CHAPTER - I

INTRODUCTION

1.1 Background of the study

Business firms play a vital role for the economic development of the country. Nepalese companies have been established as public enterprise as well as private sector under the company act1964.

They have been established in different sectors via; industrial and manufacturing sectors, financial sectors, trading sectors, social sectors service sectors and public utility sectors etc they have been established for the overall development of the country with their definite goals and objectives. Either they have established as public enterprise or private firm they need funds to operate business. At the time of establishment, the firm in two ways-equity and debt generally acquires fund. Equity provides the ownership of the firm to the shareholders. On the other hand, the debt borrow fund, has a fixed charge, irrespective to the earnings of the firm and has to pay the fixed charge periodically to the debt provider. In a running business, retained earnings may also be used as sources of financing. Either they acquire fund by equity or debt, they must pay the cost for using such to use of source of funds, which is called cost of capital.

The cost of capital concept occupies a pivotal place in place in the theory of financial management as criterion of allocation capital (pandey, 1981:P1). Generally cost of capital is known as the value paid for the availing and using capital for particular sources. Cost of capital is the term, which can be defined in different way. It is a financial instrument, which plays role in the investment decision whether the proposed plan should be started, or not.

Decision making is a process of choosing among alternatives. Alternatives having minimum cost with reasonable return compare to others is acceptable. The cost of capital refers the discount rate that would be used in determining the present value of the estimated future cash proceeds and eventually deciding whether the projects worth undertaking or not (Barges, 1963: P2). The concept

of cost of capital is significant not only has an investment decision criterion but can also be used to evaluate the financial performance of the firm.

The capital structure concept has an important place in the theory of financial management the term capital structure, also known as financial structure, or financial plan or leverage. The financial decision of a firm is one of the firm's objectives of shareholders wealth maximization. The term capital structure refers to the proportion of debt and equity capital thus, the financial decision of a firm relates to choice of proportion of debt and equity to finance the investment requirement. 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 reasonable proportion of debt and equity is called optimal structure,however,it can be expected that if the capital structure decision affecters. The total value of the firm, a firm should select such a financing mix, which maximizing the shareholders mix. The optimal capital structure and its implication are more noticeable.

The cost of capital concept helps management in moving towards it target capital structure or an optimal capital structure provided; there exists relationships between the two. In building up its capital structure over a period of time, a firm will depend on that line of financing during a given time which involved minimum cost. The capital structure and the cost of capital both are important in maximizing the wealth of the shareholders. Thus in the present study their relationship is examined. Actual position of Nepalese companies regarding capital structure and cost of capital is stated bellows.

In almost all public enterprises, capital structure continued to remain a very indeterminate problem in view of the lack of guided criteria to determining it. The various study reports and official documents relating to public enterprises structure the maintenance of ad. Hoc capital structure to the extent that neither the Gov. nor the public enterprises themselves have been serious in the appropriate determination of capital structure (Shrestha,1985:P41). Proper combination of capital structure policy is not adopted by Nepalese companies. the firm objectives to maximize the wealth of shareholders or return on equity is not meet by Nepalese companies because in most of the companies there is to existence of debt in their capital structure and equity capital is only on sources of financing which some cases the proportion of debt is very high which creates the financial burden of the firm.

It is observed that none of the financial companies and insurance companies except Nepal industrial development corporation (NIDC) has used debt as the sources of financing. Likewise most of the trading companies have not used debt financing. Manufacturing and processing companies have used debt financing but most of them have been suffering from losses due to the huge amount of interest payment.

From the above presentation, we can say Nepalese companies do not take that capital structure concept seriously. Therefore appropriate capital structure does not exist at all. Cost of capital concept is not clear in Nepalese companies because it is impossible to minimize the average cost of capital without proper combination of capital structure component in financing of the firm. So the study would be related to the empirical relationship between the capital structure and the cost of capital in the concept of Nepalese listed companies.

1.2 Statement of the Problem:

Cost of capital is an essential tool in the area of finance. It is not only important, so we can say most crucial aspect of financial management. But determining the cost of capital is major problem in Nepalese companies. Cost of capital concept is not clear in Nepalese companies because it is impossible to minimize the average cost of capital without proper combination of different component of capital structure in financing the firm. On the other hand there are many studies conducted in capital structure management of the different companies in Nepal most of the study based on the financial ratio analysis. However, no simple and conclusive results exist regarding the relationship between capital structure and the cost of capital. If the cost of capital is affected by the capital structure it helps to maximize the value of the firm. But such relationship between them in an under developed economy that of Nepal, is not yet clearly known. So this study is devoted to examine the relationship between capital structure and the cost of capital, in the context of Nepalese listed companies. This study specially deals with the following problems.

1. What is situation of leverage of Nepalese firm?

2. Whether or not the cost of capital declines with leverage in Nepalese firm?

3. What are the relationship among leverage, cost of capital, size of capital employed growth in total assets, dividend payout ratio, liquidity ratio and earning in Nepalese firm?

4. How does leverage affect the cost of equity in Nepalese firm?

1.3 Objectives of the Study:

The basic objective of this study is to test the relationship between capital structure and the cost of capital context of Nepalese listed companies. The study attempts to find out the relationship between cost of capital and each of the selected explanatory variables such as size, growth, dividend payout ratio, liquidity and earning variability of the firm respectively. Relationship between cost of equity and other variables is also matter of concern of the study.

The specific objective of this study is as follow:

1. To evaluate the leverage situation and cost of capital of Nepalese firms.

2. To test the relationship between cost of capital and capital structure in selected listed Nepalese firms.

3 To test the relationship between cost of equity and capital structure (leverage) in selected Nepalese firms.

4 To test variables that affected the cost of capital.

1.4. Hypothesis of Study:

In respect of capital structure decision of the firm several capital structure theories has been developed over the period. Though these theories are classified in different ways. To examine the result, would be tested different kinds of test of hypothesis are as follows.

1. Null hypothesis: There are not significantly different leverage ratio between trading and manufacturing firms.

2. Alternative hypothesis: Cost of capital of trading and manufacturing company is significantly different.

1.5 Significance of Study:

The significance of this is to fill the research gap relating capital structure and the cost of capital. It is because the available on the subject is very few.

However to be more specific, this kind of study is relevant to provide significant input to the concerned listed companies to enable them to know how to determine cost of capital the optimal of their financing decision.

The capital structure concept has been the subject of controversy since the publication of M-M's classic paper in 1958(Franco Modigliani and Merton H Miller, 1958). M-M's hold the view that the cost of capital to a firm remains constant to the capital structure changes in the other hand, the traditional, belief (Ezara Sooman, 1969) is that the cost of capital is the function of capital structure. Many capital structure studies exist supporting and refusing the M-M's and traditional view.(barges),in his study used sample regression technique to analysis the relationship between the average cost of capital and the leverage and between the stock yield and debt equity ratio and utilized cross section data from three different industries. The traditional view was supported as conclusion of his study. (Western, 1965) used M-M's cost of capital model for his sample of 59 utilities in 1959. He found regression co-efficient of leverage to be positive and significant. However, when the multiple regression were run the result were constant with the traditional view similarly, by using British data of three unregulated industries,(davenport,Michrl,1971) tried to test M_M cost of capital proposition and regression equations were estimate. His result supported the traditional view. (Wippern, 1969) has also conclude that a test of the relationship between leverage and cost of capital and concluded that shareholders wealth can be enhanced by the use of debt financing. Further study has conducted (Sharma and rao,1969) in respect of M_M hypothesis and concluded the cost of capital is affected by debt apart for its advantages.(pandey, 1981) has used the multiple regressions to the validity of M_M proposition and concluded that the cost of capital is the function of capital structure.(Adhikari ,1991) has also tried to test the relationship between capital structure and the cost of capital by taking five Nepalese finance companies and supported the

traditional belief. In spite of voluminous studies to test the validity of M_M proportion, the question of the effect of capital structure on the cost of capital still remains unresolved.As this issue still remains unresolved. As this still remains unresolved, there is significance for conducting further empirical studies.

Thus the significance of this study is to estimate relationship between capital structure and cost of capital in context of developing economy, specially, Nepalese economy:

1.6 Limitation of Study:

Undertaking this study is providing very challenging due to the number of limitation arising from special national characteristics and other imperfect forces governing enterprise culture in the country. The main problem is data availability. Many listed companies do not published financial statement regularly and timely. Thus some limitation is follows:

1. The study covered only selected years.
2. As a research student the study will be unbiased, but resource and time period is limited.
3. Data published by NEPSE and respective finance companies differ to some extent, which means the accuracy and reliability of the data. However in this study NEPSE is taken as basic sources of data.
4. We can selected few companies data, so it brings sample limitation.

1.7 Chapter Plan:

The study has been organized into five chapters. Each of has some aspect of the study.

Chapter1: Introduction

Chapter2: Review of Literature

Chapter3: Research Methodology

Chapter4: Presentation and Analysis of Data

Chapter5: Summary Conclusions and Recommendation

The contents of each of the chapter of this study are briefly mentioned below:

Chapter one deals with the subject matter of the study consisting background of the study, significance of the study, statement of the problem, objective of the study, Hypothesis of study, limitation of the study and scheme of the study.

Chapter two deal with review of literature. It includes conceptual review, review of articles and journal, review of past thesis, review of other research works cost of capital concept, financial leverage, capital structure theories are review of major empirical study relating to the capital structure and the cost of capital.

Chapter there deals, with research methodology. It includes research question, data collection, research tools and models explanation of the variables taken, samples selection and period of the study of the samples enterprise.

Chapter four deals with the presentation, analysis and interpretation of data by using statistical and financial models described in chapter three, findings of study.

Lastly, chapter five deals with summary, conclusion and recommendation of the study.

Bibliography and appendixes are included at last of the thesis report.

CHAPTER: II

REVIEW OF LITRATURE

This chapter provides the bases and inputs to make purposive study. This chapter comprises four parts such as: conceptual review, review of articles, review of thesis and review of other research reports.

2.1 The Conceptual Review

This section is devoted to discuss briefly about the theoretical concept regarding the cost of capital financial leverage and the theories of capital structure.

2.1.1 Concept of Cost of Capital

Cost of capital is the minimum amount, which must be paid annually or at periodical internal (other than principle) to the investor or creditors. It is minimum required rate of return of an investment which must be earned by a project remain unchanged its value or wealth.

The "term of capital" is used in different senses. In the past it was frequently used to refer to the cost of specific sources of capital, such as the cost of debt, the cost of equity etc. when used in this sense, the term carried the implication that, in order to accept or reject the proposed projects, their profitability should be evaluated on different cost bases depending on the specific sources of funds used to finance particular project. It has been, however recognized recently that this position contained a basic fallacy. A firm's decision to use debt capital to finance its projects not only adversely affects its potential for using in the future by proportionately lowering its equity base, but also creates financial risk to the shareholder. Such risk in turn will influence the cost of equity which moves upward. Similarly, a firm's decision to use equity capital for financing its projects would enlarge its potential for borrowing in the future. Because of this connection between the method of financing and their costs, it has been now agreed that the cost of capital should be used in the composite sense i.e. weighted average cost of capital (Barges, A, 1963).

It is this average cost which is used as an acceptance criterion to be applied to investment projects. An investment projects, for acceptance, must earn a minimum rate of ruturn equal to the marginal weighted average cost of capital. In this sense, the cost of capital represents a standard for

allocating the firm's fund in the most optimum manner. In theory it is the rate of return of a project that will leave the market value of the shares unchanged.

The cost of capital is an important element as basic information in capital investment decision. The cost of capital can be looked in slightly different prospective (Joy, O.M, 1977). In the operational term, it refers to the discount rate or minimum rate of return that a firm to remain unchanged. In economic term, there are two approaches to define the cost of capital. Firstly it is the cost of acquiring the funds required to finance the proposed that is the cost of capital is the borrowing rate. Secondly, in terms of lending rate, it may refer to the opportunity cost of fund for the firm, that is what firm could have earned by investing funds elsewhere. A project will be accepted if it has positive net present value, in the present value method, when the future cash inflow are discounted at the cost of capital. In internal rate of return method, the project will be accepted if it has a rate of return greater than the cost of capital. In spite of these, the cost of capital the standard against which the prospective investment project is compared. (Hampton, 1977) the cost of capitals the rate of return the firms requires from as investment in order to increase the value of the firms in the market place. (Van Horne, 1990) preferred to say about the cost of capital in the following words, "The cost of capital in terms of discount rate to serve as vehicle to judge the alternatives of an investment opportunity." Cost of capital, also known as capitalization rate, discount rate, hurdle rate, cutoff rate, minimum required rate of return, opportunity cost etc., that equates the net cost proceeds, the firm receives with the present value of the capital supplies.

As discussed, the cost of capital concept is of vital significance in the financial decision making of a firm, but there are number of problem attached to it. The first problem concerns the measurement of the cost of specific sources of capital, and it is necessarily. The cost of specific source of finance may be defined (Pandey I.M.). As the discount rate that equates the present value of the funds received by the firm, net of under-writing and other costs, with the present value of expected outflows. These outflows may be interest payments, repayment of principal or dividends. Thus, the explicit cost of specific sources of financing can be determined by solving the following equation for K

$$I = \frac{C1}{(1+K)^1} + \frac{C2}{(1+K)^2} + \ldots\ldots\ldots + \frac{Cn}{(1+K)^n}$$

$$I = \sum_{t=1}^{n} \frac{C_t}{(1+K)^t} \qquad 2.1$$

Where,

I= outflows of funds at period 0;

C_t= Cash inflow at time t;

N= Time Duration over which the funds are provided,

K= cost of capital

It is clear from the above equation that the cost of capital is the minimum rate of return, which the firm must earn through the investment, which equates the cash outflows with the inflows, of on investment. The cost of each component of capital is the component cost of capital and overall cost of financing of an organization is known as weighted or composite cost of capital. Capital component included various types of debt, preference share, and equity capital (including retained earning and other general resources and surplus). Therefore, any net increase in assets must be financed by an increase in one or more capital components. The symbols of the components cost of capital under this study are as follows:

Kd	=	before tax component cost of debt.
Kd(1-T)	=	after tax component cost of debt, where T is the marginal tax rate.
Kps	=	component cost of Preferred stock.
Kr	=	Component cost of retained earnings.
Ke	=	component cost of equity capital.
Ko	=	weighted/ overall cost of capital.

2.1.2 Cost of Debt Capital

The cost of funds rose through debt in the firm of debentures or loan financial institutions can be called cost of debt. It is easy to calculate because amount of interest is known and fixed by the agreement between lender and the firm. Component cost of debt rate is calculated by dividing the amount of interest by the amount of loan providing or it is the ratio of interest and principal. i.e.

$$Kd = \frac{\text{Total Amount of Interest}}{\text{Total Amount of Principal}} \qquad 2.2$$

Where,

P = net proceed from sales of Debenture (or loan)

The above equation provides the before tax annual interest rate. The cost of debt is deductible. Thus, after tax cost of debt is less than before tax. It is equals to the before tax cost of debt times one minus corporate tax rate, i.e.

After tax cost of debt = kd (1-T)…….2.3

2.1.3 Cost of Perpetual Debt

Perpetual debt refers to the issue of debentures, which will not be redeemed during the life of the company. The cost of perpetual debt can be calculated as shown above.

2.1.4 Cost of Redeemable Debt (Maturing Year)

In the case of calculation of cost of redeemable debt, account has to be taken, in additional to interest payments, of the repayment of the principal. It is calculated by using following formula:

$$Kd = \frac{Int + (R_v - P_0)/n}{(R_v - P_0)/2} \quad (1\text{-}t)\ldots\ldots\ldots\ldots\ldots 2.4$$

$$P_0 = \frac{Int_1 + I_1}{(1 + Kd)^1} + \frac{Int_2 . + I_2}{(1+Kd)^2} + \ldots\ldots\ldots + \frac{Int_n + I_n}{(1+Kd)^n}$$

Where

Int =annual interest rate,

Rv =Redeemable value,

T = Tax rate

Po =net proceed from sales of security,

I= Installment

2.1.5 Cost of Preference Share Capital

The cost of preference share capital may be defined as the dividend expected by preference shareholders. Preference stock has some characteristics of common stock and some of band. Dividend of the preference stock is fixed and in cost calculation, it is treated as debt. The cost of preference stock is a function of its started dividends like the rate of interest. The computation of

the cost of preference shares is conceptually difficult as compared to the cost of debt. In the case of debt, as shown above the interest rate is the basis of calculating costs because payment of specific amount of interest is a legal commitment on the part of the firms. There is no such obligation in regard to preference dividend. It is also true that holders of such shares have a preferential right as regards payment of dividend as well as return of original investment, as compared to the ordinary shareholders. There are two types of preference shares: irredeemable and redeemable.

