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Contents

1	INTRODUCTION.....	3
2	LEVERAGE	11
2.1	Operating Leverage:	12
2.2	Financial leverage.....	14
2.3	Combined effect of operating and financial leverage	16
3	CAPITAL STRUCTURE	22
3.1	Modigliani-Miller Approach.....	22
3.2	Trade-off theory	26
3.2.1	The static trade-off theory:.....	26
3.2.2	The dynamic trade-off theory	28
3.3	The pecking order theory:.....	30
3.4	Agency model.....	33
3.4.1	Conflict between shareholders and management	34
3.4.2	Conflicts between equity holders and debt holders.....	35
3.5	Market timing theory.....	37
4	LEVERAGE AND CAPITAL RESTRUCTURING.....	40
4.1	Macro-economic factors	42
4.1.1	Gross domestic product (GDP).....	42
4.1.2	Expected Inflation.....	43
4.1.3	Economic cycle.....	43
4.1.4	The quality of governance	45
4.1.5	The bankruptcy code.....	45
4.1.6	The tax code.....	47
4.2	Firms based.....	48
4.2.1	Ownership structure	48

4.2.2	Profitability	49
4.2.3	size	50
4.2.4	Product/ service.....	52
4.2.5	Growth.....	53
4.2.6	Dividend policy.....	55
4.2.7	Volatility in cash flow and earning	55
4.2.8	Credit rating	56
5	BEHAVIOURAL FINANCE AND LEVERAGE RATIO	60
5.1	The bias of cognitive factors.....	64
5.1.1	The overconfidence bias	65
5.1.2	The representative bias	65
5.1.3	The anchoring and adjustment bias.....	66
5.1.4	Conformation bias.....	66
5.2	Emotional factors (Bias)	67
5.2.1	Optimism bias	67
5.2.2	Loss Aversion Bias	68
5.2.3	Regret Aversion Bias	68
5.2.4	Debt conservatism.....	69
6	CONCLUSION	73
	BIBLIOGRAPHY	75
	KURZFASSUNG.....	80
	ABSTRACT.....	81
	CURRICULUM VITAE	82

Chapter 1

1 Introduction

In modern business, financial matters become more and more important and specialized to the success of a business. That's why firms establish specialized financial departments which are responsible for dealing with operating, financing, and investing activities of firms in favourable manners. Operating activities includes financing decision of day to day transaction and providing sufficient liquidity to keep the daily operation running. Investing actives means where to invest, when to invest etc. It includes long and short term financial decisions. In financing activities, financial specialists are busy to make strategies how to finance the firm, when to finance the firm, which sources of finance should be used to raise money for the business. The conventional sources of finance for a firm are equity, debt, preferred shares, and bank loans etc. which build up the financial structure of a firm. These sources range from financing the day to day transactions to long term growth projects.

Market has developed a wide range of sources of finance which serves the short term to long term financing need of a firm. The short term financial sources include term loan, creditors, bank loans etc. to fuel liquidity in business to maintain continuous operation, whereas, long term financing provide the solvency to the firm to meet the long term financial need of firm. A big range of these sources have been evolved in the last century which encompasses traditional owner equity, debt instrument and new innovative financial products such as hybrid securities. Though; in the financial literature, mainly two broad categories of financial resources are being used, owners' equity and third party equity. All the other new sources are sub categorized under these two broad classes. The equity holders are the real owner of the firm who share residual income after paying off all the operating and financing expenses. They have a voting right to decide the firm's future, whereas, the debt holders are creditor and entitled fixed rate of interest irrespective to firm profit. An equity holder comprises three main attributes equity securities, preferred securities, and retained earnings. Debt holders include both kind of debt securities such as short term and long term. Bank notes,

suppliers and private money mortgages are common sources of short term financing which are used for financing operating actives and working capital. Bonds are used for long term debt which includes secured and unsecured. The debt holders are creditors without voting power.

As I have stated above, financing decisions are vitally important in the long term survival and growth of a firm, therefore, academicians and practitioners need to analyse the effects of different sources of finance to evaluate the firm's financial health. It is assumed that using optimum ratio of leverage enhances the shareholders' wealth. This perception is based on two arguments. The one is that debt financing is cheaper than equity financing and the other is that it gives tax advantage which is not possible by using equity. The whole finance fraternity is trying to find universal answer to the question, which source of financing is the best to maximize the value of shareholders or what would be the optimal mix of debt equity to attain maximum benefit of financing. However, this is a chicken and egg puzzle. Debt is a good source of finance, because it gives advantages to the firm such as tax shield and no ownership claim.

It has been proven from previous studies that debt is also a cheap external source of financing. Though debt financing has also some disadvantages. The debt financing could drag the firm into financial distress which often ends up with the bankruptcy of a firm. Although debt financing has advantages, it is specifically dangerous for the survival of firms with low growth, cohesive competition or low cash inflow etc. The firms adjust their usages of leverage according to firm's financial need, profitability, and cash flow etc.

There is an exhaustive list of factors which influence the usage of leverage in financing decision. Each factor influences each firm differently. These factors are normally classified as macro economy factors, industrial factors, and intern-firm factors. The macro economy factors consist of GDP rate, inflation rate, and economic cycle etc. industrial factors include nature of industry, competition, entrance and exit policy etc. The categories of factors include inter-firm factors such as nature of product, the firm produce, size and pricing power of the firm etc.

The focus of this thesis is to explore the concept of leverage, capital structure, financing decision and influence of leverage in financing decision by explaining the capital structure determinants. The whole work is divided into three main sections; in the first section, the focus is on the concept of the leverage by differentiating the operating and financial leverage, and including the brief discussion on financial and non-financial leverage and leverage measures. The second section deals with the concept of capital structure and capital structure theories. I have limited this work to four main theories, often considered in corporate finance research and literature. The third section deals with the factors influencing the uses of leverage.

The capital structure theories are the starting point to understand the whole concept of usage of leverage, therefore, these theories are considered to build up a strong foundation on the topic. Many theories and empirical works have been evolved since the irrelevance proposition of capital structure has been introduced. Trade-off theory, pecking order theory, and study of many determinant of capital structure, have been developed to evaluate and understand this puzzle. Financial frictions thus, has reviewed the restructuring of capital structure topic from different perspective. Whereas, financing choice to market timing theory stands at one end and human physiology to management behaviour on the other end.

The reason to delve more and more in this topic is that each firm is unique in the industry and different from other firm in same industry. The difference among the firms come basically from their management structure, ownership structure, nature of firm's product and service, and financial structure. This fact makes us clear that expecting a universal accepted theory of capital structure is not a practical assumption at all.

The reason why I consider capital structure theories in this work is that the market has recently experienced liquidity crisis. It is easily understandable that firms during liquidity crisis encounter a capital restructuring issue concerning their financial, operational, and investment activities.

There are numerous corporate finance scientists who have been testing capital structure theories to evaluate the different capital structure determinants and measure their effect on leverage ratio. Miller and Modigliani were the first financial scientists dealing with the capital structure issue by introducing the capital structure irrelevance theorem. Since the introduction of the M&M irrelevance theorem, usage of leverage and its optimal level to take maximum benefit for financing is one of the most controversial issues in corporate finance literature.

Cai and Gosh (2003) state that researchers have done a huge work on this topic, though the question of optimum capital structure is still unsolved, firms are still struggling with the idea of debt and equity financing.

However; in practice, a single capital structure theory is not possible which can give a pinpoint formula of the optimum debt equity mix. It does not even exist. Therefore; it is worthless to expect one either. The debt equity mix choice is a completely individual choice which is based on the number of micro and macro factors (Myers, 2001).

On the other hand, there are many theories that are "conditionally useful" for illustrating the capital structure.

The two most popular theories, 'trade off theory' and 'pecking order theory' are considered in this work to explain the capital structure choices. The other two theories 'agency cost' and 'market timing' are also described briefly. The trade-off theory elaborates the idea of optimum level of debt equity mix. By arguing that using debt will maximise the shareholder wealth through saving tax using/applying the tax shield. The optimum level is achieved by equalizing the cost and benefits of debt financing. The theory considers marginal cost and marginal benefit of debt financing. The marginal cost and marginal benefit trade-off is based on marginal diminishing return and marginal increasing cost concept of micro economy. A firm that is in process for optimizing its capital structure tries to find out a trade-off between debt marginal benefits and marginal cost to maximize the shareholder's wealth.

Myers (2001) trade-off theory suggests that there is an optimal ratio between debt and equity.

The pecking order theory proposes a hierarchy of funding preferences by managers use first internal sources to finance the new projects such 'retained earning' followed by external sources such as debt and equity. In short, internal financing is used first, external financing will be used only, if a firm requires extra fund, whereas debt are preferred over equity. The theory mentions that businesses follow a hierarchy financing choice. The model is based on an assumption of information asymmetry, which means financing decision of a firm provides signals about the financial health of the firm to public. The theory does not suggest and debt equity ratio.

According to Fama & French, (2005) the trade-off model and the pecking order model, have serious shortcomings that prevent them from explaining capital structure and therefore it does not make sense to continue running empirical tests in order to see which theory describes the market behaviour best. The two theories should be rather seen as complementary to each other in being able to describe some aspects of financing decisions.

Baker & Wurgler, (2002) say that firms use equity financing only when the firm is sure that market value of equity is higher or when the equity is overvalued. Consequently, the firm's leverage ratio is lower in this scenario. Debts securities are the best choice, when equity is undervalued. In such a case the, firm tends to have high debt equity ratio. However; these results cannot be explained within the traditional theories of capital structure, hence they propose a market timing theory of capital structure which seems to offer substantial explanatory power over capital structure decision.

DeAngelo and Stulz who argue that firms near term funding needs are more reliable indicators of equity issues and the market timing is subordinated to capital requirements but not a cause of it. To their opinion, an argument which considers financial planning is more important than any kind of capital structure theory. The financial planning principles play a decisive role in governing the financing decisions of firms than the specific capital structure theory.

It is clear that no one can find the optimum answer of the capital structure puzzle, despite of that fact; academicians are getting closer to describe the specific factors and

variables majorly responsible for new financing decisions in a firm. A number of variables influence the financing decision; however, there are some specific financial variables or determinants which have been tested commonly by both academicians and practitioners.

The third section of this thesis is sub divided into two parts. In first part; traditional factors are discussed and in the second part of it behavioural factors are considered. These factors are further classified into three classes, macro-economic factors; inter-firm based factors and behavioural factors. The factors (determinants) which influence the leverage decision of a firm, are not universally applicable on all the firms in the economy, each factor has different effects on different firms. The firms have to reconsider the possible factors, theories and preferences to reshape their leverage policies and decision.

Eight most common determinants of usage of leverage affect the debt equity ratio Titman & Wessels, (1988). These factors are: nature of asset's structure, non-debt tax shields, the growth rate of the firm, uniqueness, nature of industry, size of firm, earnings volatility, and profitability.

Raviv, Landskroner, (2009) have concluded six main factors in their publications which are primarily responsible for the change in leverage level.

- i. Industry median leverage - Firms level of leverage is highly positively correlated with industrial level of leverage.
- ii. Assets tangibility - positive correlation between tangible assets base and level of leverage.
- iii. Profits -negatively related to use of leverage.
- iv. Firm size - size of a firm is positively correlated to its use of debt financing
- v. Market to book value of assets - negatively correlated.
- vi. Expected inflation - positively correlated.

Titman & Wessels, (1988) have tested seven determinants of capital structure on the basis of a vast database. The prediction of their study is briefly presented below.

Determinants (Independent variable)	Correlation
Asset structure	Positive
Non-debt tax shields	Positive
Growth	Positive
Uniqueness	Negative
Size	Positive
Profitability	Negative
Earnings volatility	Negative

source: Titman and Wessels 1988

In second part of third section, the concept behaviour corporate finance is explored. The modern research has shifted from traditional theories to behavioural factors which are mainly the driving force for the market and its participants. Behavioural finance is an attempt to study the human aspect of financing and investing decisions of a firm. It is assumed in behaviour study that in real world manager and investors do not make their decision on the logical and rational factors, however; their decisions are driven by their selfish interest which is a common psychological bias in human beings. Due to the self-interest bias of market participants, there are many factors evolved in market which influence the capital structure decision and use of leverage. There is an exhaustive list of such factors such as anomalies, excessive volatility and trading, over- and under-reaction, over- and under-confidence in market etc.

Baker, Ruback, & Wurgler,(2004)have divided the study into two classes: 1. rational manager and irrational investors 2. rational investors and irrational manager, they also argue that traditional finance study has been replaced by behavioural finance, which is more rational than traditional.

According to Shefrin,(2001)two main behavioural factors influence use of leverage in financing decision. The first factor is behavioural cost and the second is behavioural

error. The former is the firm's internal factor which does not let the firm take full advantage of debt financing; the last includes cognitive imperfection and emotional factor of management, investors and analyst. Due to such errors, firms face different rates of debt financing. If these errors are in favour of the firm, which present a solid financial situation, higher growth rate than real, and high value of equity than actual then the firm can raise debt finance from market at cheap rate and favourable conditions. On the contrary to it is also if the errors are not in favour of the firm, the firm will avoid to issue debt securities.

Managerial behaviour toward debt financing varies according to debt convent and rate of interest. The management would like to use higher leverage ratio, if conditions in debt convent do not affect the management future status. Management would use more debt and less equity, if debt financing is available in favourable rate. By doing so, management reduces the proportion of equity holders and prepares its way some time for management buyout of the firm. Management would not like to use debt, if conditions in debt convent are more inclined to shareholders rather than management.

According to Barberis & Thaler, (2003) the market timing theory is a product of behavioural finance. The theory is based on market reaction and market trend. Management follows and evaluates the current market patterns before taking any financial decision. The debt would be avoided, if market overestimated the default risk and future inflation. In such situation, the firm must pay a higher rate of interest. The market timing theory states that firms should flow the market trend and issue either debt or equity whichever provides more advantage to firm and its shareholders.

Chapter 2

2 Leverage

A firm finances its assets either by equity or debt. Equity dilutes the owners' claim, which means that new equity holders will have the same status as the older equity holders. This is a benefit for new shareholders and disadvantage for old shareholders. Therefore, old shareholders do not prefer to raise extra money by issuing the new equity, because of the reasons given above it proves equity is expensive source of financing and does not have any tax benefit. The second source of raising finance is to issue debt securities, which is less expensive in general than equity, except when economy is in crises, and cost of debt is tax deductible, which creates a benefit of tax shield. Another advantage of debt is that debt holders receive a fixed rate of interest payment, which creates an advantage of lower yields to maturities, if market's interest rate on debt rises.

Leverage refers to source of finance which bears fixed costs of interest. The firm uses leverage in its operating and financial structure. The portion of fixed cost in firms' operation is considered to be the operating leverage. This type of leverage is independent to firm's products and services produced. The second type of leverage is financial leverage which is the result of using fixed cost bearing securities in the financial structure of company. Leverage increases risk and reward of firms. Therefore, many high leverage firm exhibit volatile earnings and cash flow. It magnifies the return on capital both in upward and downward direction. If a firms' earnings are less than its fixed interest cost, leverage has a negative effect on earning and makes the total earning more negative, which increases the risk of bankruptcy. However, if a firm's earning is more positive than the fixed charges, it magnifies the earnings via tax shield, which increases the return on equity by reducing the tax liability.

