of capital is the average representing the expected return on all of a company's securities. Each source of capital such as stocks, bonds and other debt is weighted in the calculation according to its prominence in the company's capital structure.

The equation form of the weighted average cost of capital is given below.

$$K_o = W_dK_d + W_{ps}K_{ps} + W_rK_r + W_eK_e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2.12$$

Where,

K_o = overall cost of capital

K_d = cost of debt

K_{ps} = cost of preferred stock

K_r = cost of retained earning

K_e = cost of new equity

W_d = proportion of debt to total capital

W_{ps} = proportion of preferred stock to total capital

W_r = proportion of retained earning to total capital

W_e = proportion of equity to total capital.

2.10 Financial Leverage

The term leverage refers to the use of those sources of funds in the business for which the firm has to pay fixed charges, irrespective to the earnings of the firm. There are two types of leverages, in financial management, they are,

Financial Leverage

Operating Leverage

Leverage associated with investment activities is called operating leverage and leverage associated with financing activities is called financial leverage. Weston and Brigham viewed financial leverage as the ratio of total debt to total assets or the value of the firm (Weston and Brigham, 1981; 55).According to Lawerence, "financial leverage refers to the response of the shareholders income to change in EBIT and is

created by debt or preferred stock financing with fixed interest and dividend payment. The use of fixed charges sources of funds such as debt and preference capital along with the owner's equity in the capital structure is described as financial leverage of "Trading on Equity".

The use of fixed income source of funds like debt and preference capital is described as financial leverage and is generally considered as synonym of the term 'trading on equity'. The basic idea in employing the financial leverage is that the owners of the firm can enjoy a higher rate of return on their capital than that earned by the firm on its total capital using fixed income source of funds provided by the rate of fixed income is less than the overall rate of return in the firm's total capital. (Pandey, 1996). The use of financial leverage provides income advantage to the shareholders or it increases shareholders rate of return. But it also increases the financial risk to them. Under the favorable condition, the use of debt and preferred stock in financing provided income advantages over common stock of the firm; they increase the risk if it does not. Thus, it is employed by a company in intending to earn more, on the fixed charges than their costs. The surplus will increase the return on equity. Due to the interest and principle payments are contractual obligation of firm, the debt financing is more risky from the viewpoint of the shareholders. Therefore, debt offers the greatest income advantages as well as risk.

2.11 Review of Major Previous Studies and Articles

This section is devoted to review the important empirical works, concerning capital structure / leverage and cost of capital. Mainly the studies conducted by Modigliani and Miller (1958) and (1966), Barges

(1963), Wipperrn (1966), Sharma and Rao (1969), Weston (1965), Davenport (1971) and others and some articles are reviewed here.

2.11.1 Review of International Studies and Articles

MODIGLIANI AND MILLER (1958) STUDY

In Modigliani and Miller (1958) study, they used the previous work of Allen (Allen, 1954:57-51) and Smith in support of their independence hypothesis. Allen's study was concerned with the relationship between security yield and financial structure for 43 large electric utilities, based on average figures for the year 1947 and 1948.While the smith's study was concerned with 42 oil companies to test whether Allen's striking results would be found in an industry with very different characteristics based on only single year 1953.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, X/V with leverage, D/VV. They used the following regression model to test their hypothesis (Modigliani and Miller, 1958:261-97).

X= a + bd

where,

$$X= \frac{X}{V} = \frac{\text{Sum of interest, preferred dividend and shareholders after tax income}}{\text{Market value of all securities}}$$

$$\frac{D}{V} = \frac{\text{Market value of senior securities}}{\text{Market value of all securities}}$$

The regressions were as follows:

Electric utilities   X $=5.3 + 0.006d\ (+0.008)\ (-0.008)R^2 =0.12$

Oil Companies   X $=8.5 + 0.006d\ (+0.024)\ (-0.024)R^2 =0.04$

These results support their hypothesis of independence or correlation co-efficient is statistically insignificant and positive in sign. The regression line does not sanciest a curvilinear, 'u' shaped cost of capital -key of traditional view, when the data are shown in scatter diagram

In the second part of their study, they tested their proposition II, the expected yield on common shares, is a linear function of debt to equity ratio, D/S. They used the following models.

Z= a+ bh

Where,

$$Z = \frac{\text{Shareholders net income after taxes}}{\text{Market value of common shares}}$$

$$H = \frac{\text{Market value of serious securities}}{\text{Market value of common shares}}$$

The regression results obtained were,

Electric utilities;   Z = 6.6 + 0.051h (+0.008) (-0.008) R^2=0.53

Oil Companies;   Z = 8.9=0.051h (+0.012) (-0.012) R^2=0.53

Both the correlation co-efficient are significant and positive values for h co-efficient is 425 in both the cases, which is significant at 5%level of confidence. Thus, M-M view- yield on stock is linear function of debt to equity ratio. D/S is supported. However, they admit that these findings do not contradict the traditional position. Their next step was to add the square of the leverage term to test the presence and direction of curvature. The following estimates were obtained.

Electric utilities;   Z= 5.6+0.004h-0.007h^2

Oil companies: Z= 8.5+0.072h-0.016h^2

The curvature is negative for both the cases, for electric utilities the negative co-efficient of square term is as significant at the 5% level. This result is consistent with their views, i.e. if the cost of borrowed fund increases, the cost of equity will decline to offset this increase; thus, these results do not support traditional position.

Barges (1963) Study

Barges conducted the empirical test of relationship between cost of capital and leverage and between stock yield and debt equity ratio with improvement on some of the limitation of the M-M's empirical work. For the study purpose, he utilized cross-section data from three different industries- railroads, departmental store and cement industries.

He used two approaches – direct tests and yield tests to examine the validity of the independent hypothesis. Direct tests were made on the relationship between the average cost of capital and the total market value. While yield test were made to determine whether yields increase from zero debt up to some moderate range. This provided the evidence of MM independent hypothesis that average cost of capital and capital structure was not tenable. But it did not conclude the derivative hypothesis that equity yields is the linear function of the leverage. In other words, direct test results supported the traditional view and yield test results neither supported nor contradicted the MM hypothesis.

Modigliani and Miller (1966) Study

Modigliani and Miller conducted the second in 1963 with correcting their original hypothesis for corporate income taxes and expected cost of

capital to be affected by leverage for its tax advantages. They therefore wanted to test whether leverage had tax advantages or not. For this purpose, they used three years data, viz. 1954-56and 57, of 63 electric companies (Modigliani and Miller, 1966; 333-391).

They conducted the mathematical analysis regarding the effect of leverage and other variables on the cost of capital. They concluded that leverage has a tax advantage and value of the firm can be maximized when leverage measured by $D_L/V_L = 1$. In other words, cost of capital can be maximized when equity financing is zero.

Weston (1965) Study

Weston study was also related with the cost of capital and leverage. But he made some important improvement in the cost of capital model. He included firm size (measured by assets) and growth (per share income over a ten years period) as additional explanatory variables in his model.

He found the regression co-efficient of leverage to be positive and significant, when he used M-M model for his sample of 59 utilities in 1959. The study suggested that leverage is a negative linear function of earnings growth. The absence of correlation between the cost of capital and capital structure was due to the counterbalancing influence of earnings growth on leverage. The study found that the regression coefficient of leverage to be positive and significant.

Wippern (1966) Study

Wippern also conducted a study to test the empirical relationship between cost of capital and leverage. He tried to eliminate principle problem of empirical study on the leverage and attempted to offer what are hoped to be more fruitful alternatives in determining the relationship between leverage and cost of capital. He argued that the leverage either the ratio of the debt to equity at book value or at the market values, both of these measures contains important conceptual basis. He therefore, use a different measures of leverage, viz. I/E = 25 where I is the current level of fixed charges; E is the most recent year cash flow operating income determined from a logarithmic regression of income on time over ten years period, 25 is equal to two standard error around the regression line (Wippern,1966:615-635). He has also included in certainly variables in his test equation to account for inter firm difference. He therefore, has been assumed in the past investigation that homogeneity of business risk could be achieved by comparing firm in the same industry classification.

Besides these, he employed some proxy measures based on objectively determined data and argues that the capitalization rate equals future earnings to current market prices are not directly measurable.

For the study purpose, he used the data of 50 firms from seven manufacturing industries. The years selected for the cross- section test were 1956, 1958, 1961 and 1963.