2.1.5.1 Cost of Irredeemable Preference Shares

The cost of irredeemable preference shares, which has no specific maturity date, is given. It is calculated by using the preference share valuation model given below:

$$Pso = \frac{D_p}{(1+Kps)^1} + \frac{D_p}{(1+Kps)^2} + \ldots\ldots + \frac{D_n}{(1+Kps)n} \qquad 2.5$$

Where,

Pso= Market price of preference stock

Dp= Dividend paid to the preference stock

Kps= Cost of preference stock

The cost of preference capital equals to:

$$K_{ps} = D_P / P_s \qquad 2.6$$

Equation slightly modified in the presence of flotation cost

$$Kps = \frac{DP}{P_{so}(1-F)} \qquad 2.7$$

2.1.5.2 Cost of Redeemable Preference Capital

The explicit cost of preference shares in such a situation is the discount rate that equates the net proceeds of the sales of preference shares with the present value of the future dividends and principal repayments. The appropriate formula to calculate cost is given below.

$$P_0(1\text{-}F) = \frac{D_1}{(1+K_p)^1} + \frac{D_2}{(1+K_p)^2} + \frac{D_n}{(1+K_p)^n} + \frac{P_n}{(1+K_p)^n}$$

$$P_0(1\text{-}F) \sum_{t=1}^{n} \frac{D_t}{(1+K_p)^t} + \frac{P_n}{(1+K_p)^n} \quad 2.8$$

Where,

Po= Expected sales price of preference shares.

F= Flotation cost as percentage of Po.

D= dividends paid on preference shares.

D_n= Repayment of preference share capital amount.

2.1.6 Cost of Equity Capital

Cost of equity capital is defined as the minimum rate of return that a firm must earn on the equity financed portion of its investment in order to leave unchanged the market price of its stock (van Horne, James C.). Measurement of cost of common stock is more difficult and controversial. Common stock and the retained earnings are the parts of equity capital. Common stock means proceeds received from the issue of equity. But a retained earnings is the retained portion of earnings of the firm.

2.1.6.1 Cost of Retained Earnings (Internal Equity)

Cost of retained earnings is the opportunity cost to the shareholders because when the firm decides to retain the current earnings in the firm, the shareholders gives up their cash dividends. Thus, they accept that the firm should earn the same rate of return on retained earnings (kr) is equal to the rate of return on common stock (Benton, C.F, 1987). Thus in the absence of flotation cost, the cost of retained earnings and the cost of common stock is same.

2.1.6.2 Common stock (External Equity)

Cost of new common equity is that rate of return, which is required by the stockholders. Due to flotation cost, the cost of common stock is greater than the cost retained earnings.

2.1.6.3 Approaches to calculate the cost of equity

(a) Gorden model or Dividend yield Approach

The model can be used to estimate that the rate of return investors required on equity when dividends are expected to grow at a constant rate for ever and the rate of return on equity, Ke, is greater than growth rate, G of dividends.

Gorden model is as follows :-

$K_e = D_1 / p_0 + g$. 2.9

Where,

K_e = Cost of internal equity;

D_1 = Year end expected dividend;

P_0 = Current market price of common stock;

G = Growth rate of dividends;

(b) Earnings Model or Earning Yield Approach

According to this model, the cost of equity capital, Ke, is equivalent to the rate, which must be eared incremental issue of ordinary share so as to maintain the present value of investment intact. In other word, cost of equity capital is measured by earnings price ration.(Ezara,soloman,1969) i.e

$K_e = E_0 / p_0$ ……..2.10

Where,

E_0 = Current earnings pre share;

p_0 = Current market price pre share;

(c) Cost of New Common Equity

$K_e = D_1 / P_0 (1- f) + g$

$= D_1 / P_n + g$…… 2.11

Where,

P_n = Net price paid the stock;

D_1 = Year end expected dividend;

F = Flotation cost;

G = Growth rate;

K_e = Cost of equity

(d) Capital Assents Pricing Model (CAPM)

This model was developed by Sharpe and Linter in 1960. The model explains the relationship between the expected return, unavoidable risk and the valuation of securities. The greater the unavoidable risk of security; the greater is the return expected by the investor from the security. Hence, in case the security doesn't provide adequate return commensurate with its unavoidable risk, the security will not find favour with the investors and thus its market value will fall.

With reference to the cost of capital prospective, the CAPM describes the relationship between the required rate of return or the cost of equity capital and the non diversifiable or relevant risk of the firms as reflected in its index of non-diversifiable risk i.e.beta symbolically. (Khan and Janin 1992)

$K_e = R_f + b (K_m + R_f)$ …….. 2.12

Where,

K_e = Cost of equity capital

R_f = the rate of return required on risk- free assets / security / investment

K_m = the required rate of return on market portfolio of assets. That can be viewed as the average rate of return on assets.

2.1.7 Weighted Average Cost of Capital

The weighted average or composite cost of capital is the weighted average of the cost of various sources of capital. Weight is the proportion of each of the sources used 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 make more risky. The increased risk to the shareholders will increase the cost of equity. Thus the cost of capital should be used in composites sense. (Barges A .Op.cit,)

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

$$K_0 = W_1K_d + W_2.K_{ps} + W_3.K_r + W_4.K_e \ldots\ldots\ldots \quad 2.13$$

Where,

W_1, W_2, W_3&W_4 are the proportion of debt, preferred stock, retained earnings and new equity respectively. The weight can be expressed in book value or market value but the use of market value weight is more appropriate because it represents the current costs.

2.1.8 Financial Leverage

Leverage refers to the use of an asset of sources of funds, which involve fixed cost or fixed returns. As a result, the return to the owners is affected as also their risk. There are two types of leverage: financial and operating.

The financial leverage implies the employment of source of funds, involving fixed return so as to cause more than a proportionate change in earning per share (EPS) due to change in operating profit.

The operating leverage refers to the use of the fixed operating cost to magnify the effect of a given change in the sales revenue on the earnings per share. It affects the total risk of the firm.

The term leverage may be defined as 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.Weston and Brighm (Fred Weston and Brighm1981) financial leverage as the ratio of total debt to total assets or the total value of the firm. Financial leverage refers to the response of shareholders income to change in EBIT (Earning before interest and tax) and is created by debt or preferred stock financing with fixed interest and dividend payment. (Lawarance, D. schall and Haley charles W 1983) There are two types of leverage, (Joy, O.M Op.cit) financial and operating. In financial management, leverage associated with investment activities called operating leverage and leverage associated with financing activities is called financial leverage.

The use of fixed charges sources of funds, such as debt and preference capital along with the owners equity in the capital structure are described as financial leverage or " Trading on Equity "(Martin H. Watermana, 1963) it is derived from the fact that it is the owners equity measured by ordinary share capital and reserve and surpluses that is used as a basis to raise debt preference capital, the equity that is traded participation in company's profit and therefore, debt holder will insist on protection in values represented by owners capital (Ibid)

to earn more on the fixed charges funds than their costs. The surplus will increase the return on equity. Due to the interest and principal payment is contractual obligation of the firm; the debt financing is more risky from the view points of shareholders. Therefore, debt offers the greatest income advantages as well as risk.

2.1.9 Capital Structure Theory

The capital structure concept has an important place in the theory of financial management. The term capital structure, also known as financial structure, financial plan or leverage. The financing decision of a firm is one of the tool for achieving firm's objectives of shareholders wealth maximization. The term capital structure refers to the proportion of debt and equity capital. Thus, the financial decision of a firm relates to choice of proportion of debt and equity to finance the investment requirement a proper balance between risk and return to the shareholders. Capital structure with reasonable proportion of debt and equity capital is called optimal capital structure. However, it can be expected that if the capital structure decision affects the total value of the firm, a firm should select such a financing mix, which maximize the shareholders wealth. The optimal capital structure and its implication are more noticeable.

The importance of an appropriate capital structure is, thus, obvious. There is a viewpoint that strongly supports the existence of close relationship between leverage and value of a firm. There is an equally strong body of opinion, which believes that financing- mix or the combination of debt and equity has no impact on the shareholders wealth and decision on financial structure is irrelevant. In other words, there is nothing such as optimum capital structure.

In theory, capital structure can affect the value of the company by affecting either its expected earnings or the cost of capital or both. While it is true that financing-mix cannot affect the total earnings of a firm as they are determined by the investment decision, it can affect the share of earnings belonging to the shareholders. But the leverage can largely influence the value of firm through the cost of capital. (Khan, M.Y and Jain P.K. 1992)

Different views refuting and supporting the effect of capital structure / leverage on cost of capital or value of the firm have been published by the financial expert. This section is devoted to discuss these theories to some extent views regarding relationship between capital structures. These theories can be categorized into four important groups- (1) Net Income Approach, (2) Net Operating Income Approach, (3) Traditional Approach, (4) Modillion, and Millers Approach. So as to explain the relationship between capital structure and the cost of capital in simplified and systematic manner, the following assumptions have been made:

i. Firm employs only two sources of funds long-term debt and equity capital.

ii. No existence of income taxes. This assumption is removed later.

iii. Dividend payout ratio is 100 % that is the total earnings are paid out as dividend to the shareholders and there are no retained earnings.

iv. The total assets of the firm are given; the degree of leverage can be changed by issuing debt to repurchase stocks or issuing stocks to pay-off debt.

v. The expected values of the subjective probability distribution of expected future operating earnings for each company are the same for all investors in the market.

vi. The operating earnings of the firm are not expected to grow. The expected value of the probability distribution of expected operating earnings for all future periods are assumed as present earnings. In addition to above assumption, the following symbols are used in analysis of capital structure theories:

S = Market value of the equity share;

B = Book value of the debt;

V = Market value of the firm (i.e., V = S + B);

No1 = Net operating Income (i.e., EBIT)

1 = Interest payment

2.1.9.1 Net Income Approach (NI)

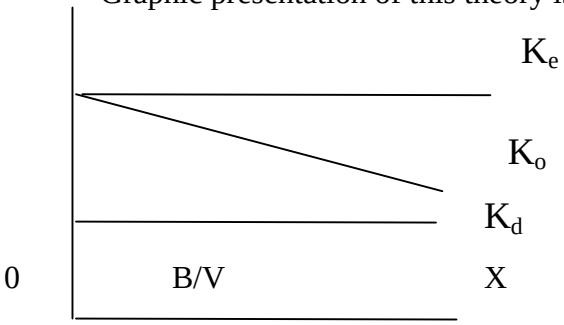
Net Income Approach was suggested by Durand. (David Durand, 1959) According to this approach the relationship between capital structure and cost of capital is positive and valuation of the firm and change in capitalization of the firm brings about corresponding change in the overall cost of capital and total value of the firm. Thus, with an increase in the ration of debt to equity overall cost of capital will decline and market price of equity as well as value of the firm will rise. The converse will when the debt to equity ratio tends to decline. This approach is based on some assumption (Paney, I.M., 1995) which are given below:

i. Cost of debt is less than cost of equity.

ii. The use of debt does not change the risk perception of the investors. Than means the cost of debt and equity are conformed.

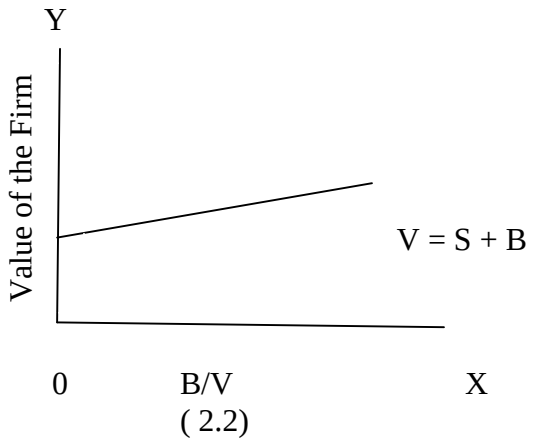
iii. There is presence of tax.

According to the above assumption, the NI approach employs that increase in the debt equity ratio will magnify the shareholders earnings and there by rise in share value of equity and value of the firm. Thus the firm can maximize its market price of stock or value of the firm by achieving the optimal capital structure by making judicious mix of debt and equity. Graphic presentation of this theory is shown in figure: - 2.1 and 2.2



(2.1)

The effects of leverages on the cost of capital



(2.2)

The effects of leverage on the value of the firm

From the above figure we know that kd is constant but ko is declining with leverage. If the firm has financial leverage zero, then overall cost of capital will be equal to cost of equity,ke, and it will be equal to cost of debt, kd, when the firm uses 100% leverage and the value of the firm increasing accordingly.

In ratio, ko = $\frac{\text{Net operating income}}{\text{Total Value of the Firm}}$

Another formula for 'ko' is ke-(ke-kd)d/v 2.14

2.1.9.2 Net Operating Income Approach (NOI)

This approach is just opposite to the net income approach. According to NOI approach the cost of equity increases, overall cost of capital remains constant and value of the firm also remains constant as leverage increases. The essence of this approach is that the capital structure decision of the firm is irrelevant. According to Khan and Jain, (1990) cost of capital is independent of the degree of leverage. Any change in leverage will not lead to any change in total value of firm and the market price of the share as the overall cost of capital; ko, is independent of the degree of leverage. This approach is based on the following assumption.

i overall cost of capital is constant

ii The market evaluates the firm as a whole. Thus spilt between debt and equity is not significant

iii Income tax don't exist

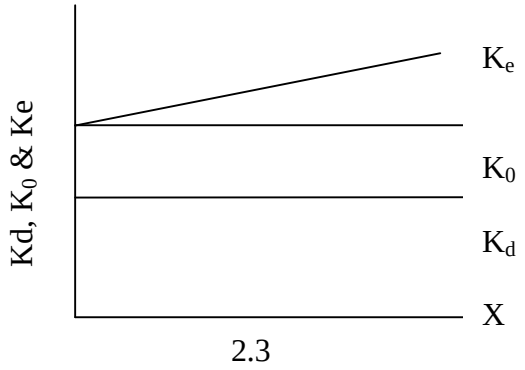
iv 'ko' depends on the business risk assumed and remains unchanged, thus 'k0' is constant.

"Under NOI approach, the capital structure selected is a more detail since the value of the firm is independent of the firm's capital structure. If the firm increases its use of financial leverage by employing more debt this is directly affect by an increase in the cost of capital (shrestha,M.K). In this approach ke determined is as follow:

$K_e = K_0 + (K_0 – K_d) D/S$ 2.15

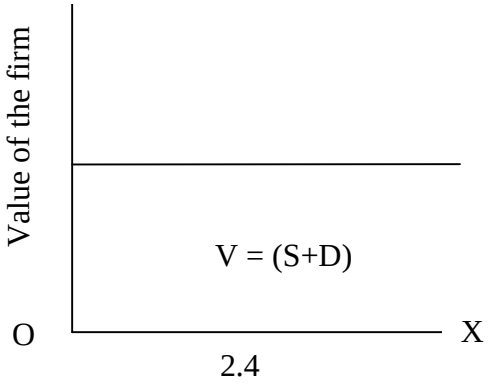
Where,
D/s is debt equity ratio at market values equation (2.15)

Indicates that if 'K0" and 'Kd' are constant 'Ke' would increase linearly with debt equity ratio, D/S. This is shown in following Figures.



2.3

The effe leverage on cost of capital



2.4

The effect of leverage on the value of the firm

It is obvious from the figures that, under the NOI approach, as low cost of debt is used, their advantage is offset by increased cost of equity in such a way, that the cost of capital remains unchanged. At the extreme degree of financial leverage, such hidden cost becomes very high, and the firm's cost of capital and its market value are not influenced by the use of additional cheap debt fund (Gitam and Pinches).

