CHAPTER I

i) **Introduction**

ii) **Research methodology and Objective**

1) Introduction

The capital structure is one of the important area of financial research for researcher and the same has discussed a lot after 1991, as the government policy has removed the earlier restrictions on pricing of financial instruments and overseas fund raising. Myers (1984), has started his theory with words as " capital structure puzzle". This chapter discusses the introduction of capital structure, objectives of the study and research methodology adopted for the study.

Introduction to capital structure

A firm mobilizes funds, depending upon their maturity period, can be classified as long term and short term sources. The long term sources of finance include share capital, reserves and term loan raised from public and financial institutions and short term source of finance is made up of current liabilities and provisions. Financing decisions involve raising funds for the firm is concerned with the formulation and designing of capital structure. While investment decisions are related to the asset side of the balance sheet and financing decisions are related to the liability side of the balance sheet. The term capital implies long term funds of the firm. Capital is the aggregation of items appearing on the left side of the balance sheet minus current liabilities. In other words, capital may also be expressed as Capital = Total Assets – Current Liabilities. Further, capital structure implies the proportion of debt and equity in the total capital of the company. Financial structure includes total left side of the balance sheet which includes total liabilities, while capital structure refers to long term liabilities.

Equity consist of the following

Equity share capital + Preference share capital + Share Premium + Free Reserves + Surplus Profits

Debt consists of the following

All borrowings from government, semi government, statutory financial corporation and other agencies + Term loans from banks, financial institutions, etc. + Debentures

Some companies do not plan their capital structure, it develops as a result of their financing decisions taken by finance manager without any formal policy and planning. Financing decisions are reactive and they evolve in response to the operating decisions. These companies may prosper in the short term run, but ultimately they may face considerable difficulties in raising

1

funds to finance their activities. With unplanned capital structure, these companies may also fail to economize the use of their funds. Consequently, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions.

Theoretically the finance manager should plan an optimum capital structure for his company. The optimum capital structure is one that maximizes the market value of firm with minimum cost. But the concept of optimum capital structure is theoretical and it is not possible to attend in practice. The determination of optimum capital structure is formidable task and one has to go beyond theory. There are significant variations among industries and among companies within an industry in terms of capital structure. Since a number of factors influence the capital structure decisions of a company, the judgment of the person making the capital structure decision plays crucial part. Two similar companies may have different capital structure if the decision makers differ in their judgment of the significance of various factors. A totally theoretical model perhaps can not adequately handle all those factors, which affect capital structure decisions. These factors are highly psychological, complex and qualitative and do not always follow accepted theory, since capital markets are not perfect and the decision has to be taken under imperfect knowledge and risk.

The board of directors or Chief financial officer (CFO) of a company should develop an appropriate capital structure which is most advantageous to company. This can be done only when all those factors, which are relevant to the company's capital structure decision are properly analyzed and balanced. The capital structure should be planned generally keeping the interests of the equity shareholders and the financial requirement of the company. The equity shareholders being the owners of the company and providers of risk capital would be concerned about the ways of financing company's operations. However the interests of other groups, such as employees, customers, creditors, society and government, should also be given reasonable consideration. Thus, while developing appropriate capital structure of the company, finance manager should aim at maximizing the long term market price of share. In practice, for most companies within an industry there may be range of appropriate capital structure within which there would be not great differences in the market value per share. One way to get an idea of this range is to observe the capital structure patterns of companies and market price of shares. It may found empirically that there are not significant differences in the share values within a given range. The management of the company may fix its capital structure near the top of this range in

order to make maximum use of favourbale leverage, subject to other requirements such as flexibility, solvency, control and norms set by financial institutions, SEBI etc. (P.C.Tulsian, 2011).

Sources of finance

A company may issue two types of shares a) Ordinary / equity shares b) preference shares. Owners of shares are called shareholders and capital contributed by them is called share capital.

I. Equity shares

Equity shareholders represent the ownership position in a company. The holders of equity shares are called shareholders and the legal owners of the company. Equity shares are the source of permanent capital as they do not have a maturity date. For capital contributed by shareholders by purchasing equity shares, they are entitled for dividends. The amount or rate of dividend is not fixed, the company's board of directors decides it. An equity share is therefore known as variable income security. Being the owners of a company, shareholders bear the risk of ownership and entitled on residual income after meeting all claims. Similarly when company is wound up , they can exercise their claims on assets after the claims of other suppliers of capital have been met.

Features of equity shares

a) **Claim on residual income:** - Equity shareholders have a residual ownership claim. They have a claim to the residual income, which is earning available for equity shareholders after paying operating expenses, interest, taxes and preference dividend. This income may be split into two parts as : dividends and retained earnings.

b) **Claim on assets:** - Equity shareholders also have a residual claim on the firm's assets in the case of liquidation. Out of realized value of assets, first the claims of debt holders and then preference shareholders are satisfied and then remaining balance, if any, is paid to equity shareholders.

c) **Right to control:** - Control in the context of company means the power to determine its policies. The board of directors approves the company's major policies and decisions while managers appointed by the board carry out the day to day operations. Thus, control may be defined as the power to appoint directors.

d) Voting rights:- Equity shares carry voting rights on a number of important material issues such as

    a. Election of directors

    b. Change in the memorandum of association

e) Preemptive rights: - The preemptive rights entitles shareholder to maintain his proportionate share of ownership of the company. The law grants shareholders the right to purchase new shares in the same proportion as their current ownership. Thus if a shareholders owns 1 percent of the company's equity shareholders, he has preemptive right to buy 1 percent of new shares issued.

f) Limited liability: - Equity shareholders are the true owners of the company , but their liability is limited to the amount of their investment in shares. If a shareholder has already fully paid the issue price of shares, he has nothing more to contribute in the event of liquidation.

Pros and cons of equity financing

Equity capital is one of the most important long term source of finance. It offers the following advantages to the company

a) Permanent capital:- Equity shareholders are not redeemable , the company has no liability for cash outflow associated with its redemption. It is a permanent capital and is available for use as long as the company goes

b) Borrowing base: - The equity capital increases the company's financial base and thus its borrowing limit. Lenders generally lend in proportion to the company's equity capital. By issuing equity shares, the company increases its financial capability. It can borrow when it needs additional funds.

c) Dividend payment discretion: - A company is not legally obliged to pay dividend. In financial difficulties, it can reduce or suspend payment of dividend. Thus, it can avoid cash outflow associated with equity shares.

