CHAPTER –ONE
INTRODUCTION

1.1 Background

The financial structure concept occupies an important place in the theory of financial management as a criterion of financing organization's assets. Wide variations in asset structure and capital structure proportions are observed in practice. Varieties of long-term and short-term sources of financing are available for the firm. Financial manager has to determine appropriate mix of financing for the organization. Financial structure refers to the entire liabilities side of the balance-sheet which includes: shareholders equity, long-term debt and current liabilities. Capital structure is the part of financial structure. If current liabilities are deducted from the financial structure, capital structure will be achieved. Thus, financial structure is equal to capital structures plus current liabilities. As capital structure does not incorporate the current liabilities, we can not observe the form's short-term obligation and solvency without considering financial structure.

Concept of capital structure has become controversy since the publication of Modigliani and Miller's (M-M's) approach to capital structure in 1958. They hold the view that the cost of capital to a firm remains invariant to the capital structure changes. On the other hand, traditional theories suggest that cost of capital is a function of capital structure. Hundreds of empirical studies have been carried out on cost of capital and capital structure, and both supporting and refusing conclusion to M-M's and traditional view were found. Cost of capital is regarded as the most important factor affecting the financial/capital structure. In addition to cost of capital, there are various factors like: growth rate on sales, cash-flow stability, size of the firm, management's attitude, lender's attitude, industry characteristics etc. that may affect the financial structure of a firm.

Most of the studies regarding capital/financial structure are found to be concerned with the effect of cost of capital on capital structure. However, this study seeks to find out the effect of size, growth and industry variation on financial structure of manufacturing company. For this study, size has been defined in terms of total assets of the company; annual compounding growth rate on sales is considered as the growth; and under industry

variation , casual factors viz., length of cash conversion cycle (CCC), fixed assets turnover (FAT) ratio, durability of product, and instability of sales are incorporated.

In this study, portfolio as well as multiple regression analysis techniques are used to find out the effect of size, and growth on financial structure. For the sake of portfolio analysis, two portfolios based on size and growth are formed. Under multiple regression analysis, a linear multiple regression equation is run considering leverage ratios (TD/TA, LD/TA and CL/TA) as dependent variables and size and growth as independent variables. Similarly, another multiple regression equation is run using leverage ratios as dependent variables and casual factors for industry variation: length of CCC, FAT, durability of product, and instability of sales as independent variables to examine the effect of industry variation on financial structure. Views of financial executives of the companies are also collected to find out the various factors' effect on company's borrowing.

1.2 Statement of the Problem

The concept of capital structure has become the controversy since the publication of Modigliani and Miller's (M-M's) approach to capital structure in 1958. They had the view that the cost of capital to a firm remains unchanged on the capital structure changes and there exist no optimal capital structure. On the other hand, traditional approach of capital structure suggests that the cost of capital is the function of capital structure and there exist optimal capital structure. After the publication of this paper hundreds of empirical studies have been carried out on this issue i.e., capital structure is relevant or not to the cost of capital; and found supporting and refusing conclusion to the M-M's and traditional view.

Barges (1963), in his study used simple regression model to analyze the relationship between the average cost of capital & leverage and between the stock yield & debt equity ratio and utilized cross section data from three different industries. By his research traditional view was supported. Weston (1963) used M-M's cost of capital model for his sample of 59 companies and found that regression co-efficient of leverage to be negative and the result was consistent with traditional approach. Similarly, Wippern (1966) has also conducted a research to test the relationship between leverage and cost of capital and concluded that shareholder's wealth can be enhanced by judicious use of debt financing. Sharma and Hanumanta Rao (1969) in respect of M-M hypothesis concluded

that the cost of capital is affected by debt apart from tax advantage. Davenport (1971) used British data of three unregulated industries: chemical, foods and metal manufacturing and his result also supported the traditional view. Similarly, Pandey (1981) has used multiple regression equation to test the validity of M-M hypothesis and concluded that the cost of capital is the function of capital structure investment decision making.

Though capital structure covers a large portion of the financial structure, it does not include the current liabilities i.e., short-term financing. “Short-term financing is defined as debt originally scheduled for repayment within one year. A variety of short-term credits are available to the firm, and the financial manager must know the advantage and disadvantages of each (Weston & Copeland, 1992: p. 835.)” He/she also has to decide how much of fund must be financed by long-term & short-term sources. So, determining the optimal financial structure is a key task of financial manager.

The Financial Research Program initiated by the National Bureau of Economics of USA, by Merwin (1942), Koch (1943), Sydney (1943) and Schmidt & Young (1943) sought to study the changes in the financial structure of American enterprises during World War I, World War II and in the intervening period. Chusdon (1945) had performed an inquiry to examine the corporate financial structure as of a given date using data of manufacturing, mining, trade and construction industries in the nature of synchronic studies. He ran arrays of ratios by industry, size and profitability, but he did not attempt to offer the theoretical justification or economic explanations for his findings. Gupta (1969) had carried out a cross-section analysis for the year 1961-62 using one hundred seventy-three thousand manufacturing corporations. In this study he had investigated the effect of size, growth and industry on the financial structure of manufacturing company and he concluded that: 1) Activity ratios and leverage ratios decrease with an increase in the size of the corporation but they increase with the growth of the corporation; 2) The liquidity ratios rise with an increase in the size of the corporation but they fall with growth rates; and 3) Larger-sized corporations tend to have higher profit margin on sales than the smaller-sized corporations.

Ferri & Jones (1979) conducted a research work using the sample data of 233 firms for the period 1969 to 1974 and 1971 to 1976 and they concluded that: a) Industry class is linked to a firm's leverage, b) a firm’s use of debt is related to its size, c) Variation in income measured in several ways could not be shown to be associated with

firm's leverage, and d) operating leverage influences the percentage of debt in a firm's financial structure

However, numbers of studies regarding the effect of cost of capital on capital structure have been carried out, no study regarding the effect of size, growth, and industry variation on financial structure of Nepalese companies has so far been found. To provide the additional insights into the workings of manufacturing industrial sector of Nepal, this study is devoted to examine the effect of size growth and industry variation on financial structure. The specific research questions for the study are as follows:

1) What is the structure of average leverage ratios in the selected companies? How the leverage ratios evolved over the study period?
2) How do average financial ratios (liquidity, activity, profitability and leverage ratios) vary with the changes in company size when portfolio is formed on size? What would be the variability on financial ratios as size of the company increases?
3) What is the movement of average financial ratios with the changes in growth rate when portfolio is formed on growth rate? What would be the variability on financial ratios as size of the company increases?
4) Whether or not size of the company affects the leverage?
5) Is there any significant relationship between leverage and growth rate on sales of the company?
6) Does leverage of the company increases with increase in its length of cash conversion cycle (CCC)?
7) How does FAT ratio affect the company borrowing?
8) What is the effect of company product durability on its leverage? and
9) Does company leverage vary with the changes in standard deviation of sales?

1.3 Objectives of the Study

The main objective of this study is to find out the effect of corporate size, growth rate and industry variation on financial structure of manufacturing companies. To achieve the basic objective, the following specific objectives have been set up:

- To find out the relationship between corporate size and its financial structure,
- To determine the effect of growth rate on financial structure,

- To ascertain the relationship between length of cash conversion cycle and company leverage,
- To assess the affiliation of the company leverage with FAT ratio,
- To find out the effect of product durability on company leverage, and
- To ascertain the relationship between instability of sales and company leverage.

1.4 Limitations of the study

All the subject matters have certain limitations. There is no subject without any constraint. Data availability is very problematic in Nepal.. There were only 12 out of 47 manufacturing companies disclosing their information (SEBON Annual Report, 2003: pp. 22 & 24.)" Other unlisted companies do not publish their financial statements because they treat them (the statements) as confidential. The constraints relating to the study are as follows:

- Only 12 companies out of 47 manufacturing companies listed in NEPSE are taken into account as the sample for the study. Therefore, the taken sample may not represent the total Nepalese manufacturing companies;
- This study is mainly based on the secondary data taken from financial statements of the selected companies.
- Only the data of last seven years covering from fiscal year 2005/06 to 2011/12 are used for the study; and
- Though there are various factors affecting the financial structure of the corporation, only the effect of size, growth rate on sales and industry variation are considered for this study.

1.5 Organization of the Study

This study has been organized into five chapters, each devoted to the effect of size, growth and industry variation on financial structure of Nepalese manufacturing companies. The titles of the chapters included in this study are as follows:

- Chapter one: Introduction,
- Chapter two: Review of literature,
- Chapter three: Research methodology,
- Chapter four: Presentation and analysis of data, and

📖 Chapter five: Summary, conclusion and recommendation.

Chapter one contains the introductory part of the study. This chapter incorporates general background, statement of the problem, objectives of the study and limitation of the study.

Chapter two consists review of related literatures. It discusses theoretical framework, major empirical studies, and findings of other related theses and thesis.

Chapter three describes the methodology employed for the study. It covers research design, sample selection, nature and sources or data, methods of data analysis, and definition of key terms and variables used in the study. Major findings also included in this chapter.

Chapter four deals with empirical analysis related to the study. It contains analysis of leverage position of the selected companies; portfolios analysis formed on size and growth rate; multiple regression analysis for size and growth effect on financial structure; another multiple regression analysis for industry effect on financial structure; and analysis of primary data.

Lastly, chapter five incorporates summary, conclusion, and recommendations of the study. It also offers some directions for future research. A bibliography and some appendixes have also been included at the end of this research report. The rational behind this kind of organization is to provide easy understanding to research report user and to follow a simple & recommended reporting format.

CHAPTER – TWO

REVIEW OF LITERATURE

The literature review is to read the related materials concerning researcher's topic by him/ her. It helps to researcher to know what has been already found out about the topic and what new contribution can be made or is necessary. Literature review is important because it prevents the researcher from running to the risk of 're-investing the wheel' i.e., wasting the effort on trying to re-discover something that is already identified. This chapter includes theoretical framework, major empirical studies, and findings of other related theses & dissertations.

2.1. Theoretical Framework

2.1.1. Concept of financial structure

Financial structure refers to the way the firm's assets are financed. It is represented by the entire right-hand (liabilities) side of the balance-sheet. It includes: short-term debt, long-term debt as well as shareholders' equity. Capital structure or the capitalization of the firm is permanent financing represented by long-term debt, preferred stock, and shareholders' equity. Thus, firm's capital structure is only part of its financial structure.

The assets of the company can be financed either through owners' claim i.e., issuing the common stock or retaining the earnings or through outsiders' claim i.e., with various types of debts or preferred stock. Capital structure decisions are concerned with the proportion of the long-term debt and equity in the total capitalization, but financial structure decisions are concerned with proportion of debt and equity and under debt how much is to finance through short-term debt (current liabilities) and long-term debt. So, under financial structure we can evaluate the short-term solvency of the firm in addition to its capital structure. Generally short-term debt is cheaper than long-term debt. If we use the long-term debt to finance the current assets, for some periods fund may be ideal and we have to bear the high cost for fund. If we use the hedging approach to finance, we can refund the short term debt while the fund is unnecessary and overall cost of financing can be minimized. So, we cannot ignore the current liabilities while taking the financial decisions.

2 Factors affecting financial structure of a firm

Weston and Copeland (1992:pp.579-581) has pointed following empirical factors that affect the financial structure of a firm:

a. Growth rate of sales
b. Cash-flow stability
c. Industry characteristics
d. Asset structure
e. Management's attitude
f. Lenders' attitude

Scot and Martin marshaled that industrial classification, size of firm and variability of income have influence on financial structure.

b) Concept of capital structure

All of the items on the right-hand (liabilities) side of the firm's balance sheet excluding current liabilities are source of capital. These items are: (1) long-term debt capital, (2) equity share capital, and (3) preference share capital (Gitman, 2001: p. 504.) The structure of the long-term fund in a firm is called the capital structure. Capital structure is also known as capitalization of the firm and it represents the permanent financing. Thus, capital structure of a firm is only part of financial structure. If we deduct the current liabilities from financial structure, we will get the capital structure. The term capital structure is generally used to represent the proportionate relationship between debt and equity. Equity includes: paid of common shares, share premium, and reserve & surplus (retained earning.) If the firm has preferred stock, its market value is added to the shareholders' equity and we get firm's net worth; and debt includes all long-term debt i.e., debt except current liabilities.

2.1.3. Capital structure controversy / approaches to capital structure

The cost of debt capital is found to be less than cost of other forms of financing, because lender takes least risk in any long-term capital due to:

- They have higher priority of claims against any earning or asset available for payment,

- They have a far stronger legal pressure against the company to make payment than do preferred or common stockholders, and
- The tax deductibility of interest payments lower the debt cost to firm substantially.

The value of the firm depends upon its earnings stream and the rate used to discount this stream i.e., its overall cost of capital (Pandey, 2002: p.674.) Though capital structure cannot change the earnings stream of the firm, but it may affect on the cost of capital of firm. We encounter with various conflicting opinions about the capital structure whether there is existence of optimal capital structure or not. In fact, this issue is one of the most contentious area in the theory of finance, and perhaps more theoretical and empirical works have been done on this subject than on any other. If leverage affects the cost of capital and the value of the firm, an optimum capital structure would obtained at that combination of debt and equity which maximizes the total value of the firm or minimizes the firm's weighted average cost of capital. But, the existence of the optimum capital structure is not accepted by all. There exist two extreme views –the Net Income (NI) approach and the Net Operating Income (NOI) approach and a middle position – Traditional approach about the existence or not existence of optimum capital structure (Pandey, 2002: p.675.)

3 Assumptions for capital structure theories

The common assumptions taken by controversial capital structure approaches to describe their views are as follows:

a) Firms employ only two types of capital i.e., debt and equity;
b) There are no corporate or personal income taxes;
c) The total assets of the firm are given. The ratio of debt to equity can be changed by issuing debt to repurchase the stock or issuing stock to pay off the debt. In this regard, there is no transaction cost;
d) The firm has a policy of paying 100 percent earnings as dividend;
e) The operating earnings of the firm are not expected to grow i.e., the expected value of the probability distributions of expected operating earnings for all future periods are as same as present operating earnings;
f) There is no bankruptcy cost i.e., there is neither business risk nor financial risk; and

g) All investors have the same subjective probability distributions of expected future operating earnings for a given firm.

In addition to above assumptions following rates (cost of capitals) are also considered for the theories:

K_d = ---------- *(i)*

K_e = ---------- *(ii)*

K_o = ---------- *(iii)*

= $K_d \times$ + $K_e \times$ -------- *(iv)*

Where, K_d = cost of debt = yield on the firm's debt assuming the debt is perpetual,

I = annual interest charge (amount) on debt,

D = market value of the debt outstanding,

K_e = cost of equity = required rate of return or yield on common stock of the firm which is equal to earning / price ratio and whose dividend payout ratio is 100 percent & expected growth rate on earnings is zero percent as restricted by above assumptions,

E = total earnings available to common stockholders,

S = market value of common stock outstanding,

K_o = the overall or weighted average cost of capital of the firm

= ($K_d \times$ proportion of debt on total capital) + ($K_e \times$ proportion of equity on total capital)

= $K_d \times$ + $k_e \times$,

NOI = net operating incomes (earnings) of the firm, and

V = total market value of the firm

= (market value of the bond) + (market value of the common stock)

= $D + S$.

Under various approaches (theories) of capital structure, we want to see the changes on K_d, K_e and K_o due to the changes on D/S (debt/equity) ratio or degree of financial leverage.

× Approaches to capital structure

- ***The net income (NI) approach: capital structure matters***

NI approach has following crucial assumptions:

- The use of debt does not change the risk perception of investors; as a result, cost of equity (K_e), and the cost of debt (K_d) remain constant with changes in leverage or *D/S* ratio,
- The cost of debt is less than cost of equity i.e., $K_d < K_e$, and
- Corporate income taxes do not exist.

