CHPTER: I

INTRODUCTION

1.1 Background of the Study

One of the central issues in both the theory and practice of financial management is the problem of determining the optimal capital structure of the firm. The capital structure refers to the proportion of debt and equity capital. Every business firm needs funds to operate. Generally the firm can acquire the funds from two way, they are equity and debt. Equity provides the ownership of the firm to the shareholders. On the other hand, the debt is borrowed fund which has fixed charge as an interest. The firm must pay the interest periodically to the debt provider. Retained earnings may also be used as a source of financing by running business firms.

Capital structure is the composition of the debt and equity securities and is considered as financing decision undertaken by the financial manager. The financial manager must strive to obtain the best financing mix or optimum capital structure for his firm. The firm attains capital structure where the debt-equity proportion maximizes the market value of the shares. The uses of debt affect the return and risk of the equity shareholder; it increases the return on equity fund and at the same time it also increases risk. A proper balance between risk and return must be strike in order to maximize the market value of shares (Pandey, 1995, p.54).

The concept of capital structure is a corner stone in the theory of finance. Thus the financing decision of a firm relates to choice of proportion of debt and equity to finance requirement, which affects the cost of capital through the risk complexion and ultimately the value of the

firm. A proper balance between debt and equity is necessary to ensure a trade-off between risk and return to the shareholders. A capital structure with reasonable proportion of debt and equity is called optimal capital structure, which will minimize the overall cost of capital and maximize the value of firm. Therefore a firm should select the proper mix of debt and equity so that the value of firm can be maximized as well as overall cost of capital can be minimized. In other words, the point where the largest positive difference exists between expected rate of return and required rate of return is called optimal capital structure. For an optimal capital structure, the analysis of risk and return on various leverage positions are essential. The risk of bankruptcy depends to an important extent on the operating risk, or business risk and return on equity depends on operating efficiency. Thus, the optimal debt-equity mix depend on the nature of business and there on kinds of investments that the company makes (Solomon & Prinjal, 1977, p. 452).

But the capital structure decision in addition these variables, is influenced by several other variables viz. nature of the company, capital market situation, interest of the management and investors to control, liquidity position and operating efficiency of the company, company and regulation etc. If a judicious decision of capital structure is made taking consideration all these factors, it will be a thing to maximize the value of the company.

The effect of debt capital only on earning per share does not measure overall effect. The leverage also affects on risk due to earning variability or bankruptcy cost. The change on market price of stock due to the change on leverage measures the actual effect of leverage. The prevailing market price of the securities of an enterprise determines the value of the enterprises. Market price of securities depends on the expected return and risk associated to the securities. The expected earning and risk depends upon operating efficiency and

financial leverage. Thus, for maximizing the value of the company, investment decision and capital structure decisions are the prominent. Here, on this study, only the capital structure decision is examined relating to the value of the listed companies in NEPSE.

Financial decision-making is a process of choosing best alternative among various financial alternatives (Barges, 1963, p. 2). An alternative having minimum cost with reasonable return compare to others is acceptable. The cost of capital refers to the discount rate that would be used in determining the present value of the estimated future cash proceeds and eventually deciding whether the project's worth under taking or not. The concept of cost of capital is significant not only as investment criteria but can also be used to evaluate the financial performance of the firm. In addition, the cost of capital concept helps management in moving towards its targeted capital structure or an optimal capital structure. There exists relationship between these two elements. In building up its capital structure over a period of time, a firm will depend on the line of financing which involves minimum cost. The capital structure and the cost of capital both are important in maximizing the value of firm. This study is a small effort in this direction in context of Nepal.

In almost all public enterprises capital structure continued to remain a very indeterminate problem due to the lack of guided criteria that determines it (Shrestha, 1985, p. 14). The various study reports and official documents relating to public enterprises streamline the maintenance of ad-hoc capital structure to the extent that neither the government nor public enterprises themselves have been serious in the appropriate determination of capital structure. The firms may have different objectives. Among them, shareholders wealth maximization is one of the most important objectives. Most of the Nepalese companies could not meet this objective because in most of the companies there is no existence of debt

capital in their capital structure or equity capital is only the source of financing. While in some cases, the proportion of debt is very high which creates the excess burden to the firm and on the other hand, it is very high which creates the excess burden to the firm and on the other hand, it is very low in some cases. For instance, the use of the debt financing in the capital structure is very poor in banking sector.

From the above discussion, it is cleared that capital structure concept is not taken seriously by the Nepalese companies. Therefore optimal capital structure does not exist at all. Beside this, the concept of cost of capital is also not clear in Nepalese companies because it is impossible to minimize overall cost of capital and maximize the value of firm without proper combination of capital structure component in financing of the firm.

1.2 Statement of the Problem

Capital Structure refers to the combination of long-term sources of funds, such as long-term debt, preference stock and common equity including reserves and surpluses (Gautam & Thapa, 2008, p. 3). Under normal economic condition earning per share can be increased but leverage also increases the financial risk of the shareholders. As a result, it cannot be said that weather or not the value of the firm will increase with leverage. In other words, a great deal of controversy has been developed on whether the capital structure affects value of the firm or not. Traditionalists argue that capital structure is relevant factor for valuation of the firm. Further they said that value of the firm can be maximized by adopting optimal capital structure (Sharma & Rao, 1967, p. 176). Modigliani and Miller, on the other hand argue that, in perfect capital market, capital structure does not affect the value of firm. According to Sharma and Rao, the cost of capital is affected by debt apart from its tax advantages. Pandey

has used the multiple regressions to test the validity of M-M proposition and concluded that the cost of capital is the functions of capital structure (Pandey, 1981, p. 49). These studies indicates that the useful theoretical development have not been uniform accords all area of financial decision making within an organization. The effect of capital structure is one of them. There are many studies conducted on capital structure, cost of capital and value of firm. However no simple and conclusive result exists regarding their relationship whether the capital structure and cost of capital helps to maximize the value of firm. The relationship between them in under developed countries like Nepal is not yet clearly known.

The reality of Nepalese companies is different form to any capital structure theories developed in respected of developed capital market situation. Opposite to the theory of leverage, Nepalese unlevered companies are operating in profit and most of the levered companies are suffering from loss and hence the values of unlevered firms are much greater than that of levered companies. Among 142 listed companies (till July 15, 2008) very few levered companies are operating in profit. Therefore it cannot be said that whether or not leverage helps to maximize the value of the firm in contest of Nepal. Therefore it is the subject of curiosity for the students, researchers. Businessman and others who are interested to know that what the actual position of capital structure in Nepalese listed companies and what its effect on overall cost of capital as well as on the value of the firm. Therefore to meet their curiosity, this study is devoted to examine the relationship between capital structure and the value of firm in Nepalese companies. On the light of this basic problem, the following special problems have been set and tried to seek their solutions in this study:

- Whether or not value of the firm is increased with leverage?

- Whether or not the other factors except leverage affects the value of the firm in Nepalese context?

- What is the relationship between capital structure or leverage and value of the firm?

1.3 Objectives of the Study

The basic objective of this study is to analyze the effect of capital structure on the value of firm in the listed companies in Nepal. Under the guideline of this leading objective, the following objectives are to set in this study:

i. To examine the effect of leverage on the value of the firm.

ii. To identify the other variables in addition the leverage that affect the value of the firm.

iii. To analyze the relationship between value of the firm and it's determining variables.

1.4 Limitations of the Study

There are some limitations in undertaking this study. Among one hundred and forty two listed companies (till July 15, 2008) few companies have been using the debt capital. Thus, only eleven companies (six from manufacturing & processing and five from non manufacturing (trading-2 & hotel-3)) have been selected as sample size due to the data problem. Beside these some of the major limitations are presented below:

- This study is based on secondary data published by Nepal Stock Exchange and Security Board of Nepal.

- The calculation of dependent and independent variables are based on accounting data (in soft copy) provided by Nepal Stock Exchange and Security Board of Nepal.

Means, Standard Deviations, Correlation Coefficients and Regression Coefficients are calculated by using the Statistical Package for Social Science (**SPSS)** programme.

- The study period mostly begins from 2058 B.S. and ends to 2065 B.S. But due to the unavailability of necessary information, it varies from company to company.
- The sample companies were classified in two sectors viz. manufacturing sector and non manufacturing sector with the assumption that associated risks of the sample companies are similar within each sample sectors.
- The closing market price of previous years are taken as market price of the stock while calculation value of the company where the actual market price of stock is not available and the calculations to fit the analytical mode are made by computer.
- Focus is given only to analyze the impact of debt capital or leverage on the value of the company.

1.5 Organization of the Study

This study has been organized in five chapters, each devoted to some aspects of the study of the effect of capital structure on value of firm. The contents of each chapter are briefly mentioned below.

First chapter describes the introductory part of the study which consists of background of study, statement of the problem, objectives, limitations and organization of the study.

Second chapter, review of literature includes review of capital structure theories, review of empirical studies and articles, and review of thesis.

Third chapter describes the methodology employed in the study and also includes research design, nature and sources of data, population and sample size, period of the study, tools employed and description of variables.

Fourth chapter concerns with presentation and analysis of data. It includes the analysis of financial indicators, analysis of mean, standard deviation, coefficient of variation and regression analysis. At the last of this chapter, the major findings are also included.

Finally, chapter five presents summary, conclusions and recommendations of the study.

CHAPTER : II

REVIEW OF LITERATURE

In this chapter, the review of various theories of capital structure, research works and articles have been reviewed to make clear concept about the topic as well as to recall the previous studies made by various researchers in the field of capital structure. So, this chapter has been divided into the following three sections.

