

A RESEARCH PAPER
FIRM VALUE AND THE CAPITAL STRUCTURE
A STUDY OF INDIAN CORPORATE

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Abstract: The various financing decisions are essential for the financial benefit of the firm. A forged decision about the capital structure may lead to financial suffering and ultimately to insolvency. The management of a firm sets its capital structure in a way that firm's value is maximized. However, firms do choose diverse financial leverage levels in their effort to get an optimal capital structure. According to academic and pragmatic research there is an optimal capital structure, there is no specified methodology, yet, that financial managers can use in order to achieve an optimal debt level. However, financial theory do facilitate in understanding how the selected financing mix affects the firm's value.

Existing empirical research on capital structure and firm value has been largely confined to the United States and a few other advanced countries. Many real-world firms take their capital structure decisions based on industry averages. The debate is whether capital structure decisions create firm value. The factors that drive the firm to design its own capital structure and to find the relationship between the capital structure and firm value and to what extent the capital structure does have the effect on firm value

Key words: Firm Value, Capital structure (Debt and Equity)

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Existing literature: The traditional theory to valuation and leverage assumes that there is an optimal capital structure and that the firm can increase the total value through the judicious use of debt-equity proportion and reduce its overall cost of capital but up to point. However, beyond that point, the use of additional debt will increase the financial risk of investor as well as of lenders and as a result will cause a rise in overall cost of capital. At such a point the capital structure is optimum. The rationale behind this assumption is that debt is relatively cheaper source of funds as compared to equity. With a change in leverage, that is using more debt in place of equity, a relatively cheaper source of funds replaced a source of funds which involves a higher cost causes a decline in the overall cost of capital. In this research paper trend and growth percentage is found between firm value / enterprise value,

Introduction- Capital structure decision process, today, supports a large number of financial and non-financial considerations. Several conflicting goals cluster before the decision maker while they attempt to discover the optimal choice of financial mix. In the past six decades the field of capital structure decisions has enlarged the dimensions of the influencing factors or acceptable variables, which decide the capital structure choices.

Ever since Modigliani and Miller (1963) have made their irrelevance proposition, a key theme in corporate finance has to explain the conditions under which capital structure does affect firm value. However, the existing research on this issue has been largely confined to the United States and few other developed countries that may have institutional similarities. The issue of capital structure choice in developing countries has, however received little attention. Only in recent years, a few studies have emphasized these issues. The prevailing view in this context- for example, Myers (1990) - seems to be that financial decisions in developing countries are somehow different from the issue of capital structure choice in developed economies. To empirically corroborate his view, Myer (1990) has used an aggregate flow of funds data instead of data from individual firms. This approach, however, poses a problem since it does not control for many firm- specific attributes that can influence individual financial decisions.

.The Modigliani miller theorem (1958) on the irrelevancy of financial structure implicitly assumes that the market possesses full information about the activities of firm. If managers

passes the inside information, however then the choice of a managerial incentive schedule and of a financial structure signals information to the market and in competitive equilibrium the inference drawn from the signals will be validated. Kims (1978) support and consider that MM have provided the foundation for studying the effect of financial structure on the valuation of firms in equilibrium. MM (1958) established that the total value of firm in the absence of taxes remains constant across all degrees of financial leverage. MM's 1958 paper made a number of simplifying assumptions, which are common in the theory of finance: Given the assumptions, they concluded that the value of firm remains constant regardless of the debt level. As the cost of debt increased, the cost of equity will raise just enough to leave the WACC constant. If the WACC is constant, then the only factor, which can influence the value of firm, is its cash flow generated from operations Capital structure is irrelevant. '*Value of company should depend on the present value of its operation and not the way it is financed*' Thus, according to MM firm can only increase the wealth of shareholder by making good investment decisions. On the other hand Masulis, (1980) evidenced that firm make decision which do not always good, in a sense to maximize the shareholder value, and considers the impact of capital structure change announcements on security prices. Statistically significant price adjustments in firm's common stock, preferred stock and debt related to these announcements are documented and alternative causes for these price changes are examined. Myers (1983) identifies that MM's (1958) theory is exceptionally difficult to test directly, but financial innovation provides convincing circumstantial evidence. The cost of designing and creating new securities and financial schemes are low and the cost of imitation are trivial (fortunately, securities and financing tactics cannot be patented) thus temporary departures from MM's predicted equilibrium create opportunities for financial innovation.