On the basis of above assumptions this approach suggests that firm can lower its average cost of capital by increasing the proportion of the debt in the capital structure (i.e., increasing *D/S* ratio or leverage.) At the higher level of debt, the greater will be the value of firm and lower the overall cost of capital ($K_{o..}$) Firm can achieve its highest value and lowest cost of capital when company is fully debt financed and at that position K_d and $K_o$will be equal. This approach has been shown graphically in the figures – 2.1.a & 2.1.b:

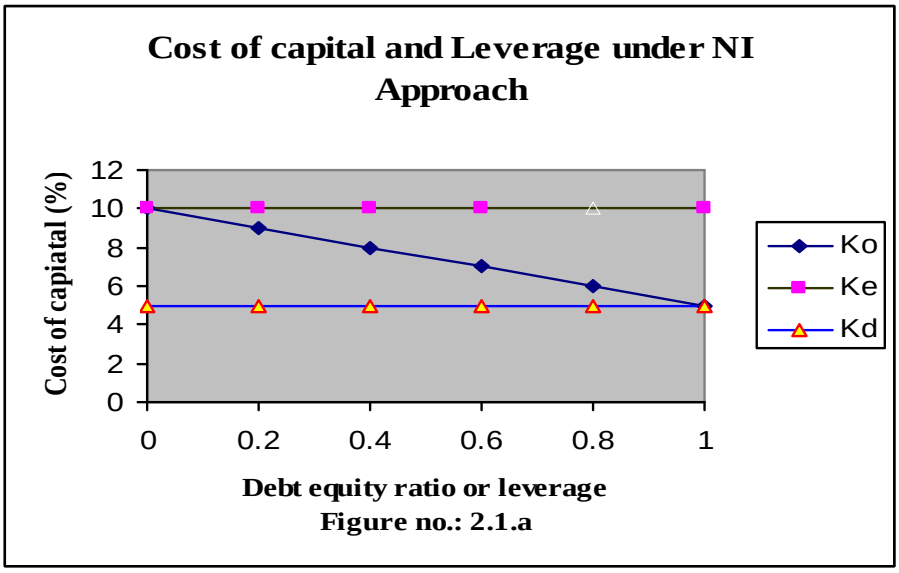
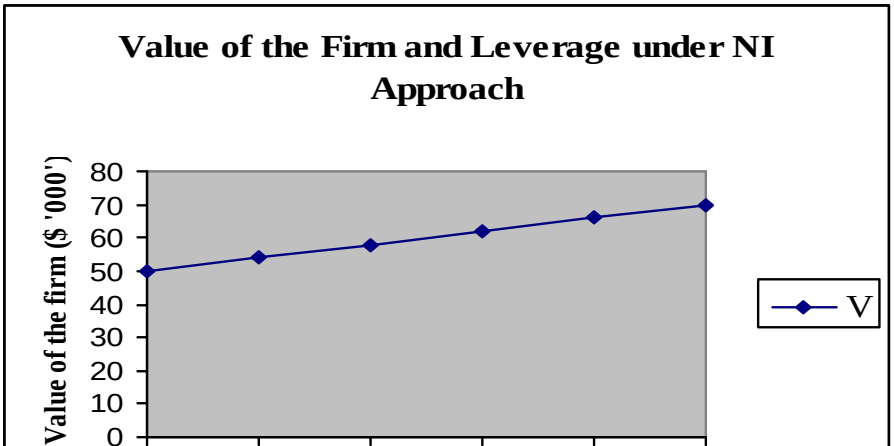


Figure no.: 2.1.a



- ***Net operating income (NOI) approach: capital structure does not matter***

NOI approach contradicts with NI approach. The critical assumptions of this approach are as follows:

- The cost of debt (K_d) is constant i.e., debt holders do not demand higher interest rate as debt/equity (D/S) ratio increase in the capital structure;
- The market uses the overall cost of capital (K_o) to capatilize the net operating income. K_o depends on the business risk. If the business risk is assumed to remain constant (as in the above mentioned assumption for all capital structure theories), then K_o will be constant;
- As the leverage or D/S ratio increases, the risk of shareholders also increases. This causes the cost of equity to increase as leverage increase. Thus, the advantage of debt capital is offset exactly by the increase in the cost of equity or shareholders' risk; and
- The corporate income taxes do not exist.

On the basis of above assumptions, NOI approach suggests that market value or the weighted average cost of capital of the firm is not affected by the capital structure or degree of leverage changes, because the advantage of the debt capital is offset exactly by the increase in shareholders' risk. In this way, this approach suggests that capital structure decision is irrelevant with the value of firm or cost of capital. This approach has been shown in graphs 2.2.a and 2.2.b.

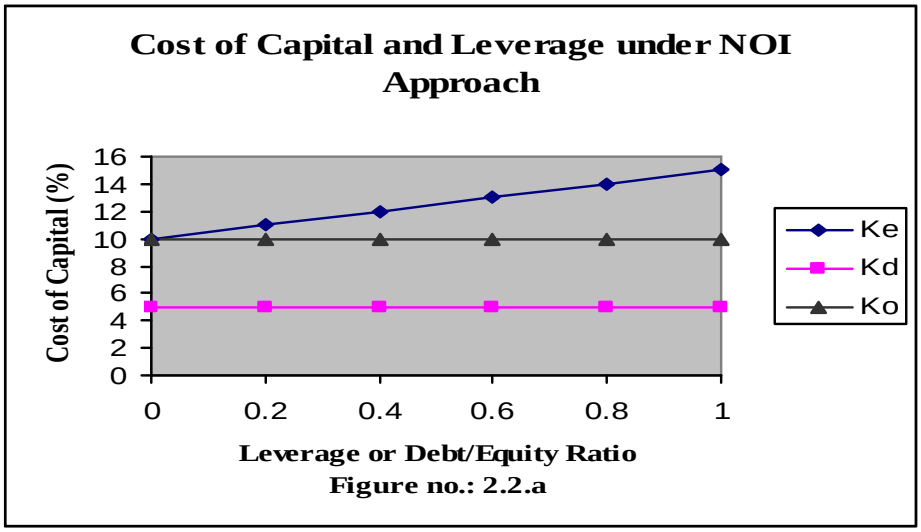


Figure no.: 2.2.a

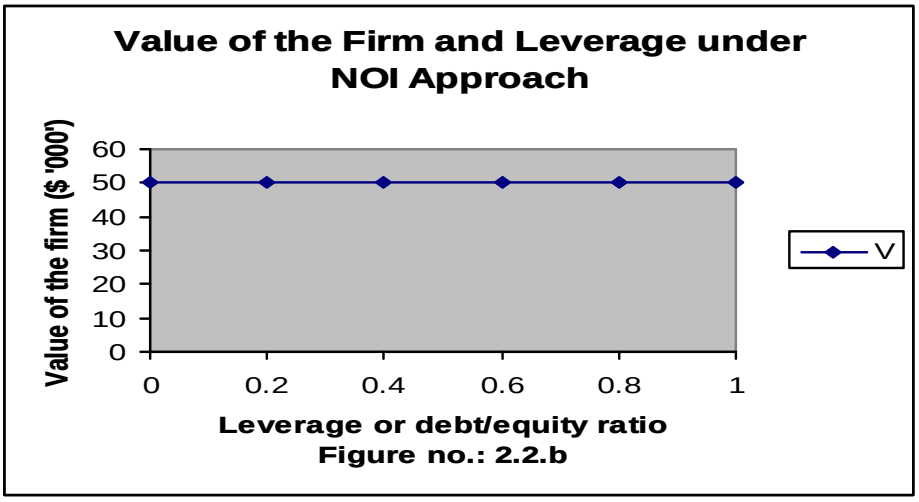


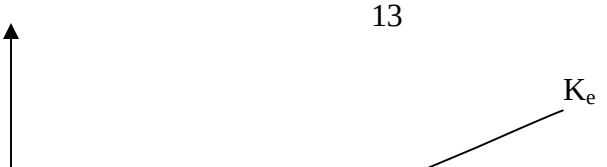
Figure no.: 2.2.b

× ***Traditional approach: existence of optimum capital structure***

The traditional approach also known as intermediate approach is a compromise between the NI approach and NOI approach. According to this view, the value of the firm can be increased or the cost of capital can be reduced by a judicious mix of debt and

Cost of Capital (%) roach implies that the cost of capital decreases with the increases in leverage up to a limit of debt and then starts increasing beyond this limit. Thus, an optimum capital structure exists, and it occurs when the overall cost of capital is at minimum level or the value of the firm is at maximum level.

Figure: 2.3.a



Leverage and Cost of Capital under Traditional Approach

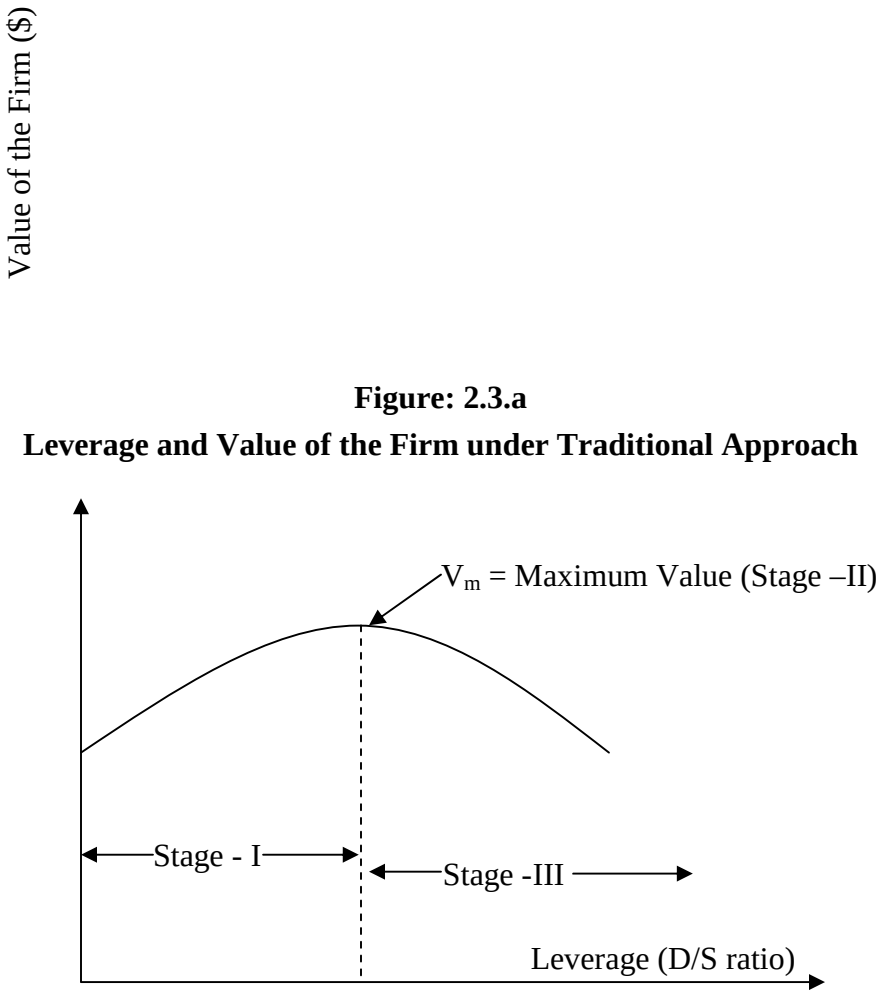


Figure: 2.3.a
Leverage and Value of the Firm under Traditional Approach

According to traditional approach, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three stages as shown in figure 2.3.a and 2.3.b.:

1st stage - increasing value: during this stage (in above figures up to point L), K_d remains constant or rises slightly because up to this level of debt (or leverage) debt holder do not demand any risk premium for the employment of additional debt capital. K_e also remains constant or rises slightly with debt increase in the beginning of first stage and increases afterwards. But it does not increase fast

enough to offset the advantages of low cost debt. As a result, the value of the firm (V) increases and the overall cost of capital (K_o) decreases with increasing leverage.

2nd stage – optimum value/capital structure: once the firm has reached the certain degree of leverage (at the level of L in above figures), increase in leverage has a negligible effect on the value or the cost of capital of the firm. This is so because increase in the cost of equity due to added financial risk offset the advantage of low cost debt. Within some range or at specific point (point L in above figures) for amount of leverage, corresponding value of the firm will be maximum or cost of capital will be minimum.

3rd stage – declining value: beyond the acceptable limit of leverage (i.e., beyond point L in above figures), K_d increases with increasing leverage because debt holders demand the risk premium due to high degree of financial risk. Similarly, K_e also increase in a fast rate due to the financial risk. Thus, the overall cost of capital increases and the value of firm decreases with increasing leverage.

In this way, traditional approach suggests that there exist an optimal capital structure, which maximizes the value of firm and this optimal capital structure can be obtained by proper mix of debt and equity.

- ***Modigliani and Miller (M-M) approach: irrelevance of capital structure***

The M-M approach is identical with NOI approach. They argue that, in the absence of taxes, a firm's market value and the cost of capital remain invariant to the capital structure changes (Pandey, 2002: p. 686.) The M-M approach can be best explained in term of their Propositions: 1st and 2nd. Their propositions are based on following assumptions:

4 *Capital markets are perfect:* securities (shares and debt instruments) are traded in the perfect capital market. Perfect capital market assumption

includes – a) no brokerage or flotation cost for securities, b) securities are infinitively divisible, c) symmetrical information – investors and managers have same information about the firm's investment prospect and information is cost less & readily available to all, and d) investors are assumed to be rational and to behave accordingly;

5 *Homogeneous risk classes:* funds can be grouped into homogeneous risk class, Firms would be considered to belong to a homogeneous risk class if their expected earnings have identical risk characteristics. Firms with same industry constitute homogeneous class;

6 Expected value of the probability distribution of all investors are the same and the expected value of the probability distribution of expected earnings for all future periods are the same as present operating earnings (income);

7 There is no corporate income taxes exist; and

8 Firms distribute all net operating income to the shareholders i.e., 100% dividend payout ratio.

Proposition 1st

Given the above stated assumptions, M-M argue that, for firms in the same risk class, the total market value is independent of the debt equity mix and is given by capitalizing the *NOI* by the rate appropriate to that risk class – overall cost of capital (K_o). Total market value of the firm can be expressed as follows:

$V = S + D =$

Where, $V =$ the total market value of the firm,

$S =$ the market value of equity,

$D =$ the market value of debt,

NOI = the expected net operating income on the assets of the firm, and

$K_o =$ the capitalization rate appropriate to the risk class for the firm (overall cost of capital of the firm).

They conclude that the total market value of the firm is unaffected by the financing mix, it follows that the cost of capital is independent of the capital structure. The cost of capital function, a hypothesized by M-M through proposition 1st, is shown in figures 2.4.a.

The simple principle of proposition 1st is that two firms identical in all aspects except for their capital structure cannot command different market values (V) or different cost of capital (K_o). M-M opinion is that, if these firms have different market values arbitrage (or switching) will take place to enable investors to engage in personal or homemade leverage as against the corporate leverage to restore equilibrium in the market.