1 Review of capital structure theories.

2 Review of empirical studies/Articles.

3 Review of Thesis.

2.1 Review of Capital Structure Theories

The history presents several theories on capital structure. Those theories can be grouped into two schools of thought. One suggests that an optimal capital structure exists for a firm and the other hand holds the view that no such capital structure exists. The theories based on both versions have dominated the financial world. They are classified as follows:

2.1.1 Behavioual Theories

a. Net Income (NI) Approach

b. Net Operating Income (NOI) Approach

c. Traditional Approach

2.1.2 Contemporary Theories

a. M-M Theory without Taxes

b. M-M Theory with Taxes

2.1.1 Behavioral Theories

Behavioural theories were developed by Durand (1952) by considering the rational reaction of investors to firm's leverage risk. Although his theories sound intuitively appealing, they are not founded in a scientific base.

a. Net Income (NI) Approach

The Net Income (NI) approach is also called as relevancy theory of capital structure because the capital structure decision is relevant to the valuation of the firm. According to this approach, there is no change in the attitude of the both stockholders and debt holders regarding their required rate of return in response to a change in debt equity ratio of the firm. In other words, the cost of debt capital and the cost of equity capital remain unchanged when leverage ratio varies. Due to the limited degree of risk, the debt holder's required rate of return is relatively lower than that of equity holders. So, the debt financing is relatively cheaper than that of equity. In addition, at constant cost of equity (Ke) and cost of debt (Kd), the overall cost of capital (Ko) declines with the increased proportion of debt in the capital structure or increment of debt results, lower overall cost of capital and higher value of the firm. The NI approach is based on following assumptions (Khan & Jain, 1999, p. 477):

i. The corporate taxes do not exist.

ii. The use of debt does not change the risk perception of investors as a result; Ke and Kd remain constant with increased use of debt.

iii. The cost of debt (Kd) is less than the equity capitalization rate or cost of equity Ke.

According to these assumptions, the increase in debt ratio magnifies the earning per share. On the given equity capitalization rate, the increase in EPS makes an increase in market price of stock. i.e,:

$$\text{MPS} = \frac{\text{EPS}}{\text{Ke}}$$

Where, MPS = Market Price of Stock

EPS = Earning per Share

Ke = Cost of Equity

In other words, the increase in debt ratio cause decline in overall cost of capital (Ko) and the decrease on Ko enhances the market value of the firm or company. i.e.

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

Where, V = Market value of the company

NOI = Net Operating Income

Ko = Overall cost of capital

Thus, a firm can maximize its market price of stock or value by achieving the optimal capital structure y making judicious mix of debt and equity. This theory or approach is graphically shown in the figures.

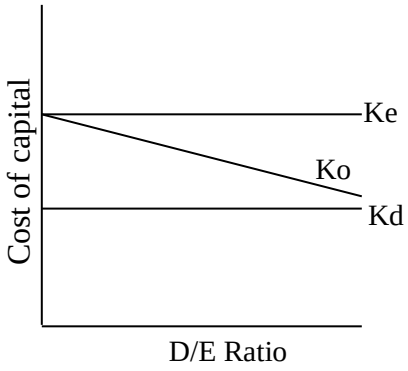

Fig: 2.1 NI Approach

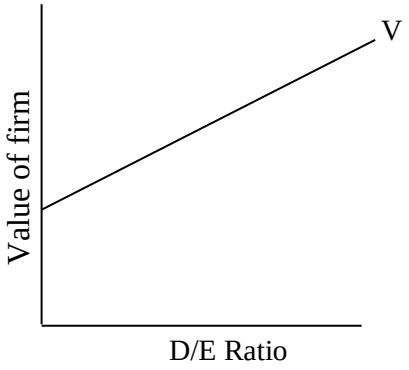

Fig: 2.2 NI Approach

Where, D/E = Debt Equity ratio

V = Value of firm

From the above figures, it is clear that cost of debt (Kd) and cost of equity (Ke) are constant but overall cost of capital (Ko) is declining as increasing level of debt, whereas the value of the firm is maximum with higher level of debt. Therefore the optimum capital structure would occur at the point where the value of firm is maximum and overall cost of capital is minimum. It will have the maximum value of the firm and lowest cost of capital when it is all debt financed or has much debt as possible.

b. Net Operating Income (NOI) Approach

The NOI approach is also known as irrelevancy theory of capital structure because capital structure decision is irrelevant the valuation of the firm. It implies that the total value of the firm is unaffected by its capital structure. According to this approach, the equity holders feel

higher degree of risk and demand higher rate of return for higher debt equity ratio. In addition, the cost of equity increases with debt levels and higher cost of equity offsets the benefit of cheaper debt financing. There is no effect at all on overall capitalization rate of the firm. In other words, the overall cost of capital (Ko) as well as cost of debt (Kd) remain constant regardless of the degree of leverage. Therefore this approach argues that the capital structure decision of the firm is irrelevant. Any change in leverage will not lead to any change in the total value of the firm. The NOI approach is based on the following assumptions (Pandey, 1995, p. 456):

i. Corporate taxes do not exist.
ii. Cost of debt remains constant.
iii. Cost of equity increases with increase in debt use.
iv. Overall cost of capital remains constant.
v. The market capitalizes the value of the company as a whole. Thus the split between debt and equity is not important.

According to this approach, both the earning per share (EPS) and equity capitalization rate (Ke) increases on same proportion with the increasing debt ratio. So, market price of stock (S) remains unchanged on any leverage. The total market value of the company also remains unchanged, since as previously said that the net operating earnings as well as overall cost of capital do not vary with the leverage. The market value of the company is obtained as below:

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

Where, V = Value of the firm

NOI = Net Operating Income

Ko = Overall capitalization rate

The NOI approach is shown in figures below:

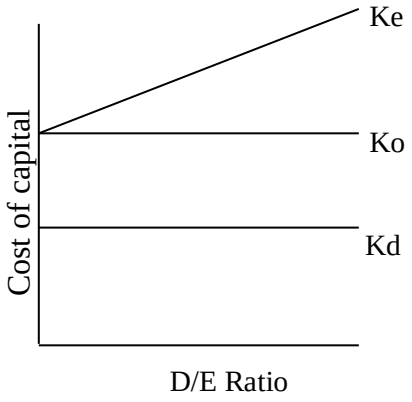

Fig: 2.3 NOI Approach

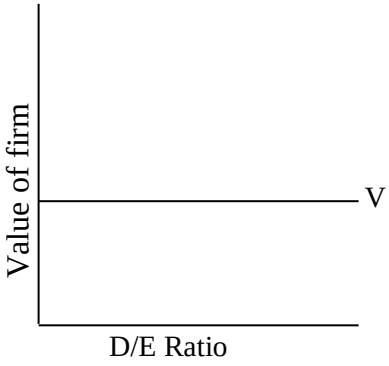

Fig: 2.4 NOI Approach

The above figures show that the cost of debt (Kd) and overall cost of capital (Ko) remain constant and the cost of equity (Ke) is increasing with higher level of debt use. A part from these, the value of firm (V) is also constant with leverage. "At the extreme degree of financial leverage, hidden costs become very high and hence the firm's cost of capital and its market value is not influenced by the use of additional cheaper debt fund" (Gitman, 1988, p. 792). Thus, this approach suggests that there is no optimal capital structure.

c. Traditional Approach

The traditional approach was developed by Ezra Soloman. It is also known as intermediate approach between Net Income (NI) approach and Net Operating Income (NOI) approach. The traditional approach assumes that there exists an optimal capital structure and that a firm

can increase its total value through the judicious use of leverage (Van Horn, 2000, p. 261). In other word, the value of the firm can be maximized or overall cost of capital can be minimized through proper mix of debt and equity capital. Due to the fact that (Van Horn, 2000, p. 261) the debt increases the fixed obligation to the company and so increases the financial risk, the investors raise the required rate of return on equity (Ke). The increase in cost of equity (Ke) does not offset entirely the benefits of using cheaper debt funds. Thus, overall cost of capital (Ko) decreases up to certain level of debt use and then after, it begins to increase. In other words the cost of equity (Ke) increases at lower rate and cost of debt (Kd) remain constant up to certain level of debt use. At that time, the overall cost of capital is also minimized and the value of firm (V) is maximized. After that cost of equity (Kd) and overall cost of capital (Ko) increases rapidly and the value of firm will also decreases. The optimal capital structure exists at that point where overall cost of capital (Ko) is minimum and the value of firm (V) is maximum. The assumptions of this approach are as follows:

i. Equity holders adjust their required rate of return proportionately for every unit of debt inclusion.
ii. Debt holders do not really care for the level of debt inclusion and do not demand any premium for the leverage risk at least in the beginning.
iii. The expected outcome of the behavior of equity holders in the benefit of cheaper debt financing causes the cost of equity and debt, increases.

According to this approach (Solomon, 1963, p. 94), the manner in which the overall cost of capital reacts to change in capital structure can be divided in to three stages.

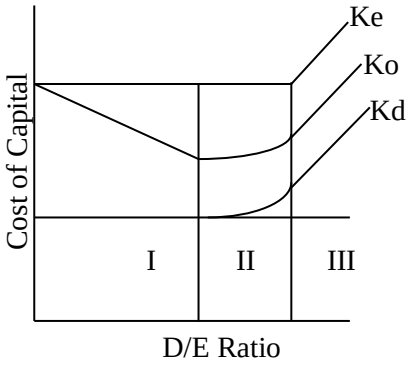

Fig: 2.5 Traditional Approach

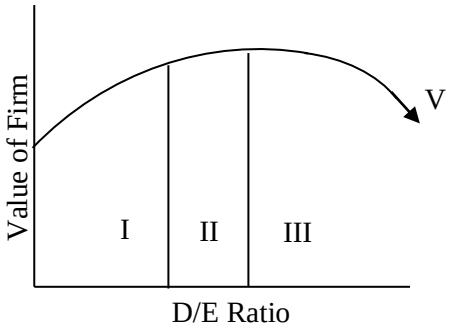

Fig: 2.6 Traditional Approach

Stage: I

The first stage of traditional approach begins with the introduction of debt in the total capital. Initially (Pandey, 1981, p. 31), the cost of equity (Ke) remains constant or rises slightly with the use of debt fund and it does not increase fast enough to offset the advantage of low cost debt. During this stage, the cost of debt (Kd) remains constant or rises negligibly since the market views the use of debt as a reasonable policy. As a result, the value of the firm (V) will increase or the overall capitalization rate (Ko) falls with increase in leverage. This implies that, within acceptable limit of debt, the average cost of capital will decline with leverage.

