CHAPTER II

CAPITAL STRUCTURE AND ITS DEERMINANTS IN EPALESE ENTERPRISES

2.1. Introduction

Capital structure decisions are crucial for the financial well-being of the firm. Financial distress, liquidation and bankruptcy are the ultimate consequences if any major mis-judgment occurred following any financing decision of the firm's activity. The shape of the capital structure changes from what it was at the inception to what it is at the time of expanding the business. Any change in the capital structure pattern affects the debt-equity mix, which in turn influences the cost of capital. Capital structure is one of the effective tools to ensure the lower cost of capital and thus maximize the wealth of shareholders.

A firm can choose among many alternative capital structures. An optimal capital structure is reached at a point where the cost of the capital is a minimum. Large number of ideas and theories has been developed to discuss the optimal capital structure. Studies on capital structures of corporations have a long history, dating back to the nineteen fifties with the appearance of the works of Lintner (1956), Hirshleifer (1958) and Modigliani and Miller (1958). Barclay and Smith (1995) state that financial economics has made significant progress in explaining the incentives that lead large public corporations to choose particular financing policies.

The theory of capital structure has been initiated by Modigliani and Miller (1958) who discuss about the effect of capital structure on the firm value. Their conclusion is that the "capital structure is irrelevance" which means that the firm value is not influenced by the financial structure. Modigliani and Miller (1963) also explain about the tax shield when firms can pay lower taxes if equity financing and encourage firms to use all debt financing for tax purposes because interest is deductible. Therefore, firms can attain optimal capital structure by practicing this tax saving activities and firms with higher profitability would choose to have high debt to gain tax benefits. However, the pecking order theory (Myers and Majluf 1984; Myers 1984) explains that there are no definite and clear targeted debt ratios which can be targeted by a

particular organization and industry. The model further suggests that any organization and industry will first prefer using internal available funds, then debt and finally external equity. In addition to this, it is now also believed that capital structure decision is also being influenced by competitive environment and industry and an organization in which they operate.

Harris and Reviv (1990) have given one more reason of using debt in capital structure. They say that management will hide information from shareholders about the liquidation of the firm even if the liquidation will be in the best interest of shareholders because managers want the perpetuation of their service. Similarly, Amihud and Lev (1981) suggest that mangers have incentives to pursue strategies that reduce their employment risk. This conflict can be solved by increasing the use of debt financing since bondholders will take control of the firm in case of default as they are powered to do so by the debt indentures. Stulz (1990) said when shareholders cannot observe either the investing decisions of management or the cash flow position in the firm, they will use debt financing. Managers, to maintain credibility, will over-invest if it has extra cash and under-invest if it has limited cash. The author argued that to reduce the cost of underinvestment and overinvestment, the amount of free cash flow should be reduced to management by increasing debt financing.

Another approach to explain the capital structure of firms is the differences in the level of information, which the insiders and outsiders have about the investment opportunities and income distribution of the firm. Myers (1984) has provided theoretical basis for this theory. The author asserted that there exists a degree of asymmetry of information between the firm's managers and investors concerning the real value of firm's present and future investment. Ross (1977) has said that mangers have better knowledge of the income distribution of a firm. When firm issue debt, it may generate positive signals to the outside world about the firm's income distribution suggesting that the firm has stable income and is able to pay the periodic installments and interest payments. In this regard, higher debt may show higher confidence of managers in the firm's smooth income distribution and adequacy of the income. Thus firms in their efforts to increase investors' confidence and thus increase the value of equity will use higher debt in the capital structure.

Some empirical work has also been carried out on the effects of moving away from target or optimal debt ratios. An example of this is the work by Hull (1999). However, the remark by Collins and Sekely (1983) that empirical tests do not appear to have been conclusive for all postulated determinants of financial leverage still seems to apply. Likewise there are some studies that provide evidence on the capital structure determinants from the emerging markets of South-East Asia (Pandey 2001; Pandey *et al.* 2000; Annuar and Shamsher 1993; Ariff 1998). The focus of corporate finance empirical literature has been to identify some stylised factors that determine capital structure.

Regardless of the diverse empirical evidences portrayed by researchers, the study of capital structure primarily seeks to explain firms' financial tactics, as well as, financing decisions on investment activities. Hence, financing may matter for most corporations and their investment behavior may also dependent upon the availability of internal funds and leverage levels. In addition, explicit transaction cost that affects leverage (Strebulaev, 2007; Shivdasani & Stefanescu, 2010; Faulkender, Flannery) warrants firms to have leverage targets (Altinkilic & Hansen, 2000; Leary & Roberts, 2005). However, the strong statement by Brealey and Myers (1996) that explaining capital structure is one of the 10 unsolved problems in finance. Delcoure (2007) argues that despite extensive research on what factors determine optimal corporate capital structure, there has been no consensus on a universal model applicable to the real business world. Thus, it is believed that there is still a need for new study that will fill in gaps in the existing literature dealing with capital structure.

2.2 Review of literature

The review of literature on capital structure its determinants have been organized into:

I. Review of theories of capital structure

II. Review of related studies

III. Concluding remarks

I. Review of theories of capital structure

This section surveys the most important theories of capital structure. The capital structure or financing decisions have gained much attention in finance literature over

the years since the seminal works of Modigliani-Miller (1958, 1963) on capital structure irrelevance propositions. When the taxes and the costs of financial distress are not ignored, the conditional capital structure theories come in (Myers 2001). These theories can be divided into two groups-- either they predict the existence of the optimal capital structure for each firm (static trade-off models) or they declare that there is no well-defined target capital structure (pecking order theory).

Static trade-off models understand the optimal capital structure as an optimal solution of a trade-off. For example the trade-off between a tax shield and the costs of financial distress is in the case of the trade-off theory. According to this theory the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt. In the case of the agency theory the trade-off between agency costs stipulates that the optimal capital structure is achieved when agency costs are minimized. Or the trade-off between the benefits of signaling and the costs of financial distress in the case of the signaling theory implies that a company chooses debt ratio as a signal about its type.

On the other hand, the pecking order theory suggests that there is no optimal capital structure. Firms are supposed to prefer internal financing (retained earnings) to external funds. When internal cash flow is not sufficient to finance capital expenditures, firms will borrow, rather than issue equity. Therefore there is no well-defined optimal leverage, because there are two kinds of equity, internal and external, one at the top of the pecking order and one at the bottom (Harris and Raviv 1991).
The important capital structure theories have been separately described as follows:

a. Naive Theory

The naïve theory of capital structure assumes perfect separation of investment and financing decisions (i.e., the capital structure does not affect the firm's cash flow). Therefore, financing decisions maximizing the value of the firm are decisions which minimize weighted average cost of capital. Moreover, the naïve theory assumes that the cost of debt and the cost of equity remain stable, regardless of the amount of debt and equity issued by the firm. Because the cost of debt is supported to be lower than the cost of equity, the weighted average cost of capital declines with an increasing share of debt in capital structure (increasing leverage). Thus, the weighted average

cost of capital is minimized when the firm is financed entirety by debt. The naïve theory will be refined in the part devoted to the traditional theory of capital structure.

b. Modigliani and Miller Theory

Modigliani and Miller (1958) is a milestone among capital structure studies. In their first proposition, Modigliani and Miller (1958) showed that in the perfect financial market, under certain assumptions, the value of a company is independent of its financing choice. The well-known Modigliani–Miller Theorem is based on several assumptions: in a perfect capital market insiders and outsiders have symmetric information; no transaction cost or bankruptcy cost exists; equity and debt choice becomes irrelevant; and internal and external funds can be perfectly substituted (Chakraborty 2010). Modigliani and Miller (1958) state that market is fully efficient when there are no taxes. Thus, capital structure and financing decisions affect neither cost of capital nor market value of a firm.

In their second proposition, they maintain that interest payments of debt decrease the tax base, thus cost of debt is less than the cost of equity. The tax advantage of debt motivates the optimal capital structure theory, which implies that firms may attain optimal capital structure and increase firm value by altering their capital structures. Bankruptcy and financial distress costs (Myers, 1977) and agency costs (Jensen and Meckling, 1976) constitute the basics of trade-off theory (Karadeniz *et al.,* 2009). Since the seminal Modigliani and Miller (1958) paper showing that, subject to some restrictive conditions, the impact of financing on the value of the firm is irrelevant, the literature on capital structure has been expanded by many theoretical and empirical contributions. Three principal theories aim to explain corporate leverage and its evolution. The three main theories that came up subsequently are the static trade-off theory, the pecking order theory and the agency cost theory.

Modigliani and Miller (1958) comment Proposition I as: "The market value of any firm is independent of its capital structure and is given by capitalizing its expected return at the rate p_k appropriate to its class." Further Modigliani and Miller (1958) add: "The average cost of capital to any firm is completely independent of its capital structure and is equal to the capitalization rate of a pure equity stream of its class." They have contended the presence of the arbitrage that takes place and restores the

equalities. Furthermore, they have defined the expected rate of return on equity of the company. As labeled Proposition II Modigliani and Miller (1958) comment it as follows: "The expected yield of a share of stock is equal to the appropriate capitalization rate p_k for a pure equity stream in the class, plus a premium related to financial risk equal to the debt-to -equity ratio times the spread between p_k and r."

Modigliani and Miller (1958) conclude about the broadly known theory of "capital structure irrelevance", positing that financial leverage does not affect the firm's market value. However, their theory is based on very restrictive assumptions that do not hold in the real world. These assumptions include perfect capital markets, homogenous expectations, no taxes, and no transaction costs. The presence of bankruptcy costs and favorable tax treatment of interest payments lead to the notion of an "optimal" capital structure which maximizes the value of the firm, or respectively minimizes its total cost of capital. Modigliani and Miller (1963) have reviewed their earlier position by incorporating tax benefits as determinants of the capital structure of firms. The key feature of taxation is that interest is a tax-deductible expense. A firm that pays taxes receives a partially offsetting interest "tax-shield" in the form of lower taxes paid. Therefore, as Modigliani and Miller (1963) propose, firms should use as much debt capital as possible in order to maximize their value. Along with corporate taxation, researchers were also interested in analyzing the case of personal taxes imposed on individuals.

c. Traditional Theory

The traditional theory has emerged in response to the Modigliani and Miller theory. It is based on the naïve theory, refining some its findings. The traditionalists assume that the required rate of return on equity rises in a lower degree than determined by Modigliani and Miller Proposition II when leverage of firm is relatively low, but it rises faster than predicted by Modigliani and Miller Proposition II when leverage is relatively high. Concerning the required rate of return on debt, they are in accordance with Modigliani and Miller. Therefore, the overall cost of capital decreases with increasing leverage for low values of leverage, reaching the minimum in some critical point and then rises with increasing leverage. Thus, there exists a leverage for which the weighted average cost of capital is minimized. When a minimum of weighted average cost of capital is achieved, the firm demonstrates optimal capital structure.

The value of the firm is maximized, provided that cash flow of a firm is independent of its capital structure.

d. Static Trade-off Models

Static Trade-Off Models explicate that a firm follows a target debt-equity ratio and then behaves accordingly. The benefits and costs linked with the debt option sets this target ratio. These include taxes, cost of financial distress and agency costs. The static trade –off models generally include the following theories:

(i) Trade-off Theory

The Modigliani and Miller (1958) theory is based on many assumptions which, as in case of any theory, simplify reality. Modigliani and Miller (1958) have tried to bring the theory closer to reality by incorporating the existence of the corporate income tax, however, they were at fault and they had to correct the findings (Modigliani and Miller, 1963). They agree to a positive value of the tax shield in the case when the paid interests are the tax deductible expenses, whereas dividends are not. In this case the value of the firm is equal to the value of the unleveled firm plus the present value of the tax shield. However, if the benefit of the tax shield is admitted, the optimal capital structure is achieved when the firm if financed entirely by debt. It is not a result supported by empirical evidence. Therefore, there should be also some disadvantages of using debt financing. Costs associated with debt financing in case of the trade-off theory are the costs of financial distress (reflecting the costs of bankruptcy, and the agency costs). Therefore, the value of the firm is equal to the value of the unleveled firm plus the present value of tax shields minus the present value of the costs of financial distress. When leverage is low, the benefits of the tax shield on additional debt outweigh the increasing costs of financial distress. However, there is some critical point in which the marginal present value of the tax shield is equal to the marginal present value of the costs of financial distress. In such a point the optimal capital structure is achieved (when leverage is higher than its optimal value, the marginal costs of financial distress exceeds the marginal benefits of the tax shield, lowering the value of the firm).

(ii) Agency Cost Theory

The agency cost theory (Jensen and Meckling, 1976) proposes that the optimal capital structure is determined by agency costs, which include the costs for both debt and equity issue. The costs related to equity issue may include: (a) the monitoring expenses of the shareholders (b) the bonding expenses of the managers and (c) 'residual loss' due to the divergence of managers' decision from those of the shareholder's (Jensen and Meckling, 1976). On the other hand, debt issue increases the shareholders' and managers' incentives to invest in high-risk projects that yield high returns to the shareholders but increase the likelihood of failure that the bond holders have to share if it is realized. If debt-holders anticipate this, a high premium would be charged, which in turn would increase the cost of debt. Thus both equity and debt incur agency costs, and hence the optimal capital structure involves a trade-off between the two types of costs (Chakraborty, 2010).

The agency costs arise from two agency relationships: (1) between shareholders (owners) and debtholders, and (2) between shareholders (owners) and managers (non-owners), both being based on information asymmetry. Conflict between shareholders and debtholders is described by Jensen and Meckling (1976). They have come up with the arguments of why the probability distribution of a firm's cash-flows is not independent of its capital structure. In reference to their study, when a company is highly levered, owners have incentives to engage in highly risky projects that will increase their wealth if they are successful but that will prejudice debtholders if they are not. In other words, higher risk increases the "upside" for stockholders while the downside must be absorbed by the firm's creditors. As a consequence, it becomes necessary to establish control devices in debt contracts. Conflict between debt and equity investors in the case when there is a risk of default is well documented by Myers (1977). He points out that when a firm is likely to go bankrupt, shareholders may have no incentives to provide new capital, and even it is invested in the projects with a positive net present value. The reason is that the shareholders pay all costs, whereas some part of returns may be captured by debtholders. On the other hand, some models show that the incentives of levered shareholders to engage in risky projects are reduced. For example Diamond (1989) introduces a model which is based on reputation. He analyzes the joint influence of adverse selection (different types of firms) and moral hazard (conflict between shareholders and debtholders) problems. A

different reputation-based model has been built by Hirshleifer and Thakor (1992). They analyze the situation in which a manager may manipulate investment policy of the firm in order to develop a personal reputation for high ability.

Diamond (1989) states that the values of a good reputation rise over time, as does the cost of a default. Therefore, over time, the relative payoff of the risky project (a very large payoff when it has a favorable outcome) declines relative to a safe but profitable project. If there is sufficient adverse selection, then a typical equilibrium path for a borrower with access to both types of projects is to choose risky project when "young" and, if able to survive long enough without a default, to switch to safe projects from that point forward. In this formulation, reputation is important because it becomes a valuable asset worth protecting. Harris and Raviv (1991) have stated that although the amount of debt is fixed in Diamond's (1989) model, it is plausible that an extension of the model would yield the result that younger firms have less debt than older ones, other things equal.

A different reputation-based model has been built by Hirshleifer and Thakor (1992). They analyze the situation in which a manager may manipulate investment policy of the firm in order to develop a personal reputation for high ability. In a basic version of the model, there are assumed two types of projects- "good risky" and "safe mediocre" and two types of managers (good and bad). It is assumed that the managerial labour market can distinguish only between success and failure, regardless of the project's type. Thus, a manager's incentive is to maximize the probability of success, while the shareholders are concerned only with the expected return.

The conflict between shareholders (owners) and managers (non-owners) is a classical principal-agent relationship. It is assumed that managers have some scope for pursuing their own interests at shareholders' expense because of asymmetric information and that is the costly mechanisms imposed by principals upon agents in order to prevent these self-interest-performances of theirs that create the costs. Managers have incentives to act in their own interest which may result in actions against the owners' interests. A manager may find it desirable to have a stable cash-flow over time rather than a cash-flow which, while totally higher, has greater variability. Boudreaux (1973) confirms this by empirical evidence showing that the

earnings variability of manager-controlled firms is lower than that of owner-controlled firms. Amihud and Lev (1981) show the "managerial" motive for a conglomerate merger, focusing on mergers in the United States during the period 1961-1970. Managers, as opposed to investors, are shown to engage in conglomerate mergers to decrease their "employment risk" (i.e., the risk of losing job, professional reputation, etc.). Such risk-reduction activities are considered as managerial perquisites in the context of the agency cost model. Donaldson (1984) states that managers were not driven by the maximization of the value of the firm, but rather by the maximization of the corporate wealth (the aggregate purchasing power available to management for strategic purposes during any given planning period).

Another example of the conflict between shareholders and managers is the free cash-flow theory. It shows debt as a solution of the asymmetric information (moral hazard) problem. The free cash-flow theory, as first presented by Jensen (1986) tells that how to treat the firms with extra-high free cash flows. The theory is based on the findings of Rozeff (1982) and Easterbrook (1984) that the payouts of cash to the shareholders reduce the resources under managers' control, thereby reducing managers' power, and making it more likely they will incur the monitoring of the capital markets which occurs when the firm must obtain new capital. Jensen (1986) conjectures that managers have incentives to cause their firms to grow beyond the optimal size, because it increases managers' power by increasing the resources under their control. Based on the study by Murphy (1985), the increase in sales also increases the managers' compensation, which is positively related to the growth in sales. As Jensen (1986) states that the problem is how to motivate managers to disgorge to cash rather than investing it below the cost of capital or wasting it on organizational inefficiencies. The answer to Jenson's problem can be debt which forces the firm to pay out cash. Debt acts as a credible commitment by managers to pay out future free cash flow. However, increased debt has also costs. The free cash-flow theory does not imply that debt issues will always have positive control effects.

The importance of the agency perspective is also shown by the incomplete contracting theory approach to the capital structure. As Hart (1995) states that most of the large literature on capital structure does not (at least explicitly) take an incomplete contracting view, it is worth saying a few words about why incomplete contracting

ideas provide a natural way to think about financial decisions. In the absence of contracting costs, the parties to a transaction would write an initial contract that anticipates all future events. Given that all decisions are specified, it is difficult to find a role for financial structure. A basic model focusing on incomplete contracting theory of debt is presented by Aghion and Bolton (1992). They show that different control arrangements (governance structures) are efficient for different values of monetary returns and private benefits. A model which has important conclusions is formulated by Dewatripont and Tirole (1994). They state that the capital structure of the firm is a disciplining device for managers, as well as an incentive scheme for outsiders.

(iii) Signaling Theory

The Signaling Theory, (originally developed by Ross in 1977), explains that debt may be considered as a way to highlight investors' trust in the company; that is, if a company issues the debt it provides a signal to the markets that the firm is expecting positive cash flows in the future, as the principal and interest payments on debt are a fixed contractual obligation which a firm has to pay out of its cash flows. Thus the higher level of debt shows the manager's confidence in future cash flows. Another impact of the signaling factor, as we have already discussed it in the Pecking Order Theory, is the problem of the under-pricing of equity, If a firm issues equity instead of debt for financing its new projects, investors will interpret the signal negatively; since managers have superior information about the firm than investors, they might issue equity when it is overpriced. Among other explanations about a firm's behavior in choosing its capital structure is agency theory. Jensen and Meckling (1976) identify the possible conflict between shareholders and a manager's interests because the manager's share is less than 100% in the firm. Furthermore, acting as an agent to shareholders, the manager tries to appropriate wealth from bondholders to shareholders by incurring more debt and investing in risky projects. This is consistent with the work of Myers (1977) who argues that, due to information asymmetries, companies with high gearing would have a tendency to pass up positive NPV (net present value) investment opportunities (under-investment problems). Myers therefore argues that companies with large amounts of investment opportunities (also known as growth options) would tend to have low gearing ratios.

A manager having a less than 100% stake in the business may try to use these free cash flows sub-optimally or use it to their own advantage rather than use it to increase the value of the firm. Jensen (1986) suggests that this problem can be somehow controlled by increasing the stake of the manager in the business or by increasing debt in the capital structure, thereby reducing the amount of "free" cash available to managers to engage in their own pursuits (Jensen, 1986; Stultz, 1990). Here the reduction in the cash flow because of debt financing is considered to be a benefit. Stultz (1990) suggests that the agency problem can be solved to some extent if the management stake is increased or the proportion of debt in the capital structure is increased.

The problem of adverse selection has been introduced by the famous paper by Akerlof (1970), who uses the "lemons" market for used cars to illustrate the problem. Stiglitz (1969, 1974) has introduced the concept of asymmetric information in the capital structure theory framework, pointing out that financing decisions can reveal information about a firm future prospect. The model applying the Akerlof (1970) approach to the capital structure problem has been introduced by Ross (1977). It is easy to understand in the form as restated by Klein *et al.* (2002), because they use the notation similar to current theory (e.g., the contract theory). What is known to the market are distributions of cash flows. However the market cannot distinguish between the types, because firms are identical in all other respects. Now, the same logic is used as it is in the case of Akerlof (1970). In pooling equilibrium, all firms are valued identically, i.e., the good firms are undervalued and the bad firms are overvalued. Therefore a good firm has incentive to reveal its type. How is the type of a firm revealed? Ross uses an objective function, the wage contract of the manager, consisting of two components: (1) function related to the firm value, and (2) bankruptcy penalty. Problem the manager solves is to maximize his wage by the choice of the debt level.