Equity capital has some disadvantages to the firm compared to other sources of finance. They are as follows:-

a) Cost: - Shares have a higher cost at least for two reasons, dividends are not tax deductible as are interest payments and flotation costs on equity shares are higher than those on debt.

b) **Risk:** - Equity shares are riskier from investor's point of view as there is uncertainty regarding dividend and capital gain. Therefore, they require a relatively higher rate of return. This makes equity capital as the highest cost source of finance.

c) **Ownership dilution:** - The issuance of new equity shares may dilute the ownership and control of the existing shareholders. While the shareholders have preemptive right to retain the proportionate ownership, they may not have funds to invest additional shares. The issuance of equity shares can change the ownership.

II. Preference shares: -

Preference share is often considered to be a hybrid security since it has many features of both the equity shares and debentures. It is similar to equity share that a) the non payment of dividends does not force the company to insolvency, b) dividends are not deductible for tax purposes and c) in some cases, it has no fixed maturity date. On the other hand, it is similar to debenture in that a) dividend rate is fixed b) preference shareholders do not share in the residual earnings c) preference shareholders have claims on income and assets prior to equity shareholders and d) they usually do not have voting rights.

Features of preference shares

Preference shares have several features. Some of them are common to all types of preference shares while others are specific to some.

a. **Claims on income and assets:** - Preference share is a senior security as compared to equity share. It has a prior claim on the company's income in the sense that company must first pay to preference dividend before paying equity dividend. It also has a prior claim on the company's assets in the event of liquidation. The preference share claim is honoured after that a debenture and before that of equity share. Thus, in terms of risk, preference share is less risky than equity share. There is a cost involved for relative safety of preference investment. Preference shareholders generally do not have voting rights and they can not participate in extra ordinary profits earned by the company. However company can issue preference shares with voting rights (called participative preference shares).

b. **Fixed dividend:** - The dividend rate is fixed in the case of preference share and preference dividend is not tax deductible. The preference dividend rate is expressed

as a percentage of the par value. The amount of preference dividend will thus be equal to the dividend rate multiplied by the par value. The payment of preference dividend is not a legal obligation. Usually, a profitable company will honour its commitment of paying preference dividend.

c. **Cumulative dividends:** - Most preference shares in India carry cumulative dividend feature , requiring that all past unpaid preference dividend be paid before any ordinary dividends are paid. This feature a protective device for preference shareholders. The preference dividend could be passed or omitted without the cumulative feature. Preference shareholders do not have power to force company to pay dividends, non payment of dividend also does not result into insolvency. Since preference share does not have the dividend enforcement power , the cumulative feature is necessary to protect the rights of preference shareholders.

d. **Redemption:** - Theoretically both redeemable and perpetual (irredeemable) preference shares can be issue. A perpetual or irredeemable preference share does not have a maturity date. Redeemable preference share has a specified maturity.

e. **Sinking fund:** - Like in case of debenture, a sinking fund provision may be created to redeem preference share. The money set aside for this purpose may be used either to purchase preference share in the open market or to buy back (call) the preference share. Sinking funds for preference shares are not common.

f. **Call feature:** - The call feature permits the company to buy back preference shares at a stipulated buy back or call price. Call price may be higher than the par value. Usually, it decreases with the passage of time. The difference between call price and par value is called call premium.

g. **Participation feature:-** Preference shares may in some cases have participation feature which entitles preference shareholders to participate in extraordinary profit earned by the company. This means that a preference shareholder may get dividend amount in excess of fixed dividend. Preference shareholders are also entitled to participate in the residual assets in the event of liquidation.

h. **Voting rights:** - Preference shareholders ordinarily do not have any voting rights . They may be entitled to contingent or conditional voting rights. In India, if a preference dividend is outstanding for two or more years in the case of cumulative preference shares or the preference dividend is outstanding for two or more

consecutive preceding years or for a period of three or more years in the preceding six years, preference shareholders can nominate a member on the board of the company.

i. **Convertibility:** - Preference shares may be convertible or non convertible. A convertible preference share allows preference shareholders to convert their preference shares fully or partly, into ordinary shares at a specified price during a given period of time.

Pros and cons of preference shares

a) **Riskless leverage advantage:** - Preference share provides financial leverage advantage since preference dividend is a fixed obligation. This advantage occurs without a serious risk of default. The non-payment of preference dividends does not force the company into insolvency.

b) **Dividend postponability:** - Preference share provides some flexibility to the company since it can postpone payment of dividend.

c) **Fixed dividend:** - The preference dividend payments are restricted to the stated amount. Thus preference shareholders do not participate in excess profits as do the equity shareholders.

d) **Limiting voting rights:** - Preference shareholders do not have voting rights except in case of dividend arrears exist. Thus the control of equity shareholders is preserved.

The following are limitations of the preference shares:

a) **Non deductibility of dividends:** - The primary disadvantage of preference share is that preference dividend is not tax deductible. Thus it is costlier.

b) **Commitment to pay dividend:** - Although preference dividend can be , they may have to be paid because of their cumulative nature. Non payments of preference dividends can adversely affect the image of company, since equity holders can not be paid any dividends unless preference shareholders are paid dividends.

III. Debentures

A debenture is a long term promissory note for raising loan capital. The firm promises to pay interest and principal as stipulated. The purchasers of debenture are called as debenture holders. An alternative form of debenture in India is bond. Mostly public sector companies in India issues bonds.