2.1.9.3 Traditional Approach.

This approach is midway of Net income approach and Net operating approach. It has some features of Net income approach and Net operating approach in this view on the relationship between capital structure and the cost of capital is that the firm's cost of capital can be reduced by the judicious mix of debt and equity capital, and that an optimum capital structure exists for every firm (pandey, I.M., 1981).

It is held by the traditionalists that debt capital is cheaper than equity capital," the statement that debt funds are cheaper than equity funds carries the clear implication that the interest rate of debt, plus the increased yield on the common, together on a weighted basis will be less than the yield which existed on the common stock before debt financing" (Barges, A, 1963) that is, the weighted average cost of capital will decrease with the use of debt capital. This view can be categorized into three stages.

First Stage: Increasing Value

In this stage, the rate at which market capitalizes net income either remains constant or rises slightly with debt because of the added financial risk. But it does not increase fast enough to offset the advantage of low cost of debt. During this stage cost of capital increases slightly due to increased financial risk but it is negligible from the point of view of cost of capital. Thus, so long as debt is within acceptable limit and ke and kd remain constant the value of a firm increases at a constant rate, (ke- kd)/ke as the amount of debt increases. We can show this is as follow;

$$X= K_e (K_e - K_d) D/V \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2.16$$

This implies that within acceptable limit of debt with ke>kd, the average cost of capital will decline with leverage

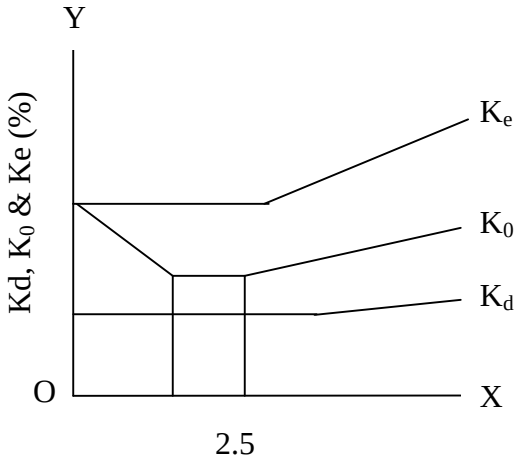
Second Stage: Optimum Value

In this stage, further addition of debt will raise cost and equity so sharply as to offset the gains in the net income. This stage is reached after using certain level of debt, which increase the financial risk and makes ko to remain constant. Hence the total market value would remain constant. So the stage is called the optimum capital structure stage.

Third stage: Declining Value

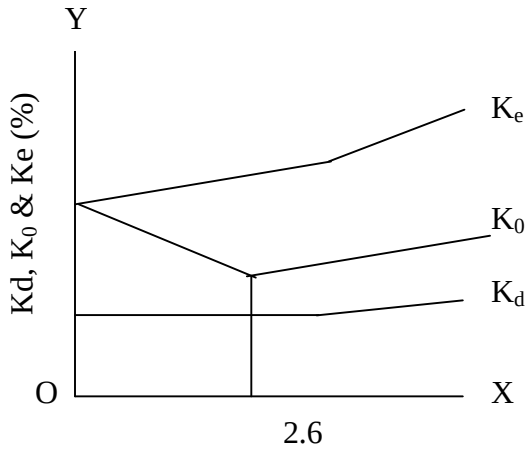
After the critical level of leverage, any increase of debt on the capital structure the cost of capital starts to increases or value of the firms goes down. This will happen because the cost of debt and equity start increase as a result of the increasing risky ness of each resulting in an increase in overall cost of capital which will be faster than the rise in earnings from the introduction of additional debt, that causes the market value of the firm tends to decrease (srivastava,R.M).

The overall effect of there stages suggests that the capital structure is relevance with the cost of capital or value of the firm. Up to a point of leverage, value of the firm increase or cost of capital decreases and value of the firm decreases.



2.5

The cost of capital behavior views)



2.6

The cost of Capital behavior (Traditional (Traditional view and variation)

We informed from fig2.5 that cost of capital, ko, is saucer_ shaped where an optimal range is extended over the range of leverage. But cost of capital curve need not always be saucer shaped. It is possible that ii does not exist at all and instead of optimal range we may have optimal point in

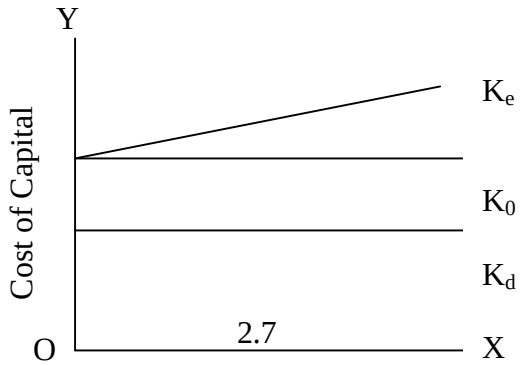
capital structure (van Horme, 1993). This possibility is shown in fig 2.6. Thus the cost of capital curve may be u shaped.

2.2 Review of Articles

2.2.1 Modigliani_ Miller Approach (M_M approach)

This Modigliani_ miller thesis (Modigliani J.F. and M.H. Miller, 1958) relating to the relationship between the capital structures, cost of capital structure, cost of capital and valuation is the net operating income (NOI) Approach. They make a formidable attack on the traditional position by offering behavioral justification for having the cost of capital, ko, remain constant throughout all degree of leverage (van Horne).

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, the 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 (Van Horne). M.M conducted 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 class. M.M proposition supports the NOI approach relating to the independence of the cost of capital of the degree of leverage at any at any level of debt equity ratio. The significance of their hypothesis lies in the fact that it provides behavioral justification for constant overall cost of capital and therefore, total value of the firm. In other words, M>M approach maintains that the weighted average cost of capital does not change, as shown in fig (2.7), with a change in the proportion of debt to equity in the capital structure.



Value of Capital

The assumption regarding to their proposition I and II, irrelevancy of cost of capital or the value of the firm with capital structure are as follow (M.K. Khan and P.K. Jain, 1992):

(1) Capital markets are perfect; information is cost less and readily available to all investors. All securities are perfectly divisible, no transaction cost and investors are rational and behave accordingly.
(2) Firms can be divided into "equivalent risk class" or "homogeneous risk class" all firms with in a class have the same return.
(3) Dividend payout ratio is 100%
(4) There is no income tax. This assumption is removed later by M.M.
(5) All investors have the same expectation of firm's net operating income.

Proposition I

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

In equation, it can be mentioned as:

$$V = (S+D) = \frac{X}{K_0} = \frac{NOI}{K_0} \quad \ldots\ldots\ldots\ldots 2.17$$

Where
X = The expected net operating income on the assets of the firm;
Ko = The capitalization rate or overall cost of capital, x/v, appropriate to the risk classes of the firm.
V=Market value of the firm.

This case can be mentioned in term of cost of capital, x/v, which is the ratio of expected earnings to the market value of securities. I.e.

$X/(S+D) = X/V = K_0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2.8$

If K_d is the expected return on the firm's debt and ke is the expected return on firm's equity.

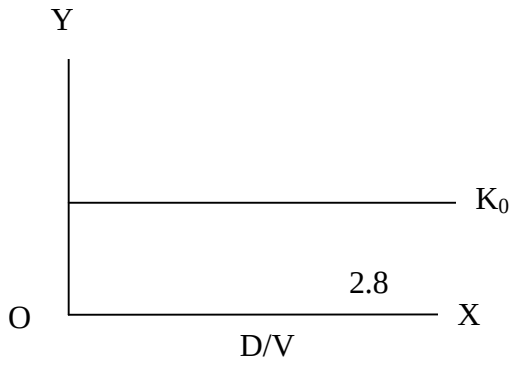
Than,

X= Ko/V = Ke (S) + Kd (d) ……..2.19

By definition, Ko= X/V,

Therefore, Ko= K(S/V) + Kd(D/V) …….2.20

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. The overall cost of capital function as hypothesized by M.M is shown in figure



The cost of capital under M-M hypothesis.

Thus two firms identical in all respect expect capital structure cannot command the different value of the firm or cost of capital, arbitrage will take place which enable investors to engage in personal to leverage to restore equilibrium in the market (Pandey, I.M 1981).

Proposition II

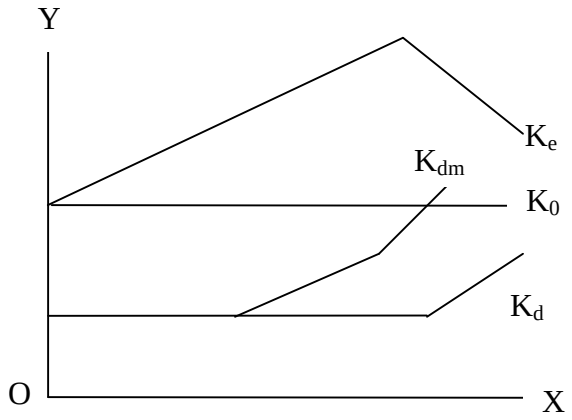
On the basis of proposition I, M-M. formulated proposition II. It defines the cost of equity as the linear function of the leverage. The equation form of this proposition can be expressed as follows:

Ke = K0 + (K0 – Ke) D/S ……. 2.21

Equation (2.21) is derived from the definition of average cost of capital I,e ko=ke(S/S+D)+ kd(D/S+D). Equation 2.21 shows that for any fiem in a given risk class the cost of equity, ke, 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 kd will not raise or remains constant for any degree of leverage. But in practice, ke, increases with leverage beyond a certain acceptable level of leverage. However, M-M maintain that ever if kd is function of leverage, ko will remain constant as ke will increase at a decreasing rate to compensate. This can be show in graph also.figure



2.9

Fig (2.9) behavior of 'Ke', kd and ke under M-M hypothesis.

Fig. (2.9) clearly shows that 'ke' increases till the marginal rate of interest(kdm) is below that the cost of capital. As soon as the marginal rate of interest cuts the cost of capital, ke, will starts falling.

2.3 Review of thesis

2.3.1 Some empirical studies

This section contains a comprehensive review of relevant studies related to topic.It reciews some basic academic course book, research-based journals and other related studies on it. Mainly the studies conducted by Modigliani and miller(1958) and (1966),western (1963), Barges

(1963),Wippern (1966),Sharma and Rao (1969),Davenport (1971),Pandey (1961),and others are reviewd here.

2.3.2 The Modigliani and Miller First Study

Their first study (Modigliani, Fand Miller, M.H.-1958), M-M used the previous works of Allen (Allen, F.W.-1954) and Smith (Smith R-1958) in support of their independence hypothesis. Allen's study was consisted with the relationship between security yield and financial structure for 43 large electric utilizes, based on average figures for the years 1947 and 1648, while Smith designed his study of 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 they 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/V. they used the following regression model to test their hypothesis.

$$X = a + bd$$

Where,

X= Xt/V=sum interest, preferred dividends and stock holders' after tax income/Market value of all securities

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

The regression results were as follow:

Electric utilities

$X = 5.3 + 0.006d \quad (\pm 0.08) \qquad R^2 = 0.12$

Oil Companies

$X = 8.5 + 0.006d \quad (\pm 0.024) \qquad R^2 = 0.04$

These tests support their hypothesis of independence as correlation co efficient is statistically insignificant and positive in sign. The regression line does not suggest a curve_ line, U_shaped, cost of capital curve, when that date are shown in scatter diagrams.

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

$Z = a + bh$

Where,

$$Z = \frac{\text{Shareholders Net Income after tax}}{\text{Market Value of Common Share}}$$

$$h = \frac{\text{Market values of Seniors securities}}{\text{Market Value of Common Share}}$$

The following regression results were obtain:

Electric Utilities:

$Z = 6.6 + 0.051h \quad (\pm 0.004)$ $\qquad R^2=0.53$

Oil Companies

$Z = 8.9 + 0.051h \quad (\pm 0.004)$ $\qquad R^2=0.53$

Both co-relation coefficients and positive, t value for h coefficient is 4.25 in both the cases, Electric utilities and oil companies, which is significant at 5% level of confidence. Thus the M_M's view is supported.

Their next step was to add the square of the leverage term to text the presents and direction of curvature. The following estimates were obtained.

Electric utilities

$Z = 4.6 + 0.004h - 0.007\ h^2$

Oil companies

$Z = 8.5 + 0.072h - 0.016\ h^2$

In for both the cases the curvature is negative. Foe the electric utility, the negative coefficient of the square term was significant at the 5% level. This result is consisting with their view, i.e. the

cost of borrowed funds increase; the cost of equity will decline to offset. Thus these results don't support traditional position.

2.3.3 The Barges study

Conducted the empirical test of relationship between average cost of capital and leverage, and between the stock yield and debt equity ratio with improvement on some of the limitation of the M-Ms' empirical work. For the study purpose, he utilized cross-section date for three different industries: railroad, departmental stores, and industries.

For the railroad industry, he performed both yield as was the average cost of capital tests. The average cost was computed dividing the three-year average income before interest (1954_56) by the average total market value he use the ratio of long term debt to total permanent capital, at book values as the measure of financial structure. He fitted second degree (U_shaped) curve to the date of 61 railroads. Results obtained were as follow:

$$Y=12.39-0.244x+0.00258x^2$$

The result suggest that the average cost of capital first tends to decline and then tends to rise as the debt capital increase in the capital structure.

To bring more homogeneity into the samples and exactness in the results, Barges selects five sub samples from the railroad industry sample in such a manner that one important variable was held constant. The five sub samples selected in this way consist of 25 small class I railroad (remain less than $50 millions) 16 controlled railroad, 47 listed railroad, 21 eligible railroad, and 36 large railroad (revenue more than $50 millions), except for the large rail simple least squares were fitted to each sub sample and significant result were obtained as follows:

$$Y=a+bx_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$Y=a+bx_2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where,

Y=stock yield;

X1=long term debt/preferred stock/ common equity;

X2=long term debt plus preferred stock/ common equity

The following results were obtained for the railroad industry:

Model I $Y=11.36+0.0194X_1=$ $R= 0.173$

Model II $Y=10.36+0.02386X_2=R=0.293$

As reported by him, in model I, the correlation coefficient is not significantly different from zero, at the five percent level, while model II, the coefficient is significantly positive at 5% level.

He also ran regression for those observations, which had a moderate leverage ratio. The results were not significantly different from zero. Including the square of the leverage term ran regression but the second degree curves were found to be almost identical to the straight-line results. Thus we find that these results neither support nor contradict the M-M hypothesis.

In his study of the department store industry, leverage ratios were computed in the same manner as in the railroad study. Stock yield was calculated by taking the average of earnings per share for 1995 and 1996 and dividing by the market price per share of 1996. The results were as follows:

Model I

$Y=9.01-0.0107X_1$ $R^2=+0.120$

Model II

$Y= 10.21+0.03756X_2$ $R^2= +0.056$

The results lend support to the traditional view.

Barges final test was on cement industry. The sample consisted of 34 companies and was of special interest because there were a large number of observations with little or no debt. The

variables were estimated in the same manner as in the case of the department store study and the results were as follow:

Model I $Y= 9.01+0.0107X^1=R^2=0.120$

Model II $Y=7.79+0.0016X_2=R^2=0.018$

The correlation coefficient in both the cases is not significant at 5% level, thus he again concluded that the traditional view supported.

2.3.4 The Western Study

The main contribution of western's study (Weston.J.Fred, 1963) is the specification improvement of the cost of capital model. He introduced firm size (measured by assets) and growth (per share income over a ten year period) as additional explanatory variables in his model. He found the regression coefficient of leverage to be positive and significant, when the used M-M model for his sample of 54 utilities in 1959. However, when the multiple regressions were run, the following results were obtained.

$X=5.91-0.o265d+0.0A-0.0822E \qquad R^2=0.5268$

(0.0079)(0.0001)(0.0024)

Where,

D = The market value debt ratio

A = The size of the firm interns of total assets

E = The earning per share growth over a period of 10 years.

The correlation coefficient is significant and the regression coefficient of leverage is negative and significant. When the influence of growth is located, leverage is found to be negatively correlated with the cost of capital. Western concluded that the apparent lack of influence of leverage on the overall cost of capital observed of Modigliani and miller was due to the negative correlation of leverage with earning growth. When the net effects were measured, the cost of capital was found to be significantly negatively correlated both with the leverage and growth.