Crucial to the Ross (1977) model is that the signal about the type of a firm must be incentive compatible, i.e., it does not pay off for a bad company to mimic it. Ross (1977) model assumes that managers possess inside information not available to investors. Managers of the good firms have incentive to reveal the type of the firm because of their wage contract. The amount of debt chosen acts as a signal: managers

of the good firms choose minimal necessary amount of debt to signal the type of their firms. They incur the increased risk of bankruptcy, however, they signal that the firm is a good one and, therefore, the market values their firms more. Ross (1977) points out that the values of firms will rise with leverage, since increasing leverage increases the market's perception of value.

Similar logic is used in model by Leland and Pyle (1977). They state that manager of a good firm signals the type of the firm by retaining high proportion of ownership. Therefore, such a firm is financed with higher level of debt, in comparison to a bad firm. Incentive compatibility is ensured by the fact that managers are risk-averse, thus, retaining a high proportion of equity is "cheaper" for the manager of a good firm (again, the proportion must be large enough to act as an incentive compatible signal). Of course, other models have followed the pioneering works. Their survey can be found in Klein *et al.* (2002).

(iv) Other Models

There are many models based on various considerations which do not fit the above mentioned aspects. The most prominent are briefly described in this section. They are models based on (1) corporate control considerations and (2) product market interactions (or input market interactions), i.e., using features of the industrial organization theory. The capital structure models linked to the corporate control market exploit a fact that common stock carries voting rights, while debt does not. These models focus mainly on the takeover activities, e.g., Harris and Raviv (1988) and Stulz (1988).

The capital structure models based on the industrial organization theory approach can be classified into two categories. One class of approaches exploits the relationship between a firm's capital structure and its strategy when competing in the product market. A second class of approaches addresses the relationship between a firm's capital structure and the characteristics of its product or inputs (Harris and Raviv, 1991). The first class of models has been initiated by Allen (1985) and Brander and Lewis (1986), whereas the second one by Titman (1984). As Harris and Raviv (1991) conclude: "These theories have explored the relationship between capital structure and either product market strategy or characteristics of products/inputs. The strategic

variables considered are product price and quantity. These strategies are determined to affect the behavior of rivals, and capital structure in turn affects the equilibrium strategies and payoffs. Models involving product or input characteristics have focused on the effect of capital structure on the future availability of products, parts and service, product quality, and the bargaining game between management and input suppliers."

e. Pecking Order Theory

The pecking order theory as developed by Myers and Majluf (1984) and Myers (1984) is yet another consequence of asymmetric information - management is supposed to know more about its firm than outside investors. While the signaling theory assumes fixed investment, Myers and Majluf (1984) analyze a firm with assets-in-place and a growth opportunity requiring additional financing. In order to explain how the model works, it is enough to simplify the Myers and Majluf (1984) approach. Their model shows that the firm is more likely to issue and invest, ceteris paribus, when it is overvalued than when it is undervalued. Thus, the decision to issue equity and invest reveals negative information to the market. Myers and Majluf (1984) also show that the problem is completely avoided when the firm is financed with internal funds or riskless debt. Risky debt causes similar problem as a new equity, however, the value of debt is less sensitive to information asymmetry.

As a consequence of the model, there exists a hierarchy (pecking order) of preferences for sources of financing. Firms prefer internal financing (retained earnings) to external funds. When internal cash flow is not sufficient to finance capital expenditures, firms will borrow rather than issue equity. Therefore, there is no well-defined optimal leverage, because there are two kinds of equity, internal and external, one at the top of the pecking order and on at the bottom. Thus, the amount of debt will reflect the firm's cumulative need for external funds (Myers 2001). The pecking order theory declares that equity will be issued only when debt capacity is running out and financial distress threatens. Investors understand this and interpret the decision to issue shares as bad news about the firm's prospects. That explains why a stock price usually falls when a stock issue is announced. This has been confirmed by many studies, e.g., Asquith and Mullins (1986), Mikkelson and Partch (1986), and Schipper and Smith (1986). Dierkens (1991) shows that the price drop at announcement is

greater when information asymmetry is large (he concludes this using various proxies for information asymmetry). The pecking order theory helps to explain why the most profitable companies generally borrow less not because they have low target debt ratios but because they have internal funds sufficient for their capital investment programs.

Nevertheless, many models has been developed which deconstruct the pecking order theory, e.g., Brennan and Kraus (1987) and Noe (1988). They are based on the assumption that a firm has a richer set of financing choices than in the case of the Myers and Majluf (1984) model. Brennan and Kraus (1987) characterize the conditions under which the adverse selection problem may be the costlessly overcome by an appropriate choice of the financing strategy. As Brennan and Kraus (1987) state: "The conditions require a certain compatibility between the nature of the information asymmetry and the set of financing strategies available to the firm, which may depend upon its pre-existing capital structure." Thus, based on the firm's prior capital structure and the nature of information asymmetry, there may exist no strategy that satisfies the conditions. Brennan and Kraus (1987) provide two examples of possible resolution of information asymmetry: (1) when the earning distributions are ordered by first order stochastic dominance, an equilibrium financing strategy consists of an equity issue combined with a debt retirement, and (2) when the earning distributions are ordered by mean- preserving spread, an equilibrium financing strategy consists of convertible bonds issue.

Example (1) is the similar to the Myers and Majluf (1984) model. In this basic form, there is a firm with outstanding debt and an investment opportunity. There may arise two states of the world, good and bad, which is private information to the firm (it can be also restated as two types of the firms, good and bad). When the good state emerges, the firm issues equity enough to finance its investment opportunity and retire its outstanding debt at face value (debt is riskless in this case). When the bad state appears, the firm issue only equity to finance its investment opportunity. The firm has no incentive to pretend that the good state has arisen, because retirement of its debt face value causes overpayment (debt is risky in the bad debt state) which exceeds the benefits from selling overpriced equity. The firm has no incentives to pretend the bad state when the good state has emerged either, because by doing so its

equity and would be under priced. Therefore in equilibrium, in both states the firm issues equity and accepts a positive NPV investment opportunity. Thus, issuing equity is a negative signal, but issuing equity and using part of the return for debt retirement is a positive signal.

Noe (1988) models the financing decisions of firm as a sequential signaling game. He shows that when insiders (managers) have perfect information about the firms future cash flows (and outsiders do not have), there "exist all–equity pooling equilibria contradicting the existence of a pecking order between debt and equity financing. However, once the set of admissible equilibria is refined by placing appropriate restrictions on the off-equilibrium beliefs of security buyers, debt financing dominates equity financing even when some types do not have access to a positive NPV projects" Noe (1988). When it is assumed that insiders face some residual uncertainty after receiving private information, there may exist the equilibria in which pecking order breaks down in the sense that some firms prefer equity to debt. However even though the pecking order breaks down, Noe (1988) demonstrates that the average quality of firms financing with equity will be lower than quality of firms financing with debt. This financing is consistent with empirical evidence which documents a positive announcement effects from the debt issuance and a negative announcement effects from the equity issuance.

The non-universal theories of capital structure have received much attention in the fields of corporate finance and financial economics for decades. Studies on capital structure exhibits empirical evidence that could not be generalized, reasons being the conditional factors that are attached to each specific theory and presumptions of perfect capital markets. Common conditional capital structure theories include trade-off, pecking order, free cash flow and signaling theories. The trade-off theories give emphasis on debt-tax relationship against the cost of financing, while the free cash flow theory signals high agency costs that lead to firms' overinvestment behavior. Increased in value is achieved through their cash flows that surpass positive investment opportunities. Firms' precariously take a high risk by engaging themselves with high debt levels.

II. Review of related studies

This chapter summarizes the empirical evidence concerning a firm's capital structure and also tries to answer the basic question of knowing about existing corporate capital structure choices. The review of related studies on capital structure and its determinants has been organized into:

i. Review of major studies before 1980s
ii. Review of major studies during 1980s to 1990s
iii. Review of major studies during 2000s to date.

i. Review of major studies before 1980s

The major empirical studies concerning capital structure and its determinants before 1980s have been shown in Table 2.1. As regard to the issue of capital structure, Taub (1975) has attempted to examine the factors influencing the firm's choice of a debt-equity ratio. The author dealt explicitly with the relationship between overall debt equity ratio of the firm and its choice of new financing. The author investigates the relationship between variables for a total of 89 randomly chosen firms, for ten years. The 10 year observations were from 1960 - 1969. Two statistics have been used: the likelihood-ratio and t-test. The empirical results show that differences between return to the firm and long term rate of interest and size had a positive influence on debt equity ratio. The uncertainty of the firm's earning had negative influence on debt equity ratio.

Jensen and Meckling (1976) suggest that the firm's optimal capital structure will involve the tradeoff among the effects of corporate and personal taxes, bankruptcy costs and agency costs, etc. Agency costs rose from separation of ownership and control and conflicts of interest between categories of agents. One of the problems that cause conflict between managers and shareholders is free cash flows. They hypothesize that there is conflict between firm owners and both managers and debt holders. In particular, managers strive to maximize their own gains using company resources, whilst not expending effort in the best interests of their principal equity holders. In this case it is optimal for the firm to pay out all their free cash flow in dividends to avoid any risky and inefficient investment. Consequently it is more beneficial to fund expansion using debt such that its utilization can be formally

monitored by the lender.

Scot (1976) argues that a firm determining the optimal capital structure will issue as much secured debt as possible, because the agency costs of secured debt are lower than those of unsecured debt. Securable assets are considered the fixed assets such as plant and machinery. Thus, firms with securable assets should issue more debt. Therefore, firms that employ larger amount of fixed assets are expected to maintain more debt level that firms with lower fixed assets ratio.

Table 2.1
Major studies on capital structure and its determinants before 1980s

Study	Major finding
Taub (1975)	Differences between return to the firm and long term rate of interest and size had a positive influence on debt equity ratio. The uncertainty of the firm's earning had negative influence on debt equity ratio.
Jensen and Meckling (1976)	Firm's optimal capital structure will involve the tradeoff among the effects of corporate and personal taxes, bankruptcy costs and agency costs.
Scot (1976)	Firms that employ larger amount of fixed assets are expected to maintain more debt level that firms with lower fixed assets ratio.
Carleton and Silberman (1977)	Earnings variability to be highly significant in three regression equations.
Ross (1977)	Investors believe higher levels of debt will imply higher quality and higher future cash flows.
Ferri and Jones (1979)	Industry class is linked to a firm's leverage, a firm's use of debt is related to its size, and operating leverage does influence the percentage of debt in a firm's financial structure.

Carleton and Silberman (1977) have worked with aggregate values for industry and have found that earnings variability to be highly significant in three regression equations. A different measure of industry capital structure was used in each equation and the direction of the relationship was inversely related to in all regression equations.

Ross (1977) proposes signaling effect based on asymmetric information. This theory states that investors believe higher levels of debt will imply higher quality and higher future cash flows. This means that lower quality firms with higher expected costs of

bankruptcy at any level of debt cannot follow the steps of higher quality firms by incurring more debt.

Ferri and Jones (1979) investigate the relationships between a firm's financial structure and its industrial class, size, variability of income, and operating leverage. The study examined possible linkages between a firm's financial structure and its industry class, size, variability in income, and operating leverage. The study developed taxonomy of firms that avoided methodological and conceptual difficulties associated with schemes based solely on SIC codes or on firms' relative rankings in a sample. The results of the study's effort to relate firm characteristics to leverage class can be summarized in this way: (a) industry class is linked to a firm's leverage, but in a less pronounced and direct manner than has been previously suggested;(b) a firm's use of debt is related to its size, but the relationship does not conform to the positive, linear scheme that has been indicated in other work; (c) variation in income, measured in several ways, could not be shown to be associated with a firm's leverage; and (d) operating leverage does influence the percentage of debt in a firm's financial structure and the relationship between these two types of leverage is quite similar to the negative, linear form which financial theory would suggest.

ii. Review of major studies during 1980s to 1990s

The major literature on capital structure and its determinants during 1980s to 1990s has been shown in Table 2.2. DeAngelo and Masulis (1980) subsequently propose the static trade-off theory, whereby the advantage conferred by debt in the form of a decreased tax bill was offset by an increase in business risk. They propose a theoretical optimum level of debt for a firm, where the present value of tax savings due to further borrowing is just offset by increases in the present value of costs of distress.

Tamari (1980) investigates the effects of size on financial leverage across countries with particular interest in identifying patterns distinguishing very small firms from their larger counterparts. Data presented by him for the U.S., the U.K., Japan, France and Israel, show that there is more variation in financial leverage across countries than across size. However, he documented some stylized facts about the financial behavior of small firms that were common to all countries studied. These stylized facts are that

they rely more on short-term funds borrow a greater share of their funds from trade and other non-bank creditors and present a higher tendency to finance long-term assets with short-term funding relative to big enterprises.

Table 2.2
Major studies on capital structure and its determinants during 1980s to 1990s

Study	Major finding
DeAngelo and Masulis (1980)	Present value of tax savings due to further borrowing is just offset by increases in the present value of costs of distress.
Tamari (1980)	Firms rely more on short-term funds borrow a greater share of their funds from trade and other non-bank creditors.
Bradley and et.al. (1984)	Firm volatility was significant and negatively related to firm leverage ratios.
Myers (1984)	Profitable firms are less likely to opt for debt financing for new projects as they would be having sufficient funds in the form of retained earnings.
Peterson and Shulman (1987)	Size, age and level of economic development were indeed important determinants of small firms' financial leverage in their small firms' sample.
Friend and Lang (1988)	Measure of risk has a negative impact on leverage, that is, a risky firm borrows less.
Titman and Wessels (1988)	Debt financing might be small for large firms and large for small firms.
Choi, Fabozzi and Yaari (1989)	Optimum leverage is obtained as a result of a fundamental risk-return trade-off for investors who hold non-uniform portfolios of risky equity and debt claims.
Fisher, Heinkel and Zechner (1989)	Even small recapitalization costs lead to wide swings in a firm's debt ratio over time.
Gau and Wang (1990)	Level of debt is directly related to the cost of the investment and inversely to the size of its depreciation tax shield, expected costs of financial distress and market interest rates.
MacKie-Mason (1990)	Negative association between the probabilities to issue debt as opposed to equity.
Harris and Raviv (1991)	Financial leverage is positively related to firm size, asset tangibility and growth opportunity, but is negatively related to firm risk and profitability.
Shuetrim, Lowe and Morling (1993)	Firm size, growth, collateral and cash flow influence the relative costs of debt, the level of demand for and the availability of funds. Real asset prices also influence leverage.
Cosh and Hughes (1994)	SME owners try to use and meet their financing needs based on a pecking order theory.
Allen (1995)	A negative link between growth rates and non-debt tax shields and a firm's level of debt.
Rajan and Zingales	A significant relationship between firms' leverage and variables measuring the

(1995)	firms' size, profitability, assets tangibility and growth prospects.
Rao, Waters and Payne (1995)	Growth and size of the firm are negatively correlated with the leverage of the firm.
Love and Wickramanayake (1996)	Correlation analysis provides an explainable relationship for a number of industries, but overall the results are inconclusive.
Barkham (1997)	Property trading companies are on average more highly-geared than property investment companies.
Carelton and Siberman (1997)	Ultimate determinant of leverage would be the variance, not the rate of return.
Chen, Lensink and Sterken (1998)	Pecking order hypothesis is relevant in explaining the financing choice of Dutch firms, which implies the importance of asymmetric information models in explaining capital structure choice of Dutch firms.
Kim et al. (1998)	Negative correlation coefficient between variability of operating cash flow and financial leverage.
Capozza and Seguin (1999)	Externally managed REITs have a higher debt ratio because external managers are frequently compensated according to the size of assets under management.
Gordon and Lee (1999)	Taxes have a strong effect on debt levels of small firms.
Michaelas et al. (1999)	Positive relationships between i) non-debt tax shield and long-term debt, ii) firm growth and debt, iii) asset structure and debt, and iv) firm size and debt. But level of debt is negatively correlated with profitability.
Ooi (1999)	Asset structure, business orientation, and the level of involvement in property development are significant determinants of the corporate debt policy of property companies.
Theis and Casey (1999)	Debt is significantly inversely related to percentage of shares closely held, dividend yield and price-to-book ratio.

Bradley *et al.* (1984) have found that their measure of firm volatility was significant and negatively related to firm leverage ratios. Myers (1984) states that, because of asymmetries of information between insiders and outsiders the firms prefer internal sources of financing to equity financing. If internal financing is insufficient then they go for external financing, first they apply for bank loans, then for public debts and as a last resort, equity financing is used. Profitable firms are less likely to opt for debt financing for new projects as they would be having sufficient funds in the form of retained earnings.

Peterson and Shulman (1987) have carried out a study that represents a second

example of searching for patterns of financial leverage behavior in small firms across countries, with the difference that in this case many developing countries were included. Findings seemed to signalize that size; age and level of economic development were indeed important determinants of small firms' financial leverage in their small firms' sample. They have even come up with a life cycle model of capital structure, which they allege is built upon results of prior empirical corporate studies as well as of their own work. This model predicts that as firms grow/age they go through stages of development, characterized by low percentage of debt/total assets during the early stages of existence and survival, maximum financial leverage during the intermediate stages of success and becoming established, and low debt/total assets ratios again during the late stage of maturity.

Friend and Lang (1988) claim that consistent evidence has been found in their research. They argue that, in their regression analysis, their measure of risk has a negative impact on leverage, that is, a risky firm borrows less.

Titman and Wessels (1988) investigate the effects of size on financial leverage across countries with particular interest in identifying patterns distinguishing very small firms from their larger counterparts. Evidence based on the U.S., U.K, Japan, France, Israel show that there is more variation in financial leverage across countries than across size. The authors explain that debt financing may be small for large firms and large for small firms.

Choi, Fabozzi and Yaari (1989) have developed a model in which corporate interior optimum leverage is obtained as a result of a fundamental risk-return trade-off for investors who hold non-uniform portfolios of risky equity and debt claims in the absence of market mechanisms, forcing leverage indifference.

Fisher, Heinkel and Zechner (1989) have found that small recapitalization costs lead to wide swings in a firm's debt ratio over time. Rather than static leverage measures, they use the observed debt ratio range of a firm as an empirical measure of capital structure relevance. The results of empirical tests relating firms' debt ratio ranges to firm-specific features strongly support the theoretical model of relevant capital structure choice in a dynamic setting.

Gau and Wang (1990), based on a sample of 1,423 apartment and commercial property transactions in Vancouver between 1971 and 1985 have observed that the level of debt employed in a property acquisition is directly related to the cost of the investment and inversely to the size of its depreciation tax shield, expected costs of financial distress and market interest rates. The applicability of the results to the financial context of property companies at the corporate level has not been tested.

MacKie-Mason (1990) has found a significant negative association between the probability to issue debt as opposed to equity and his two measures of operational risk in two different regression equation specifications. Interestingly, both measures entered the regression equations at the same time without troubling one another.

Harris and Raviv (1991) have found that financial leverage is positively related to firm size, asset tangibility and growth opportunity, but is negatively related to firm risk and profitability. They provide a good review of agency-based models of capital structure and concluded that firms within a specific industry appear to target similar leverage ratios.

Shuetrim, Lowe and Morling (1993) have used a sample of 209 firms, observed annually between 1973 and 1991, to explore both cross-sectional and time variation in financial structure. The study leads to a model that incorporates the major determinants of leverage. The empirical model takes into account the influence of both firm-specific and time-specific effects. The dynamics of leverage are also tentatively explored. The results suggest that a number of firm-related factors influence the relative costs of debt, the level of demand for and the availability of funds. Most important among these are firm size, growth, collateral and cash flow. A number of macro-economic variables are also found to influence leverage. Most important among these are real asset prices which play a significant role in the post-financial deregulation period.

Cosh and Hughes (1994) explain that SME owners try to use and meet their financing needs based on a pecking order theory as follows: firstly, using their "own" money (personal savings and retained earnings); secondly, short-term borrowings; thirdly,

longer term debt; and finally least preferred of all, from the introduction of new equity investors that represents the maximum intrusion. In the nutshell, the pecking order theory suggests that the relationship between leverage and profitability will be negatively correlated because the more profitable the firm, the less need it has to borrow either long-term or short-term.

Allen (1995) has studied real estate limited partnership and has found a negative link between growth rates and non-debt tax shields and a firm's level of debt. Rajan and Zingales (1995), in the investigation on the determinants of capital structure of G7 countries (US, Japan, Germany, France, Italy, U.K, and Canada) have found a significant relationship between firms' leverage and variables measuring the firms' size, profitability, assets tangibility and growth prospects. They suggest that there is a positive relationship between leverage and size and asset tangibility. Meanwhile there is a negative relationship for profitability and growth. Tangibility is positively correlated with leverage in all countries.

Rao, Waters and Payne (1995) have focused on those variables that indicate the level of leverage in firm. Their work shows that there is a negative relation among growth and leverage of the firm. Size of the firm is negatively correlated with the leverage of the firm hence smaller firms are accepted to increase the profitability of going private.