Features of debentures:-

A debenture is a long term, fixed income, financial security and holders of debentures are the creditors of the firm. The par value of a debenture is the face value appearing on the debenture certificate. Corporate debentures in India are issued in different denominations. The large public sector companies issues bonds in the denominations of Rs. 1,000. Some important features of debentures are discussed below:

a) **Interest rate:** - The interest on debenture is fixed and known. It indicates the percentage of par value of the debenture that will be paid out annually, semi annually or quarterly in the form of interest. Payment of interest is a legally binding on the company. Debenture interest rate is tax deductible for company's corporate tax. However, it taxable in the hands of debenture holder as per the income tax rules.

b) **Maturity:** - Debentures are issued for a specific purpose of time. The maturity of debenture indicates the length of time until the company redeems the par value to debenture holders and terminates the debentures.

c) **Redemption:** - As indicated earlier, debentures are mostly redeemable and they are generally redeemed on maturity. Redemption of debentures can be accomplished either through a sinking fund or buy back (call) provision.

   i. **Sinking fund:** - A sinking fund is cash set aside periodically for retiring debentures. The fund is under control of the trustee who redeems the debentures either by purchasing them in the market or calling them in an acceptable manner. In some cases , the company itself may handle the retirement of debentures using the sinking funds. The advantage is that the periodic retirement of debt through the sinking funds reduces the amount required to redeem the remaining debt at maturity. Particularly when the firm faces temporary financial difficulty at the time of debt maturity, the repayment of huge amount of principal could endanger the firm's financial viability. The use of the sinking fund eliminates this potential danger.

   ii. **Buy back provision:** - Debenture issues include buy back provisions. Buy back provisions enables the company to redeem debentures at a specified price before maturity date. The buy -back price may be more than par value of the debenture. This difference is called call or buy back premium.

d) **Indenture:** - An indenture or debenture trust deed is a legal agreement between the company issuing debentures and the debenture trustee who represents the debenture holders. It is the responsibility of the trustee to protect the interests of debenture holders by ensuring that the company fulfils the contractual obligations. Generally, financial institution or a bank or an insurance company is appointed as trustee. The debenture trust deed (indenture) provides the specific terms of the agreement, including description of debentures, rights of debenture holders, rights of issuing company and responsibilities of trustee.

e) **Security:** - Debentures are either secured or unsecured. A secured debenture is secured by lien on the company's specific assets. If the company defaults, the trustee can seize the security on behalf of debenture holders. When debentures are not protected by any security, they are known as unsecured or naked debentures.

f) **Claims on assets and income:** - Debenture holders have a claim on the company's earnings prior to that of shareholders. Debentures interest has to be paid before paying any dividends to preference and equity shareholders. A company can be forced into bankruptcy if it fails to pay interest to debenture holders. Therefore, in practice, the debenture holder's claim on income is generally honoured except in the case of extreme financial difficulties faced by the company. In liquidation, the debenture holders have a claim on assets prior to that of shareholders. However, secured debenture holders will have priority over the unsecured debenture holders. Thus, different types of debt may have a hierarchy among themselves as their order of claim on the company's assets.

Types of debentures
- ➤ **Non – convertible debenture**
- ➤ **Fully convertible debenture**
- ➤ **Partly convertible debenture**

- ➤ **Non – convertible debenture (NCDs):-** NCDs are pure debentures without a feature of conversion. They are payable on maturity. The investor is entitled for interest and repayment of principal.
- ➤ **Fully convertible debenture (FCDs):-** FCDs are converted into shares as per the terms of the issue with regard to price and time of conversion. FCDs carry interest rate less than NCDs since they have attraction feature of conversion into equity share.

➢ **Partly convertible debenture:** - If a debenture issued by company has two parts a convertible part and non convertible part, then such debentures are known as partly convertible debentures. The investor has the advantages of both convertible and non convertible debenture blended into one debenture.

Pros and cons of debenture

Debenture has a number of advantages as long term source of finance :

a) **Less costly :-** It involves less cost to the firm than equity financing because a) investors consider debentures as a relatively less risky investment alternative and therefore , require a lower rate of return b) interest payments are tax deductible.

b) **No ownership dilution:** - Debenture holders do not have voting rights , therefore debenture issue does not cause dilution of ownership.

c) **Fixed payment of interest:** - The payment of interest on debenture is fixed. Debenture holders do not participate in extraordinary earnings of the company.

d) **Reduced real obligation:** - During periods of high inflation debenture issue benefits the company. Its obligation of paying interest and principal which are fixed decline in real terms.

Debenture as a source of finance has some limitations also, which is as follows:-

a) **Obligatory payments:** - Debenture results in legal obligation of paying interests and principal, if not paid debenture holders can force the company into liquidation.

b) **Financial risk:** - It increases the firm's financial leverage which may be particularly disadvantageous to those firms which has fluctuating sales and earrings.

c) **Cash outflow:** - Debentures must be paid on maturity and therefore, at some points it involves substantial cash outflows.

d) **Restricted covenants:** - Debenture indenture may contain restrictive covenants which may limit the company's operating flexibility in future.

IV Term loans

Debt capital of a company may consist of either debentures or bonds which are issued to the public for subscription or term loans which are obtained directly from the banks and financial intuitions (FIs) like IDBI, ICICI. Term loans are resources of long term debt. In India, they are generally obtained for financing large expansion, modernization, diversification projects. Term loans represent secured borrowings for a period excedding 5 years , generally carry fixed rate of

interest depending on the perceived risk of lending, credit rating of the borrower. Terms loans are repayable within 6 to 10 years in annual, semiannual or quarterly installments.

Features of term loans

Term loan represent long term debt with a maturity of more than one year. They are obtained from banks and specially created financial institutions. The purpose of the term loan is mostly to finance the company's capital expenditures. Term loans have a number of basic features as discussed below

a) **Maturity:** - Banks and specially created financial institutions are the main sources of term loans in India. FIs provide term loans generally for a period of 6 to 10 years. In some cases, a grace period (moratorium) of 1 to 2 years is also granted, this is the period during which the company has not to make any payment.

b) **Direct negotiation:** - A firm negotiates term ioans for project finance directly with a bank or FI. Thus term loan is a private placement. The advantage of private placement is the ease of negotiation and low cost of raising loan. Unlike in the case of public issue, the firm need not underwrite term loans. Thus the term loan avoids underwriting, commission and other flotation costs.