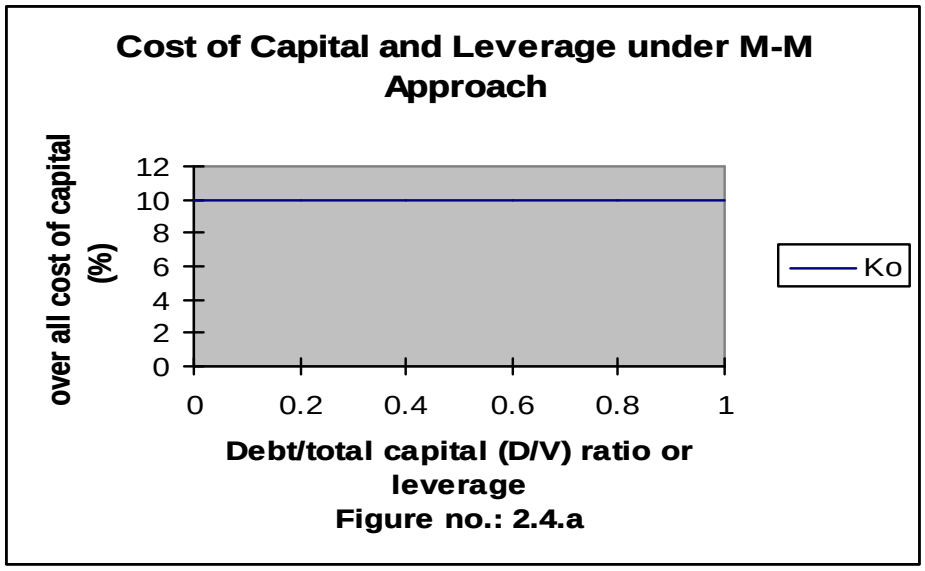


Figure no.: 2.4.a

Proposition 2nd

This proposition defines behavior of cost of equity of levered company with the proportion of debt/equity ratio. The expected yield on equity or the cost of equity is defined as follows:

K_e = ---------- *(i)*

We know, K_o = ---------- *(ii)*

And K_o and V are constant by definition then we obtain the following equation:

$$NOI = K_o \times V = K_o (S+D) \text{ ---------- (iii)}$$

Substituting equation (iii) from equation (i) we get:

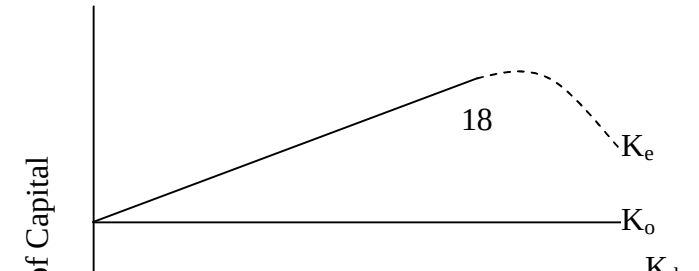
$K_e = \ = \ = K_o + (K_o - K_d)$ --- *(iv)*

Equation (iv) states that, for any firm in a given risk class, the cost of equity (K_e) is equal to the constant average cost of capital (K_o) plus a premium for the financial risk which is equal to debt/equity ratio times spread between the constant average cost of capital and the cost of debt [i.e., (K_o - K_d) D/S.]

Since K_e is a linear function of leverage (D/S ratio), leverage will result not only in more earnings per share to shareholders but also increase cost of equity. The benefit of leverage is exactly taken off by the increased cost of equity, and consequently the firm's market value will remain unaffected.

The crucial part of M-M hypothesis is that K_o will not rise even every excessive use of leverage is made. This conclusion could be valid if the cost of debt *(K_d)* is increasing, K_e will increase at a decreasing rate and may even turn down eventually. They insist that arbitrage process will work and that as K_d increases with increasing debt, K_e will become less sensitive to further borrowing. The reason for this is that debt holders, in the extreme situation, own the firm's assets and bear some of the firm's business risk. Since the risk of shareholders is transferred to bond holders, K_e declines. M-M's 2nd proposition has been presented in figure 2.4.b.

Figure: 2.4.b
Cost of Capital and Leverage under M-M Approach



0

2.2. Review of Major Empirical Studies

Studies conducted by Modigliani & Miller (1958), Weston (1963), Barges (1963), Sharma & Hanumanta Rao (1969), Rao & Lintznberger (1970), Davenport (1971), Pandey (1981), Ferri and Jones (1979), Gupta (1969), Gup (1980), Booth, Aivazian, Demirguc-Kunt & Maksimovic (2001), Garvey & Hanka (1999) and Berger, Ofek & Yermac (1997) are reviewed under this topic. Their conclusions are as follows:

I. The Modigliani and Miller (M-M) Study

M-M in their study used the previous work of Allen (1954) and Smith (1958) in support of their independence hypothesis. Allen's study was concerned with the relationship between security yield and financial structure for 43 large electric utilities, based on average figure for the year 1947 & 1948, while the Smith's study was concerned with 42 oil companies to test whether Allen's striking results would found in an industry with very different characteristics based on only single year 1953. In the first part of their work, M-M tested their proposition 1st: *the cost of capital is irrelevant to the firm's capital structure*. If the traditional view were correct, the correlation coefficient would be significantly negative; if M-M's view represented a better approximation to reality, the correlation coefficient would not be significantly different from zero. For this, they correlated

the after tax cost of capital with leverage. They used the following regression model:

$$x = a + bd$$

Where, x = *cost of capital*

$= \ =$,

d = leverage = D/V=

(Senior securities represent the debt securities)

The regression results from the test were as follows:

***Electric utilities*:** $x = 5.3 + 0.006\,d$ (± 0.008) $R = 0.12$

Oil companies: $x = 8.5 + 0.006\,d$ (± 0.024) $R = 0.04$

Where, R = correlation coefficient.

These results support their hypothesis of independence because both correlation coefficients are very close to zero and statistically insignificant (t-value is less than one in both cases i.e., 0.75 for electric utility and 0.25 in oil companies.) So, the data, in short, provide no evidence of tendency for the cost of capital to fall them as the debt ratio increased.

In the second part of their study, they tested their proposition 2nd: *the expected yield on common shares* $[\{(\overline{X} - I)(1-T) - P_d\}/S]$ *in any given class should tend to increase with leverage as measured by the debt to equity (D/S) ratio* i.e.,

the expected yield on common shares is a linear function of debt to equity ratio. To test this proposition, they used the following model:

$$z = a + b\,h$$

Where, $z =$ $= ,$

$h =$,

$\overline{X}$ = expected net operating income,

I = interest amount for debt,

P_d = Preference dividend amount,

T = corporate tax rate, and

S = market value of the common share.

The regression results obtained from the study were:

***Electric utilities*:** $z = 6.6 + 0.017\,h$ $R = 0.53$

(± 0.004)

***Oil companies*:** $z = 8.9 + 0.051\,h$ $R = 0.53$

(± 0.012)

In this case, they found that both correlation coefficients were positive and highly significant at 5 % level; t-value for h coefficient is 4.25 for the both cases, thus, M-M view is supported. However, they readily admit that these findings do not contradict the traditional position. When they add a square term to the above equations to test the presence and direction of curvature, the following estimates were obtained:

Electric utilities: $z = 4.6 + 0.004\,h - 0.007\,h^2$

Oil companies: $z = 8.5 + 0.072\ h - 0.016\ h^2$

For both cases, the curvature is negative, the negative co-efficient of the square term for the electric utilities was significant at the 5% level of significance. So, this result is consistent with their view i.e., if the cost of borrowed fund increases, the cost of equity will decline to offset this increase. These findings are in contradiction with the traditional view which contends that the stock yield would not decline at high level of leverage.

M-M's results thus do not support traditional position. But in view of their revised hypothesis (June, 1962), the cost of capital declines with leverage due to the tax deductibility of interest charge.

The empirical work of the M-M has been criticized as: Firstly, the sample firms in the electric utilities and oil industry display diverse characteristics and do not correspond to the homogeneous risk class concept (Weston, 1961). Secondly a high percentage of the observation in the M-M first study fall within a very narrow range of capital structure (Weston, 1961). Thirdly serious doubts have been cast on the validity of M-M tests in view of the existence of bias resulting from the inclusion of same random variable (V) in the denominator of both dependent and independent variables. this leads a positive bias to the coefficient of D/V (Barges, 1963: p.22). Fourthly, M-M fails to take other relevant variables like growth, payout, ratio & size of the firm in their regression equation, whose omission would significantly bias the co-efficient of the leverage variable.

II. The Weston study

The Weston study towards the cost of capital and leverage has made some important improvement in the M-M model. He included firm size (measured by assets) and growth (per share income over ten-year period) as additional explanatory variables in his model.

He found the regression co-efficient of leverage to be positive and significant, when he used M-M model for his sample of 59 utilities in 1959. However, when the multiple regression was run the following results were obtained:

$X = 5.91 - 0.0265\ d + 0.0\ A - 0.0822\ E \qquad R = 0.5268$
$\qquad\qquad (0.0079)\ \ (0.0001)\ \ \ (0.0024)$

Where, d = the market value debt ratio

A = the size of the firm in terms of total assets;
E = the earning per share growth over a period of 10 years; and
X = cost of capital

From the above regression analysis it was found that the correlation co-efficient is significant and the regression co-efficient of leverage is negative and significant. Thus, when the influence of growth is isolated, leverage is found to be negatively correlated with the cost of capital. He concluded that the apparent lack of influence of leverage on the overall cost of capital observed by M-M was due to the negative correlation of leverage with earnings growth. When the net effects are measured, the cost of capital is found to be significantly negatively correlated with both leverage and growth. The reason why M-M found no correlation between the cost of capital and leverage is that leverage is also correlated with other influences which change the gross relationship between cost of capital and leverage.

Weston also tested M-M proposition 2nd, when he used the M-M model, his results were found to be consistent with their results i.e., cost of equity was a linear function of leverage [debt equity (D/S) ratio.] However, when he included growth and size variables in the model, the following results were found:

$z = 6.75 - 0.0029\ h + 0.0\ A - 0.1352\ E \qquad R = 0.4032$
$\qquad\qquad (0.0159)\ \ \ (0.0002)\ \ \ (0.0454)$

And, $h = 39.59 - 1.16\ E$ $R = -0.48$
(0.29)

These results show that growth and leverage are negatively correlated. When growth is introduced in the regression equation, co-efficient of leverage variable becomes insignificant. Thus, the results are consistent with the traditional view.

Weston's study omits certain other important explanatory variables such as payout ratio and same measure of business risk. Industry groups in his study do not provide an adequate bias to insure homogeneity of basic business uncertainty (Wippern, Spring 1996: pp. 13-22.)

III. The Barges study

Barges (1963), improving upon some of the limitations of M-M's empirical work, has conducted the most comprehensive and meticulous test of M-M hypothesis. He analyzed the relationship between average cost of capital & leverage; and between stock yield & debt equity ratio. For the study purpose, he used cross-section data from three different industries – railroad, departmental store and cement industries.

For the railroad industries, he performed both yield as well as the average cost of capital tests. The average cost of capital was computed dividing the three-year average income before interest (1954-56) by the average total market value. He used the ratio of long term debt to total permanent capital at book value as the measure of financial structure. He fitted second degree (U – shaped) curve to the data of 61 rail-roads and the following results were obtained:

$$y = 12.39 - 0.244\ x + 0.00258\ x^2$$

Where, y = average cost of capital, and
x = long term debt/ total permanent capital = leverage.

The result is significant at 1 % level of significance for F-test, and clearly suggests 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 much more homogeneity into the samples and exactness in the results, he selected five sub-samples from 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 railroads (revenues less than $50 million), 16 controlled railroads, 47 listed railroads, 21 eligible rail roads and 36 large railroads (revenues more than $50 million). Except for the large railroad sub-sample, he fitted least square curves to each sub-sample and significant results were obtained.

To test stock yield hypothesis, he used following two models:

Model I: $Y = a + b\,X_1$, and

Model II: $Y = a + b\,X_2$

Where, Y = stock yield,

X_1 = (long term debt)/ (preferred stock + common equity), and

X2 = (long-term + preferred stock)/ (common equity).

The following results were obtained from the railroad industry:

Model I: $Y = 11.36 + 0.0194\,X_1$ $R = 0.173$

Model II: $Y = 10.80 + 0.02386\,X_2$ $R = 0.293$

In model I, the correlation coefficient is not significantly different from zero at 5 % level of significance; while for model II, the coefficient is significantly positive at this level. He also ran regression for those observations which had a moderate leverage ratio and found that the results were not significantly different

from zero. Regression was also run by including the square of leverage term, but the 2nd degree curves were found to be almost identical to the straight line results. Thus, he found that these results neither support nor contradict the M-M hypothesis.

In his study of the department store industry, he computed the leverage ratio in the same manner as in the railroad industry. Stock yield was calculated by taking the average of earning per share for 1955 and 1956 and dividing by the market price per share of 1956. The results obtained were as follows:

Model I:	$Y = 10.077 + 0.0497\ X_1$	$R = 0.068$
Model II:	$Y = 10.21 + 0.03756\ X_2$	$R = 0.056$

The correlation coefficients of the leverage variable in both the models are insignificant at 5 % level of significance. When 2nd degree curve was fitted to model I, it produce a correlation coefficient of '+0.343', but the result is not statistically significant. Thus, these results support the tradition view.

Barges's final test was on cement industry. He took 34 companies as sample from the observations with little or no debt. The variables were estimated in the same manner as in the case of department store study and results were as follows:

Model I:	$Y = 9.01 - 0.0107\ X_1$	$R = -0.12$
Model II:	$Y = 7.79 + 0.0016\ X_2$	$R = 0.018$

The correlation coefficient in both the cases is not significant at 5 % level. Thus, the traditional view was supported.

Barges has omitted significant explanatory variables e.g. size, growth, and payout which influence leverage and the cost of capital. He also erroneously assumes that the industry classification approximates the homogeneous risk class concept.

IV. The Sharma & Hanumanta Rao study

Sharma and Hanumanta Rao (1969) also tested M-M hypothesis to a non-regulatory industry for the influence of debt on the value of a firm. They argued that estimate of cost of capital arrived at through this model will be accurate only when their (M-M's) hypothesis on debt and dividend are correct; this is an essential condition for the employment of this model. For their study, they used a sample of 30 Indian engineering companies and ran the regression equation for the three cross-section years -1962, 1964 and 1965. Calculations of variables were done in exactly the same way that has done by M-M except two exceptions: a) They took the earnings growth rate as the growth variable, and b) They introduce debt as a separate independent variable.

They experimented with total assets and sales for deflating the variables, but they could get meaningful results only when fixed assets were used as the deflector. When the growth rate of the total assets or fixed assets was used as the growth variable, the results were some what inconsistent with economic reasoning. It was felt due to the presence of utilized capacity. Thus, growth in assets does not convey anything meaningful to investors. They, therefore, took the earnings growth rate as the growth variable because this would take into account growth of earnings due both to the utilization of existing capacity and to the addition of new capacity. They found the co-efficient of debt variable to be more than'*t*' (the corporate income tax rate) and introduced debt as a separate independent variable.

The model used by them was:

$= a_1 + a_2 + a_3 + a_4 + \mu$

Where, $V =$ value of the firm,

$F =$ fixed assets use as a deflator to reduce,

$\overline{X}^r - t\overline{R} =$ expected tax adjusted earnings,

$a(\overline{\overline{X}^r - t\overline{R}}) =$ the growth rate of tax adjusted earnings calculate as a linear five-year average growth rate of tax

adjusted earnings times current tax adjusted

earnings, and

D = debt.

To test for capital structure effect on the market value of a firm, they used following equation:

$$= a_0 + a_1 + a_2 \frac{\Delta\overline{F}}{F} + a_3 + a_4 \frac{Div}{F} + \mu$$

Where, $\Delta\overline{F}$ = growth rate of fixed assets, calculated as a linear 5-year average growth rate of fixed assets times current fixed assets, and

Div = total dividends paid on equity shares.

Other variables are same as explained above.

From the regression they found that earnings do not grew in proportion to the fixed assets, earnings per unit of fixed asset decline with the growth in the fixed assets. Similarly to test the effect of capital structure they used the following equation:

$$= a_1 + a_2 + a_3 + a_4 + \mu$$

From above regression, they found that debt has much more than tax advantage and investors prefer corporate to personal leverage because coefficient of debt variable was much more than corporate income tax rate.

At last they introduce a debt variable along with the independent variable and used the following regression equation to test for the capital structure effect:

$$= a_1 + a_2 + a_3 + a_4 + \mu$$

From the regression analysis they found that all coefficients of debt variable are significantly greater than the corporate income tax rate in each of the years. This result implies that the advantage of debt is much more than the tax

advantage i.e., debt has non-tax advantage also; and that the value of a firm rise up to a leverage rate considered prudent.

V. The Rao & Lintznberger study

They conducted a study of the effect of capital structure on cost of capital in a less developed and less efficient market (India) and in a highly developed and efficient capital market (USA.) They used 28 Indian utilities and 77 American utilities. They conducted the study for five cross sectional years (1962 – 66) and used following regression model to test the M-M's independence theory:

$$= Y_0 + y_1\, growth + Y_2\, leverage + Y_3\, payout + Y_4\, size + M$$

Where, $\overline{X}^t$ = 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 income tax rate,

R = the firm's fixed interest rate charges for the cross-sectional years,

D = the market value of the firm's debt at the beginning of the cross-sectional years,

V = the market value of the firm at the beginning of the cross-sectional years,

Leverage = the book value of the firm's senior securities divided by the book value of the firm's long-term capital,

Pay out = the ratio of the dividend paid and after tax earning during the cross-sectional years,

Growth = the average compounded rate of growth of total assets at the book value over the previous five years,

Size = the logarithm of the book value of total assets at the close of the cross-sectional years, and

M = a random disturbance term.