Stage: II

Once the firm has reached a certain degree of leverage, further application of debt have a negligible effect on the value of the firm or the overall cost of capital to the firm. This is because the increase in cost of equity offsets the advantage of low cost debt. Within the range of such debt level or tat a specific point, the value of the firm will be maximum or the cost of capital will be minimum (Pandey, 1981, p. 31)

Stage: III

Beyond the acceptable limit of leverage, the value of the firm decreases with leverage or the overall cost of capital increases with leverage. This happens because the cost of equity increases by more than enough to offset the advantages of low cost debt (Pandey, 1981, p. 31).

The overall effect of these three stages suggests that the cost of capital and the value of the firm are the functions of leverage and there exists optimal capital structure.

2.1.2 Contemporary Theories

A comprehensive analysis of capital structure was revealed in 1958 when Franco Modigliani and Merton Miller (M-M) published an article on the issue of capital structure relevancy. The article is considered to be the most significant work in financial research ever published. The major aspects of their theory are discussed below:

a. M-M Theory without Taxes

Modigliani and Miller (M-M) support the relationship between leverage and cost of capital that explained by NOI approach. They argue that in the absence of taxes, total market value and cost of capital of the firm remain invariant to the capital structure change. “They make a formidable attack on the traditional position by offering behavioural justification for having the cost of capital (Ko) remains constant throughout all degree of leverage” (Solomon, 1963, p. 92). M-M contained that the cost of capital is equal to the capitalization rate of pure equity stream of income and the market value is ascertained by capitalizing its expected income at the appropriate discount rate for its risk class. The M-M cost of capital hypothesis can be best

expressed in terms of their propositions I and II. However the following assumptions regarding the behavior of the investors and capital market, the action of the firm and the tax environment are crucial for the validity of the M-M hypothesis.

i. Securities are traded in perfect capital market situations.
ii. Firms can be grouped in the homogeneous risk class.
iii. Dividend payout ratio is 100 percent.
iv. Corporate income tax does not exist.
v. Investors have homogeneous expectations about expected future corporate earnings also the riskiness of their earnings.
vi. The variance of return may differ from investor to investor.

Proposition I

The M-M proposition I states that the market value of a firm is independent of its capital structure. It is because the value of the firm is determined by capitalizing the net operation income (NOI or EBIT) at a rate appropriate for the firms risk class. Accordingly, the value of firm is obtained by:

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

Where, V = Value of the firm

NOI = Net Operating Income

Ko = Risk adjusted capitalization rate

The M-M proposition I also implies that the weighted average cost of capital (Ko) to any firm (i.e. levered or unlevered) is completely independent of its capital structure and equal to the cost of equity (Ke) to an unlevered firm in the same risk class. Thus, there is no relationship between the value of a firm and the way its capital structure is made up, nor there is any relationship between the value of a firm and the way its capital structure is made up, nor there is any relationship between the average cost of capital and the capital structure. It is identical to the NOI approach.

Proposition II

The proposition II states that the cost of equity rises proportionately with the increase in the financial leverage in order to compensate in the form of premium for bearing additional risk arising from the increased leverage. In other words, for any firm (i.e. levered or unlevered) in a given risk class the cost of equity (Ke) is equal to the constant average cost of capital (Ko) plus a premium of financial risk which is equal to debt equity ratio times the spread between constant average cost of capital (Ko) and interest rate (Kd). It can be expressed as follows:

$$Ke = Ko + (Ko - Kd)\ D/E$$

Where, Ke = Cost of equity

Ko = Average cost of capital

Kd = Cost of debt or interest rate

D/E = Debt Equity ratio

The validity of proposition II depends upon the assumptions that Kd will not increase for any degree of leverage but in practice Kd increases with leverage beyond a certain acceptable

level. However, M-M mention that even if Kd is functions of leverage, Ko will remain constant, as Ke will increase at a decreasing rate of compensate (Pandey, 1981, p. 40). Thus, taking both the propositions I and II together, the M-M theory in the absence of taxes contends that the overall cost of capital as well as the value of the firms are independent of capital structure. The theory in a tax free world is identical to the NOI approach. In other worlds, the value of levered firm (V_L) is equal to the value of an unlevered firm (V_U) in the same risk class i.e. $V_L = V_U$ (Pradhan, 1992, p. 363).

b. M-M Theory with Taxes

At first, M-M assume that the corporate tax do not exist and said that cost of capital and the value of firm are independent to the capital structure decision. This assumption was not valid. In reality, there exist corporate taxes and interest on debt is deductible for the purpose of the tax calculation. It means the after tax net income increases by the amount of tax benefit resulting in an increase in the value of firm by the same amount. It can also be shown in the proposition I and II.

Proposition I

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

$V_L = V_U + TB$

Where, V_L = Value of levered firm.

V_U = Value of unlevered firm.

T = Tax Rate

B = Amount of Debt

Thus, M-M proposition I with taxes indicates that $V_L > V_U$ and suggests that a firm's value rises continuously as it moves from zero debt to 100 % debt. It can also be presented through the figure below.

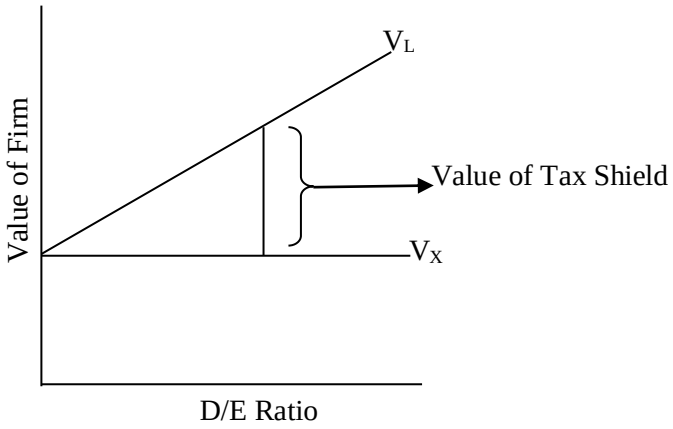

Fig 2.7 M-M Theory with Tax: Proposition I

Proposition II

"The M-M proposition II states that the cost of equity of levered firm (Ke_L) rises with leverage ratio to compensate for the additional leverage risk while the cost of debt remains constant because the debt is assumed to be risk less" (Pradhan, 1992, p. 369). Accordingly the cost of equity is calculated as follows:

$Ke_L = Ke_U + (Ke_U – Kd) (1– T) D/E$

Where, Ke_L = Cost of equity of levered firm.

Ke_U = Cost of equity of unlevered firm.

Kd = Cost of debt

T = Tax Rate

D/E = Debt Equity Ratio

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

$Ko_L = Ke_L (E/V) + Kd (1 – T) D/E$

Where, Ko_L = Overall cost of capital of levered firm.

Ke_L = Cost of equity of levered firm.

E = equity amount.

V = Total Value

T = Tax Rate

D/E = Debt Equity ratio

From the above equation it is clear that the cost of equity increases with D/E ratio, the average cost of capital decreases continuously until it reaches to the level of cost of debt at 100 % debt financing.

Thus it can be concluded that the M-M theory with taxes is identical to NI approach, which says that the value of firms increases with every additional unit of debt financing. As such, the theory suggests that it is always better to have maximum debt financing.

2.2 Review of Empirical Studies

There are numerous studies carried out on capital structure. So, it is out of the scope of this study to review all empirical studies. Therefore, some important and related studies are reviewed in this section.

2.2.1 Modigliani and Miller First Study

Modigliani and Miller (1958) in their first study, they used the previous work of 'Allen and Smith' in support of their independence hypothesis. In the first part of their work, MM tested their proposition I the cost of capital is irrelevant to the firm's capital structure, by correlating after tax cost of capital, with leverage, B\V. They found that the correlation coefficient is statically in significant and position in sign. The regression line does not sauciest a curvilinear, 'u' shaped cost of capital key of traditional view, and then the data are shown in scatter diagram.

In the second part of their study, they tested their proportion II, the expected yield on common shares, is a linear function of debt to equity ratio. The second part of their study is

consistent with their views, i.e. if the cost of borrowed funds increases, the cost of equity will decline to offset this increase.

2.2.2 Modigliani and Miller Second Study

Modigliani and Miller (1963) conducted their second study with correcting their original hypothesis for corporate taxes and expected cost of capital to be affected by leverage for its tax advantages. They therefore wanted to test whether leverage had tax advantages or not. For this, they conducted the mathematical analysis regarding the effect of leverage and other variables only because of the tax advantage involved. Finally they concluded that their findings are in agreement with the hypothesis that the leverage factor is significant only because of the tax advantage involved.

2.2.3 Barges Study

Barges (1963) improved some of the limitations of M-M's empirical works and conducted the most comprehensive and meticulous test of M-M hypothesis. Like M-M, this study analyzed the relationship between the average cost of capital and leverage, and between the stock yield and debt equity ratio. For the purpose of study, cross sectional data from three different industries were used. They are: Railroad, Departmental Stores and Cement Industries. In this study, direct tests and yield tests were used to examine the validity of the independent hypothesis. Direct tests were made on the relationship between the average cost of capital and the total market value while yield tests were made to determine whether yields increase from zero debt up to some moderate debt range. To test stock yield hypothesis, the following two models were used:

$Y = a + b X_1$

$Y = a + bX_2$

Where Y = Stock Yield

X_1 = Long term debt/preferred stock plus common equity.