He also tested M-M's proposition II. When he used their model, his results were found to be consistent with their i.e cost of equity was a liner function of leverage, however, however, when he included growth and size variables the following results are obtained:

$$\mathbf{Z} = 6.75 - 0.0029\ h + 0.1352E$$

$$(0.0159)\ (0.0002)\ (0.0454) \qquad R^2 = 0.4032$$

$$h = 39.59 - 1.16\ E$$

$$(0.29) \qquad R^2 = -\ 0.48$$

These results shows that growth and leverage negatively correlated with Z – the ratio of shareholders net income after taxes and market value, of common stock and when growth is included on the regression equation, coefficient of leverage becomes in significant. Thus, the results are consistent with the traditional view.

2.3.5 The Modigliani & Miller second study

They were conducted the second study (Miller, M.H. and Modigliani F., 1966) in 1963 correcting their original hypothesis for corporate income taxes and expected cost of capital to be affected by leverage for its tax advantage. They, therefore, wanted to test whether leverage for its tax-advantage. They, therefore, wanted to test whether leverage had tax advantage or not. For this purpose, they used their three years data, Viz. 1954,56 and 57 of 63 electric companies. M-M conducted the mathematical analysis regarding the effect of leverage and other variables on the cost of capital. The equations are follows:

$$V = I / P\ \overline{X}\ (1 - T) + tD + K_x\ (1- t)\ [(P - C) / \{C\ (1+C)\}]\ T$$

Where,

P = K = Market's capitalization rate for the expected value of uncertain, Pure equity earnings stamps.

X = firm's expected total earnings

T= t = the (constant) marginal and average rate of corporate taxation

D = Debts of the firm

C = P = cost of capital

P = Profitability rate of new investments

They omitted dividend variable from their valuation equation because of the confounding of the earnings and dividend co-efficient. For the testing purpose, they used the following regression equation model:

$$(V\text{-}tD) = a_0 + \overline{a_1 x}\,(1 - t) + a_2 \Delta A + u \ldots\ldots\ldots\ldots\ldots\ldots$$

Where,

A_0 = an intercept term whose size and sign will measure any effects of scale on valuation.

A_1 = the marginal capitalization rate for pure equity streams in the class

U = a random disturbance term

$\Delta A = 1/5\,(At - At - 5)$

At = a linear five year average of total assets times current total assets.

In connection with their regression equation they observed that since, the theory implies that the co-efficient of the leverage variable, D, is equal to the marginal tax rate, t, we have so constrained it is the equation by incorporating it with the dependent variable. (Ibid)

Before using their regression equation they resolved the problem of hetroscedasticity by dividing it by the book value of total assets. The equation was used in the following form:

$$\frac{V - tD}{A} = a_0 \frac{1}{A} + a_1 \overline{X} \frac{(1 - t)}{A} + a_2 \frac{\Delta A + U}{A}$$

From the result of this equation they concluded that these findings are in agreement with their hypothesis that the leverage factor is significant only because of the tax advantage involved.

They also tested their regression equation in its yield form,

$$\frac{X\,(1\text{-}t)}{V\text{-}tD} = a_1^{1} + a_0^{1} \frac{1 + a_2^{1}}{(V - tD)} \frac{\Delta A + U^{1}}{(V\text{-}tD)}$$

Where,

a_1^1 = P the reciprocal of the capitalization rate for pure equity streams (or equivalently, the marginal cost equity).

a_0^1 = a_0 P; a_2^1 = a_2P and

U^1 = P $\frac{V}{(v-tD)}$ with Var (U^1)

Approximately a constant for all firmsThey argue that this equation was used only to check their results obtained in other ways

2.3.6 The Davenport Study

Davenport (Davenport,Michael,1971) tested the cost of capital hypothesis using British data. Regression equations were estimated for chemicals, food and metal manufacturing industries for 1961,1962 and 1963.

He had concluded that the results of his study don't support the M-M contention that the overall coat of capital is independent of the proportion of debt and preference share in the 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 the prospects and the future risk evaluation and raised the question whether an industry was the best sample classification or whether firms might not with advantage is classified 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 related to the problem of growth and risk variables.

2.3.7 The Wippern-Study

Wippern has also conducted a test of the relationship between leverage and the cost of capital by running regression on the data of 50 firms from seven manufacturing industries in the years 1956,1958,1961 and 1963.(Wippern,Ronald 1966) He tried to eliminate the 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 urged that the leverage

either the ratio of debt to equity at book values or at market values both of these measures contains important conceited basis. He therefore, used a different measure of leverage, VIZ. i/E = 25, where 'I' is the current level of fixed charges; E is the most recent years cash flow operating income determined from al logarithmic regression of income on time over ten years period and 25, is equal to two standard error around the regression line. He has also included uncertainty variables in his test equation to account for the enter firm differences. He therefore has been assumed in past investigation that homogeneity of business risk could be achieved by comparing firm in the same industry classifications. Besides these, he employed some proxy measures based on objectively determined data, and argues that the capitalization rate equates future earnings to current market prices are not directly measurable.

The following equation was used to cost of capital hypothesis:

Y = $a + b_1$ leverage + b_2 growth + b_3 payout + b_4 log of size + b_5 ……b_{10} Industry dummy variables.

Y = Earning / Price ratio;

He concluded that shareholders wealth could be enhanced by a judicious use of debt financing

2.3.8 Sharma and Rao Study

Shaarma and Hanumanta Rao (sharma and Hanumanta Rao,1969) also tested the M-M hypothesis. They followed their 1966 article with little modification and employed two stage least square method on the date of 30 Indian engineering firms for three years. 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. Calculate of variables were done in exactly the same ways that done by M-M with two expectation. They experimented with total assets and sales for deflecting the variables and the results were meaningful when fixed assets were used as the deflator. They argued that when the growth rate of total assets or of fixed assets was used as the growth variable the result were somewhat inconsistent with economic reasoning. They, therefore, took the earning growth rate as the growth variables because

this would take into account growth of earnings due to both the utilization of existing capacity and the addition of operating capacity.

They found the coefficient of debt variables to be more than t, the corporate income tax rate, they introduce debt as a separate independent variable. The equation they used is,

$$V/f = a_1 (X^r + tR/F) + a_2\ 1/F + a_3 (X^r - tR/F) + D/F + M$$

Where,

V = Value of the firm

Xr-tR = Expected tax adjusted earnings

AXR – ItR = Growth rate of tax adjusted earnings calculate as a liners three years average growth rate of tax adjusted earnings times current tax adjusted earnings;

D = Debt;

F = Fixed assets used as a deflator to reduce hetros cedasticity.

They also used two stage least square (2SLS) as method of arriving at the true expected future earnings.

They conducted that debt has tax advantages also. Thus this paper support that the investor prefer corporate to personal leverage and therefore the value of the firm rises up to a leverage rate considered prudent.

2.3.9 The Rao and Lintzerberges study

Rao and lintzerberges (Cherukun, V.Rao and Robert H.,1970) were conducted the study of the effect 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 conducted the study for the five cross sectional years 1962-1966 and used the following regression model to test the M-M is dependence theory.

$$X^r - tR/V\text{-}tD = y_0 + y_1 \text{ growth} + y_2 \text{ leverage} + y_3 \text{ payoput} + y_4 \text{ size} + M$$

Where,

X^r = The firms after tax operating earnings (as average of reported earnings for the cross sectional and previous two years is used as a proxy)

t = The corporate marginal in come tax rate,

R = The firm's fixed interest rate charges for the cross sectional year,

D = The market value of the firm's debt at the beginning of the cross sectional year,

V = The market value of the firms at the beginning of the cross sectional year;

Leverage = The book value of the firm's senior securities divided by the book value of the firm's long term capital (debt, preferred stock and common stock);

Pay out = The ratio of the divided paid during the cross sectional years and the cross sectional years after tax earnings to a common stock ;

Growth = The average annual compound rate of growth of total assets at book value over the previous five years ;

Size = The logarithm of the book value of total assets at the close of the cross sectional year .

M = A random disturbance term.

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

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

2.3.10 The Pandey Study

Pandey (Pandey I.M.Op.Cit) has tried to test the M-M approach in the developing economy with taking the sample from different utilities: Cotton, Chemicals, Engineering and Electricity, from Indian market. He made some improvement in the model derived by M-M approach and he used multiple regression equation for the year 1968,1969 and 1970 and 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. He used two types of leverage as follows ;

1. The debt to total capital ratio, D/V
2. The debt to equity ratio, D/S

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

$K_O = a_1 + b_1 l_1 + b_2 \text{ logs} + b_3 g + b_4 \text{ D/P} + b_5 \text{ liq} + b_6 \text{ Ev} + U$

Where,

Ko = Average cost of capital
L = Leverage I
S = Size of the firm i.e. total assets
G = Growth
D/P = Dividend payout ratio
Liq = Liquidity
E.V = Earning Variability
U = Random disturbance term.

In the above, regression equation, the average cost of capital is regressed with both the measure of leverage, i,e. debt to total capital and debt plus preferred stock to total capital, with other explanatory variables and the result were consistent with the traditional view, the average cost of capital declines with increasing debt in financial structure.

He further tried to test the M-M approach that the use of leverage can increasing the market value of the firm or lower the cost of capital due to tax deductibility of interest charges. The tax adjusted stock yield as regressed with leverages and other explanatory variables. The model of that case was as follows:

$X\text{-}tR/V\text{-}tD = a + b_1 l_1 + b_2 \text{ logs} + b_3 G + b_4 D/P + b_5 \text{ liq} + b_6 E.V. + U$

Where,

X-tR/V-tD = tax adjusted stock yield of the firm

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 the sign. Therefore, the result supported the traditional belief.

To determine the relationship between cost of equity and leverage with other explanatory variables he used third regression model, which is as follows:

$K_e = a + b_1 l_2 + b_2 \text{logs} + b_4 D/P + b_5 \text{liq} + b_6 \text{ E.V.} + 0$

Where,

K_e = cost of equity

Calculations of leverage were made in two ways. The first leverage variable considered the preference capital as a part of equity capital i,e.

$$L_1 = \frac{\text{LTD + STD + PC}}{\text{E.C + PC}}$$

The second measure of leverage, variable treated it as a part of debt capital, i,e.

$$L_2 = \frac{\text{LTD + STD + PC}}{}$$

E.C

Where,

LTD = Long term debt

STD = Short-term debt

PC = Preference share capital

EC = Equity share capital

The result of this model was also considered to be consistent with the traditional approach, the cost of equity decline with leverage at an acceptable range of debt and then starts to increase with increasing debt in capital structure.

2.3.11 Adhikari Study

Adhikari (Adhikari,AAAMahendra,1991) conducted the empirical study of M-M proposition in the Nepalese context. He use simple as well as multiple regression equation to test the relationship between cost of capital and capital structure with other explanatory variables. His study was based on the five listed companies for the period of 1976-77 to 1988-89. For the testing purpose he used the following equations:

$K_0 = a + b_1 l_1 + b_2 \text{ logs} + b_3 G + b_4 D/P + b_5 E.V. + b_6 \text{ liq.}$

Where,

K0 = Average cost of capital

L = Leverage I

S = Size of the firm i.e. total assets

G = Growth

D/P = Dividend payout ratio

EV = Earnings variability

Liq = Liquidity

Using the above equation on his study, he concluded that the traditional proposition, cost of capital is the function of leverage is accepted and again stated that the result is not enough to

establish the relationship between cost of capital and capital structure because coefficient of determination was very small.

He also tried to test the M-M hypothesis that the use of leverage can lower the cost of capital, due to the tax deductibility of interest charges and concluded that there were no changes in the result between the previous and later.

His last study was based on the cost of equity and debt equity ratio and other explanatory variables. The model used by him was as follows:

$K_e = a + b_1 l_1 + b_2 \text{ logs} + b_3 G + b_4 D/P$

In his study used above model, he concluded that the result was not enough to establish the relationship between cost of equity and capital structure.

2.3.12 Khatri Study

Khatri (Khatri,Bhuvan Singh,1998) conducted the empirical study of M-M proposition in the Nepalese context. Khatri took 12 random selections of various enterprises or sectors out of 75 listed companies in Nepal stock exchange using secondary data from 1980-1996. He used simple and multiple regression models and found that regression coefficient of leverage against cost of capital is positive on Banking and finance sectors while negative for Manufacturing and Trading sector. Making overall 28 observations for all given descriptive statistics of the variables, average cost of capital is found to be negatively correlated with leverage, size, growth, dividend payout ratio in case of Manufacturing and Trading sector. This indicates that negative sign of correlation coefficient between average cost of capital with use of leverage. However in case of Banking and Insurance sector, cast of capital is found to be positively correlated with leverage employing that cost of debt financing is greater than cost of internal sources of fund. As such there is negative relationship with size, liquidity and payout ratio and positive with growth and earning variability.

2.3.13 Study Related To Capital Structure

2.3.13.1 The Khanal Study

Mr. Khanal has conducted the study (Khanal Deepak,2001) on the capital structure of Nepalese companies. He selected samples from industrial public enterprises on Nepal and used financial ratio and correlation analysis as the tool of analysis. He concluded that the capital investment and earnings were not correlated. Most of the public enterprises were in loss position. Debt equity ratio was not satisfactory. Financial performances of these companies were not good. He suggested that the management should reduced government subsidy and donation. They should improve their performance efficiency.

2.3.13.2 The Shrestha Study

Mr.Shrestha (Shrestha M.K, 2003) conducted the study of capital structure management of selected public enterprises and use ratio analysis as the tool of analysis. He found that the selected public enterprise under the study have a vary confusing capital structure since the corporation are not guided by objectives based financial plans and policies. He further added that in many instance adhocism become the basis of capital structure and most of them want to eliminate debt if possible to relieve financial obligation. There were neither the public enterprises nor HMG development criterion in determining capital structure and this is the reason as to why debt equity ratio become a tick-list problem.

2.3.13.3 The Rima Devi Shrestha Study

Rima Devi Shrestha (Shrestha,R.D,2003) conducted the study on the topic of focus on capital structure, selected and listed public companies. She used data from 19 companies and covered the study different sectors manufacturing, finance, utility service and other area. She found that most of these companies have debt capital relatively very higher than equity capital consequently most of them are operating at losses to the extent that payment of interest on loan has been serious issues. She has suggested that the management has to consider in public enterprises is

that of evaluating the relationship between use of debt and its impact on overall earnings of public enterprises HMG having invested large amount of capital public enterprises. It should need to develop a suitable capital structure guideline to make public enterprise swear of its responsibility to repay the debt schedule. The other thing, which needs to be, made publicity transparent that government money is not a cost less fund. Government has to analyze cost and risk return trade off.

She concluded that most of public enterprises have no transparent capital structure and these companies are adhocly determined the capital structure without realistic parameter. Thus, policy makers have to be careful in developing suitable capital structure guidelines in making public enterprises as well as listed companies to be aware of financial accountability.

2.3.13.4 Rima Devi Shrestha Second Study

Rima Devi Shrestha (Shrestha R.D.,2004) conducted the study on the topic of " A study on the impact of capital of capital structure selected listed companies. She used data from 5 companies and covered the study different sectors manufacturing, Hotel, Trading and services industry to that all the relationship between dividend payout and value of the listed companies is not satisfactory. The empirical testing of the data reveals that the ratio of the market value to total assets of the listed companies is negatively correlated with the dividend payout. The ratio of the market value to book value of the total assets is negatively correlated with leverage. The cause for having such negative correlation coefficient may be lack of understanding in the deployment of debt capital among the listed companies. It is found that the ratio of market value to total assets is negatively correlated with size. There has been negative correlation between coefficient value and growth of the companies. Positive correlation coefficient between earning variability and value of the listed companies. Liquidity has negative correlation coefficient with dividend payout ratio and earning variability. There is positive correlation coefficient of earning variability with market price but negative correlation coefficient with liquidity. Liquidity is negatively correlated with market price of stock .

All these above reviews are very useful to develop adequate insight to provide added input to carry this study. Although, focus will be on the simple application of capital structure and the cost of capital. This kind of study is expected to provide useful information for policy making and implementation at both micro and macro levels.