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

In the case of Indian utilities, the results are inconsistent to the 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 a preference for current dividends.

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

They omitted the important explanatory variables like: liquidity and earning variability.

VI. The Davenport study

Davenport (1971) tested the cost of capital hypothesis using British data of three unregulated industries – chemical, food and metal manufacturing industries. He took 59 firms in chemical, 28 firms in food and 51 firms in metal manufacturing industries as the sample. Regressions were run for the three cross sectional years (1961-63.)

He had concluded that the results of his study don't support the M-M contention that the overall cost of capital is independent of the proportion of debt and preference shares in the capital structure of the firm. This results show the ‘U’ shaped cost of capital schedule with respect to leverage. So, his results support the traditional view on the relationship between leverage and cost of capital.

VII. The Pandey study

Pandey (1981) tested the M-M approach in the context of developing economy with taking the sample from four different utilities – cotton, chemical, engineering and electricity, from Indian industries. He made some improvements in the model derived by M-M and used multiple regression equation for the pooled data of the three cross sectional years (1968-70.) The improvement was made on the measurement of leverage and added earnings variability and liquidity as risk measuring variable in the regression equation.

To test his first hypothesis: *the cost of capital is a declining function of leverage* i.e., the effect of leverage on cost of capital; he used the following regression equation:

$$K_0 = a + b_1 L + b_2 \log S + b_3 G + b_4 D/P + b_5 liq + b_6 EV + U$$

Where, K_0 = Average cost of capital,
L = leverage,
S = Size,
G = Growth,
D/P = Dividend payout ratio,
liq = Liquidity,
EV = Earnings variability, and
U = Random disturbance term.

And for leverage (L), he used the following two measures of leverages:

$$\Rightarrow \quad L_1 = \frac{LTD + STD}{LTD + STD + EC + PC} \text{ , and}$$

$$\Rightarrow \quad L_2 = \frac{LTD + STD + PC}{LTD + STD + EC + PC}$$

Where, LTD = long-term debt including debenture,
STD = short-term debt mostly bank borrowing,
EC = equity share capital, and

PC = preference share capital.

By using the above regression equation he found that the coefficients of the leverage variables are significantly negative. So, it can validly be concluded that the average cost of capital to a firm declines with the use of debt financing. Thus, these results lend support to the traditional view. Besides the leverage variable, other significant variables are dividend payout ratio and size. This implies that investors prefer current dividends – which is contrary to M-M's view; and that large size firms are able to use their resource effectively and possibly can procure funds at cheaper rates.

To test his second hypothesis: *the cost of capital declines with leverage even after eliminating the tax effect of interest charge*, he used the following model:

$$K_{ou} = = a + b_1 L + b_2 \log S + b_3 G + b_4 D/P + b_5 liq + b_6 EV + U$$

Where, K_{ou} = = tax adjusted stock yield for the firm
= after tax cost of capital to a totally equity financed firm in the equivalent risk class,
$\overline{X}^t = \overline{X} - t\left(\overline{X} - R\right)$ = after tax earning for a levered firm,
$\overline{X}$ = net operating income,
t = corporate income tax rate,
R = interest amount on debt,
D = value of debt,
V = + tD = market value of the levered firm.

For this model leverage (L) was measured as same as L_1 in the first hypothesis. From this regression equation it was found that after allowing for tax effect, the cost of capital to a firm declines with leverage. Thus, the traditional view – the cost of debt is advantageous because of a) its low cost compare to other sources of finance, and b) its tax benefit arising from the tax deductibility of interest charges, is supported. The M-M view that debt has only the tax advantage is invalidated by his findings.

To test his last (3rd) hypothesis: *the cost of equity first declines with leverage and then rises* i.e., for finding out the empirical relations between leverage and the cost of equity, he used the following regression model:

$$K_e = a + b_1 L + b_2 \log S + b_3 G + b_4 D/P + b_5 liq + b_6 EV + U$$

Where, K_e = cost of equity.

For this model he used two book value measures of leverage which were as follows:

$$L^*_1 = \frac{LTD + STD}{EC + PC}, \text{ and}$$

$$L^*_2 = \frac{LTD + STD + PC}{EC}$$

Form the regression result he found no clear-cut generalization regarding the role of corporate debt in influencing the cost of equity. Only it can be stated that, in certain cases, the cost of equity will decrease up to a point; in others, the use of debt may increase the cost of equity and yet in some cases, the use of debt may not have any impact on the cost of equity up to a point.

VIII. The Ferri and Jones study

Ferri and Jones (1979), performed an empirical study entitled "Determinants of Financial Structure – a New Methodological Approach". They selected the data of 233 firms for two five year time spans: from 1969 to 1974 and from 1971 to 1976 to investigate the relationship between a firm's financial structure with its industrial class, size, variability of income and operating leverage. From their research work, they concluded that:

a. Industry class is linked to a firm's leverage, but in a less pronounced and direct manner that has been previously suggested,
b. A firm's use of debt is related to its size, but the relationship does not confirm to the positive, linear scheme that has been indicated in other work,
c. Variation in the income measured in several ways, could not be shown to be associated with a firm's leverage, and
d. Operation leverage does influence the percentage of debt in a firm's financial structure and the relationship between these two types of leverage is quite similar to the negative, linear form which financial theory would suggest.

IX. The Gupta study

Gupta (1969) conducted a research work on the topic “The Effect of Size, Growth and Industry on the Financial Structure of Manufacturing Companies”. He used the data from one hundred seventy- three thousand American manufacturing corporations for the year 1961-62, published by Statistics of Income. Form the study he has concluded the following facts:

a. Activity ratios and leverage ratios decrease with the increase in the size of the corporation, but they increase with the growth of the corporation;
b. Liquidity ratios rise with an increase in the size of the corporation but they fall with the growth rates; and
c. Larger-sized corporations tend to have higher profit margins on sales than the smaller sized corporations.

X. The Gup study

Gup (1980) in his research work entitled “The Financial Consequences of Corporate Growth” had concluded as following:

The economic concentration is particularly sensitive to returns on assets (r) and interest rates (i). Furthermore, the data from the *Monte Carlo simulations* shed limited insights into the financial behaviour of the fastest growing firms. It revealed that when returns on assets are greater than the cost of borrowed funds ($r > i$), the fastest growing firms had higher retention rate (b), returns on assets (r) and financial leverage than firms that grew at a slower rate. However, when $r < i$, the fastest growing firms had lower financial leverage than firms growing at a slower rate.

XI. The Booth, Aivazian, Demirguc-Kunt and Maksimovic study

Using the data from 727 firms of developing countries including Brazil, India, Pakistan, Thailand, Mexico etc. and 4554 firms of the developed countries including USA, UK, German, Canada etc. for the time period of 1980 – 1991; Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001) conducted an empirical research work on "Capital Structures in Developing Countries". From this study they concluded that:

a) The variables that are relevant for explaining capital structure in the USA and European countries are also relevant in developing countries, despite the profound differences in institutional factors across these developing countries;
b) A consistent result in both (developed and developing) countries is that the more profitable the firm, the lower the debt ratio, regardless of how the debt ratio is defined. This result suggests that external financing is costly and therefore avoided by firms. However, a more direct explanation is that profitable firms had less demand for external financing, as discussed by Donaldson (1963) and Hinggins (1977);
c) The estimated empirical average tax rate does not seem to affect financing decisions, except as a proxy for corporate profitability; and
d) In general debt ratios in developing countries seem to be affected in the same way and by the same types of variables that are significant in developed countries. However, there are systematic differences in

the way these ratios are affected by country factors, such as GDP growth rates, inflation rates, and the development of capital markets.

XII. The Garvey & Hanka study

Garvey & Hanka (1999) conducted a research work by taking the sample data of 1203 firms. In their research work entitled "Capital Structure and Corporate Control: the Effect of Anti-takeover Statutes on Firm Leverage", they found out the following conclusions:

a) Impediments to takeovers will allow managers to reduce leverage, foregoing the tax and agency benefits of debt in order to reduce the risk of financial distress and avoid constraints on their allocation of cash flows;
b) Protected firms substantially reduced their debt ratios relative to unprotected firms over a period of study. These results survive a number of robustness cheeks and are not due to variation in size, industry or profitability;
c) Leverage is affected by changes in either debt or equity, but changes in debt have larger effects on the debt ratio and largely drive the leverage changes in taken sample;
d) Debt changes are more strongly related to the passage of anti-takeover laws. While post-law changes in equity funding has little effect on leverage ratios. No significant post-law changes in size or profitability was found, so, there was no evidence of gross over-investment or free cash flow abuses among protected managers; and
e) Firms that were eventually covered by anti-takeover legislation used leverage more aggressively in the years preceding the adoption of such laws. They suggest that the results might be interpreted as a return to normality following the dissipation of some unusual pre-law circumstances. However, the post-law geographic variation in debt changes is larger than the pre-law variation.

They finally concluded that capital structure is affected by managerial discretion.

XIII. The Berger, Ofek and Yermack Study

Berger, Ofek and Yermack (1997) conducted a research work taking the data of 452 industrial companies between 1984 and 1991. The data were relating to sales, total assets, market capitalization, and net income and they had drawn the following conclusion:

- Firm's leverage is affected by the degree of managerial entrenchment, and most of their results indicate that entrenched managers seek to avoid debt;
- Leverage is found to be lower when CEO (Chief Executive Officer) has a long tenure in office, has weak stock and compensation incentives, and does not face strong monitoring from the board of directors or major stockholders;
- Positive association between leverage and fractional CEO stock ownership is found to be consistent with Stulz's (1988) theory that managers use leverage to inflate the voting power of their equity;
- The replacement of a company's CEO leads to significantly greater leverage when the turnover appears ‘forced’ because the existing CEO is under age 62 and does not remain on the board of directors; and
- Firms with leverage deficits react to threat to entrenchment by levering themselves beyond the predicted level, whereas firms with leverage surpluses respond to these shocks by either not changing or increasing their leverage, and the leverage increases that follow entrenchment-reducing events are much larger for un-levered firms than for all firms.

2.3. Review of Other Studies

Mr.Buddha Rai (2002) conducted a research study to see the effect of capital structure on the cost of capital in Nepalese firms. From the 12 enterprises,

5 years data covering the period from 1996 to 2001 and using simple as well as multiple regression equation, he had concluded the following results:

Average cost of capital is negatively related with leverage, size, and growth and is positively related with liquidity and earnings variability in manufacturing & trading sector. But average cost of capital is positively related with leverage, growth and earnings variability and is negatively related with size, payout and liquidity in banking & finance sector.

Cost of equity is negatively related with leverage in manufacturing and trading sector. But it is positively related with leverage in banking and finance sector.

Mr.Ramprasad Poudel (2003) performed a research study entitled "Leverage and Performance of the Company" using 10 companies including 5 manufacturing and 5 service organizations. He used 5 years data covering the period from 1997 to 2002 and drew the following conclusions:

The correlation coefficient between leverage and cost of capital came negative for manufacturing sector and positive for service sector and the correlation coefficient between leverage and cost of equity capital came negative for both sectors. The result of multiple regression of average cost of capital on selected explanatory variables revealed that the sign of beta coefficient for leverage, size, growth, dividend payout ratio, liquidity and earnings variability are negative in manufacturing companies. But, service sector has negative coefficient for leverage and positive coefficients for size, dividend payout ratio and earnings variability. However, the beta coefficients are not significant. Thus, the results do not support to the traditional view.

Mr.Arun Shrestha (2004) conducted a research work using 7 listed manufacturing companies covering the data of 5 years form 1998 to 2003. He employed simple and multiple regression models along with correlation to study the relationship between cost of capital and leverage and concluded as following:

The cost of capital is correlated negatively with dividend payout ratio, so, it can infer that investors in manufacturing companies want to retain earnings rather than dividend payout. In the simple regression analysis the negative relation between cost of capital and leverage is supported by *t*-value and *f*-value. The relationship between cost of capital and other variables is not supported by (*t*) and (*f*) values, except with growth rate. Growth rate is positively correlated with cost of capital and correlation coefficient between them is significant. Leverage does have an effect on cost of capital. As one increases its leverage, one can lower its cost of capital.

Ms. Bhabani joshi (2005) conducted a research study on capital structure and cost of capital taking the data of 15 enterprises including banks, insurance companies, manufacturing companies, trading companies and hotels. He used the data of five cross-sectional years (1999-2004.) Using simple as well as multiple regression analysis he found out the following conclusions:

- The correlation matrix of average cost of capital and other variables show that average cost of capital has negative correlation with leverage, size of the firm, dividend payout ratio, and earning variability in finance sector enterprises; while it is positively correlated with size of the firm, growth and dividend payout ratio. In the case of non-finance sector enterprises average cost of capital is positively correlated to leverage, size of the firm, growth, earning variability and liquidity.

- The correlation coefficient of tax adjusted stock yield with other variables indicates that tax adjusted stock yield is negatively correlated with leverage, size of the firm, dividend payout ratio, and earning variability in non-finance sector; while in case of finance sector enterprises it is positively correlated with all the variables.

- The cost of equity is negatively correlated with leverage, size of the firm, dividend payout ratio and earning variability in finance sector enterprises,

while, it is positively correlated with leverage, size of the enterprise, growth in total assets, earning variability and liquidity in non-finance sector enterprises.

2.4. Concluding Remarks

From the most of empirical studies reviewed above it can be concluded that leverage (capital structure) of a firm affects its cost of capital and value. In addition to capital structure decision, financial manager also has to determine how much to finance from short-term sources i.e., short-term debt. Therefore, for a financial manager, determining the firm's financial structure is a crucial function.

In Nepalese context, though some studies on capital structure and cost of capital have been carried out, no study has so far been found in financial structure of firm. Due to the less contribution on research study, what sort of financial structure practice exists in Nepalese firms, is almost unknown. So, it is felt that there is a need to carry out a study concerning the financial structure of Nepalese manufacturing companies. In this study, researcher has tried to spare his contribution to Nepalese manufacturing sector for providing additional insights to this sector by finding out the effect of size, growth, and industry variation on financial structure.

CHAPTER – THREE

RESEARCH METHODOLOGY

This study attempts to find out the effect of the size, growth and industry variation on financial structure of Nepalese manufacturing companies. For the attainment of its objective, this study follows the methodology described in this chapter. Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. This chapter describes research design, sample selection, nature and sources of data, method of data analysis, and definition of key terms and variable used in the study.

1) Research Design

A research design is a plan of action to be carried out in connection with a research project. It is guidance for the researcher to enable him / her to keep track of his / her action and to know whether he / she is moving in the right way in order to achieve the goals. "As an architect prepares a blue-print before he approves a construction and an army prepares strategies before launching an attack, the researcher requires making a plan of his study before he undertakes his research works (Saravanavel, 1999: p.89.)"

To carry out this study, descriptive as well as analytical research methodologies have been adopted. Descriptive approach has been used mainly for primary data analysis and analytical approach has been used for secondary data analysis to find out the effect of size, growth and industry variation on financial structure.

2) Population and Sample Selection

There are 47 manufacturing companies listed on NEPSE, which are regarded as the population for this study. Among these companies, only 12 companies have been selected as sample for secondary data analysis. Due to the problem of information disclosure i.e., data unavailability, it has not become possible to cover the whole manufacturing companies. This study has been carried

out taking the data of last seven years i.e., from fiscal year 2005/06 to 2011/12. Selected companies under study and the study period are shown in table 3.1.