The value of a firm and its equity is influenced by the degree of leverage. The degree of leverage estimates the risk involved in use of leverage. The general conception is: the

higher the leverage, the higher the risk. This statement is used as a rough proxy to decide the potential level of risk.

S. C. Myers & Majluf, (1984) document that firms can increase its value by using optimum leverage. Debt financing and value of the firm have a positive correlation. If debt financing causes asymmetries information to the market, firms can also issue secured debt which reduces the information asymmetries to the market.

(Deloof 1999) gives a rational argument that the financing decision by using leverage is influenced by the earning of a firm. If a firm experiences a volatile or unstable earning, it should not use high leverage.

Titman & Wessels, (1988b) found in their work that the profitability and uniqueness of products and services are negatively correlated with the level of leverage. They also argue in the same paper that lower leverage ratio is witnessed in the balance sheet of manufacturing firms.

Warner, (1977) found in his work that larger firms are more diversified and because of that they use more leverage. Large firms have a lower bankruptcy risk than small firms. The debt equity ratio positively correlates with size, non-debt tax and future investment opportunities and asset tangibility Harris & Raviv, (1991). However, leverage is negatively correlating with default risk and unique product.

A more recent study of European firms by Bancel & Mittoo, (2011) explored that tax advantage of debt financing, credit rating and dynamic financial aspect are shaping the use of leverage in financing decision of a firm. Moreover, the timing of issuing securities is impacted by current interest rates and share prices in market.

2.1 Operating Leverage:

The operating leverage refers to the proportion of fixed cost in firms' operation or in a production process. It is independent from the unit produced and sold in a particular period, which means whether the firm has profit or loss, fixed cost have to be incurred. A firm does not have an operating leverage, if its operating cost structure does not have fixed costs. The use of fixed cost depends directly on the nature of the product a firm is

producing and the earning capacity of a firm. The business risk is also a deciding factor for the use of operating leverage. The business risk refers to uncertainty to earn future profit due to innovation in market, taste of target consumers, future market and economy conditions. Such firms are considered to be risky which require high operating leverage in production process and have high business risk.

Firms should work at an optimum level to take the benefit of operating leverage, if the operating activities are under optimum level, per unit cost will rise and firm might lose its customers, because of higher price of product. If a firm is in monopolistic competition, where close substitution of product exist.

High operating leverage exhibits that change in (EBIT) operating profit is higher than change in sale. If sale increases (decreases), EBIT will increase (decrease) in higher percentage. The change in operating profit is worsen the loss and magnifies the profit due to small change in sale with operating leverage in cost structure. The risk arises due to operating leverage which is measured by using the degree of the leverage. It represents the level of risk associated to the usage of leverage. a high degree represents a higher risk level. This scale is useful for all firms irrespective of the nature of the firm and its operation. It measures the sensitivity of operating income to change in sale.

Operating income (EBIT) = revenue - variable cost - fixed cost Degree of operating leverage = % change in operating profit / % change in sale

Mathematical equation:

$$DOL = \frac{\Delta EBIT}{EBIT} \div \frac{\Delta Sale}{Sale}$$

2.2 Financial leverage

As stated earlier that fixed cost in firm's cost structure refers to leverage, debt securities along the owners' equity in capital structure represents the financial leverage. Financial leverage is also known as gearing, or trading on equity. The term trading on equity is used for financial leverage, because firm uses owners' equity to issue the debt securities. It does not make sense for many readers, therefore, in detail; we can see it from different angle. Debt holders are creditors of a firm and do not have any control on a firm's operation. They need a protection for their fund invested and their earnings. Therefore, the firm pays them a fixed rate of interest irrespective to the profit or loss the firm makes, and prefers to pay their fund back over the equity holders during the liquidation of a firm. That is way, it is said that debt securities are traded on equity. Financial leverage directly influences the return on equity. If the return on capital is higher than the interest costs, return on equity is magnified, opposite to it also true. This effect is well known in the literature as leverage effect, which increases the potential earning of equity shareholders as well as enhancing the risk of loss.

The usage of financial leverage in capital structure varies according to the nature of a firm, size of a firm, future growth, industry and market. Some firms use it intensively to run their business operation and some do not even need debt at all. The overuse of debt financing is also dangerous for the existence of the firm. Lehman Brothers is a current example for us in the 2007 market crisis.

In the paragraph above I stated that financial leverage effects the earning per share. The earnings per share (EPS) are equal to profit after tax divided by the number of issued shares. The degree of financial leverage is used to evaluate and analysis the effect of financial leverage on EPS. It measures the sensitivity of EPS due to change occurred in (EBIT) earnings before interest and tax. Financial leverage influences the EPS according to industrial and economic scenarios. When market conditions are favourable and economic cycle is in booming phase, financial leverage would increase the earning per share EPS more than the increase in EBIT. On the other hand, when market is not well and economic conditions are unfavourable, financial leverage would worsen the EPS and it will decrease more than the EBIT.

Degree of financial leverage = % change in EPS/ % EBIT

Mathematic equation:

$$DFL = \frac{\Delta EPS}{EPS} \div \frac{\Delta EBIT}{EBIT}$$

Earnings per share = Earnings after tax / total number of equity shares

EBIT = total sale minus total variable cost minus fixed cost.

The degree of financial leverage can also be calculated by using the following equation.

$$DFL = \frac{Q(s - v) - F}{Q(s - v) - F - INT}$$

(Q) Total quantity, (S) Sale price, (V) Variable cost per unit, (F) Total fixed cost, (INT) Interest on debt.

2.3 Combined effect of operating and financial leverage

The combined effect of both type leverages measures the fluctuation in EPS due to given change in sale. When a firm has a high degree of financial and operating leverage, a small change in sale would have a dramatic effect on EPS. The nature of firm and industry combined with the economic cycle determines the use of leverage. A firm with highly fluctuating sales or/and seasonal sale will have normally an unstable and unpredictable EPS and in such firms a high use of leverage increases the risk of bankruptcy in bad market condition and gives a high profitability in favourable market condition.

Measure of combined operating and financing leverage:

$$\begin{aligned} \text{Degree of combined} \\ &= \text{Degree of operating leverage} \\ &\times \text{Degree of financial leverage} \end{aligned}$$

$$DOC = \frac{\Delta EBIT}{EBIT} \div \frac{\Delta Sale}{Sale} \times \frac{\Delta EPS}{EPS} \div \frac{\Delta EBIT}{EBIT}$$

The % change in EBIT is a common in both leverage equation, they can be cancelled with each other. Now DOC is equal to following equation:

$$DOC = \frac{\Delta EPS}{EPS} \div \frac{\Delta sale}{sale}$$

Another important issue to this subject is that the leverage ratio is not a standardized ratio which can be used universally; it varies according to nature of firm and industry. In empirical work, researchers have either used the leverage ratio which their

predecessors have used or debt to assets ratio. Financial literature has revealed that researchers have used financial **debt to total assets** more than half a century. This ratio has a big flaw that it ignores the non-financial debt. It means that a firm can present its solid financial position with low leverage, although it might have a high probability of default and bankruptcy because of its high proportion of non-financial liability, which are not considered in leverage calculation. The non-financial liability contains suppliers, and short term money lenders who do not worry about the survival of the firm. In case bankruptcy occurs, they would get their money from bankruptcy trustees. Thus, it is not clear whether financial liability holders or non-financial liability holders obtain a priority to get their money back when the firm goes bankrupt. however; it is clear that both types of liability will be paid before the equity holders get their money, they both type of liability have senior claim to equity.

The balance sheet equation states that assets are equal to the sum equity and all liabilities. If total assets contain the total financial sources including non-financial debt, it is not meaning-full to calculate the leverage by excluding the share of non-financial debt. This ratio underestimates the leverage and fails to provide transparent accounting information to market participants. It concludes that Debt to Total assets are not reliable leverage measures.

Welch, (2011) has used two alternative ratios to measure the leverage. Total liability to assets ratio, which does not have short coming which debt to asset ratio suffered. It includes both, financial and non-financial debt. The second ratio is the financial debt to capital ratio which is also known as financial leverage. The capital is denominator which includes equity, long term and short term debt, and current liabilities.

Fama & French, (2005) made another addition in leverage measure. They treated preferred shares as part of total debt and excluded the convertible debt, deferred tax and investment tax credit from total debt.

Rajan;Zingales, (1995)consider leverage ratio by using total debt over net assets. Net assets are calculated total assets minus account payable and other short term creditors.

They argue that creditors and short term liability are not part of financing long term operation of the firm.

The arguments given above made it clear that there is a long list of leverage ratios that is used in financial research and in practice. The effect of financial leverage varies according to the ratio used. The most commonly used measure of ratios includes debt ratio, debt-equity ratio, and interest coverage ratio. The first two ratios can be calculated by using either book value or market value. The third category of leverage measure commonly used is interest coverage ratio. It measures the interest paid-over EBIT.C. Myers, (1977) states that book value of debt is preferable to use to calculate the debt ratio because debts are secured by the firm's physical assets in the balance sheet than growth opportunities of firms. Another argument is that book leverage is more stable and is less influenced by the market situation and business cycle than market value of debt exhibits. Nevertheless, many managers conduct their analysis by using the market value of debt and equity. However, leverage measure which is based on market price of debt does not equal to books value based leverage.

There are some specific results for debt financing by Graham and Campbell (2001). He has classified firms into four different target sections according to the usages of leverage in their capital structure.

Target ratio	Percentage of firms
Strict target	10%
Tight target	34%
Flexible target	37%
No target ratio	19%

Source: Graham and Campbell (2001)

Different studies have been conducted to find out the effects of different determinants of capital structure which decide the proportion of debt and equity mix. Some studies have tested the industry level debt ratios.

According to financial policy literature

- Those firms with steady cash flows have high debt ratios.
- Those firms with lots of intangible assets have low debt ratio.
- Risky firms with low current cash flows have also low debt ratio.

Empirical results for industrial debt ratios:

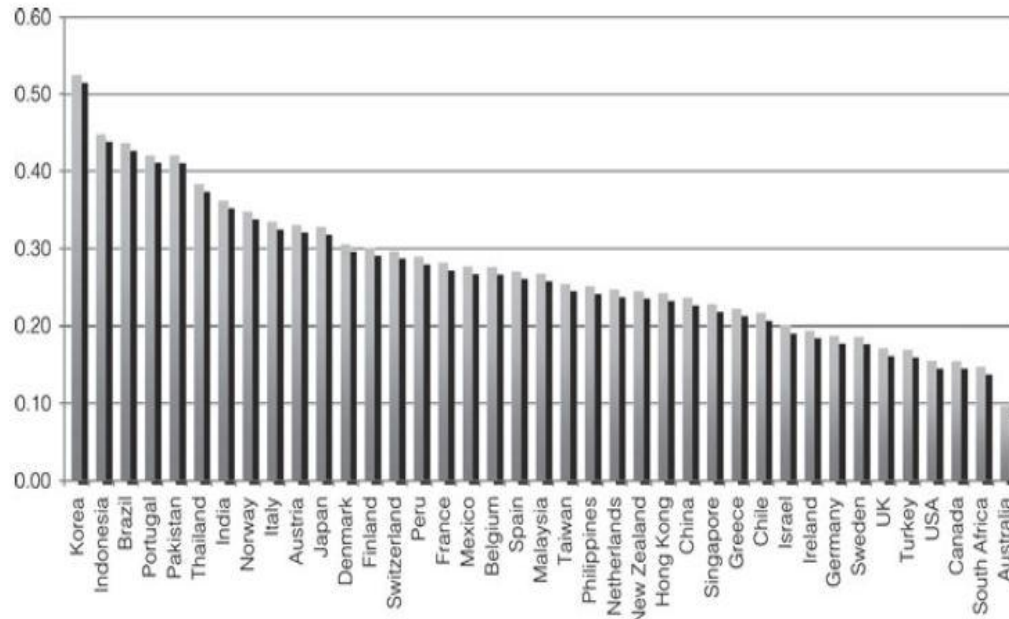
Industry	Debt Ratio* (%)
Electric and Gas	43.2
Food Production	22.9
Paper Plastic	30.4
Equipment	19.1
Retailers	21.7
Chemicals	17.3
Computer Software	3.5
Average over all industries	21.5

Market participants are more interested to know the market based leverage before they invest in a firm because market based valuation present the real financial condition and it is forward looking measure. However; market price is uncertain and highly influenced by the model used to calculate it. Therefore; researchers do base their work on book leverage. This is easily available and less chances to manipulate.

Table below presents the median leverage ratio of firms in different countries

Median Leverage Ratio of Sample Firms (1991–2006)

Figure 1 plots the median leverage ratio across 39 countries. The leverage ratio is measured as total debt over the market value of the firm. Total debt is defined to be the book value of current and long-term interest-bearing debt. Market value of the firm is defined to be the market value of common equity plus book value of preferred stock plus total debt.



Rajan;Zingales, (1995)state varieties of leverage measures, a brief picture of these ratios is presented in the table below.

Different measures of leverage and corresponding pros and cons, according to Rajan and Zingales (1995).

Leverage measure		Pros and cons
1	Total liabilities / Total assets	+ The broadest definition of leverage; proxy for what is left for shareholders in case of liquidation. - Not a good indication of whether the firm is at risk of default in the near future. - May overstate leverage since total liabilities includes items like accounts payable, untaxed reserves etc.
2	Total debt / Total assets	+ Does not include liabilities like untaxed reserves or accounts payable (for transaction purposes); more appropriate measure of leverage than (1) above. - Affected by level of trade credit⁵ (i.e. unpaid bills; makes up bulk of accounts payable).
3	Total debt / Net assets	+ Not influenced by trade credit. (Net assets = total assets – accounts payable – other liabilities). - Still affected by factors that have nothing to do with financing, e.g. assets held against pension liabilities.
4	Total debt / Capital	+ Probably the best representation of past financing decisions (capital = total debt + equity). -
5	EBIT / Interest expense	+ Measure of the risk that equity holders will not be able to make fixed payments and will have to give up control. Appropriate measure if investments equal in magnitude to depreciation needed to keep the firm a going concern. - Based in assumption that short-term liabilities like accounts payable and short-term debt will be rolled over. Very sensitive to income fluctuations.
6	EBITDA / Interest expense	+ Measure of the risk that equity holders will not be able to make fixed payments and will have to give up control. Appropriate if no such investments as in (5) are needed. - Same as for (5).

Note: EBIT = Earnings Before Interest and Taxes. EBITDA = EBIT + Depreciation.

Source: Rajan;Zingales, (1995)

Chapter 3

3 Capital structure

Capital structure includes business assets and financing sources debt and equity which are used to finance these assets. All the sources to be used to finance the business assets are characterized as liabilities. It looks very straight forward structure which has assets and liabilities, but in practice, capital structure is complex in its nature which contains different kind of sub-securities (liabilities) and assets. It is believed by financial scientist that firms can earn an extra profit apart from their routine operation by adjusting the usage of debt equity or by optimized level of leverage. There are various views and studies which try to figure out the optimized level of leverage. To deal with this topic, we must understand two early arguments which try to find out the answer, whether financing decision effects the value of the firm or not. As per the first argument, the value of a firm is independent to the sources of finance because firm's value is calculated on the operating profit (EBIT) which is influenced by the market share, sale, inventories etc. The second view stands against the first argument illustrating that firm value is the value of its equity, which is calculated with residual profit (NI) instead of EBIT by using required rate of return on equity. If a firm uses debt financing, it has the advantage of tax shield by saving tax. Tax shield is an addition to the value of shareholders. It concludes that use of debt enhances the value of shareholders.