CHAPTER III

RESEARCH METHODOLOGY

The purpose of this chapter is to discuss the method of research followed in this study. The research is basically based on secondary sources of data. Financial and statistical tools are used to analyze these data in a simple manner. Technical and logical aspect is the major part of the study.

The basic aim of this study is to test the empirical relationship between capital structure and the cost of capital in the context of Nepalese listed companies. It also attempts to find out the relationship between cost of equity and leverage with other explanatory variables.

There are 146 listed companies in Nepal stock Exchange Limited but only 38 of them have up to data financial data. (According to nepalstock.com)

Detail research methods are reviewed in the following headlines:

3.1 Research Design

Research design is highlighted for ascertaining the basic objective of the study. It includes definite procedures and techniques, which will guide to sufficient study for analyzing and evaluation the study, comparison are made and establish relationship between two or more variables. Thus, research design will be based on descriptive and analytical study.

3.2 Population and sample:

There are 146 Nepalese listed companies in the NEPSE but only few companies are selected as sample selection for empirical study.

Table 3.1

Selection of sample listed companies

Sector	No of Listed Companies	No of Companies selected to the study	percentate
CommericalBanks	17	3	17.64
Finance	57	2	3.50
Insurance	17	1	5.88
Hotels	4	1	25.00
Manufacturing & Processing	18	2	11.11
Hydropower	3	1	33.33
Trading	4	2	50.00
Development Banks	24	2	8.33
Others	2	-	-
Total	146	14	

3.3 . Period of the Study

This study covers a limited period of four years taking from 2003-2007. The data availability is homogeneous of selected listed companies except Nepal Bank Limited. So the period of the study is also homogeneous. The data could be obtained for Banking, Finance and Insurance, Manufacturing and Trading and Hotel and Airlines are the table no 3.2 (a), 3.2 (b) and 3.2 (c) respectively.

Table No:- 3.2 a

Banking, Finance and Insurance Sector

S.N.	Name of the Companies	Study Period	Observation Year
1.	Nabil Bank Limited	2003-2007	5
2.	Nepals Investment Bank Ltd.	2003-2007	5
3.	Himalayan Bank Ltd.	2003-2007	5
4	Citizenship Investment Trust	2003-2007	5
5.	Narayani Finance Ltd.	2003-2007	5
6.	Nepal Insurance Co Ltd	2003-2007	5
7	Narayani Industrial Bank Ltd.	2003-2007	5
8	Siddhartha Development Bank Ltd.	2003-2007	5

Table No:- 3.2 b

Manufacturing and Trading Sector

S.N.	Name of the Companies	Study Period	Observation Year
1.	Uniliver Nepal Ltd.	2003-2007	5
2.	Nepal Lube Oil Ltd.	2003-2007	5
3.	Salt Trading Corporation	2003-2007	5
4.	Bishal Bazar Co.Ltd	2003-2007	5

Table No:- 3.2 c

Hotel and Hydropower Sector

S.N.	Name of the Companies	Study Period	Observation Year
1.	Soaltee Hotel Ltd	2003-2007	5
2.	National Hydropower Co	2003-2007	5

3.4 Tools for Analysis

Various tools could be employed for the analysis and interpretation of financial data. But the tools selected for the study have been listed as follows:

a. Financial tools

For the purpose of specific definition, financial tools like N_1 approach and No 1 approach and financial ratio are employed. Financial models are used. These encompass various techniques for the evaluation of financial tools that are applied in the study are leverage, Size, growth, dividend payout ratio, earning variability and liquidity etc.

b. Statistical tools

Statistical tools are also used for the analysis and interpretation of data. Mainly mean, standard deviation (S.D), coefficient of variation, correlation, simple and multiple regression are employed where ever found necessary.

3.5 Models

The method of analysis used in this study includes simple as well as multiple regression model to test the empirical relationship between capital structure and cost of capital and also to test the relationship capital structure and the cost of equity. The model used in the study are as follows:

Model I

In this model the average cost of capital of the listed compare is regressed against each of the explanatory valuables like leverage, size, growth, dividend payout ratio, liquidity and earning variability.

The main equations are provided below

$K_0 = a_1 + b_1 L_1$ ……3.1

$K_0 = a_2 + b_2$ Log S ……..3.2

$K_0 = a_3 + b_3 G$ ……3.3

$K_0 = a_4 + b_4$ DPR ……3.4

$K_0 = a_5 + b_5$ E.V ……..3.5

$K_0 = a_6 + b_6$ Liq …… ...3.6

Where,

Ko = Average cost of capital

L_1 = Leverage 1.

Log S=Natural Logarithm of Size of the Firm i,e total assets

DPR = Dividend pay out ratio.

E.V. = Earning Variability.

G = Growth in Total Assets

Liq. = Liquidity

a = Regression Constant

b_1 = Regression Coefficients

In the above model the expected signs of beta coefficient are defined as b_1, b_2, b_3, b_4, b_5 greater than 0 and b_6 less than 0.

Model II

In model II, the cost of capital regressed against leverage together with other explanatory variable. The theoretical statement of the model is that, cost of capital is the function of leverage 1, size, growth, dividend, payout ratio, liquidity and earning variability. In the symbolic term K0 = F (L, S, G, DPR, EV,Liq). The equation of the model is provided below:

K0 = a + b1 L1 + b2 Logs + b3 G + b4 DPR + b5

In model II, the cost of capital regressed against leverage together with other explanatory variable. The theoretical statement of the model is that, cost of capital is the function of leverage 1,

size, growth, dividend, payout ratio, liquidity and earning variability. In the symbolic term K0 = F (L, S, G, DPR, EV,Liq). The equation of the model is provided below:

$K_0 = a + b_1 L_1 + b_2 Logs + b_3 G + b_4 DPR + b_5 EV + b_6 Liq$ ……..3.7

The notation and the expected sign of beta coefficient are similar as above.

Model III

This model in the study is used to test the M-M hypothesis that cost of capital declines with leverage because of tax advantage of debt financing. It is used to test whether or not the cost of capital declines with leverage even after eliminating the tax advantage of debt financing. Thus, the tax adjusted yield is regressed against leverage together with other explanation variables. The equation of this model is as follows:

$Xt- tR/V-tD = a + b_1 L_1 + b_2 Logs + b_3 G + b_4 DPR + b_5 EV + b_6 Liq + Ui$…….3.8

Where,

Xt-tR = Tax adjusted earnings of the firm is equal to X (1-T):

V = Value of the firm

tD = The tax saving

Ui = a random disturbance term

Other notations are as earlier.

Model IV

In this model, the cost of equity is regressed with each of the explanatory variables such as leverage, size, growth, dividend, payout ratio, liquidity and earning variability.

The equation are prepared below:

K_e = $a + b_1L_2$ …….3.9

K_e = $a + b_2Logs$ ……3.10

K_e = $a + b_3G$ …….3.11

K_e = $a + b_4DPR$ …….3.12

K_e = $a + b_5E.V$ ……..3.13

K_e = $a+ b_6Liq$ ……. 3.14

Where,

K_e = Cost of equity

L_2 = Leverage 2

Other notations are as earlier.

Model V

This model is used to test the M-M proposition II, the cost of equity is a linear function of the leverage. The cost of equity regressed against leverage together with other explanatory variables.

The equation of the multiple regression is provided below.

$Ke = a + b_1L_2 + b_2Logs + b_3G + b_4DPR + b_5EV + b_6Liq$ ……..3.15

Notations are similar as earlier:

The above models are tested by using the pooled data of the selected listed companies in the "Nepal Stock Exchange Limited." Selected listed enterprises are divided into three parts for the purpose of this study. They are Manufacturing and Trading, Banking, Finance and Insurance and Hotel and Hydropower.

3.6 Explanation of the Variables Taken

The variables chosen for the purpose of this study are explained below:

(a) The cost of capital

The average cost of capital is the dependent variable. It is calculated by dividing the expected earnings by closing market value of the equity shares plus book value of the debt. The expected earnings are calculated by using weighted average of three years after tax net operating income (net income + interest) including the cross section year. The weights assigned to the after tax net operating income are 3, 2 and 1 respectively for the cross section year and the pervious two years.

(b) Leverage (L)

Leverage is found by dividing the long term debt by the sum of the long term debt and net worth of the company. We use the following two measures of leverage for testing model.

$$L_1 = \frac{(LTD+STD)}{(LTD + EC)} = \frac{\text{Total debt}}{\text{Total capital}}$$

$$L2 = \frac{(LTD + STD)}{EC} = \frac{\text{Total debt}}{\text{Equity}}$$

Where,

LTD = The long term debt including debenture

STD = The short debt, mostly bank borrowing

EC = Equity capital

(c) Size (S)

It has been suggested in the empirical works that size is correlated with valuation. For the purpose making it simple, size of the company has been defined as the natural logarithm of capital employed at the balance sheet value. It covers new worth and long-term debt. Therefore, size has been included as control variable in the regression model used in the study.

Capital employed comprises share capital plus reserve and surplus plus long-term debt plus short-term debt.

(d) Growth (G)

Growth of the listed companies is another significant variable to be considered in determination of their value. But defining the growth is not so easy due to the different techniques used in determining the growth tare of the companies. Growth in assets should be normally followed by increase in the earnings capacity of the company. At least it indicates the potentiality for increase in earnings. This also determines technological efficiency. It is considered a sign of managerial efficiency. Thus it is taken as proxy measure for expected growth, that is,

$$G = \frac{A_1 - A_0}{A_0}$$

Where,

A_1 = Total assets in currents year

A_0 = Total assets in previous year

(e) Dividend Payout Ratio (DPR)

It is another important variable to measure the value of the listed companies is the ability to pay the dividend to the shareholders. It is because dividend carries significant information content to help investors to take investment in the share of listed companies. It is calculated by dividing cross-sectional year ordinary share dividends by earnings of the stockholders in the cross-section year, which is express like:

DPR = DPS / EPS

Where,

DPS = Dividend per share

EPS = Earning per share

(f) Earning Variability

The Variability of the `homogenous risk class assumption is of critical important in capital structure. In this study, earning variability include as proxy measure for business risk in the

regression modes. The measure of business risk is a ratio, the numerator of which is the standard deviation of not operating income of cross- section year and denominator is a average mean of such earning in five years. Thus, this ratio is the co-efficient of variation of net operating income. A risky firm would be assumed to have high overall cost of capital and cost of equity.

(g) Liquidity

This measures the ability of the listed companies to meet their current obligations. It means that current assets should automatically take care of current liabilities to minimize the short-term risk. Liquidity is defined as the short-term risk that needs to be properly matched since it correlates with the value of the listed companies positively. It is measured by dividing current assets by current liabilities.

(h) Cost of Equity

The cost of equity, dependent variable, is measured by dividing the shareholders expected earnings (weighted average of three year after tax next income NI) by the market value of ordinary share of the cross sectional year. The weight assigned to the after tax net income are 3,2 and 1 respectively for the cross sectional year and previous two years.

(i) Tax Adjusted Stock Yield (X^t – tR)/(V-tD)

It is also a dependent variable and calculated by dividing the tax adjusted earnings of the firm by value of the firm tax saving in debt financing.

Where,

X^t = The firm's expected after tax operating earnings for the cross sectional year and the precious two year is used as proxy and weight assigned are 3,2 and 1 for the cross sectional year and pervious two years respectively.

t = Corporate income tax rate (calculated on the basis of tax provision made by firm)

r = The firms fixed interest charges for the cross sectional year

V = Value of the firm

D = Value of the debts.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

The previous Chapter provided the bases concepts and methodologies of this study. This chapter is the main heart of the study. It's relates to the analysis and interpretation of data.

4.1 Analysis of the various statistical variables

All the dependent and independent variables have been already defined in the earlier chapter under Research methodology. For the purpose of empirical analysis and testing of the models, the mean value and standard deviation of both dependent and impendent variables are calculated and presented in the following tables based 4.1 (a) 4.2 (b) and 4.3 (c) for the Banking Finance & Insurance Sector, Manufacturing and Trading Sector and Hotel and Hydropower Sectors respectively.

Table 4.1 (a)

Means and standard deviation of the variable

Banking, Finance & Insurance Sector.

Variables	No of Observation	Means	S.D %
Average cost of Capital (%)	40	11	3
Leverage I (%)	40	31	29
Leverage II (%)	40	112	184
Size of firm Rs in million	40	542	217
Growth (%)	40	16	12
DPR (%)	40	44	29
E.V.	40	34	14
Liquidity (times)	40	1.54	0.64
Tax Adjusted stock yield (%)	40	11	3
Cost of equity (%)	40	12	3

Source: Appendix - A

Table 4.1 (b)

Means and standard deviation of the variables

Manufacturing and Trading sector.

Variables	No of Observation	Means	S.D %
Average cost of Capital (%)	20	9	9
Leverage In (%)	20	44	39
Leverage II (%)	20	649	1018
Size of firm Rs in million	20	397	139
Growth (%)	20	11	11
DPR (%)	20	71	50
E.V.	20	36	10
Liquidity (times)	20	1.83	0.97
Tax Adjusted stock yield (%)	20	10	9
Cost of equity (%)	20	9	8

Source: Appendix - B

Table 4.1 (c)

Means and standard deviation of the variables

Hotel and Hydropower Sector.

Variables	No of Observation	Means	S.D %
Average cost of Capital (%)	10	12	3
Leverage In (%)	10	73	15
Leverage II (%)	10	379	235
Size of firm Rs in million	10	719	82
Growth (%)	10	14	23
DPR (%)	10	40	23
E.V.	10	48	23
Liquidity (times)	10	1.13	0.26
Tax Adjusted stock yield (%)	10	12	3
Cost of equity (%)	10	14	8

Source: Appendix - C

From the immediate observation of above table no. 4.1 (a) 4.1 (b) and 4.1 (c), it becomes clear that average cost of capital of the Hotel and Hydropower sector is slightly more than Banking,

Finance and Insurance sector but the standard deviation of the firm in both sector is similar. The average cost of capital of Manufacturing and Trading sector is less than Hotel and Hydropower, Banking, Finance and Insurance sectors. But the standard deviation of Manufacturing and Trading sector is greater than the both sector size of the firm in Hotel and Hydropower sector is greater than Banking and Finance sector and Manufacturing and Trading sector. The Average growth of the firm of Banking and Finance sector is greater than Hotel, Hydropower, Manufacturing and Trading sector but the standard deviation of the growth of Hotel and Hydropower sector is more than Banking, Finance and Manufacturing and Trading sector has paid more dividend as compared to other two sectors. Earning variability of Hotel and Hydropower sector is greater than other two sector. Liquidity of the Manufacturing and Trading sector is greater than Banking Finance and Insurance and Hotel and Hydropower sectors. Tax Adjusted stock yield slightly difference between Hotel and Hydropower and Banking and Finance sector but standard deviation of the both sector is similar. Standard deviation of the Hotel and Hydropower sector is greater than both the Banking and Finance and Manufacturing and Trading sector. Standard deviation of the cost of equity of Banking and Finance sector is less than other both sectors.

4.1.1 Measuring Correlation Coefficient Between Variables

Listed companies have different capital structure pattern since some of them have higher equity combination over debt while others have higher debt combination over equity. But still they need to follow an appropriate capital structure by establishing the significant relationship between debt and equity to determine cost of capital. Correlation analysis as a tool of research helps in studying the capital structure expects among the listed companies. The application of correlation analysis conveys some meaningful conclusions.