He included that shareholder's wealth can be enhanced by judicious use of debt financing.

Sharma and Rao (1969) Study

Sharma and Rao conducted the test of M-M hypothesis on the influence of debt on the value of the firm to a non-regulated industry. They argued that estimate of cost of capital arrived at through this model will be accurate only when their hypothesis on debt and dividends are correct, this is an essential condition for the employment of this model. For the study purpose, they used a sample of 30 engineering equation for the three cross- section year 1962, 1964and 1965. Calculations of variables were done in exactly the same ways that done by M-M with two exceptions. They experimented with the total assets and sales for deflecting the variables and the results were meaningful when fixed of total assets were used as the deflector. They argued that when the growth rate of total assets of fixed assets was used as the growth variable, the results were somewhat in consistent with economic reasoning (Sharma and Rao, 1969:673-677). They therefore took the earnings growth rate as the growth variable because this would take into account growth of earnings due to both utilization of existing capacity and the additional of new capacity.

They found the co-efficient of debt variables to be more that t, the corporate income tax rate; they introduced debt as a separate independent variable. They also used two - stage least square (2SLS) as a method of arriving at the true expected future earnings.

He concluded that debt has non-tax advantages also. Thus, this paper support that the investors prefer corporate to personal leverage and,

therefore, the value of a firm rises up to a leverage rate considered prudent.

Davenport (1971) Study

Davenport in his study used the British data of three unregulated industries chemical, food and metal manufacturing industries. He took 59 firms in chemicals, 28firms in food and metal manufacturing as sample. Regression was run for the three cross- section years - 1961, 1962, and 1963 (Davenport, 1971:137-162).

They had concluded that the results of his study don't support the M-M contention that the overall cost of capital structure of the firm. They supported the traditional view of cost of capital and leverage because his results show the U shape cost of capital schedule with respect to leverage. He stressed the problem of holding constant growth prospects and the future risk valuation and raised the question whether an industry was the best sample classification or whether firms might not, with advantage be classified ebonite into growth and risk classes. Another point stressed is that the choice of years over which cross section regression are run is crucial as it is related to the problem of the growth and risk variables.

Rao and Lintznberges (1970) Study

Rao and Lintznberges were conducted the study of the effects of capital structure on the cost of capital in a less developed and less efficient capital market(India) and in a highly developed and efficient capital market (United State). They used 28 Indian utilities and 77 American

utilities: They were conducted the study for the five cross sectional years 1962-1966.

He found that the result for the American utilities are constant to the M-M proposition that except for the advantages of debt financing the cost of capital is independent of capital structure, and the result also supported that the M-M hypothesis that the investors are indifferent for the firm's dividend policy.

In case of Indian utilities, the results are inconsistent to the M-M approach support the traditional belief the judicious use of financial leverage will lower the firm's cost of capital and investors have the preference for current dividends.

In conclusion, they contended that the M-M approach after allowing for the tax advantage of debt, the firm's cost of capital is independent of capital structure does not appear to be applicable in the case of a developing economy.

PANDEY (1981) STUDY

Pandey has tried to test the M-M approach in the developing economy with taking the sample from four different utilities, they are: cotton, chemicals, engineering, and electricity from Indian market. He made some improvement in the model derived by M-M and used multiple regression equation for the year 1968, 1969 and 1970and for the pooled data of the three cross-section years. The improvement was made on the measurement of leverage and added earnings variability and liquidity as

risk measure variable in the regression equation. Two types of leverage was used by him as follows (Pandey, 1981);

(a) The debt to total capital ratio, D/V.

(b) The debt to equity ratio, D/S.

The two ratios were measured with or without preference share capital in the debt portion. Both leverage were done on book value and included short term loan as part of leverage.

He further tried to test the M-M hypothesis that the use of leverage can increase the market value of the firm of lower the cost of capital, due to the tax deductibility of interest charges. The tax adjusted stock yield is regressed with leverage and other explanatory variables. In this model, he used pooled data of three industries – cotton, chemicals, engineering and coefficient of both measure of leverage were significant and negative in sign. Therefore, the result supported the traditional belief.

Dr. Manohar Krishna Shrestha, in his article entitled, "Analysis of capital structure in selected PEs has concluded that the selected public enterprises under his study have a very confusing capital structure, which can be attributed to the lack of commitment of corporation towards its objectives based on financial plans and policies. He has also found that most of them are reluctant to eliminate debt if possible to relative financial obligation. He has suggested that the debt-equity ratio should neither be highly leveraged to create too much financial

obligation that lie beyond capacity to meet nor should it be much low leveraged to infuse corporation lethargy to by pass responsibilities without performance.

Ramesh Lal Shrestha in his article, "Capital adequacy of Bank; The Nepalese context" has thrown precaution over the capital base that it should neither be too much leading to inefficient allocation of scarce resources nor so weak so as to expose to extreme risk while dealing highly risk transactions to maintain strong capital base. He supports the fact that the operation and degree of risk associated with them are subject to change country wise, bank wise and time wise. He had suggested the banks of Nepal to present standard capital adequacy ratios keeping in mind various relevant factors.

2.11.2 Review of Theses

Rijal (1997) made a study on four companies, two from manufacturing and two from service industry on the capital structure and cost of capital. His specific objectives were:

1. To analyze the cost of capital.

2. To study the profitability position.

3. To assess the debt servicing capacity.

He has used financial as well as statistical tool as the methodology for this study. On the study, he found that the return on equity is constantly

decreasing for all companies throughout the years; the cost of capital has not followed the capital structure theories.

Research Gap: In his study, he has not considered the multiple regression analysis.

Khatri (1998) has conducted a research on capital structure and the cost of capital of Nepalese listed companies' .His study was based on five years data of four banking and finance companies and eight manufacturing and trading companies. His main objectives were as follows:

1. To test the relationship between the cost of capital and capital structure.

2. To examine the relationship between the cost of equity and capital structure of selected listed companies.

He has used simple as well as multiple regression models as the tool of study. On the study, he found that the regression coefficient of leverage against cost of capital were negative on manufacturing and trading sector and positive on banking and finance sector. In addition, the t-value showed the beta coefficient was not statistically significant in both sectors. Finally, he concluded that there were not strong enough to establish relationship between cost of capital and capital structure and with other exploratory variables.

Research Gap: In his study, he had not done the financial analysis.

Parajuli (2001) has made a study on Capital and Ownership Structure: its impact on profitability, a case study on Nepal Lever Limited. His main objectives were as follows:

1. To study the relationship of debt and shareholders equity.
2. To study the relationship of EBIT and interest payment.
3. To analyze the return on capital in relation to capital employed.

He has used financial and statistical tools as the tool of the study. On the study he found that the degree of leverage has not brought any change in the value of the company and that the performance of Nepal Lever Limited is not satisfactory.

Research Gap: in his study, he has neither included simple regression analysis nor multiple regression analysis and he has considered only one company for his study.

Shrestha (2004) made a research on "Effect of Capital Structure on Cost of Capital". And following were the basic objectives:

1. To test whether the cost of capital fluctuates with capital structure of sample companies.
2. To evaluate whether the capital structure affects cost of equity, EPS, P.E ratio of sample companies.
3. To analyze the relationship between capital structures, cost of capital, size of capital employed of sample companies.

In his study, he found that banks were highly levered and the company financial mix accounts a higher proportion of debt and it is increasing every year. He has suggested that the banks need to employ better marketing strategy on order to reap handsome benefits to sustain for long period. He has used financial and statistical tools for his study.

Research Gap: In his study, he has used nor simple neither multiple regression analysis to make it more clear and defined.

Sapkota (2006) made a study on Capital structure of Nabil Bank Ltd." His main objectives were as follows:

1. To examine and analyze capital structure of Nabil bank.
2. To examine the existing financial position regarding capital structure.
3. To analyze the composition of Nabil bank of mixture of debt and equity.

For his study, he used financial and statistical tools and he found that the mix of debt and equity is in average ratio and liabilities are increasing more than share capital. He concluded that Nabil bank is rated as successful bank running well among other competitors and is satisfactory symbol for all stakeholders of the bank.

Research Gap: For his research, he has taken only one bank as a sample and he has not given focus on cost of capital in study of capital structure and there must be analysis of total liabilities not only deposits.