Love and Wickramanayake (1996) have examined the applicability of the theory of optimum capital structure at the industry level, using a sample of 112 Australian companies, over 14 industrial classifications, for the period from 1980 to 1994. The empirical work in the study uses three related, but distinct tests to establish that differences exist in the capital structure of the sample industry groups. Firstly, ANOVA tests are used to measure differences in the debt to equity ratio between industries, as well as to calculate the cross-sectional variance in firm leverage that can be explained by industry classification. Secondly, an OLS regression estimation procedure is applied to calculate whether industrial classification is a significant determinant of financial leverage. Finally, a seemingly unrelated regression procedure is used to test the similarity between a series of nominated industry relationships; namely size, profitability, growth and volatility. The study finds some evidence consistent with capital structure theory being relevant in the sample period and

industries examined, using all three econometric techniques. Following the establishment of differences between the capital structures of the selected industries, the study uses a non-parametric test involving correlation analysis to establish whether macroeconomic shocks could be expected to have a similar effect on the various capital structures. The results of a correlation analysis provide an explainable relationship for a number of industries, but overall the results are inconclusive.

Barkham (1997) has examined the financial structure and ethos of property companies in the UK. The main conclusion of the study is that the classification of property companies as property investment companies (PICs) and property trading companies (PTCs) is valid. PTCs buy and develop property assets with a view to selling them on in the short term, while PICs engage in the acquisition and development of property assets to augment their portfolio which is held for long term. He notes that the PTCs are more focused on profits whereas the PICs are more concerned with delivering returns to their shareholders via share price movements. He also observes that the PTCs operate against the constant danger of insolvency and indeed when the market turns they become unable to meet interest payments almost immediately. Due to their different ethos, the capital structures of property companies in the two categories are not the same. In particular, He observes that during the study period (between 1987 and 1991) the PTCs are on average more highly-geared than PICs. This observation, however, contradicts the prediction of the conventional trade-off models of capital structure that risky firms should employ less debt in their capital structure.

Carelton and Siberman (1997) conclude that the lower the degree of financial leverage adopted, the higher the variability in rate of return on invested capital. Hence, the ultimate determinant of leverage will be the variance, not the rate of return.

Chen, Lensink and Sterken (1998) investigate the determinants of capital structure choice of Dutch firms. By estimating a panel data model explaining both the absolute level of leverage with respect to various factors and the year-to year changes in leverage with respect to the changes of various factors, they find evidence suggesting the relevance of the pecking order hypothesis in explaining the financing choice of Dutch firms, which implies the importance of asymmetric information models in explaining capital structure choice of Dutch firms. They argue that factors based on

agency costs and corporate control considerations are relatively unimportant for the Dutch case. Kim *et al.* (1998) show a highly significant negative correlation coefficient between variability of operating cash flow and financial leverage.

Capozza and Seguin (1999) have found that externally managed REITs have a higher debt ratio because external managers are frequently compensated according to the size of assets under management. This gives them every incentive to gear up as much as possible to maximize their own personal remuneration, whilst internal managers are more concerned about escalating interest expenses.

Gordon and Lee (1999) have used "US Statistics of Income" balance sheet data on all corporations to compare the debt policies of firms of different sizes and found that taxes have a strong effect on debt levels of small firms.

Michaelas *et al.* (1999) gathered data from the Lotus One-Source Database of UK small firms and have found positive relationships between i) non-debt tax shield and long-term debt, ii) firm growth and debt, iii) asset structure and debt, and iv) firm size and debt. These authors have also found that the level of debt is negatively correlated with profitability.

Ooi (1999), employing the panel data methodology, examines the capital structure determinants of 83 property companies quoted in the UK. The empirical test reveals how the debt-equity structure of the companies is influenced by the various firm-specific attributes and macro-economic factors. In particular, the evidence shows that asset structure, business orientation, and the level of involvement in property development are significant determinants of the corporate debt policy of property companies. Financial distress consideration also has a significant influence. In addition, the empirical evidence shows that corporate property managers take into consideration the prevailing market sentiment and borrowing costs when making the debt-equity choice. Corporate performance and tax burden, however, do not appear to have any significant effect on the capital structure decision of property companies.

Theis and Casey (1999) examine the relationship between various agency factors and debt of property management firms in the UK. Findings indicate that debt is

significantly inversely related to percentage of shares closely held, dividend yield and price-to-book ratio. Size, measured by sales volume, appears to be insignificant in determining debt level.

iii. Review of major studies during 2000s to date.

The major related studies on capital structure and its determinants during 2000s to date have been revealed in Table 2.3. Keister (2000) argues that during economic transition, the capital structure of companies might be affected due to shortage of financing from the state. Colombo (2001) investigates the capital structure of Hungarian firms using a cross-section and a panel data approach. The study uses a panel consisting of approximately 1100 observations, over five years, of Hungarian firms to investigate the presence of constraints to these firms in achieving their optimal capital structure and the efficiency of the banking sector in providing credit. The data set is composed of balance sheet data and information on market structure for 1100 firms from 1992 to 1996. Evidence is found of imperfections that constrain firms in the achievement of their optimal capital structure, but also some positive indications: there are no distortions typical of the planned system and no signs of the presence of soft budget constraints. There is evidence of the existence of a pecking order in firms' financing choices suggesting the presence of forms of financial market imperfections that constrain them in the achievement of their optimal capital structure. The results suggests that Hungarian banks seem to have chosen the second way that banks actively trying to resolve the informational problems, allocating funds where it was possible to obtain adequate and correct collateral provisions, looking at firms' long-term growth opportunities firms, etc.

Table 2.3
Major studies on capital structure and its determinants during 2000s to date

Study	Major finding
Keister (2000)	During economic transition, the capital structure of companies might be affected due to shortage of financing from the state.
Colombo (2001)	Existence of a pecking order in firms' financing choices suggesting the presence of forms of financial market imperfections that constrain them in the achievement of their optimal capital structure.
Heshmati (2001)	Observed capital structure exceeds the target, and that adjustment towards the target level is very slow.
Omet and Nobanee	Company size and retained earnings divided by total assets are significant

(2001)	determinants of leverage.
Antonion *et al.* (2002)	Capital structure decisions of firms were not only affected by its own characteristics but also by its surrounding environment. The surrounding environment may affect the firm's capital structure.
Antonoiu, Guney and Paudyal (2002)	Size of the firm positively affects the leverage ratio. While the relationship between fixed asset ratio and level of leverage was mixed means positive in Germany but negative in France and UK.
Bevan and Danbolt (2002)	Determinants of gearing appear to vary significantly, depending upon which component of debt is being analyzed.
Bhaduri (2002)	Financial mix of the firm is influenced by firm size, growth, and uniqueness. Notably, collateral value of assets and tax shield factors did not shown up as important explanatory variables.
Huang and Song (2002)	A significant positive relationship between leverage ratios and the firm size. Ownership structure also affects leverage. The static tradeoff model seems better in explaining capital structure.
Nivorozhkin (2002)	Negative relationship between leverage and proportion of tangible assets is found. The more profitable companies had less debt than less profitable ones.
Voulgaris (2002)	The ratio of debt to total assets has a strong correlation with the net profit and turnover of capital assets.
Voulgaris, Asteriou and Agiomirgianakis (2002)	Asset utilization, gross and net profitability and total assets growth have a significant effect on the capital structure of large-size enterprises.
Cassar and Holmes (2003)	Asset structure, profitability and growth are important determinants of capital structure and financing. The results support static trade-off and pecking order arguments proposed by theoretical models.
Chen and Hammes (2003)	Firm size, profitability, tangibility, market to book ratio have significant impact on firms' choice of capital structures. Results support conventional capital structure theories to a very high degree.
Esperanca *et al.* (2003)	Leverage is positively correlated with firm size, asset composition, and firm growth and negatively correlated with firm's profitability.
Frank and Goyal (2003)	The most reliable factors are median industry leverage (+ effect on leverage), bankruptcy risk as measured by Altman's Z-Score (- effect on leverage), firm size as measured by the log of sales (+), dividend- paying (-), intangibles (+), market-to-book ratio (-), and collateral (+).
Korajczyk and Levy (2003	Both macroeconomic conditions and firm specific factors have an effect on firms financing choices.
Wolfgang and Fix (2003)	Firms with less investment opportunities apply more leverage. Leverage has a direct relation with the tangibility of assets. More profitable firms use less leverage.

Baral (2004)	Size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies.
Bauer (2004)	Leverage of a company is positively correlated with size and it is negatively correlated with profitability, tangibility and non-debt tax shields.
Chen (2004)	Financial leverage in Chinese firms decreases with profitability. Additionally, growth opportunities and tangibility are positively related to debt in China.
Deesomsak *et al.* (2004)	Growth opportunities, non debt tax shield, liquidity and share price performance have a negative effect on leverage, whilst firm size has a positive effect.
Hall, Hutchinson and Michaelas (2004)	The collateral appears to be the strongest and for growth being the weakest in determining capital structure.
Buferna, *et al.* (2005)	Profitable companies were externally financed and prefer short-term debt sources. Public companies use both short-term and long-term debt.
Chen and Strange (2005)	Profitability and ownership structure are negatively related to capital structure. Size and risk of the firms are positively related to the debt ratio.
Frank and Vidhan (2005)	Relation between leverage and size of firm is positive. A positive relation among leverage and tangibility of assets of firm is also documented.
Gaud, Hoesli and Bender (2005)	Both corporate governance and market timing impact upon capital structure. Internal financing is preferred over external financing but companies limit future excess of slack.
Mackay and Phillips (2005)	Firm's financial leverage depends on its natural hedge, the actions of other firms in the industry, and its status as entrant, incumbent, or exiting firm.
Maghyereh (2005)	Size, tangibility, profitability, growth opportunity, and earnings volatility exert significant effects on the capital structure choice of Jordanian firms.
Shah (2005)	Firm specific effects on the use of debt exist. No support to trade off theory for textile sector of Pakistan. Some support for pecking order theory.
Song (2005)	Short-term debt comprises a considerable part of Swedish firms' total debt. Significant differences are found in the determinants of long and short-term forms of debt.
Faulkender and Peterson (2006)	Firms that have access to public bond market, usually have a large amount of leverage.
Hijazi and Tariq (2006)	Tangibility of assets and growth found to be positively correlated with leverage. Usage of short term financing is higher than long term financing.
Tran and Khoig (2006)	The size of the company and business risks has a positive relationship with debt ratio.
Eldomiaty (2007)	A positive relationship between firm growth and debt.
Eriotis (2007)	There is a negative relationship between the debt ratio of the firms and their growth, their quick ratio and their interest coverage ratio. Size appears to maintain a positive relationship with debt ratio.

Mazhar and Nasr (2007)	Government owned and private companies of Pakistan use different patterns of financing, and that government owned companies employ more leverage than private companies.
Overesch and Voeller (2007)	Higher tax benefit of debt has the expected significant positive impact on companies' financial leverage. Capital structures of smaller companies react more heavily to higher tax rates on equity financing.
Qian et al. (2007)	Firm size, tangibility and state ownership are positively related with firm's leverage ratio. Profitability, non-debt tax shields and volatility have a negative relationship with the leverage ratio.
Salwani *et al.* (2007)	Asset intensity and profitability are significant determinants of capital structure.
Shah and Khan (2007)	Tangibility variable assures the prediction of trade-off theory. The growth variable confirms the agency theory hypothesis whereas profitability approves the predictions of pecking order theory.
Abor (2008)	Age of the firm, size of the firm, asset structure, profitability, risk and managerial ownership are important in influencing the capital structure decisions of Ghanaian firms.
Huat (2008)	Leverage ratio of Malaysian companies is mainly driven by four factors, namely the profitability, company size, liquidity, and growth.
Jong, Kabir and Nguyen (2008)	Tangibility and firm size in half of the countries have a positive effect on long-term debt ratios at market value, whereas growth opportunities and profitability have a negative effect.
Joshua (2008)	Large size firms as well public sector firms require debt financing while small medium enterprises (SMEs) require equity financing.
Overesch and Voeller (2008)	Higher tax benefit of debt has the expected significant positive impact on a company's financial leverage. Substitutive relationships between non-debt tax shields and the effect of the corporate tax rate on capital structures.
Qian *et al.* (2008)	Size, tangibility, and ownership structure are positively associated with the firm's leverage ratio, while profitability, non-debt tax shields, growth and volatility are negatively related to the firm's leverage ratio.
Rafiq, Iqbal and Atiq (2008)	Firm size, profitability, income variation, non-debt tax shield (NDTS) and growth were found as significant variables for determining leverage.
Achy (2009)	Negative relationship is found between asset tangibility and both aggregate leverage and short-term debt ratio. The impact of growth is positive on short-term leverage. Profitability exerts a positive effect on long-term leverage and a negative one on short-term leverage.
Bastos, Nakamura and Basso (2009)	Return on assets has a negative effect and size has a positive one across different leverage ratios. The GDP growth is found to have a negative effect on the total indebtedness.
Chikolwa (2009)	Profitability, growth opportunities and operational risk are negatively related

	to leverage, whilst size is positively related.
Degryse, Goeij and Kappert (2009)	Capital structure decision of Dutch SMEs is consistent with the pecking order theory. Maturity matching principle in SME capital structure: long term assets are financed with long term debt, while short term assets are financed with short-term debt.
Gill *et al*. (2009)	Leverage is negatively correlated with collateralized assets and firm's profitability.
Park and Kim (2009)	Managerial overconfidence may lead to increase leverage.
Roberts and Sufi (2009)	Incentive conflicts between firms and their creditors have a large impact on corporate debt policy.
Gurcharan (2010)	Profitability and growth opportunities are negatively correlated with the debt to total assets ratio. Non-debt tax shield negatively affects the stated leverage ratio. Stock market development and the GDP growth rate have negative effect on the debt to total assets ratio.
Khrawish and Khraiwesh (2010)	Growing companies and companies with high levels of tangible assets tend to use short-term debt rather than long-term debt. Large and profitable companies are less likely to use short-term debt and tend to use less debt overall.
Mashar and Nasr (2010)	Asset tangibility and profitability (ROA) are negatively correlated with debt. Size, growth rate and tax rate is positively related with leverage.
Prahalathan (2010)	Direction of the explanatory variables such as, tangibility, profitability, firm size and non-debt tax shields with total debt largely consistent with the explanations of trade - off theory.
Zhang (2010)	Profitability, tangibility and size are positively and growth is negatively related to the debt/equity ratio, and age is in inconsistent relationship with the debt/equity ratio of British manufacturing SMEs.
Baharuddin, Khamis, Mahmood and Dollah (2011)	Profitability of the construction companies is significant negatively relations to debt ratio while size, growth and assets tangibility are positively significant in relations to total debt.
Chen and Chen (2011)	Firm size, profitability and asset structure can be considered explanatory variables of capital structure.
Dincergok and Yalciner (2011)	Profitability has a negative impact on debt ratios, while tangibility has a positive impact - on long-term debt ratios. Interest rates and real GDP growth affect the total debt ratio negatively, whereas the stock market development and public sector debt affect it positively.
Doku, Adjasi and Kumankuma (2011)	Stock market development is indicated to have a positive effect on the capital structure decisions of listed firms.
Feld, Heckemeyer and Overesch (2011)	Debt characteristics, econometric specifications, and the set of control-variables affect tax effects. Meta-regressions results predict a marginal tax effect on the debt ratio.

Ibrahim and Masron (2011)	Size, profitability and tangible asset are significantly related to long term debt. Size and tangible assets have a persistent and consistent negative and significant relationship with long term debt.
Mishra (2011)	Capital structure of the profit making Public Sector Undertakings is affected by Asset Structure, Profitability and Tax. Asset Structure and Profitability are positively and negatively related to leverage respectively. Tax and leverage are negatively related.
Olayinka (2011)	Negative relationship between leverage and growth opportunities, leverage and tangibility, but positively related to liquidity as well as size.
Sayeed (2011)	Tax rate, firm size, collateral value of assets has positive impact in determining leverage. Agency costs and non debt tax shields are negatively impacting on leverage.
Kumar, Anjum and Nayyar (2012)	Capital structure decision of the pharmaceutical companies has very little effect on its investment pattern.
Lim (2012)	Profitability, firm size, non-debt tax shields, earnings volatility and non-circulating shares are influence factors in financial sector. Chinese institutional characteristic affects the capital choice decision.
Pinkova and Kaminkova (2012)	Stages of birth, growth and decline are typical with higher level of debt use. The equity capital is preferred in the maturity stage. The relation between the life stage and capital structure exists.
Sabir and Malik (2012)	Profitability is negatively related to leverage, whereas liquidity, size and tangibility have positive relationship with leverage. An optimal capital structure exists.
Tamulyte (2012)	Determinants of capital structure were similar in The Baltic States and Russia as well: Credit market development and Tangibility had the biggest influence when making financing decisions.

Heshmati (2001) has formulated a dynamic adjustment model to specify and estimate the unobservable optimal capital structure using observable determinants. The optimal level varies, allowing for deviations of observed leverage from optimal leverage. This model is specified in such a way that the speed of adjustment towards the optimal level is firm and time specific. Identification of determinants and estimation of the level of optimal capital structure and speed of adjustment allow for flexible determination and adjustment of the effective level of capital structure. Empirical analysis is based on a large sample of Swedish micro and small firms. They find that the observed capital structure exceeds the target, and that adjustment towards the target level is very slow.

Omet and Nobanee (2001) examine the capital structure of listed industrial companies in Jordan. Using firm level panel data, the mean leverage ratios and the mean ratios of long term debt to total debt are calculated during the time period 1978-1998. Based on the statistical analysis, they found that company size and retained earnings divided by total assets are significant determinants of leverage. Furthermore, it was found that fixed assets to total assets and total assets are the only significant determinant factors of the debt ratios.

Antonion *et al.* (2002) have found that the capital structure decisions of firms are not only affected by its own characteristics but also by its surrounding environment. The surrounding environment may affect the firm's capital structure for different reasons, such as the deterioration or the improvement in the state of economy, the existence of a stock market and the size of a firm for its leverage ratio.

Antonoiu, Guney and Paudyal (2002) have investigated determinants of capital structure a leverage ratio of French, German and British firms with the help of penal data. Their results suggest that size of the firm positively affects the leverage ratio. They analyze relation of profitability, size of firms, fixed assets. This study identifies a positive impact on firm’s size on leverage. While the relationship between fixed asset ratio and level of leverage was mixed means positive in Germany but negative in France and UK. This shows that tangibility of assets is more significant in bank borrowing in Germany. The effect of all these factors on leverage depends on financial environment and tradition of the country in which firm operates.

Bevan and Danbolt (2002) have examined the capital structure of 822 UK companies, and have found that the determinants of gearing appear to vary significantly, depending upon which component of debt is being analyzed. In particular, significant differences are found in the determinants of long- and short-term forms of debt. Given that trade credit and equivalent, on average, accounts for more than 62% of total debt, the results are particularly sensitive to whether such debt is included in the gearing measure. It is argued, therefore, that analysis of capital structure is incomplete without a detailed examination of all forms of corporate debt. The determinants of gearing appear to vary significantly, depending upon which component of debt is being analyzed.

Bhaduri (2002) analyzes the capital structure choice in a sample of 363 Indian firms between 1989 and 1995 by employing the factor analytic approach. His results suggest that the financial mix of the firm is influenced by firm size, growth, and uniqueness. Notably, collateral value of assets and tax shield factors do not show up as important explanatory variables.

Huang and Song (2002) have investigated the determinants of capital structure of companies in China, using firm level panel data, the mean leverage ratios and the mean ratios of long-term debt to total debt. They have found a significant positive relationship between leverage ratios and the firm size. They have employed a new database, which contains the market and accounting data from more than 1000 Chinese listed companies up to the year 2000, to document the characteristics of these firms in terms of capital structure. As in other countries, leverage in Chinese firms increases with firm size, non-debt tax shields and fixed assets, and decreases with profitability and correlates with industries. They also report that ownership structure affects leverage. Different from those in other countries, leverage in Chinese firms increases with volatility and firms tend to have much lower long-term debt. The static tradeoff model rather than pecking order hypothesis seems better in explaining the features of capital structure for Chinese listed companies.

Nivorozhkin (2002) investigates the determinants of the capital structures of Hungarian companies listed on the Budapest Stock Exchange during 1992-1995. Hungarian companies have very low leverage ratios. His empirical findings indicate that the negative relationship between leverage and proportion of tangible assets is primarily caused by the lack of long-term debt financing. The relationship between leverage and the size of the company provides some indication of the importance of trade credits for the companies. The more profitable companies have less debt than less profitable ones. Manufacturing firms and firms with the state among their major shareholders enjoy higher levels of debt financing relative to other companies.

Voulgaris (2002) analyzes capital structure and profitability, growth and structure of the assets in the industrial sector. The study examines the determinants of capital structure of the industrial sector, in the large Greek enterprises during the period

1986-1998. The study concludes that the structure of assets and the rate of growth and net profit, has no effect on the structure of capital for large projects and the ratio of debt to total assets has a strong correlation with the net profit and turnover of capital assets.

Voulgaris, Asteriou and Agiomirgianakis (2002) analyze the determinants of the capital structure of the large firms manufacturing sector in Greece. The panel data of a random sample of large Greek enterprises have been utilized. Their findings suggest that asset utilization, gross and net profitability and total assets growth have a significant effect on the capital structure of large-size enterprises. They suggest that in order to improve capital structure, Greek manufacturing large-size enterprises need to achieve higher asset utilization and profit margins through economies of scale attained mainly by higher exports. Moreover, governmental measures aiming to support large-size enterprises efforts should focus their impact on alleviating taxation, reducing bureaucratic burdens, minimizing market imperfections and subsidizing applications of new technology.