Correlation Coefficient between variables are provided in following tables:

Table 4.2 (a)

Correlation Matrix of the variables

Banking, Finance and Insurance sector

	K_o	L_1	S	G	DPR	EV	Liq
K_0	1.0000						
L_1	-0.3918	1.0000					
S	-0.5453	0.8552	1.0000				
G	0.1924	-0.0485	-0.2010	1.0000			
DPR	-0.0620	0.2900	0.3916	-0.1362	1.0000		
EV	-0.1648	0.0134	-0.1891	0.0548	-0.6509	1.0000	
Liq	0.5836	-0.7011	-0.7931	0.3441	-0.2513	0.0297	1.0000

Source: Appendix - A

Table 4.2 (b)

Manufacturing and Trading

	K_o	L_1	S	G	DPR	EV	Liq
K_0	1.0000						
L_1	-0.2333	1.0000					
S	-0.2540	0.9918	1.0000				
G	0.4075	-0.2030	-0.2021	1.0000			
DPR	-0.0558	0.2940	0.2876	0.3205	1.0000		
EV	0.4210	0.1680	0.1872	-0.0533	0.0763	1.0000	
Liq	0.3872	0.4391	0.4190	0.0242	-0.0596	0.2191	1.0000

Source: Appendix - B

Table 4.2 (c)

Hotel & Hydropower

	K_o	L_1	S	G	DPR	EV	Liq
K_0	1.0000						
L_1	0.1200	1.0000					
S	-0.4908	-0.0002	1.0000				
G	0.1772	0.4586	0.1855	1.0000			
DPR	0.1817	-0.6121	-0.1436	-0.4982	1.0000		
EV	0.6978	0.6210	-0.3487	0.6170	-0.4079	1.0000	
Liq	-0.1792	0.6638	0.3754	-0.0722	-0.5793	0.0807	1.0000

Source: Appendix - C

In Banking and Finance sector the cost of capital is negatively correlated with leverage, size, dividend payout ratio and earning variability. Similarly, it has positive correlation with growth and liquidity. Leverage has positive correlation with size, dividend payout ratio and earning variability and negative correlation with growth and liquidity. Size has positive correlation with dividend payout ratio and negative correlation with growth, earning variability and liquidity. Growth has negative correlation with dividend payout ratio and positive correlation with earning variability and liquidity. Dividend payout ratio is negatively correlated with earning variability and liquidity. There is positive correlation between earning variability and liquidity.

In case of Manufacturing and Trading sector, the average cost of capital is negatively correlated with leverage, size and dividend payout ratio and positively with growth, earning variability and liquidity. The negative sign of correlation coefficient between average cost of capital and leverage indicates that use of leverage can decrease the cost of capital. Relationship between size and cost of capital also indicates the bigger size of the firm has lower cost of capital. The positive relationship between earnings variability and cost of capital and liquidity and cost of capital indicates that increasing risk of the firm brings the higher cost of capital. Leverage has the positive relationship to all variables except growth. Size is positively correlated with earning variability. Dividend payout ratio is positively correlated with earning variability and negatively correlated with liquidity. Earning variability is positively correlated with liquidity.

In case of Hotel and Hydropower sector, average cost of capital is positively correlated with leverage. This indicates that the cost of debt financing is greater than the cost of internal sources of funds. Similarly it has negative relationship with size and liquidity and positive with growth, dividend payout ratio and earning variability. Leverage has negative correlation with size and DPR and positive correlation with growth, earning variability and liquidity. Size has positive correlation with growth and liquidity and negative correlation with dividend payout ratio and earning variability. Growth has positive correlation with earning variability and negative correlation with dividend payout ratio and liquidity. Dividend payout ratio is negatively correlated with earning variability and liquidity. Earning variability is positively correlated with liquidity.

The important point to be noted here is that the relation of cost of capital to the leverage, others being held constant, clearly shows that it has negative co-relationship in Banking, Finance and Insurance sector, Manufacturing and Trading sector and positive Hotel and Hydropower sector. Thus, their relationship in Banking, Finance and Insurance sector and Manufacturing and Trading sector support the theoretical expectation made in pervious chapter. However, in the case of Hotel and Hydropower sector, their relationship is against our expectation.

4.1.2 Simple Regression Analysis of the Variables.

The simple regression (Model I) results for the pooled data of the sample enterprises for three sectors are provided in table 4.3 (a), 4.3 (b) and 4.3 (c), which gives us variable information.

Table 4.3 (a)

Simple Regression Results with Average Cost of Capital as Dependent Variable (Model I)

Banking, Finance and Insurance

Models	Constant(a)	Beta Co-efficient	R^2	t Value
$K_0 = a + b_1L_1$	0.1194	-0.0367	0.1535	-1.8067***
$K_0 = a + b_2Log$	0.1455	-0.0069	0.2974	-2.7602**
$K_0 = a + b_3G$	0.1010	0.0439	0.0370	0.8317
$K_0 = a + b_4DPR$	0.1106	-0.0059	0.0038	-0.2635
$K_0 = a + b_5EV$	0.1189	-0.0317	0.0272	-0.7090
$K_0 = a + b_6Liq$	0.0697	0.249	0.3405	3.0488

Source: Appendix - A

No of observation = 40.

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table No.4.3 (b)

Simple Regression Results with Average Cost of Capital as Dependent Variable (Model I)

Manufacturing and Trading sector.

Models	Constant(a)	Beta Co-efficient	R^2	t Value
$K_0 = a + b_1L_1$	0.1172	-0.0519	0.0544	-0.8977
$K_0 = a + b_2Log$	0.1577	-0.0159	0.0645	-0.9825
$K_0 = a + b_3G$	0.0613	0.3131	0.1660	1.6696
$K_0 = a + b_4DPR$	0.1013	-0.0097	0.0031	-0.2092
$K_0 = a + b_5EV$	-0.0425	0.3856	0.1772	1.7365
$K_0 = a + b_6Liq$	0.0308	0.0347	0.1499	1.5711

Source: Appendix - B

No of observation = 20.

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table No.4.3 (c)

Simple Regression Result with Average Cost of Capital as Dependent Variable (Model I)

Hotel and Hydropower Sector.

Models	Constant(a)	Beta Co-efficient	R^2	t Value
$K_0 = a + b_1L_1$	0.0961	0.0258	0.0144	0.2959
$K_0 = a + b_2Log$	0.2561	-0.0196	0.2409	-1.3798
$K_0 = a + b_3G$	0.1114	0.0256	0.0314	0.4412
$K_0 = a + b_4DPR$	0.1047	0.0258	0.0330	0.4527
$K_0 = a + b_5EV$	0.0674	0.0988	0.4869	2.3860 **
$K_0 = a + b_6Liq$	0.1402	-0.0223	0.0321	-0.4461

Source: Appendix - C

No of observation = 10.

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

The regression results provided in tables 4.3 (a), 4.3 (b) and 4.3 (c) for three sector are analyzed as under:

In case of Banking, Finance and Insurance sector, the regression coefficient of average cost of capital on leverage is negative which indicates that among others average cost of capital can be lowered by using higher degree of leverage and the t value is statistically significant. The value of R^2 is 0.1535. This indicates that only 15.35% of variation in cost of capital is explained by leverage variable.

The regression of average cost of capital on size the result concluded that as the size of the firm decreases, the coat of capital increases since the beta coefficient is negative and significant at 10% level. The value of the R^2 is 0.2974. This indicates that 29.74% of variation in cost of capital is explained by size.

The regression of average cost capital on growth of the firm indicates that increasing growth can lead to increase in cost of capital but the beta co-efficient is not significant at 10% level.

The regression coefficient of average cost of capital on dividend payout ratio is negative which indicates that the increasing payout ratio can lower the cost of capital. It implies that investors prefer current dividends. However, the t value is not significant. The value of R^2 is very small.

The regression coefficient of cost of capital on earnings variability is negative, which indicate decreasing risk the t value is not statistically significant. The value of R^2 is too small.

The regression coefficient of average cost of capital on liquidity is positive which indicates the idle fund can lead higher cost of capital. Beta coefficient is not statistically significant.

In case of Manufacturing and Trading sector, the regression co-efficient of average cost of capital on leverage is negative which indicates that among other average cost of capital can be lowered by using higher degree of leverage. However, the t value is not statistically significant. The value of R^2 is 0.0544. It indicates that only 5.44% of variation in cost of capital explained by leverage.

The regression of average cost of capital on size indicates that when the size of the firm decreases, the cost of capital increases. This implies that investors prefer to invest in greater size firm. However, the beta co-efficient is not statistically significant.

The regression of average cost of capital on growth indicates that increasing growth can lead to increase in cost of capital. But the beta co-efficient is not statistically significant. The value of R^2 is 0.1660, which indicates that 16.60% of variation in cost of capital explained by growth.

The regression co-efficient of average capital on dividend payout ratio ids negative. It also implies that investors prefer current dividends. The value of R^2 is 0.0031. The beta co-efficient is not significant.

In case of Hotel and Hydropower sector, the regression coefficient of average cost of capital on leverage is positive which indicates that the use of leverage can lead to increase in cost of capital. However, the value of R^2 is too small and t value is not significant. Thus, this shows poor relationship between them.

With respect to the regression of average cost of capital on size, the results concluded that as the size of the firm decreased the cost of capital increases since the beta coefficient is negative and not significant at 10% level. The value of R^2 is 24.09%.

The regression of average cost of capital on growth of the firm indicates that increase growth can lead to increase in cost of capital but the beta coefficient is not statistically significant.

The regression coefficient of cost of capital on dividend payout ratio is positive which indicates that the decreasing payout ratio can lead the cost of capital. It also implies that investors prefer current dividends. The beta coefficient is not significant in relation of average cost of capital on dividend payout ratio. The value of R^2 is too small.

The regression coefficient of average cost of capital on earning variability is positive which indicates that earning variability can increase the cost of capital. The coefficient of beta is statistically significant at 10% significance level. The value of R^2 is 0.4869 which indicates that 48.69% of variation in cost of capital explained by earning variation in cost capital explained by earning variability.

The regression coefficient of average cost of capital on liquidity is negative which indicates that average cost of capital increases as the short-term risk decrease. Beta coefficient is not statistically significant. The value of R^2 is too small.

The main focus of this study is with the performance of the leverage variables. The coefficient of leverage in Hotel and Hydropower sector is positive but these are negative in Banking, Finance and Insurance, Manufacturing and Trading and Hotel and Hydropower sectors but it is significant is Banking and finance sector.

Thus, the result neither clearly support the traditional view or the Modigliani and Millers view nor reject them.

4.1.3 Multiple Regression Analysis of the Variables:

To remove the weakness and biasness of the simple regression equation, multiple regression is used and the results of the model are provided in table 4.4 (a), 4.4 (b) and 4.4 (c) for the Banking and Finance sector, Manufacturing and Trading sector and Hotel and Hydropower sector respectively.

Table 4.4 (a)

Multiple Regression Results (Model – II)

Red.eq^n $K_0 = a + b_1L_1 + b_2Logs + b_3G + b_4DPR + b_5EV + b_6Liq$

Banking, Finance and Insurance sector.

a.	Leverage	Logs	Growth	DPR	E.V.	Liquidity	R^2	F
0.1535	0.0534	-0.0102	-0.0123	-0.0078	-0.0741	0.0153	0.4801	2.00
	[1.3096]	[-1.5957]	[-0.2396]	[-0.2819]	[-1.3275]	[1.0060]		

Source: Appendix - A

Note:- **[ ]** is indicates t value

Table No 4.4 (b)

Multiple Regression Results (Model – II)

Red.eq^n $K_0 = a + b_1L_1 + b_2Logs + b_3G + b_4DPR + b_5EV + b_6Liq$

Manufacturing and Trading Sector.

a.	Leverage	Logs	Growth	DPR	E.V.	Liquidity	R^2	F
0.1272	0.2443	-0.0952	0.2762	-0.0117	0.4127	0.0384	0.6342	2.600
	[0.6599]	[-0.9285]	[1.5383]	[-0.2749]	[2.1167]**	[1.7367]		

Source: Appendix - B

Note:- **[ ]** is T value

** Indicates that significant at 5% level.

Table No 4.4 (b)

Multiple Regression Results (Model – II)

Red.eq^n $K_0 = a + b_1L_1 + b_2Logs + b_3G + b_4DPR + b_5EV + b_6Liq$

Hotel and Hydropower Sector

a.	Leverage	Logs	Growth	DPR	E.V.	Liquidity	R^2	F
0.2178	-0.3375	-0.0396	0.1863	0.1718	0.1228	0.2433	0.9999	34703.3167
	[-216.3639]*	[-172.2573]*	[155.8879]*	[240.0973]*	[198.3788]*	[202.4165]*		

Source: Appendix - C

Note:- **[ ]** is T value.

* Indicates that significant at 1% level.

The beta co-efficient are negative for size, growth, dividend payout ratio and earning variability and positive for leverage and liquidity in Banking and Finance sector. However, all of the coefficients are not statistical significant.

The beta coefficient are positive for leverage. Growth earning variability and liquidity and negative for size and dividend payout ratio in Manufacturing and Trading sector. However, the beta coefficient are significant with earning variability but these are not significant with leverage, size growth and dividend payout ratio and liquidity.

The beta coefficients are negative for leverage and size and positive for growth, dividend payout ratio, earning variability and liquidity in Hotel and Hydropower sector. The beta coefficients of all variables are statistically highly significant in Hotel and Hydropower sector. The negative sign of leverage coefficient suggests that cost of capital can be reduced by using leverage.

Thus, our results vary clearly support the traditional view that the capital structure decision of the firm affect the average cost of capital and reject the independent hypothesis of M-M in Hotel and Hydropower sector.

The coefficient of multiple determination ($R^2 = 0.4801$) indicates that 48.01 percent of the total variation in Banking, Finance and Insurance sector's average cost of capital has been explained by the regression model, (or, by the explanation model). The coefficient of multiple determination ($R^2 = 0.6342$) indicates that 63.42 percent of the total variation in average cost of capital has been explained by regression model in manufacturing and Trading sector.

The coefficient of multiple determination ($R^2 = 0.9999$) indicates that 99.99 percent of the total variation in average cost of capital has been explained by the regression model used for analyzing Hotel and Hydropower sector.

The F statistics for the regression Banking, Finance and Insurance and Manufacturing and Trading sector are not statistically significant indicating that the regression equation does not provide a statistically significant explanation of variable in average cost of capital of both the sector. On the other hand the F statistics for the regression in Hotel and Hydropower sector is statistically significant indicating that the regression equation provides a statistically significant explanation of variable in average cost of capital of the Hotel and Hydropower sector.

Therefore, the results are not strong enough to establish the relationship between cost of capital and capital structure in Banking, Finance and Insurance and Manufacturing and Trading sectors. It does not mean that there is no relationship between cost of capital and capital structures.

4.2 Corporate Tax, Cost of Capital and Leverage:

The aim of this section is to test the hypothesis that the cost of capital declines with leverage even in absence of tax deductibility of interest chares. The regression results are provided in the table 4.5 (a), 4.5 (b) and 4.5 (c) for the three sectors.

Table No 4.5 (a)

Regression Results (Model III)

$$\text{Reg: eq}^{n}\left(\frac{X - tR}{V - tD}\right) = a + b_1L_1 + b_2\text{logs} + b_3G + b_4\,\text{DPR} + b_5\,\text{EV} + b_6\,\text{Liq}$$

Banking, Finance and Insurance

a.	Leverage	Logs	Growth	DPR	E.V	Liquidity	R^2	F
0.1511	0.0717	-0.0112	-0.0113	-0.0049	-0.0754	0.0171	0.4633	1.8707
	[1.6975]	[-1.6972]	[-0.2119]	[-0.1713]	[-1.3058]	[1.0877]		

Note:- [ ] is indicates t value.

Table No 4.5 (b)

Regression Results (Model III)

$$\text{Reg: eq}^{n}\left(\frac{X - tR}{V - tD}\right) = a + b_1L_1 + b_2\text{logs} + b_3G + b_4\,\text{DPR} + b_5\,\text{EV} + b_6\,\text{Liq}$$

Manufacturing and Trading

a.	Leverage	Logs	Growth	DPR	E.V	Liquidity	R^2	F
0.0880	0.1821	-0.0771	0.2715	-0.0111	0.3857	0.0411	0.6271	2.5221
	[0.4924]	[-0.7527]	[1.5138]	[-0.2608]	[1.9801]***	[1.8609]***		

Note:- [ ] is indicates t value.

*** Indicates that significant at 10 % level.

Table No 4.5 (c)

Regression Results (Model III)

$$\text{Reg: eq}^{n}\left(\frac{X - tR}{V - tD}\right) = a + b_1L_1 + b_2\text{logs} + b_3G + b_4\,\text{DPR} + b_5\,\text{EV} + b_6\,\text{Liq}$$

Hotel and Hydropower

a.	Leverage	Logs	Growth	DPR	E.V	Liquidity	R^2	F
0.2178	-0.3375	-0.0396	0.1863	0.1718	0.1228	0.2433	0.9999	34703.3167#
	[-216.3639]*	[-172.2573]*	[155.8879]*	[240.0973]*	[198.3788]*	[202.4165]*		

Note:- [ ] is indicates t value.