X_2 = Long term debt plus preferred stock/common equity.

For railroad industry, 61 samples were selected and performed both yield as well as the average cost of capital test. The results were obtained as follows:

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

$Y = 10.80 + 0.02386 X_2$ R = 0.293

Likewise, from the sample size of 63 departmental stores, the following results were obtained:

Model I : $Y = 10.077 + 0.0497 X_1$ R = 0.068

$Y = 10.21 + 0.03756 X_2$ R = 0.056

Finally, from the sample size of 34 cement industries, the following results were obtained:

Model I : $Y = 9.01 - 0.0107 X_1$ R = 0.068

$Y = 7.79 + 0.0016 X_2$ R = 0.018

The results show that in all the cases, the correlation coefficients are not statistically significant at 5 % level of risk. Thus this study conclusion supports the traditional view.

2.2.4 Weston Study

Weston (1963) conducted the research work on 'A Test of Cost of Capital Proposition'. This study made some important improvement in the cost of capital model. Firm size and growth as additional explanatory variables were used in the model.

In this study the regression co-efficient of leverage found to be positive and significant, when using MM model. However, by running the multiple regressions, it was found that the correlation coefficient is significant and the regression coefficient is negative and significant. When the influence of growth is isolated, leverage is found to be negatively correlated with the cost of capital. So, Weston concluded that the apparent lack of influence of leverage on the overall cost of capital observed by MM was due to the negative correlation of leverage with earning growth.

Weston also tested MM proposition II. When Weston used the MM model, the results were found to be consistent with their results i.e. cost of equity is the linear function of debt equity ratio.

2.2.5 Wippern Study

Wippern (1966) conducted a empirical analysis to determine the relationship between equity capitalization rates and leverage, by running regression on the data of 50 firms from seven manufacturing industries in the year 1956, 1958, 1961 and 1963. Multiple regression analysis of the sample firm data was performed for each of the cross-section years using the equation:

$Y = a + b_1$ leverage $+ b_2$ growth $+ b_3$ payout $+ b_4$ log size $+ b_5 \ldots b_{10}$ industry dummy variables.

Where, Y represents earning price ratio.

The regression equation clearly shows that equity yields and leverage are linearly related. But the rate of increase is not as great as to justify the M-M hypothesis. The general conclusion therefore is that shareholder's wealth can be enhanced by a judicious of debt. In other words the value of the firm can be maximized by proper mix of debt in the capital structure of the firm.

2.2.6 Sharma and Rao Study

Sharma and Rao (1967) conducted the test of M-M hypothesis on the influence of debt on the value of a firm to a non regulated industry. They argued that estimate of cost of capital arrived at through this model will be accurate only when their hypothesis on debt and dividends are correct, this is an essential condition for the employment of this model. For the study purpose, they used a sample of 30 engineering firms for three years (i.e. 1962, 1964 and 1965) and calculations were made exactly the same ways that made by M-M with two expectations. They experimented with total assets and sales for deflecting the variables and the results were meaningful when fixed of total assets were used as the deflector. They argued that when the growth rate total assets were used as the deflector. They argued that when the growth rate of total assets or of fixed assets was used as the growth variable, the results were somewhat inconsistent with economic reasoning.

They therefore took the earnings growth rate as the growth variable this would take in to account growth of earnings due both to the utilization existing capacity and to the additional of new capacity. They used the following equation:

$$\frac{V}{F} = a1\frac{\bar{X}t - t\bar{R}}{F} + a2\ \frac{1}{F} + a3\frac{\Delta\bar{X}t - t\bar{R}}{F} + a4\frac{D}{F} + M$$

Where, V = Value of firm

F = Fixed assets used as deflector to reduce hetroscedasticity.

$\bar{X}t - t\bar{R}$= Expected tax adjusted earnings.

$\Delta\bar{X}t - t\bar{R}$ = Growth rate of tax adjusted earnings times' current tax adjusted earning.

D = Debt.

They also used two stages least square as a method of arriving at the true expected future earnings. In their study, they found the co-efficient of debt variables to be more than the corporate income tax rate.

Finally, the study supports the traditional view and concluded that value of firm and cost of capital is affected by debt, apart from its tax advantage.

2.2.7 Hamada Study

Hamada (1972) conducted a study on the effect of the firm's capital structure on the systematic risk of common stock. The study took the sample of over 304 firms and analyzed 20 years of study period. In this study different four procedures were used. Such as M-M valuation model approach, regression between the observed systematic risk of a stock and a number of accounting and leverage variable, the measurement of the systematic risk before

and after a new debt issue and assuming the validity of M-M approach. The Chi-square test was also used in the study.

Performing such a various tests, it was concluded that if the M-M corporate tax leverage proportions are correct, then approximately 21 to 24 % of the observed systematic risk of the common stock can be explained merely be added financial risk taken or by the underlying firm with its use of debt and preferred stock. Both in pricing model and the M-M theory, borrowing from whatever source while maintaining of fixed amount of equity increase the risk to the investors.

2.2.8 Pandey Study

Pandey (1981) tried to test the M-M approach in the developing economy with taking the sample from four different utilities; i.e. cotton, chemicals, engineering and electricity from Indian market. This study made same improvement in the model derived by M-M and used multiple regression equation for the year 1968, 1969 and 1970. For the pooled data of the three cross sectional years, the improvement was made on the measurement of leverage and added earning variability and liquidity as risk measure variable in the regression equation. In the study two types of leverage was used which are as follows:

i) The debt to total capital ratio; i.e $L_1 = D/V$

ii) The debt to equity ratio; i.e. $L_2 = D/S$

The two ratios were measured with or without preference share capital in the debt portion. Both leverage were computed at book value and included short term loan as a part of leverage (debt). For the analysis purpose, the following regression equation was used for each industry.

$$Ko = a + b_1L_1 + b_2\text{Log } S + b_3 G + b_4 D/P + b_5 \text{ Liq.} + b_6 E/V + u$$

Where, Ko = Average cost of capital.

L_1 = Leverage 1

S = Size

G = Growth

D/P = Dividend Payout Ratio

Liq. = Liquidity Ratio

E/V = Earning Variability

u = Random disturbance term

In the above regression equation, the average cost of capital is regressed with both the measure of leverages; i.e. debt to total capital and debt plus preferred stock to total capital with other exploratory variables and the results were consistent with the traditional view that the average cost of capital declines with the increase in debt in financial structure.

The study further tried to test the use of leverage can increase the market value of the firm or lower the cost of capital, due to the tax deductibility of interest charges. The tax adjusted stock yield is regressed with leverage and other exploratory variables. The equation was as follows:

$$\frac{\bar{X}-tR}{V-tD} = a + b_1L + b_2\text{Log } S + b_3 G + b_4 D/P + b_5 \text{ Liq.} + b_6 E/V + u$$

Where, $\frac{\bar{X}-tR}{V-tD}$ = Tax adjusted stock yield of the firm.

In this model pooled data from three industries were used, they are cotton, chemicals and engineering, and found the co-efficient of both measure of leverage were significant and negative in sign. Therefore the result supported the traditional belief. Pandey further studied to determine the relationship between leverage and cost of equity with other exploratory variable. The empirical model that employed in the study was:

$Ke = a + b_1L_2 + b_2 Log\ S + b_3\ G + b_4\ D/P + b_5\ Liq. + b_6\ E/V + u$

Where, Ke = Cost of equity

Other variables are alike above.

Leverage were measured in two ways. The first leverage variable considered the preference capital as a part of equity capital.

i.e. $L_1 = \frac{LTD+STD+PC}{EC+PC}$

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

i.e. $L_2 = \frac{LTD+STD+PC}{EC}$

Where, LTD = Long term debt

STD = Short term debt

PC = Preference Capital

EC = Equity Capital

The result of this model was also consisted with the traditional approach. The cost of equity decline with leverage at acceptable range of debt and then starts to increase with increase in debt level in capital structure.

2.2.9 Shrestha Study

Shrestha (1985) conducted a study about capital structure in selected public enterprises. For the study purpose ten public enterprises of Nepal was taken. The study is basically focused on three aspects; firstly, providing the conceptual base and the determinants of capital structure, secondly, analyzing the capital structure so far devised in selected public enterprises and finally suggested the possible measures to overcome the capital structure problems.

To conduct the study, ratio analysis was used as analytical tools. The study concluded that the selected public enterprise under study had very confusing capital structure since objective based financial plans and policies do not guide the corporations. The study further added that many instances adhocism become the basis of capital structure and in also most of them want to eliminate debt if possible. Again shrestha added that there were neither the public enterprises nor HMG had developed any criteria in determining capital structure nor this is the reasons as to why debt equity ratio becomes a ticklish problem. Finally study suggested that the debt equity ratio should be maintained properly. Highly levered company creates more financial obligation that lie beyond the capacity to meet, nor should it be much low levered to infuse operational lethargy to bypass responsibilities without performance.

2.3 Review of Thesis

The number of studies has been carried out on capital structure by the students of management to fulfill the requirement for the master degree in management. Therefore this section deals with the review of those thesis which are related to the topic.

2.3.1 Adhikari Study

Adhikari (1991) conducted the empirical study on "The effect of Capital Structure on the Cost of Capital". The study analyzed the M-M propositions in the Nepalese context. Researcher used simple as well as multiple regression equation to test the relationship between cost of capital and capital structure with other exploratory variables. For the study purpose, five listed finance companies were selected and their data from 1976/77 to 1988/89 was taken. Researcher used the multiple regression equation for the analysis. The equation was as follows:

$Ko = a + b_1L_1 + b_2 Log\ S + b_3\ G + b_4\ D/P + b_5\ E/V + b_6\ Liq.$

Where, Ko = Average cost of capital.