There are other formal works and theories which make the foundation of capital structure discussion for more than 60 years. MM approach is a milestone in corporate finance literature; my work would be considered incomplete without discussing this approach.

3.1 Modigliani-Miller Approach

The Modigliani-Miller theorem is a creative work of Franco Modigliani and Merton Miller. The theorem is considered as a base for the capital structure problem. As per the original theorem (Miller, June 1958), in a perfect market, the capital financing decision is irrelevant to the firm's total value. There is no difference, whether a firm uses equity

finance or debt finance, the overall value will remain constant. The theorem consists of two set of propositions.

Proposition I

The famous "proposition 1" states that the firm's total value is irrelevant to the financing decision in the absence of taxes. It means that the total value of a firm does not change just by splitting its cash flow into different streams. The tangible and operating assets which generate cash for the firm, determine the value of a firm, and not the securities it issues or it has issued. M&M based their argument on the efficient market hypothesis in which all the market participants have same information about the firm and the firm does not bear any extra costs such as bankruptcy or transaction costs.

The total value of the firm under proportion I

(i) Equity financed firm or unlevered firm

$$VU=E$$

(The value of the firm is equal to the total value of equity)

(ii) Levered firm or debt equity mix financing firm

$$VL=E+D$$

(VL= Value of levered firm, D= value of debt, E= value of equity, both equity and debt are market value)

(iii)the value of the firm is indifferent

$$VL=VU$$

The value of the firm remains the same whether it is totally equity financed or mixed financed.

Proposition II

The second proposition states that the cost of equity changes with the change of leverage proportion in the firm's capital structure. The equity holders are paid extra compensation as financial risk premium for bearing extra financial risk when the proportion of debt increases in capital structure; the reasoning is here that when level of leverage increases, credit risk and financial risk to equity holder will rise because they get residual profit after paying off the debt holders, though the total risk and value remains constant.

According to both propositions, the value of a firm and the return are independent from the capital structure mix. The only effect is that the return on equity increases with the increase in leverage due to changes in risk to equity holders without changing the average total return and without any addition of extra value.

M&M approach is based on the following assumptions (Modigliani & Miller, 1958)

- Transaction cost, bankruptcy cost and corporate taxes do not exist;
- All the participants in the market hold the same information; the capital market is the perfect capital market.
- All the participating firms operate in a similar risk environment and use risk free debt and risky equity to raise extra fund from market.
- Managers are loyal and work for the maximization of the shareholders' wealth.

Return on equity under MM's Proposition II

$$k_e = k_u + (D/E)(k_u - k_d)$$

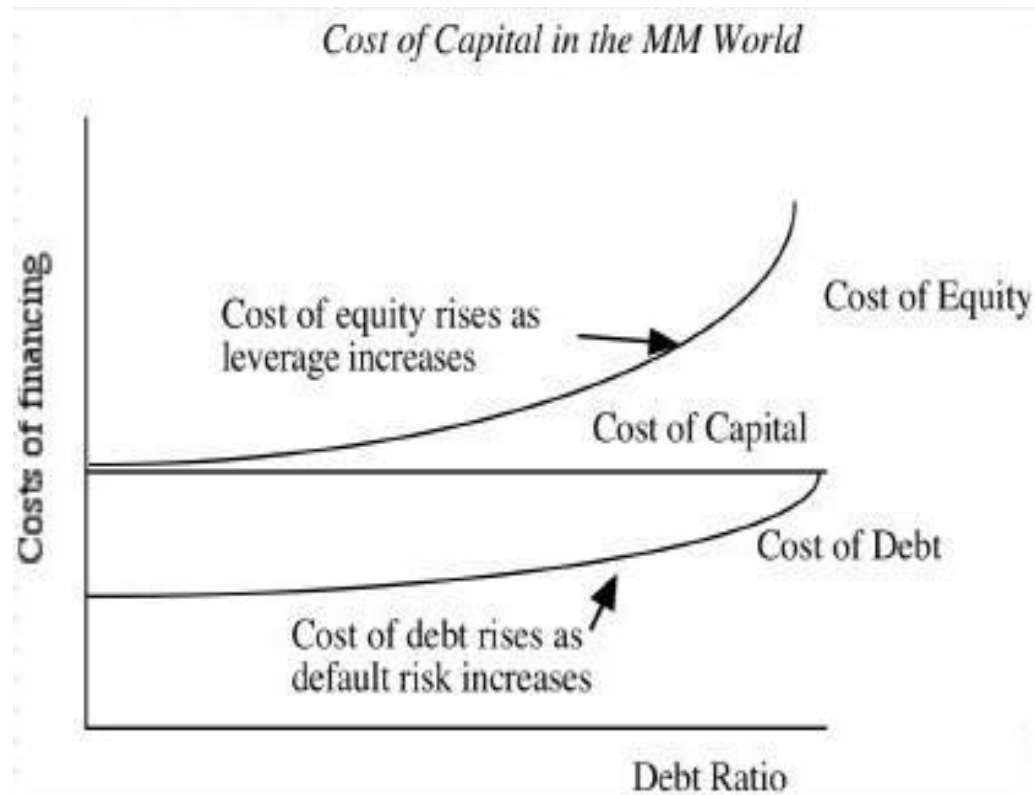
The value of equity propositionally changes to changes in risk bear by the equity holders.

k_e rate of return on equity

k_u company unlevered cost of capital.

k_d required rate of return on debt.

D/E debt-to-equity ratio.



The graphical representation of the MM approach shows that as leverage increases in a firm's capital structure, cost of equity also raises while the average cost of capital or average return of a firm ru stays constant.

The importance of this approach is that by elaborating the idea of the irrelevance of debt equity mix in a perfect market makes clear that in an imperfect world, which is the real world, the capital structure decision does make a difference in the firm's value. The reasoning here is that taxes, agency conflicts, issues cost, transaction cost, and many other not ignorable factors are associated with debt financing. These factors have been considered in different theories to explore the idea of debt financing and evaluated how the capital structure of a firm affects the value of the firm and its total return.

3.2 Trade-off theory

The trade-off theory evolved from the discussion over the M&M theorem, when in 1963 Modigliani and Miller added corporate income tax in their original irrelevance theorem. The addition created a benefit from debt financing as a tax shield. Since the introduction of a tax benefit of debt, the financial scientists are in a process to figure out a trade-off between the benefit of debt and the cost of debt. If there is no cost associated with debt financing, the firm could go for 100% debt financing. But in the real world, this is not the case. Debt financing has embedded some cost like bankruptcy cost.

Myers (1984) firm follows the present target debt equity ratio and converges to it gradually by balancing the marginal cost and benefit from debt financing.

Frank and Goyal (2005) have classified the definition of trade-off theory given by Myers in two parts.

1. The static trade-off theory “Theory assumed that tax rate remain constant and firms can achieve optimal capital structure by adjusting its use of leverage in a single period“
2. The dynamic trade-off theory. “A firm predetermines a range for use of leverage. Capital restructuring will be taken place only, if leverage ratio deviate outside the present target of range. “

3.2.1 The static trade-off theory:

The theory is based on the assumption that an optimum level of leverage exists which maximizes the shareholders' wealth. The primary focus is on the static tax benefits of debt, bankruptcy cost and agency cost. The theory assumed that tax rate is constant and remains static which represents that static trade off model is a pure single period model. The theory states that the optimal debt equity ratio can be achieved by increasing the proportions of debt financing till the marginal cost and marginal benefit of borrowing are equal. The benefit of borrowing is tax shields whereas; cost of borrowing is costs of financial distress. The financial distress cost includes cost of bankruptcy, cost of reorganization, and also the agency costs. The market value especially current market value of firm would be affected heavily, if firm face the financial distress situation.

Myers (2007) bankruptcy cost is sufficiently large and reduces the incentive to use debt financing. However, as long as the cost associated with debt financing is less or

insignificant, the firm can maximize its value by increasing the level of debt in its capital structure.

Fernández, (2001) states that a higher leverage is a result of higher financial control of managers.

The theory assumes that optimal capital is realistic and a firm can achieve it by rebalancing the marginal cost and benefit embedded in debt financing to enhance shareholders' worth.

The value of the leveraged firm in the presence of bankruptcy and agency cost can be written as:

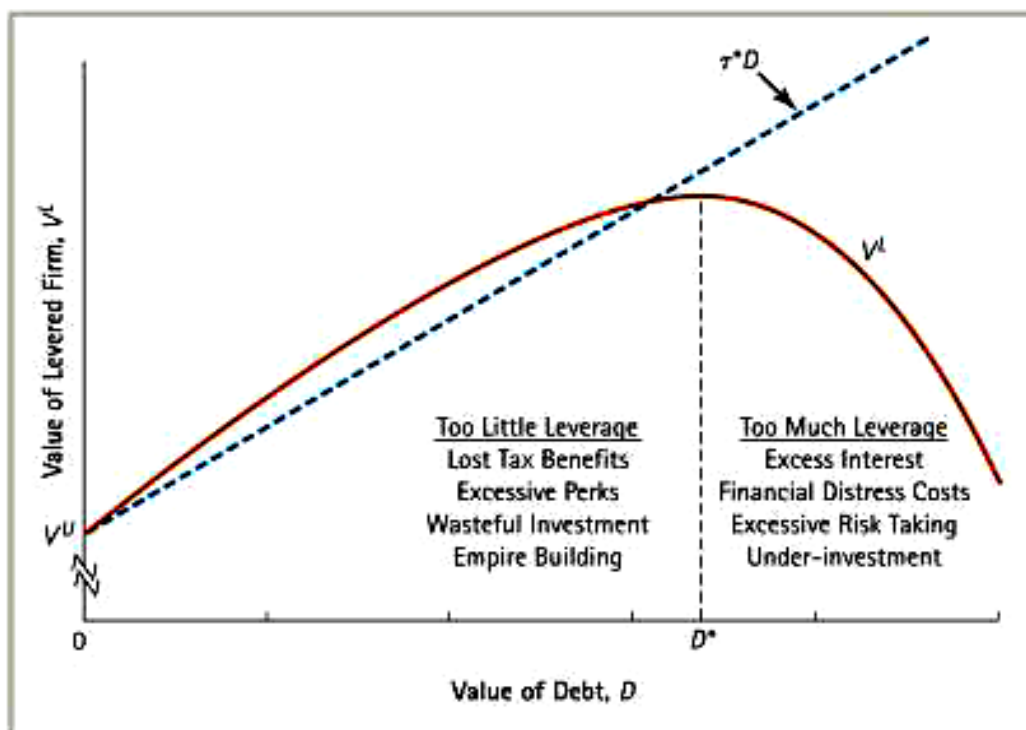
$$VL = VU + TC - BC - AC$$

TC: Present value of tax shield

BC: Present value of bankruptcy costs

AC: Present Value of the agency costs of debt and equity

Optimal debt proportion in capital structure is associated with taxes and financial distress and agency costs.



The core idea of this theory which is to optimise the use of debt equity mix or optimum capital structure is evolved as a matter of discussion among academicians. There are empirical views in favour of the theory as well as against it.

(Long & Malitz 1985) research and development expenses are generally treated as intangible assets; the debt equity ratio is negatively impacted by such expenses. Firms that have a higher proportion of research and development in their operation tend to have lower leverage ratios. They concluded their work by referring a negative correlation between leverage and growth opportunities.

MacKie-Mason, (1990) has worked a step ahead and found that the tax code also influences the financing decision of a firm. Firms under the tax code which allows the firms to carry forward tax loss, have smaller leverage ratios.

Fama-French, (1998) also documented that there is no clear evidence which can specify that benefit of debt financing enhance the value the firm.

In general, the theory concludes that profitable firms have advantage of using higher leverage to enhance the value of firms by taking the benefit of the tax shield.

On the contrary to it, other researchers have stated in their respective works that a profitable firm prefers to have lower leverage ratio. They documented that profitability is negatively correlated to debt financing and. In short, the debt equity ratio is determined by the marginal benefit of debt as a tax shield against marginal bankruptcy cost.

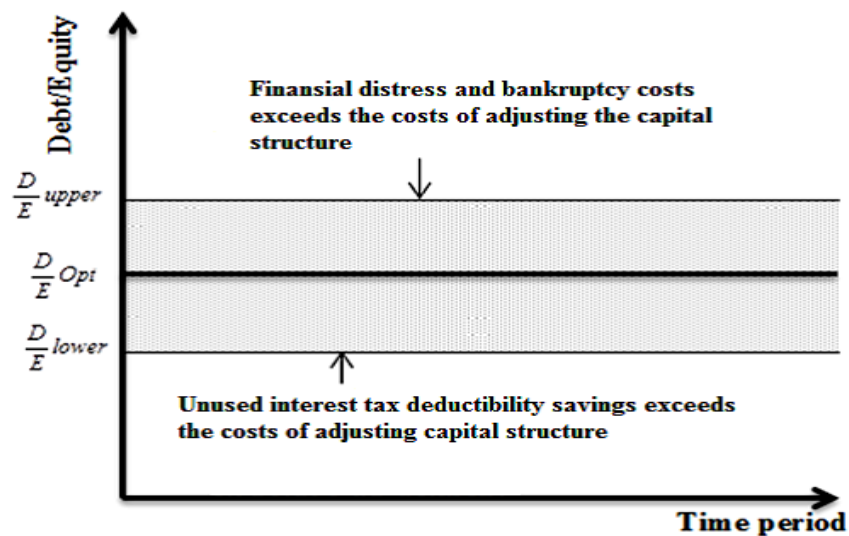
3.2.2 The dynamic trade-off theory

The dynamic model of the trade-off theory states that firms should set their leverage ratios within an optimal range. If leverage ratio varies within the optimal set range, firms should worry to restructure the capital structure. It brings economy of cost and saving of time. The debt and equity ratio varies for various reasons; however, each variation does not harm for the survival of firm if it varies within the optimal range. The model considers the importance of time, expectations and adjustment cost which has been ignored in single period models.

The dynamic model states that the debt equity ratio of a firm varies according to its future need of finance. If a firm has to pay back the obligatory stuff principle and does not have sufficient fund in account to fulfil it, such firm raises money by issuing securities either debt securities or equity. The model focuses on the restructuring cost because continues restructuring can increase the transaction costs and the firm will not earn any extra penny. The transaction cost is ignored in static trade-off theory and considered as main drawback of the theory.

Fischer, Heinkel, & Zechner, (1989) firms have a range of optimal debt equity ratio in which they decide the optimal capital structure instead of a static optimal capital structure. They analysed the dynamic capital structure by introducing transaction costs in the model. A firm does not often restructure its leverage ratio because it involves transaction costs which nullify the effect of tax shield. Firms rebalance their leverage ratio only when the ratio varies out of the present range. When firms earn profits and expect high potential profit, they prefer to pay off debt liability to achieve the lowest level range. If firms have losses, debt levels in capital structure increase to the upper limit of the leverage range. Firms do recapitalization, only if variation in leverage goes out of the boundaries of the range.