* Indicates that significant at 1 % level.

F statistic is significant.

It is clear that the above results, which are provided in table 4.5 (a), 4.5 (b) and 4.5 (c). Growth, dividend payout ratio and earning variability are negative and positive for the leverage and liquidity in the Banking, Finance and Insurance sector.

In case of Manufacturing and Trading sector the coefficient for size and dividend payout ratio are negative and positive for leverage growth, earnings variability and liquidity.

In case of Hotel and Hydropower sector, the coefficient for leverage and size are negative and positive for growth, dividend payout ratio, earning variability and liquidity.

Value of multiple determination in Banking and Finance sector is ($R^2 = 0.4633$) indicates that 46.33 % the total variation has been explained by the regression model. Value of multiple determination in Manufacturing and Trading sector is ($R^2 = 0.6271$) is indicates that 62.71 % of the total variation has been explained by regression model. In case of Hotel and Hydropower sector value of multiple determination is some the result derived from model II.

The t value of all the coefficients in Banking, Finance and Insurance sector are not statistically significant. In case of Manufacturing and Trading sector coefficient are significant with earning variability and liquidity but coefficient are not significant of all other variables. In case of Hotel and Hydropower sector these are highly significant.

F statistics are not significant in Banking, Finance and Insurance and Manufacturing sector but it is highly significant in Hotel and Hydropower sector.

Thus, from the above presented results we can conclude that, there are no change between the result derived from model II and III. Thus, the M-M proposition i.e. the use of leverage can increase the market value of the firm or lower the cost of capital due to tax deductibility of the interest charges is not accepted. However the results are not able to strongly support the traditional view i.e. cost of capital declines with leverage even in the absence of the tax deductibility of interest charges, because coefficients of leverage in Banking Finance and Insurance and Manufacturing and Trading sectors is positive while it is negative in Hotel and Hydropower sector.

4.2.1 Cost of Equity and Leverage

The purpose of this section is to determine the empirical relationship between leverage and cost of equity. Regarding this, the traditional view is that the cost of equity either remains constant or rises slightly with moderate level of debt, and after- wards increase with leverage at an increasing rate. On the other hand, the M-M position is that the cost of equity increase linearly with leverage. Thus, both these views hold that the value of equity decrease with leverage. The possibility explored in this section, is that, up to some level of debt, the increases in shareholders earnings may out weight financial risk and as a result, the cost of equity may decline with leverage.

4.3.1 Correlation Analysis

Table 4.6 (a), 4.6 (b) and 4.6 (c) indicate the correlation between the variables in Banking, Finance and Insurance sector, Manufacturing and Trading sector and Hotel and Hydropower sector respectively.

Table no 4.6 (a)

Correlation matrix of the variables

Banking, Finance and Insurance sector.

	Ke	L_2	S	G	DPR	EV	LIQ
Ke	1.0000						
L_2	0.3011	1.0000					
S	-0.1887	0.5824	1.0000				
G	0.2698	0.1415	-0.2010	1.0000			
DPR	0.1054	0.1464	0.3916	-01.362	1.0000		
EV	0.1444	0.1651	-0.1891	0.0548	-0.6509	1.0000	
LIQ	0.3117	-0.4252	-0.7931	0.3441	-0.2513	0.0297	1.0000

Table no 4.6 (b)

Correlation matrix of the variables

Manufacturing and Trading sector

	Ke	L_2	S	G	DPR	EV	LIQ
Ke	1.0000						
L_2	-0.1662	1.0000					
S	-0.3326	0.7775	1.0000				
G	0.4557	-0.1025	-0.2021	1.0000			
DPR	-0.0318	0.0545	0.2876	0.3205	1.0000		
EV	0.3905	-0.0640	0.1872	-0.0533	0.0763	1.0000	
LIQ	0.3794	0.4311	0.4190	0.0242	-0.0596	0.2191	1.0000

Table no 4.6 (c)

Correlation matrix of the variables

Hotel and Hydropower sector.

	Ke	L_2	S	G	DPR	EV	LIQ
Ke	1.0000						
L_2	0.1373	1.0000					
S	-0.5158	0.2872	1.0000				
G	0.3501	0.5579	0.1855	1.0000			
DPR	0.1238	-0.8454	-0.1436	-0.4982	1.0000		
EV	0.8343	0.5674	-0.3487	0.6170	-0.4079	1.0000	
LIQ	-0.2259	0.7484	0.3754	-0.0722	-0.5793	0.0807	1.0000

In case of Banking, Finance and Insurance sector, cost of equity is negatively correlated with size and earning variability and positively correlated with leverage growth dividend payout ratio and liquidity. Leverage positively correlated with size, growth, dividend payout ratio and earning variability but it negatively correlated with liquidity. The positive correlation ship between leverage and size indicates that increase in firm's size due to increase in debt financing. Size is positively correlated with dividend payout ratio and negatively correlated with growth, earning variability and liquidity. Growth is negatively correlated with dividend payout ratio but positively with earning variability and liquidity, Dividend payout ratio is negatively correlated with earning variability and liquidity. Earning variability is positively correlated with liquidity.

In case of Manufacturing and trading sector, cost of equity is negatively correlated with leverage, size and dividend payout ratio and positively with growth, earning variability and liquidity. Leverage is negatively correlated with growth earning variability and positively with size, dividend payout ratio and liquidity. Size is negatively correlated with growth and positively with dividend payout ratio, earning has positive and liquidity. Growth has positive relationship with dividend payout ratio and liquidity and negative with earning variability. Dividend payout ratio is positively correlated with earning variability and negatively with liquidity. There is positive correlation ship between liquidity and earning variability.

In case of hotel and Hydropower sector, cost of equity is positively correlated with leverage, growth, dividend payout ratio and earning variability and negatively correlated with size and liquidity. Leverage has negative correlation ship with dividend payout ratio positive correlation ship with size, growth, earning variability and liquidity. Size is negatively correlated with dividend payout ratio and earning variability and positively correlated with growth and liquidity. Growth is negatively correlated with dividend payout ratio and liquidity and positively with earning variability.

Dividend payout ratio is negatively correlated with earning variability and liquidity. There is positive correlation ship with earning variability and liquidity.

Therefore, the above correlation matrix clearly shows that the cost of equity is negative correlated with leverage in Manufacturing and Trading sector which suggest that the cost of equity decline with leverage, but in Banking, Finance and Insurance and Hotel and Hydropower sectors, cost of equity is positively related with leverage which indicates that increase in leverage ratio leads to increase in cost of equity capital.

4.3.2 Simple Regression Analysis of Equity as Dependent Variable

In order to validate relationship between cost of equity and other explanatory variable, the simple regression equations (Model-IV) are estimated. The results of these equations are provided in Table 4.7 (a), 4.7 (b) and 4.7 (c) for Banking; finance and Insurance, Manufacturing and Trading and Hotel and Hydropower sectors respectively.

Table 4.7 (a)

Simple Regression Results with Cost of Equity as Dependent Variable

(Model-IV)

Banking, Finance and Insurance sector

Models	Constant (a)	Beta Coefficient	R^2	t. Value
Ke=a+b1L2	0.1099	0.0055	0.0907	1.3398
Ke=a+b2logs	0.1319	-0.0029	0.0356	-0.8153
Ke=a+b3G	0.1040	0.0753	0.0728	1.1889
Ke=a+b4DPR	0.1106	0.0123	0.0111	0.4498
Ke=a+b5E.V	0.1275	-0.0341	0.0208	-0.6189
Ke=a+b6Liq.	0.0909	0.0163	0.0972	1.3919

No. of Obs. = 40 Source Appendix A

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table 4.7 (b)

Simple Regression Results with Cost of Equity as Dependent Variable

(Model-IV)

Manufacturing and Trading Sector

Models	Constant (a)	Beta Coefficient	R^2	t. Value
Ke=a+b1L2	0.0937	-0.0013	0.0276	-0.6306
Ke=a+b2logs	0.1633	-0.0197	0.1106	-1.3194
Ke=a+b3G	0.0501	0.3307	0.2077	1.9155**
Ke=a+b4DPR	0.0887	-0.0052	0.0010	-0.1189
Ke=a+b5E.V	-0.0349	0.3379	0.1525	1.5873
Ke=a+b6Liq.	0.0261	0.0321	0.1439	1.5341

No. of Obs. = 20 Source Appendix B

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table 4.7 (c)

Simple Regression Results with Cost of Equity as Dependent Variable

(Model-IV)

Hotel and Hydropower Sector

Models	Constant (a)	Beta Coefficient	R^2	t. Value
Ke=a+b1L2	0.1251	0.0046	0.0188	0.3395
Ke=a+b2logs	0.4978	-0.0494	0.2661	-1.4748
Ke=a+b3G	0.1257	0.1212	0.1226	0.9155
Ke=a+b4DPR	0.1257	0.0421	0.0153	0.3056
Ke=a+b5E.V	0.0060	0.2829	0.6961	3.7075***
Ke=a+b6Liq.	0.2187	-0.0672	0.0510	-0.5680

No. of Obs. = 10 Source Appendix C

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

The regression results provided above tables are analyzed as following:

The regression result of cost of equity on leverage in Banking, finance and Insurance sector suggests that the cist of equity increases as leverage increases. The beta coefficient is not significant and value of R^2 is also small. The regression of cost of equity on size shows that the decreasing size leads to increase in cost of equity the coefficient is not statistically significant the value of R^2 is also small. The coefficient is positive with respect to the growth, which suggests that the cost of equity increase as firm achieve. However, the coefficient is not significant. The regression of cost of equity on payout ratio is positive and beta co-efficient is not statistically significant. The regression of cost of equity on earning variability is negative which indicate decreasing risk. The t value is not statistically significant. Value of R^2 is 0.0208, which indicates that only 2.73% variation in cost of equity on earning variability. The beta coefficient of liquidity. The coefficient of liquidity is not significant. Value of R^2 is 9.17%.

In case of Manufacturing and Trading Sector as far as regression of cost of equity on leverage in concerned, beta coefficient is negative which indicates that, among others, the cost of equity decreases as leverage increases. The coefficient of determination is too small and t value is also not significant. The regression coefficient of cost of equity on size, the result leads to the conclusion that cost of equity decrease as size increases. The coefficient of determination (R^2 = 0.1105) is 11.05%. The value of t is not significant. The beta coefficient is positive with respect to the growth, indicates that cost of equity increases as firm achiever growth. Here value of t is significant at 10% level. The value of R^2 is 20.77%. The beta coefficient of dividend payout ration is negative. The value of determination is too small and value t is not significant. The beta coefficient of earning variability and liquidity is positive. Beta coefficients are not statistically significant. The value determinations are 15.25 and 14.39 respectively.

In case of Hotel and Hydropower sector, the regression result of cost equity on leverage suggests that the cost of equity increases as leverage increases. The beta coefficient is not significant and the value of R^2 is also not satisfactory. The regression of cost of equity on size is negative. The beta coefficient is not statistically significant. Value of R^2 is 12.26%. The beta coefficient is positive with respect to the growth, which suggests that the cost of equity increases as firm achieve growth. The coefficient of dividend payout ratio is positive. The value of t is not significant. Beta coefficient is positive in case of earning variability which indicates that cost of increases as operating risk increases. The coefficient is also significant at 1% level of significance. With respect to the regression of cost of equity on liquidity the result suggests that the cost of equity increase as liquidity increases.

Thus, from the analysis of above results we may concluded that the cost of equity on leverage positive in Banking, Finance and Insurance sector & Hotel and Hydropower sector but negative in Manufacturing and Trading sector.

4.3.3 Multiple Regression Analysis of Equity as Dependent Variable

To make more reliability in the analysis multiple regression analysis (Model-V) is used and the result of the model is provided in the table 4.8 (a), 4.8 (b) and 4.8 (c) for three sectors Banking, Finance and Insurance, Manufacturing and Trading and Hotel and Hydropower sector.

Table 4.8 (a)

Multiple Regression Results (Model-V)

Reg. eq^{n} : Ke=a+b1l2+b2logs+b3G+b4DPR+b5E.V.+ b6Liq

Banking, Finance and Insurance

a.	Leverage II	LogS	Growth	DPR	E.V.	Liquidity	R^2	F
0.1524	0.0139	0.0081	-0.0008	0.0026	-0.0851	0.0127	0.4566	1.8209
	[2.6252]***	[-1.2558]	[-0.0119]	[0.0764]	[-1.2067]	[0.6688]		

Note [ ] is indicates t value.

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table 4.8 (b)

Multiple Regression Results (Model-V)

Reg. eq^{n} : Ke=a+b1l2+b2logs+b3G+b4DPR+b5E.V.+ b6Liq

Manufacturing and trading sector

a.	Leverage II	LogS	Growth	DPR	E.V.	Liquidity	R^2	F
0.0148	0.0029	-0.0516	0.2178	0.0155	0.4147	0.0409	0.7337	4.1324
	[1.1306]	[-2.4838]**	[1.4888]	[0.4388]	[2.4980]**	[2.3558]**		

Note [ ] & ( ) are indicates t value.

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

Table 4.8 (c)

Multiple Regression Results (Model-V)

Reg. eq^{n} : Ke=a+b1l2+b2logs+b3G+b4DPR+b5E.V.+ b6Liq

Hotel & Hydropower Sector

a.	Leverage II	LogS	Growth	DPR	E.V.	Liquidity	R^2	F
0.1091	0.0354	-0.0174	-0.1001	0.2779	0.2469	-0.1684	0.9743	6.3088
	[0.6489]	[-0.6179]	[-0.4069]	[1.8726]**	[1.5335]	[-0.5147]		

Note [ ] is indicates t value.

Note:

* Indicates that significant at 1% level.

** Indicates that significant at 5% level.

*** Indicates that significant at10% level.

The results presented in table 4.8 (a), 4.8 (b) and 4.8 (c) that the beta coefficient of leverage in three sectors indicates that the cost of equity increases as leverage increases. However, the beta coefficient is not significant in Manufacturing and Trading sector and Hotel and Hydropower sectors but it is significant in Banking, finance & Insurance sector at 5% and 10% significance level. Beta coefficient of size in three sectors are negative and implies that cost of equity increases as size decreases. The beta coefficient of Manufacturing and trading sector is significant at 5% significant level but it is not significant in Banking and finance and Hotel and Hydropower sectors. With respect to the growth, the coefficient in Banking, Finance & Insurance sector and Hotel and Hydropower sector is negative that suggests the cost of equity decreases as firm achieve growth. However, the beta coefficient is not significant. The beta coefficient of Manufacturing and Trading sector is positive but not statistically significant, coefficient of dividend payout ratio is positive in all the three sectors. the coefficient is significant in Hotel and Hydropower sector at 10% significance level but not significant in Banking, Finance & Insurance sector & Manufacturing sectors. The beta coefficient of earning variability is positive in Manufacturing and Trading sector and Hotel and Hydropower sector. It indicates that the cost of equity increases as business risk increases. In case of Banking finance and Insurance sector the beta coefficient of earning variability is negative. It

indicates the cost of equity decreases as business risk decreases. Beta coefficient is statistically significant in Manufacturing and trading sector at 5% level but it is not significant in other two sectors.

The coefficient of liquidity is positive in Banking, Finance and Insurance & Manufacturing and Trading sectors but it is negative in Hotel and Hydropower sector. These implies that cost of equity has opposite relationship with liquidity in these sectors. But the coefficient is significant at 5% level in Manufacturing and Trading sector.

The F statistics for the regression in Manufacturing and Trading sector is statistically significant but it is not significant in Banking, Finance & Insurance and Hotel and Hydropower sector.

The coefficient of multiple determination (R^2 = .4566) indicates that 45.66% of the total variation in Banking and finance sector's cost of equity capital has been explained by model.

In case of Manufacturing and Trading sector multiple determination (R^2 = 0.7337) indicates that 73.36% of the total variation in Manufacturing and Trading sector's cost of equity capital has been explained by model.