Table: 3.1

Selected companies and study period

S. N.	Name of the Company	Fiscal Years	No. of Observation
1	Bottlers Nepal Ltd.(BNL)	2005/06-2011/12	7
2	Bottlers Nepal (Terai) Ltd. (BNTL)	2005/06-2011/12	7
3	Shree Raghupati Jute Mills Ltd. (SRJML)	2005/06-2011/12	7
4	Jyoti Spinning Mills Ltd.(JSML)	2005/06-2011/12	7
5	Shree Arun Vanaspati Udyog Ltd.(SAVUL)	2005/06-2011/12	7
6	Nepal Lube Oil Ltd (NLOL)	2005/06-2011/12	7
7	Shree Bhrikuti Pulp and Paper Nepal Ltd.(SBPPNL)	2005/06-2011/12	6
8	Sri Ram Sugar Mills Ltd.(SRSML)	2005/06-2011/12	7
9	Nepal Bitumen and Barrel Udyog Ltd.(NBBUL)	2005/06-2011/12	7
10	Nepal Vegetable Ghee Industries Ltd.(NVGIL)	2005/06-2011/12	7
11	Nepal Lever Ltd. (NLL)	2005/06-2011/12	7
12	Himgiri Textile Industries Ltd. (HTIL)	2005/06-2008/09	5
Total			81

The representation of the sample in total no. of listed manufacturing companies is given in table 3.2.

Table: 3.2

Representation of sample in total listed manufacturing companies

Total no of Listed Manufacturing Companies (N)	Sample Size (n)	Representation $\times 100\%$
47	12	41.38 %

3) Nature and Source of Data

This study is mainly based on secondary data; however, some primary data have also been used. Secondary data for the size and growth effect on financial structure were collected from financial statements (profit and loss a/c and balance sheet) of the selected companies. Casual factors like fixed assets turnover and instability of sales for the industry variation effect on financial structure were also collected from the financial statements of the companies. However, the data relating to the casual factors viz., length of CCC and durability of the product were collected through direct personal interview with financial executives of the companies.

Primary data for the study were collected through questionnaire. A questionnaire consisting of several questions (appendix: 10) was distributed to 40 financial executives of 20 manufacturing companies. Out of 40 questionnaires distributed, 30 were returned with usable response (i.e. 75 % response rate.)

Other supportive information was collected through following sources:

⇒ Annual reports of selected companies,
⇒ Annual reports of SEBO/N,
⇒ Web-sites of SEBO/N, NEPSE and selected companies,
⇒ "5-year Plans" published by National Planning Commission,
⇒ "Statistical Year Book" published by Central Bureau of Statistics,
⇒ "Industrial Statistics" published by Central Bureau of Statistics,
⇒ Various journals, bulletins, magazines and newspapers.

4) Method of Data Analysis

The method of data analysis for this study is broadly divided into two sections: i) Methods for secondary data analysis and ii) methods for primary data analysis. They are described as follows:

🕮 Method for Secondary Data Analysis

Under secondary data analysis, following methods are adopted:

Analysis of leverage structure

The leverage structure of the selected companies is analyzed by calculating their average leverage ratios (TD/TA, LD/TA, and CL/TA) for the study period. Trend analysis is also done to observe the trend of average leverage of the companies.

Portfolio analysis formed on size

In order to observe the effect of size on financial structure, a portfolio based on size is formed. The smallest, moderate and largest size companies are contained in portfolio 1, 2, and 3 respectively. for each enterprises various ratios viz., current ratio (CR), total debt to total asset (TD/TA), long-term debt to total asset (LD/TA), current liabilities to total asset (CL/TA), total asset turnover (TAT), fixed asset turnover (FAT), current asset turnover (CAT), return on asset (ROA), and return on shareholders equity (ROSE) are computed. They are then classified according to the portfolios formed above and average ratios are computed. From this analysis, the effects of size on above mentioned financial ratios have been identified.

In addition to average ratio calculation two linear multiple regressions are run for each portfolio to observe the relationship of size with above mentioned financial ratios using the following models:

Model I $\quad Size = a + b_1\, CR + b_2\, TD/TA + b_3\, TAT + b_4\, ROA$, and

Model II $\quad Size = a + b_1\, LD/TA + b_2\, CL/TA + b_3\, FAT + b_4\, ROSE.$

Where, size is dependent variable for both models and other financial ratios are independent variables

Portfolio analysis formed on growth rate

Similar to portfolio analysis formed on size, to observe the growth effect on financial structure, a portfolio based on growth rate is formed. Companies having the smallest, moderate and largest growth rate on sales are contained in portfolio 1, 2, and 3 respectively. For each enterprise various financial ratios (as computed in portfolio formed on size) are calculated. They are then classified according to the portfolios formed and average ratios are computed. From this analysis the effects of growth on above mentioned financial ratios have been identified.

In addition to average ratio calculation, two linear multiple regressions are run for each portfolio to observe the relationship of growth with above mentioned financial ratios using following models:

Model I $\quad Growth = a + b_1\ CR + b_2\ TD/TA + b_3\ TAT + b_4\ ROA$, and

Model II $\quad Growth = a + b_1\ LD/TA + b_2\ CL/TA + b_3\ FAT + b_4\ ROSE$.

Where, growth is dependent variable for both models and other financial ratios are independent variables

Econometric Analysis

Two econometric models have been used to analyze the effect of size, growth and industry variation on financial structure. These models are as follows:

Model I

$y = a + b_1\ size + b_2\ growth$

Where, size and growth rate are independent variables and the dependent variable 'y' taken for the study indicates the following leverage ratios:

9 TD/TA,
10 LD/TA,
11 CL/TA,

Linear multiple regressions are run taking above mentioned leverage ratios as dependent variables and size and growth rate as independent variables to observe the effect of size and growth on financial structure.

Model II

$y = a + b_1$ length of CCC + b_2 FAT + b_3 Durability + b_4 S D of sales

Where, length of CCC = length of cash conversion cycle,
FAT = Fixed assets turnover ratio,
Durability = durability of company product,
S D of sales = standard deviation of sales, and
y = dependent variable for the study. Leverage ratios: TD/TA, LD/TA and CL/TA are regarded as dependent variables.

Linear multiple regressions are run taking above mentioned leverage ratios as dependent variables and casual factors for industry variation viz. length of CCC, FAT ratio, durability of product and S D of sales as independent variables to observe the industry variation effect on financial structure.

🕮 Method for Primary Data Analysis

A questionnaire consisting of several questions (appendix: 10) relating to the effect of size, growth and industry variation on financial structure was prepared and distributed to financial executives of 20 manufacturing companies listed in the NEPSE. Out of 40 questionnaires distributed 30 were returned with usable response. Conclusions are drawn using the views of majority respondents.

🕮 Analytical Tools Used for the Study

The major analytical tools used for the study are as follows:

Statistical tools

- Karl Pearson's correlation coefficient,
- Multiple regression equation,
- Average / mean,
- Standard deviation,
- Percentage,
- Trend analysis, and
- Student's Test

Financial tools

- Current ratio (CR)
- Total debt to total assets (TD/TA) ratio,
- Long-term debt to total assets (LD/TA) ratio,
- Current liabilities to total assets (CL/TA) ratio,
- Total assets turnover (TAT),
- Fixed assets turnover (FAT),
- Current assets turnover (CAT),
- Return on assets (ROA), and
- Return on shareholders equity (ROSE).

5) Key Terms and Variables Defined

Definition of the key terms and variable used in the study are as follows

Size: size or company size is defined by the amount of total assets of the company.

Sales: it indicates the trading sales of the company. It does not include miscellaneous sales.

Growth: it is the annual compounding growth rate on sales of the company which is given by following equation:

Growth rate =

Where, S_1 = current sales

S_0 = last year's sales

Length of CCC: It is the time period in which raw material is converted into finished goods, finished goods are sold and debtors are collected. Length of cash conversion cycle in this study is calculated as follows:

Length of cash conversion cycle = Inventory conversion period + Debtors conversion period - Payable deferral period

Where, *Inventory conversion period* is the duration for purchased raw material converted into finished goods and sold in the market.

Debtor's conversion period is the duration for cash collection from credit sales.

Payable deferral period is the duration of payment for credit purchase.

Net fixed assets: net fixed assets of the selected companies consist of the value of ordinary fixed assets like land, building, plant & machinery, furniture & fixture etc. after deducting the depreciation.

Current assets: the assets which can be converted into cash within a year is called current assets. Current assets in the selected companies mainly comprise usual items like cash in hand & bank, account receivable, and inventories.

Total assets: total assets are simply the sum of current assets and fixed assets.

Current liabilities: short-term debt obligations which are to be paid within a year by the corporation are current liabilities. Current liabilities in the selected companies include account payable, short-term bank loan, and reserve & provision created for specific purpose. But, general reserve is not included in current liabilities. It is included in shareholders' equity.

Long-term debt: all the debt obligations which have maturity period more than one year are considered as long-term debt. Long-term debt for this study includes debenture and loan from financial institutions.

Total debt: total debt is the sum of current liabilities and long-term debt.

Net profit after tax: it is the profit of corporation after the payment of interest for loan and corporate tax. It is the income available to shareholders.

Shareholders' equity: it consists of the amount of equity capital, reserve and surplus, retained earning and profit & loss a/c credit balance.

Current ratio (CR): it is the ratio of current assets to current liabilities. It is calculated using following equation:

CR = Current assets/Current Liabilities.

Total debt to total assets (TD/TA) ratio: it is the ratio of total debt and total assets. It is also known as debt ratio. It is calculated by using following equation:

TD/TA = Total debt/Total assets.

Long-term debt to total assets (LD/TA) ratio: it is the ratio between long-term debt and total assets. It is calculated by using following equation:

LD/TA = Long-term debt/Total assets.

Current liabilities to total assets (CL/TA) ratio: it is the ratio of current liabilities and total assets. It is calculated by using following equation:

CL/TA = Current liabilities/Total assets.

Total assets turnover (TAT) ratio: it is the ratio of sales to total assets which is calculated as:

TAT = Sales/Total assets.

Fixed assets turnover (FAT) ratio: it is a ratio of sales to net fixed assets and is calculated by using following equation:

FAT = Sales/Net fixed assets.

Current assets turnover (CAT) ratio: it is a ratio of sales to current assets and calculated as following:

CAT = Sales/Current assets.

Return on assets (ROA): it is considered as the ratio of net profit after tax to total assets for this study. It is calculated using following equation:

ROA = Net profit after tax/ Total assets.

Return on shareholders' equity (ROSE): it is a ratio of net profit after tax to shareholders' equity and calculated using following equation:

ROSE = Net profit after tax/Share holder’s equity.

CHAPTER – FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter is devoted to analyzing and interpreting the various issues of this study, which is broadly divided into two sections: i) analysis of secondary data, and b) analysis of primary data. They are described in the following pages:

4.1 Analysis of Secondary Data

This section includes: a) analysis of leverage structure on the selected companies, b) properties of portfolio formed on size & growth, and c) econometric analysis

4.1.1 Leverage structure on the Selected Companies

The analysis of the leverage structure on the selected companies contains computation of average leverage ratios viz., TD/TA, LD/TA and CL/TA, and fitting their regression trend line. The results obtained from the analysis are presented in tables 4.1, 4.2 and 4.3.

Total debt to total assets ratio

The total debt to total assets ratio also known as the debt ratio indicates the percentage of borrowed funds in financing total assets. Total debt includes both long-term debt and current liabilities. Higher the debt ratio, more risky would be the enterprises. The debt ratios computed for the selected enterprises during the study period are presented in table 4.1. The table reveals that debt ratio of individual company has increased over the period of time for most of the companies. The debt ratio of BNL has increased from 26 percent in 2005/06 to 32.1 percent in 2009/10, but, it has decreased to 19.6 percent in 2011/12. Similarly, the debt ratio of SRJML, JSML, SAVUL, NLOL, SRSML, NBBUL, NVGIL and NLL were increased from 34.2 percent, 96.7 percent, 109.9 percent, 61.6 percent, 73.2 percent, 75 percent, 126.3 percent, and 46.7 percent in 2005/06 to 38.5 percent, 112 percent, 111 percent, 66.1 percent, 76.4 percent, 82.7 percent, 281.3 percent and 57.9 percent respectively in 2011/12. The debt ratio of SBPPNL was 88.8 percent in 2005/06 which increased to

128.7 percent in 2009/10. Similarly, the debt ratio of HTIL has increased from 105.6 percent in 2005/06 to 182.9 percent in 2008/09. However, the debt ratio of BNTL was 44.8 percent in 2005/06 and it decreased to 34.5 percent in 2011/12.

When average ratios of individual company for the study period were computed, it was revealed that the average debt ratio varies from 27 percent (for BNL) to 166.7 percent (for NVGIL.) variability in the debt ratios was highest for NVGIL (56.3 %) and it was lowest for SRSML (2.2%.) Average debt ratio of selected companies for different years varies from 74.1 percent (in 2005/06) to 89.7 percent (in 2008/09.). The variability in the average debt ratios increased over the time period. Standard deviation of debt ratios was increased from 32.2 percent (in 2005/06) to 74.5 percent (in 2011/12.) Average debt ratio of total companies for the study period (grand average debt ratio) was found to be 83.6 percent. It indicates that in average selected companies have 83.6 percent debts in their financial structure.

Table: 4.1

Total Debt to Total Assets Ratio (%)

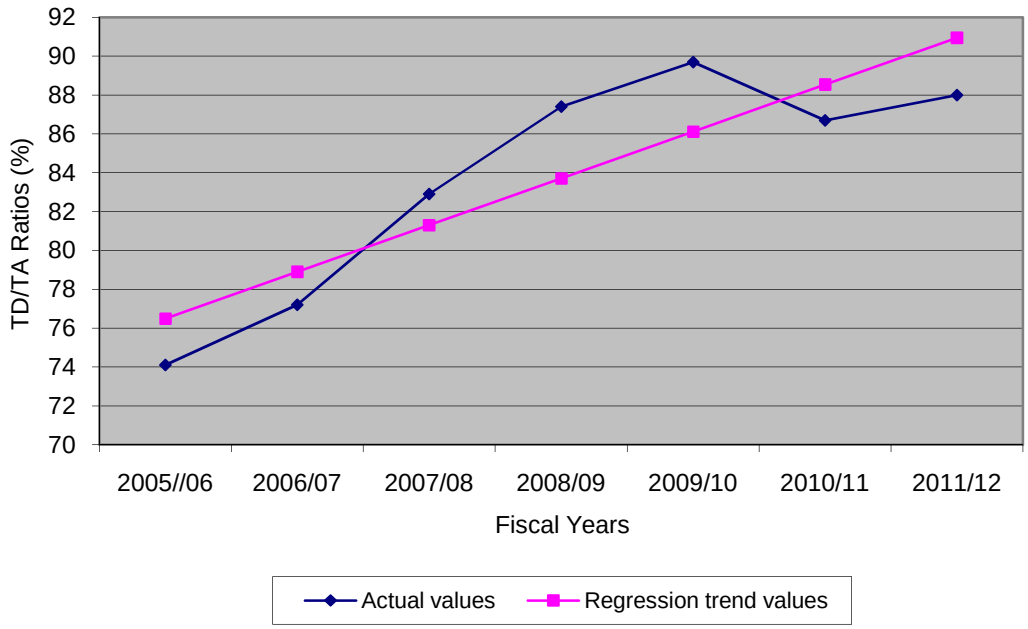
Fiscal years Companies	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Average $(\overline{X})$	S D $(\pm)$
BNL	26.0	26.0	22.8	29.9	32.8	32.1	19.6	27.0	4.9
BNTL	44.8	43.9	40.1	43.3	44.4	40.8	34.5	41.7	3.7
SRJML	34.2	41.1	40.6	41.3	43.3	40.0	38.5	39.9	2.9
JSML	96.7	98.3	102.7	103.9	110.1	111.8	112.0	105.1	6.4
SAVUL	109.9	109.3	127.8	123.7	117.3	117.3	111.0	116.6	7.2
NLOL	61.6	59.7	68.8	68.3	69.0	73.6	66.1	66.7	4.7
SBPPNL	88.8	94.0	103.0	109.7	121.5	128.7	---	107.6	15.5
SRSML	73.2	76.0	79.3	75.0	74.2	78.6	76.4	76.1	2.2
NBBUL	75.0	81.2	81.2	79.4	80.4	84.9	82.7	80.7	3.1
NVGIL	126.3	116.4	137.5	151.9	161.7	191.6	281.3	166.7	56.3
NLL	46.7	54.0	48.4	55.0	39.1	54.3	57.9	50.8	6.5
HTIL	105.6	126.2	142.7	167.7	182.9	---	---	145.0	31.1
Average $(\overline{X})$	74.1	77.2	82.9	87.4	89.7	86.7	88.0	83.6	
S D $(\pm)$	32.2	32.4	40.5	44.4	49.4	47.9	74.5		

Source: Annex -2

The average debt ratios of selected companies for different fiscal years are plotted in figure 4.1 along with regression trend values. The figure shows that average debt ratio increased over the study period.