Figure no 3 will show a diagrammatic representation of the argument given above from of Fischer, Henkel and Fechner (1989).



As per the Hennessy & Whited,(2005)firms make their investment and financing decision together in a continuous framework. It means that firms are always in a process of restructuring their capital structure.

According to (Danis et al. 2012)the observed behaviour of the rebalancing firm is consistent with the patterns predicted by the dynamic model of the trade-off theory. The empirical cross sectional tests of dynamic trade-off theory have proved that profitability has a positive correlation with the usage of leverage. That argument is strongly supported by Hovakimian, Opler, and Titman (2001) by addressing that profitability has a significant impact on firm's likely increase of their leverage ratio and buyback securities. The empirical works and huge interest of finance researchers in this suggest the direction in which the capital structure theory is headed.

3.3 The pecking order theory:

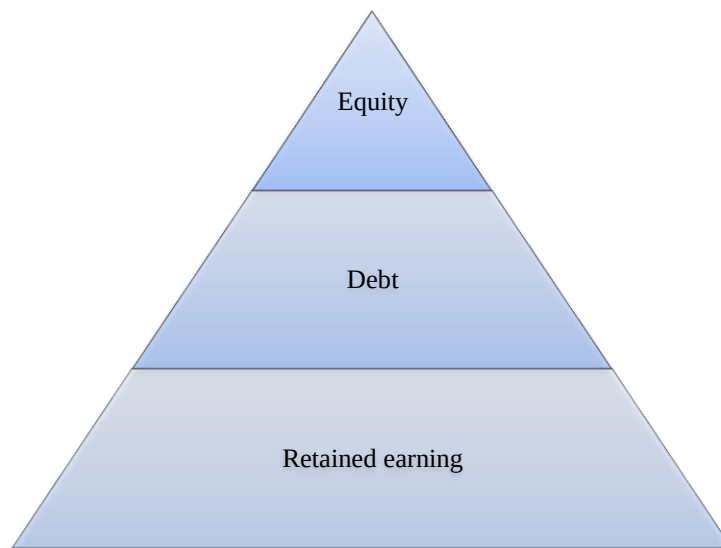
The core idea of this model revolves around the assumption of adverse selection which was introduced by S. C. Myers & Majluf, (1984) insiders of firms know more about the firm and its fundamental value, because they have more access to unpublished information and expected growth potential compared to outsiders. If a firm decides to sell equity to raise funds, outside investors must ask why the firm is doing so. Investors would believe that managers prefer to sell equity, when the firm is overvalued; consequently, investors will give a lower value to the new equity issuance. The classic concept of this theory states that the financing choices of firms between internal and external sources of finance provide some signal or asymmetric information to the market about the financial health, growth, potential projects and the worthiness of firms. Therefore, the firms follow hierarchy of choice for financing decisions. The theory presumes that embedded asymmetric information is responsible for increasing financing cost; as a result, firms avoid using equity issue to raise fund.

The model also assumes that firms will go for sources of fund which provide maximum cost benefit in term of interest payment. It means a cheap source will be preferred to raise extra finance for future projects. The firms use primarily the internal financing

sources to finance their future requirement. The external sources are secondary sources, whereas, debt is preferred over equity. The theory has also stated the specific reasons hierarchy that firms follow in financing decisions. The internal financial sources are cheap and time saving. The firms are held not to make any extra arrangements and spend any costs to use internal sources of finance. On the other hand, external sources of finance have some costs associated with them such as underwriting fees and provide some asymmetric information to investors. If a firm does not have sufficient internal funds, it must look for external funds.

(Myers 1984) points out that external funds are raised in an order, in which debt is preferred over equity and convertible securities, preferred stock, over common stock. This order is preferred to follow by financial managers who are interested in retaining control of the firm. This so called financing order also contributes to reduce the agency costs of equity.

A traditional hierarchical model:



Source: own contribution

The empirical hypothesis of the pecking order model predicts that leverage ratio increases when firm invests more than retained earnings, and decreases when retained earnings are more than the required investment.

(Fama & French 2005)profitable firms use low leverage and keep the ratio lower. This result is consistent with the pecking order model of capital structure.

Brealey, Myers, & Allen, (2008)the model is good for large and mature firms, because such firms prefer internal financing and do not like very much to issue equity. Small firms are more dependent on external financing; for that reason this model seems inconsistent to small firms.

Thomas J. Lies (debt vs. equity and asymmetric information) criticizes the pecking order theory by arguing that theory ignores the management related problem. When a firm has accumulated huge financial resource, management becomes immune to market discipline. In such a case management might be involved in empire building and other hostile acquisition activities. For these reasons, pecking order theory is considered complimentary to trade-off theory rather than the substitution of it.

A brief comparison of two capital structure theories is made in the table below.

Variables	Static trade-off theory	Pecking order theory
Nature	More theoretical nature, however less implication in real world.	More practical application has been seen in the real world.
Information	Ignores the concept asymmetric information in capital market.	Acknowledges asymmetric information to the capital market
Influence	Tax, transaction costs and financial distress costs.	Considers the influence of financial slack and availability of positive-NPV projects.
Time period	Static capital structure	Dynamic capital structure
Objective	Value maximization construction	Managerial motivations
Research Model	1. Stiglitz (1969) 2. Bayless and Diltz (1994) 3. Frank and Goyale (2003)	1. Baskin (1989) 2. Bayless and Diltz (1994) 3. Allen (1993)

Both models are important for abroad understanding of this concept, whereas, the trade-off theory is valuable and useful for exploring the idea of corporate debt financing and pecking order is excellent for illustrating capital structure changes. Furthermore, static models deal with the impact of tax, bankruptcy and financial distress costs on the value of the firm and pecking order helps to comprehend how management objectives and decisions about financing impact the capital market.

3.4 Agency model

The agency model explores the idea of conflicting interests of principals and agents. The conflicting interest between both parties involves agency costs. It is argued that the use of leverage can help to reduce the agency cost. Jensen and Meckling were the first researchers who took initiative to deal formally with this model.

(Jensen & Meckling 1976) explore that an increase in leverage in capital structure limits the management empire building process and unprofitable acts by encouraging them to

work in the favour of shareholders rather than their own goals. It reduces the agency cost and increases firm's value by maximizing the shareholders wealth. The main reasoning is that debt is used as a controlling instrument by shareholders, because debt holders monitor the management act very closely and take immediate actions once the conditions of debt covenant are breached.

Jensen & Meckling,(1976)define the agency costs as consisting of

1. Monitoring costs by the principal,
2. Bonding costs by the agent and Out of pocket costs
3. Residual loss opportunity cost

(Grossman & Hart 1982)point out that debt financing reduces the agency cost of equity holders by reducing the amount of free cash flow which management could use for unprofitable projects hence put constraints on management discretion. The debts are used to control the management's behaviour. Managers know that bankruptcy is costly for them and they could lose their control of firms or/ as well as their reputation. Consequently, debt financing is a source to motivate managers to put their best effort to the success of the firm, rather than using the firm's resources for private purposes, by doing so the probability of bankruptcy will be reduced.

Empirical studies state that higher leveraged firms perform better than lower leveraged firms, although with higher debt, the agency costs shift from equity holders to debt holders.

Jensen and Meckling have classified the two conflicts which increase the agency costs.

- i. Conflict between shareholders and management
- ii. Conflict between shareholders and debt holders

3.4.1 Conflict between shareholders and management

The conflict evolves because of ownership holding and residual claims. Managers are employees who receive a fixed salary and small portion of bonus from residual profit. They work for profit and growth of the firm but do not get 100% residual claims, therefore, it might be possible that managers do not put their best efforts to increase the profitability of firms or capture the all available profitable opportunities.

(Jensen 1986)debt in capital structure reduces the balance of free cash flow with managers. It works like constraints on management discretions.

There is some interesting finding about this conflict by (Harris & Raviv 1990) who find that managers prefer to continue firm's operation through, shareholders and investors are looking for liquidation. In such a case debt solves the given problem by delegating debt holders a right to force liquidation if there is no sufficient cash flow.

Harris & Raviv, (1991) state in their findings that a high level of debt is desirable for firms with higher liquidation value.

3.4.2 Conflicts between equity holders and debt holders

This conflict arises because equity holders have an advantage over the debt holders. If a firm earns a large yield, equity holders capture most of the gains, whereas, if the firm fails to earn on its business operations, the debt holders bear the consequences because of limited liability. Therefore, equity holders go for the risky investment irrespective of the negative effect on total firm value.

Diamond (1989) has introduced a model which deals with the reputation of a firm. It is argued in the model that choosing a project, which assures the repayment of debt, affects the reputation of the firm. The projects are of two types, while the positive NPV project is considered as a safe project, the negative NPV project is known as a risky project.

There are four particular issues that are mostly responsible for this conflict:

1. under-investment issue
2. accelerated investment
3. asset substitutions
4. dividend pay-out

In a nutshell, as per empirical study following table represents the effect of leverage on different Variables in context of the agency model

Empirical studies	Positive effect	Negative effects
Hirshleifer and Thakor (1989)	firm value	
Harris and Raviv (1990a))	default probability	interest coverage
Jensen and Meckling (1976)	extent of regulation	growth opportunities
Jensen (1986), Stulz (1990)	free cash flow	
Williamson (1988),	liquidation value	
Hirshleifer and Thakor (1989), Stulz (1990)	takeover target	
Hirshleifer and Thakor (1989)).	managerial reputation	

3.5 Market timing theory

This model has increasingly challenged both traditional theories: static trade-off and pecking order. The model emphasizes on the market timing of issuing debt and equity securities. It states that firms prefer to use the cheaper source of finance, irrespective of debt and equity. Firms go for equity financing, when the cost of equity is low, otherwise firms prefer debt.

The market timing theory also challenged the assumption of a semi-strong form of market efficiency of pecking order theory and static trade-off theory. The model is based on the idea that the opportunity of issuing equity is open, as long as cost of equity varies for whatever reason the behavioural or irrational behaviour of investors.

(Baker & Wurgler 2002) have introduced the market timing theory and argue that timing of raising fund or market timing has a huge and notable impact on the capital structure of a firm.

The firms are segregated into two categories

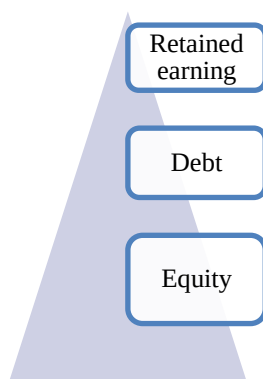
1. Lowly leveraged firm
2. Highly leveraged firm.

The low leverage firms issue debt securities, when they are overvalued in the market as per the market-to-book ratio, on the contrary to it, highly leverage firms are those which raised funds when their market valuations were low.

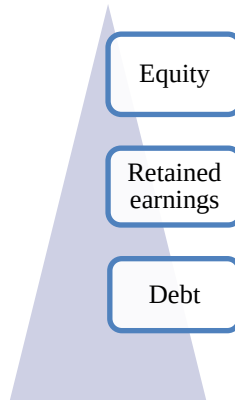
(Graham & Harvey 2001) corporate management actively considers the market timing while making financial decisions. It is documented that more than 67% of firms' executives accepted that they considered the market mood and both industrial and economic cycle before they take any decision regarding issuing of debt or stock. They are highly interested in the market value of their stock. The final decision is based on whether the stock is overvalued or undervalued.

Financing decision and market timing influence the choices of firm which are categories in six different choices according to the market conditions.

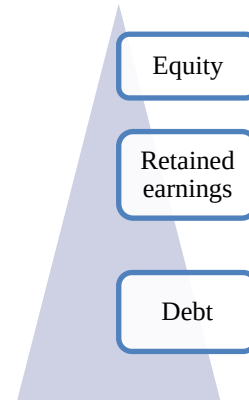
Normal market conditions



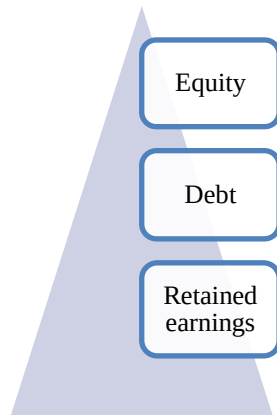
When equity is less expensive than debt



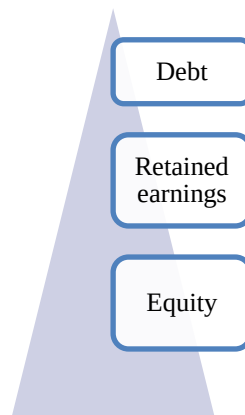
When equity is really cheap compared to debt



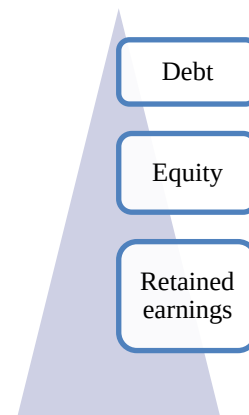
When equity is really cheap, and debt is cheap



When debt is really cheaper, equity is expensive



When debt is really cheap, and equity is cheap



This chapter has briefly discussed and demonstrated the main theories of capital structure and use of leverage such as the trade-off, pecking order theory, agency cost and market timing theory of capital structure. Each theory provides alternative views and illustrates why companies chose for a particular kind of capital structure. The discussions above on given theories and empirical evidence about debt and the equity mix have also made clear that the given theories are specified in itself and each theory

deals with a particular issue. Each model is limited to handle a specific factor affecting the leverage decision. However, the question is still there, how do firms choose their capital structure? Recent research proposes that there are certain determinants of capital structure of firms that directly or indirectly effect zero "0" financing decisions.

(Titman & Wessels 1988a)determine a set of capital structure determinants that can have an impact on financing choices of firms: asset structure, non-debt tax shields, future growth opportunities, volatility, uniqueness, profitability, industry classification, size, and earnings. In the next chapter, leverage and capital structure determinants are discussed.

Chapter 4

4 Leverage and Capital Restructuring

In the previous chapter, theories of capital structure are elaborated. It has been noticed after evaluating main theories that each theory is based on a specified driving factor. The role of leverage is not limited to these theories. There are other factors except the given theories which impact the financing decision; therefore, the focus of present empirical research has been shifted from testing the traditional models of capital restructuring to exploring the factors and variables which highly influence the financial decisions of a firm. These factors include macro-economic factors, industrial based factors and firm based factors. The macro-economy factors, such as GDP growth, inflation rate, local law and infrastructure, are those which affect the whole economy. Firms do not have control on it; therefore, all the firms in economy have to restructure according to their capital structure to stay in the market. Industrial factors are specified to a particular industry and influence only those firms which are operating in that particular industry, such as nature of industry(cyclical or non-cyclical), competition, entry and exit etc. The firm based factors which include ownership structure, size of firm, profitability etc. are limited to a firm. Each firm has its financial and operational limits which affects the capital structure choice and use of leverage.

(Myers 1984)points out that the profitable firms in an industry usually have low debt ratio and finance their potential projects with retained earnings. On the other hand, unprofitable firms have a higher level of debt.