Cassar and Holmes (2003) investigate the determinants of capital structure and use of financing for small and medium sized enterprises. Hypotheses utilizing static tradeoff and pecking order arguments have been empirically examined using a series of firm characteristics including: size, asset structure, profitability, growth and risk. The hypotheses developed have been tested using a large Australian nationwide panel survey. The results suggest that asset structure, profitability and growth are important determinants of capital structure and financing. For asset structure the direction of the influence is reliant upon the capital structure or financing measure employed. The results generally support static trade-off and pecking order arguments proposed by theoretical models.

Chen and Hammes (2003) analyze factors influencing firms' leverage. They have used market capital ratio and book capital ratio and book debt ratio as the leverage measure. They used an unbalanced panel for 7 countries: Canada, Denmark, Germany, Italy, Sweden, UK, and US. They find that firm size, profitability, tangibility, market to book ratio have significant impact on firms' choice of capital structures. Tangibility is positively related to leverage in all three models, while

profitability shows a negative significant relation to leverage. The size variable is significant for all three models. The impact of the market-to-book ratio varies in the "book-debt"-ratio model but shows a negative significant relation for all countries in the market leverage model except Denmark. It is possible that by taking into account of the other variables, this variable is crowded out in the leverage measures based on accounting data. Their results support conventional capital structure theories to a very high degree. The major advantage of their panel data approach is that we capture both the cross section and time dimensions and the estimations are both efficient and consistent.

Esperanca *et al.* (2003) have used the Portuguese Central Bank (Banco de Portugal) to collect 995 small manufacturing firms' data between 1992 and 1996. They have found that leverage is positively correlated with i) firm size, asset composition, and firm growth and ii) negatively correlated with firm's profitability.

Frank and Goyal (2003) have examined the relative importance of 39 factors in the leverage decisions of publicly traded U.S. firms. The pecking order and market timing theories do not provide good descriptions of the data. The evidence is generally consistent with tax/bankruptcy tradeoff theory and with stakeholder co-investment theory. The most reliable factors are median industry leverage (+ effect on leverage), bankruptcy risk as measured by Altman's Z-Score (- effect on leverage), firm size as measured by the log of sales (+), dividend- paying (-), intangibles (+), market-to-book ratio (-), and collateral (+). Somewhat less reliable effects are the variance of own stock returns (-), net operating loss carry forwards (-), financially constrained (-), profitability (-), change in total corporate assets (+), the top corporate income tax rate (+), and the Treasury bill rate (+). Using Markov Chain Monte Carlo multiple imputations to correct for missing-data-bias the author find that the effect of profits and net operating loss carry forwards are not robust.

Korajczyk and Levy (2003) argue that both macroeconomic conditions and firm specific factors have an effect on firms financing choices. Wolfgang and Fix (2003) conclude that firms with less investment opportunities apply more leverage that is in accordance to both theories and leverage has a direct relation with the tangibility of assets. They also suggest that more profitable firms use less leverage.

Baral (2004) has examined the determinants of capital structure-size, business risk, growth rate, earning rate, dividend payout, debt service capacity, and degree of operating leverage-of the companies listed to Nepal Stock Exchange Ltd. as of July 16, 2003. Eight variables multiple regression model has been used to assess the influence of defined explanatory variables on capital structure. In the preliminary analysis, manufacturing companies, commercial banks, insurance companies, and finance companies were included. However, due to the unusual sign problem in the constant term of the model, manufacturing companies were excluded in final analysis. The study shows that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies.

Bauer (2004) analyzes capital structure of listed companies in Visegrad countries during the period from 2000 to 2001. The results are based on the database, which assembles financial reports of listed firms. In general, leverage of these firms is relatively low if measured in book value, but it is relatively high if assessed in market value. Quasi-maximum likelihood estimation is used in order to investigate the determinants of capital structure. According to the results, leverage of a company is positively correlated with size and it is negatively correlated with profitability, tangibility and non-debt tax shields. There is a negative relationship between leverage measured in market value and growth opportunities. Moreover, leverage decreases with volatility, albeit on a lower level of statistical significance.

Chen (2004) has found that financial leverage in Chinese firms decreases with profitability and it is consistent with existing literature. Additionally, growth opportunities and tangibility are positively related to debt in China.

Deesomsak *et al.* (2004) have found that growth opportunities, non debt tax shield, liquidity and share price performance have a negative effect on leverage, whilst firm size has a positive effect, supporting many predictions made by capital structure theories. In their study, managers tend to make different decisions on capital structure internationally where there are different country considerations. They have also found that the impact by explanatory variables has been altered by Asian financial crisis.

Hall, Hutchinson and Michaelas (2004) point out that there are variations in both SME capital structure and determinants of capital structure between the countries surveyed. The collateral appears to be the strongest and for growth being the weakest. There are variations in the effects of the determinants on capital structure between countries. The variations could well be due to differences in attitudes to borrowing, disclosure requirements, and relationships with banks, taxation and other national economic, social and cultural differences.

Buferna *et al.* (2005) investigate the determinants of capital structure of Libyan private and public companies utilizing data from 1995 to 1999. Their finding is that debt has been decomposed into three categories: short-term, long-term and total debt. The results indicate that profitable Libyan companies were externally financed and prefer short-term debt sources. The main public companies use both short-term and long-term debt. Growing companies tend to rely on their internal funds and large companies tend to have higher leverage.

Results from Chen and Strange (2005) from their study on Chinese Listed Companies shows that profitability is negatively related to capital structure at a high significant level. Meanwhile the size and risk of the firms are positively related to the debt ratio. They have figured out that tax is not a factor in influencing debt ratio. Ownership structure has a negative effect on the capital structure. They conclude that firms with higher institutional shareholdings tend to avoid using debt financing, a behavior that can be explained by entrenchment effects.

Frank and Vidhan (2005) assert that there are a large number of variables that appear to be related to debt ratio of the firm but only few factors have significant effect on debt ratio. They have found that relation between leverage and size of firm is positive. For tangibility of assets Empirical results showed a positive relation among leverage and tangibility of assets of firm.

Gaud, Hoesli and Bender (2005), using a sample of over 5,000 European firms, have documented the driving factors of capital structure policies in Europe. Controlling for dynamic patterns and national environments, they show how these policies cannot be reduced to a simple trade-off or pecking order model. Both corporate governance and

market timing impact upon capital structure. European firms limit themselves to an upper barrier to leverage, but not to a lower one. Debt constrains managers to payout cash, and equity may become cheap during windows of opportunity. Internal financing, when available, is preferred over external financing, but companies limit future excess of slack as it constitutes a potential source of conflict.

Mackay and Phillips (2005) examine the importance of industry to firm-level financial and real decisions. It has been found that in addition to standard industry fixed effects; financial structure also depends on a firm's position within its industry. In competitive industries, a firm's financial leverage depends on its natural hedge, the actions of other firms in the industry, and its status as entrant, incumbent, or exiting firm. Financial leverage is higher and less dispersed in concentrated industries, where strategic debt interactions are also stronger, but a firm's natural hedge is not significant. Their results show that financial structure, technology, and risk are jointly determined within industries.

Maghyereh (2005) examines the determinants of the target capital structure of Jordanian manufacturing firms. The study extends the empirical work on capital structure in two ways. First, it uses a dynamic model which sheds light on the dynamic nature of the capital structure adjustment process by firms. Second, the study employs a panel data analysis and GMM estimation techniques that control for unobserved firm-specific effects and the endogeneity problem. The findings suggest that Jordanian firms have target leverage ratios and they adjust to them relatively fast. The author concludes that size, tangibility, profitability, growth opportunity, and earnings volatility exert significant effects on the capital structure choice of Jordanian firms.

Shah (2005) investigates the effect of pre and post financial market reforms on corporate debt policy and explores the evidences for static trade off theory and Pecking order theory in financing decisions of Textile Sector of Pakistan. The analysis depicts that reforms have statistically significant effect on debt policy of textile industry. Negative coefficient of profitability decreased from 0.85 to 0.23 which changed its strong negative relationship with debt to weaker negative relationship with debt and improved its weaker relationship with tangible assets to

strong positive relationship with debt as evident from coefficient 0.29 to 0.61. This improvement can be attributed to the financial market reforms. However during the total period under analysis the industry remained under the same debt burden of 82 percent of its assets. High operating expenses and cost of goods is associated reason of financial distress. Results show on average, the industry in the ten years (1995-2004) earned nothing. To capture the firm specific effect, fixed effect model has been used. The evidences of firm specific effects on the use of debt exist. Analysis gives no support to trade off theory for textile sector of Pakistan. However, there is some support for pecking order theory.

Song (2005) analyzes the explanatory power of some of the theories that have been proposed in the literature to explain variations in capital structures across firms. In particular, this study investigates capital structure determinants of Swedish firms based on a panel data set from 1992 to 2000 comprising about 6000 companies. Swedish firms are on average very highly leveraged, and furthermore, short-term debt comprises a considerable part of Swedish firms' total debt. An analysis of determinants of leverage based on total debt ratios may mask significant differences in the determinants of long and short-term forms of debt. Therefore, this paper studies determinants of total debt ratios as well as determinants of short-term and long-term debt ratios. The results indicate that most of the determinants of capital structure suggested by capital structure theories appear to be relevant for Swedish firms. The author also finds significant differences in the determinants of long and short-term forms of debt.

Faulkender and Peterson (2006) have reported that capital availability only depends on firm characteristics. They look into firms that have access to public bond market, which measured by having debt ratio, usually have a large amount of leverage. Also, market frictions that make the capital structure relevant may also be associated with the firms' source of capital.

Hijazi and Tariq (2006) analyze determinants of capital structure of cement industry of Pakistan with the help of OLS regression. They have found that size of firms and profitability were negatively correlated with leverage. Hence this rejects the static trade off theory, which shows a positive relation between size of the firm and

profitability. This shows that firms in cement industry use more equity and less debt. Tangibility of assets and the growth have been found to be positively correlated with leverage. All the results are significant except the size of the firm. They conclude that in developing countries like Pakistan, cement industry usage of short term financing is higher than long term financing.

Tran and Khoig (2006) have studied the capital structure of small and medium-sized enterprises in Vietnam, during the period 1990-2001.Their study depend not only on the characteristics of the company, but also on the management behavior which play an important role in external financing and the relationship between the firms and the banks which has an important impact in determining the leverage ratio, which is therefore a clear in public companies more than in private companies and the size of the company and business risks has a positive relationship with debt ratio and found that profitability and asset structure do not have a clear impact on the debt ratio.

Eldomiaty (2007) has used 99 firms from 14 non-financial industries and found a positive relationship between firm growth and debt. He states that researchers have decided to take India as sample of emerging market and evaluate performance of firms against capital structure after the comparison to the developed markets like America, Europe etc. He has also found that capital markets are less efficient and suffered from higher level of asymmetry in terms of information in emerging and developing markets than capital markets in developed countries.

Eriotis (2007) has used panel data procedure for a sample of 129 Greek companies listed on the Athens Stock Exchange during 1997-2001. The number of the companies in the sample corresponds to the 63 per cent of the listed firms in 1996. The firm characteristics are analyzed as determinants of capital structure according to different explanatory theories. The hypothesis that is tested in this study is that the debt ratio depends on the size of the firm, the growth of the firm, its quick ratio and its interest coverage ratio. The firms that maintain a debt ratio above 50 per cent using a dummy variable are also distinguished. The findings of this study justify the hypothesis that there is a negative relation between the debt ratio of the firms and their growth, their quick ratio and their interest coverage ratio. Size appears to maintain a positive relation and according to the dummy variable there is a differentiation in the capital

structure among the firms with a debt ratio greater than 50 per cent and those with a debt ratio lower than 50 per cent.

Mazhar and Nasr (2007) discuss the determinants of capital structure of Pakistani firms they selected a sample from Pakistani companies registered on Islamabad Stock Exchange. The sample is divided into two sub-samples of private and government owned companies to make comparison between both sectors. The sample comprised 91 Pakistani companies out of which 80 companies are private and 11 are government owned covering the period of 1999-2006. Tangibility, Size, Growth rate, Tax Provision, ROA and Profitability are used as independent variables, while Leverage is the dependent variable. For analysis purpose descriptive statistics, Spearman's correlation and Regression analysis are used. The Results imply that government owned and private companies of Pakistan use different patterns of financing, and that government owned companies employ more leverage than private companies.

Overesch and Voeller (2007) analyze whether both personal and corporate taxation have an impact on companies' capital structure choices. They empirically investigate the impact of the difference in taxation of debt and equity financing on capital structures. Their empirical results, based on a comprehensive panel of European firm level data, suggest that a higher tax benefit of debt has the expected significant positive impact on companies' financial leverage. Moreover, they confirm substitutive relationships between non-debt tax shields and the effect of the corporate tax rate on capital structures. They also suggest that debt shares are positively affected by the level of dividend taxes and corporate profit taxes, whereas the taxation of personal interest income has only minor impact. Furthermore, they pointed that the capital structures of smaller companies react more heavily to higher tax rates on equity financing.

Qian *et al.* (2007) have examined the six determinants of capital structure for Chinese listed companies over the period of 1999-2004. The static panel-data models showed that firm size, tangibility and state ownership are positively related with firm's leverage ratio. However, factors such as profitability, non-debt tax shields and volatility have a negative relationship with the leverage ratio.

An empirical study done by Salwani *et al.* (2007) have selected 20 companies of the property sector in the Malaysian market and have used five independent variables: property asset intensity, size, growth, profitability and interest rate. They have suggested that property asset intensity and profitability are significant determinants of capital structure while on the other hand, size and growth rate do not appear to have any significant effect on the capital structure.

Shah and Khan (2007) have used two variants of panel data analysis. They attempt to find the determinants of capital structure of KSE listed none-financial firms for the period 1994-2002. Pooled regression analysis is applied with the assumption that there were no industry or time effects. However, using fixed effect dummy variable regression, the coefficients for a number of industries were significant showing there are significant industry effects hence they have accepted the later model for their analysis. They have used six explanatory variables to measure their effect on leverage ratio. Three of their variables are significantly related to leverage ratio whereas the remaining three variables are not statistically significant in having relationship with the debt ratio. Their results approve the prediction of trade-off theory in case of tangibility variable whereas the earning volatility and depreciation variables fail to confirm to trade-off theory. The growth variable confirms the agency theory hypothesis whereas profitability approves the predictions of pecking order theory. Size variable neither confirms to the prediction of trade-off theory nor to asymmetry of information theory.

Abor (2008) compares the capital structures of publicly quoted firms, large unquoted firms, and small and medium enterprises (SMEs) in Ghana. Using a panel regression model, the study also examines the determinants of capital structure decisions among the three sample groups. The results show that quoted and large unquoted firms exhibit significantly higher debt ratios than do SMEs. The results do not show significant difference between the capital structures of publicly quoted firms and large unquoted firms. The results reveal that short-term debt constitutes a relatively high proportion of total debt of all the sample groups. The regression results indicate that age of the firm, size of the firm, asset structure, profitability, risk and managerial ownership are important in influencing the capital structure decisions of Ghanaian firms. For the SME sample, it has been found that factors such as the gender of the

entrepreneur, export status, industry, location of the firm and form of business are also important in explaining the capital structure choice.

As examined by Huat (2008), in his study regarding capital structure, the impact of managed float on the overall leverage ratios of Malaysian companies during the period July 1999-July 2007 is the leverage ratio of Malaysian companies and is mainly driven by four factors, namely the profitability, company size, liquidity, and growth.

Jong, Kabir and Nguyen (2008) analyze the direct and indirect impacts of firm-specific factors and country-specific factors of a number of firms from 42 developed and developing countries. They have found that tangibility and firm size in half of the countries have a positive effect on long-term debt ratios at market value, whereas growth opportunities and profitability have a negative effect. With respect to the firm's risk and tax ratios, no plausible results could be obtained. The bond market development and GDP growth rate have a positive impact, while creditor right protection has a negative impact on the long-term debt ratios at market value. What's more, they indicate that market/bank-based financial systems and the stock market development have negative effects on the estimated coefficient of tangibility. On the other hand, the negative impact of profitability and liquidity is further strengthened when more domestic capital funds are accumulated. Enforcement by the legal system limits the effect of firm the size.

Joshua (2008) states that large size firms as well public sector firms require debt financing while small medium enterprises (SMEs) require equity financing to generate optimal performance and results. Furthermore, he elaborated that equity financing should be encouraged in the initial stages of a firm's existence which will provide a sound base to firm in order to expand by debt financing.

Overesch and Voeller (2008) analyze whether both personal and corporate taxation have an impact on companies' capital structure decisions. They investigate the effect of the difference in taxation of debt and equity financing on capital structures. Their empirical results, based on a comprehensive panel of European firm-level data, suggest that a higher tax benefit of debt has the expected significant positive impact

on a company's financial leverage. Particularly, they find evidence that the capital structures of smaller companies respond more heavily to changes in the tax benefit of debt. Additional analysis confirms that not only corporate taxes are relevant for corporate financial planning, but variation in capital income tax rates at the shareholder level implicates significant capital structure adjustments as well. Moreover, they find substitutive relationships between non-debt tax shields and the effect of the corporate tax rate on capital structures.

Qian *et al.* (2008), on the data for 650 publicly listed Chinese companies over the period of 1999-2004, reveal that size, tangibility, and ownership structure are positively associated with the firm's leverage ratio, while profitability, non-debt tax shields, growth and volatility are negatively related to the firm's leverage ratio.

Rafiq, Iqbal and Atiq (2008) examine the determinants the capital structure of listed firms in the chemical industry of Pakistan. The study has analyzed 26 of 39 firms in the chemical sector, listed at the Karachi Stock Exchange for the period 1993-2004 using pooled regression in a panel data analysis. Six regressors i.e. firm size, tangibility of assets, profitability, income variation, non-debt tax shield (NDTS) and growth have been employed to examine their effects on leverage. The results show that these six independent variables explain 90% of variation in the dependent variable and, except for firm tangibility; results were found to be highly significant.

Achy (2009) has used a panel dataset covering 550 non-listed manufacturing firms over the period 1998-2003 and has investigated both long-term and short-term measures of leverage with the objective of understanding the factors that shape debt-equity choice as well as debt maturity structure. Their analysis reveals the existence of a negative relationship between asset tangibility and both aggregate leverage and short-term debt ratio. However, no clear cut relationship between asset tangibility and long-term debt is uncovered. Small firms tend to increase their debt instead of opening their capital to outside investors and larger firms seem to rely much more on their retained earnings for their long-term financial needs. For short-term debt, size does not appear to matter. The impact of growth is positive on short-term leverage and irrelevant for long-term leverage. Finally, profitability exerts a positive effect on long-term leverage and a negative one on short-term leverage.

Bastos, Nakamura and Basso (2009) have conducted an analysis covering five major economies in Latin America. The effect of current ratio, tangibility, profitability, growth opportunities, market-to book, tax, size, risk, GDP growth, GDP per capita, and inflation are tested. In their work, according to the results of the country-by-country analysis; return on assets, tangibility, and the current ratio have a significant negative effect on the total accounting indebtedness ratio as well as the total market value indebtedness ratio. The effect of size and market-to-book ratios is positive on the total accounting indebtedness ratio, yet negative when the market value leverage ratio is used. According to the results of pooled regression, the return on assets has a negative effect and size has a positive one across different leverage ratios. The GDP growth is found to have a negative effect on the total indebtedness at market value.

Chikolwa (2009) has studied a sample of 34 A-REITs and has found that profitability, growth opportunities and operational risk are negatively related to leverage, whilst size is positively related. He also finds merit in both Pecking order and Trade off theories.

Degryse, Goeij and Kappert (2009) have investigated small firms' capital structure, employing a proprietary database containing financial statements of Dutch small and medium-sized enterprises (SMEs) from 2003 to 2005. They have found that the capital structure decision of Dutch SMEs is consistent with the pecking order theory: SMEs use profits to reduce their debt level, and growing firms increase their debt position since they need more funds. Furthermore, they document that profits reduce in particular short term debt, whereas growth increases long term debt. This implies that when internal funds are depleted, long term debt is next in the pecking order. They also find evidence for the maturity matching principle in SME capital structure: long term assets are financed with long term debt, while short term assets are financed with short-term debt. This implies that the maturity structure of debt is an instrument for lenders to deal with problems of asymmetric information. Finally, they find that SME capital structure varies across industries but firm characteristics are more important than industry characteristics.

Gill *et al.* (2009) have collected data from 158 American service firms. Through

regression analysis the authors have found that leverage is negatively correlated with collateralized assets and firm's profitability.

Park and Kim (2009) examine the empirical relationship between managerial overconfidence and leverage of firms listed on Korean Stock Market during the period from 1985 to 2007. They have used the Business Survey Index from Bank of Korea as proxy measure of managerial overconfidence. First, they have constructed the basic models whose dependent variable is leverage and explanatory variable is managerial overconfidence and control variables are market to book ratio, firm size, tangibility and profitability. In the basic model, managerial overconfidence is positively and significantly related to both book-value leverage and market-value leverage. All the control variables (MB, SIZE, TNG, PRF) are significantly related to both book-value leverage and market-value leverage. Second, they have also constructed the expansion model which added the lagged term of the leverage the basic model. In the expansion model, managerial overconfidence is significantly positive to book-value leverage, but not significant market-value leverage. All the control variables (MB, SIZE, TNG, PRF) are significantly related to book-value leverage and most control variables (MB, TNG, PRF) are significantly related to market-value leverage. They further estimate the adjustment speed of book-value leverage at 0.3842 and the adjustment speed of market-value leverage at 0.1804. They conclude that managerial overconfidence may lead to increase leverage.