L_1 = Leverage 1

S = Size of the company

G = Growth

D/P = Dividend Payout Ratio

E/V = Earning Variability

Liq. = Liquidity Ratio

The result of the study showed that the cost of capital is the function of leverage. So the study supports the traditional view.

2.3.2 Khatri Study

Khatri (1998) conducted a research on capital structure and the cost of capital of Nepalese listed companies with the objective of testing relationship between cost of capital and capital structure, and between cost of equity and capital structure in selected listed companies. The study was based on five years pooled data of four banking and finance companies, and eight manufacturing and trading companies. Researcher used simple as well as multiple regression models as the tool of study. On the study, researcher found that the regression coefficient of leverage against cost of capital were negative on manufacturing and trading sector, and positive on banking and finance sector. In addition the t-value showed the beta coefficients were not statistically significant in both sectors. Finally, researcher concluded that there were not strong enough to established relationship between cost of capital and capital structure and with other exploratory variables. It was also concluded that the capital structure composition of Nepalese listed companies were confusing and determined without considering the capital structure theories.

2.3.3 Ghimire Study

Ghimire (1999) studied on "The capital Structure and cost of capital; Comparative study between Trading and Manufacturing, and Banking and Finance sector". The study tried to test whether the cost of capital declines with leverage or not in Nepalese firms and how does

leverage effect the cost of equity in Nepalese situation. Researcher used simple and multiple regression approaches as analytical tools. For the study purpose, seven years data from 1989 to 1996 was taken. The study showed that the simple and multiple regression coefficients and average cost of capital were negative with leverage, size, growth and dividend payout ratio, and positive with earning variability and liquidity. Hence, researcher concluded that the study does not support the M-M's independent hypothesis. However, the results were not enough to support the traditional belief.

2.3.4 Khaniya Study

Khaniya (1999) conducted a study on "leverage and value of the company" with the objective of testing the impact of leverage on the value of selected listed companies. For the study purpose, twelve companies were selected from different sectors; i.e. seven companies from manufacturing sector, two from hotel industry, two from trading companies and on from others. Researcher used simple and multiple regression models as the tool of the study. The models were:

$\frac{V}{TA}$ = a + b_1L + b_2Log S + b_3 G + b_4 DPR +b_5 E.V. +b_6 Liq.

Where, V = Market value of the company

TA = Total Assets or book value of the company

L = Leverage

S = Size

G = Growth Rate

DPR = Dividend Payout Ratio

E.V. = Earning Variability

Liq. = Liquidity

And,

$$\frac{V-tD}{TA} = a + b_1L + b_2\text{Log } S + b_3\ G + b_4\ \text{DPR} + b_5\ \text{E.V.} + b_6\ \text{Liq.}$$

The second model was used to test the corrected M-M proposition that the value of the company increases by the tax benefit on interest payment.

Researcher used the ratio of total value of the firm to total assets as dependent variable. From the calculation it was found that in manufacturing sector, the correlation coefficient and simple and multiple regressions both for tax ignoring and tax adjusted, gives the positive relations of leverage with market value of the company. But the t-value was being small. Hence it cannot be conclude that the empirical result absolutely agree with the traditionalist view. But the result is nearly to the traditional approach. Likewise the correlation coefficient of leverage were negative and significant both simple and multiple regression and for tax ignoring and tax adjusted market value of the company in hotel and transportation sector which indicates that the use of debt in capital structure minimizes the market value of the company.

From the review of above empirical works, it is found the ambiguous relationship between capital structure and value of the firm. That means it is not clear that the volume of debt part in capital structure is affect the value of firm or not. So, further examination in the topic is needed.

CHAPTER : III

RESEARCH METHODOLOGY

3.1 Research Design

To fulfill the objectives of this study, descriptive and analytical research design has been followed. Descriptive approach has been followed for conceptualization of the problem whereas analytical approach has been followed to analyze the effect of debt use in capital structure on the value of the firm.

3.2 Nature and Source of Data

This study is based on secondary data. Most of the data are collected from Security Board and Nepal Stock Exchange. Beside these the data are also collected from annual reports of respective companies, websites, previous research studies, thesis, articles and so on.

3.3 Population and Sample Size

For the purpose of this study, population has been defined in term of the number of companies listed to NEPSE as on July 15, 2008. As on this date, the total numbers of such companies are 142 which has falling in different nine groups- commercial banks (17), developments banks (23), Finance (55), insurance (17), manufacturing and processing (18), hotels (4), trading (4), hydro (3) and other (1). Of these, depending on availability of information, 11 listed companies- 6 manufacturing and processing and 5 non manufacturing- 2 trading & 3 hotels- were sampled for this study. The names of selected companies are shown in table 3.1.

3.4 Period of the Study

The periods of study for selected companies are not homogeneous due to the data problem. The study period varies company to company. The table 3.1 shows the sample companies and their study periods.

Table 3.1

Sample Size and Study Period

Sector	S.N.	Company Name	Years		Study Period
			From	To	
Manufacturing	1	Arun Banaspati Udhyog Ltd.	2060/061	2064/065	5 Yrs
	2	Bottler's Nepal Ltd.	2062/063	2064/065	3 Yrs
	3	Brikuti Pulp & Paper Nepal Ltd.	2059/060	2064/065	6 Yrs
	4	Gorakhkali Rubber Udhyog Ltd.	2058/059	2063/064	6 Yrs
	5	Nepal Banaspati Ghee Udhyog Ltd.	2061/062	2062/063	2 Yrs
	6	Sri Raghupati Jute Mills Ltd.	2060/061	2063/064	4 Yrs
Non-Manufacturing	7	Nepal Trading Ltd.	2054/055	2058/059	5 Yrs
	8	Salt Trading Corporation Ltd.	2057/058	2061/062	5 Yrs
	9	Soaltee Hotel Ltd.	2060/061	2064/065	5 Yrs
	10	Taragaun Regency Hotel Ltd.	2059/060	2064/065	6 Yrs
	11	Yak & Yeti Hotel Ltd.	2057/058	2061/062	5 Yrs

Source: Nepal Stock Exchange Ltd., 2008

3.5 Tools Employed

To get the solution of the objectives which are set in chapter one, the statistical and financial tools are employed. In this study, simple correlation, simple regression and multiple regression models are used as analytical tools.

Model I

In this model, the ratio of total market value of the company and total assets is regressed against each of the selected explanatory variables such as leverage, size, growth, dividend payout ratio, earning variability and liquidity.

The equations are as follows:

$V/TA = a + b_1L$

$V/TA = a + b_2\text{Log } S$

$V/TA = a + b_3G$

$V/TA = a + b_4DPR$

$V/TA = a + b_5EV$

$V/TA = a + b_6Liq.$

Where, V = Market value of the company

TA = Total Assets or book value of the company

L = Leverage

Log S = Size of the company

G = Growth Rate

DPR = Dividend Payout Ratio

EV = Earning Variability

Liq. = Liquidity

The expected signs of these beta coefficients are: b_1, b_2, b_3, b_4, $b_6 > 0$ & $b_5 < 0$

Model II

The ratio of the company's market value and total assets or book value is regressed against leverage and with other explanatory variables in this second model. The justification for this model is that the value of the company would depend on leverage, size, dividend payout ratio, earning variability and liquidity. The equation is:

$V/TA = a + b_1L + b_2\text{Log } S + b_3G + b_4DPR + b_5EV + b_6Liq.$

The notifications and expected signs of beta coefficients are similar as above.

Model III

This model is used to test the corrected proposition of Modigliani and Miller that the value of the company increases by the tax benefit on interest payment. In this model, the ratio of tax adjusted market value and total assets is regressed against leverage variable together with other explanatory variables i.e. size, growth, dividend payout ratio, earning variability and liquidity. The equation is:

$(V-tD)/TA = a + b_1L + b_2Log\ S + b_3G + b_4DPR + b_5EV + b_6Liq.$

Where, tD = Present value of annual tax saving

The beta coefficient must not significantly different from zero for supporting the M-M corrected proposition. The notification and the expected signs of beta coefficients are similar as above. The corporate tax rate is assumed 30 % for both manufacturing and non manufacturing sectors.

3.6 Description of Variables

The model itself does not give clear cut information about the relationship of these variables. The concept and measurement of variables takes significance to know and analyze the relationship clearly. Thus this section deals with description of the variables used in above models.

3.6.1 The ratio of market value and book value (total assets)

It is the dependent variable taken as the ratio of the company's market value and the book value (total assets) of the company to eliminate the variation on the market value due to the different size. The market value of the company is numerator and of the dependent variable calculated by taking the sum of total liability (excluding equity capital) and market price per share times the number of equity share. It can be shown in equation:

$V = TL + MPPS \times N$

Where, TL = Total Liability

MPPS = Market Price Per Share

N = Number of equity shares

The total asset of the company is the denumerator of the dependent variable taken the totality of the assets side of the balance sheet.

3.6.2 Leverage (L)

The most important variable which affects the market value of the company is leverage. It is calculated by dividing the long term debt by sum of long term debt and net worth of the company which is shown below:

$$L = \frac{LTD}{(LTD+NW)}$$

Where, L = Leverage

LTD = Long Term Debt

NW = Net Worth

We exclude the short term debt while calculation the leverage because the present value of expected tax shield on short term debt is not reasonably significant and difficult to calculate due to the data problem. The net worth amount is the accumulated loss adjusted amount.

3.6.3 Size (Log S)

The nature logarithm of capital employed at the balance sheet value is used as a measure of the company's size. The capital employed comprises of net worth plus long term debt. Most of the investors prefer to invest in large companies because the large size companies can manage the risk efficiently, they have recognition in the capital market, they use the assets efficiently and they provide wide marketability of their share. The preference of investors for

large size companies makes a positive correlation between valuation and size of the company.