Gautam (2006) in his thesis "A study on Capital Structure Management of joint venture commercial banks" made a study of Standard Chartered Bank Ltd. and Nepal Bangladesh Bank Ltd. His main objectives were as follows:

1. To study the existing capital structure of financial position of selected joint venture bank and to analyze its impact on profitability.

2. To access the debt servicing capacity of joint venture bank.

3. To examine correlation and the significance of their relationship between different ratios related to capital structure.

He found that the private sector banks have been successful in increasing their deposit and credit portfolio remarkable over the last one year and the banks have been cautious about loan and advance. The operating profits of all private sector commercial banks have gone up, so have the provision for loss. He has used financial as well statistical tool for his study.

Research Gap: In his study, he has considered only two commercial banks and simple and multiple regression analysis are not done.

Sharma (2006) conducted the study on Capital structure and its impact on cost of capital in manufacturing and trading companies. His study was basically focused on following aspects they are:

1. To test the relationship between leverage and cost of capital in manufacturing and trading sector enterprises.

2. To assess the relationship of leverage and cost of equity.

3. To analysis the properties of portfolio formed on leverage.

To conduct his study, he has used simple as well multiple regression analysis to accomplish the objectives. He found that the cost of capital can be affected by use of debt in capital structure and cost of capital decline with increase in leverage. He suggested that capital structure is not consistent so management should try to maintain their consistence capital structure.

Research Gap: In his study, he has not done financial analysis, which can make it clearer.

Shrestha (2006) conducted the study on the topic of focus on capital structure and its impact on value of the firm. She made her study on seven manufacturing companies and four non-manufacturing companies. Her main objectives were as follows:

1. To identify effect of leverage on value of the firm.

2. To identify other variables in addition to leverage to that affects value of the firm.

3. To test relationship between value of firm and it's determining variables.

She had used simple as well as multiple regression and t-test models as the tool of study. She found that the correlation coefficient, simple and multiple regression coefficients for both tax ignoring and tax adjusted, gives the negative relation of leverage with the market value of the company in both manufacturing and non-manufacturing sectors. The t-values are also statistically significant which indicates that the use of debt in capital structure minimizes the market value of the company. The result of showing negative impact of leverage in the market value of the company may be caused by the data inconsistency and poor performance of the companies.

Research Gap: On her study, she has not done any financial analysis.

2.12 Research Gap

The review of above relevant literature has contributed to enhance the fundamental understanding and knowledge, which is required to make study meaningful and purposive. There have been lots of articles published related to capital structure and cost of capital. There are few researches conducted on capital structure and cost of capital of commercial banks. Most of these studies are of only related to capital structure and missed to see the capital structure and cost of capital of some major element. This study is totally revolved around banking industry, which is the most important factor for economic development of country,

In this study the relationship between capital structure and cost of capital have computed and analyzed. In this study, SPSS program has been used to for regression analysis, which makes the study more clear and definite, and shown the effect of leverage on cost of equity. This study has tried to analyze different aspect in order to make fruitful analysis on the capital structure (debt equity ratio) and cost of capital of commercial banks.

CHAPTER- III

RESEARCH METHODOLYGY

It is the purpose of this chapter to discuss the research methodology such as research design, population and sample, data collection techniques, and analytical tools of the research study. It is widely accepted that research is simply the process of arriving at dependable solution to problems through the planned and systematic collection, analysis and interpretation of data. It is most important tool for advancement of knowledge and accomplishment of purpose. "Thus research methodology is a way to systematically solve the research problem. It may be understood as science of studying how research is done scientifically."(C.R Kothari, 1990; 10). Research methodology, as a vital part of research study, describes the various sequential steps to be adopted by researcher in studying research problem along with the logic behind them.

This study attempts to find out the relationship between cost of equity, overall cost of capital and leverage with other explanatory variables.

3.1 Research Design

A research design is the arrangement of condition for collection and analysis of data that aims to combine relevance to the research purpose. Research design is the plan, structure and strategy of investigations conceived so as to obtain answer of the research questions and to control variances. (Kerlinger, 1986; 275). This study is based on past data of banks. So, the design of this study is historical, analytical and as well as

descriptive approaches and statistical and financial tools have been used to examine facts

3.2 Source of Data

To conduct any research, data collection is the major task and to conduct any study of primary as well as secondary data have been used but this study is mainly based on secondary data. The main sources of secondary data are annual reports of commercial banks, bulletin and reports of NRB, reports of Security Board of Nepal and other reports, journals and bulletins of the commercial banks.

3.3 **Population and Sample**

At present, there are 29 commercial banks operating in Nepal. Among them, only five joint venture commercial banks are chosen for the study purpose among total population. They are as follows:

1. N pal Bank Limit d
2. Nabil Bank Ltd.
3. Standard Chartered Bank Nepal Ltd.
4. Himalayan Bank Ltd.
5. Everest Bank Ltd.

S.N	Name of Company	Years	Observation Year
1	NBL	2005-2010	5
2	NABIL	2005-2010	5
3	SCBL	2005-2010	5
4	HBL	2005-2010	5
5	EBL	2005-2010	5

3.4 Method of Data Analysis

The available data from secondary sources are presented and analyzed as per required tables. After the data are tabulated, various statistical and financial tools are used to achieve the results.

3.4.2 Financial Tool

Debt-Equity Ratio

To measure the ratio of debt to equity utilized, debt equity ratio is calculated.

$$Debt - equity \ ratio = \frac{Total \ debt}{Total \ equity}$$

Debt equity ratio shows the leverage of the firm and higher the leverage, higher the risk, yielding higher ROE.

Total Debt to Total Assets (TD/TA)

This ratio shows those portions of the capital assets that are financed by outside funds when successfully employed. It can be calculated as:

$$Total \ Debt \ to \ Total \ Assets = \frac{Total \ Debt}{Total \ Assets} * 100$$

The higher ratio indicates that the creditors claim in the total assets of the company is higher than the owner's claim.

Interest Coverage Ratio

The I/C ratio shows how many times the interest charges are covered by the funds that are ordinarily available to pay interest. It can be calculated as:

$$\text{Interest Coverage Ratio} = \frac{EBIT}{Interest} * 100$$

The high I/C ratio indicates the company's strong debt servicing capacity.

Degree of Financial Leverage (DFL)

The degree of financial leverage indicates the degree of financial risk. The financial leverage exists when the company has debt capital in the composition of capital structure. It can be calculated as:

$$DFL = \frac{\% \ change \ in \ EPS}{\% \ c \ hange \ in \ EBIT} = \frac{EBIT}{EBT}$$

The high degree of financial leverage indicates the high degree of risk.

Return on Total Assets (ROA)

Return on total assets ratio measures the overall profitability of all working funds i.e. total assets. It is also known as return on assets (ROA).

$$ROA = \frac{Earning \ after \ \mathrm{int} \ erest \ and \ tax}{Total \ assets}$$

The ratio is the major tool to judge the operational efficiency of a firm.

Return on Shareholder's Equity (ROE)

Return on shareholder's equity (ROE) is the measure of productivity of shareholders funds. It carries the relationship of return to shareholder's equity. The shareholder's equity includes common share capital, preference share capital and reserve and surplus.

$$ROE = \frac{Net\ profit\ after\ tax}{Shareholder's\ equity}$$

The empirical definition of the variables used in the study is as follows:

The average cost of capital (K_0)

The average cost of capital is the dependent variable calculated by dividing the expected earnings by closing market value of equity shares plus the book value of the debt.

3.4.1 Statistical Tools

Some important tools are used to achieve the objective of this study. In this study the statistical tools used are as follows:

A. Karl Pearson's Correlation Coefficient

B. Simple Linear Regression Analysis

C. Multiple Regression Analysis

Above statistical tools can be used to measure relationship (interdependency) of debt equity ratio to assets composition, corporate size, debt servicing capacity and earning rate of the sample joint venture banks for the sampled period.

The debt equity ratio regressed with each of the explanatory variables such as assets composition, corporate size, debt servicing capacity and earning rate.

Regression equation can be expressed as;

Log DER = a + b_1 Log DSC + b_2 Log ER + b_3 Log CS + b_4 Log AC

where b_1, b_2, b_3 and b_4 are the regression coefficients.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

This chapter is concerned with financial analysis and statistical analysis of available data and interpretation of these findings. Various financial and statistical tools have been used in this part of the study. The main purpose of this part of the study is to study, evaluate and analyze those major financial performances, which are mainly related to the capital structure, cost of capital, as well as interdependency of debt equity ratio with their corporate size, growth, assets composition and earning rate of sample joint venture commercial banks.