c) **Security:** - Term loans are always secured. Specifically the assets acquired using term loan funds secure them. This is called primary security. The company's current and future assets also generally also secure term loans. This is called collateral or secondary security. Also, lender may create either fixed or floating charge against the firm's assets. Fixed charge means legal mortgage of specific assets. For creating a fixed charge, the firm has to pay a heavy stamp duty which may be equal to 2 (2.5) percent of term loan. Floating charge is a general mortgage (equitable mortgage) covering all assets. In this case a stamp duty is 1/ 2 percent. Floating charge provides the firm with relative flexibility as it can deal with its assets in the normal course of business without obtaining lender's approval.

d) **Restrictive covenants:** - In addition to the asset security, lender would like to protect itself further. Therefore, FIs add a number of restrictive covenants. A financially weak firm attracts stringent terms of loan from lenders. The borrowing firm has generally to keep the lender informed by furnishing financial statements and other information periodically. The restrictive covenants may be categorized as follows

i. **Asset related covenants:** - Lender would like the firm to maintain its minimum asset base. Therefore, restrictions may include to maintain minimum working capital position in terms of minimum current ratio and not to sell fixed assets without lender's approval. The firm may also be required to refrain from creating any additional charge on assets.

ii. **Liability related covenants:** - The firm may be restrained form incurring additional debt or repay existing loan. It may allow doing so with the concurrence of the lender. The firm may also be required to reduce its debt equity ratio by issuing additional equity and preference capital. The freedom of promoters to dispose of their shareholding may also be limited.

iii. **Cash flow related covenants:** - Lenders may restraint the firm's cash outflow by restricting cash dividends, capital expenditures, salaries and perks of managerial staff etc.

iv. **Control related covenants:** - Lenders expect that the firm's management will be competent enough to manage its operations. They may therefore provide for the effective organizational set up and appointment of suitable staff and the broad base board of directors. One special feature of terms in this regard could be the provision for the appointment of nominee director by FIs. Nominee director may be appointed in case of those firms which have been granted suitable financial help by FIs. Nominee director may be appointed by in case of those firms, which have been granted substantial financial help by FIs. He should keep himself well acquainted with the operations of the company without undue interface (P.C.Tulsian, 2011).

1.2) Capital structure and value of firm

The value of firm depends upon the earnings of the firm and the earnings of the firm depend on the investment decisions by the firm. The earnings of the firm are capitalized at a rate equal to the cost of capital in order to in order to find out the value of the firm. Thus the value of a firm depends upon two factors: - earnings of the firm and cost of capital.

The operating profit of the firm i.e. EBIT is distributed to the following investors as follows:-

1) Debt holders who receive share in the form of interest
2) Government who receives share in the form of taxes

3) Shareholders who receive share in the form of dividend

Earnings before interest and tax (EBIT) is a pool which is divided among three claimants. The investment decision of the firm determines the size of EBIT and capital structure decisions decides the way EBIT is to be sliced. The investment decisions can therefore increase the value of firm by increasing the size of EBIT whereas the capital structure decisions can affect the value by only reducing the share of EBIT going to the government in the form of taxes. The capital structure decision does not affect the total earnings of the firm. However financing mix affects the earnings available to the shareholders, as financial leverage helps to increase the earnings per share (EPS) with given level of EBIT. The EPS on the other hand , affects the market price of a share and market value of firm. Weighted average cost of capital (WACC) depends upon the specific cost of capital of individual sources of finance and the proportion of different sources of finance in total capital structure of the firm. Firm can change WACC by changing financing mix and then market value of firm. There is an inverse relationship between cost of capital and the value of firm. For a given level of earnings, lower the cost of capital higher would be the value of the firm (R.P. Rustogi, 2005).

1.3) Optimum capital structure

The capital structure should be examined from view point of impact of value of firm. It can be legitimately expected that if the capital structure decisions affects the value of firm, a firm should select such a financing mix as it will maximize shareholder's wealth. Such a capital structure referred as 'optimum capital structure'. The optimum capital structure is the capital structure at which *firm has maximum value and minimum weighted overall cost of capital.*

Theoretical view on optimum capital structure

1) The finance manager should plan the 'optimum capital structure' for his company.
2) The optimum capital structure is obtained when the market price per share is maximum in the long run.
3) An optimum capital structure is the structure where the weighted cost of capital is the minimum with maximum total firm value.

Practical view on capital structure

1) The determination of optimum capital structure is the difficult task because the numbers of factors influence the capital structure decisions and it is difficult to measure a fall in

the market value of an equity share on account of increase in risk due to high debt content in the capital structure.

2) There is no definite capital structure model which can be suggested as an ideal for at business undertaking because of the varying circumstances of various business undertaking.

3) That's why different industries follow different capital structure and within an industry , different companies follow different capital structure.

4) Thus appropriate capital structure is more realistic term than the theoretical term of optimum capital structure (P.C.Tulsian, 2011).

1.4) Determinants of the capital structure

1) Non debt tax shield

The debt due to interest deductibility reduces the tax liability and increases the firm's after tax free cash flows. Firms also have non- debt tax shields available to them and firms can use depreciation to tax shields. This implies that the firms that have larger non debt tax shields would employ low debt, as they may not have sufficient taxable profit available to have the benefit of interest deductibility. However there is link between the non debt tax shields and the debt tax shields since companies with higher depreciation would tend to have higher fixed assets, which serve as collateral against debt. John K Wald (1999) explained that firms with the higher non debt tax shield issue less debt than equity. The reason is firm's need not require tax shield provided by debt as same is provided by non debt tax shield. Dr. A.Vijaykumar (2011) discusses that the presence of large non debt tax shield reduces the benefit of debt financing.

2) Tangibility

The forms of assets held by the company are important determinant of its capital structure. Tangible fixed assets serve as collateral to debt. In the event of financial distress, the lenders can access these assets and liquidate them to realize funds lent by them. Companies with higher tangible asset will have less expected cost of financial distress and hence higher debt ratios. On the other hand, those companies whose primary assets are intangible assets will not have much to offer by way of collateral and will have higher costs of financial distress. Rajan et.al. (1995) explained that the rationale behind positive relationship between the physical assets and debt is those physical assets are easy to collateralize and reduce agency cost of debt. Dr. A. Vijaykumar (2011) explained that tangible assets are used as collateral and the importance of assets as

14

collateral is more to new established firms, as they have no earlier relationship with the lenders and creditors. Inderjit Singh et.al.(2012) explained that firms with significant physical asset are larger size firms which issue equity at fair price and have negative relationship with the leverage.