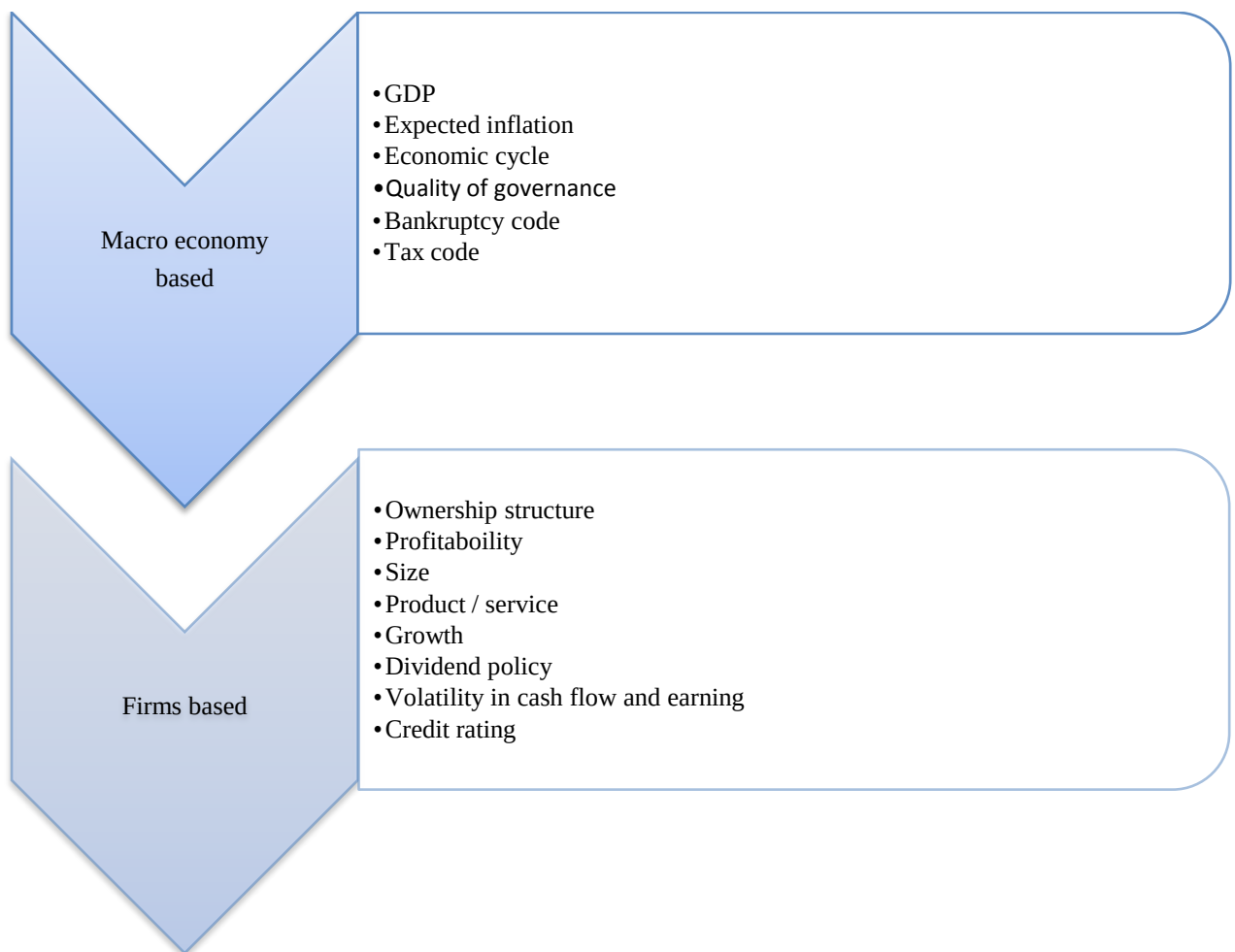
(Titman & Wessels 1988a)underline that the volatility of earning negatively impacts on the use of leverage, firms with volatile earning have lower leverage because the debt financing normally is expensive for such firms.

(Harris & Raviv 1991)suggest that the size of a firm and availability of tangible assets are positively correlated to its use of debt. The growth of firm and debt financing also exhibit some correlation.

In empirical research work, it is found that the growing firms do not use higher debt and highly rely on the own financial resources. The reasoning is that growing phase would not exist perpetually, it will diverge to industrial average growth, suddenly or gradually. The uncertainty about lowering the growth rate hinders the use of debt.

The list of determinants of capital structure is very large and only very important determinants are considered in the work. Factors which affect the use of leverage in financing decision have been classified into three categories. Two categories of determinants are elaborated and discussed in this chapter. The third category will be part of next chapter.

The determinants affect the use of leverage in financing decision:



4.1 Macro-economic factors

The financing decision of a firm varies with the current macro-economic conditions. The firm adjusts the use of leverage in its capital structure according to the economic cycle. The macro-economic cycle is positively correlated to the use of more debt. The firm can easily assess the debt market in the expansion of its state of economy.

Shleifer & Vishny,(1992) discover that a firms capacity to use leverage is directly proportionate to the economic cycle. Firms borrow more in the expansion and less in the contraction phase of economy. They also find that firms use 40% higher debt level than the debt is used in contraction state. The speed and the size of restructuring the financing preference is higher, when economy faces crisis than a boom.

4.1.1 Gross domestic product (GDP)

Gross domestic product (henceforth GDP) is a macro-economy factor to measure the economy health of a country. Many firms take the potential GDP as a long term proxy to adjust their capital structure. The positive trend in it exhibits a healthier economy in future and a negative trend makes the economy participant aware of a tough time ahead. All the firms which are highly sensitive to the potential GDP prefer to have a low leverage and use their internal source of finance. As per dynamic capital theory, firms adjust their capital structure only, when the expected variation in the potential GDP is out of the predetermined range. Leverage in capital structure and the potential GDP growth have a positive relationship. A firm would use more debt financing compared to equity when it follows a positive trend and uses less debt in the opposite situation. The growth rate of the potential GDP is measured as a sum of long term growth rate of labour plus the labour productivity.

On the other hand, firms use actual and potential GDP as a proxy to understand the future market trend in short run. If potential and actual GDP are not equal, the firm evaluates the effect of the given difference and adjusts its value accordingly.

Two main conditions might arise:

The potential GDP is less than the actual: it represents that the economists are uncertain about the future growth and the growth trend would decline in future. The firm would prefer to use less debt in this situation.

The potential is higher than the actual: the economists are positive about the future growth and it is assumed that the market will follow the upward trend. In this condition, the firm will use a higher debt in their capital structure.

4.1.2 Expected Inflation

The expected inflation is also a deciding factor of leverage. Higher expected inflation is beneficial for borrowers, because they would pay less interest in a real sense or lower yield to maturity, if the inflation rises.

The inflation affects the value of money. A common statement is that a Euro today is higher in value than one year after. Same reasoning plays here, borrowers enter into a debt contract at a fixed rate of interest. If the inflation rises in future, market interest rate will rise, however; borrowers will pay fixed rate of interest as agreed in debt contract. It means they will pay lower than the current market rate; therefore, firms prefer to finance their projects with debt, if the expected inflation is higher than the current.

The argument above is accepted by many corporate finance researchers. The expected inflation has a positive correlation with the debt financing preference. There is not any ambiguity about the relationship. Almost all the capital structure theories and major literature are consistent with the correlation between the debt and the expected inflation.

According to Frank & Goyal,(2005)the tax code is positively related to the use of debt financing and inflation. If the expected inflation is higher, the tax deductions on debt will also be higher. The trade-off theory also predicts similar results by exhibiting a positive correlation between the debt equity ratio and the inflation. The market timing theory is also a supporter of this argument. The management will prefer to issue debt only when the expected inflation is high.

4.1.3 Economic cycle

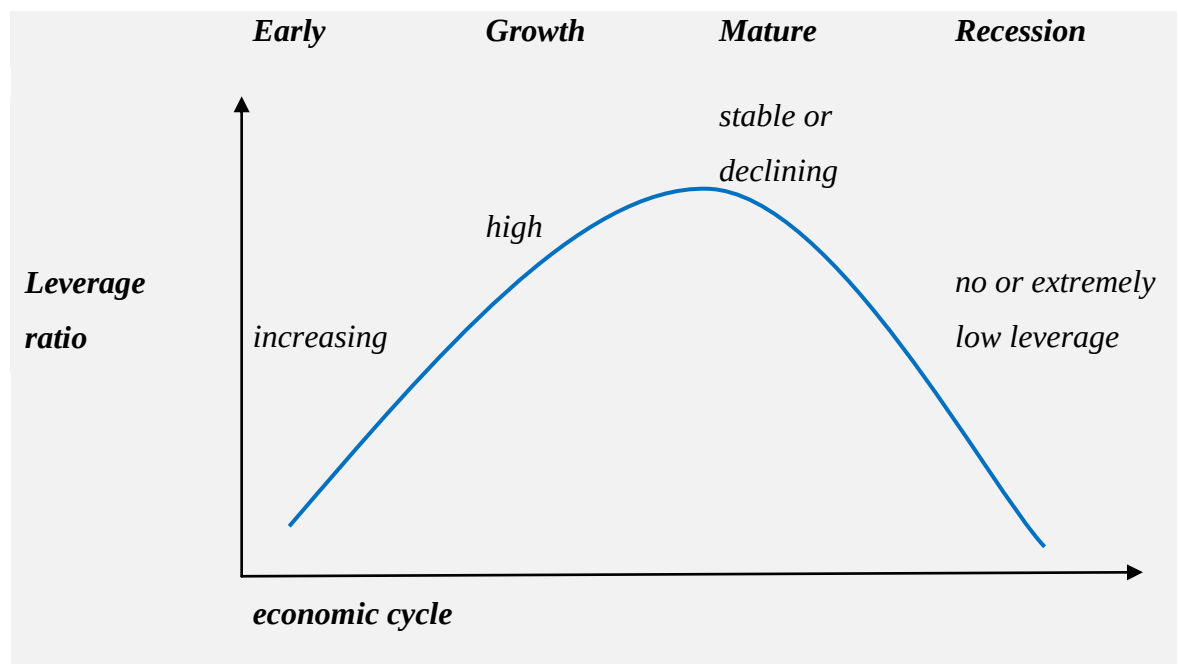
The economic cycle influences the use of leverage in the economy. The firms adjust their capital structure and debt equity ratio according to the expected trend in economy. This cycle is divided into four parts and period of each part varies from one month to years.

The first part is the early recovery or the increasing growth period. The economy is coming out of previous crises. The short term rate, the inventory level, the manufacturing and the services start to be stable. The expected inflation is low. The entire indicator presents a growth period ahead, firms use more leverage in this period. At this stage the use of leverage is positively correlated with economic cycle.

The second phase is the early upswing phase. Under this stage, the growth rate is higher than the average growth rate of the economy. The inflation is at its bottom, unemployment is declining, the availability of cheap financing in the market etc. these factors positively influence the financing behaviour of firms. Therefore, a higher debt equity ratio is exhibited in this stage.

The third stage is a mature economy phase. The economy experience stability and growth rate might decline. The expected inflation is higher and the interest rate starts moving upward. In this scenario, firms will prefer to have low leverage ratio and will act more based on their internal resources. Debt financing is expected to be the expensive source here.

The fourth stage is recession in economy. Unemployment is rising, inflation is high ;the growth rate is either zero or negative. In this stage, the use of leverage is not preferred by firms.



4.1.4 The quality of governance

The use of leverage is also sensitive to the legal system and the quality of governance of the country. Well-defined legal systems provide the feeling of security to the entire participant in economy, borrowers and investors included. A favourable tax law and well-designed bankruptcy codes are important determinants to design the corporate policy and to protect the legal right of the investors. The financing behaviour of the firm is also highly influenced by the civil law of the country such as property rights, business regulations, democracy index and political right index etc. The legal system includes the basic law and the procedure to enforce it.

Shleifer,(1998)reports that firms in poor governance system are based on their own resources of finance. Because of higher uncertainty and low investor protection investors demand high rate of interest. Debt financing in such an economy is expensive than equity. The integrity and the enforcement of the law also consider significant determinants which are measured from the degree of corruption in a country. Corruption is a serious factor that influences the legal system in terms of resource allocation and firms' behaviours.

Titman & Garry,(2012) define that corruption is a scenario in which people use public resources and public offices for their personal interest. This scenario is measured by the Corruption Perception Index (Transparency International), which represents corruption among public officials and politicians.

4.1.5 The bankruptcy code

The bankruptcy code is also called a backbone of investors' faith in a country. It influences the financing preferences of both investors and firms. (Harris & Raviv 1991) suggest that the bankruptcy code should be a foremost deciding factor for bond holders in a debt contract. The bankruptcy code has numerous effects on firms and investor behaviours. It helps the strict enforcement of creditors' rights because creditors and investors can penalize the management in case of financial distress. On the other side, the strong benefit of a well-defined bankruptcy code for firms is that a profitable firm can remain going concern, even if there is a violation of creditors' rights.

(Rajan;Zingales 1995)point out that the G7 countries have been working constantly to improve their bankruptcy code according to the current market conditions and make it more friendly to firms and investors. These countries especially emphasize the code on renegotiation of claims in case of liquidity and management control during the bankruptcy.

Shleifer, & Vishny, (2009) propose an idea: when law provides better protection to investors, they are easily willing to finance the firm operation and demand less interest rate because of their protected rights.

According to Davydenko & Franks, (2008) bankruptcy code does matter; investors are concerned about the recovery rate their money back in the case of insolvency. The authors are also interested in how much time the court's decision will take. It is found that in default creditor the recovery rate is 92% in the United Kingdom,67% in Germany, and 56% in France.

Frank and Torous (1993) make a comparative study of the bankruptcy code of UK and USA. In that study, the authors document that the U.S code is stronger than the U.K code. Whereas U.S. code is more equity friendly and U.K code is more inclined to creditors' rights, which leads to numerous premature bankruptcies.

(Demirgüç-Kunt & Maksimovic 1999)state that use of leverage is higher in the countries with well-defined legal system. The law and order of a country is the main determinant which provides security to investors and entrepreneurs. An investor is willing to invest in a country which implements a transparent and a clearly defined law. It represents faith of an individual as an entrepreneur in legislature system which is made to serve the best interest of people as an investors as well as entrepreneur. The enforcement of the law is planned for the best interest of the people by resolving the disputes, enforcing the terms of contracts etc.

(Petersen & Rajan 1994)elaborate that lenders generally have inferior bargaining power compared to borrowers because of inadequately defined bankruptcy procedures, weak laws and lack of information about the collateral assets.

4.1.6 The tax code

Before discussing the tax system and its impact on capital structure, let's see a brief introduction about the importance of tax for the financing behaviour of firms and investors and empirical results. The relation between leverage and tax is sensitive. The basic argument for a tax impact on corporate financial policy is the tax shield due to debt financing. The interest expenses are deductible from taxable income whereas equity holders have a residual claim which is not tax deductible.

Modigliani & Miller, (1963) state that the amount of the implied tax shield from debt financing through interest deduction increases with the marginal tax rate.