4.1 Analysis of Debt to Equity Ratio

The relationship between borrowed funds and owner's capital is a popular measure to the long-term financial solvency of a firm. This ratio indicates that the relative proportion of debt and equity in financing the assets of a firm. This group of ratio is intended to address the firm's long run ability to meet its obligation or more generally, its financial leverage. The debt – equity ratio has been presented in the table below.

Table4.1

Debt to Total Equity Ratio of NABIL, SCBL, HBL, NSBIL and EBL

BANKS	YEAR	T. DEBT	T. EQUITY	DER
NABIL	2004	16482.8	1146.42	14.33
	2005	15248.4	1314.18	11.6
	2006	15263.8	1481.66	10.3
	2007	15528.7	1657.6	9.37
	2008	20455	1875	10.91
	2009	25198.34	2057.05	12.25
			AVERAGE	11.46
SCBL	2004	17207.6	1235.44	13.71
	2005	19631.6	1368.91	14.34
	2006	22146.3	1495.73	14.81
	2007	20199.3	1582.41	12.76
	2008	24022.2	1754.13	13.7
	2009	27342.2	1755.3	15.58
			AVERAGE	14.15
HBL	2004	19814.3	858.13	23.09
	2005	22292.1	1063.13	20.97
	2006	23437.9	1324.17	17.7
	2007	26272.3	1572.43	16.71
	2008	25652	3808.41	6.74
	2009	32441.39	2594.67	12.5
			AVERAGE	16.285
NSBIL	2004	6460.8	560.34	11.53
	2005	6996.47	569.86	12.28
	2006	7813.76	626.64	12.47
	2007	9656.36	689.01	14.02
	2008	12053.47	982.37	12.27
	2009	12737.91	1163.29	10.95
			AVERAGE	12.25333
EBL	2004	6216.27	390.91	15.9
	2005	7579.37	472.83	16.66
	2006	8928.25	680.31	13.12
	2007	10899.9	832.62	13.09
	2008	14996.8	962.5	15.58
	2009	21693.7	963.6	22.51
			AVERAGE	16.14333

The Table 4.1 shows the debt equity ratio of five sample joint venture commercial banks of six different fiscal years Mid July 2004 to Mid July 2009. The average debt equity ratio of Nabil Bank is 11.46 times, the DER in the year 2004 is recorded as 14.33% and continuously decline to 9.37 times in the year 2007 and then inclined to 10.91 times and 12.25 times in the years 2008 and 2009 respectively. The DER of SCNBL is somewhat consistent and fluctuates between 12.76times minimum and 15.58 times maximum, giving the average DER of 14.19 times. The average DER of HBL is 16.29 times, the DER of HBL is minimum 6.74 times recorded in the year 2008 and maximum of 23.09 times in the year 2002. The DER of NSBIL is recorded 12.25 times in average, fluctuating in 11.53 times (F Y2004), 12.28 times (F Y 2005) and maximum 14.02 times (F Y 2007) and minimum 10.95times (F Y 2009) respectively. The average DER of EBL is 16.14times, the minimum value recorded is13.09 (F Y 2007) and the maximum value recorded is 22.51times (F Y 2009).

4.2 Analysis of Total Debt to Total Assets

Another approach to calculating the debt to capital ratio is to relate the total debt to total assets of the firm. The higher ratio indicates that the creditors claim in the total assets of the company is higher than the owners claim. The calculated total debt to total asset ratio of NABIL SCBL, HBL, NSBIL and EBL is presented in the table 4.2.

Table 4.2
Debt to Total Assets Ratio of **NABIL, SCBL, HBL, NSBIL and EBL**

BANKS	YEAR	T. DEBT	T.ASSETS DAR	DER
NABIL	2004	16482.8	17629.3	93.5
	2005	15248.4	16562.6	92.07
	2006	15263.8	16745.6	91.15
	2007	15528.7	17064.1	91
	2008	20455	22330	91.6
	2009	25198.34	27253.39	92.46
			AVERAGE	91.96333
SCBL	2004	17207.6	18443.1	98.65
	2005	19631.6	21000.5	93.48
	2006	22146.3	23642.1	93.67
	2007	20199.3	21781.7	92.74
	2008	24022.2	25776.3	93.19
	2009	27342.2	29238.8	93.51
			AVERAGE	94.20667
HBL	2004	19814.3	20672.5	95.85
	2005	22292.1	23355.2	95.45
	2006	23437.9	24762	94.65
	2007	26272.3	27844.7	94.35
	2008	25652	29460.4	87.07
	2009	32441.39	35036.06	92.59
			AVERAGE	93.32667
NSBIL	2004	6460.8	7021.14	92.02
	2005	6996.47	7566.33	92.47
	2006	7813.76	8440.4	92.58
	2007	9656.36	10345.4	93.34
	2008	12053.47	13035.84	92.46
	2009	12737.91	13901.2	91.63
			AVERAGE	92.41667
EBL	2004	6216.27	6607.18	94.08
	2005	7579.37	8052.2	97.85
	2006	8928.25	9608.56	92.92
	2007	10899.9	11732.5	92.9
	2008	14996.8	15959.3	93.97
	2009	21693.7	22657.3	95.75
			AVERAGE	94.57833

The Table 4.2 depicts the debt to total assets ratio of sample joint venture banks**.**
The calculation shows that the share of the total assets financed by outsiders funds. Among them EBL has the highest DAR of 94.58%, following by 94.21% (SCBL),

93.33% (HBL), 92.42% (NSBIL) and 91.96% (Nabil) respectively. Hence, it can be considered that the total assets of EBL are financed highly by debt financing as comparing to other banks.

4.3 Analysis of Interest Coverage Ratio

In order to analyze the financial soundness of the company, it is necessary to analyze EBIT and interest expenses, which can be analyzed through the interest coverage ratio. This ratio measures the debt servicing capacity of the firm. This is a common measure of long-term solvency. It indicates the extent to which a fall in EBIT is tolerable in the sense that the ability of the firm to service its debt would not be adversely affected. The calculated interest coverage ratio of the sample banks are presented in the table below:

Table 4.3

Interest Coverage Ratio of NABIL, SCBL, HBL, NSBIL and EBL

BANKS	YEAR	EBIT	INTEREST	ICR
NABIL	2004	1639.11	462.08	3.55
	2005	1427.45	317.35	4.5
	2006	1429.05	282.95	5.05
2007		1510.68	243.54	6.2
2008		1716.67	357.16	4.81
2009		2035.87	555.71	3.66
			AVERAGE	4.628333
SCBL	2004	1441.72	298.36	4.83
	2005	1499.21	255.13	5.88
	2006	1578.35	275.81	5.72
	2007	1539.67	254.13	6.06
	2008	1721.39	303.2	5.68
	2009	2014.3	411.4	4.9
			AVERAGE	5.511667
HBL	2004	1387.34	578.13	2.4
	2005	1443.54	554.13	2.61
	2006	1516.32	491.54	3.08
	2007	1757.89	561.96	3.13
	2008	2042.38	648.84	3.15
	2009	2175.44	766.33	2.84
			AVERAGE	2.868333
NSBIL	2004	322.11	271.8	1.19
	2005	460.92	288.58	1.6
	2006	499.7	255.9	1.95
	2007	599.9	258.4	2.32
	2008	799.67	334.77	2.39
	2009	945.77	412.26	2.29
			AVERAGE	1.956667
EBL	2004	539.78	257.05	2.09
	2005	634.08	306.41	2.07
	2006	783.19	314.44	2.49
	2007	855.98	299.57	2.86
	2008	1063.55	401.4	2.65
	2009	1359.6	517.2	2.63
			AVERAGE	2.465

The Table 4.3 shows that the Interest Coverage Ratio of Nabil 3.55, 4.5, 5.05, 6.2, 4.81, and 3.636times respectively gives the average of 4.63times. The average ICR of SCNBL 5.51times, which fluctuates, 4.83times minimum (FY 2004) to 6.06times (in maximum (FY2009).HBL has the average ICR of 2.87times, this value is also the third largest value among the sample banks. The I C R of the NSBIL is the smallest among the five sample banks, which is 1.96times.