3.6.4 Growth (G)

Generally investors prefer growing companies to invest. The growing companies indicate the optimum utilization of assets and managerial excellence. So, the growth rate is correlated with the market value of the company. the expected growth is measured by following equation:

$$G = \frac{(A_t - A_{t-1})}{A_{t-1}}$$

Where, G = Growth Rate

A_t = Total assets in cross sectional year

A_{t-1} = Total Assets in one year before

3.6.5 Dividend Payout Ratio (DPR)

A widely held belief is that the share holders give more emphasis to dividend than to retain the earnings. The dividend is positively correlated with value of the firm. The dividend payout ratio is calculated by dividing the dividend per share by earning per share. i.e., DPR = $\frac{DPS}{EPS}$

Where, DPR = Dividend Payout Ratio

DPS = Dividend Per Share (proposed cash dividend to no. of share)

EPS = Earning Per Share

3.6.6 Earning Variability (EV)

Earning variability is a kind of business risk which affects the value of the firm. Investors prefer less risky business that has stable earning. So, the value of the firm is negatively correlated with earning variability. The measure of earning variability is a ratio of standard deviation and mean of net operating income (EBIT). Thus, this ratio is the coefficient of variation of net operating income.

3.6.7 Liquidity (Liq.)

Liquidity measures the short term risk in the company. High liquidity affects the earning adversely and low liquidity is more risky. Liquidity also affects the market value of the company through the earnings and risk. Since liquidity is taken as the short term risk, it correlates positively with the value of the company. It is calculated dividing the current assets by current liabilities.

CHAPTER : IV

PRESENTATION AND ANALYSIS OF DATA

The previous three chapters including Introduction, Review of Literature and Research Methodology have already provided an explanation to justify the study of this kind to show how capital structure or the proportion of debt used in Capital Structure can affect the market value of the firm. For testing the impact of capital structure on the value of the Nepalese listed companies. We empirically analyze the data taken from the different two sectors. They are manufacturing sector and non-manufacturing sector include hotels and trading companies. As mentioned in third chapter, the correlation and regression models of statistics are used for the analysis of the data.

4.1 Means and Standard Deviation of Variables

The mean and standard deviation of all variables used are presented in table 4.1 (a) and table 4.1 (b) respectively for manufacturing sector and non-manufacturing sector i.e. hotel and trading sectors.

Table 4.1 (a): Means and Standard Deviations of the Variables for Manufacturing Sector

Variables	N	Mean	Standard Deviation
L	26	1.0111	1.2174
Log S	26	7.6027	1.5242
G	26	0.1498	0.8915
DPR	26	0.0284	0.1449
EV	26	-0.4175	1.5350
Liq.	26	0.7516	0.3549
V/TA	26	1.6545	0.6138
(V-tD)/TA	26	1.3539	0.6429

Table 4.1 (b): Means and Standard Deviations of the Variables for Non-Manufacturing Sector

Variables	N	Mean	Standard Deviation
L	26	0.5412	0.2023
Log S	26	8.6130	0.8794
G	26	0.0859	0.2845
DPR	26	0.1458	0.3244
EV	26	0.7698	1.0559
Liq.	26	1.9012	2.4142
V/TA	26	1.4965	0.6391
(V-tD)/TA	26	1.1356	0.4411

Source: Annual Report of Respective Companies

The above tables 4.1 (a) and 4.1 (b) clearly shows that the average market value of the selected listed companies in the manufacturing sectors in 1.6545 times its book value and its standard deviation in 0.6138 whereas market value of selected listed companies in non-manufacturing sector is 1.4965 times which is quite lower than that of manufacturing sectors and its standard deviation is 0.6391 which indicates that the variables in the market value of non-manufacturing sector is more scattered than that of manufacturing sector. Likewise the tax adjusted average market value of manufacturing sector is 1.3539 times the book value whereas 1.1356 times of book value for non-manufacturing sector and its standard deviations are 0.6429 and 0.4411 for both manufacturing and non-manufacturing sectors respectively. The average leverage in manufacturing sector is 101.11 and its scatterness is 121.74. For non-manufacturing sector the average leverage value and scatterness is 54.12 and 20.23 respectively. The average leverage of manufacturing sector is much more than the average leverage of non-manufacturing sector. The above result shows that highly levered company had higher market value. The average size of the company in manufacturing sector

is 7.6027 which is less than the average size of non-manufacturing i.e. 8.6130 and the standard deviation of the size of manufacturing sector is also less than that of non manufacturing sector i.e. (1.5242 < 0.8794).

Similarly the average growth rate of manufacturing sector (i.e. 14.98 %) is less than the average growth rate of non-manufacturing sector (i.e. 8.59 %). However the standard deviation of growth rate in manufacturing sector (89.15%) is higher than that of non-manufacturing sector (28.45%). In case of dividend payout ratio, the non-manufacturing sector pays the higher dividend of 14.58 % whereas manufacturing sector pays only 2.84% but the variability of non manufacturing sector is also greater than that of manufacturing sector (i.e. 32.44 % > 14.49 %). The average earning variability, which measures the business risk, is more in non-manufacturing than that of manufacturing sector. The standard deviations are 1.0559 and 1.5350 non-manufacturing and manufacturing respectively. Likewise the average liquidity position on manufacturing sector is 0.7516 times and 1.9012 times for non-manufacturing sector which is much better than the liquidity position of manufacturing sector but standard deviation shows that the variability in non-manufacturing sector is higher than that of manufacturing sector.

4.2 Capital Structure and Value of Firm

To analyze the effect of capital structure on value of firm, correlation analysis, simple regression and multiple regressions are taken for both manufacturing and non-manufacturing sectors.

4.2.1 Correlation Analysis

The correlation coefficients between each variable are shown in below table 4.2 (a) and 4.2 (b) respectively for the manufacturing and non-manufacturing sectors.

Table 4.2 (a): Correlation Coefficients between Variables for Manufacturing Sector

Variables	L	Log S	G	DPR	EV	Liq.	V/TA
L	1.0000	0.0357	-0.1600	-0.1694	-0.0118	-0.1514	0.2220
Log S		1.0000	-0.3840	-0.2610	.394*	-.403*	-0.2901
G			1.0000	-0.1308	-0.0675	0.2133	-0.2450
DPR				1.0000	-0.3711	-0.0796	.504**
EV					1.0000	0.0317	-0.2533
Liq.						1.0000	-0.0172
V/TA							1.0000

*. Correlation is significant at the 0.05 level (2-tailed).

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

Source: Annual Report of Respective Companies

Table 4.2 (b): Correlation Coefficients between Variables for Non-Manufacturing Sector

Variables	L	Log S	G	DPR	EV	Liq.	V/TA
L	1.0000	0.3394	0.3258	0.0576	-.452*	-0.0189	-0.3619
Log S		1.0000	-0.1906	-0.3546	-0.0578	-.764**	0.1401
G			1.0000	0.1091	-0.2305	.448*	-0.3686
DPR				1.0000	-0.0112	.397*	-0.2293
EV					1.0000	0.0170	.750**
Liq.						1.0000	-0.3502
V/TA							1.0000

*. Correlation is significant at the 0.05 level (2-tailed).

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

Source: Annual Report of Respective Companies

The above table 4.2 (a) shows that the ratio of market value to the book value of the company for manufacturing sector which is positively correlated with leverage and dividend payout ratio, and negatively correlated with all other variables like size, growth rate, earning variability and liquidity. This means value of firm increases with leverage and DPR. And investor prefers to invest those companies which have more leverage and dividend ratios. Negative correlation of value of firm with size and growth rate implies that investor does not prefer to invest which is against the expectation. The negative correlation between earning variability and the value of the company conveys that the company having fluctuated operating earnings have low market value. Here, the correlation between value of the company and liquidity ratio is negative. It is also out of expectation.

Leverage is negatively correlated with all the variables except size. Likewise size is negatively correlated with all other variables except earning variability. Negative correlation between size and growth implies that it is not sure that large companies have positive growth rate. And also every large companies haven't strong liquidity position and also not sure of regular dividend payment. It is because correlation of size with liquidity and DPR is negative. The positive correlation between size and earning variability shows that large companies have more fluctuation in earning. Growth rate is positively correlated with liquidity ratio which means higher growth rate companies have also high liquidity position. The earning variability is positively correlated with liquidity that means it is not sure that earning is consistent with good liquidity position.

In the case of non-manufacturing sector, the value of the company is negatively correlation with leverage. It shows that investors prefer unlevered form to invest. So we can say that highly levered companies have lower market value. This result is out of expectation. It may be caused by poor performance of the company as well as the effect of other external environmental factors including political instability. The positive correlation coefficient of the size to the value of the company which indicates that investors prefer the size of company and the value of those companies are also high. The growth rate is negatively correlated with value. That means growth rate is not a matter for investors to invest. The value of the company and dividend payout ratio is also negatively correlated with each other which indicates that the companies paying more of its earning as dividend have negative impact to the market value of the company. The positive correlation between market value of company and earning variability indicates that the company having more fluctuated operating earning have greater market value which is also out of investigator expectation.

The liquidity has negative correlation with the value of the company shows that the high liquidity ratio have negative impact on its market value it may be caused by financing of net working capital by cost bearing capital which affects adversely on the profitability.

The leverage is positively correlated with size, growth rate and dividend payout ratio. The positive correlation with size and the growth rate of the company indicate that the large size companies use more debt and have high growth rate. Likewise positive correlation with dividend payout ratio indicates that levered companies pay more dividends. Leverage is negatively correlated with earning variability and liquidity. It shows that the levered company has more or less consistent operating income. Negative correlation between leverage and liquidity shows that levered company has problems of liquidity. The size is negatively correlated with all other variables like growth rate, dividend payout ratio, earning variability and liquidity. It indicates that big size companies have low growth rate and pays less dividends. They have low liquidity and also less fluctuation in operating income. Likewise growth is positively correlated with dividend payout ratio and liquidity, and negatively correlated with earning variability. It shows that the growing companies pay more dividends and also high liquidity. They have low earning fluctuation. Dividend payout ratio is positively correlated with liquidity and negatively correlated with earning variability which indicates that the company which has high liquidity and low fluctuation in operating income pay more dividends. The earning variability is positively correlated with liquidity indicates that the companies with high liquidity have high earning fluctuations.