Myers (1984) notices in his research that debt financing has general tax advantages if the firms choose to follow other concepts like pecking order or market timing theory rather than the trade-off model.

As it has been stated above that firm can have an advantage of tax shield by using debt financing, though, it does not show all the aspects of tax and debt relationship. The leverage decision of a firm varies as per the tax system in economy and the effective tax rate to shareholders.

Titman & Garry, (2012) have explored the idea by classifying tax code into three systems.

Classical tax system: Shareholders pay tax twice under this system, first they pay at corporate tax on total earning of the firm. In a second layer, they pay personal income tax. This system is also known as double taxation system. This system might follow progressive tax rate or regressive. Debt financing is indifferent to equity financing, if firm is operating in classical tax system which charge tax on income by imposing progressive tax rate; reasoning is here that shareholder will not get much tax shield benefit in this scenario. Split rate corporate tax system is third main system: this is also a double taxation system, though, dividend are taxed at lower rate than the corporate tax rate. Under this system, shareholders do get tax shield benefit.

Imputation tax system: this is special kind of tax system. Under this system, the government collects tax on the bases of income earned but opposite to classical method,

low income group pays more tax by using higher tax rate and higher income group pays less tax by using lower tax rate.

The corporate finance literature exhibits both negative and positive correlation between leverage and tax. There are lots of studies that have reported positive tax effects on debt financing, on the other hand, numerous studies document a negative correlation between tax and debt financing

As a result of the above three categories of tax systems, firms operate in the countries which use dividend imputation or split rate corporate tax system have lower leverage than firms operating in countries with classical tax systems under regressive tax rate. The tax gained from debt financing can be both positive and negative.

4.2 Firms based

4.2.1 Ownership structure

The ownership structure of a firm is also a determinant factor to the financial behaviour of firms. Public firms have a great and broad investor's base which contains a large range of investors from individuals to institutional investors. In a public firm, the ownership and the management of firm are separated. Equity holders are the real owners of firm who claim profit as reward; however, they do not control the operation of the firm. The management controls the firm and works in the favour of the shareholders.

Other common ownership structure is private firm; such firms have concentrated ownership control. Equity of private company is normally not publically trading. It has a limited number of shareholders who are conservative to the ownership right and control of the firm. The investors also take active part in the management. The cost of equity in a private company is higher than in a public company.

(Lang et al. 1991) elaborated that private firms' shareholders would be unwilling to raise finance by issuing equity. They would be more concerned about the controlling right of the firm. They would not want to scarify part of their controlling right by issuing extra equity. Therefore, raising fund by issuing equity is very expensive for private firms. They prefer to use a high leverage.

On the other side of the discussion, public firms do not have concentrated ownership but have a diluted ownership structure. Therefore new equity shareholders pay only for residual claims of cash flows not for value of the control. Public firms prefer to issue debt to put check on the management action.

4.2.2 Profitability

Profitability is another distinguishing characteristic that affects the leverage ratio of firms. The trade-off theory predicts a positive relation between profitability and debts ratio. The model states that bankruptcy costs and that the probability of default is very low for profitable firms. This argument helps the firms to raise fund by issuing debt at a lower rate of interest. As a result, the leverage ratio is higher with a higher expectation of profitability. The firms with higher profitability can increase the advantage of the interest tax shield by increasing the amount of debt.

(Jensen 1986) also supports the argument above by stating that profitable firms generally have access to free cash flows; therefore, a higher leverage is used as a check on management behaviour in order to prevent them from indulging in empire building activities and from investing the equity holders' money in negative NPV projects. In addition, the dynamic trade-off model documents an opposite result and argues a negative relation between profitability and the leverage ratio.

(Fischer et al. 1989) support the argument of dynamic theory that the firms prefer to stay under levered as long as the firms do not have any benefit to readjust their capital structure. Another argument in this respect is that profitable firms have normally a sufficient and large cash base, They hereby avoid to take external funding, therefore profitable firms have a low leverage. On the other hand, firms that suffered losses in the past are likely to be over levered. This means that profitability will be negatively related to debt ratios.

The pecking order theory states similar results as the dynamic model concluded. The theory predicts the negative correlation between profitability and the use of debt. The profitable firms have a large base of free cash and they prefer to use their internal source of finance (retained earnings) before they go for any external financing. This is

also a reason why the profitable firms have less debt and low leverage ratio in their balance sheet.

(Titman & Wessels 1988a) and (Rajan;Zingales 1995) presented an inverse relation between profitability and the use of leverage which is consistent with the pecking order theory.

The table below states the results by different models as follows:

How market performance and profitability affect corporate financing: hypotheses and prior evidence						
Model	Variable	Prior findings	Hypothesis			
			Trade-off (static)	Trade-off (dynamic)	Pecking order	Market timing
Debt vs. equity choice	Market performance	Negative	Negative	Negative	Negative	Negative
	Profitability	Positive	Positive	Positive	No prediction	No prediction
Leverage regression	Market performance	Negative	Negative	Negative	Negative	Negative
	Profitability	Negative	Positive	Negative	Negative	No prediction

Source: ArmenHovakimiana, GayaneHovakimianb,HassanTehranianc, 2003

4.2.3 size

The size of firm has an impact on its use of leverage and financial decision. The general conception is that the larger the firm higher is the use of debt because of high value of collaterals, therefore; debt holders feel their money secure with big firms. Moreover , large firms can use debt financing on a cheaper rate than smaller firms because of their high value of collaterals. The size of a firm and the use of leverage show a positive correlation.

Generalizing this concept is only for the purpose of over viewing the relation between the size of a firm and the use of leverage. However, this generalization does not hold in many conditions. The transaction and bankruptcy costs are two prime important deciding factors about the size of leverage. It is true that large firms have lower

bankruptcy cost compared to smaller firms, because the large firms are more diverse in financing their capital structure, however; when firms' cash flow and earning do not follow a steady trend, large firms find leverage as a risk for bankruptcy. Another argument is that the size of a firm plays a role only, if the firm has a large base of tangible assets which can be used as collateral for debt holders. The size does not matter, if firms hold no or low physical assets. Service firms normally have low level of leverage or no leverage.

Further, smaller firms are highly sensitive to information asymmetry, for that reason, they bear higher costs to resolve information asymmetry with outside investors. The transaction cost is also a reason for smaller firms to opt for a specific kind of debt policy and to use low leverage.

The trade-off theory is consistent with the argument given above by stating that larger firms have a lower bankruptcy and default risk, hence, the firms can use the debt to maximize the shareholders wealth by equalizing marginal costs and marginal benefits of debt financing.

The pecking order theory stands alone from predicting a correlation between leverage and firm size. The theory illustrates that large firms can easily go for equity financing because of their market share, age in market and goodwill. These firms do not benefit more from an adverse selection than small firms. On the contrary to above argument, large firms have a large base of tangible assets in their balance sheet. In such a case, the adverse selection is valuable, and option of cheap debt financing is open for large firms. By evaluating these two arguments, the pecking order theory predicts that the firm's size is ambiguous.

(Rajan;Zingales 1995) support the argument given by the pecking order theory regarding the size and use of leverage. Insider of a large firm and outside investors hold most likely the same information about the firm, because as per the law firms must announce all the important information publicly about the firm to protect inside trading and keep the capital market integration for fair trade. In such cases firms cannot take

much advantage from leverage. Therefore, firms use equity as a cheap source of financing. As a consequence the large firms have less leverage.

Germany is the only country among the G-7 countries to show a negative correlation between size and leverage. The long term debt and size are positively correlated, however; debt financing, as whole including both short and long term debt, exhibit a negative correlation.

(Ramalho & Vidigal 2006) point out that the size of firm and the size of leverage ratio are negatively correlated. They divided the sample into different categories of firms such as micro, small, medium and large firms and reached at the above stated conclusion.

In short, the size of firms generally impacts the leverage due to the transaction cost and bankruptcy cost. Small firms prefer to have lower debt proportion in their capital structure. Debt financing is normally considered expensive for firms that have low tangible assets and are new in industry or less mature.

4.2.4 Product/ service

This determinant represents the nature of the products and services a firm provides. A firm offers a product which does not have a close substitution in market; such product is considered as a unique product. Those firms which provide a unique product severally always faces a threat of bargaining power of suppliers and consumer, because it serves a particular group of customers and also depends on the supply of raw material from a particular kind of suppliers. This is a reason why such firms have low leverage in their capital structure.

The second common reason is that such firms invest a high amount in research and development to innovate new products. But the acceptances of the new product in the market is highly uncertain, in such cases firms prefer to have low leverage, if the product fails to attract the market, the firms would face financial distress situation and could lead to bankruptcy because uniqueness of product is negatively correlated with the leverage ratio.

(Titman & Wessels 1988a) find that research and development cost over turnover ratio is used to decide the character of uniqueness. It means that a firm which has a unique

product, spends huge amounts of money on research and development to create a new product that cannot closely be substituted by existing products.

(Janz et al. 2003)mark that the correlation between the uniqueness of a product and its use of leverage is not statistically significant. It is also noted that such firms have higher selling and distribution costs. The promotion of unique products is very important. Therefore, firms probably expend also a huge amount to introduce the product on the market. Contrary to it, if firms have closely substitutable products to other existing products in the market, they should not spend much money on research, development and the promotion of products.

All the arguments listed above made us clear that firms which provide a unique product and service normally have a lower leverage.

4.2.5 Growth

The literature is ambiguous about the relationship between expected growth of firms and use of leverage and how it could be measured. As per the trade-off theory, leverage is negatively correlated with the expected growth. The trade-off theory supports its result by arguing that growing firms, in the period of financial distress, lose more value compared to low growth firms, because growing firms bear high expected costs of bankruptcy. A second supportive argument is that firms cannot use growth opportunities as collateral. Growth opportunities do not have physical value; they are intangible; though, they contribute to the total value of firms doubtlessly. However, growth opportunities cannot be used as collateral. Agency theory also supports this argument by finding a negative correlation between leverage and growth. Empirical studies also conclude that growth firms have shown low debt ratios and firms face a severe under investment problem.

On the contrary to it, pecking order theory verifies a positive relation between growth and leverage.(Myers 1977)insists that the under investment problem originates, when firms have risky debt in their capital structure. In such a case, equity holders prefer to under invest in projects with a positive NPV (net present value) as they will carry the entire cost of the project. However, they share the benefit of the project with debt holders.

A topic not to be neglected at high expected growth of firms is the topic of asset substitution. The shareholders can substitute a lower risk project for higher risk projects without being detected by bondholders. It can increase the default probability without any extra benefit to bondholders. However, it leads to a high probability of more return to equity holders. Therefore, debt financing is generally expensive for growth firms. In a nutshell, trade-off theory and agency theory, both have predicted a negative relation between leverage and growth opportunities.

(Rajan;Zingales 1995) document a negative correlation between growth and leverage. However, they indicated that the negative correlation between growth and leverage can also be temporary. This might occur when firms issue their equity, when their stock price is overvalued.

(Fama & French 1992) also supported the argument given above by stating that high leverage means high bankruptcy cost. A firm's stock will be discounted in the market at a higher rate as soon as a firm is in financial distress. It leads to the negative correlation between growth and leverage. On the other side of the story, the arguments of the pecking order theory are not consistent with those given by trade-off theory and agency theory. The pecking order theory has predicted that growth opportunities allow firms to use more and more debt overtime. Debt financing due to growth opportunities give a positive and quality signal to the market.

(Rao 2002)supported the positive relationship between growth and leverage due to higher growth opportunities. By arguing that growth firms require more funds, firms prefer debt over equity as the pecking order proves. So, it leads to high leverage for growth firms. The growth opportunity is also an issue in itself. There are different proxies taken by the researcher to determine growth. However, market to book value ratio is a commonly used proxy by the majority of writers.

(Myers 1977) the market to book value ratio is an appropriate measure of investment opportunity, growth expectations and expected cash flow. The ratio is positively related to investment opportunities, growth expectation and expected cash.

(Titman & Wessels 1988a)suggested other ratios to determine growth. They presented capital expenditures to total assets, research and development to sales, and the

percentage change in total assets in one year by dividing last year assets value to the current year.

4.2.6 Dividend policy

Dividend policy of firm is the next firm based important determinant of capital structure which influences on the use of leverage. There are two different extreme views about it. As per the trade-off theory, dividend payment and leverage has a positive correlation, because dividend paying firms are considered less risky. However, the dynamic theory presents the opposite argument. It states that firms should pay as dividend only the excess cash flow after making required investments, and should not rebalance the required cash by issuing debt. It implies a negative correlation between usage of leverage and dividend payment. The pecking order theory argues that dividend paying firms should have high debt equity ratios. Following (Shyam-sunder & Myers 1999) dividend policy is considered exogenous. It means that an amount of cash outflow raises the financing deficit by the same amount. The firms issue the same amount of debt to equalize the deficit; nevertheless, the leverage ratio increases. The dividend is exogenous; however this is not applicable on the dividend in real practice. Alternatively, firms that do not declare dividends have great information asymmetries. This would be the reason that non-dividend paying firms generally prefer debt financing over equity.

4.2.7 Volatility in cash flow and earning

Earnings and cash flow variability is the one of the important determinants affecting the debt equity ratio and influencing the financing behaviour of firms and investors. If firms have more volatile operating income, they will face a greater risk that the firm will be unable to pay interest when it is due. In that case the probability of financial default and bankruptcy is very high. As the corporate finance literature says that bankruptcy is costly, , firms with higher bankruptcy and financial distress costs prefer low debt equity ratios. Many researchers have indicated that debt is a decreasing function of the volatility.

The trade-off theory suggests that firms' earning volatility has a negative correlation to the leverage ratio of the firm. The theory has explored the idea and finds that the bankruptcy and cost of default are great for firms in general therefore firms prefer to be under levered. The second argument by the theory is that higher earnings volatility does not allow the firms to explore the full benefit of tax advantages.

(Titman & Wessels 1988a) find a negative correlation between earnings volatility and debt.

(Schoubben & Hulle 2004) business risk and cost of using leverage have positive correlation. The cost of debt increases the risk of a firm increases. Likewise, investors demand extra risk premium from risky firms. The pecking order theory also has the same prediction like the trade-off theory exhibited. Volatile cash flow and operating earnings of firms make the debt financing expensive, therefore; firms rely on retained earnings as well as on equity financing. The latter argument indicates a negative correlation between the use of leverage and a firm's cash flow and operating earnings volatility. However, it is argued that the impact of asymmetric information is enhanced in riskier firms.

On the contrary to above argument, agency and signalling predict a positive relationship between the use of leverage, cash flow and operating earnings volatility.

4.2.8 Credit rating

Credit rating agencies are specialized to evaluate the credit worthiness of firms. Corporate investors such as banks, institutional investors and other large investment houses are heavily dependent on the rating of firms. Therefore, the stock price of firms and use of leverage are directly influenced by the firms' rating. The credit spread in interest rate also influences the credit rating of the firm; the credit rating of a firm is negatively correlated to the credit spread. Firms with higher credit spread have lower credit ratings (Cantor & Packer 1995). (Murphy & Balzer 1989) state that credit rating agencies are also an information provider for the general public and investors about the quality and financial health of a firm. The rating agencies may receive important and relevant information of a firm that public cannot get from firm directly.