3) Size of the company

The size of the company and its credit rating greatly influence the availability of funds from different sources. The companies with small capital base will rely more on owner's funds and retained earnings, because of its size it is not easy to raise long term loans. A large company can obtain long term loans on easy terms and can also issue equity shares, preference shares and debentures to the public. Rajan et.al. (1995), Dr. A. Vijaykumar (2011) explained that the relationship between size of company and leverage is ambiguous. Larger firms tend to be more diversified and probability of their failure is less, so size is inverse proxy for probability of bankruptcy. Then relationship between size and debt is obvious positive. Contrasting argument for size and debt is that, information asymmetry between insiders and outsiders are lower for large firms. Hence large firms prefer equity over debt and should have lower debt. Inderjit Singh et.al.(2012) explained that information asymmetry problem is very less in large size firms so it encourages those firms to issue equity than debt. Riyaz Ahmed K. (2012) explained that large size firms are more diversified so they obtain higher credit ratings for debt securities, so avail lower interest rate and higher debt with growing size of firm.

4) Profitability

John K Wald (1999) explained firms with good investment outlays are more profitable and have a lower long term debt to asset ratio. Stweart C Myers (1984) explained that firms follows hierarchy in their financing pattern, for investment outlays firms consume first internal earnings then debt and equity is used as last resort. Dr. A. Vijaykumar (2011) discusses that more profitable firms have sufficient internal generated funds to finance firm's activities and have a lower debt ratio. In opposite to this, profitable firms use more debt to use tax shield. Inderjit Singh et.al.(2012) explained that profitable firm can give signal about quality of firm by using higher debt. Riyaz Ahmed K. (2012) explained that the higher profitability of the firm indicates higher debt capacity and less risk to lenders. So profitability and leverage may have positive relationship in profitable firm.

5) Growth in asset

Growth opportunities add value to business, but growth opportunities fail to provide collateral value because of its intangible nature. Myers (1984) explained that there is inverse relationship between growth in asset and leverage. The pecking order theory suggest that growing firm fail to meet its investment requirement through internal earnings , so firm prefer to raise the fund externally, debt is used prior to equity. Myers (1977) explained that highly levered companies pass up profitable investment opportunities, so firm experiencing high growth should use a greater amount of equity finance.

6) Trading on equity

The use of the sources of funds with fixed cost, such as debt and preference share capital along with the along with the owner's equity capital in the structure is known as 'financial leverage' or 'trading on equity'. The use of the term 'trading on equity' is derived from the fact it is the owner's equity that is used as basis to raise debt that is the equity that is traded upon. The financial leverage employed by the company will depend on the amount of risk the company would like to. The basic objective of the financial management is to increase the wealth of the firm by increasing the market value of share. The firm's wealth is increased, if after tax earnings are increased. A company raises the debt to at low cost with view to enhance the earnings of the equity holders. The cost of debt is lower due to tax advantage associated with the debt. Any excess of earnings over the cost of debt will be added to the equity shareholders. Capital structure decisions should always aim at having debt component in total component in order to increase the earnings available to equity shareholders.

Effect of no debt in capital structure

a) There is no financial risk involved as no interest on debt is to be paid and hence there is no threat of insolvency.

b) Earnings per share decreases as the same amount of earnings have to be divided among increased number of equity shares as a result of issues of additional equity shares in lieu of debt.

Should a firm employ debt?

A firm should employ debt to the extent the financial risk perceived by the shareholders does not exceed the benefit of increased EPS. Effect of debt on earning per share and financial risk is as shown below

Table No.01 – Relationship between level of debt, cost of debt and return on investment

Case	If ROI > Cost of debt		If ROI < Cost of debt	
	Effects on EPS	Effect on financial risk	Effects on EPS	Effect on financial risk
Use of more debt in capital structure	Increases	Increases	Decreases and it may lead to negative EPS	Increases threat of insolvency
Use of less debt in capital structure	Relatively less increases	Relatively less increases	Relatively less decreases	Relatively less increases

7) **Cost of capital**

The cost of source of finance is the minimum return expected by its suppliers. The expected return depends on the degree of risk assumed by investors. Higher the degree of risk assumed , the higher will be return expected by the suppliers of funds. The degree of risk assumed and return expected by suppliers of funds are shown below:

Table No.02 – Relation between source of fund, risk and return expected by investor

Source of fund	Degree of risk assumed by investor	Return expected by investor
Debt	Lower than any other source of funds	Lower than any other source of funds
Preference share capital	Higher than debt but lower than equity share capital	Higher than debt but lower than equity share capital
Equity share capital	Higher than any other source of funds	Higher than any other source of funds

Though the cost of debt is cheaper than the cost of shares, it does not mean that company can minimize its cost of capital by employing more debt. After certain point, the debt becomes more expensive because of the risk of excessive debt to creditors and shareholders. Thus the company should not use debt beyond that point when the overall cost of capital starts increasing.

Research methodology and objective

1.5) Research Methodology

In this section, theoretical framework and methodology adopted in the study is discussed. It outlines statement of problem of the study and procedure followed for collection of data and selection of sample companies for study. The techniques and tools used for analyzing the data in the study have explained in detail and limitations of the study has highlighted.

1) Research Problem

Many studies have been done on firm's capital structure decisions. There is a gap of satisfactory, pervasive explanation for firm's capital structure behavior. It is not understood completely why firms choose debt over equity and equity over debt. Most research on the capital structure decisions has done in developed economies in detail as compared to developing economies. The study of determinants of capital structure of automobile industry in developing country like India has not completed in detail. Hence a detailed study of determinants of capital structure in Indian automobile industry is important area of research that needs to be explored.

The aim of the study is to isolate the major firm specific determinants that affect capital structure in Indian auto companies and examine the relationship between them. There is also need to understand what type of relationship exists between profitability and financial leverage and the importance of profitability in determining the debt ratio of the firm. The impact of other variables needs to be explored to understand the significance of other variables in designing of capital structure. The selection of auto industry is based on the fact that, it is a major determinant of economic growth in the current economic scenario of India. Hence researcher has decided to undertake research on this important aspect of corporate finance with a view to focus on determinants of capital structure in selected Indian auto companies.