Figure: 4.1

Yearly average TD/TA ratios along with regression trend values



Long-term debt to total assets ratio

Long-term debt to total assets (LD/TA) ratio indicates the percentage of long-term debt in financing of total assets of the enterprises. Long-term debt indicates the borrowed funds having maturity period longer than one year. The ratios of long-term debt to total assets computed for the selected companies are presented in table 4.2. The table indicates that the companies BNL, BNTL, and NLL have not employed long-term debt so far. NBBUL and NLOL also have used the long-term debt occasionally. Thus, it shows that only about 40 percent of the selected companies are using long-term debt in their financial structure. The LD/TA ratio of SRJML has decreased from 29.6 percent in 2005/06 to 19.3 percent in 2011/12. Similarly, the LD/TA ratio of SRSML was 50.3 percent in 2005/06 which decreased to 39.5 percent in 2011/12. The LD/TA ratio of JSML decreased from 51.1 percent in 2005/06 to 45.8 percent in 2007/08, but, it again increased to 80.8 percent in 2011/12. However, the LD/TA ratio of HTIL was 37.6 percent in 2005/06 and increased to 46.5 percent and it again decreased to 34.2 percent in 2008/09. The LD/TA ratio for NLOL is increased from 25.2 percent in 2005/06 to 30.9 percent in 2007/08. The LD/TA ratio of SBPPNL was 77.1 percent in 2005/06 and it increased to 83.2 percent in 2009/10.

Average LD/TA ratio of individual company for the study period varies from 13.3 percent (for NBBUL) to 78.9 percent (for SBPPNL.) Variability in the LD/TA ratios was highest for NVGIL (59.3 %) and lowest for SBPPNL (3.2 %.) Average LD/TA ratio of the selected companies for different year varies from 23.4 percent (in 2009/10) to 42.5 percent (in 1999/2000.) The variability in the LD/TA ratios was lowest in 2004/05 (34.8 %) and highest in1999/2000 (43.1 %.) Average LD/TA ratio of total selected companies during the study period (grand average LD/TA ratio) was found to be 30.2 percent. It indicates that in average selected companies have 30.2 percent long-term debts in their financial structure.

Table: 4.2

Long-term Debt to Total Assets Ratio (%)

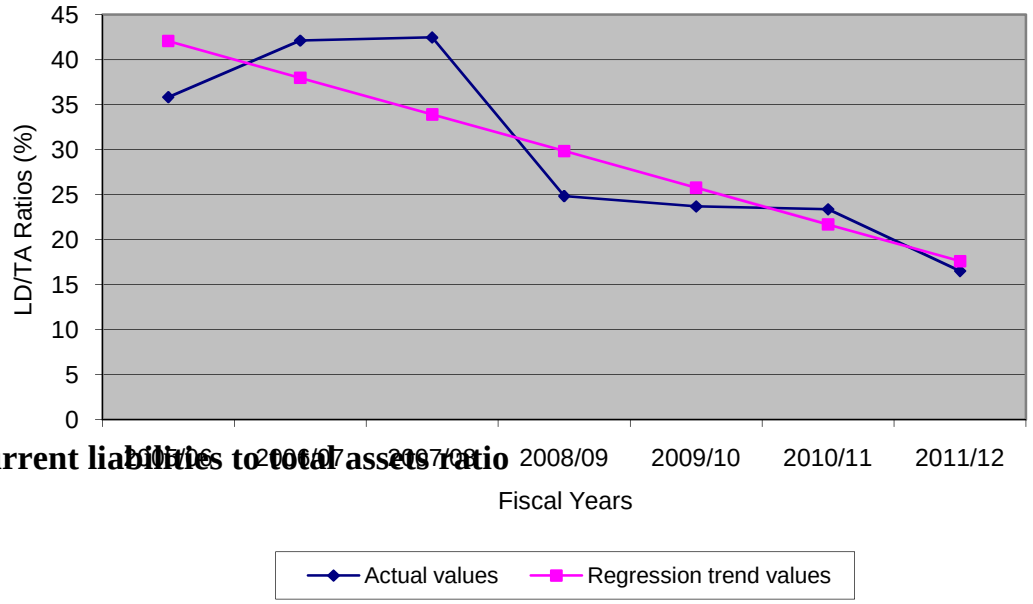
Fiscal years / Companies	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Average $(\overline{X})$	S D $(\pm)$
BNL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BNTL	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SRJML	29.6	30.6	28.9	28.3	24.7	25.3	19.3	26.7	3.9
JSML	51.1	48.1	46.7	45.8	67.1	74.3	80.8	59.1	14.6
SAVUL	4.3	78.5	116.6	35.2	29.9	28.8	18.3	44.5	39.2
NLOL	25.2	17.5	27.0	30.9	0.0	0.0	0.0	14.4	14.0
SBPPNL	77.1	76.6	77.5	76.2	82.9	83.2	---	78.9	3.2
SRSML	50.3	51.5	46.2	47.4	45.6	41.0	39.5	45.9	4.4
NBBUL	40.8	52.2	0.0	0.0	0.0	0.0	0.0	13.3	22.9
NVGIL	114.2	105.8	120.3	0.0	0.0	4.5	7.2	50.3	59.3
NLL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HTIL	37.6	44.8	46.5	34.4	34.2	---	---	39.5	5.8
Yearly Average	35.8	42.1	42.5	24.9	23.7	23.4	16.5	30.2	
S D Yearly	34.8	34.2	43.1	25.1	29.2	31.0	26.1		

Source: Annex–2

The averages LD/TA ratios of selected companies for different years are plotted in figure 4.2 along with regression trend values. The figure shows that average LD/TA ratio has decreased over the study period.

Figure: 4.2

Yearly average LD/TA ratios along with regression trend values



Current liabilities to total assets ratio

The current liabilities to total assets (CL/TA) ratio indicate the proportion of short-term obligation (current liabilities) in the financing of total assets. The CL/TA ratios calculated for the selected companies are presented in table 4.3. The CL/TA ratio of SRJML has increased from 4.7 percent in 2005/06 to 19.2 percent in 2011/12. Similarly, the CL/TA ratio of NLOL, SRSML, NBBUL, NVGIL and NLL were increased from 36.4 percent, 23 percent, 34.2 percent, 12.1 percent and 46.7 percent in 2005/06 to 66.1 percent, 36.9 percent, 82.7 percent, 274.1 percent and 57.9 percent respectively in 2011/12. The CL/TA ratio of SBPPNL has increased from 11.7 percent in 2005/06 to 45.5 percent in 2009/10. Similarly, the CL/TA ratio of HTIL was 68 percent in 2005/06 and it increased to 148.7 percent in 2008/09. SAVUL has 105.6 percent of CL/TA ratio in 2005/06 and it was decreased to 30.8 percent in 2006/07, then it continuously increased to 92.6 percent in 2011/12. The CL/TA ratio of BNL increased from 26 percent in 2005/06 to 32.1 percent in 2009/10, but, it again decreased to 19.6 percent in 2011/12. Similarly, the CL/TA ratio of JSML increased from 45.5 percent in 2005/06 to 58.1 percent in 2007/08, and then, it decreased to 31.3 percent in 2011/12. However, the CL/TA ratio of BNTL was 44.8 percent in 2005/06 and it decreased to 34.5 percent in 2011/12.

Table: 4.3

Current Liabilities to Total Assets Ratio (%)

Fiscal years / Companies	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Average $(\overline{X})$	S D $(\pm)$
BNL	26.0	26.0	22.8	29.9	32.8	32.1	19.6	27.0	4.9
BNTL	44.8	43.8	40.1	43.3	44.4	40.8	34.5	41.7	3.7
SRJML	4.7	10.5	11.7	13.0	18.6	14.8	19.2	13.2	5.0
JSML	45.5	50.2	56.0	58.1	43.1	37.5	31.3	46.0	9.7
SAVUL	105.6	30.8	11.2	88.6	87.5	88.5	92.6	72.1	35.9
NLOL	36.4	42.2	41.8	37.4	69.0	73.6	66.1	52.3	16.4
SBPPNL	11.7	17.4	25.4	33.5	38.6	45.5	---	28.7	12.9
SRSML	23.0	24.5	33.1	27.6	28.7	37.5	36.9	30.2	5.8
NBBUL	34.2	29.1	81.2	79.4	80.4	84.9	82.7	67.4	24.5
NVGIL	12.1	10.6	17.3	151.9	161.7	187.1	274.1	116.4	104.1
NLL	46.7	54.0	48.4	55.0	39.1	54.3	57.9	50.8	6.5
HTIL	68.0	81.3	96.2	133.4	148.7	---	---	105.5	34.4
Average $(\overline{X})$	38.2	35.1	40.4	62.6	66.1	63.3	71.5	53.3	
S D $(\pm)$	27.8	20.5	26.8	43.3	46.6	47.0	75.6		

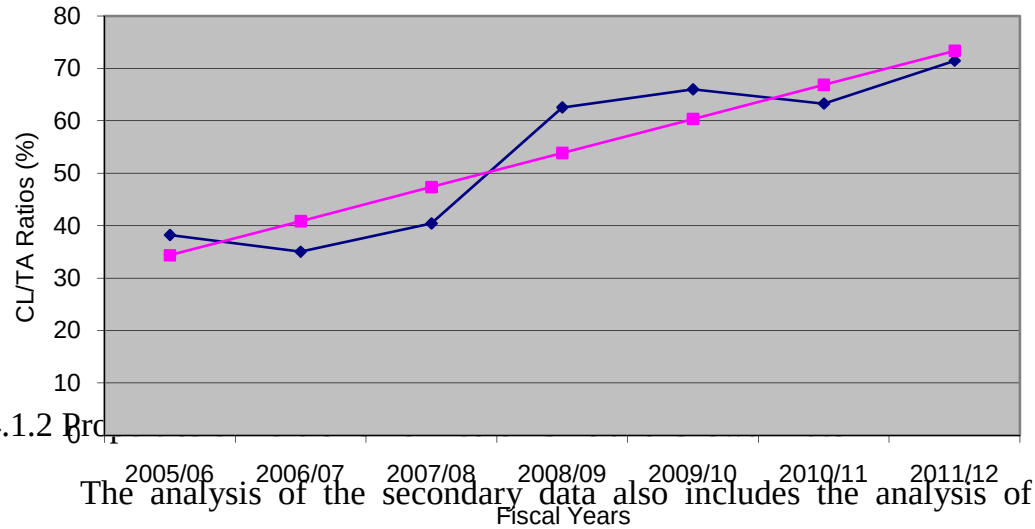
Source: Annex –2.

Average CL/TA ratio of individual company for the study period varies from 13.2 percent (for SRJML) to 116.4 percent (for NVGIL.) The variability in the CL/TA ratios were highest for NVGIL (104.1%) and lowest for BTNL (3.7 %.) Average CL/TA ratio of the selected companies for different year varies from 35.1 percent (in 2005/06) to 71.5 percent in 2011/12. The variability in the CL/TA ratios increased over the time period. The standard deviation of CL/TA ratios was 27.8 percent in 2005/06 and it increased to 75.6 percent in 2011/12. However, it was least (20.5 percent) for the year 2005/06. Average CL/TA ratio of selected companies for the study period (grand average CL/TA) was found to be 53.3 percent. It indicates that in average selected companies' use 53.3 percent current liabilities in their financial structure.

Average CL/TA ratios of selected companies for the different years are plotted in figure 4.3 along with regression trend values. The figure shows that the average CL/TA ratio has increased over the study period.

Figure: 4.3

Yearly average CL/TA ratios along with regression trend values



4.1.2 Pro

The analysis of the secondary data also includes the analysis of the properties of portfolio formed on size and growth. The objective of portfolio analysis is to observe the effect of size and growth rate on financial structure. For the portfolio analysis, size has been defined in terms of total assets of the company, whereas, growth has been considered as annual compounding growth on sales of the company.

For the portfolio analysis two portfolios are formed based on size and growth rate. The smallest, moderate and largest enterprises are contained in portfolio 1, 2 and 3 respectively. For each enterprise various ratios viz., current ratio (CR), total debt to total asset (TD/TA), long-term debt to total asset (LD/TA), current liabilities to total asset (CL/TA), total asset turnover (TAT), fixed asset turnover (FAT), current asset turnover (CAT), return on asset (ROA), and return on shareholders equity (ROSE) are computed. They are then classified according to the portfolios formed and average ratios are computed.

Properties of portfolio formed on size

The various average ratios classified according to the portfolio formed on the basis of size of the companies are presented in table 4.4, which reveals the following:

- Enterprises with larger size have smaller current ratio. The current ratios have been decreased from 1.783 times for the smallest portfolio to 1.469 times for the moderate and to 0.976 times for the largest. Thus, bigger the size of the company lower would be the liquidity. The current ratios of large-sized enterprises are also less variable as compared to smaller-sized enterprises.
- Larger-sized enterprises have lower total debt to total asset ratio and current liabilities to total asset ratio. The ratio of total debt to total asset decreased from 98.83 percent for the smallest portfolio to 59.73 percent for the largest. Similarly, the ratio of current liabilities to total asset has been decreased from 68.26 percent for the smallest portfolio to 18.62 percent for the largest. It indicates that bigger the size of the company lower would be the leverage (total debt and current liabilities. Total debt to total assets and current liabilities to total assets ratios are also less variable for larger enterprises.
- However, the long-term debts to total assets ratios do not show clear relationship with size of the enterprises. It decreased from 30.57 percent

from the smallest portfolio to 14.15 percent for the moderate and then again increased to 41.11 percent for the largest.

- Larger-sized enterprises have lower total assets turnover (TAT) ratios and fixed assets turnover (FAT) ratios. The TAT ratio has been decreased from 1.024 times for the smallest portfolio to 0.562 times for the largest. Similarly, FAT ratio decreased from 5.022 times for the smallest portfolio to 1.284 times for the largest. It indicates that larger sized companies have lower activity ratios. Total assets turnover and fixed assets turnover ratios are less variable for larger-size enterprises.
- But, the current assets turnover (CAT) ratios do not show clear relationship with size of the enterprises. The CAT ratio increased from 1.966 times for the smallest portfolio to 2.216 times for the moderate and then decreased to 2.135 times for the largest.

Table: 4.4
Properties of Portfolios Formed on Size

Portfolios / Variables	Unit	1 Smallest up to 400	2 Moderate above 400 and up to 800	3 Largest above 800
Panel A: Means				
Size	(Rs. in million)	186.737	639.594	1034.344
CR	Times	1.783	1.469	0.976
TD/TA	(%)	98.83%	75.05%	59.73%
LD/TA	(%)	30.57%	14.15%	41.11%
CL/TA	(%)	68.26%	60.90%	18.62%
TAT	(Times)	1.024	0.864	0.562
FAT	(Times)	5.022	4.750	1.284
CAT	(Times)	1.966	2.216	2.135
ROA	(%)	-4.31%	8.46%	-1.57%
ROSE	(%)	32.35%	20.91%	-3.71%
Growth Rate	(%)	16.09%	8.34%	11.29%
Panel B: Standard Deviations				
Size	(Rs. in million)	90.763	115.887	165.745
CR	Times	1.689	1.131	0.586
TD/TA	(%)	51.93%	30.31%	29.55%
LD/TA	(%)	33.64%	29.02%	30.18%
CL/TA	(%)	57.54%	14.46%	12.76%
TAT	(Times)	0.384	0.354	0.256
FAT	(Times)	3.897	2.848	2.155
CAT	(Times)	1.283	1.306	0.815
ROA	(%)	11.22%	8.09%	7.21%
ROSE	(%)	88.09%	90.50%	106.60%

Growth Rate	(%)	44.56%	18.17%	17.76%

Source: Annex –3.