4.4 Analysis of Degree of Financial Leverage

The degree of financial leverage indicated the degree of financial risk i.e. higher the value of degree of financial leverage higher will be the degree of financial risk and lower the value of degree of financial leverage lower will be the degree of financial risk. The degree of financial leverage can be calculated as:

$$DFL = \frac{\%\ change\ in\ EPS}{\%\ change\ in\ EBIT} = \frac{EBIT}{EBT}$$

Table 4.4
Degree of Financial Leverage of SCBL, HBL, EBL and NIBL

BANKS	YEAR	EBIT	EBT	DFL
NABIL	2004	1639.11	1177.03	1.39
	2005	1427.45	1110.1	1.29
	2006	1429.05	1146.1	1.25
	2007	1510.68	1267.14	1.19
	2008	1716.67	1359.51	1.26
	2009	2035.87	1480.16	1.38
			AVERAGE	1.293333
SCBL	2004	1441.72	1143.36	1.26
	2005	1499.21	1239.6	1.21
	2006	1578.35	1304.4	1.21
	2007	1539.67	1312.5	1.17
	2008	1721.39	1456.6	1.18
	2009	2014.3	1602.9	1.26
			AVERAGE	1.215
HBL	2004	1387.34	349.05	3.97
	2005	1443.54	360.03	4.01
	2006	1516.32	420.57	3.61
	2007	1757.89	522.54	3.36
	2008	2042.38	672.39	3.01
	2009	2175.44	1409.11	1.54
			AVERAGE	3.25
NSBIL	2004	322.11	50.31	1.19
	2005	460.92	172.34	2.67
	2006	499.7	243.8	2.05
	2007	599.9	341.5	1.76
	2008	799.67	464.9	1.72
	2009	945.77	533.51	1.77
			AVERAGE	1.86
EBL	2004	539.78	127.37	4.24
	2005	634.08	135.88	4.67
	2006	783.19	211.12	3.71
	2007	855.98	366.76	2.33
	2008	1063.55	447.67	2.38
	2009	1359.6	842.4	1.62
			AVERAGE	3.158333

The Table 4.4 shows the Degree of Financial Leverage of five sample joint venture commercial banks for the sample period. Nabil has the largest value of DFL of 1.39times (F Y 2004) and the least value of 1.19times (F Y 2009) respectively. The DFL of SCNBL fluctuates in between1.17times to 1.26times, and gives the average value of 1.22times. The average DFL of HBL, NSBIL and EBL are recorded 3.25times, 1.86times and 3.16times respectively. With reference to above findings, it can be considered that the financial risk of HBL is the highest and SCNBL has the least financial risk.

4.5 Return on Total Assets

Return on total assets ratio measures the profitability of bank that explains a firm to earn satisfactory return on all financial resources invested in the bank assets; otherwise its survival is threatened. The ratio explains net income for each unit of assets. Rate of return on total assets is major tool to judge the operational efficiency of bank. The return on total assets ratio of selected banks is given in table below:

Table 4.5

Return on Total Asset of NABIL, SCBL, HBL, NSBIL and EBL

BANKS	YEAR	EAT	T.ASSET	ROA
NABIL	2004	271.63	17629.3	1.54
	2005	416.25	16562.6	2.51
	2006	455.32	16745.6	2.72
	2007	520.1	17064.1	3.05
	2008	635.3	22330	2.85
	2009	673.96	27253.39	2.47
			AVERAGE	2.523333
SCBL	2004	479.21	18443.1	2.6
	2005	506.95	21000.5	2.42
	2006	537.8	23642.1	2.27
	2007	536.25	21781.7	2.46
	2008	658.76	25776.3	2.56
	2009	692.1	29238.8	2.37
			AVERAGE	2.446667
HBL	2004	235.02	20672.5	1.14
	2005	212.13	23355.2	0.91
	2006	263.05	24762	1.07
	2007	308.28	27844.7	1.11
	2008	457.46	29460.4	1.55
	2009	828.4	35036.06	2.36
			AVERAGE	1.356667
NSBIL	2004	40.85	7021.14	0.58
	2005	48.75	7566.33	0.64
	2006	60.86	8440.4	0.72
	2007	57.39	10345.4	0.55
	2008	117	13035.84	0.9
	2009	254.39	13901.2	1.83
			AVERAGE	0.87
EBL	2004	85.33	6607.18	1.29
	2005	94.17	8052.2	1.17
	2006	143.57	9608.56	1.49
	2007	170.81	11732.5	1.46
	2008	237.29	15959.3	1.49
	2009	300.6	22657.3	1.33
			AVERAGE	1.371667

The table 4.5 shows the average ROA of Nabil is 2.53%, in the distribution 1.54% is the least value in the F Y 2004 and 3.05% is the largest value attained in the F Y 2007. In case of SCNBL, 2.27% is the smallest value of ROA and 2.6% is the largest value of ROA, giving average ROA of 2.45%, so it can be considered that the distribution is quite consistent in its nature. HBL has the lower average ROA of 1.36% only where 0.91% (F Y 2005) is the smallest value and the largest value is 2.36% (F Y 2009). The average ROA of NSBIL is only 1.83%, the largest value of ROA is attained in the F Y 2008 and the least value recorded 0.55% in the F Y 2007. ROA of EBL fluctuates somewhere around 1.17% to 1.49%, giving the average ROA of 1.37%. Hence, the operational efficiency of Nabil is the highest and the least in this rank is NSBIL.

4.6 Analysis of Return of Shareholder's Equity

Return on shareholder's equity is the measure of productivity of shareholders funds. It carries the relationship of return to shareholder's equity. Management's objective is to generate the maximum return on shareholder's investment in the firm. ROE is therefore the best single measure of the company's success in fulfilling its goal. Thus, this ratio is of great interest and value to the present as well as the perspective shareholders and also of great concern to management, which has the responsibility of maximizing the owner's welfare. The ratio equals the net profit after taxes divide by the common stockholder's equity.

$$\text{Return on Shareholder's Equity} = \frac{Net\ profit\ after\ tax}{Shareholders\ Equity}$$

Table 4.6

Return on Shareholder's Equity of SCBL, HBL, EBL and NIBL

BANKS	YEAR	EAT	T. EQUITY	ROE
NABIL	2004	271.63	1146.42	23.69
	2005	416.25	1314.18	31.67
	2006	455.32	1481.66	30.73
	2007	520.1	1657.6	31.38
	2008	635.3	1875	33.88
	2009	673.96	2057.05	32.76
			AVERAGE	30.685
SCBL	2004	479.21	1235.44	38.79
	2005	506.95	1368.91	37.03
	2006	537.8	1495.73	35.96
	2007	536.25	1582.41	33.89
	2008	658.76	1754.13	37.55
	2009	692.1	1755.3	39.49
			AVERAGE	37.11833
HBL	2004	235.02	858.13	27.39
	2005	212.13	1063.13	19.95
	2006	263.05	1324.17	19.86
	2007	308.28	1572.43	19.01
	2008	457.46	3808.41	12.01
	2009	828.4	2594.67	31.93
			AVERAGE	21.69167
NSBIL	2004	40.85	560.34	7.29
	2005	48.75	569.86	8.55
	2006	60.86	626.64	9.71
	2007	57.39	689.01	8.33
	2008	117	982.37	11.91
	2009	254.39	1163.29	21.87
			AVERAGE	11.27667
EBL	2004	85.33	390.91	21.83
	2005	94.17	472.83	19.92
	2006	143.57	680.31	21.1
	2007	170.81	832.62	20.52
	2008	237.29	962.5	24.65
	2009	300.6	963.6	31.2
			AVERAGE	23.20333

Table 4.6 shows the clear cut pictures of ROE of sample joint venture commercial banks for the sample period. SCNBL has the largest ROE of 37.12%, followed by Nabil 30.69%, EBL 23.20%, HBL 21.69% and NSBIL with the least ROE 11.28%. Hence, SCNBL maximizes the shareholder's wealth largest and NSBIL shows the least capacity in this matter.

4.7 Analysis of Cost of Capital

The analysis of cost of capital has vital importance for this study. Here, both NI and NOI approach are considered to analyze the capital structure of the overall capitalization.

4.7.1 Net Income (NI) Approach

The total market value of firm is simply obtained by adding the market value of debt to the market value of equity.

$$Ko = \frac{EBIT}{V}$$

The overall capitalization rate of selected banks under NI approach was as shown in Table 4.7.