Roberts and Sufi (2009) show that incentive conflicts between firms and their creditors have a large impact on corporate debt policy. Net debt issuing activity experiences a sharp and persistent decline following debt covenant violations, when creditors use their acceleration and termination rights to increase interest rates and reduce the availability of credit. The effect of creditor actions on debt policy is strongest when the borrower's alternative sources of finance are costly. In addition, despite the less favorable terms offered by existing creditors, borrowers rarely switch lenders following a violation.

Gurcharan (2010) has analyzed the determinants of capital structure in four selected ASEAN countries, namely Malaysia, Indonesia, Philippine, and Thailand. The effect of profitability, growth opportunities, non-debt tax shield, and size factor on capital

structure decisions have been examined in that work, which is extended by adding country-specific factors such as the GDP growth rate, stock market size, the banking sector development and inflation. As for the firm-related analysis, it has been shown that, profitability and growth opportunities are negatively correlated with the market debt to total assets ratio in all countries, and statistically significant for three of the countries. Non-debt tax shield negatively affects the stated leverage ratio, but is statistically significant in only one country. The signs of the size factor are significant and positive in two of the countries. The results of the country-specific effects analysis show that the stock market development and the GDP growth rate have a significant and negative effect on the market-debt to total assets ratio.

Khrawish and Khraiwesh (2010) have examined the capital structure of listed industrial companies on Amman Stock Exchange (ASE) over the period (2001- 2005). Hypotheses are based on comparing the relationships between Leverage ratio (Lev 1), LTD/TD (Long-term debts/total debts) and five explanatory variables that represent size, tangibility, profitability, long-term debt and short-term debt. To test those relationships regression analysis for Leverage ratio (Lev 1) and TD LTD model was used to explain determinants of the capital structure of Jordanian industrial companies on the time period (2001-2005). There was a significant positive relationship between leverage ratio (Lev 1) and size (TA), Tangibility (Tang), long-term debt (LTD) and short-term debt (STD) and there was a significant negative relationship between leverage ratio and Profitability of the firm. In other words, the results of this study showed that a significant positive relationship between LTD/TD and size (TA), Tangibility (Tang), and long-term debt (LTD) and there was a negative relationship between LTD/TD and short-term debt of the firm. Also, the results showed that Total assets, Tangibility, Long-term debt, had a positive correlation with LTD/TD. While, short-term debt had a negative correlation with LTD/TD. As well as, Jordanian industrial companies are depending on equity for financing their investments, where, the equity of Jordanian industrial companies represents about (70%) from their total finance. Despite the fact that this correlation matrix ignores joint effects of more than one variable on leverage, the Long-term debt, and Short-term debt are positively related to Tangibility and Total assets. Profitability has a negative correlation with short-term debt and total debt ratios. This implies that (1) Growing companies and companies with high levels of tangible assets tend to use short-term debt rather than

long-term debt. (2) Large and profitable companies are less likely to use short-term debt and tend to use less debt overall.

Mashar and Nasr (2010), based on Pakistani evidence, suggest that asset tangibility, profitability and ROA are negatively correlated with debt. Whereas size, growth rate and tax rate is positively related with leverage.

Prahalathan (2010) have analyzed the relationship between capital structure determinants and leverage level of the listed companies in SriLanka. Using a multiple regression analysis, the leverage behavior of the listed manufacturing companies in Colombo Stock Exchange Market in SriLanka has been examined during the period of 2003-2007. The final sample consists of 19 manufacturing companies. Dependent variable that is, leverage level of the companies, is measured by long- term debt ratio, short-term debt ratio and total debt ratio. Capital structure determinants (independent variables) are measured by capital intensity, tangibility, profitability, firm size and non-debt tax shield. Findings showed that the direction of the explanatory variables such as, tangibility, profitability, firm size and non-debt tax shields with total debt largely consistent with the explanations of trade - off theory.

Zhang (2010) has investigated into the determinants of capital structure for the small and medium sized enterprises (SMEs) in British manufacturing industry and the effects of product category on the determinants of capital structure. 220 SMEs from British manufacturing industry are selected for testing the six hypothesized relationships regarding the determinants of capital structure. Results suggest that profitability, tangibility and size are positively and growth is negatively related to the debt/equity ratio, and age is in inconsistent relationship with the debt/equity ratio of British manufacturing SMEs. Product category does exert effects through the determinants of capital structure and profitability is the most important determinant through which product category imposing effects on capital structure.

Baharuddin, Khamis, Mahmood and Dollah (2011) have examined the debt and equity structure for the construction companies listed in the Bursa Malaysia market during a seven-year period from 2001 to 2007. This sample data have been derived from financial statements of 42 companies with a number of observations totaling

294. The dependent variable used is debt ratio and expressed by total debt divided by total assets while the independent variables are profitability, size, growth and assets tangibility. Using panel data method, the results show that the profitability of the construction companies is significant negatively relations to debt ratio while size, growth and assets tangibility are positively significant in relations to total debt. The results of the study suggest that construction companies depend heavily on debt financing compared to equity financing for expansion and growth. The findings also indicate that profit is reduced when the companies are using more debt.

Chen and Chen (2011) present empirical evidence on the determinants of capital structure and firm value in a newly industrialized country-Taiwan. The firm characteristics are analyzed as determinants of capital structure according to different explanatory theories. The investigation has been performed using a sample of 647 companies listed on the Taiwan Stock Exchange (TSE) from 2005 to 2009. The findings of the study suggest that firm size, profitability and asset structure can be considered explanatory variables of capital structure. The firm size, profitability and capital structure affect book value. The determinants of market value are profitability and firm size. In addition, there are some differences in the capital structure among industry types. When the dependent variable is book value, firm size and growth opportunity have a greater impact on this in the electronic industry. Meanwhile, profitability and firm size have a greater impact on capital structure in non-electronic industries. When the dependent variable is market value, larger companies can borrow more debt and create more market value in the electronic industry. The capital structure negatively affects market value in electronic firms, but does not affect market value in non-electronic ones.

Dincergok and Yalciner (2011) have analyzed the factors that affect capital structure decisions made by manufacturing firms within the developing countries. Using panel data analysis, a number of manufacturing firms in Turkey, Brazil, Argentina, and Indonesia that are quoted in each country's stock exchanges are analyzed over the 2000-2007 period. The authors have found that profitability has a negative impact on debt ratios, while tangibility has a positive impact, especially on long-term debt ratios of the manufacturing firms in the countries analyzed. As to the results of pooled

regression, interest rates and real GDP growth affect the total debt ratio negatively, whereas the stock market development and public sector debt affect it positively.

Doku, Adjasi and Kumankuma (2011) have explored the relationship between financial market development and choice of finance (debt-equity) using panel data which involves pooling of twenty-one listed firms on the Ghana Stock Exchange (GSE) over the period 1995-2005. The study finds evidence of complementarities between banking and stock market developments in financing decisions of listed firms in Ghana. The stock market development is indicated to have a positive effect on the capital structure decisions of listed firms. However, substitution effect between debt and equity mainly in favor of equity financing sets in as the financial landscape develops further.

Ibrahim and Masron (2011) have examined the determinants of capital structure of small and medium enterprises (SMEs) by utilizing the data of 15,323 companies only for the year 2007 covering the northern area of Peninsular Malaysia such as the state of Perak, Penang, Kedah and Perlis. Conducting cross-sectional data analysis, they have found that the determinants factors such as size, profitability and tangible asset are significantly related to long term debt. Size and tangible assets have a persistent and consistent negative and significant relationship with long term debt. Further, profitability is found to be significantly and positively related to long term debt. However, the study found that the liquidity has no impact on long term debt in SMEs.

Feld, Heckemeyer and Overesch (2011) have provided a quantitative review of the empirical literature on the tax impact on corporate debt financing. Synthesizing the evidence from 46 previous studies, they have found that this impact is substantial. In particular, the tax rate proxy determines the outcome of primary analyses. Measures like the simulated marginal tax rate avoid a downward bias in estimates for the debt response to tax. Moreover, debt characteristics, econometric specifications, and the set of control-variables affect tax effects. Accounting for misspecification biases by means of meta-regressions, they predict a marginal tax effect on the debt ratio of 0.3.

Mishra (2011) has analyzed the determinants of capital structure of Indian central 48 profit making manufacturing Public Sector Undertakings for the time period 2006-03

to 2010-03 in India. The results of the study suggest that the capital structure (Total Borrowing to Total Assets) of the profit making Public Sector Undertakings is affected by Asset Structure, Profitability and Tax. Growth (defined as growth in total assets) is positively related to leverage. As predicted by theory Asset Structure and Profitability are positively and negatively related to leverage respectively. In contradiction to theory tax and leverage are negatively related. Firms with less effective tax rate have gone for more debt.

Olayinka (2011) examines the determinants of capital of 66 firms listed on the Nigerian stock Exchange during the period 1999-2007 using panel data. The results show that there is a negative relationship between leverage and growth opportunities, leverage and tangibility, but positively related to liquidity as well as size. This negative coefficient shows that growing firms do not use debt financing. Negative relationship of profitability with leverage in the three models confirms the implication of pecking order hypothesis which argues that highly profitable firms prefer to finance new investment with internally available funds than through debt finance. It also shows that size and leverage are positively related.

Sayeed (2011) analyzes the determinants of capital structures of Bangladeshi listed companies using data from 46 companies listed in Dhaka Stock Exchange (DSE) for seven years (1999 – 2005). The results show that agency costs are negatively affecting the total debt ratios of Bangladeshi companies. Tax rate is having positive impact only for long term debt and non debt tax shields such as depreciations are negatively impacting on total debt ratio. Bankruptcy costs and profitability are irrelevant in determining leverage ratios, while firm size has positive impact in determining both total and long term debt ratios. Collateral value of assets positively influence only total debt ratio whereas number of years in operation does not have very significant impacts on the capital structure determination. Industry characteristic has been found to be a significant determinant of debt ratios.

Kumar, Anjum and Nayyar (2012) analyze the capital structure pattern of various companies for the period of 2007-2011 and examined the effect of changes in capital structure on its investment pattern over the period of time. Their study conclude that the capital structure decision of the pharmaceutical companies has very little effect on

its investment pattern, which defines that the company is using long term sources of funds to finance its current assets and its operational activities of its business with the object to attain the long term solvency and maximizing profitability with least cost of capital.

Pinkova and Kaminkova (2012) investigate the impact of corporate life cycle on the capital structure of companies using quantitative research method. The sample consists of fifty companies belonging to NACE division 29, manufacture of motor vehicles, trailers and semi-trailers. The data come from financial statements of the chosen companies and mostly cover a period since their start-up till year 2010. First, the method based on cash flow patterns is applied to the identification of firm's life cycle. Next, the methods of descriptive statistics and the hypothesis test about a population proportion are used. The study explores the relationship between capital structure and corporate life cycle. The empirical study is performed to support theoretical findings. The study confirmed the fact that companies do not have to go through the stages of corporate life cycle gradually, but the order of stages can vary in dependence of concrete conditions. The development of debt ratio seems to be dependent on corporate life cycle stages. The results of the study resemble in many aspects the findings of pecking order theory. The stages of birth, growth and decline are typical with higher level of debt use. The equity capital is preferred in the maturity stage. The results of hypothesis testing were ambiguous. This ambiguity might be connected with lower occurrence of some of the stages. In conclusion, it can be assumed that the relation between the life stage and capital structure exists.

Sabir and Malik (2012) analyze the effect of profitability, tangibility, size and liquidity on capital structure decisions of the listed companies in oil and gas sector of Pakistan. The study attempts to provide information that may help in taking capital structure decisions in listed companies of oil and gas sector of Pakistan, which will ultimately support in maximization of the value of firms on the one side and the minimization of cost of capital on the other side. The results indicate that profitability is the only variable that shows negative relationship against the dependent variable leverage, whereas the other three variables, liquidity, size and tangibility have positive relationship with leverage. The study concludes that capital structure decisions in listed oil and gas sector companies are mostly determined by the factors studies. The

study substantiates the findings of most of the researches conducted on capital structure, concluding that there is an optimal capital structure that is affected by a variety of internal and external factors.

Lim (2012) investigates the determinants of capital structure of financial service firms in China. Using a relative regression of accounting data for 36 A-share financial listed companies over the years 2005-2009, an empirical study on determinants of capital structure in financial industry is conducted. The results show that profitability, firm size, non-debt tax shields, earnings volatility and non-circulating shares are significant influence factors in financial sector. Moreover, firm size is positively related to the corporate leverage ratio. It has also been found that Chinese institutional characteristic affects the capital choice decision. While it confirmed that capital structure determinant of financial firms are similar to other industry, the largely state ownerships do affect capital structure choices.

Tamulyte (2012) examines capital structure and the variables influencing it in The Baltic States and Russia – countries which started their transition from a planned to a market economy at the same time. Analysis of both macroeconomic and microeconomic variables of the period 2002-2008 shows that the determinants influencing the choice of capital structure in companies is similar but some significant differences still exist. Even though joining the European Union has speeded up the development of The Baltic States economies, but it does not have any significant influence on their capital structure. Determinants of capital structure were similar in The Baltic States and Russia as well: credit market development and tangibility have the biggest influence when making financing decisions. However, the Russian capital structure has been influenced by stock market development as well. An important difference has been noticed in risk acceptance perspective: risky Russian companies were more willing to take more debt, especially long term debt. It may be due to larger size of companies in Russian sample, compared to the samples of the Baltic States, and their expectation to be “too big to fail”.

III. Concluding remarks.

Majority of past empirical evidence suggests that financing does matter that managers can theoretically determine a firm’s optimal capital structure. By introducing capital

market frictions, such as taxes, bankruptcy costs, and asymmetric information, authors are able to explain at least some factors driving capital structure decisions. Consequently, financial economists have set forth various capital structure theories such as trade-off theory (Kraus and Litzenberger 1973), pecking order theory (Myers 1984; Myers and Majluf 1984), signaling (Ross 1977), and market timing theory (Baker and Wurgler 2002) to explain the relevance of capital structure. These theories relate directly to taxes, asymmetric information, agency problems, and bankruptcy costs. Taken separately, these theories cannot explain certain important facts about capital structure. Thus despite extensive research into the area of capital structure, determining the precise financing mix that maximizes the market value of the firm remains elusive.

Regardless of the diverse empirical evidences portrayed by researchers, the study of capital structure primarily seeks to explain firms' financial tactics, as well as, financial decisions on investment activities. Hence, financing matters for most corporations and their investment behavior is dependent upon the availability of internal funds and leverage levels. In addition, explicit transaction cost that affects leverage (Strebulaev, 2007; Shivdasani & Stefanescu, 2010; Faulkender, Flannery, Hankins & Smith, 2012) warrants firms to have leverage targets (Altinkilic & Hansen, 2000; Leary & Roberts, 2005). In relation to this, a significant number of researches further reveal that firms' leverage adjustment cost are also influenced by other reasons that demand access to capital markets. Firms would raise external funds to finance promising investments through debt or equity issuances, and generating cash beyond positive investment opportunities. In contrast, leverage can be adjusted to repay debts and pay dividends. Hence, there appears to have joint effects of adjustment costs and cash flows on leverage adjustments, which can be integrated towards the adjustment timing (Faulkender, Flannery, Hankins & Smith, 2012). Changes in market conditions also affect leverage adjustments, where high market-to-book value means a decline in next year's amount of debt, without any significant equity changes (Frank & Goyal 2004).

Most capital structure studies to date are based on data from developed countries. For example, Rajan and Zingales (1995) use data from the G-7 countries, Bevan and Danbolt (2000 and 2002) utilize data from the UK, Antoniou et al. (2002) analyze

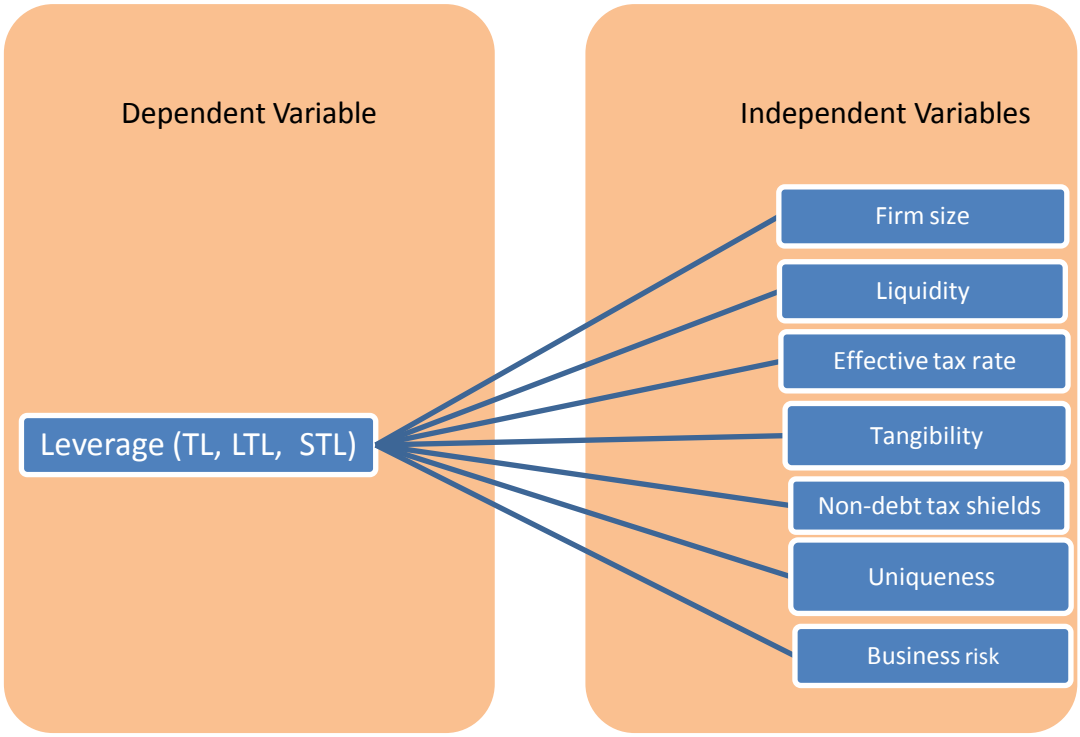
data from the UK, Germany, and France and Hall *et al*.(2004) used data from European SMEs. There are few studies that provide evidence from developing countries, for example Booth et al, (2001) analyze data from ten developing countries (Brazil, Mexico, India, South Korea, Jordan, Malaysia, Pakistan, Thailand, Turkey and Zimbabwe), Pandey (2001) uses data from Malaysia, Chen (2004) utilize data from China, Omet and Nobanee (2001) use data from Jordan and Al-Sakran (2001) analyses data from Saudi Arabia. Of the capital structure studies, some have used cross-country comparisons based on data from particular region. For example, Deesomsak *et al*. (2004) analyze data from the Asia Pacific region. According to Teker *et al*. (2009), Chen (2003) capital structuring of the firms in developed countries have been the subject of most research by scholars and very less research has been conducted in developing countries and emerging markets (Sukkari 2003). Those few research works that have been conducted on developing countries showed that firms' capital structure depends on various factors such as interest rate, tangibility, size and inflation (Lima *et al*. 2009).

Quite a large strand of theoretical and empirical research has focused on the area of capital structure since the path-breaking paper on capital structure by Miller and Modigliani published in 1958. However, most of the research work has been carried out in developed economies and very little is known about the capital structure of firms in developing economies. The conclusions from these studies were that there were some common features in the capital structures of firms in different countries but that further research was felt necessary to identify the determinants of capital structure in particular institutional settings or country like Nepal. This study attempts to reduce the gap by analyzing a capital structure question from a Nepalese business environment. In summary, literature review shows that different researchers have considered different key variables in their respective studies. However, most of the published studies have considered firm size, liquidity, tangibility, effective tax rate**,** non-debt tax shields, uniqueness, and business risk as possible determinants of the capital structure choice.

The major concern of this study is an examination of the determinants of capital structure of non-financial corporate firms in Nepal. The conceptual model has been constructed based on capital structure theories and review of past empirical works.

This study introduces new constructs and considers that capital structure may be a function of turnover, firm size, age, tangibility, growth, and liquidity. The prescribed conceptual framework has been depicted in Figure 2.1.

Figure 2.1
Conceptual framework of capital structure and its determinants



2.3 Research methodology

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically (Kotharai 2004). It defines the reason why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis has been formulated, what data have been collected and what particular method has been adopted and also why particular technique of analyzing data has been used. Thus, every research should describe the methodology. The methodology used in the study is stated as: (I) research design, (II) selection of enterprises, (III) nature and sources of data, (IV) method of analysis and (V) hypotheses and model.

I. Research design

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. It constitutes the blueprint for the collection, measurement, and analysis of data (Cooper and Schindler 2003). After the research study has been formulated, the next logical step is to construct the research design.

This study uses the statistics to describe the variables and simply portray an accurate profile of organizations, events, or situation after collecting, classify, and summarize data to describe what exists. Thus, descriptive research design has been followed for conceptualization of the problem. As correlation analysis and regression analysis have been used to explain the relationship between dependent and independent variables for analyzing determining variables on firms' capital structure, thus the causal-comparative research approach has also been followed in the study.