4.2.2 Simple Regressions of the Variables

To examine the impact of each variable on the market value of the company separately, the simple regression models has used. The below table 4.2 (c) and 4.2 (d) shows the regression results for both manufacturing and non-manufacturing sectors.

Table 4.2 (c): Results of Simple Regression Analysis For Manufacturing Sector

(Model I)

Model	N	Constant	Beta Coefficient	R^2	S E	t-Value
$V/TA=a+b_1L$	26	1.5413	0.1119	0.0493	0.1004	1.1153**
$V/TA=a+b_2$Log S	26	2.5426	-0.1168	0.0842	0.0787	-1.4850
$V/TA=a+b_3G$	26	1.6797	-0.1687	0.0600	0.1363	-1.2379
$V/TA=a+b_4DPR$	26	1.5938	2.1356	0.2543	0.7466	2.8607*
$V/TA=a+b_5EV$	26	1.6122	-0.1013	0.0642	0.0790	-1.2827
$V/TA=a+b_6$Liq.	26	1.6768	-0.0297	0.0003	0.3530	-0.0841

Note: * and ** denotes the significance of the coefficients at 1% and 5% level of significance respectively.

Table 4.2 (d): Results of Simple Regression Analysis For Non-Manufacturing Sector

(Model I)

Model	N	Constant	Beta Coefficient	R^2	S E	t-Value
$V/TA=a+b_1L$	26	2.1151	-1.1432	0.1310	0.6011	-1.9018*
$V/TA=a+b_2$Log S	26	0.6194	0.1018	0.0196	0.1469	0.6933**
$V/TA=a+b_3G$	26	1.5676	-0.8280	0.1359	0.4262	-1.9427**
$V/TA=a+b_4DPR$	26	1.5623	-0.4517	0.0526	0.3915	-1.1539
$V/TA=a+b_5EV$	26	1.1470	0.4540	0.5627	0.0817	5.5567
$V/TA=a+b_6$Liq.	26	1.6727	-0.0927	0.1227	0.0506	-1.8319*

Note: * and ** denotes the significance of the coefficients at 1% and 5% level of significance respectively.
Source: Appendix table

For manufacturing sector, the regression coefficient of leverage against the ratio of market value to book value is positive which shows that the use of debt in the capital structure increases the market value of the company. The coefficient of multiple determinations is 0.0493 which indicates that 4.93% variation in market value of the company is defined by leverage. The regression coefficient of size is negative and the coefficient of multiple determination is very small (i.e. 0.0842), which defines that only 8.42% of variation in market value of company but the t-value is not significant. Hence this can't say that the size has negative impact on the value of the company. The beta coefficient of growth is also negative and its coefficient of determinants is small i.e. 0.0600 and not significance. The regression coefficient for the dividend payout ratio is positive and significant at 1% level of significance. The coefficient of multiple determination shows 25.43% variation in market value of the company is explained by dividend payout ratio. It agrees with the expectation of researcher. The beta coefficient of earning variability and liquidity are negative.

In case of non-manufacturing sector, the regression coefficient of leverage is negative which means the relation of market value to book value of levered company will be less by 1.1432 times of debt proportion in capital structure. The t-value is being significant at 1% level of significance which supports the conclusion. The coefficient of multiple determinations indicates that 13.10% of variation in the value of company is explained by leverage.

The beta coefficient of size is positive and significance at 5% level of significance. The coefficient of multiple determination is 0.0196 which explains that 1.96% of fluctuation in the market value of the company is determined by size factor. The beta coefficient of growth is negative. But the t-value is significant at 5% level of significance. The coefficient of multiple determination indicates that 13.59% fluctuation in market value of the company is

determined by growth rate. This result is also contradicts the expectations of the researcher. Again the regression coefficient for dividend payout ratio is negative but significant. Therefore the conclusion of R^2 value i.e. 5.26% variation in market value of the company due to the dividend payout ratio is not supported. The beta coefficient of earning variability is positive and not significant but the R2 value indicates that there is 56.27% variability in market value of the company due to the earning variability which can't be accepted. The beta coefficient of liquidity is negative and significant at 1% level of significance and 12.27% market value is determined by liquidity.

The important point to be noted here that the negative and significant result of regression coefficient for leverage against the ratio of market value to book value of the company in non-manufacturing sectors do not agree with any capital structure theories which researcher have learned. This result may be caused by data inconsistency or poor performance of the listed companies.

4.2.3 Multiple Regression Analysis

The multiple regression coefficient of value of the firm on leverage and other explanatory variables i.e. size, growth, dividend payout ratio, earning variability and liquidity and shown in below table 4.2 (e) and 4.2 (f) for both manufacturing and non-manufacturing sectors respectively including their t-values and coefficient of multiple determination.

Table 4.2(e): Result of Multiple Regression for Manufacturing Sector

Model-II : $V/TA=a+b_1L+b_2\text{Log } S+b_3G+b_4DPR+b_5EV+b_6Liq.$

	Coefficients	S E	t-Value
Multiple Determination (R^2)	0.4260		
Intercept (a)	2.3711		
Leverage (L)	0.1346	0.0928	1.4501***
Size (Log S)	-0.1150	0.0949	-1.2125**
Growth (G)	-0.1737	0.1374	-1.2645
Dividend Payout Ratio (DPR)	1.8877	0.8620	2.1898**
Earning Variability (EV)	0.0044	0.0807	0.0540
Liquidity (Liq.)	-0.0052	0.3471	-0.0151

Note: ** and ***denotes the significance of the coefficients at 5% and 10% level of significance respectively.

Table 4.2(f): Result of Multiple Regression for Non-Manufacturing Sector

Model-II : $V/TA=a+b_1L+b_2\text{Log } S+b_3G+b_4DPR+b_5EV+b_6Liq.$

	Coefficients	S E	t-Value
Multiple Determination (R^2)	0.7302		
Intercept (a)	3.1799		
Leverage (L)	0.3106	0.5138	0.6044*
Size (Log S)	-0.2213	0.1615	-1.3703**
Growth (G)	-0.0590	0.3293	-0.1790
Dividend Payout Ratio (DPR)	-0.2339	0.2607	-0.8970
Earning Variability (EV)	0.4713	0.0835	5.6468
Liquidity (Liq.)	-0.1417	0.0595	-2.3803

Note: * and ** denotes the significance of the coefficients at 1% and 5% level of significance respectively.
Source: Appendix table

For manufacturing sector the regression result show that the coefficient of multiple determination (R^2) is 0.4260 which indicates that 42.60% variation in market value of the company is determine by the explanatory variables undertaken in this study. The beta coefficient of leverage is positive and t-value is statistically significant at 10% level of significance which indicates that the market value of the company is increased by the use of debt in capital structure. The beta coefficient of size is negative and significant at 5% level of significance which shows that the investors pay less for the stock of large size companies. The result is out of expectation of researcher. The reason for not preferring the large size companies to invest may be the large size companies do not have the growth opportunity. The beta coefficient for growth is also negative but not significant. The beta coefficient of dividend payout ratio is positive which is as the expectation of researcher. The t-value is also significant at 10% level of significance. It indicates the investors pay more for the stock of those companies which pays more dividends. The beta coefficient of earning variability is positive and finally beta coefficient of liquidity is negative and it is statistically not significant.

In case of non manufacturing sector, the coefficient of multiple determination is 0.7302, which indicates that 73.02% variation in the market value of the company is explained by the variables undertaken in the study. The beta coefficient of leverage is positive (i.e. 0.3106) and its t-value is significant at 1% level of significance. It indicates that the market value of the company is increased by increasing the amount of debt in capital structure. The beta coefficient of size is negative and significant at 5% level of significance. It doesn't support the expectation of researcher which explains that investors do not pay more for the stocks of large size companies. Likewise the beta coefficient of growth is negative and not

significant. It means investors do not prefer growing company to invest. It contradicts the expectation of researcher. The beta coefficient of dividend payout ratio is also negative and not statistically significant. Here, the beta coefficient of earning variability is positive but not statistically significant. Finally beta coefficient of liquidity is negative and not statistically significant.

From the above regression results, it is found that the coefficient of leverage is positive in both manufacturing and non-manufacturing sectors and the t-value is also statistically significant. So, researcher must say that the use of debt in capital structure increases the value of the company. This result supports the theory of capital structure.

4.3 Corporate Tax and Value of the Firm

In this section, researcher analyzes the effect of tax rate (in debt capital) on the value of the firm. For this purposed tax adjusted market value of the company to the book value is regressed with the leverage and other explanatory variables as explained by Modigliani and Miller in their corrected version in 1963. The table 4.3 (a) and 4.3 (b) shows the regression results of both manufacturing and non manufacturing sectors respectively.

Table 4.3(a): Result of Multiple Regression for Manufacturing Sector

Model-III : $(V\text{-}tD)/TA=a+b_1L+b_2\text{Log } S+b_3G+b_4DPR+b_5EV+b_6Liq.$

	Coefficients	S E	t-Value
Multiple Determination (R^2)	0.4725		
Intercept (a)	2.4145		
Leverage (L)	-0.1685	0.0932	-1.8073*
Size (Log S)	-0.1181	0.0953	-1.2395***
Growth (G)	-0.1759	0.1379	-1.2755
Dividend Payout Ratio (DPR)	1.8726	0.8655	2.1637
Earning Variability (EV)	0.0061	0.0810	0.0749
Liquidity (Liq.)	-0.0225	0.3485	-0.0646

Note:*and*** denotes the significance of the coefficients at 1% and 10% level of significance respectively.