Table 4.7

Overall Capitalization Rate under NI Approach of NABIL, SCBL, HBL, NSBIL and EBL

BANKS	YEAR	EBIT	VALUE	K_O
NABIL	2004	1177.03	17629.3	9.3
	2005	1110.1	16562.6	8.62
	2006	1146.1	16745.6	8.54
	2007	1267.14	17064.1	8.85
	2008	1359.51	22330	7.69
	2009	1480.16	27253.39	7.47
			AVERAGE	8.411667
SCBL	2004	1441.72	18443.1	7.81
	2005	1499.21	21000.5	7.13
	2006	1578.35	23642.1	6.67
	2007	1539.67	21781.7	7.07
	2008	1721.39	25776.3	6.68
	2009	2014.3	29238.8	6.89
			AVERAGE	7.041667
HBL	2004	1387.34	20672.5	6.71
	2005	1443.54	23355.2	6.18
	2006	1516.32	24762	6.12
	2007	1757.89	27844.7	6.3
	2008	2042.38	29460.4	6.93
	2009	2175.44	35036.06	6.21
			AVERAGE	6.408333
NSBIL	2004	322.11	7021.14	4.59
	2005	460.92	7566.33	6.09
	2006	499.7	8440.4	5.92
	2007	599.9	10345.4	5.81
	2008	799.67	13035.84	6.13
	2009	945.77	13901.2	6.8
			AVERAGE	5.89
EBL	2004	539.78	6607.18	8.16
	2005	634.08	8052.2	7.87
	2006	783.19	9608.56	8.15
	2007	855.98	11732.5	7.3
	2008	1063.55	15959.3	6.66
	2009	1359.6	22657.3	6.01
			AVERAGE	7.358333

Table 4.7 depicts the cost of overall capital of sample banks under NI approach, the average K_O of NSBIL is the least one with 5.89% whereas NABIL has the largest value of 8.41% and other lie in between this range, 6.41% (HBL), 7.04% (SCNBL) and EBL with 7.36% average K_O. The management of NSBIL can be considered efficient to collect the required funds within the sample period.

4.7.2 Net Operating Income (NOI) Approach

The net operating income approach focus in the equity capitalization rate and appears as irrelevancy theory of capital structure. Equity capitalization rate is obtained simply dividing earning after tax by market value of the equity. Thus, under net operating income approach the equity capitalization is as follows:

$$Ke = \frac{EAT}{E}$$

The equity capitalization rate of selected banks under NOI approach is shown in Table 4.8.

Table 4.8

Equity Capitalization Rate under NOI Approach of NABIL, SCBL, HBL, NSBIL and EBL

BANKS	YEAR	EAT	EQUITY	Ke
NABIL	2004	271.63	1146.42	23.69
	2005	416.25	1314.18	31.67
	2006	455.32	1481.66	30.73
	2007	520.1	1657.6	31.38
	2008	635.3	1875	33.88
	2009	673.96	2057.05	32.76
			AVERAGE	30.685
SCBL	2004	479.21	1235.44	38.79
	2005	506.95	1368.91	37.03
	2006	537.8	1495.73	35.96
	2007	536.25	1582.41	33.89
	2008	658.76	1754.13	37.55
	2009	692.1	1755.3	39.43
			AVERAGE	37.10833
HBL	2004	235.02	858.13	27.39
	2005	212.13	1063.13	19.95
	2006	263.05	1324.17	19.86
	2007	308.28	1572.43	19.61
	2008	457.46	3808.41	12.01
	2009	828.4	2594.67	31.93
			AVERAGE	21.79167
NSBIL	2004	40.85	560.34	7.29
	2005	48.75	569.86	8.55
	2006	60.86	626.64	9.71
	2007	57.39	689.01	8.33
	2008	117	982.37	11.91
	2009	254.39	1163.29	21.87
			AVERAGE	11.27667
EBL	2004	85.33	390.91	21.83
	2005	94.17	472.83	19.92
	2006	143.57	680.31	21.1
	2007	170.81	832.62	20.51
	2008	237.29	962.5	24.67
	2009	300.6	963.6	31.19
			AVERAGE	23.20333

Table 4.8 shows the cost of equity under the NOI Approach and revealed that NSBIL collect the equity funds at the least costly rate of average11.28% and SCBNL collects at the most expensive rate of average 37.11% and the rest of banks lie within this range such as average 21.79% (HBL), average 23.20% (EBL) and average 30.69% (NABIL) respectively.

4.8 Statistical Analysis

4.8.1 Correlation Analysis

In this part of the study, it is attempted to find out the inter relationship among the various variables such as Debt Equity Ratio (DER), Debt Servicing Capacity (DSC), Earning Rate (ER), Assets Composition (AC) and Corporate Size (CS). To calculate the Karl Pearson's correlation coefficient, SPSS Software is used. Findings of correlation coefficient have been presented in the correlation matrix table below.

Table 4.9

Correlation Matrix of DER, DSC, ER, AC and CS

Variables	DER	DSC	ER	AC	CS
DER	1.00	0.057	0.219	0.083	0.073
DSC		1.00	0.544	-0.085	0.764
ER			1.00	0.409	0.363
AC				1.00	0.139
CS					1.00

Table 4.9 shows the inter relationship of DER, DSC, ER, AC and CS with one another variable. It is revealed that DER has low degree positive correlation with DSC, ER, AC and CS. DSC has moderate degree positive correlation with ER and CS but low degree negative correlation

with AC. ER has low degree positive correlation with AC and CS. AC and CS has low degree positive correlation as well.

4.8.2 Regression Analysis

Variables DER, DSC, ER, AC and CS are interrelated with one another so interdependency of these variables is also exist. To test the interdependency Regression Analysis is one of the most popular statistical tools, Simple Regression and Multiple Regression Analysis are hence carried out. To test the interdependency or Regression Analysis, SPSS Software is used.

Multiple regressions are the technique for studying the joint effect of any number of independent variable upon a dependent variable.

$$\text{Log DER} = A + b_1 \log AC + b_2 \log DSC + b_3 \log CS + b_4 \log ER + U_1$$

The above model states in the simple terms that the debt equity ratio DER of the ith company is linearly dependent on assets composition (AC), debt serving capacity (DSC), corporate size (CS) and earning rate (ER) of the company. A is the constant term b_1, b_2, b_3 and b_4 are the co-efficient and U_1 is the error term.

Regression Analysis Table

Model		A	AC	DSC	CS	ER	R2	F	SEE
I	Const.	1.55	0.049				0.007	0.195	0.1254
II	Const.	1.137		0.038			0.03	0.0193	0.1256
III	Const.	1.031			0.041		0.05	0.149	0.1255
IV	Const.	0.812				0.408	0.048	1.41	0.1228
V	Const.	1.134	0.053	0.043			0.011	0.152	0.1274
VI	Const.	1.049	0.044		0.035		0.011	0.146	0.1278
VII	Const.	0.807	-0.005			0.414	0.048	0.618	0.1250
VIII	Const.	1.036		0.003	0.039		0.005	0.072	0.1278
IX	Const.	0.766		-0.058		0.497	0.053	0.761	0.1247
X	Const.	0.821			-0.004	0.414	0.048	0.681	0.1251
XI	Const.	0.725	-0.028	-0.071		0.555	0.055	0.504	0.1270
XII	Const.	0.604		-0.113	0.058	0.512	0.058	0.532	0.1268
XIII	Const.	0.420	-0.062	-0.175	0.092	0.646	0.064	0.426	0.1289

Regression Analysis Table reveals that DER is positively influenced by the Debt Serving Capacity in Model II, V & VIII but negatively influenced in Model IX, X, XII & XIII respectively. According to the theory, D/E ratio must be positively significant in the companies having high debt saving capacity but it is contrast with this study. The relationship of Assets Composition to DER is positive in the Model I, V and VI but it appears negative in the Model VII, XII and XIII. Corporate Size and Earning Rate of the banks have positive relation with DER. While AC is jointly regressed with DSC and ER and CS (Model VII, XII and XIII) it has negative effects on DER. DSC also shows the negative impact on DER in Model IX, X, XII and XIII when jointly regressed with AC, CS and ER.CS and ER show the positive relation with DER when regressed solely and in combination with other concerned variables mentioned above. Furthermore, it can be considered with above findings that Corporate Size and Earning Rate have positively influence the DER of the banks and Debt Servicing Capacity and Assets composition also has mixed impact on DER of the sampled banks during the sample period.