II. Selections of enterprises

In this study eighteen listed non-financial enterprises have been selected as sample. Among 18 sample enterprises, 12 enterprises are manufacturing, and 6 are Non-manufacturing (ie.4 hotels and 2 trading) enterprises selected as sample for secondary data analysis. The details of the enterprise selected for the study has been shown in introduction chapter. The stratified random sampling technique was adopted in selecting the enterprises as sample. The period covered for the study is 1998-2012 but period varied depending on the availability of data.

III. Nature and sources of data

This study has utilized secondary sources for collecting data. The data are collected from Nepal Stock Exchange (financial statement of listed companies), Security Board of Nepal, Nepal Rastra Bank, and Ministry of Finance (performance report of corporation and economic survey). The data related to capital structure and financing pattern were also obtained from the financial statements of the selected companies and moreover relevant information were gathered through concerned authorities of selected companies by interacting with them individually.

IV. Method of analysis

1. Descriptive statistics

In this study, the percentage, mean, median, standard deviation, maximum and minimum results of each variable have been described in detailed by company and by fiscal year to summarize the data. This type of analysis has also explored the basic characteristics of data, variability of data and suitability data for further analysis.

2. Correlation analysis

In this part Pearson correlation coefficients for all variables are estimated to measure the relationship between variables. Bivariate Pearson correlation is also computed to point out the most influencing variables for capital structure choice as well as to detect multicollianerity between independent variables. Leverage variables used in the study are: total leverage, long-term leverage, and short-term leverage whereas determinants of capital structure (independent variables) selected are: firm size, liquidity, tangibility, effective tax rate, non-debt tax shield, uniqueness, and business risk. The priory hypothesis in this analysis is that there is a strong relationship between leverage and the determinants of capital structure in Nepalese non-financial companies.

3. Hypotheses and model

I. Specification of variables and hypotheses

Studies embarking on analyzing the factors in relation to the amount of debt in the capital structure of the companies do not seem to have reached conclusive results. Their findings are either contradictory, or statistically insignificant. For example, while the correlation of a factor can be positive in one study it can be negative in another. Furthermore, what could be applied to developed countries might not be applicable to less developed nations. Relative to the subject matter of this study, the empirical literature suggest a number of factors that may influence the financial structure of companies. As argued by Titman and Wessels (1988) and Harris and Raviv (1991), the choice of the underlying explanatory variables is fraught with difficulty. This is why different researchers have considered different key variables in their respective studies. However, most of the published studies have considered firm size, liquidity, tangibility, effective tax rate**,** non-debt tax shields, uniqueness, and business risk as possible determinants of the capital structure choice.

The selection of the variables (dependent and independent) is primarily guided by the results of the previous empirical studies and the availability of data. Three measures of leverage have been used in this study. The first measure of leverage divides total liabilities by total assets. The second measure divides long-term debt by total assets. Third measure divides short-term debt to total assets. Short-term debt is defined as the portion of the company's total debt repayable within one year. This includes bank overdraft, bank loans payable within a year and other current liabilities. Long-term debt is the company's total debt repayable beyond one year. This includes long-term bank loans and other long-term liabilities repayable beyond one year such as directors' loans, hire purchase and leasing obligations. The total debt includes short-term debt and long-term debt. Similarly, the explanatory variables selected are measures of firm size, liquidity, tangibility, effective tax rate, non-debt tax shields, uniqueness, and business risk.

A. Firm size

The size, according to which a firm is defined as a small and medium enterprise or as a large-sized enterprise, can be determined using a variety of variables (e.g. employment, sales volume, assets or qualitative categories such as independent ownership or management).In this study sales is used as an indicator of size because it is reliable, accessible and can be used readily for comparison purposes.

There are several theoretical reasons why firm size would be related to the capital structure. Smaller firms may find it relatively more costly to resolve informational asymmetries with lenders and financiers, which discourages the use of outside financing (Chung, 1993; Grinblatt and Titman, 1998) and should increase the preference of smaller firms for equity relative to debt (Rajan and Zingales, 1995). However, this problem may be mitigated with the use of short term debt (Titman & Wessels, 1988). Relative bankruptcy costs and probability of bankruptcy (larger firms are more diversified and fail less often) are an inverse function of firm size (Warner, 1977; Ang *et al.*, 1982; Pettit and Singer, 1985; Titman and Wessels, 1988). A further reason for smaller firms to have lower leverage ratios is that smaller firms are more likely to be liquidated when they are in financial distress (Ozkan, 1996). Fama (1985)

argues that the information content of small firm and large firms is not the same due to monitoring costs being relatively higher for small firms.

Larger entities are expected to have greater sources of revenue and therefore face lower risk of bankruptcy and as such, lower expected costs of bankruptcy. Large firms are subject to a greater number of debt covenants and scrutiny; therefore face smaller monitoring costs and agency costs generally. Large entities also tend to have less variation in cash flows, cheaper access to the credit market, and higher tax shields. The Trade off theory therefore postulates that larger entities will borrow more due to their lower cost of debt, making this relationship likely positive.

It has been well documented in the literature that a firm's debt level is influenced by its size (Gupta, 1969; Titman and Wessels, 1988; Ang 1991). Larger firms tend to be more diversified and less prone to bankruptcy (Rajan and Zingales, 1995). They are also expected to incur lower costs in issuing debt or equity. Thus, large firms are expected to hold more debt in their capital structures than small firms. In addition, it is argued that smaller firms tend to have less long-term debt because of shareholder-lender conflict (Titman and Wessels, 1988; Michaelas et al. 1999). While most of the empirical evidence reports a positive relationship between company size and leverage (Kester, 1986; Lasfer, 1999; Rajan and Zingales, 1995; Barclay *et al*., 1995; Booth *et al*. 2001), some studies reveal a positive relation between size and the debt maturity structure of companies (Michaelas et al. 1999). Also following the general trend in the literature (Remmers *et al.*, 1974; Ferri and Jones, 1979; Titman and Wessels, 1988; Kim and Sorensen, 1986; Van Wijst and Thurik, 1993; Chung, 1993; Chittenden *et al*., 1996).The hypothesis is formulated as: the level of (1) total leverage, (2) long-tem leverage and (3) short term leverage are positively related to firm size.

B. Liquidity

Liquidity is defined as the ratio of Current Assets to Current Liabilities. Pecking order theory predicts that entities with high liquidity will borrow less and managers may manipulate liquid assets in favour of shareholders, away from debt holders, increasing the agency costs of debt (Deesomsak et al 2004; Harris and Raviv 1991). Liquidity is the sign of short term solvency of firm. Liquidity ratio indicates ability of the firm to meet its short term obligations. In market-oriented economies managers tend to prefer internal liquidity. Indeed, when firms have close ties with their banks (bank-

oriented) and hence information asymmetry could be reduced to its minimum level, managers' need for internal liquidity tends to be less important. In other words, a negative relationship between liquidity and leverage is expected in market-oriented economies. Indeed this result is supported by the empirical findings of Ozkan (2001), Antoniou *et al.* (2002) and others. According to Ozkan (2001), firms with great liquidity tend to have lower level of leverage. Therefore, a negative relationship is expected. Consistent with past studies **t**he hypothesis is: the levels of (1) total leverage, (2) long-tem leverage, and (3) short term leverage are negatively related to liquidity.

C. Tangibility

Tangibility is defined as the ratio of tangible assets to total assets. Agency theory hypothesises that entities with a high degree of borrowing are more inclined to invest inefficiently and transfer wealth from debt holders to equity holders. In return, lenders require collateral to hedge their own lending risk if they are to continue. Therefore, as risky lending increases, the number of tangible assets should also increase to prevent any decrease in entity liquidation value should bankruptcy occur.

The ratio of fixed to total assets represents the degree of assets' tangibility of a firm. The trade-off theory predicts a positive relation between asset structure and debt levels. As the value of intangible assets disappears (almost entirely) in the cases of bankruptcies, the presence of tangible assets is expected to be important in external borrowing as it is easy to collateralize them. Tangible assets often reduce the costs of financial distress because they tend to have higher liquidation value (Titman and Wessels, 1988, Harris and Raviv 1991). This will reduce the magnitude of financial loss incurred by financiers should the company default. Hence by pledging the firms' tangible assets as collateral or arranging so that a fixed charge is directly placed to particular tangible assets of the firm implies that these tangible assets can support more debt than intangible assets. This will therefore result in firms with assets that have greater liquidation value having relatively easier excess to finance and lower costs of financing, leading to these firms having a higher level of debt or outside financing in their capital structure (Cassar and Holmes, 2003).Consistent with the agency theory, firms with tangible assets will support more debt as tangible assets reduce agency costs since debt can be secured with known tangible assets that have

alternative redeployable uses in case of default. Scott (1977) argues on the same grounds in that a firm will issue as much secured debt as possible as the agency costs of secured debt are lower than that of unsecured debt. Moreover Stulz and Johnson (1985) argue that a firm's opportunity to engage in asset substitution is reduced by secured debt. In firms with more intangible assets, the costs of controlling capital outlays are higher as monitoring is more difficult. Similarly, Johnson (1977) argues that it is more difficult for firms holding secured debt to shift to riskier projects if they have more tangible assets.

Tangibility is generally refers to ratio of the book value of depreciated fixed assets to that of total assets. The more tangible the assets of a firm are; the greater its ability to secure debt. Consequently, collateral value (fixed assets to total assets) is found to be a major determinant of the level of debt finance (Bradley *et al*., 1984; Rajan and Zingales, 1995; Kremp *et al*., 1999; Frank and Goyal, 2002). However, Chittenden *et al*. (1996) conclude that the relationship between tangibility and leverage depends on the type of debt. While a positive relationship between tangibility and long term debt is found, a negative relationship between tangibility and short term debt is reported (Brealey and Myers 1996). The lender of long-term debt might impose restrictions to the firms with relatively less tangible assets but short-term creditors might not give more importance for tangible assets in supplying short-term debt. Fixed assets structure or assets tangibility was also considered as the determinant of capital structuring in many researches by scholars like Ross (1977); Ozkan (2001) and Khrawish & Khrawesh (2007-08) wherein they concluded that fixed assets structure is directly related to financial leverage of a firm. Consistent with the theory and past major empirical evidence, the hypothesis is: the levels of (1) total leverage (2) long-term leverage (3) short-term leverage are positively related to the level of tangibility.

D. Effective tax rate

The impact of tax on capital structure is the main theme of pioneering study by Modigliani and Miller (1958). It is theoretically believed that taxes must be important to companies' capital structure. Firms with a higher effective marginal tax rate should use more debt to obtain a tax-shield gain. MacKie-Mason (1990) has asserted that debt financing at the margin varies positively with the effective marginal tax rate. Instead of effective marginal tax rate, the effective tax rate is used to measure tax effect on

leverage in this study. Effective tax rate is defined in literature as tax paid divided by profit before tax. According to the static trade-off theory the benefit of debt is the tax deductibility of the corresponding interest payments. As a result firms will choose high debt ratio if it pays high tax rate to reduce the tax load. Mira (2005), however, has found a negative relationship between tax rate and debt ratios. On the other hand, Sayeed (2011) has found significant positive coefficients of tax with long-term debt. The author asserted that debts level should be higher if the effective tax rate is higher because debts reduce tax burden for the firms. Chhapra and Asim (2012) have found negative relationship between firm's taxes and financial leverage in Pakistan textile sector. In line with static trade-off theory, the hypothesis is: the levels of (1) total leverage (2) long-term leverage and (3) short-term leverage are positively related to effective tax rate.

E. Non-debt tax shields

The tax deduction for depreciation and investment tax credits is called non-debt tax shields (NTDS). DeAngelo and Masulis (1980) argue that non-debt tax shields are substitutes for the tax benefits of debt financing and a firm with larger non-debt tax shields, ceteris paribus, is expected to use less debt. Empirical studies generally confirm their prediction. Bradley et al. (1984) employ the sum of annual depreciation charges and investment tax credits divided by the sum of annual earnings before depreciation, interest, and taxes to measure NTDS. They find leverage is positively related with NTDS. Wald (1999) uses the ratio of depreciation to total assets and Chaplinsky and Niehaus (1993) employ the ratio of depreciation expense plus investment tax credits to total assets to measure NDTS. Both studies find that leverage is negatively correlated with NDTS.

The basic point about corporate tax is that the firm will exploit the tax deductibility of debt interest payments to reduce its tax bill. Therefore, firms that have other tax shields, such as depreciation deductions, have less need to exploit the debt tax shield. Indeed, if a firm in this position issues excessive debt, it may become “tax-exhausted” in the sense of having potential tax shields which it is unable to use. Ross (1985) explains that firms face a decline in the expected value of their interest tax savings as outstanding non-debt tax shields increase. There is a further effect that arises from the risk of bankruptcy. This is a result of the increased likelihood of bankruptcy occurring

at higher debt levels. For low leverage levels, the marginal tax shield value is positive since it can be fully employed to reduce the company's overall tax liability. For higher leverage levels, the marginal advantage of debt is negative as a result of the increased probability that the potential tax shield from an extra quantity of leverage will be partially or totally lost through bankruptcy. These arguments would all suggest that there should exist a negative relationship between debt and non-debt tax shields. However, arguments also exist for a positive relationship between leverage and non-debt tax shields. Scott (1977) and Moore (1986) suggest that firms with substantial non-debt-tax shields invariably have considerable collateral assets which can be used to secure debt; and secured debt is less risky than that which is unsecured. Overall then, these arguments suggest that the expected effects of non-debt-tax-shields on the supply of debt by firms are not known a priori. Firms with lower investment related tax shields (holding before-tax earnings constant) will employ greater debt in their capital structures (DeAngelo and Masulis 1980).They argue that non-debt tax shields are substitutes for a debt related tax shield and therefore the relationship between non-debt tax shields and leverage should be negative. Kim and Sorensen (1986) declare that DEPR has a significantly negative coefficient. This is consistent with the notion that depreciation is an effective tax shield, and thus offers the tax shield benefits of leverage. A negative relationship between non-debt tax shields and leverage is supported by Chaplinsky and Niehaus (1993), Wald (1999), Wiwattanakantang (1999), and Huang and Song (2002). On the other hand, Bradley et al. (1984) report a positive relationship. In view of the discussion just cited the depreciation divided by total assets is used in order to proxy for non-debt tax shields in this study. The hypothesis is: relationship between non-debt tax shields and (1) total leverage, (2) long-tem leverage, and (3) short term leverage should be negative.

F. Uniqueness

According to Titman and Wesseles (1988), selling expenses over sales has been measured as an indicator for uniqueness. Firms that sell products with close substitutes are likely to do less research and development since their innovations can be more easily duplicated. In addition, successful research and development projects lead to new products that differ from those existing in the market. Firms with relatively unique products are expected to advertise more and, in general, spend more in promoting and selling their products. Loof (2003) summarizes the idea due to

Titman (1984), that the more unique a firm's asset is, the thinner the market for such assets. Accordingly the lower is the expected value recoverable by a lender in the event of bankruptcy. Hence, it may be expected that uniqueness be negatively related to leverage. However, in Nepalese context, this study has used the selling and advertisement expenses divided by net sales (SANS) to measure the uniqueness of the products. There are two rationales to select this proxy in the study. First, it has been significantly tested by Titman and Wesseles (1988) as a linear function of leverage in Linear Structural Relationship (LISREL). Second, Research and Development (R&D) and advertising expenditures are not separately reported.

Titman (1984) presents a model in which a firm's liquidation decision is causally linked to its bankruptcy status. As a result, the costs that firms can potentially impose on their customers, suppliers, and workers by liquidating are relevant to their capital structure decisions. Customers, workers, and suppliers of firms that produce unique or specialized products probably suffer relatively high costs in the event that they liquidate. Their workers and suppliers probably have job-specific skills and capital, and their customers may find it difficult to find alternative servicing for their relatively unique products. For these reasons, uniqueness is expected to be negatively related to debt ratios. Adopting the ideas from past empirical evidence, the study assumes the hypothesis as: uniqueness is negatively related to (1) total leverage, (2) long-tem leverage, and (3) short term leverage.

G. Business risk

Business risk of the firm is measured by its degree of operating leverage. This equals the percentage change in earnings before interest and taxes over the percentage change in sales. The negative relationship between leverage and business risk is found (Babu and Jain (1997). Both agency and bankruptcy cost theories suggest the negative relation between the capital structure and business risk. The bankruptcy cost theory contends that the less stable earnings of the enterprises, the greater is the chance of business failure and the greater will be the weight of bankruptcy costs on enterprise financing decisions. Similarly, as the probability of bankruptcy increases, the agency problems related to debt become more aggravating. Thus this theory suggests that as business risk increases, the debt level in capital structure of the enterprises should decrease (Taggart 1985).

Given agency and bankruptcy costs, there are incentives for the firm not to fully utilize the tax benefits of 100 per cent debt within the static framework model. The more likely a firm will be exposed to such costs, the greater their incentive to reduce their level of debt within the capital structure of the firm. One firm variable which impacts upon this exposure is firm operating risk, in that the more volatile firm earnings streams, the greater the chance of the firm defaulting and being exposed to such costs. Consequently, these firms with relatively higher operating risk will have incentives to have lower leverage than other more stable earnings firms. Unusually, the limited empirical evidence between risk and leverage for SMEs suggests a positive rather than negative relationship (Jordan *et al.*, 1998; Michaelas *et al.*, 1999). Studies during 1980s showed the contradictory evidence in this regard (Martin and others 1988). Sharma (1983) and Chamoli (1985) show the evidence against, and Garg (1988) and Paudel (1994) do for the relation consistent with the bankruptcy and agency cost theories. Thus, this study assumes the hypothesis as: business risk is negatively related to (1) total leverage, (2) long-tem leverage, and (3) short term leverage.

In this study the dependent variable is the capital structure which is represented by total leverage, long-term leverage and short-term leverage. The explanatory variables selected are: firm size, liquidity, tangibility, effective tax rate, non-debt tax shield, uniqueness and business risk.

II. **The model**

This part of the study examines the determinants of capital structure. The choice regarding the included explanatory variables has been made based on a review of the relevant literature. The selection of the model is mainly motivated by Titman and Wessels (1988), Rajan and Zingales (1995), Sayeed (2011). The capital structure (leverage) is regressed on firm size, liquidity, tangibility, effective tax rate, non-debt tax shields, uniqueness, and business risk. Since the purpose of this study is to examine the impacts of different covariates on (capital structure) leverage, the analysis is directed to test the following models:

$$TL_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQU_{it} + \beta_3 TANG_{it} + \beta_4 TAX_{it} + \beta_5 NDTS_{it} + \beta_6 SANS_{it} + \beta_7 BRISK_{it} + \varepsilon_{it} \quad (1)$$

$$LTL_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQU_{it} + \beta_3 TANG_{it} + \beta_4 TAX_{it} + \beta_5 NDTS_{it} + \beta_6 SANS_{it} + \beta_7 BRISK_{it} + \varepsilon_{it} \quad (2)$$

$$STL_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQU_{it} + \beta_3 TANG_{it} + \beta_4 TAX_{it} + \beta_5 NDTS_{it} + \beta_6 SANS_{it} + \beta_7 BRISK_{it} + \varepsilon_{it} \quad (3)$$

Where:

TL = Total leverage = Total debt/ Total assets

LTL = Long-term leverage = Long-term debt / Total assets

STL = Short-term leverage = Short-term debt / Total assets

SIZE = Firm size = Natural logarithm of sales

LIQU= Liquidity = Current assets divided by current liabilities

TANG= Tangibility = Book value of fixed assets to total assets

TAX = Effective tax rate = Tax amount divided by earnings before taxes

NDTS = Non-debt tax shields = Depreciation / total assets

SANS= Uniqueness = Selling and administrative expenses / net sales

BRISK = Business risk = Percentage change in earnings before interest and taxes to percentage change in sales (degree of operating leverage).

Summary outline of the expected relationship between capital structure and its determinants has been depicted in Table 2.4.

Table 2.4
Expected relationship between capital structure and its determinants

Variables	Expected relationship	Theories
Firm size	+	Tradeoff theory: bankruptcy costs/tax. Agency theory: agency costs of debt.
Liquidity	-	Agency theory: agency cost of debt. Free cash flow theory. Pecking order theory: use of internal resources.
Tangibility	+	Agency theory: agency cost of debt, Tradeoff theory: financial distress/business risk.
Effective tax rate	+	Static trade-off theory.
Non debt tax shield	-	Tradeoff theory: tax
Uniqueness	-	Bankruptcy cost theory.
Business risk	-	Agency theory; bankruptcy costs theory.

2.4 Analysis of data

The analysis of data related to capital structure and its determinants involves in the following subsection**.** Sub-section 1 presents capital structure or leverage position, while sub-section 2 shows the descriptive statistics of the capital structure and its determinants. Sub-section 3 reports relationship among capital structure determinants and leverage. Sub-section 4 analyzes the impact of capital structure determinants on leverage. Sub-section 5 incorporates the discussion.

2.4.1 Capital structure or leverage position

The debt to total assets ratio has been used as one of the proxy for capital structure in this study. Table 2.5 reports the debt to total assets ratios of sample companies. On an average, Nepalese sample companies finance 86 percent of total assets by debt capital.

Table 2.5 shows that the minimum debt to total assets ratio 0.39 and maximum ratio for sample companies is 2.56. The average values indicate that debt to total assets ratio is largest for NBGUL (2.56), followed by FHL (1.73), thereafter GRUL (1.4), OHL (1.04) and so on. BNL (0.39) has the least debt to total assets ratio among sample companies.