(Partnoy 2001) says that credit rating agencies have evolved by the time into powerful institutes that play an important quasi regulatory role in the financial market. The credit rating is now taken as a proxy for capital structure decisions especially, when firms are considering debt financing for their potential projects.

Faulkender & Petersen,(2006) for a US sample, and Mittoo and Zhang (2010) in their work "bond market assess" for a Canadian sample, find in their respective research work that firms with a credit rating use more debt financing compared to those that do not have a rating. The reasoning behind the authors' argument is that credit ratings reduce information asymmetry which leads to a lower cost of capital and a reduction in the duration and distance between the borrowers and investors, thus resulting in higher levels of leverage for rated firms.

The rating affects the capital structure decision, because it influences the cost of leverage (interest rate) and other operations of the firm. Kisgen, (2006) argues in "Credit ratings and capital structure" that firms which know that in the near future their rating is going to change, restructure their capital structure to avoid a rating downgrade. On the other hand, firms with unstable ratings prefer to have less leverage than other firms with stable ratings. Firms that rely on commercial paper issues are also more affected because they might lose access to commercial paper markets.

D. Kisgen (2012) finds that after a rating downgrade, firms reduce debt and less issue debt or repurchase stock.

<i>S&P's long-term credit ratings classification</i>		
Explanation	Rating	Definition
Investment grade	AAA	Extremely strong capacity to meet its financial commitments
	AA(+/none/-)	Very strong capacity to meet its financial commitments
	A(+/none/-)	Strong capacity to meet its financial commitments
	BBB(+/none/-)	Adequate capacity to meet its financial commitments
Speculative grade	BB(+/none/-)	Inadequate capacity to meet its financial commitments. Major ongoing uncertainties
	B(+/none/-)	Adverse business, financial or economic conditions will likely impair the capacity or willingness to meet its financial commitments
	CCC(+/none/-)	Vulnerable and dependent upon favourable business, financial or economic conditions to meet its financial commitments
	CC, C	Highly vulnerable
	D	Failed to pay one or more of its financial obligations when came to due

Source: Standard and Poor's

4.2.8.1 Influence of potential credit rating

Firms might face financial and non-financial costs as a consequence of credit rating changes. This may happen because the credit rating provides information about the firm's financial health, securities and quality of its credit worthiness. The potential borrowing cost especially the cost of debt is also highly sensitive to the change of the credit rating of the firm. If the potential rating of the firm is going to be downgraded, the market may have a general idea about the default probability of the firm based on all the other firms in this rating class irrespective of the firms' underlying risk level. There is a possibility that the underlying risk of the firms does not change, in spite of firms being charged higher interest rates on the basis of the downgraded rating.

Shivdasani and Zener (2005) show on empirical data that credit ratings explain 58% of deviations of credit spread of bonds with different maturities and features. Therefore, rating upgrades (downgrades) may be positively correlated with decreases (and increases) in the cost of debt. The strong correlation between the credit rating and short term impact on use of short term loan and leverage, if rating of the firm is downgraded.

Rating-based triggers in debt contracts can also force firms to make repayments earlier or may lead to a termination of their credit facility.

Hovakimian(2009)argues that firms with high ratings prefer to raise finance by issuing equity. If they use debt financing, they more or less sacrifice their rating.

4.2.8.2 Influence of actual credit rating changes

In this section, it will be evaluated how actual ratings may affect the financing choice and the capital structure decision of firms. Every firm has a target rating. If the actual rating deviates from its target, the firm's financing preferences are influenced.

D. J. Kisgen (2009)documents that firms are concerned to restructure their capital structure, if the actual rating deviates from targeted credit ratings. The firms reorganize the need of restructuring by considering the costs associated with deviation of rating and restructuring. If the actual rating deviation costs are higher than restructuring costs, downgraded rating firms have a higher likelihood of reducing leverage compared with firms which are not downgraded. If the costs associated with downgrades are material, firms may choose lower debt ratios than the firms that get higher ratings than their target ratings. Firms enjoying higher credit rating may not experience significant changes in their capital structure. However, there are some benefits associated with upgraded ratings: The firms can easily raise long and short term finance at lower interest rates from the debt market, higher financial flexibility, and a better management reputation in the labour market, leading also to minimization of agency problems with debt holders and shareholders.

Chapter 5

5 Behavioural finance and leverage ratio

Behavioural finance has become a hot topic in research. It is assumed in the study of behavioural finance that market is not fully efficient and human behaviour is a driving force in the market. Market participants are not always rational, they are mostly overconfident and highly optimistic. Taylor & Brown, (1988) managers highly suffer with optimistic and overconfidence bias in their decision making process. They create different models and techniques for market predication and tend to believe that their knowledge about the market trend and economy health is accurate. These biases influence the use of leverage and hinder management to take rational decisions.

Hershand Shefrin 1999introducetwo categories of behavioural obstacles that hinder the way of management and shareholders to maximize the value process. These include behavioural cost and behavioural error. The behavioural cost is an internal factor of a firm whereas; shareholders prefer to use more debt to control the management actions by assuming that management will work for the best interest of the firm, if they have less free cash in the hand. This is also known as agency cost concept. The second category includes behavioural errors of management. Managers are not always rational; they take irrational decisions under the influence of cognitive imperfections and emotional factors. Therefore, firms are either overleveraged or underleveraged but seldom optimally leveraged. An argument can be brought here that managers are responsible to enhance the value of shareholders. They do so by taking new NPV(net present value) positive projects. The valuation of a project is an important part, which is extensively affected by cognitive imperfections and emotional behavioural factors of the management team, they are able to find the best project with positive NPV, however; their irrational behaviour loses the value of shareholders.

Apart from the argument given above, normally managers have an information advantage and have superior information about the fundament value of a firm. The management prefers to issue equity only when it is overpriced in the market and keeps the debt ratio lower artificially.

Market timing psychology of management is also valid for debt issue. Leverage is used when market rate of interest is lower than future potential rate of interest.

According to Harvey(2002) management issues debt securities only when they feel that the interest rate is lower than it should be. It will affect the yield on maturity of newly issued securities. The preference of leverage also varies between short term and long term debt according to the interest rate. The facts have been proven in many studies that the management sits on excess free cash in a firm by issuing debt securities when the interest rate is lower than the actual interest rate. That behavioural factor of management hinders the firm capital structure to be optimized.

In this category of determinants, the role of management and the decision makers will be discussed. The important fact, which would illustrate the role of behavioural and psychological factor in financial decision, is that the basic root lays in the current market situation.

The current crisis 2007 is psychological, rather than fundamental. Over optimism, risk seeking inability in loss scenario, and prediction bias were the main culprit, but not fundamental phenomena such as oil price, terrorism, and change in technology etc.

The management deals with issues which are important for future success and survival of a business such as an estimation of future demand, cash flow and competition.

Graham et al.(2013)show that management is not always rational in decision making because more often the management either overestimates its ability to predict the future or underestimates the volatility of random events. This study is conducted by using psychological lab experiments.

Shefrin (2001)illustrates two key behavioural hurdles to the value maximization objective of the firm. The first one is called “behavioural costs”. It is internal to the firms and weakens the value creation process. These costs include errors by managers which happen because of emotional and imperfections’ influences. The second hurdle is behavioural errors by decision makers and investors. Therefore; sometime between the firm’s fundamental value and the market value a gap opens.

In fact, there is a general acceptance that capital structure theories deal with the problem

of how capital structure decisions should be made. But the significant role of the decision makers (management) is ignored in literature. Management plays a significant role in the capital structure decision. It is often argued by researchers that the management has personal and professional biases when they take financing decisions for the firm.

Shefrin (2005) states in his book "Behavioural corporate finance" that there are behavioural biases of managing such as market timing and financial flexibility. The management prefers to issue shares when it knows that shares are overvalued or at their maximum price. On the contrary to it, management goes for buyback of shares only when the share price of the firm is undervalued. He also illustrates that sometime management prefers debt financing to hold cash for future needs especially for uncertainty or some valuable future project. In these cases, they do not need the cash immediately. Despite of that, they issue debt to hold cash for their own securities or objective of empire building. From a behavioural finance perspective, management holds cash because at some point of time the management becomes overconfident about buying or takes over opportunities of other firms. It is also documented that firms are often highly levered when they are managed by optimistic and overconfident managers. (Oliver 2005) has supported the latter argument by investigating at 290 US companies between 1978 and 2004. He finds that management confidence and financing decision has a significant positive correlation. He also argues that market-to-book ratio was a significant determinant of capital structure decisions. (Shefrin & Belotti 2007) classified the psychological phenomenon in three categories:

- Biases: It is a predisposition toward the errors.
- Heuristics: This is a rule of thumb which is used to take decision also known as shortcuts.
- Framing effects: Setting and frame which are considered while making a decision, is also an influencing factor of management decision.

(Barton & Matthews 1989) argue there are series of factors, which influence the capital structure decision such as managerial goals, risk aversion and internal constraints. They find five major factors which often influence the financing decision of management.

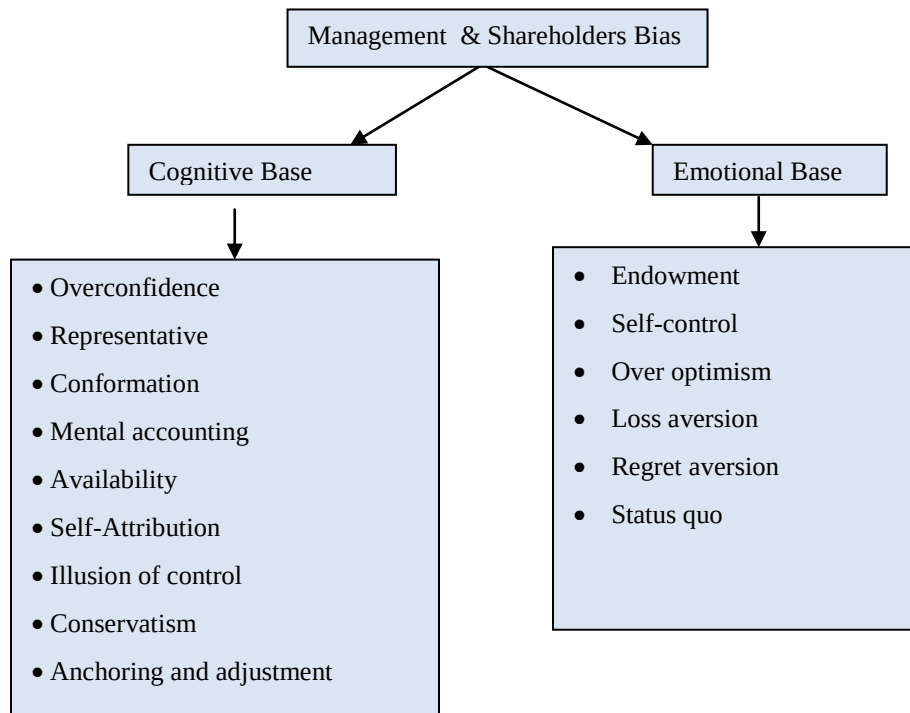
1. The ability of a senior management to take risks will influence the leverage ratio of the firm.
2. Managerial goals will significantly have an effect on the capital structure of the firm.
3. The level of internal source of fund will impact on financial decision because internal fund is generally preferred by a senior management.
4. The ability of a senior management to take risks and the financial characteristics of the firm will determine the amount of finance lenders and debt holders are willing to offer.
5. The financial characteristics of the firm will affect the ability of a senior management to decide on capital structure of the firm

They argue further that the ability of the management to take risk and to control aversion are two significant determinants in the financing decision. A risk loving management would prefer to have high levels of leverage ratio so that they can keep the control on the firm. The ability of the management to take risks has an influence on situations where the management raises loans by collateralizing their personal assets.

Further research by Berggren (2000) documents that most owners and managers do not often prefer using an external source of finance with ownership claim. They first go for internal financing thereafter, debt financing is used.

A long list of management and investors bias affects the use of leverage. These biases are divided into two parts: cognitive bias and emotional bias. In this thesis only few important behavioural determinants are discussed.

The table below gives a brief picture of these biases:



Source: own contribution

5.1 The bias of cognitive factors

The cognitive bias is a judgement style, which is used by human beings to decide for a particular situation or a person. This is based on an illogical argument or factors, which lead to incorrect decisions but not always. Psychology theories support this kind of judgment approach by arguing that this approach is result- oriented when people must take urgent decision, where the time frame is a more important factor. Cognitive biases are developed in many situations by human beings when sufficient material is not available to build up a logical pattern of decision making, when time is limited, urgent situations, above all human thinking horizon.

5.1.1 The overconfidence bias

It is a type of cognitive bias which is a way of thinking and judgment about the person and the situations. The overconfidence bias plays a vital role in determining the leverage ratio. The management suffers from this bias due to some factors which give it a feeling of superiority such as overconfidence in the predictive power of its professional team and assuming that it has superior information about the market and the industry. I firmly believe and argue that the predictive capacity of professional's team is merely an educational and intelligent guess about the future event with some percentage of uncertainty. Although the management feels certain about its judgments, which is based on the information collected from limited sources. Studies have proved that the management team overuses the models which have oriented successful results in previous projects.

An overconfident management would affect the leverage decision by picking the wrong project which is based on over- or underestimation of the rate of return, downside risk, and market situation etc. My personal recommendation is that for the rational behaviour of management, a specialized committee should be formed to cross-check the management investment and financing decision.

5.1.2 The representative bias

Kahneman & Tversky (1972) find that heuristic way of judgement is a kind of human judgment to achieve the objective by using shortcuts, rule of thumb, and prepared methods. However, it associates a cost which is sometimes higher than the benefit derived.

Shefrin (2001) argues that cost and consequences of such pattern of judgment creates a winner loser effect, because people are stereotyped in their judgment process. This bias influences both the equity holders and management in leverage decision. This problem is the core idea of the principal agent problem in agency theory. Management prefers to keep the control on the operation without any interference of equity holders. Therefore, the management buyout and leverage buyout accusations techniques have been

developed. The management works hard and has professional knowledge to grow the business and keeps it running in healthier state. However, shareholders, who are the real owners of the firm, prefer to keep the management in control and force them to work in the best interest of shareholders by issuing the extra debt. In such a case, the firm has higher leveraged ratio which is not always a rational and logical decision of shareholders. The higher debt ratio is not always a perfect solution of controlling the management behavioural factors.

5.1.3 The anchoring and adjustment bias

Dynamic theory states that firm should follow a range of leverage with upper and lower limit. If the leverage ratio varies out of that limit, firms need to take step to optimize the debt equity ratio in capital structure. However; management must have an initial idea of target range of leverage. This is called anchoring of idea. Management must have a rational anchor of debt equity ratio which will help to set up the upper and lower limit of leverage. Studies have exhibited that anchoring and adjusting of leverage is highly influenced by behavioural factors and no matter how the initial leverage ratio is chosen, management will change it with the passage of time and keep adjusting it accordingly. It is witnessed that over adjustment under the behavioural influence management fail to maximize the shareholders' value. Studies also exhibit that management team is constantly keep an eye on the market information and try to embed current information in their financial decision to adjust the financial structure of the firm. However, management concentrates on short term changes in market and adjust the use of leverage accordingly which put extra cost burden on firm without taking an extra benefit in long run market. Management can avoid this bias in their decisions by comparing the firm's debt ratio to industrial as well as close rival firm debt ratio.