Comparing the current study with one that conducted by Mr. R.K Singh entitled **Corporate Capital Structure** independent variable assets composition, debt servicing capacity, corporate size and earning rate shows result to dependent variable DER. So as per the study of Mr. Ramesh Kumar Singh's expectation DER is positively influenced by AC, DER, corporate size and negatively influenced by earning rate. The finding of the current study shows the negative influence of DER and Assets Composition and Debt Servicing Capacity whereas it shows

positive influence of CS and ER. Hence, the findings of the current study are still questionable. At last further study in the same field can be suggested, covering variables of financial institutions like banking, finance companies, manufacturing companies, hotels and insurance companies as well to get fine result.

4.9 Major Findings of the Study

This study deals with the capital structure of commercial banks. Simple and multiple regression analysis were used to accomplish the objectives. It employed the simple regression equation to examine the relationship of cost of capital with each of the selected explanatory variables and multiple regression equations is used to examine the relationship between cost of capital and leverage and cost of equity and debt equity ratio together with other explanatory variables. The major findings of the study are described in the following.

- The average D/E ratio of SCBL is 14.19 times that mean the debt capital financing is more than about 14 times higher than shareholders equity. HBL has D/E ratio of 16.29 times on an average. The average D/E ratio of EBL is 16.14 times that means debt financing is more then 16 times higher than shareholders equity with the bank. The average D/E ratio of NABIL is 11.46 times and that of NSBIL is 12.25times. HBL has the highest D/E ratio and NABIL has the lowest D/E ratio, in other words HBL uses the debt financing more relatively as compared to other sampled banks within sample period.

- The total debt to total asset ratio reveals that the commercial banks are highly levered on five years time horizon. It means the assets of selected banks have been financed more by funds collected from creditors. SCBL has the average ratio of 94% in other words, creditors finance 94%of bank fund and remaining 7 percent is shareholders claim. HBL has average ratio of 93 % and total debt to total assets ratio is in decreasing trend. The average D/A ratio of EBL is 94.58%, NABIL with average D/E ratio 91.96% and NSBIL is 992.42%. The creditor's margin of safety is very low; this means they have high financial risk.

- SCBL and NABIL have higher I/C ratio whereas EBL, HBL and NSBIL have lower average I/C ratio. SCBL has a very high interest coverage ratio on an average. 5.51 times. The lowest I/C ratio 1.96 times on an average and this is of NSBIL .The computed I/C ratio of banks in above analysis shows how many times the interest charges are covered by funds that are ordinarily available to pay the interest.

- SCBL and HBL have 2.45% and 1.36% average return on assets respectively. Similarly, average return on assets of EBL and NSBIL is 1.37% and 0.87% respectively. Return on assets of NABIL is the highest among the five sample banks and it is 2.52% in average during the sample period. Hence, NABIL and SCNBL banks performed better than other banks they have been able to utilize its resources in most profitable projects than HBL, EBL and NSBIL.

- Return on shareholder's equity of SCBL has the highest ratio among the selected banks. On an average, it has 37.12%, which is

highest ROE in comparison with other banks. The average ratio of NABIL, HBL, EBL and NSBIL are 30.69%, 21.69%, 23.20% and 11.28% respectively.

- NABIL has the highest overall capitalization rate on average i.e.8.41% and NSBIL has the lowest rate on average i.e. 5.89%. The overall capitalization rate of NABIL, EBL and SCBL is higher than that of HBL and NSBIL.

- Over viewing the above computed equity capitalization rate, cot of equity of sample banks are fluctuating in nature. The average equity capitalization rate of SCBL is 37.11% and this is the highest rate among the sample banks. The equity capitalization rate of NABIL, NSBIL, HBL and EBL are 30.69%, 23.20%, 21.79% and11.28% respectively.

- The correlation coefficient of D/E ratio with Assets Composition (AC), Corporate Size (CS), Debt Servicing Capacity (DSC) and Earning Rate (ER) shows there is positively relationship in between these variables. AC shows negative correlation with DSC but with other variables there is positive relation. Corporate Size has moderate degree of positive correlation with DSC and ER. DSC and ER also have moderate degree of positive correlation.

- The regression analysis is also carried out, assuming D/E ratio as dependent variable and AC, CS, DSC and ER are as independent variables. Corporate Size and Earning Rate have positively influence the DER of the banks and Debt Servicing Capacity and Assets composition also has mixed impact on DER of the sampled banks during the sample period.

CHAPTER - V
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The primary purpose of the present study has been to obtain deep insight into the problem facing the Nepalese business organization in need of funds whether to raise debt or equity. Providing sufficient funds through proper financing mix is one of the most important functions of finance executive. Here financing mix refers to the choice of debt and equity funds. At the same time there is no ideal pattern of financing mix with us. In evolving the best pattern of capital structure or financing mix for a company each case has to be considered on its merits. In spite of the fact, each company makes its own decision regarding its capital structure. There may be certain general factors which seem to influence the capital structure of an enterprise. In the practical situation it is very difficult to apply the mentioned capital structure by different basis and intellectual because the situation may be differ time to time but the theory remains constant. Consequently an attempt has been made to judge and justify by the relationship between the corporate capital structure, cost of capital and several other relevant factors like corporate size, debt serving capacity, assets composition, business risk, earning rate.

The specific objectives of the study were to test the relationship between capital structure and cost of capital and the relationship between stock yield (cost of equity) and the debt equity ratio (leverage) using Nepalese data. Modigliani and Miller proposition were used as the focus point for carrying out the empirical analysis. The M-M proposition-I is that capital structure does not affect the cost of capital to the firm and proposition-II describes the behave of earnings yield with financial risk or leverage and

states that the earnings yield required by the investors is on increasing linear function of leverage. In connection with their proposition, they made some assumptions regarding investor's attitude toward financial risk arising from the use of debt in capital structure of a firm. They have contended that investors would require a higher return on equity for increased financial risk. On the other hand the traditional view belief is that the cost of capital to the firm is affected by its capital structure and the cost of equity (earnings yield) is either remains constant or rises slightly with leverage or financial risk within acceptable level of debt.

All these factors affect the capital structure decision and cost of capital in some way or other and help the management in arriving at an optimal capital structure to evaluate the above. The study has been divided into five chapters. The first chapter is an introductory one continuing the general background, statement of the problem objective of the study, significance of the study, limitation of the study and organization of the study. In the chapter two literature reviews has been done. This part contains the review of literature from different books, journals previous reports and thesis by different persons of different organizations related to the topic capital structure, leverage and its effect in cost of capital of the firm has been done.

This study covered five major commercial banks of Nepal; they are Nabil Bank (NABIL), Standard Chartered Bank Nepal Limited (SCBNL), Himalayan Bank Limited (HBL), Everest Bank Limited (EBL) and Nepal State Bank of India Limited (NSBIL). For the purpose of the study, the necessary data on capital structure and other related variables are collected from the period F. Y. 2004 to 2009.

All the joint venture commercial banks are highly leveraged. Debt Assets Ratio of all the sample banks is above 90%, which indicates larger portion of the total assets is financed by debt financing. Debt Equity ratio of sample banks are spread somewhat around 11 to 16 times, that indicates those banks have high amount of debt that their own equity funds. Hence, the sample banks have high volume of leverage or bearing high financial risk. Out of five sample banks, only two i. e. NABIL and SCNBL have satisfactory average Interest Coverage Ratio of 4.63 times and 5.51times respectively and the rest have around 2times in average; which can not be considered as significant level. Average ROE of NABIL and SCBNL is above 30%, can be significant return but ROE of EBL, HBL and NSBIL has around 20% only, So the investors are not attracted to the stock of these companies and stock price are also not so high, as compared to stock price of NABIL and SCBNL. The overall capitalization rate of sample banks spread around 5.5% to 8.5%, NABIL and SCBNL has high overall capitalization rate of 8.41% and 7.04% respectively, and the rest collect their funds at 6% average. On investigation, cost of equity fund is the highest of SCBNL of 37.11% followed by NABIL 30.69%, NSBIL 23.20%, and HBL 21.79% and EBL 11.28% respectively. Hence, EBL collects the equity funds at least cost and SCBNL uses the most costly equity funds.