Table 2.5
Debt to total assets ratios for the period of 1998 to 2012

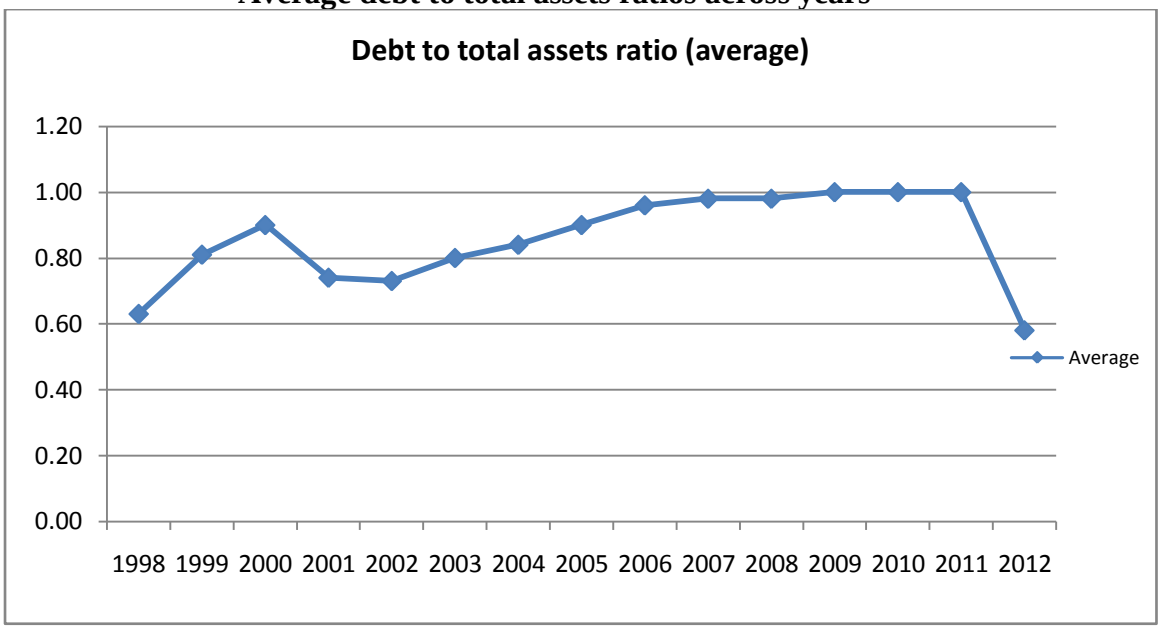
This table shows the position of debt to total assets for selected companies for the period of 1997-2008. Debt to total assets ratio has been calculated by dividing total debt by total assets. Average in column indicates the average debt to total assets ratio of selected companies over 12 years time period and average in row indicates for an individual company. S.D. indicates the standard deviations of debt to total assets ratio over different periods and companies.

Co./Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Avg	S.D.
BBCL	0.31	0.39	0.35	0.28	0.34	0.60	0.56	0.97	0.99	0.38	0.30	0.40	0.52	0.44	NA	0.49	0.23
BNTL	0.45	0.44	0.40	0.43	0.44	0.41	0.34	0.38	0.37	0.60	0.47	0.61	0.64	0.63	0.60	0.48	0.10
BNL	0.26	0.26	0.23	0.30	0.33	0.32	0.26	0.30	0.33	0.46	0.54	0.59	0.58	0.59	0.48	0.39	0.14
FHL	0.78	0.91	1.05	1.25	1.85	1.87	1.90	1.85	1.99	2.15	2.01	2.07	2.17	2.29	NA	1.73	0.50
GRUL	NA	NA	0.89	1.00	1.08	1.17	1.30	1.44	1.58	1.72	1.92	1.79	1.38	1.52	NA	1.40	0.32
HDL	NA	NA	NA	NA	0.56	0.62	0.69	0.76	0.79	0.79	0.81	0.83	0.80	0.71	0.59	0.72	0.10
KUL	0.95	0.88	0.81	0.77	0.53	0.56	0.30	0.26	0.24	0.31	0.58	0.82	0.73	0.80	NA	0.61	0.25
NBGUL	1.02	1.16	1.41	1.52	1.62	1.92	2.81	3.01	3.35	3.48	3.48	3.59	3.74	3.79	NA	2.56	1.06
NBBUL	0.75	0.81	0.81	0.79	0.80	0.85	0.83	0.82	0.83	0.88	0.88	0.90	0.92	0.92	NA	0.84	0.05
NLOL	0.62	0.60	0.69	0.68	0.57	0.64	0.57	0.69	0.73	0.71	0.70	0.74	0.77	0.75	NA	0.67	0.07
OHL	NA	3.04	0.88	0.76	0.84	0.93	0.98	1.04	1.06	1.06	1.04	0.99	0.94	0.89	0.85	1.09	0.57
STC	0.93	0.94	4.11	0.93	0.71	0.76	0.72	0.56	0.59	0.62	0.62	0.69	0.71	0.73	NA	0.97	0.91
SRJML	0.34	0.41	0.41	0.41	0.43	0.40	0.39	0.40	0.62	0.62	0.64	0.66	0.76	0.75	NA	0.52	0.15
SHL	0.47	0.44	0.39	0.37	0.44	0.55	0.61	0.71	0.75	0.74	0.66	0.56	0.53	0.52	0.51	0.55	0.12
SSML	0.73	0.76	0.79	0.75	0.74	0.79	0.79	0.73	0.73	0.95	1.00	1.06	1.27	1.24	NA	0.88	0.19
TRHL	0.63	0.78	0.92	1.08	0.77	0.85	0.90	0.91	0.91	0.66	0.65	0.64	0.61	0.57	NA	0.78	0.15
UNL	0.62	0.54	0.48	0.55	0.39	0.54	0.58	0.80	0.77	0.77	0.75	0.43	0.40	0.39	0.42	0.56	0.15
YAYHL	0.54	0.60	0.65	0.63	0.62	0.61	0.60	0.60	0.66	0.68	0.61	0.57	0.55	0.51	NA	0.60	0.05
Average	0.63	0.81	0.90	0.74	0.73	0.80	0.84	0.90	0.96	0.98	0.98	1.00	1.00	1.00	0.58	0.86	0.14
S.D	0.24	0.64	0.88	0.34	0.42	0.45	0.63	0.66	0.73	0.77	0.77	0.78	0.80	0.83	0.15	0.61	0.23

Source: Financial statement of sample companies

Figure 2.2 also depicts that the average minimum debt to total assets ratio is 0.58 and maximum average debt to total assets ratio is 1.00. The average values indicate that debt to total assets ratio is largest for 2009, 2010 and 2011 (1.00) followed by 2007 and 2008 (0.98), thereafter 2006 (0.96), 2000 and 2005(0.90) and so on.

Figure 2.2
Average debt to total assets ratios across years



Source: Financial statement of sample companies

2.4.2 Descriptive statistics of capital structure and its determinants

This section describes the variables used in the analysis and summarizes the results of descriptive statistics of three dependent variables and seven independence variables. This study employs the three measures of leverage shown in Table 2.6. The mean of total leverage of the sample firms is .872. It indicates that the Nepalese sample companies use 87.2 percent debt in financing their assets. The evidence shows that 25.7 percent of sample companies' assets are financed by long term debt. Further the first quartile (25%) value of long- term leverage is zero (00). It points out that one fourth of the Nepalese sample companies do not use long term debt in their capital structure.

The mean value of short term leverage is .615 which indicates that 61.5 percent of total assets of sample companies are financed by short-term debt. This result highlights the importance on short-term debt over long-term debt in Nepalese corporate financing.

Table 2.6
Descriptive statistics of dependent and independent variables (n = 251)

TL is the ratio of total debt to total assets. LTL is the ratio of long-term debt to total assets. STL is the ratio of short-term debt to total assets. SIZE is the natural logarithm of sales. LIQU is the current assets divided by current liabilities TANG is the ratio of book value of fixed assets to total assets. TAX is the ratio of tax paid divided by earning before tax. NDTS is the ratio of depreciation divided by total assets. SANS is the ratio of selling and administrative expenses divided by net sales. BRISK is the ratio of percentage change in earnings before interest and taxes to percentage change in sales (degree of operating leverage).

Variables	Scale	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25	50	75
TL	Ratio	0.872	0.656	0.230	4.110	0.540	0.710	0.910
LTL	Ratio	0.257	0.362	0.000	2.960	0.000	0.120	0.430
STL	Ratio	0.615	0.642	0.030	3.790	0.290	0.430	0.650
SIZE	Ln	18.773	3.812	0.000	22.000	19.000	20.000	20.000
LIQU	Ratio	1.208	1.530	0.043	11.203	0.501	0.840	1.332
TANG	Ratio	0.499	0.277	0.030	0.990	0.250	0.470	0.750
TAX	Ratio	0.122	0.250	-0.980	2.420	0.000	0.000	0.230
NDTS	Ratio	0.033	0.025	0.000	0.139	0.014	0.031	0.044
SANS	Ratio	0.549	2.243	0.000	31.636	0.058	0.246	0.406
BRISK	Ratio	-321.321	5105.500	-80882.120	334.651	-0.960	0.507	2.991

Source: Financial statement of sample companies

2.4.3 Capital structure and its determinants-all sample

A. Relationship between capital structure and its determinants-all sample

In this section Pearson correlation coefficients have been estimated and presented in Table 2.7 in order to measure the relationship among variables. Total leverage has significant positive correlation with SANS and significant negative correlation with SIZE, LIQU, TANG, TAX, and NDTS. These variables are significant at 1 percent level of significance with total leverage. BRISK variable does not report significant correlation with total leverage. These results suggest that these six variables may be the major determinants of capital structure.

The long term leverage has significant correlation among only three explanatory variables. It has positive significant correlation with LIQU and TANG. The negative correlation is found with TAX. These variables are significant at 1 percent level of significance with long term leverage. The rest of the four explanatory variables don't report significant relationship with long-term leverage.

The short-term leverage has significant correlation with five variables out of seven explanatory variables. SIZE, LIQU, TANG, and NDTS report negative correlation with short term leverage but SANS has positive relationship with short term leverage. All these five variables are significant at 1 percent level of significance with short term leverage. The results suggest that five variables out of seven can be considered as major determinants of capital structure.

Table 2.7
Correlation matrix of determinants of capital structure- all sample (n = 251)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales. LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

Variable	TL	LTL	STL	SIZE	LIQU	TANG	TAX	NDTS	SANS	BRISK
TL	1									
LTL	.315**	1								
STL	.845**	-.240**	1							
SIZE	-.343**	0	-.350**	1						
LIQU	-.173**	.204**	-.291**	-0.067	1					
TANG	-.169**	.318**	-.353**	-0.077	-.277**	1				
TAX	-.201**	-.173**	-0.109	.143*	0.036	-.210**	1			
NDTS	-.204**	-0.051	-.180**	.217**	-.238**	.450**	-0.082	1		
SANS	.403**	-0.074	.454**	-.203**	-0.097	-0.051	-0.065	-0.02	1	
BRISK	-0.04	-0.032	-0.022	-0.02	0.038	-0.06	0.031	-.201**	0.013	1

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

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

The selected explanatory variables may have some degree of correlation to each and other. To examine the existence of multicollinearity among regressors, Pearson correlation coefficient is used. The results have been shown in the Table 2.7, where the bivariate correlation coefficients among explanatory variables are maximum .45 (i.e. not highly correlated). The maximum correlation coefficient .450 is found

between TANG and NDTS among seven explanatory variables. In general as a rule of thumb, independent variables having collinearity at 0.7 or greater would not include in regression analysis due to multicollinearity. Since maximum correlation coefficient is .450 among explanatory variables, multicollinearity problem may not be expected in prescribed regression models. Thus, all of the independent variables are expected to be free from serious problems of multicollinearity and more components for regression analysis.

B. Impact of capital structure determinants on leverage - all samples

In this section, the results of empirical analysis on the determinants of capital structure have been presented. The result of impact of capital structure determinants on leverage level has been presented in three different ways: first all sample companies, second manufacturing sample and third non-manufacturing (hotel & trading) sample.

The regression results of the all sample companies are presented in Table 2.8. This table shows the results of the three regression equations (three models) as described in methodology. The first measure of leverage is the TL (total debt divided by total assets) which represents by modal 1. The second measures of leverage is represented by LTL (long-term debt divided by total assets) and shown as model 2. The third measure of capital structure is STL (short term debt divided by total assets) which is given in the form of model 3. As far the estimated results of total debt, long-term debt and short-term debt are concerned; the F-statistics and VIF test results indicate the appropriate estimation models for all sample companies. The F-statistics is significant at 1 percent level of significance in three models. The VIF (variance-inflating factor) can be used to test multicollinearity. As a rule of thumb, if the VIF of a variable exceeds 10, which will happen if R^2 exceeds 0.90, that variable is said be highly collinear (Kleinbaum et.all. 1988). The presence of multicollinearity makes the estimation and hypothesis testing about individual coefficients in regression not possible (Gujarati, 2003). The results of VIF show that VIF for all the variables are less than 2. So, it indicates that the presence of non-harmful colinearity among the variables. Thus the models used in the analysis are expected to be free of the problem of multicollinearity.

The estimated regression results displayed in the Table 2.9 show that the SIZE, which represents the size of the firms, as measured by the natural logarithm of sales, has the negative and statistically significant coefficients at 1 percent level of significance for total leverage and short term leverage. The negatively significant coefficients report that larger Nepalese firms use less total debt as well as short-term debt in financing their assets. The results are contradictory to the priori hypothesis, tradeoff theory, and agency theory. The negative coefficients between the size of the firms and firm's capital structure as measured by total leverage and short term leverage may be justified that the larger Nepalese enterprises are profitable enough and their short-term financing requirements are met by retained earnings, and thus their total debt ratio and short-term debt ratio may be lower as compared to small size. The coefficient is positive and statistically significant at 5 percent level of significance for long-term leverage. The coefficient of long-term leverage is as per priori expected sign indicating that larger Nepalese firms use more long-term debt. Moreover, the informational asymmetries tend to be less severe for larger firms than for smaller firms and hence, large firm find it easier to raise long-term debt finance.

The coefficient of liquidity (LIQU) is statistically significant at 1 percent level of significance in all three types of leverage. In total leverage and short-term leverage, the sign of coefficients are negative and are as per priori expected sign. It indicates that raising external capital in Nepalese companies is likely to be expensive and hence companies with high liquidity tend to avoid raising external loan capital. The result is contradictory in the case of long-term leverage. The positive and statistically significant coefficient for long-term leverage indicates that even more liquid Nepalese firms prefer to long-term debt capital.

The coefficient of TANG or tangibility is statistically significant at 1 percent level of significance in all three types of leverage. The coefficient is positive (.646) and is as per priori expected sign for long-term leverage. It indicates that Nepalese firms with more tangible assets tend to borrow more long-term debt. The negative significant coefficients are reported for total leverage (-.545), where positive sign was expected. The negative sign for total leverage is contradictory to the priori expectation. The result reveals that fixed assets over total assets would measure operating risk in an increasing scale, thus it may have a negative impact on total debt ratio, which

measures financing risk in an increasing scale too. The result is in agreement with the idea conveyed by Binks (1979) that a higher proportion of fixed assets do not mean higher capacity to collateralize debt. This type of result indicates that Nepalese firms with a higher proportion of fixed assets to total assets leads to the less total debt financing.

Table 2.8
Regression results of determinants of capital structure-all sample (n = 251)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales. LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

$$TL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (1)$$

$$LTL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (2)$$

$$STL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (3)$$

Predictors	Dependent Variable: TL			Dependent Variable: LTL			Dependent Variable: STL		
	Coefficient	p-value	VIF	Coefficient	p-value	VIF	Coefficient	p-value	VIF
Constant	2.238	0.000		-0.237	0.053		2.476	0.000	
SIZE	-0.045	0.000	1.174	0.012	0.036	1.174	-0.057	0.000	1.174
LIQU	-0.106	0.000	1.127	0.070	0.000	1.127	-0.175	0.000	1.127
TANG	-0.545	0.000	1.426	0.646	0.000	1.426	-1.191	0.000	1.426
TAX	-0.504	0.000	1.069	-0.170	0.042	1.069	-0.335	0.003	1.069
NDTS	-3.316	0.040	1.439	-3.635	0.000	1.439	0.311	0.808	1.439
SANS	0.088	0.000	1.075	-0.001	0.911	1.075	0.089	0.000	1.075
BRISK	0.000	0.165	1.045	0.000	0.305	1.045	0.000	0.338	1.045
	R^2 = 0.360; Adj.R^2 = 0.342 F-value =19.535; F(sig) = 0.000			R^2 = 0.253; Adj.R^2 = 0.232 F-value =11.774; F(sig) = 0.000			R^2 = 0.576; Adj.R^2 = 0.564 F-value = 47.138; F(sig) = 0.000		

**. Significant at the 0.01 level (2-tailed).

*. Significant at the 0.05 level (2-tailed).

In the case short-term leverage negative sign of the coefficient is as expected. The result depicts that Nepalese firm with more tangible assets use less amount of short term debt. The results of long-term leverage and short-term leverage are consistent with the view that there is a positive relationship between tangibility and long term debt is found, a negative relationship between tangibility and short term debt is reported (Brealey and Myers 1996).

Impact of tax effects on capital structure is also measured and results have been tabulated. The priori hypothesis is that debts level should be higher if the effective tax rate (TAX) is higher because debts reduce tax burden for the firms. Contradicting the theory and priori hypothesis, the tax and all three measures of leverage are negatively related and the relationship is statistically significant. For TL and STL it is significant at 1 percent level of significance where as it is significant at 5 percent level of significance for LTL. Thus, tax rate is found to be a significant determinant of capital structure in Nepalese companies. The result is similar to that found in Booth *et al*. (2001). This finding is in agreement with the idea conveyed by Mira (2005) that a negative relationship between tax rate and debt ratios. Chhapra and Asim (2012) have also found negative relationship between firm's taxes and financial leverage in Pakistan textile sector. This suggests that the managers of Nepalese firms don't have incentive to take the advantage of tax shield while deciding capital structure.

The non-debt tax shield (NDTS) is concerned with the tax deduction for depreciation. Thus, firms with large NDTS are expected to less finance with debt in their capital structure. As shown in the Table 2.8 the coefficient of non-debt tax shields (NDTS) is negative for total leverage (-3.316) and long-term leverage (-3.635) which is as per priori expectation but positive sign is reported for short-term leverage (0.311) which is as opposed to expected sign. The coefficient is significant for total leverage and long term leverage whereas it insignificant for short-term leverage. The result indicates that an increase in NDTS can affect leverage negatively. Specifically, the shows that increase in non-debt tax shield will reduce the use of total and long term debt in Nepalese companies. This result is similar to that of the Tychon (1997) for the Belgian case.

The coefficient of SANS or uniqueness is significant for total leverage and short-term leverage at 1 percent level of significance. The positive signs (.088 & .089) are reported to total leverage and short term leverage and signs of the coefficient are contradictory to priori expectation. It implies that firms with innovative products should borrow more. Firms with relatively unique products are expected to advertise more and, in general, spend more in promoting and selling their products. The results further show that those Nepalese firms spend more in selling, advertising and

promotion, and research and development expenditure borrow more. The evidence does not support in the case of long-term debt.

Business risk is measured by its degree of operating leverage. The coefficient of BRISK is negative in all three types of leverage which is as per priori hypothesis but none of the coefficients are significant. The results indicate that the business risk as measured by degree of operating leverage does not affect the capital structure choice in Nepalese companies.

2.4.4 Capital structure and its determinants - manufacturing sample

A. Relationship between capital structure and its determinants-manufacturing sample

Pearson correlation coefficients of variables related to manufacturing samples have been estimated and presented in Table 2.9 to measure the relationship among variables. Total leverage (TL) has significant positive correlation with SANS and significant negative correlation with SIZE, LIQU, TAX, and NDTS. TANG and BRISK variables do not report significant correlation with total leverage. The results suggest that these five variables may be the major determinants of capital structure.

The long term leverage has significant correlation among only three explanatory variables. It has positively significant correlation with LIQU and TANG at 1 percent level of significance. The negative correlation is found with TAX at 5 percent level of significance with long term leverage. Only three of seven variables seem to the major determinants of long-term leverage (capital structure).

The short-term leverage has significant correlation with five variables out of seven explanatory variables. SIZE, LIQU, TANG, and NDTS report negative correlation with short term leverage but SANS has positive relationship with short term leverage. The results suggest that five variables out of seven can be considered as major determinants of short-term leverage (capital structure).

Table 2.9

Correlation matrix of determinants of capital structure-manufacturing sample (n=166)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales.. LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

Variable	TL	LTL	STL	*SIZE*	LIQU	*TANG*	*TAX*	*NDTS*	*SANS*	*BRISK*
TL	1									
LTL	0.088	1								
STL	.934**	-.274**	1							
SIZE	-.565**	0.099	-.580**	1						
LIQU	-.245**	.344**	-.360**	0.081	1					
TANG	-0.128	.423**	-.275**	0.073	-.204**	1				
TAX	-.187*	-.172*	-0.119	0.126	0.042	-.214**	1			
NDTS	-.155*	0.122	-.194*	.177*	-.169*	.500**	-0.066	1		
SANS	.454**	-0.106	.476**	-.327**	-0.097	-0.081	-0.056	-0.063	1	
BRISK	-0.038	-0.072	-0.01	-0.027	0.05	-0.112	0.032	-.250**	0.015	1

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

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

B. Impact of capital structure determinants on leverage-manufacturing samples

The regression coefficients of the determinants of manufacturing sample companies are presented in Table 2.10. The three models selected for the study seem appropriate because F-coefficients are significant at 1% level of significance -2 tailed. The collinearity problem is not serious among explanatory variable because VIF is less than 2 in three models used in the analysis.