2) Objectives of the study

The objective of this study is to explore the relationship between the determinants of capital structure in the selected Indian auto companies during the period March 2001 to March 2010. The following are objective of the study:-

i) To analyze the capital structure by using debt equity ratio.

ii) To examine the relationship between financial leverage, size of the firm, profitability, tangibility, non debt tax shield, growth in assets.

iii) To suggest the capital structure strategies to selected auto companies.

3) Scope of the study

This research focuses on the capital structure decisions in the selected Indian Auto Companies. The study of auto companies is limited only to selected auto companies which are listed on stock exchange. This study focuses on four segments of auto sector which includes medium and heavy commercial vehicles, light commercial vehicles, passenger cars, motorcycle .The period of the study covers 10 years starting from March 2001 to March 2010. For this study five capital structure determinants are examined i.e. size of the firm, profitability, tangibility, non debt tax shield and growth of assets. The scope of study is to examine the relationship between financial leverage and size of the firm, profitability, tangibility, non debt tax shield and growth of assets.

4) Hypothesis of study

The following null hypotheses are formulated for testing the relationship between capital structure and determinants of capital structure.

> ➢ H_{01} :- There is no significant relation between size of the business and financial leverage.
> ➢ H_{02} :- There is no significant relation between profitability and financial leverage.
> ➢ H_{03} :- There is no significant relation between tangibility and financial leverage.
> ➢ H_{04} :- There is no significant relation between non debt tax shield and financial leverage.
> ➢ H_{05} :- There is no significant relation between growth in assets and financial leverage.

5) Research Design

The present study is explanatory in nature, explanatory research identify and explore the causes lying behind effects and the nature of relationship between two variables. Research design is an outline of research study which is the arrangement of conditions of data collection and analysis of data. Overall research design may be divided into to the following parts.
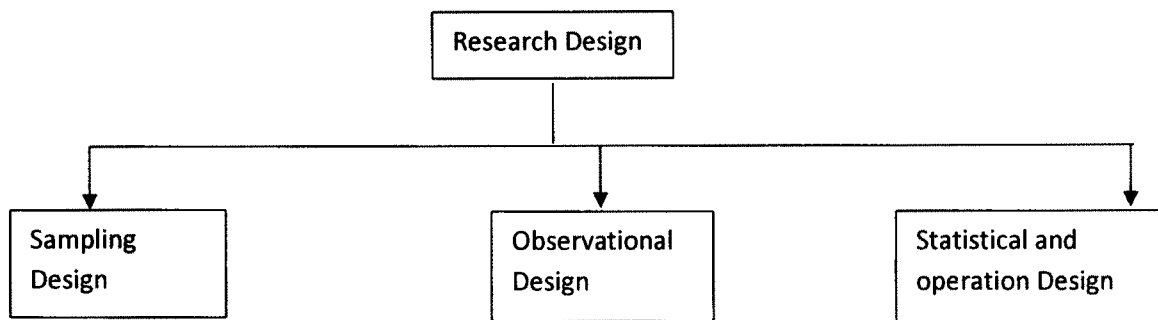
```
                          ┌─────────────────┐
                          │ Research Design │
                          └─────────────────┘
                                   │
        ┌──────────────────────────┼──────────────────────────┐
        ▼                          ▼                          ▼
┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│ Sampling        │      │ Observational   │      │ Statistical and │
│ Design          │      │ Design          │      │ operation Design│
└─────────────────┘      └─────────────────┘      └─────────────────┘
```

Figure No. 1.1 – Research Design of study

5.1) Sampling Design

Sampling design deals with the method of selection of companies for the study from universe. Sampling methods includes probability and non probability of sampling. The researcher has used non probability sampling method purposive sampling for sample selection. In purposive sampling the sample is selected because of some characteristics of population and purpose of study. The study is considered to auto companies engaged in medium and heavy commercial vehicle, light commercial vehicle, passenger cars and motorcycle segments. The companies which meet all three criteria stated below are included in the study. (Ram Ahuja ,2001)

Criteria for sample selection from all segments

      1) Company must be in operation for at least for 5 years during study period.

      2) Company must have average 5% market share during study period.

      3) Company must be listed on stock exchange.

On the basis above stated selection criteria, out of 4 segments 2 companies from heavy and medium commercial vehicle segment are selected. 4 Companies from light commercial vehicles, 2 Companies from passenger cars segment and 3 Companies from motorcycle segment are selected. The following table shows companies in segment and selection of sample as per criteria stated above.

Medium and Heavy commercial vehicles segment

Table no.1.3:- Medium and Heavy commercial vehicles segment and BSE scrip code

Sr.no.	Companies in the medium and heavy commercial vehicles segment	Listed companies in the segment with BSE scrip code
1	Tata Motors	500570
2	Ashok Leyland	500477
3	Hindustan Motors	500500
4	V E Commercial Vehicles	NA
5	Mahindra Navistar Automotives	NA
6	S M L Isuzu	505192
7	Asia Motor Works	NA
8	Man Force Trucks Pvt.	NA
9	Piaggio Vehicles Pvt.	NA
10	Mercedes-Benz India Pvt.	NA
11	Mahindra Vehicles Mfrs.	NA
12	Defence Land Systems India Pvt.	NA
13	Eicher Motors	505200

Source :- CMIE – Industry market size and share (NA indicates the company is not listed on Indian stock exchange).

Table no.1.3 shows that in heavy and commercial vehicles segment out of 13 auto companies 5 companies are listed on BSE. Table no. 1.4 shows, selection of auto companies for study from heavy and medium commercial vehicle segment. Out of 5 auto companies 2 companies are selected for the study on the basis of operations of the company and average market share of company. Both selected companies are in operation for more than 5 years and have market share more than 5%.