Table: 4.5

Movement of Financial Ratios with Size of the Enterprises

S. N.	Ratios / Variables	Movement of Ratios as Size of Enterprises Increases	Variability on Ratios as Size of Corporations Increases
1	Current ratio (CR)	Falls	Less
2	Total debt to total asset (TD/TA)	Falls	Less
3	Long-term debt to total asset (LD/TA)	irregular	-
4	Current liabilities to total asset (CL/TA)	Falls	Less
5	Total asset turnover (TAT)	Falls	Less
6	Fixed asset turnover (FAT)	Falls	Less
7	Current asset turnover (CAT)	irregular	-
8	Return on asset (ROA)	irregular	-
9	Return on shareholders' equity (ROSE)	Falls	More-
10	Growth rate on sales	irregular	

- *Movement not included.*
  - Larger sized enterprises have lower return on shareholders' equity (ROSE). ROSE has been decreased from 32.35 percent for the smallest portfolio to 20.91 percent for the moderate and to –3.71 percent for the largest. It indicates that bigger the size of the company, lower would be the return on shareholders' equity. ROSE is also more variable for larger-sized enterprises. But, return on asset (ROA) does not indicate clear relationship with size of the enterprises. ROA has been increased from –4.31 percent for the smallest portfolio to 8.46 percent for the moderate and then decreased to –1.57 percent for the largest.
  - Growth rate on the sales of enterprises also has not clear relationship with size of the enterprises. Growth rate has been decreased from 16.09 percent for smallest portfolio to 8.34 percent for moderate and then increased to 11.29 percent for the largest.

Above explained movement of financial ratios with size of the enterprises are summarized in the table 4.5.

Table: 4.6
Regression Results for Portfolio Formed on Size

Variables	Regression Co-efficient					
Portfolios	1 (Smallest Size)		2 (Moderate Size)		3 (Largest Size)	
Models	I	II	I	II	I	II
CR	-12.453 (-1.299)		-155.232 (-1.269)		-83.030 (-0.771)	

TD/TA	-97.993 (-1.759**)		-214.789 (-1.046)		-251.333 (-0.849)	
LD/TA		14.682 (0.262)		236.633 (2.086**)		424.361 (4.831*)
CL/TA		-27.650 (-0.963)		-205.015 (-0.918)		-613.380 (-2.924*)
TAT	-122.603 (-2.812*)		-6.434 (-0.123)		-110.794 (-0.547)	
FAT		-3.210 (-0.835)		-10.419 (-0.751)		-22.332 (-1.646)
ROA	-01.343 (-1.138)		-1181.994 (-1.857**)		-662.722 (-0.613)	
ROSE		-27.671 (-1.436)		-115.754 (-0.830)		-24.037 (-1.072

~ *= significant at the 5 % level. Source: Annex–4.

~ ** = significant at the 10 % level.

~ Values in the parentheses are't' values.

In addition to average ratios calculation, two linear multiple regression were run for each portfolio to observe the relationship of size with above mentioned financial ratios. Regression co-efficient along with the average slopes (t-statistics) from pooled cross section linear regressions of size on above mentioned financial ratios are presented in table 4.6. It reveals that size of the enterprises is negatively correlated to CR, TD/TA, CL/TA, TAT, FAT, ROA and ROSE and positively related with LD/TA.

Properties of portfolio formed on growth rate

The various average ratios classified according to the portfolio formed on the basis of growth rate on sales are presented in table 4.7, which reveals the following conclusions:

Table: 4.7
Properties of Portfolios Formed on Growth Rate

Portfolios Variables	Units	1 Smallest Up to 12 %	2 Moderate Above 12 % and up to 25 %	3 Largest Above 25 %
Panel A: Means				
Growth Rate	(%)	-11.42%	17.92%	51.40%
CR	(Times)	1.503	1.846	1.229
TD/TA	(%)	88.45%	73.47%	81.05%
LD/TA	(%)	35.03%	33.97%	20.12%
CL/TA	(%)	53.41%	39.50%	60.93%
TAT	(Times)	0.825	1.062	1.118
FAT	(Times)	2.987	4.608	4.898
CAT	(Times)	1.888	2.053	2.381

ROA	(%)	-4.21%	3.56%	4.56%
ROSE	(%)	24.66%	17.39%	11.25%
Size	(Rs. in million)	549.058	622.086	455.887
Panel B: Standard Deviations				
Growth Rate	(%)	15.31%	3.95%	27.95%
CR	(Times)	1.326	1.792	0.780
TD/TA	(%)	50.92%	32.04%	42.18%
LD/TA	(%)	35.45%	33.79%	22.34%
CL/TA	(%)	49.86%	17.59%	43.35%
TAT	(Times)	0.440	0.612	0.642
FAT	(Times)	2.489	3.800	4.774
CAT	(Times)	1.102	1.153	1.351
ROA	(%)	10.56%	9.19%	9.08%
ROSE	(%)	16.81%	26.88%	27.83%
Size	(Rs. in million)	408.519	403.947	350.899

Source: Annex–5.

Above explained movement of financial ratios with the growth rate on sales of enterprises are summarized in table 4.8.

Table: 4.8

Movement of Financial Ratios with Growth Rate on Sales of the Enterprises

S. N.	Ratios / Variables	Movement of Ratios as Growth Rate on Sales Increases	Variability on Ratios as Growth Rate on Sales Increases
1	Current ratio (CR)	Irregular	-
2	Total debt to total asset (TD/TA)	irregular	-
3	Long-term debt to total asset (LD/TA)	Falls	Less
4	Current liabilities to total asset (CL/TA)	Irregular	-
5	Total asset turnover (TAT)	Rise	More
6	Fixed asset turnover (FAT)	Rise	More
7	Current asset turnover (CAT)	Rise	More
8	Return on asset (ROA)	Rise	Less
9	Return on shareholder's equity (ROSE)	Falls	More
10	Size of the enterprises	Irregular	-

- *= Movement not included*

Table: 4.9

Regression Results for Portfolio Formed on Growth Rate

Variables	Regression coefficients					
Portfolios	1 (Smallest Growth)		2 (Moderate Growth)		3 (Largest Growth)	
Models	I	II	I	II	I	II
CR	-0.011 (-0.616)		0.010 (0.936)		0.102 (1.173)	

TD/TA	-0.166 (-1.884**)		0.021 (0.291)		-0.026 (-0.100)	
LD/TA		-0.154 (-2.868*)		-0.007 (-0.167)		-0.149 (-0.526)
CL/TA		-0.209 (-5.953*)		-0.063 (-0.670)		0.062 (0.354)
TAT	0.074 (1.347)		0.025 (0.680)		0.240 (2.054**)	
FAT		0.024 (3.417*)		0.003 (0.621)		0.027 (1.546)
ROA	0.146 (0.330)		0.218 (0.604)		1.909 (1.830**)	
ROSE		0.018 (1.174)		0.005 (0.072)		-0.0003 (-0.001)

~ **= significant at the 5 % level.* *Source: Annex –6.*

~ *** = significant at the 10 % level.*

~ *Values in the parentheses are't' values.*

In addition to average ratios calculation, two linear multiple regression equations were run for each portfolio to observe the relationship of growth rate with above mentioned financial ratios. Regression coefficients along with the average slopes (t-statistics) from pooled cross section linear regression of growth rate on above mentioned ratios are presented in table 4.9. It shows that growth rate on sales of enterprises is positively related with TAT, FAT and ROA, and negatively related with LD/TA.

4.1.3 Econometric Analysis

Under econometric analysis, two models were used to examine the effect of size, growth and industry variation on financial structure. 'Model – I' is used to assess the effect of size and growth on financial structure, whereas, 'Model – II' is used for finding out the effect of industry variation on financial structure.

(A) Model – I: Effect of size and growth on financial structure

In order to analyze the effect of size and growth rate on financial structure, following multiple regression equation was run considering leverage ratios (TD/TA, LD/TA and CL/TA) as dependent variables and size and growth as independent variables:

$$y = a + b_1 \text{ size} + b_2 \text{ growth}$$

Where, size and growth rate are independent variables and the dependent variable 'y' taken for the study indicates the following leverage ratios:

- TD/TA,
- LD/TA,
- CL/TA,

Summary results drawn from the regression analysis are presented in table 4.10, which shows the following conclusions:

Company size and leverage ratios

Leverage ratios (TD/TA and CL/TA) are negatively correlated with size of the firm, which is evident from negative regression coefficients. The 't' values for TD/TA and CL/TA with size are also significant at 5 percent level of significance It indicates that larger-sized corporation tends to have lower leverage (TD/TA and CL/TA.) This result supports the finding of Gupta (June, 1969.) He observed that the total debt/total asset ratio is negatively related to size of the corporation and the current liabilities to total ratio increases as size of the firm decreases.

However, long-term debt to total asset (LD/TA) ratio is found to be positively correlated with size of the firm, which is clear from positive regression coefficient for Ld/TA with size. 't' value for the LD/TA with size of the company is only significant at the10 percent level. This result is in support to the views of Smith (1969) that the banks loan to total asset ratio is lower for small organization as banks discriminate against small sized borrowers in the extending loans. But, above finding is contrary to the finding of Gupta (June, 1969) that the bank loan to total asset ratio is invariably high in the smaller-sized corporations than in the larger sized corporations.

Table: 4.10
Corporate Size, Growth and Leverage Ratios

Variables	Size			Growth		
	Regression co-efficient	't' value	Partial correlation co-efficient	Regression co-efficient	't' value	Partial correlation co-efficient
TD/TA	-0.0003	-2.123*	-0.233	-0.224	-1.528	-0.170
LD/TA	0.0002	1.717**	0.190	-0.167	-1.569	-0.176
CL/TA	-0.0004	-3.603*	-0.377	-0.058	-0.419	-0.046

~ *= significant at the 5 % level. Source: Annex –7.
~ ** = significant at the 10 % level.

Growth rate and leverage ratios

Table 4.10 shows that leverage ratios (TD/TA, LD/TA and CL/TA) are found to be negatively correlated with growth rate on sales. This negative relationship is clear from negative regression coefficients of TD/TA, LD/TA and CL/TA for growth. But, the't' values of leverage ratios for growth rate are insignificant. This result is contrary to the finding of Gupta (1969) that TD/TA

is positively related with growth rate. However, his result was also insignificant.

(B) Model – II: Industry variation effect on financial structure

It is postulated in the study that leverage depends on length of CCC, FAT ratio, durability of the product and standard deviation of sales. In order to verify the above postulate, following multiple regression equations were run considering leverage ratios (TD/TA, LD/TA and CL/TA) as dependent variables and casual factors for industry variation viz., length of CCC, FAT ratio, durability of the product and standard deviation of sales as independent variables:

$$y = a + b_1 \text{ length of CCC} + b_2 \text{ FAT} + b_3 \text{ Durability} + b_4 \text{ S D of sales}$$

Where, length of CCC = length of cash conversion cycle,
FAT = Fixed assets turnover ratio,
Durability = durability of company product,
S D of sales = standard deviation of sales, and
y = dependent variable for the study. Leverage ratios: TD/TA, LD/TA and CL/TA are regarded as dependent variables.

The results drawn from the regression analysis are presented in table 4.11, which reveals the following conclusions.

Leverage ratios (TD/TA, LD/TA and CL/TA) are found to be positively related with length of CCC, which is clear from positive regression coefficients of TD/TA, LD/TA and CL/TA for length of CCC. Among them,'t' values for TD/TA and LD/TA are significant at the 5 percent level. It means that industries which have longer CCC also tends to have high leverage (total debt and long-term debt) in their financial structure.

Leverage ratios (TD/TA and CL/TA) are found to be positively related with FAT ratio. Between them,'t' value for CL/TA with FAT is significant at the 5 percent level of significance. TD/TA also has moderate partial correlation co-efficient of 0.555. It means that industries which have high fixed asset turnover also tend to have high leverage (total debt and current liabilities) in their financial structure. This could be due to the pre dominance of current

assets in their asset structure, and of current liabilities in their total debt structure. This result is in support to the finding of Gupta (1969) that a positive association was observed between TD/TA and FAT.

However, LD/TA is negatively related with FAT. But, the value of partial correlation co-efficient is negligible i.e. -0.084 and insignificant.

Table: 4.11
Industry Variation and Leverage Ratios

Variables	Length of CCC			FAT		
	Regression coefficients	't' values	Partial correlation coefficients	Regression coefficients	't' values	Partial correlation coefficients
TD/TA	0.006	0.006*	0.687	0.066	1.764	0.555
LD/TA	0.004	3.051*	0.756	-0.004	-0.224	-0.084
CL/TA	0.002	1.137	0.395	0.071	2.440*	0.678

Durability of Product			Standard Deviation of Sales		
Regression coefficients	't' values	Partial correlation coefficients	Regression coefficients	't' value	Partial correlation coefficients
0.008	0.993	0.352	-0.002	-1.075	-0.376
0.005	1.153	0.400	-0.00005	-0.066	-0.025
0.003	0.492	0.183	-0.002	-1.347	-0.453

~ *= significant at the 5 % level. Source: Annex –9.

~ Values in the parentheses are't' values.

Leverage ratios (TD/TA, LD/TA and CL/TA) are found to be positively related with durability of the industry product. It is evident from positive regression coefficients of leverage ratios with durability of product. It means that industries producing durable products use high level of leverage However, 't' values for leverage ratios are not significant. This result supports to the findings of Gupta (1969) that leverage ratios falls with the increase in perishability of the industry product.

Leverage ratios (TD/TA, LD/TA and CL/TA) are negatively correlated with standard deviation of sales. It means that industries having more unstable sales have lower level of leverage. But, the't' values for leverage ratios with standard deviation of sales are insignificant. This result supports the finding of Gupta (1969) that leverage has falling ratios with instability of sales.

Having analyzed the secondary data, the next section deals with primary data analysis. The primary data were collected by preparing and distributing questionnaire. They were analyzed by drawing the conclusions taking the views of majority respondents.

4.2 Analysis of primary Data

A questionnaire consisting of several questions relating to the effects of size, growth, and industry on financial structure was prepared and distributed to financial executives of 20 manufacturing companies listed in the NEPSE. The questionnaire is given in appendix-10. Out of 40 questionnaires distributed, 30 were returned with usable response (i.e. 75 percent response rate).The results from the primary data analysis are summarized in tables 4.12, 4.13 and 4.14, which show the following conclusions:

1) Leverage structure of the companies

All the respondents replied that their firms are using debt. Among them, majority of the respondents (83.33 percent) opined that their firms are applying more short-term debt than long-term debt. Remaining 16.67 percent respondents stated that their firms are using long-term debt and short-term debt in equal proportion (table 4.12.)

Table: 4.12
No. of responses regarding the leverage structure of the companies

Q No. 1	Question	No. of responses	
		Yes	No
Part (i)	Is your firm using debt?	30	0

Q. No. 1	Question	No. of responses				
		All long-term	All short-term	Both in equal proportion	Short-term > Long-tem	Long-term> short-term
Part (ii)	What is the proportion of short-term & long-term debt?	0 (0 %)	0 (0 %)	5 (16.67 %)	25 (83.33 %)	0 (0 %)

2) Factors affecting company's borrowing

With respect to the factors affecting company's borrowing, the majority of the respondents gave first rank to the management's attitude. It has the weighted value of 136. Size of the company, growth rate on sales of the company, types of industry and lender's attitude are ranked second , third, fourth and fifth with weighted value of 115, 93, 66 and 40 respectively (table 4.13.)