5.1.4 Conformation bias

Management follows a particular belief in their decision making process, which is based on a selective perception. Management look for supportive factors which confirms that its belief is accurate by avoiding and overlooking the contradict factors. This is common human phenomena to convince ourselves that it is accurate and in right direction what we think and believe. We are so concerned with desired outcome, therefore; only those

factors we discuss or take into our analysis which drive our desired results. The downside risks of contradictory factors, which are not taking into analysis, have some time costly consequences. This bias is also known as selection bias. Management has choice to select the source of finance; the selection process is not always rational. Management, which suffers from confirmation bias, will collect information about market, future growth rate of firm, the rate of return and other concerning factors etc. in such a manner to support that belief. Studies have illustrated that confirmation bias is very common in management decision making process while collection of data, constructing a model financial model etc.

Lord, Ross, & Lepper (1979) underline that people stick to their opinion and belief for an extra-long time, once they form it.

Barberis & Thaler (2003) argue that management does not prefer to invest its time to search critical and opposite factors to their belief, and they are sceptic to contradictory factors.

5.2 Emotional factors (Bias)

Emotional bias is state of mind which influences both rational and cognitive behaviour of human being. Positive emotional bias gives the decision maker a good feeling which leads to over optimistic bias. Negative emotional bias will not let the decision maker to take full advantage of a given situation; it makes investor more risk averse even in booming market situation. Former bias makes the human being over courageous and later makes them over protective. The emotional bias such as sadness, fear, anger, guilt and disgust affect intensively the decision making process and distorts the decision making process.

5.2.1 Optimism bias

The optimism bias is a category of emotional bias which is part of the human mood cycle. Leverage ratio is higher than rational leverage ratio when management has positive attitude toward the market and availability of future NPV projects. This bias accelerates when management has employed a new team of highly professionals and technical, unexceptionally high previous year profit, acquisition of close rival and high

cash in balance sheet etc. The over optimist management forgets for some time that bad year can hit any time. That is why the irrational leverage decisions are made and oversight the market indications.

Studies find that human being exhibit irrationally positive and stronger side of their ability and future prospects.

Daniel Kahneman argues that optimist management team decisions are based on internal factors and their own views about the market trend, financial situation, and emotional state of mind; team ignores the outside factor or over sight them in the leverage decision process. The miss matching between inside view and outside factors normally arise from the optimism of management. This state of mind is harmful for the shareholders, because an illusionary situation arises in the mind of management that firms will earn exceptionally high earnings and the years of prosperity will last forever. Many large and exceptionally successful firms have faced bankruptcy or financial distress situation immediately after they reached a top place in the market such as Chrysler, Enron, General motors, Washington Mutual and above all Lehman brothers.

5.2.2 Loss Aversion Bias

A rule of thumb in study of financial psychology is that human beings are more concerned and conservative to money losses than gains. They prefer to maintain their current capital than losing it by investing in fields they are not certain about the outcome; they will invest only when they feel outcome certain, which will increase their total capital. They shun taking risk, however; they take high risk only, if they know that their investment would be double. Management raises fund by using that source of finance which has least sunk cost.

5.2.3 Regret Aversion Bias

The regret aversion bias is an important factor in decision making process. Sometimes the management suffers from under confidence bias. They believe that they are not fully capable to optimizing the operational and financial structure of the firm. They feel regret for their weaknesses and avoid to take any risky decisions. This state of mind of

management influence the use of leverage, therefore, many firms remain underleverage and deprived off the advantage of leverage. The second major argument under this bias is reputation of management. The management is very much conscious about its reputation. Therefore, the management team avert to take any uncertain decision which could harm the reputation of management. They try to make all the decision within a safe haven by staying one step back from market in a booming situation and one step ahead in a bad market situation.

The regret theory states that management is rational and take rational decision but their behaviour is driven by two main factors., The first is payoff, i.e. what they are going to get for their input, the second is expected regret, if the outcome would not come as expected, or in worse scenario, firm loss money because of their decisions.

5.2.4 Debt conservatism

Debt conservatism refers to a notion to keep the firm financial and operating structure without debt or lower debt. The practice of debt conservatism has been dramatically rising in the last ten years. In U.S more than 20% of firms are solely equity financed firms and they do not using debt. Large firms like Microsoft, Walgreen, Cisco Systems and William Wrigley, do not have any debt in their capital structure. This concept is a contradiction of the static trade-off theory and literary work of Frank and Goyal (2005), Miller (1977), and Graham (2000).

On the other hand, the dynamic trade-off theory advocates lower leverage which is consistent with the work of Goldstein (2001), Morellec (2004), and Strebulaev (2007).

"Companies with no debt fly high" states Matt Krantz, in USA TODAY on August 21, 2002. Empirical studies have observed that leverage ratios are negatively correlated to equity market valuations, borrowing constraints and dividend pay-outs.

Baker & Wurgler(2002) argue that firm with low or no debt in their capital structure can issue equity at favourable terms, because it is witnessed that markets are more favourable to the firm which have low leverage or no leverage, whereas credit markets are not always so favourable for them. If firms has high growth rate, dividend paying

history and high price of its share in market, the equity shares of such firms are considered as investment standard securities. Therefore, firms can easily assess the equity market with low transaction cost and remain debt free firm.

Jensen(1986)a profitable firm does not make difference between debt financing and equity financing. However, shareholders can control the management empire building process with free cash flow by issuing either excessive debt or equity because free cash flow problem can be solved by paying interest on debt or distributing the profit to shareholders as dividend. Many firms use high dividend pay-out ratio to control the management empire building process.

Byounbayloredu & Moore(2012)present debt conservatism or debt free firms on an industry level based on data of the last 40 years.

Distribution of Debt-free Firms across Industries.

The data consist of 150,810 firm-year observations from Compustat for the period 1971-2006. A firm is defined as a debt-free firm if it has no debt. N represents the number of observations. % is the percentage of debt-free firms relative to the total number of firms in each industry.

Two Digit Industry Code		Debt-free Firms		Total
		N	%	N
01-09	Agriculture, Forestry, and Fishing	89	11.57	769
10	Metal Mining	243	20.91	1,162
12	Coal Mining	10	3.36	298
13	Oil and Gas Extraction	988	13.75	7,185
14	Mining and Quarrying Of Nonmetallic Minerals, except Fuels	40	10.87	368
15	Building Construction General Contractors and Operative Builders	58	3.92	1,478
16	Heavy Construction Other than Building Construction Contractors	30	5.48	547
17	Construction Special Trade Contractors	39	7.40	527
20	Food and Kindred Products	322	7.08	4,547
21	Tobacco Products	2	1.18	170
22	Textile Mill Products	54	3.16	1,708
23	Apparel and Other Finished Products	180	8.16	2,206
24	Lumber and Wood Products, except Furniture	133	10.53	1,263
25	Furniture and Fixtures	86	6.32	1,361
26	Paper and Allied Products	96	4.63	2,075
27	Printing, Publishing, and Allied Industries	233	8.41	2,769
28	Chemicals and Allied Products	1,984	17.80	11,144
29	Petroleum Refining and Related Industries	34	2.94	1,157
30	Rubber and Miscellaneous Plastics Products	134	5.19	2,581
31	Leather and Leather Products	81	11.17	725
32	Stone, Clay, Glass and Concrete Products	55	3.45	1,592
33	Primary Metal Industries	91	3.15	2,890
34	Metal Products, except Machinery and Transportation Equipment	260	6.95	3,740
35	Industrial and Commercial Machinery and Computer Equipment	1,502	13.04	11,515
36	Electronic and Other Electrical Equipment and Components	1,743	13.80	12,633
37	Transportation Equipment	288	7.05	4,084
38	Photographic, Medical and Optical Goods; Watches and Clocks	1,942	18.15	10,699
39	Miscellaneous Manufacturing Industries	209	10.02	2,085
40	Railroad Transportation	30	5.62	534
41	Interurban Highway Passenger Transportation	4	4.60	87
42	Motor Freight Transportation and Warehousing	93	6.48	1,435
44	Water Transportation	15	3.03	495
45	Transportation by Air	30	2.56	1,174
46	Pipelines, except Natural Gas	15	20.27	74
47	Transportation Services	93	16.94	549
48	Communications	251	6.16	4,072
50	Wholesale Trade: Durable Goods	452	9.14	4,948
51	Wholesale Trade: Non-durable Goods	151	5.69	2,653
52	Building Materials Hardware / Garden Supply Mobile Home Dealers	21	3.85	545
53	General Merchandise Stores	53	3.07	1,725
54	Food Stores	81	5.04	1,608
55	Automotive Dealers and Gasoline Service Stations	8	1.43	561
56	Apparel and Accessory Stores	314	19.06	1,647
57	Home Furniture, Furnishings and Equipment Stores	77	8.08	953
58	Eating and Drinking Places	194	6.65	2,917
59	Miscellaneous Retail	316	9.98	3,166
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	46	5.48	840
72	Personal Services	38	7.01	542

73	Business Services	3,441	23.10	14,897
75	Automotive Repair, Services and Parking	22	5.33	413
76	Miscellaneous Repair Services	10	8.26	121
78	Motion Pictures	183	13.25	1,381
79	Amusement and Recreation Services	171	10.38	1,648
80	Health Services	188	6.34	2,963
81	Legal Services	6	33.33	18
82	Educational Services	73	15.05	485
83	Social Services	22	8.56	257
84	Museums, Art Galleries, and Botanical and Zoological Gardens	0	0.00	14
86	Membership Organizations	0	0.00	3
87	Engineering Accounting Research Management Related Services	540	18.39	2,936
88	Private Households	2	33.33	6
99	Nonclassifiable Establishments	500	26.81	1,865
	Total	18,366	12.18	150,810

6 Conclusion

Leverage and its use in firms financing decision is a wide topic. Many studies have been conducted to evaluate this topic from different angles. Primitive idea is that leverage increases the value of shareholders, if it is used at an optimal level. Researchers are trying to figure out that optimal level of leverage in financing decision. Many theories have been evolved to explain this topic. The trade-off theory and the agency theory state that a firm takes advantage of the use of leverage. In opposition to it stand the pecking order theory and the market timing theory. They state that a firm can survive without the use of leverage and leverage should be used only, if the situation demands it, otherwise no leverage is required. The trade-off theory states that an optimal level of debt can be achieved by equalizing the marginal cost and the marginal benefit of leverage. The packing order theory states that a firm should use leverage only if internal sources of financing are not adequate. It means that the theory denies using leverage if a firm is profitable and has sufficient fund for it future projects. The agency theory is based on the idea that management behaviour can be controlled by issuing the debt, and leaving less free cash in their hand. The market timing theory does not differentiate between use debt and equity. It illustrate that a firm should go for cheap source of finance, either it is debt or equity. These theories are a much generalized idea of the use of leverage to find out an optimal capital structure.

The corporate finance literature has revealed that a single optimum capital structure is a big puzzle for the researchers, because there is a long list of determinants apart from theories stated above, This affect the usage of leverage in capital restructuring decision. There are macro determinants such as inflation rate, monetary and fiscal policy, economic cycle and socio political structure etc. These determinants affect the entire economy irrespective to size and nature of firm. Second category of determinants is firm based determinants which affect the use of leverage to a particular firm. These determinants include size of the firm, expected profit, market share and uniqueness of product etc.

However, each factor has different effects on different firms. More precisely, I can say here, these factors affect all firms in economy but not in the same proportion and intensity. The wide range of capital structure determinants and their impacts covers

geographical, political, economic and sociological and psychological factors. The behaviour study also evaluates use of leverage in capital structure of a firm. It is evident that the emotional and cognitive bias influences the use of leverage in capital structure such as Overconfidence bias, optimism bias and regret bias etc. The above discussion gives us an idea that the puzzle of the optimum level of leverage as a rule of thumb, in real sense is unsolvable except with some unrealistic assumptions. It is same as check egg problem.

In brief, the proportion and magnitude of the effect of each determinant in the firm's decision are directly influenced by the economic, legal and corporate social culture as well. Therefore, the financial decision of a firm is not entirely based on the internal structure and internal resources but also based on outside factors like macro economy, political system of the country, and the current trend in market. The market timing theory, dynamic aspect of capital restructuring and debt equity mix become more applicable in real worlds. Therefore, it is a good reason to believe that dynamic trade-off issue, market timing aspect and behavioural part of corporate finance will continue to be a productive and prospective field of research work. I believe that the future research a market timing theory, dynamic trade-off and the behavioural corporate finance will prove more concrete concept of this topic which probably fill the gap between approaches and models.

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Kurzfassung

In dieser Masterarbeit werden die Einflussfaktoren ausgearbeitet, die Unternehmen in ihrer Entscheidung für den Einsatz von "Leverage" bestimmen. Es wird das Argument hervorgebracht, dass die Rolle und der Einsatz von "Leverage" nicht nur von klassischen makro- und mikrowirtschaftlichen Faktoren wie BIP, erwarteter Inflationsrate, herrschendem Steuerrecht, Dividendenpolitik und Größe des Unternehmens beeinflusst wird, sondern auch von verhaltensabhängigen Faktoren wie kognitive Verzerrung und emotionale Befangenheit. Die in dieser Arbeit berücksichtigten Kapitalstrukturtheorien, Trade-off Theorie, Pecking Order Theorie, Präferenztheorie, Agency-Theorie und Marktsegmenttheorie werden daher auf die zuletzt genannten Faktoren hin überprüft. Die Ergebnisse zeigen, dass jedes Unternehmen, in sich anders und einzigartig ist. Die Entscheidungen auf jeder Ebene, sei es in der Makro- , Mikro- oder Verhaltensebene beeinflussen das Unternehmen in ihrer Finanzierungsentscheidung in unterschiedlichem Ausmaß.

Abstract

The thesis illustrates the capital structure determinants which influence the use of leverage in firms financing decision. It presents the argument that the role of leverage and use of leverage in firms' financing decision is not only dependent on classical macro and micro economy factors such as GDP, expected inflation rate, tax code, dividend policy, size of firm but also behaviour factors such as "cognitive bias and Emotional bias". A comparative study is done for capital structure theories considering above factors. The four main capital structure theories considered in this work are Trade-off theory, Pecking order or preference theory, agency theory and market segment theory. The result implies that each firm is different and unique in itself. Each factor, " macro, micro and behavioural", influences the firm and its financial decision in different intensity though in the same direction.

Curriculum Vitae

Name	Pankaj Sharma
Nationality	Indian
Education	
2009-2014	MSc University of Vienna Austria
2002-2004	M.Com H.P University, shimla, India
1997-2000	B.Com Guru Nanak Dev university Amritsar, India
1997	P.B.N Senior secondary school, Amritsar (main subject commerce)
Work experience	
2005-2006	Internal Auditor at Kapil and diwan & co.
2003-2007	Teaching at GAAP education Academy
Languages	
	Hindi and Punjabi (mother language) English and German (fluent)
Computer Skills	
	MS office advance level including VB R statistic software Bloomberg
Hobbies	
	Reading and writing Indian classical Music