Table no. 1.4:- Selected sample for the study from heavy and medium commercial vehicle segment

Heavy and Medium Commercial Vehicle Segment		
Sr.No.	Name of company & BSE code	Operations of company (Yrs) during 2001-2010	Average Market Share (%)
1	Tata Motors (500570)	10	63.00
2	Ashok Leyland (500477)	10	31.00

Source :- CMIE – Industry market size and share

ii)   Light commercial vehicles segment

Table no. 1.5:- Light commercial vehicles segment and BSE scrip code

Sr.No.	Companies in the light commercial vehicles segment	Listed companies in the segment with BSE scrip code
1	Tata Motors	500570
2	Mahindra & Mahindra	500520
3	Eicher Motors	505200
4	SML Isuzu Ltd	505192
5	Force Motors	500033
6	Ashok Leyland	500477
7	Daewoo Motors India	NA
8	V E Commercial Vehicles	NA
9	Hindustan Motors	500500

Source:- CMIE – Industry market size and share   (NA indicates the company is not listed on Indian stock exchange)

Table no.1.5 shows that in light commercial vehicle segment out of 9 auto companies 7 companies are listed on BSE. Table no. 1.6 shows, selection of auto companies for study from light commercial vehicle segment. Out of 7 auto companies 4 companies are selected for the study. Selected four companies are in operation for more than 5 years and have market share more than 5%

Table No.1.6:- Selected sample for the study from light commercial vehicle segment

Light Commercial Vehicle Segment			
Sr.No.	Name of company & BSE Code	Operations of company (Yrs) during 2001-2010	Average Market Share (%)
1	Tata Motors Ltd (500570)	10	54.00
2	Mahindra & Mahindra Ltd. (500520)	10	24.00
3	Eicher Motors Ltd. (505200)	10	13.19
4	SML Isuzu Ltd. (505192)	10	7.00

Source:- CMIE – Industry market size and share

iii) Passenger Cars Vehicle Segment

Table no.1.7:- Passenger cars vehicles segment and BSE scrip code

Sr.No.	Companies in the passenger cars vehicles segment	Listed companies in the segment with BSE scrip code
1	Maruti Suzuki India Ltd	532500
2	Hyundai Motor India	NA
3	Tata Motors	500570
4	Honda Siel Cars India	NA
5	Hindustan Motors	500500
6	Premier Automobiles Ltd	NA
7	Daewoo Motors India	NA
8	Fiat India Automobiles	NA
9	Ford India Pvt.	NA
10	General Motors India Pvt.	NA
11	Skoda Auto India Pvt.	NA
12	BMW India Pvt.	NA
13	Mercedes-Benz India Pvt.	NA
14	Toyota Kirloskar Motors Pvt.	NA
15	Mahindra Renault Pvt.	NA
16	Nternational Cars & Motors	NA
17	New Holland Fiat (India) Pvt.	NA
18	Vaccum Plant & Instruments Mfg. Co.	NA

Source :- CMIE – Industry market size and share   (NA indicates the company is not listed on Indian stock exchange)

Table no.1.7 shows that in passenger cars vehicle segment out of 18 auto companies 3 auto companies are listed on BSE. Table no. 1.8 shows, selection of auto companies for study from passenger cars vehicle segment. Out of 3 auto companies 2 companies are selected for the study. Both selected companies are in operation for more than 5 years and have market share more than 5%.

Table no.1.8:- Selected sample for the study from passenger cars vehicle segment

Passenger Cars Vehicle Segment			
Sr.No.	Name of company & BSE Code	Operations of company (Yrs) during 2001-2010	Average Market Share (%)
1	Maruti Suzuki India Ltd (532500)	10	42.00
2	Tata Motors (500570)	10	12.00

Source:- CMIE – Industry market size and share

iv)   **Motorcycles Vehicle Segment**

Table no 1.9:- Motorcycles vehicles segment and BSE scrip code

Sr.No.	Companies in the passenger cars vehicles segment	Listed companies in the segment with BSE scrip code
1	Hero Honda Motors	500182
2	Bajaj Auto	532977
3	TVS Motors Co.	532343
4	LML	500255
5	Eicher Motors	505200
6	Kinetic Engineering	500240
8	Sooraj Automobiles	NA
9	Monto Motors	NA
10	Honda Motor Cycle and Scooter India (Pvt.)	NA
11	Yamaha Motor India Pvt.	NA

Source :- CMIE – Industry market size and share   (NA indicates the company is not listed on Indian stock exchange)

Table no.1.9 shows that in motorcycles vehicle segment out of 11 auto companies 6 companies are listed on BSE. Table no. 1.10 shows, selection of auto companies for study from motorcycles vehicle segment. Out of 6 auto companies 3 companies are selected for the study. Selected 3 companies are in operation for more than 5 years and have market share more than 5%

Table no 1.10:- Selected sample for the study from motor vehicle segment

Motorcycles Vehicle Segment			
Sr.No.	Name of company & BSE Code	Operations of company (Yrs) during 2001-2010	Average Market Share (%)
1	Hero Moto Corp Ltd. (500182)	10	49.00
2	Bajaj Auto Ltd (532977)	10	27.00
3	TVS Motors Co. Ltd. (532343)	10	12.00

Source :- CMIE – Industry market size and share

Following table no. 1.11 shows number of companies in all segments, BSE listed companies among them and total sample selected for the study. It shows that 4 auto segment included in the study comprises of 51 companies, out of 51 companies 21 are listed on BSE and after considering the selection criteria 11 auto companies are selected for further study.

Table no.1.11:- Type of segment and selection of sample from segment

Sr.No.	Type of Segment	Auto Companies in the segment	BSE Listed companies in the segment	Sample companies
1	Heavy and Medium commercial vehicle segment	13	5	2
2	Light Commercial Vehicles	9	7	4
3	Passenger Cars	18	3	2
4	Motorcycles	11	6	3
Total		51	21	11

Source :- CMIE – Industry market size and share

The reason behind selection of companies in the sample on the basis of size of company is that in auto industry the companies has either a very high market share (more than 5%) or very low (less than 5%). So the companies having more than 5% of market share are enjoying monopoly in Indian auto market but at the same time facing competition from multinational auto manufacturing companies from last 10 years. So for these companies capital structure decisions are strategic as compare to other companies having less than 5% market share.