In case of Hotel and Hydropower sector. The multiple determination (R^2 = 0.9742) indicates that 97.42% of the total variation in Hotel and Hydropower sector's cost of equity capital has been explained by model.

As the coefficient of leverage variable is insignificant in Manufacturing and Trading sector and Hotel and Hydropower sectors, in general, the traditional view, the cost of equity remains horizontal over a wide range of leverage is supported. From the results derived above, not clear cut generalization can be made regarding the role of corporate debt in influencing cost of equity. Only it can be stated that in certain cases, the cost equity will decreases up to point in a others the use of debt may increase the cost of equity.

In conclusion over all regression results and their interpretation of this chapter are not strong enough to establish relationship between cost of capital and capital structure and cost of equity and leverage (debt equity ratio) with other explanatory variables. Thus, the proper capital structure combination of Nepalese firm is confusing and determined without considering the capital structure theories.

4.4 Major Findings.

Analysis of cost of capital and capital structure of the listed companies through the application of various statistical models provide a different kind of results. The main findings of the study are presented below.

- As far as the simple regression results of average cost of capital on each of the selected explanatory variables are concerned, beta coefficient were negative for leverage, size, dividend payout ratio and earning variability and positive for growth and liquidity in Banking, finance & Insurance sector.

- In case of Manufacturing and trading sector, beta coefficients are negative for leverage, size and liquidity and positive for leverage growth, dividend payout ratio and earning variability. Coefficient of leverage in Banking, finance & Insurance and Manufacturing and Trading sectors are similar to the expectation but not significant in Manufacturing and Trading sectors. However there are closer to the traditional belief. On the other hand leverage coefficient is positive and against the expectation in Hotel and Airline sector but not significant

- The result of the multiple regression of average cost of capital on selected explanatory variables revealed that the sign of beta coefficient for leverage and liquidity are positive and negative for size, growth divided payout ratio earning variability and the coefficient of beta are not significant in Banking, finance and Insurance sectors.

- In case of regression of tax adjustment stock yield on selected explanatory variables the results were on different from the results derived from model I and II. The cost of capital, therefore, declines with leverage after eliminating the tax effect on interest charges is supported. Thus M-M Proposition is rejected.

- The results of simple regression of cost of equity on each of the explanatory variables are concerned beta coefficient of leverage is negative in sign but not significant in Manufacturing ad Trading sector. The beta coefficients of leverage are positive in Banking Finance and Insurance and Hotel and Airline sectors. This indicates that cost of equity increases as debt equity ratio increases. We may therefore concluded that in some cases, cost of equity decreases with leverage and in some cases, it increased with leverage.

- The multiple regression result of cost of equity on leverage coefficient is not different from simple regression result in Banking, finance and Insurance sector and Hotel and Airline sector but it is different from simple regression in Manufacturing and Trading sector. Here it is positive. The results are not different from simple regression indicates that cost of equity remains some over a wide range of leverage.

CHAPTER V

SUMMARY, CONCLUSION & RECOMMENDATION

5.1 SUMMARY

The main objectives of the present study are to test the relation between capital structure and the cost of capital and the relation between cost of equity and leverage using Nepalese data. Modigliani and Miller's propositions were easily emendable for statistical testing. The M-M proposition I is that the capital structure does not affect the cost of capital to the firm and proposition II describes the behaviors of earning with financial risk of leverage and states that the earnings yield required by the investors is and increasing linear function of leverage. In connection with their proposition they made some assumptions regarding investor's attitude towards financial risk arising from the use of debt in the capital structure in the firm. M-M have contended that investors would require a higher return on equity for increased financial risk. In the contrast to M-M hypothesis, the traditional view is that the cost of capital to the firm is affected by capital structure, and the cost of equity (i.e. earning yield) is either remains constant or rises slightly with leverage of financial risk within acceptable level of debt.

This study covered five major enterprises in Banking, finance and Insurance. Four major in Manufacturing and Trading and two major enterprises in Hotel and Airline sectors of Nepalese listed companies, Viz Nepal Bank Limited, Nepal Indoseuz Bank Limited, Nepal Grindlays Bank Limited. Nepal Insurance Company Limited, Citizenship Investement Trust Nepal Battery Company Limited, Nepal Lube Oil Limited, Salt Trading Corporation, Bishal Bazar Company Limited, Soaltee Hotel Limited and Necon Air Limited.

For the purpose of this study, the necessary data were collected from the period of 1992 to 1999. The financial statement of mainly the profit and loss accounts and balance sheets published in the “financial statement of listed companies –Vol, III, IV and www.nepalstock.com web site Nepal stock Exchange Limited provided the data required to complete this study.

This study used zero order correlation matrix, simple as well as multiple regression equations to accomplish the objections. It employed the simple regression equations to examine the relationshop of cost of capital with each of the selected explanatory variables and the cost of equity with each of the selected explanatory variables and the multiple regression equation was used to examine the relationship between cost of capital and leverage, cost of equity and debt equity ratio (leverage) together with other explanatory variables.

5.2 Conclusion

The main objectives of the present study are to test the relation between capital structure and the cost of capital and the relation between cost of equity and leverage using Nepalese data. Modigliani and Millers propositions were used as the focal point for empirical analysis, because their propositions are easily amendable for statistical testing.

This study covered five major enterprises in Banking, finance and Insurance. Four major in Manufacturing and Trading and two major enterprises in Hotel and Airline sectors of Nepalese listed companies.

This study used zero order correlation matrix, simple as well as multiple regression equations to accomplish the objections. It employed the simple regression equation to examine the relationship of cost of capital with each of the selected explanatory variables and the cost of equity with each of the selected explanatory variables and the multiple regression equation was used to examine the relationshop between cost of capital and leverage, cost of equity and debt equity ratio (leverage) together with other explanatory variables.

Lastly, to summaries the conclusion, the present study does not support the M-M's independent hypothesis. It indicates that the cost of capital can be affected by the use of debt in capital structure. However, the result is not enough to support the traditional belief. The cost of equity in some cases, increase 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 listed companies do not follow the capital structure theories developed by the scholars. Either they do not have required theoretical and practical knowledge regarding capital structure and the cost of capital or they are not willing to use it. Thus overall scenarios of the firms are confusing. Therefore the following recommendations are provided:

- The primary need for the most of the listed companies is to understand the implication of using debt capital. For this, there is need to have adequate homework to design appropriate capital structure plans, policies and strategies to see how far it is feasible to earn sufficiently to cover the fixed interest obligation.

- Proper combination of capital structure policy is not adopted by Nepalese companies. So it is necessary to identify and attain optimal capital structure by the companies to enhance the overall performance of the company.

- The firm should properly analyze and evaluate the investment proposal after determining whether it is beneficial or not.

- After making investment decision the management of the firm should be clear about the use of various sources and their combination for the generation of fund needed for investment. It means that the importance of capital structure and cost of capital must be recognized.

- The management of the company should always be well informed about the sources of capital, their reliability, their cost and possible terms and conditions that can be made by the lender. All these decisions, to some extent, are based on the theoretical knowledge and existing environment of the capital market.

- Moreover, there is a need to have a total change in knowledge, perception, attitudes, transformation and behavioral relationship to reorient capital structure, restructuring financial plans with added support to tplan debt repayment schedules.

- Lastly, the management should not take any financial decision randomly and always keep in mind that cost of capital concept and theories of capital structure are helpful in taking correct decision.

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APPENDIX – A

List of the variables used in regression analysis

Banking, Finance and Insurance Sector

S.N.	Name of the Companies	Observation	Ko	L1	L2	S	G	DPR	EV	LIQ	x-tR/V-tD	Ke
1		2003	0.07	0.75	2.97	7.10	0.17	0.09	0.60	1.04	0.07	0.06
2		2004	0.06	0.42	0.72	7.14	0.00	0.48	0.36	1.05	0.06	0.06
3	Nabil Babk Limited	2005	0.08	0.13	0.15	7.10	0.08	0.34	0.37	1.02	0.07	0.07
4		2006	0.11	0.41	0.69	6.21	0.09	0.29	0.30	1.04	0.11	0.11
5		2007	0.11	0.57	1.33	7.14	0.17	0.54	0.19	1.12	0.11	0.11
6		2003	0.13	0.39	0.65	6.21	0.23	0.49	0.21	1.13	0.13	0.13
7		2004	0.13	0.42	0.75	8.17	0.11	0.72	0.21	1.12	0.13	0.12
8	Nepal Investment Bank	2005	0.10	0.27	0.37	6.33	0.21	0.89	0.25	1.13	0.11	0.11
9		2006	0.10	0.85	5.75	8.17	0.00	0.63	0.39	1.08	0.11	0.10
10		2007	0.09	0.87	6.65	6.12	0.22	0.54	0.38	1.07	0.10	0.10
11		2003	0.10	0.60	1.53	6.33	0.24	0.54	0.35	1.09	0.11	0.11
12		2004	0.09	0.36	0.56	6.50	0.03	0.76	0.27	1.08	0.10	0.10
13	Himalyan Bank Ltd.	2005	0.12	0.00	0.00	6.50	0.27	0.49	0.32	3.16	0.13	0.13
14		2006	0.08	0.00	0.00	6.20	0.29	0.00	0.25	1.87	0.10	0.10
15		2007	0.12	0.17	0.20	7.82	0.21	0.93	0.17	2.21	0.13	0.13
16		2003	0.15	0.00	0.00	6.20	0.03	0.62	0.10	2.27	0.15	0.17
17		2004	0.13	0.00	0.00	7.82	0.14	0.00	0.44	2.84	0.13	0.13
18	Citizen Investment Trust	2005	0.16	0.00	0.00	7.99	0.44	0.49	0.45	1.56	0.16	0.16
19		2006	0.12	0.00	0.00	7.78	0.34	0.00	0.47	1.84	0.12	0.12
20		2007	0.13	0.00	0.00	7.99	0.00	0.00	0.70	2.03	0.13	0.13
21		2003	0.11	0.00	0.00	7.78	0.08	0.09	0.36	1.04	0.11	0.11
22		2004	0.13	0.75	2.97	7.68	0.08	0.48	0.60	1.05	0.13	0.13
23	Narayani Finance Ltd.	2005	0.11	0.41	0.69	7.68	0.00	0.34	0.37	1.02	0.11	0.11
24		2006	0.13	0.13	0.15	7.28	0.09	0.54	0.30	1.04	0.13	0.13
25		2007	0.11	0.42	0.72	6.75	0.17	0.29	0.19	1.12	0.11	0.11
26		2003	0.15	0.57	1.33	3.59	0.23	0.72	0.21	1.13	0.15	0.15
27		2004	0.16	0.39	0.65	3.45	0.11	0.49	0.21	1.12	0.16	0.16
28	Nepal Insurance Co.Ltd.	2005	0.13	0.42	0.75	3.47	0.21	0.89	0.39	1.13	0.13	0.13
29		2006	0.12	0.27	0.37	3.70	0.00	0.00	0.25	1.08	0.12	0.12
30		2007	0.16	0.85	0.75	3.59	0.22	0.00	0.38	1.07	0.16	0.16
31		2003	0.07	0.00	0.00	2.24	0.03	0.63	0.35	1.09	0.06	0.06
32		2004	0.06	0.00	0.00	3.45	0.27	0.54	0.27	1.08	0.06	0.06
33	Nepal Industrial Dev.Bank	2005	0.08	0.00	0.00	3.47	0.29	0.76	0.32	3.16	0.08	0.07
34		2006	0.09	0.36	0.56	3.70	0.21	0.49	0.25	1.87	0.10	0.09
35		2007	0.11	0.87	0.65	2.14	0.03	0.00	0.17	2.21	0.10	0.10
36		2003	0.10	0.00	0.00	2.24	0.14	0.93	0.10	2.27	0.10	0.11
37	Siddhartha Dev.Bank	2004	0.09	0.00	0.00	2.26	0.44	0.62	0.44	2.84	0.09	0.09
38		2005	0.12	0.00	0.00	2.44	0.34	0.00	0.45	1.56	0.12	0.13
39		2006	0.09	0.17	0.20	2.14	0.00	0.49	0.47	1.84	0.10	0.10
40		2007	0.10	0.60	1.53	2.44	0.08	0.00	0.70	2.03	0.11	0.11

Source: www.nepalstock.com

APPENDIX – B

List of the variables used in regression analysis

Manufacturing & Trading Sector

S.N.	Name of the Companies	Observation	Ko	L1	L2	S	G	DPR	EV	LIQ	x-tR/V-tD	Ke
1	Uniliever Nepal Ltd	2003	0.28	0.00	0.00	2.36	0.00	0.79	0.41	1.81	0.28	0.28
2		2004	0.31	0.00	0.00	2.43	0.47	0.70	0.41	2.22	0.31	0.30
3		2005	0.16	0.00	0.00	2.50	0.15	0.56	0.39	2.12	0.15	0.14
4		2006	0.09	0.00	0.00	3.50	0.00	0.56	0.40	3.62	0.09	0.09
5		2007	0.16	0.38	0.62	2.50	0.15	0.70	0.39	2.12	0.15	0.14
6	Nepal Lube oil Ltd	2003	0.03	0.77	2.54	5.07	0.23	2.47	0.38	1.18	0.03	0.04
7		2004	0.04	0.64	1.78	4.87	0.00	0.51	0.38	1.62	0.04	0.04
8		2005	0.04	0.67	2.06	5.13	0.06	0.56	0.37	2.36	0.06	0.06
9		2006	0.12	0.46	0.88	3.87	0.31	0.31	0.49	2.09	0.09	0.12
10		2007	0.04	0.67	2.06	5.13	0.06	0.56	0.39	2.36	0.12	0.06
11	Salt Trading Corporation	2003	0.01	0.00	0.00	2.15	0.72	0.72	0.13	0.29	0.01	0.01
12		2004	0.01	0.00	0.00	2.36	0.00	0.00	0.20	0.50	0.01	0.01
13		2005	0.02	0.00	0.00	2.66	0.47	0.47	0.35	0.93	0.02	0.02
14		2006	0.02	0.00	0.00	3.66	0.92	0.92	0.38	0.65	0.01	0.02
15		2007	0.02	0.27	0.37	2.66	0.47	0.47	0.35	0.93	0.02	0.01
16	Bishal Bazar Co.Ltd.	2003	0.07	0.95	21.10	5.67	0.67	0.67	0.28	2.51	0.07	0.05
17		2004	0.10	0.95	21.49	5.67	0.92	0.61	0.52	1.07	0.09	0.04
18		2005	0.11	0.96	25.14	5.78	0.61	0.63	0.32	3.19	0.12	0.09
19		2006	0.10	0.97	27.92	5.83	0.63	0.94	0.27	3.13	0.10	0.07
20		2007	0.11	0.96	25.14	5.78	0.94	0.63	0.32	3.17	0.09	0.09

Source: www.nepalstock.com

APPENDIX – C

List of the variables used in regression analysis

Hotel and Hydropower Sector

S.N.	Name of the Companies	Observation	Ko	L1	L2	S	G	DPR	EV	LIQ	x-tR/V-tD	Ke
1	Soaltee Hotel Ltd	2003	0.08	0.73	2.68	8.06	0.08	0.55	0.31	1.11	0.07	0.07
2		2004	0.10	0.73	2.65	7.55	0.01	0.54	0.31	1.21	0.10	0.11
3		2005	0.10	0.70	2.31	6.47	0.00	0.54	0.23	1.07	0.10	0.10
4		2006	0.11	0.70	2.65	7.55	0.01	0.50	0.22	1.11	0.11	0.09
5		2007	0.16	0.37	2.59	7.57	0.01	0.57	0.23	0.78	0.10	0.11
6	National Hydropower Co.Ltd,	2003	0.12	0.79	3.69	5.75	0.23	0.19	0.75	0.94	0.12	0.09
7		2004	0.19	0.76	3.23	6.33	0.04	0.68	0.77	1.07	0.19	0.19
8		2005	0.13	0.89	3.23	6.33	0.23	0.15	0.75	1.21	0.13	0.13
9		2006	0.13	0.76	3.21	7.96	0.71	0.00	0.77	1.13	0.13	0.20
10		2007	0.15	0.89	3.93	7.84	0.03	0.15	0.50	1.75	0.10	0.08

Source: www.nepalstock.com