The correlation matrix of various major variables, DER, AC, CS, DSC and ER is prepared. According to correlation matrix, Debt Servicing Capacity and Assets Composition shows low degree negative correlation, otherwise all other variables have positive correlation with each other.

After having certain degree of correlation with one another, Regression Analysis is also carried out. DER is assumed as dependent variable and

AC, CS, DSC and ER are assumed as independent variables. DER is positively affected by CS and ER but has mixed impact with AC and DSC respectively.

5.2 Conclusion

This study used simple financial analysis (Ratio Analysis), statistical analysis (correlation analysis as well as multiple regression analysis) to accomplish the objectives of the study. It employed the simple regression and multiple regression analysis to examine the relationship of Debt Equity Ratio with each of the selected explanatory variables together with other explanatory variables.

From the above study, we may conclude that among the four sample banks, HBL has the highest debt equity ratio 16.29% in average. The average DAR of EBL is the highest with the value of 94.58%. But, the interest coverage ratio SCBNL, return on assets and return on equity is highest among the five sample banks. The overall capitalization rate is highest in NABIL and equity capitalization rate is highest in SCBL among these sample banks.

This study does not support the M-M independent hypothesis. It indicates that cost of capital can be affected by the use of debt in capital structure. However, the result is not enough to support the traditional beliefs. The cost of equity in some cases increases with leverage and in some cases decreases with leverage. It is also different from the traditional belief.

5.3 Recommendation

From the above findings and conclusion Nepalese commercial banks have not properly using the concept of capital structure and cost of capital in practice. Theories developed by the scholars have not able to attract the management of the Nepalese commercial banks. Thus, overall structural scenarios of the banks are in confusing state. Therefore, we may recommend that the management of the commercial banks should be clear about the generation of fund needed for investment. It means that the knowledge of capital structure and cost of capital plays vital role in uplifting the financial position of the banks. The analysis of cost of capital is very important in making investment at different projects because of cutthroat competition. Therefore, the management of the banks always is well informed about the sources of capital, their reliability and their cost. The manager should not take any financial decision randomly and always keep in mind the view of cost of capital concept and theories of capital structure, which helps the manager in taking right decision.

Similarly, commercial banks are basically concentrated on mobilization of their deposit funds in productive areas. So, they are proposed to come forward to match government obligation by financing the priority sector development programs.

Finally, banks are required and recommended to expand assets and branches that ultimately affect the banks capital structure and expected to increase the profitability more than present. All the sample banks vary in case of total assets, number of staffs and number of bank branches and their volume of transactions. In conclusion, these banks are efficient and well established and doing well.

BIBLIOGRAPHY

Books

Bajracharya, B.C. "Business Statistics and Mathematics", (Kathmandu: M. K.
  Publishers and Distributers, 2000)

Barges, Alexander, (1963), The Effect of Capital Structure on the Cost of
capital,
  (Eaglewood Cliffs, NJ Prentice Flail of India Pvt. Ltd.)

Bolten, Steven E. and Robert L. Conn, Essentials of Managerial Finance,
Principles
  and Practice, (Hougton Muffin company! Boston, 1981)

Brigham, Eaugine F. and Gapenski, Louise, (1973), Financial Management
Theory
  and Practice, (The Dryden Press, Illions.)

Copeland, Thomas E. and J. Fred Weston, (1990), Financial Theory and
Corporate
  Policy, (New your: Wesley Publishing Company)

Dongol, R.M. and Keshab Prashad Parajuli, (1998), Financial Analysis &
Planning,
  (Kathmandu: Taleju Pustak Bitarak)

Hempton, John J., (1994), Financial Decision Making Concept, (New Delhi:
Prentice
  Hall of India

James C. Van Home, Financial Management and Policy, 2000edition, (New
Delhi: Prentice- Hall of India Private Limited) PP. 62-72

Kothari, C. "Research Methodology"-Method and Technique, (New Delhi:
  Willey Estern Limited), P.61.

Kuchhal, S.C. An Analytical and Conceptual Approach, 8th edition, (New Delhi:

Chaitanya Publishing House, 1988), p390-391. P.R. Joshi, "Research Methodology" (Kathmandu: Buddha Academic Enterprises Pvt. Ltd, 2001),

pp. 1 2-13.

Lawerence J. Gitman, Principles of Management Finance, (New York: Harper Colline Publisher, 1988), p44.

Lawrence J. Gitman, Principle of Managerial Finance, 5th edition (Harper Collings

Publishing, 1988) P.422

Ministry of Finance, Economic Survey 200512006

Pandey, I.M. Financial Management, sixth edition, (New Delhi: Vikas Publishing

House (P) Ltd, 1993), P. 560

Pandey, I.M., Financial Management. 7th edition, New Delhi: Vikash Publishing

House Pvt. Ltd. 1995), p195.

Prasana Chandra, Financial Management (Banglore: Indian Institute of Management,

1986), P. 156

Prasanna Chandra, Fundamentals of Financial Management, 2nd edition, (Banglore:

Indian Institute of Management, 1986), p156.

Walter, James E., Financial Analysis and Planning, (New York: Harper Colline

Publishers, 1996), p231.

Weston, Fred J. & Eugene F. Brigham, Essential of Managerial Finance, 9th Edition,

(Illusion: the Dryden Press), p. 399

Weston, Fred J., and Eugene F. Brigham, Managerial Finance, 7th edition (Illions:

The Dryden Press.) P.555.

Weston, J. Fred and Eugene F. Brigham, Management Finance, 7th edition (Tokyo:

Holt Sounders 1982) p555.

Wolff, Howard K. and Prem R. Panta, "Social Science Research and Thesis Writing",

2 nd edition.

World Development Report, World Bank 2005

Articles

Baxter, N.D. and Cragg, J.G., "Corporate Choice Among Long-Term Financing

Instruments", The Review of Economics and Statistics, Vol. 52, No. 3
(August 1970), pp. 225-35.

Lev, B. "Industry Average as Targets for financial Ratios" Journal of Accounting

Research, Vol. 7 (Autumn 1969). Pp. 290-99.

Modigliani, F. and Miller, M. H., " The Cost of Capital in Corporate Finance and

Theory ofInvestment. "American Economic Review, June pg 261 - 297(1966)

Scott, D.F., Jr., "Evidence on the Importance of Financial Structure ". Financial

Management, Vol. 1, No. 2 (Summer 1972). Pp. 45-50.

Shrestha, Manohar Krishna, "Analysis of capital structure in selected PEs ' Nepalese

       Journal of Public Administration, Year 16, no. 2, l42' issue, March 1995.

Shrestha, Ramesh Lai "Capital adequacy of bank: The Nepalese context", NRB
       Samachar, 34th Anniversary 1990.

Toy, N., Stonehill, A., Remmers, L. and Beekhuisen, T., "A comparative
       International Studyof Growth, Profitability, and Risk as Determinants of
       Corporate Debt Ratios in the manufacturing Sector", Journal of

Financial and   Quantitative Analysis, Vol. 9 (November 1974), pp. 875-86.

Previous Thesis's

Adh ikari, Mahendra "The Effect of Capital Structure on the Cost of capital"
       Unpublished Master's Degree Thesis T. U. Kirtipur. (1991),

Glum ire, Lekhnath, "A Comparative study of financial performance of performance

       of HBL and NISBL ", Unpublished Master's Degree thesis, (T.U., 2000.)

Karmacharya, Binaya, "Study on capital structure of Joint Venture Commercial Bank

       and NRB directives issued in regards to thereof', Unpublished Master's
       Degree thesis, (T.U. 2002)

Khanal, Deepak, "A Study on Capital Structure of Industrial Public Enterprises",

       Unpublished Master's Degree thesis, (T.U. 1992)

Tamang, Gyanbahadur, "The Impact of capital structure on profitability of Soaltee

Hotel and Yak & Yeti Hotel", Unpublished Master's Degree thesis,
(T.U. 2001)

Tripathi, Bigyan, "Analysis of financial performance of Soaltee Hotel
Limited",

Unpublished Master's Degree thesis (T.U. 2002)

ANNEX

Financial Statistics of Sample Banks

NABIL

YEAR	TA	TE	TD	EBIT	INTEREST	EBT	EAT	DER
2004	20672.5	858.13	19814.3	1387.34	578.13	349.05	235.02	23.09
2005	23355.2	10663.30	22292.	11443.54	554.3	360.03	212.13	20.97
2006								