Table: 4.13
Rank wise no. of responses on factors affecting company's borrowing

	No. of responses						
Rank	1	2	3	4	5	Weighted value	Overall rank
Weight Factors	5	4	3	2	1		
Management's attitude	20	6	4	0	0	136	1st
Lender's attitude	0	1	1	5	23	40	5th
Size of the company	6	18	2	3	1	115	2nd
Growth rate on sales	2	5	19	2	2	93	3rd
Types of industry	2	0	4	20	4	66	4th
Total	30	30	30	30	30	450	

Where weighted value = weight × no. of responses

3) Size of the company and borrowing

Regarding the size of the company and borrowing, the majority of the respondents (76.67 percent) felt that company borrowing (debt ratio) decreases with the increase in its size. They supported their views that weak financial position and various psychological factors associated with their management, small size companies face difficulties on the availability of equity capital and they heavily depend on debt capital. Smaller sized corporation also face difficulties in obtaining long-term debt, so, the maturity composition of their debt structure is likely to be shorter than that of the larger-sized corporations. Hence current liabilities to total debt ratio is also high for smaller sized corporation.

Only 20 percent of the respondents stated that company borrowing increases with the increase in its size. Other 3.33 percent of the respondents opined that size of the company does not affect its borrowing (table 4.14.)

4) Growth rate and company borrowing

With respect to the growth rate on sales and company borrowing, the majority of the respondents (66.67 percent) viewed that higher the growth rate on sales of the company lower would be the borrowing. They supported their opinion that high growth on sales cause high cash flow and profit. Profit can be used to repay the debt and retained for capitalization. Thus, growth companies have lower borrowing.

Only 30 percent of the respondents considered that borrowing increases with increase in growth rate. Other 3.33 percent of the respondents opined that growth rate on sales has not significant relationship with company borrowing (table 4.14.)

Table: 4.14
Rank wise no. of responses on factors affecting company's borrowing

		No. of responses		
Q. No.	Responses Questions	Yes, higher would be the borrowing	No, lower would be the borrowing	No, borrowing is not affected
3	Do you think that bigger the size of the company higher would be the borrowing?	6 (20 %)	23 (76.67 %)	1 (3.33 %)
4	Higher the growth rate on sales higher would be the borrowing. Do you agree?	9 (30 %)	20 (66.67 %)	1 (3.33 %)
5	Do you think that company borrowing increases with increase in length of cash conversion cycle?	27 (90 %)	0 (0 %)	3 (10 %)
6	Bigger the ratio of sales to fixed assets of the company higher would be the borrowing. Do you agree?	8 (26.67 %)	20 (66.67 %)	2 (6.66 %)
7	Higher the durability of product higher would be the borrowing. Do you agree?	22 (73.33 %)	6 (20 %)	2 (6.67 %)
8	Do you think that increase in variability of sales causes increase in borrowing?	6 (20 %)	21 (70 %)	3 (10 %)

5) Length of cash conversion cycle and company borrowing

In consideration to the length of cash conversion cycle and company borrowing, majority of the respondents (90 percent) felt that level of company borrowing increases with increase in length of cash conversion cycle. They supported their opinion that when length of cash conversion cycle increases, company has to finance inventories for long period and more money is needed and borrowing would increase.

Other 10 percent of the respondents viewed that there is no relationship between length of cash conversion cycle and company borrowing (table 4.14.)

6) Fixed assets turnover ratio and company borrowing

Regarding the sales to fixed assets of the company and its borrowing, majority of the respondents (66.67 percent) felt that bigger the FAT ratio lower would be the borrowing. They supported their view that high FAT means increase in sales within given fixed assets. When sales increases, cash flow and profit will also be high. Profit can be used for repayment of loan and for further capitalization. Thus, the level of borrowing will be decreased.

Only 26.67 percent of the respondents stated that borrowing increases with increase in fixed asset turnover. They supported their view that increase in FAT indicates the high activity of the company and company needs more inventories. To finance the huge inventories company needs more money and its borrowing will be increased. Other 6.67 percent of the respondents opined that FAT ratio does not affect the company borrowing (table 4.14.)

7) Durability of company product and borrowing

Considering the durability of company product and borrowing, the majority of the respondents (73.33 percent) felt that higher the durability of product higher would be the borrowing. They supported their view that durable products have supply pressure i.e. such firms produce more than average

demand and there is the possibility of huge stock of finished good. Durable products are generally large in size and costly. So, the investment in inventory for durable product producing company is high and they use more borrowing.

Only 20 percent of the respondents stated that borrowing will decreases with increase in company product durability. Other 6.67 percents of the respondents viewed that durability of product does not affect the company borrowing (table 4.14.)

8) Variability of sales and company borrowing

With respect to variation on the sales of company and its borrowing, majority of the respondents (70 percent) viewed that increase in variability of sales causes decrease in borrowing. They support their opinion that when sales is uncertain, total production will be low and company needs less money to invest its inventories and uses less debt.

Only 20 percent of the respondents felt that borrowing increases with increase in sales variability. They support their view that when sales are instable then cash flow is uncertain and company uses more debt to finance its working capital. Other 10 percent of the respondents opined that variability of sales does not affect the company borrowing (table 4.14.)

4.3 Concluding Remarks

Regarding the leverage structure of the companies, average debt ratio of total companies during the study period is found to be 83.6 Percent. The average debt ratio is also in increasing trend. Most of the organizations are using more current liabilities than long-term debt, which is clear from 30.2 percent of average LD/TA and 53.3 percent of average CL/TA ratio. Majority of the respondent of questionnaire also viewed that their firms are using more short-term debt than long-term debt. Average CL/TA ratio is also in increasing trend, however, average LD/TA ratio is in decreasing trend.

When portfolios were formed on size and growth, enterprises have been larger size have lower CR, TAT, FAT, TD/TA and CL/TA ratios. However, CAT and LDTA ratios do not show the clear relationship with company says.

Enterprises with higher growth rate on sales have higher TAD, FAT, CAT and ROA, and lower LD/TA and ROSE. Whereas, CR, TD/TA and CL/TA do not show the clear relationship with growth rate.

From the primary as well as secondary data analysis, leverage ratios (TD/TA and CL/TA) are found to be negatively correlated with size. And the relationships are significant at 5 percent level However; LD/TA is positively correlated with size and only significant at 10 percent level. Leverage ratios (TD/TA, LD/TA and CL/TA) are negatively correlated with growth rate and standard deviation of sales. But, the relationships are insignificant. Majority of the respondents of questionnaire also viewed that borrowing will decreases with increase in size, growth and variability of sales. However, leverage ratios (TD/TA LD/TA and CL/TA) are positively related with length of CCC and durability of the product. Among them, relationship of TD/TA and LD/TA with length of CCC is significant at 5 percent level. Respondents of the questionnaire also opined that there is positive association of leverage with length of CCC and durability of the product.

There is a contradiction between the result of secondary data and primary data for relationship of leverage with FAT ratio. From the regression analysis, TD/TA and CL/TA are found to be positively correlated with FAT. Between them, relationship of CL/TA is significant at 5 percent level. However, majority of the respondents of the questionnaire opined that bigger the FAT ratio for the company, lower would be the borrowing.

4.4 Major Findings

Almost all the selected companies are using debt capital. Average debt ratio (TD/TA) of the total companies during the study period is found to be 83.6 percent, which indicates that in average companies have 83.6 percent debts in their financial structure. The average debt ratio is also in increasing trend (figure: 4.1.) Only about 50 percent of the selected companies are using long-term debt in their financial structure. The average ratio of long-term debt to total assets (LD/TA) is found to be 30.2 percent and LD/TA is in decreasing trend (figure: 4.2.) Most of the selected companies have used more current liabilities than long-term debt. Average ratio of current liabilities to total assets (CL/TA) during the study period is found to be 53.3 percent, which indicates in

an average companies are using 53.3 percent current liabilities (short-term obligation) in their financial structure and CL/TA is in increasing trend (figure: 4.3.)

When portfolio was formed on size enterprises having larger size have lower CR ratio. It indicates that bigger the size of the company lower would be the liquidity. This result is contrary to the findings of Gupta (1969.) Similarly larger sized companies have lower activity ratios (TAT and FAT.) This result is in support to findings of Gupta (1969) and Chusdon (1945.) However, CAT ratio does not show clear relationship with company size. Enterprises having larger size also have lower leverage (TD/TA, and CL/TA) ratios. It indicates that bigger the size of the company lower would be the borrowing. This result is in support to the views of Smith (1969), but, it is in contrary to the finding of Gupta (1969.) However LD/TA ratio does not show clear relationship with company size. Larger sized corporations have lower ROSE, but, ROA ratio does not show clear relationship with size.

When portfolio was formed on growth rate, CR ratio does not show clear relationship with growth. Enterprises with higher growth have higher activity ratios (TAT, FAT and CAT.) This result is in support to findings of Gupta (1969.) Leverage ratios (TD/TA and CL/TA) do not show clear relationship with growth rate. However finding of Gupta (1969) concluded that TD/TA is positively related with growth, but, this finding was also insignificant. Enterprises with higher growth have higher ROA and lower ROSE. Thus an irregular pattern of profitability was found with growth rate. This result supports the finding of Gupta (1969.)

From the multiple regression analysis considering leverage ratios as dependent variables and size and growth rate as independent variables, TD/TA and CL/TA were found to be negatively correlated with size. This indicates that bigger the size of company lower would be the leverage (total debt and current liabilities) in their financial structure. ‘T’ values for TD/TA and CL/TA with size are also significant at 5 percent level. Majority of the respondents of the questionnaire also viewed that company borrowing decreases with increase in its size. This result is in support to the views of Smith (1969), but it is in contrary to the finding of Gupta (1969). However, LD/TA was found to be

positively correlated with size of the company, but, relationship was only significant at 10 percent level. Leverage ratios (TD/TA, LD/TA and CL/TA) were negatively correlated with growth rate, but the relationships were insignificant. Majority of the respondent of the questionnaire also opined that higher the growth rate on sales of the company lower would be the borrowing. This result is contrary to the finding of Gupta (1969) that TD/TA is positively related with growth rate; however his finding was also insignificant.

When multiple regression equations were run considering leverage ratios as dependent variables and casual factors for industry variation: length of CCC, FAT ratio, durability of the product and standard deviation of sales as independent variables, leverage ratios (TD/TA, LD/TA and CL/TA) were found to be positively related with length of CCC. Among them,'t' values for TD/TA and LD/TA with length of CCC are significant at 5 percent level. It means that companies which have longer CCC also tend to have high leverage (borrowing) in their financial structure. Majority of the respondents of questionnaire also viewed that level of company borrowing increases with increase in length of CCC. TD/TA and CL/TA are positively related with FAT ratio. Between them, relationship of CL/TA with FAT is significant at 5 percent level. It indicates that industries which have high FAT also tend to have high total debt and high current liabilities. This result is in support to the finding of Gupta (1969.) But, LD/TA is negatively related with FAT, but, is insignificant. However, majority of the respondents of the questionnaire felt that bigger the FAT ratio lower would be the company borrowing. So, the view of respondents is in contrary to the conclusion from secondary data analysis. Leverage ratios (TD/TA, LD/TA and CL/TA) are found to be positively correlated with durability of the company product. It means that companies producing durable products use high level of leverage. But, the relationships are insignificant. Majority of the respondents of questionnaire also felt that higher the durability of product higher would be the borrowing. TD/TA, LD/TA and CL/TA ratios are negatively correlated with standard deviation of sales. It indicates that industries having more instable sales have lower level of leverage. But, the relationships are insignificant. This result supports the finding of Gupta (1969.) Majority of the respondents of the questionnaire also viewed that increase in variability of sales causes decrease in leverage.

CHAPTER –FIVE

SUMMARY, CONCLUSION & RECOMMENDATION

5.1. Summary

This study mainly aims at examining the effect of size, growth rate and industry variation on financial structure. Its specific objectives are: 1) To find out the relationship between corporate size and its financial structure, 2) To determine the effect of growth rate on financial structure 3) To ascertain the relationship between length of cash conversion cycle and company leverage, 4) To assess the affiliation of the company leverage with FAT ratio, 5) To find out the effect of product durability on company leverage, and 6) To ascertain the relationship between instability of sales and company leverage.

This study covers twelve major manufacturing enterprises of Nepal viz., Bottlers Nepal Ltd.(BNL), Bottlers Nepal (Terai) Ltd.(BNTL), Shree Raghupati Jute Mills Ltd. (SRJML), Jyoti Spinning Mills Ltd.(JSML), Shree Arun Vanaspati Udyog Ltd.(SAVUL), Nepal Lube Oil Ltd (NLOL), Shree Bhrikuti Pulp and Paper Nepal Ltd.(SBPPNL), Sri Ram Sugar Mills Ltd.(SRSML), Nepal Bitumen and Barrel Udyog Ltd.(NBBUL), Nepal Vegetable Ghee Industries Ltd.(NVGIL), Nepal Lever Ltd. (NLL), and Himgiri Textile Industries Ltd. (HTIL.)

For the purpose of the study, the secondary data regarding the effect of size, growth rate and industry on financial structure, and other supportive information were collected from the financial statements of the selected companies of the fiscal years from 2005/06 to 2011/12. A questionnaire was prepared and distributed to financial executives of manufacturing companies listed on NEPSE to collect the primary data.

This study used portfolios analysis and multiple regression analysis to find out the size and growth effect on various financial ratios using secondary data. Under portfolio analysis, two portfolios are formed based on size and growth rate. The smallest, moderate and largest enterprises are kept in portfolio 1, 2, and 3 respectively in both portfolios analysis. For each enterprises, various ratios like: current ratio (CR), total debt to total asset (TD/TA), long-term debt

to total asset (LD/TA), current liabilities to total asset (CL/TA), total asset turnover (TAT), fixed asset turnover (FAT), current asset turnover (CAT), return on asset (ROA), and return on shareholders' equity (ROSE) are computed. They are then classified according to the portfolios formed and average ratios are computed.

Under multiple linear regression analysis to find out the effect of size and growth on financial structure, size and growth are taken as independent variables and leverage ratios (TD/TA, LD/TA and CL/TA) as dependent variables. To determine the industry variation effect on financial structure another multiple linear regression is run taking casual factors viz., length of cash conversion cycle (CCC), FAT ratio, durability of product, and standard deviation of sales as independent variables and leverage ratios (TD/TA, LD/TA and CL/TA) are considered as dependent variables. In the case of primary data analysis, conclusions have been drawn using the views of majority respondents.

5.2. Conclusion

To sum up, CR, TAT, FAT, and ROSE ratios decreases with the increase in size of the company. Enterprises with higher growth rate on sales have lower ROSE ratio; and higher TAT, FAT, CAT & ROA ratios. TD/TA, CL/TA ratios are negatively correlated with company size and relationships are significant at 5 percent level. Similarly, TD/TA, LD/TA and CL/TA ratios are negatively correlated with growth rate on sales of the company. But, the relationships are not significant.

Leverage ratios (TD/TA, LD/TA and CL/TA) are positively correlated with length of CCC and durability of product. Between them, relationships of TD/TA and LD/TA with length of CCC are significant at 5 percent level. When multiple regression is run, TD/TA and CL/TA are found to be positively associated with FAT ratio, whereas, LD/TA has negative relationship with FAT. Among them, association of CL/TA with FAT is significant at 5 percent level. However, majority of the respondents of questionnaire viewed that bigger the FAT ratio lower would be the borrowing. So, the view of the respondents is in contrary to the conclusion of secondary data analysis.

Leverage ratios (TD/TA, LD/TA and CL/TA) are positively correlated with durability of product and negatively correlated with standard deviation of sales, but, the relationships are insignificant.

5.3. Recommendation for Further Research

Based on this research study, recommendations for the future research avenue are as follows:

⇒ One can increase the sample size and study period so that more data can be incorporated and more reliable and valid conclusion can be drawn.

⇒ This study only considers the manufacturing companies of Nepal. Further research can also be made for manufacturing as well as non-manufacturing companies. A comparison between manufacturing and non-manufacturing companies can also be possible.

⇒ Study similar to this study should be conducted from time to time to review long-term stability of the results.

⇒ For the industry variation effects on financial structure, it is recommended to classify the selected companies to different standard industry class like sugar, tobacco, textile, paper etc. and to analyze their financial structure. In this study such type of analysis is not carried out due to limited scope of the study.