The estimated regression model shows that the SIZE variable (natural logarithm of sales) has statistically significant negative signs with TL and STL which is contradictory to priori expected sign. But the positive sign is reported for LTL with insignificant coefficient. The result indicates that larger size firms use less debt in their capital structure then smaller size companies in Nepal. This finding is similar to that of the all sample companies' results.

Table 2.10

Regression results of determinants of capital structure-manufacturing sample (n = 166)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales. LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

$$TL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (1)$$

$$LTL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (2)$$

$$STL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (3)$$

Predictors	Dependent Variable: TL			Dependent Variable: LTL			Dependent Variable: STL		
	Coefficient	p-value	VIF	Coefficient	p-value	VIF	Coefficient	p-value	VIF
Constant	3.059	0.000		-0.173	0.120		3.231	0.000	
SIZE	-0.095	0.000	1.178	0.004	0.499	1.178	-0.099	0.000	1.178
LIQU	-0.093	0.001	1.072	0.072	0.000	1.072	-0.164	0.000	1.072
TANG	-0.362	0.079	1.432	0.584	0.000	1.432	-0.944	0.000	1.432
TAX	-0.365	0.023	1.073	-0.086	0.177	1.073	-0.281	0.050	1.073
NDTS	-1.804	0.364	1.456	-1.029	0.195	1.456	-0.791	0.655	1.456
SANS	0.072	0.000	1.134	-0.002	0.807	1.134	0.073	0.000	1.134
BRISK	0.000	0.258	1.068	0.000	0.399	1.068	0.000	0.382	1.068
	R^2 = 0.468; Adj.R^2 = 0.445 F-value = 19.873; F(sig) = 0.000			R^2 = 0.389; Adj.R^2 = 0.362 F-value = 14.347; F(sig) = 0.000			R^2 = 0.607; Adj.R^2 = 0.589 F-value =34.840; F(sig) = 0.000		

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed)

Liquidity (LIQU) is another important variable. The coefficient is statistically significant in all three types of leverage. The sign is negative for total leverage and short-term leverage which is as expected. The sign of the coefficient is positive in the case of long-term leverage. The result indicates that more liquid firms use less total debt and short -term debt in their capital structure then less liquid manufacturing companies in Nepal. As contradictory to priori expectation more liquid firms use more long term debt. This finding stands similar to that of the all sample companies' results. The coefficient of tangibility (TANG) is statistically significant at 1 percent level of significance for long-term leverage and short-term leverage. These coefficients are as per priori expectation but coefficient for total leverage is negative and insignificant. The result points out that the manufacturing companies with more

tangible assets borrow less short-term debt but Nepalese manufacturing companies with more tangible assets borrow more long-term debt.

Impact of tax effects on capital structure has been measured and results have been shown in Table 2.10. The priori hypothesis is that debts level should be higher if the effective tax rate (TAX) is higher because debts reduce tax burden for the firms. Contradicting to the theory and priori hypothesis, the tax rate and all three measures of leverage are negatively related and but the relationship is statistically significant for total leverage and short-term leverage. Tax rate is found insignificant for long-term leverage. The inverse relationship between effective tax rate and capital structure is contradictory to priory hypothesis and theory. This surprising result for manufacturing sample may due to the fact that most of the manufacturing companies are reporting loss with negative earnings before tax. The result indicates that increase in effective tax rate likely to reduce the use of debt capital in Nepalese manufacturing companies.

The coefficient of SANS or uniqueness is positive for total leverage and short-term leverage and these coefficients are significant at 1% level of significance. The sign is contradictory to the priori expectation. The negative but insignificant relationship is found for long-term leverage (sign is as expected). Uniqueness is considered as significant variable in determining use of total leverage and short-term leverage, this variable does not significantly affect the use of long-term debt capital in Nepalese manufacturing companies.

The coefficients of non-debt tax shields (NDTS) and business risk (BRISK) found insignificant for all three form of leverage. The results indicate that non-debt tax shield (depreciation divided total assets and business risk as measured by degree of operating leverage do not affect the capital structure choice in Nepalese companies.

2.4.5 Capital structure and its determinants - nonmanufacturing sample

A. Relationship between capital structure and its determinants- nonmanufacturing samples

Pearson correlation coefficients among variables have been estimated and the results are presented in Table 2.11 to measure the relationship among variables. Total leverage has significant negative correlation with TAX and NDTS. But SIZE, LIQU,

TANG, SANS and BRISK variable do not report significant correlation with total leverage. The results indicate that these two variables may be the major determinants of capital structure.

There are only two explanatory variables that are significantly correlated with long-term leverage. TAX and NDTS are the variables which are significantly negatively correlated with long-term leverage. These variables are significant at 1 percent level of significance with long term leverage. The rest of the five explanatory variables don't report significant relationship with long-term leverage.

Table 2.11
Correlation matrix of determinants of capital structure-nonmanufacturing sample (n=85)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales; LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

Variables	TL	LTL	STL	SIZE	LIQU	TANG	TAX	NDTS	SANS	BRISK
TL	1									
LTL	.914**	1								
STL	.299**	-0.113	1							
SIZE	-0.023	-0.056	0.075	1						
LIQU	-0.003	0.146	-.346**	-.336**	1					
TANG	-0.111	0.065	-.429**	-.243*	-.378**	1				
TAX	-.220*	-.282**	0.126	0.205	0.058	-.429**	1			
NDTS	-.327**	-.299**	-0.1	.292**	-.401**	.410**	-0.151	1		
SANS	-0.063	-0.057	-0.025	.265*	-.404**	.421**	-.352**	.708**	1	
BRISK	-0.022	-0.098	0.174	-0.017	0.026	-0.111	0.16	0.024	-0.092	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The short-term leverage is significantly correlated with only two variables out of seven explanatory variables. LIQU and TANG are variables that are significantly negatively correlated with short term leverage. These two variables are significant at 1

percent level of significance. The results suggest that two variables out of seven can also be considered as major determinants of short-term leverage (capital structure).

Variables selected for the model may have some degree of correlation to each and other. To examine the existence of multicollinearity among regressors, Pearson correlation coefficient has been calculated. The maximum bivariate correlation coefficients .708 is found between NDTS and SANS among seven explanatory variables. Another suggested rule of thumb is that if the pair-wise or zero-order correlation coefficient between two regressors is high, say, in excess of 0.80, then multicollinearity is a serious problem (Gujarati 2004). Since maximum pair-wise correlation coefficient between regressors is less than 0.80, there may not be the serious multicollinearity problem. Hence, the selected explanatory variables are considered appropriate for regression model.

B. Impact of capital structure determinants on leverage–non-manufacturing samples

Level of debt capital used by the non-manufacturing companies may be different from that of manufacturing companies. Thus, capital structure determinants for non-manufacturing companies have been analyzed separately. Table 2.12 presents the regression coefficients of the non-manufacturing sample companies using three specified models. The estimated models are significant at the 0.05 level or better as evidenced by an overall F statistic. The F-statistics prove the validity of the estimated models. The collinearity problem is not serious among explanatory variable because VIF is < 2.5 in all three models.

The size (SIZE) of the firms (as proxied by the natural logarithm of sales) is found negative and statistically significant coefficients for short-term leverage. The sign of the coefficient is contradictory to priori hypothesis but statistically insignificant coefficients are found for total leverage and long-term leverage. The result indicates that use of short-term debt is affected by the company size in non-manufacturing Nepalese companies. The negative coefficient of size revels that large size non manufacturing company borrow less amount of short-term debt.

Table 2.12

Regression results of determinants of capital structure-non-manufacturing sample (n = 85)

TL, LTL, STL are the dependent variables. TL is the ratio of total debt to total assets. LTL is the ratio of long term debt to total assets. STL is the ratio of short term debt to total assets. Among eight independent variables, SIZE is the natural logarithm of sales. LIQU is the current assets divided by current liabilities. TANG is the book value of fixed assets to total assets. TAX is the tax paid divided by earnings before tax. NDTS is the depreciation divided by total assets. SANS is the selling and administration expense to net sales. BRISK is the percentage change in earnings before interest and taxes to percentage change in sales (ie. degree of operating leverage).

$$TL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (1)$$

$$LTL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (2)$$

$$STL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LIQU_{i,t} + \beta_3 TANG_{i,t} + \beta_4 TAX_{i,t} + \beta_5 NDTS_{i,t} + \beta_6 SANS_{i,t} + \beta_7 BRISK_{i,t} + e_{i,t} \quad (3)$$

Predictors	Dependent Variable: TL			Dependent Variable: LTL			Dependent Variable: STL		
	Coefficient	p-value	VIF	Coefficient	p-value	VIF	Coefficient	p-value	VIF
Constant	1.238	0.001		-0.013	0.971		1.253	0.000	
SIZE	0.006	0.668	1.657	0.023	0.073	1.657	-0.017	0.000	1.657
LIQU	-0.061	0.204	1.554	0.062	0.178	1.554	-0.123	0.000	1.554
TANG	-0.282	0.298	2.013	0.416	0.110	2.013	-0.701	0.000	2.013
TAX	-0.742	0.012	1.427	-0.643	0.022	1.427	-0.099	0.232	1.427
NDTS	-10.619	0.001	2.319	-10.109	0.001	2.319	-0.489	0.572	2.319
SANS	0.289	0.222	2.481	0.186	0.410	2.481	0.102	0.132	2.481
BRISK	0.001	0.656	1.053	0.000	0.966	1.053	0.001	0.095	1.053
	R^2 = 0.243; Adj.R^2 = 0.174 F-value = 3.532; F(sig) = 0.002			R^2 = 0.253; Adj.R^2 = 0.186 F-value = 3.733 ; F(sig) = 0.002			R^2 = 0.633; Adj.R^2 = 0.600 F-value =18.983; F(sig) = 0.000		

**. Significant at the 0.01 level (2-tailed)

*. Significant at the 0.05 level (2-tailed).

The coefficient of liquidity (LIQU) is negative and statistically significant for total leverage and short-term leverage where as it is positively related with long-term leverage. The coefficient of tangibility (TANG) is found negative and statistically significant for short-term leverage (the coefficients as expected). The coefficient is significant at 1 percent level of significance. The result indicates that Nepalese non-manufacturing companies with more tangible assets use less amount of short-term debt in their capital structure.

Theoretical hypothesis asserts that debts level should be higher if the effective tax rate (TAX) is higher because debts reduce tax burden for the firms. Contradicting to the priori hypothesis, the tax rate and all three measures of leverage are negatively related but the relationship is statistically significant for total leverage and long-term

leverage. This finding is similar to that of Mira (2005) where the author also found a negative relationship between tax rate and debt ratios. Thus, tax rate can be considered to be a significant determinant of capital structure in Nepalese non-manufacturing companies.

Non-debt tax shield, NDTS should have inverse relationship with leverages as stipulated in priori hypothesis because of its substitutability of debts in reducing tax burdens. The coefficient of non-debt tax shields (NDTS) is negative for all leverage (a negative sign was expected). Unlike in manufacturing sample case the coefficients are statistically significant for total leverage and long-term leverage. The results indicate that non-debt tax shield (depreciation divided total assets) will have significant effect on the use of debt capital in Nepalese non-manufacturing (trading, and hotel) companies. The significant negative coefficients point out those Nepalese non-manufacturing companies with higher annual depreciation charges in their income statements use lower amount of debt in their capital structure. NDTS was found an insignificant determinant of long term debt by Akhtar (2005) but significant and negative by Mira (2005). Thus, the finding of this study is similar to that of Mira (2005).

The SANS or uniqueness and BRISK or business risk don't have direct impact on all proportions of debt, because it is statistically insignificant for all types of leverage in non-manufacturing sample.

2.5. Discussion

The findings of this study and the results of some past empirical studies are compared and discussed. The R squares and adjusted R squares continue to look reasonable in estimated regression models. The F statistics confirm the validity of the estimated models. On the basis of the findings this far, it can be concluded that the proxies of the determinants of capital structure chosen have good explanatory power of the behaviour of leverage ratios in the Nepalese companies. The summarize view of the comparison of the test results with the expectations of theories (priori expectation) are portrayed in Table 2.13 and Table 2.14. The results of the estimated models are discussed as follows:

Table 2.13
Test results of determinants of capital structure with priori the expectations

Variables	Expected Relationship	Test Results for Nepalese Firms		
		Model-1 TL	Model-2 LTL	Model-3 STL
Size (SIZE)	+	-	+	-
Liquidity (LIQU)	-	-	+	-
Tangibility (TANG)	+	-	+	-
Effective tax rate (TAX)	+	-	-	-
Non-debt tax shields (NDTS)	-	-	-	NS
Uniqueness (SANS)	-	+	NS	+
Business risk (BRISK)	-	NS	NS	NS

+ indicates positive
- indicates negative
NS= Not Significant

Size: which represents the size of the firms, as measured by the natural logarithm of sales, has the negative and statistically significant coefficients for total leverage and short term leverage, whereas positive and statistically significant coefficient is found for long-term leverage. The coefficient of SIZE with long-term leverage is as per priori expected sign indicating that larger Nepalese firms use more long-term debt than smaller size. Moreover, the informational asymmetries tend to be less severe for larger firms than for smaller firms and hence, large firm find it easier to raise long-term debt finance. SIZE variable shows the mixed result when it is compared with manufacturing and non-manufacturing samples. The statistically significant negative coefficients are found for total leverage and short term leverage in manufacturing samples whereas it is significant only for short-term leverage in non-manufacturing sample. These regression results contradict to the preset expectations as the coefficient of size is negative. The negatively significant coefficients of firm size with total leverage and short-term leverage indicate that larger size Nepalese firms borrow less total debt as well as short-term debt. This result is inconsistent with the findings of Rajan and Zingale (1995), Akhtar (2005) and Mira (2005). This findings is also contradicts to the findings of Friend and Lang (1988); Frank and Goyal (2004); Bevan and Danbolt (2000); Gaud, *et al.* (2003); Wiwattanakantang (1999); Huang and Song (2002); Bauer (2004). But it is consistent with Mazur (2007) who has reported a significantly negative coefficient of size with debt. This indicates that larger firms in Nepal tend to have lower leverage ratios and large firms borrow less than smaller firms.

Liquidity: the coefficient of liquidity is positive as well as negative in different models of this study. The coefficient of liquidity (LIQU) is statistically significant in all three models. The coefficients of LIQU are negative for total leverage and short-term leverage. It indicates that raising external capital in Nepalese companies is likely to be expensive and hence companies with high liquidity tend to avoid raising external loan capital. The result is contradictory in the case of long-term leverage. The positive and statistically significant coefficient of LIQU for long-term leverage indicates that even more liquid Nepalese firms prefer to rise of more long-term debt capital.

Tangibility: The coefficient of tangibility is positive as well as negative in different models. Tangibility variable is significantly positively related to the long-term leverage in all sample, and manufacturing sample, which is consistent with priori hypothesis. This may the case that the more tangible the assets of a firm are; the greater its ability to secure long term debt. Consequently, collateral value or tangibility (fixed assets to total assets) is found to be a major determinant of the level of long-term debt finance in Nepalese sample companies. This finding stood similar to the findings of Bradley *et al*. (1984), Rajan and Zingales (1995), Kremp *et al.* (1999) and Frank and Goyal (2002).

Where tangibility is significantly negatively related to short-term leverage in the all three sample (i.e, all sample, manufacturing sample and non-manufacturing sample).The result is as per priori expectation. In general, this negative association between leverage and tangibility can be explained by the fact that those firms that maintain a large proportion of fixed assets in their total assets tend to use less debt than those which do not. This can be due to the fact that a firm with an increasing level of tangible assets may have already found a stable source of income, which provides it with more internally generated funds and avoid using external financing. Another explanation for this relationship could be the view that firms with higher operating leverage (high fixed assets) would employ lower financial leverage. Overall the results are consistent with Cornelli *et al.* (1996), Hussain and Nivorozhkin (1997), Booth *et al.* (2001), Nivorozhkin (2002) who also suggest a negative relation between tangibility and debt ratio.

The findings of this study based on Nepalese evidence coincide with the findings of Chittenden *et al*. (1996) conclude that the relationship between tangibility and leverage depends on the type of debt. Moreover findings of this study is more similar to the findings of Brealey and Myers (1996) who have found a positive relationship between tangibility and long term debt and a negative relationship between tangibility and short term debt.

Tax: Contradicting the theory and priori hypothesis, the tax and all three measures of leverage are negatively related and the relationship is statistically significant in all samples. While priori hypothesis has been that debts level should be higher if the effective tax rate (TAX) is higher because debts reduce tax burden for the firms. The coefficient of tax is also found negative in manufacturing as well non-manufacturing sample for all three measures of leverage. Where tax is found significant for total leverage and short-term leverage in manufacturing sample but unlike manufacturing sample it is found significant for total leverage and long-term leverage in non-manufacturing sample. As a whole, tax rate is found to be a significant determinant of capital structure in Nepalese companies. The result is similar to that found in Booth *et al.* (2001). This finding is in agreement with the idea advanced by Mira (2005) and Chhapra and Asim (2012) who have found a negative relationship between tax rate and debt ratios.

Non-debt tax shields: Depreciation divided by total assets has been used in order to proxy for non-debt tax shields. The coefficient of non debt shield is negative (as per priory expectation) in all sample, manufacturing sample and non-manufacturing sample for all three measures of leverage except for short-term leverage in all sample companies. The negative and statistically significant coefficient of NDTS is found for total leverage and long-term leverage in all sample and non-manufacturing sample companies. This finding is consistent to the findings of Kester (1986); Chaplinsky and Niehaus (1993), Wald (1999), Wiwattanakantang (1999), and Huang and Song (2002). This finding, however, contradicts Bradley *et al.* (1984) who report a positive relationship. As a whole, negative coefficient of NDTS indicates that firm with larger amount of annual depression charges relatively borrow less amount of debt capital. Thus, non-debt tax shield can be considered as one of major determinants of capital structure in Nepalese listed non- financial companies.

Uniqueness: The coefficient of uniqueness is positively significantly related to total leverage and short-term leverage (as contrary to priory hypothesis) in all samples and manufacturing sample, however the negative but insignificant coefficient is found for long term leverage. It is also found insignificant in non-manufacturing sample for all three measures of leverage. As a whole the positive coefficient of SANS indicates that firm with relatively higher amount of annual selling and advertisement expenses prefer to use more debt capital. Thus, uniqueness (SANS) can also be considered as the determinants of capital structure in Nepalese firm.

Business risk: The coefficient of business risk is positive but statistically insignificant in all sample, manufacturing sample and non-manufacturing sample for all three measures of leverage. The insignificant coefficient of business risk indicates that though business risk and financial leverage move in same direction, business risk doesn't significantly affect capital structure of non-financial listed firms in Nepal.

Table 2.14
Comparison of the test results in manufacturing and non-manufacturing sample

Variables	Expected Relationship	Model-1 TL		Model-2 LTL		Model-3 STL	
		MCo.	NMCo.	MCo.	NMCo.	MCo.	NMCo.
Size (SIZE)	+	-	NS	NS	NS	-	-
Liquidity (LIQU)	-	-	NS	+	NS	-	-
Tangibility (TANG)	+	NS	NS	+	NS	-	-
Effective tax rate (TAX)	+	-	-	NS	-	-	NS
Non-debt tax shields (NDTS)	-	NS	-	NS	-	NS	NS
Uniqueness (SANS)	-	+	NS	NS	NS	+	NS
Business risk (BRISK)	-	NS	NS	NS	NS	NS	NS

NS= Not Significant

MCo . = Manufacturing Company

NMCo .= Non-manufacturing Company

In nutshell, this study has analyzed the determinants of the capital structure by taking the sample of 18 listed non-financial companies in Nepal using pooled regression models. Furthermore, this study has also analyzed the problem using the pooled data separately for manufacturing and non-manufacturing sample companies. Based on the empirical results, it can be asserted that the determinants of capital structure are firm specific. With regard to the firm specific characteristics of determinants of capital structure using three models are broadly similar.

The coefficients of non-debt tax shields (NDTS) and business risk (BRISK) found insignificant for all three form of leverage. The results indicate that non-debt tax shield (depreciation divided total assets and business risk as measured by degree of operating leverage do not affect the capital structure choice in Nepalese companies.

The empirical results indicate that the financing decisions of these companies can be explained by the determinants suggested by much of extant the empirical literature. It is observed that the coefficient values of the size variable negatively affect total leverage and short term leverage, whereas positively affect long-term leverage. Likewise, liquidity is negatively related to total leverage and short-term leverage but positively affect long-term leverage. Tangibility variable is positively related to the long-term leverage but negatively related to short-term leverage. Tax and all three measures of leverage are negatively related. As a whole non debt shield (NDTS) is negatively related to leverage whereas uniqueness (SANS) is positively related to leverage. Business risk, though positively related to leverage, the relationship is statistically insignificant.

Finally, it can be concluded that firm's size, liquidity, tangibility, tax, non- debt tax shields, and uniqueness are the determinants of capital structure in Nepalese listed non-financial companies.