Table 4.3(b): Result of Multiple Regression for Non-Manufacturing sector

Model-III : $(V\text{-}tD)/TA=a+b_1L+b_2\text{Log } S+b_3G+b_4DPR+b_5EV+b_6Liq.$

	Coefficients	S E	t-Value
Multiple Determination (R^2)	0.6766		
Intercept (a)	2.5693		
Leverage (L)	-0.1175	0.3884	-0.3024*
Size (Log S)	-0.1512	0.1220	-1.2393**
Growth (G)	-0.0081	0.2489	-0.0326
Dividend Payout Ratio (DPR)	-0.1312	0.1971	-0.6658
Earning Variability (EV)	0.2445	0.0631	3.8768
Liquidity (Liq.)	-0.1241	0.0450	-2.7575

Note: * and ** denotes the significance of the coefficients at 1% and 5% level of significance respectively.

Source: Appendix table

The above table 4.3 (a) clearly shows that the coefficient of multiple determination for manufacturing sector is 0.4725 which indicates that 47.25 % fluctuation in the market value to book value of the company is determined by the variables taken for the study. The beta coefficient of leverage is negative and significant at 1% level of significance which indicates that the use of debt in capital structure decreases the value of the company. Likewise the beta coefficient of size is negative and also significant at 10% level of significance. It shows that investors are not willing to pay more for the stocks of large size companies. The beta coefficients of growth and liquidity is also negative and beta coefficient of dividend payout ratio and earning variability is positive and but not statistically significant.

The coefficient of multiple determination as shown in table 4.3 (b) for non-manufacturing sector indicates that 67.66% variation in the ratio of tax adjusted market value to book value of company is due to the taken variables. The beta coefficient is again negative and significant at 1% level of significance which again shows that the use of debt in capital structure is not profitable. It causes the reduction in market value of the company. The beta coefficient of size is negative and significant at 5% level of significance. It indicates that investors pay less for the stocks of large size companies than that of small size companies. Likewise the beta coefficient of growth, dividend payout ratio, and liquidity are negative but not statistically significant. The earning variability is also not statistically significant although the beta coefficient is positive.

The above result shows the negative beta coefficient of leverage for both manufacturing and non-manufacturing sectors and the t-values are also statistically significant in both sectors. So, researcher can conclude that the value of firm is decreased with use of debt in capital structure. The result is totally unexpected and do not match with any capital structure

theories i.e. NI approach, NOI approach, M-M approach. This result must be caused by the poor performance of Nepalese listed companies.

4.4 Major Findings

The findings from the analysis of above date are as follows:

i. The correlation coefficients between the ratio of market value to book value of the company and leverage are positive for manufacturing sector and negative for non-manufacturing sector.

ii. The simple regression model (Model I) shows that the beta coefficient of leverage is also positive and statistically significant at 5% level of significance for manufacturing sector and is negative and statistically significant at 1% level of significance for non-manufacturing sector.

iii. The multiple regression model (Model II) shows the positive relationship of leverage with value of the firm in both manufacturing and non-manufacturing sectors and also significant at 10% and 1% level of significance respectively.

iv. The multiple regression model (Model III) shows that the beta coefficients of leverage are negative and significant at 1% level of significance for both manufacturing and non-manufacturing sectors.

v. As concerned with the correlation of market value of the company with size, growth rate, earning variability and liquidity, the simple regression model (Model I) for manufacturing sector shows that there exist negative relationship between market value and size but not significant. Likewise there exist positive relationship between market value and dividend payout ratio at 1% level of significance.

vi. For non-manufacturing sector, the regression coefficient (Model I) of size is positive and significant at 5% level of significance. The coefficient of earning variability is also positive but not significant. Likewise the coefficients of growth, dividend payout ratio and liquidity are negative. But the dividend payout ratio is not significant.

vii. The multiple regression coefficients (Model II) of size for manufacturing sector is negative and significant at 5% level of significance. The coefficients of dividend payout ratio and earning variability are positive but only dividend payout ratio is significant at 5% level of significance. The coefficients of growth and liquidity are negatively.

viii. In case of non-manufacturing sector, the regression coefficient (Model II) of only earning variability is positive but not significant. The regression coefficients of size, growth, dividend payout ratio and liquidity are negative but only size is significant at 5% level of significance.

ix. The multiple regression for manufacturing sector (Model III) shows that the beta coefficient of size is negative and significant at 10% level of significance. The beta coefficient of dividend payout ratio and earning variability is positive and of growth and liquidity is negative but all are not statistically significant.

x. The multiple regression for manufacturing sector (Model III) shows that the beta coefficients of size, growth, dividend payout ratio and liquidity are negative but only size is significant at 5% level of significance. Beta coefficient of only earning variability is positive but not significant.

CHAPTER : V

SUMMARY, CONCLUSION AND RECOMMENDATION

This is the concluding chapter in which the study is summaries in brief. This chapter is divided into three sections; Summary, conclusion and recommendations. In the last section of this chapter some recommendations have given, which are useful to stakeholders and to concerned companies as well. They can use these recommendations to take some corrective actions to draw decisions.

5.1 Summary

Capital is needed for every business to operate smoothly and it is said to be the blood of the business. So, sound capital structure is very important for smooth operation of business. The term capital structure refers to the relationship between the various long terms forms of financing such as debentures, preference shares and Equity share capital. Financing the firm assets is a very crucial problem in every business and as a rule there should be a proper mix of a debt and Equity capital financing the firm's assets.

The basic objective of this study is to analyze the effect of capital structure on the value of firm in the listed companies in Nepal. Under the guideline of this leading objective, researcher examine the effect of leverage on the value of the firm, identify the other variables in addition the leverage and analyze the relationship between value of the firm and its determining variables.

To fulfill the objectives of this study, altogether eleven levered companies are selected among one hundred and forty two companies listed in Nepal Stock Exchange Ltd in July 15,

2008. To have a homogeneous risk class, researcher categorized them into two sectors. They are: Manufacturing and non-manufacturing Sector. The manufacturing sector contains Arun Banaspati Udhyog Ltd., Bottler's Nepal Ltd., Brikuti Pulp and Paper Nepal Ltd., Gorakhkali Rubber Udhyog Ltd., Nepal Banaspati Ghee Udhyog Ltd. and Sri Raghupati Jute Mills Ltd. Likewise the companies under non-manufacturing sector are Nepal Trading Ltd., Salt Trading Corporation Ltd., Soaltee Hotel Ltd., Taragaun Regency Hotel Ltd, and Yak and Yeti Hotel Ltd. For the purpose of data analysis, correlation and regressions models are used as an analytical tools and altogether 52 observation years are used (i.e. 26 for manufacturing sector and 26 for non-manufacturing sector).

This study is based on secondary data. Most of the data are collected from Security Board and Nepal Stock Exchange. Beside these the data are also collected from annual reports of respective companies, websites, previous research studies, thesis, articles and so on. And Standard Deviations, Correlation Coefficients and Regression Coefficients are calculated by using **SPSS** programme.

By analyzing the calculated data it is found that the correlation coefficient between market value to book value of the companies and leverage are positive for manufacturing sector and negative for non-manufacturing sector. The regression coefficient (beta coefficient) is positive for manufacturing sector in model I and both manufacturing and non-manufacturing sector in model II. Likewise the regression coefficient is negative for non-manufacturing sector in model I and also for both manufacturing and non-manufacturing sector in model III.

The correlation coefficient between market value and DPR for manufacturing sector is positive and market value is negatively correlated with all other variables like size, growth rate, earning variability and liquidity. Similarly for non-manufacturing sector, the correlation coefficient of market value with size and earning variability is positive. Likewise market value is negatively correlated with growth rate, DPR and liquidity.

5.2 Conclusion

From the most of the above finding results, it is concluded that the use of debt in capital structure maximizes the value of manufacturing companies because of positive correlation and regression (beta) coefficient. So it is consistent with NI approach. However the result is not fully supported the NI approach. The negative value of correlation and regression coefficient of non-manufacturing companies shows that leverage negatively impact the market value of the companies. It is due to the inconsistent data (more standard deviation) and poor performance of the companies. Among the sampled companies, some are suffering from loss and have negative earning per share.

Besides the leverage, size, growth rate, dividend payout ratio, earning variability and liquidity also affect the market value of the companies. It can be said because dividend payout ratio is positively correlated with market value and all other variables like size, growth rate, earning variability and liquidity are negatively correlated with the market value for manufacturing sector. Likewise for non-manufacturing sector, the correlation coefficient of market value with size and earning variability is positive and with growth rate, DPR and liquidity is negative.

Finally, it can be said that the study of a capital structure cannot be neglected for any firm either manufacturing or not. It is because the capital structure affects the market value of the firm. The more leverage in capital structure creates more firm's value. Not only optimal capital structure maximizes the firm's value but also size, growth rate, dividend payout ratio, earning variability and liquidity also affect the value of firm. So, manager should understand these all.

5.3 Recommendations

From the above conclusion drawn from the study it can be recommended as follows;

i. The value of debt in capital structure is not consistent. It is fluctuated which shows by the standard deviation (more deviation). So, it is recommended that the company should design appropriate capital structure in order to maximize the value of the company.

ii. The debt in capital structure whose impact on market value is also not same for manufacturing and non-manufacturing companies. The correlation and regression coefficient between market value and leverage for non manufacturing companies is negative. It is because of poor performance of management. So it is recommended that the management of firm should aware and make correct decision and implement them with sincere and commitment.

iii. There is not any rule and regulations for proper or optimal capital structure management for manufacturing and non-manufacturing companies like hotel, trading companies and other. So, it is recommended for making the suitable rule and forming the regulatory body for the capital structure management of the companies.

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