5.2) Observational design:-

Observational design is concerned with the conditions under which observation are made. Observations are collected from primary and secondary sources of data. But secondary data represents a powerful tool for this research, as entire research work is based on secondary data. Secondary data is the one which has been collected and analyzed by someone else. Usually secondary data is available in published form. For this research, secondary data has collected from balance sheet and profit and loss a/c of individual auto companies. The same has collected from CMIE – Industry market size and share, individual website of auto companies, BSE and reportjunction.com.

Balance sheet and profit & loss account are collected from

1) Reportjunction.com
2) CMIE Prowess database

6) **Statistical design**

Statistical tools have an important role to play in research. Statistics helps to researcher in designing the research design, analysis of data and help to draw the conclusions there from.

This research has used following descriptive statistics

➢ Average or mean
➢ Standard deviation

Inferential statistics includes statistical methods which facilitate estimating the characteristics of a population or making decision concerning a population on the basis of sample results.

➢ Correlation
➢ Regression
➢ Analysis of variance (ANOVA)

For the purpose data analysis following software's are used –

➢ Excel
➢ SPSS 16.0

So statistical design is performed in following steps

i) Adding the data in excel file.

ii) Computation of ratios and logs in excel.

iii) Exporting the computation from excel to SPSS 16.0

iv) Use of application of software tools SPSS 16.0 is for data analysis with statistical technique like correlation, regression, residual analysis.

v) Interpretation and conclusion of output from SPSS 16.0 (Andy Field, 2009).

7) **Operational design**

Correlation and regression statistical technique has used to explore the relationship between selected firm variables and financial leverage and ANOVA for hypothesis testing.

I. **Correlation**

A statistical technique that is used to analyze the strength and direction of the relationship between two quantitative variables is called correlation analysis.

Karl Pearson's correlation coefficient

Karl Pearson's correlation coefficient is used to explore the correlation between selected variables. Karl Pearson's correlation coefficient measures quantitatively the extent to which two variables x and y are correlated. It also indicates the strength and direction of relationship between two variables. For a set of n pairs of values x and y, Pearson's correlation coefficient r is given by

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

Where:

N	=	number of pairs of scores
Σxy	=	sum of the products of paired scores
Σx	=	sum of x scores
Σy	=	sum of y scores
Σx^2	=	sum of squared x scores
Σy^2	=	sum of squared y scores

Guidelines for interpretation of correlation coefficient

0 to 0.25 or (0 to -0.25) - Weak or no relationship

0.25 to 0.50 or (-0.25 to -0.50) - Fair degree of relationship

0.50 to 0.75 or (-0.50 to -0.75) - Moderate relationship

>0.75 or (-0.75) - Strong linear relationship

1 or -1 - Perfect linear relationship (J.K. Sharma, 2009)

II. Regression model

Statistical models are used in business research because the researcher has not direct access to the real world phenomenon. Hence researcher collects that data which represent the real world phenomenon and draw conclusions on it.

As the researcher has not direct access to the auto companies financing decisions process (real world phenomenon), so following statistical model is used to predict the capital structure decisions. Following multiple regression model is used to test the relation between the financial leverage and size of the firm, profitability, tangibility, non debt tax shield, growth of assets.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Table No.1.12 – Variables used in multiple regression model

Sr.No	Variable	Variable in regression model	Regression Coefficient	Dependent or independent variable
1	Financial Leverage	Y	-	Dependent
2	Size of firm	X_1	b_1	Independent
3	Profitability	X_2	b_2	Independent
4	Tangibility	X_3	b_3	Independent
5	Non debt tax shield	X_4	b_4	Independent
6	Growth in asset	X_5	b_5	Independent

III. Analysis of variance

Analysis of variance is used to test the following null hypothesis.

Null hypothesis – Financial leverage does not depend on size of firm, profitability, tangibility, growth in asset and non debt tax shield.

$H_o : b_1 = b_2 = b_3 = b_4 = b_5 = 0$

Alternative hypothesis – Financial leverage depends on size of firm, profitability, tangibility, growth in asset and non debt tax shield.

H_1 : at least one $b_j = 0$

Table no 1.13 – Analysis of variance

ANOVA					
Source of Variation	Sum of Squares	Degree of freedom	Mean Square	F statistics	F critical
Regression	SSR	K	MSR = SSR/k	F = MSR/MSE	
Error	SSE	n- (k+1)	MSE = SSE / n-(k+1)		
Total	SST	n-1			

Where,

SSR= Sum of squares due to regression, SSE = Sum of squares due to errors,

SST = Sum of square total, MSE = Mean square error, MSR = Regression mean square

It is very important to understand whether all independent variables x_i taken together significantly explain the variability observed in the dependent variable y. F test is used to test the significance of regression model that y depends on at least one of the x.

Decision rule

The table F value is compared with the F statistics computed. If the calculated value of F is more than its table value at a given level of significance then H_0 is rejected. Rejection of H_0 implies that at least one of the independent variable is adding significant prediction for y (J.K. Sharma, 2009).

IV Level of significance

Level of significance is considered as 5%, this implies that H_0 will be rejected when observed evidence has less than 0.05 probability of occurring H_0 is true. In other words , the 5% level of significance means the researcher is willing to take as much as 5% risk of rejecting null hypothesis when it is true. Thus the significance value is maximum probability of rejecting null

hypotheses (H$_o$) when it is true and it is usually determined in advance before testing the hypotheses (J.K. Sharma, 2009).

8) Variable definitions used in the study

Table no. 1.14 defines the variables used in the study. In this study five determinants of capital structure are considered and the same are firm specific. The variables used in the study are collected from balance sheet and profit & loss a/c from March 2000 to March 2010. Following table shows definition of variables used in the study.

Table No. 1.14 – Variable definition

Sr.No.	Name of Variable	Definition
1	Financial leverage	Total debt to total asset
2	Size of firm	Natural log of Sale
3	Profitability	Ratio of earnings before interest ,depreciation and tax to total asset
4	Tangibility	Ratio fixed asset to total asset
5	Growth in asset	% change in total asset (t-t-1)
6	Non debt tax shield	Depreciation to total asset