If there were no tax advantages for issuing debt, and equity could be freely issued, then the cost of debt and the cost of equity should be the same according to MM. This theory is highly objected 'perfect capital market', 'no tax', and no risk assumptions. Mahugan, (2000) found that the world is different from that created for the purposes of MM's original 1958 model. One of the most significant differences is that individuals and company do have to pay taxes. MM's identified dividend policy, growth and valuation of shares in 1961 and corrected no tax assumption in their 1963 version of the model these changed the analysis dramatically. Most tax

regimes permit companies to offset the interest paid on debt against taxable profit. The effect of this is a tax saving which reduces the cost of debt capital. From this situation the concept of overall cost of capital initiated which is then refined and modified to give us the concept of Weighted Average Cost of Capital (WACC). The introduction of taxation in the previous no-tax analysis brought the advantage of gearing up as an additional advantage to using debt capital: it reduces the tax bill. Now the firm value rises as the debt is added to the capital structure because of tax benefits Masulis (1983) study also indicates that both the stock price and firm values are positively related to change in debt level and leverage, senior security prices are negatively related to these capital structure change variables. The evidence is consistent with models of optimal capital structure and with the hypothesis that debt level changes release information about changes in firm's value. Management will always seek to raise the capital by the cheapest and most efficient methods, hence maximizing its Value. Faulkender and Peterson (2006) also tells in this direction, the fact that need to borrow from financial intermediaries have lower leverage is not surprising. The costs of monitoring and imperfect financial contracting will raise the cost of debt capital for the firms and thereby lower their desired leverage. If monitoring and controlling solutions are not sufficient, the firms may face quantity constraints, not just more expensive capital. This will have the effect of increasing the net present value of the company's projects and ultimately will have an upward thrust in its market value. From this value maximization concept, the growth models for finding out the cost of capital gained acceptance.

Bradley, et al. (1984) Presented a single period model of corporation capital structure for a firm with two classes of securities based on comparative static and simulation of the model three determinants of optimal capital structure are identified and empirically investigated in a cross sectional examination of leverage ratios. The three determinants are: Cost of financial distress, Level of non-debt tax shields and, Variability of firm value. Ibrahim and Barros (2008) Developed a model of financial market in which liquidity is the financial arrangement between financiers and entrepreneurs and empirical work is needed to identify the main features of contracts between financiers and firms. The goal-programming model studied by Agrawal. (2010), When applied to capital structure decisions that can give a satisfying solution by minimizing the deviation in the specified goals in the light of constraints, capital structure can be designed keeping in view the multiple goals identified by a firm time to time. Mukhopadhyay

(2010) Develop a new model namely effective outflow rate for measuring cost of capital on the basis of effective outflow rates of funds. The final shape of the E.O.R model has been put up very recently establishing its usage, utility and claiming to change the dimension of the socio-economic conditions for the benefit of all. Titman and Wessels (1968) develop a factor analytic technique for estimating the impact of unobservable attribute on the choice of corporate debt ratios and found that debt levels are negatively related to the uniqueness of a firm line of business and also brings out that transaction cost may be an important determinant of capital structure choice.

Methodology: Analysis of trend and growth, of the sectors Pharmaceutical, Textile, Energy & software has been done graphically based on the data of past eleven years from CMIE Database, The trend is being observed of Enterprise value with respect of Equity and debt, short run and long run pattern is also observed through it

Pharmaceutical Sector-The Indian Pharmaceutical sector is extremely uneven with more than 25,000 registered units. It has grown radically during the last two decades. The 250 pharmaceutical leading companies control 70% of the market with market leader holding nearly 7% of the market share. Due to the de-licensing policy, most of the drugs and pharmaceutical products got exclusion. Totally self-reliant and technologically strong, the pharmaceutical industry in India has low costs of production, innovative scientific manpower, low R&D costs, strength of national laboratories and an increasing balance of trade. It is an extremely fragmented market with severe price competition and government price control. With the approval of Drug control Authority manufacturers are free to produce any drug.

Below is the trend analysis of the pharmaceutical sectors

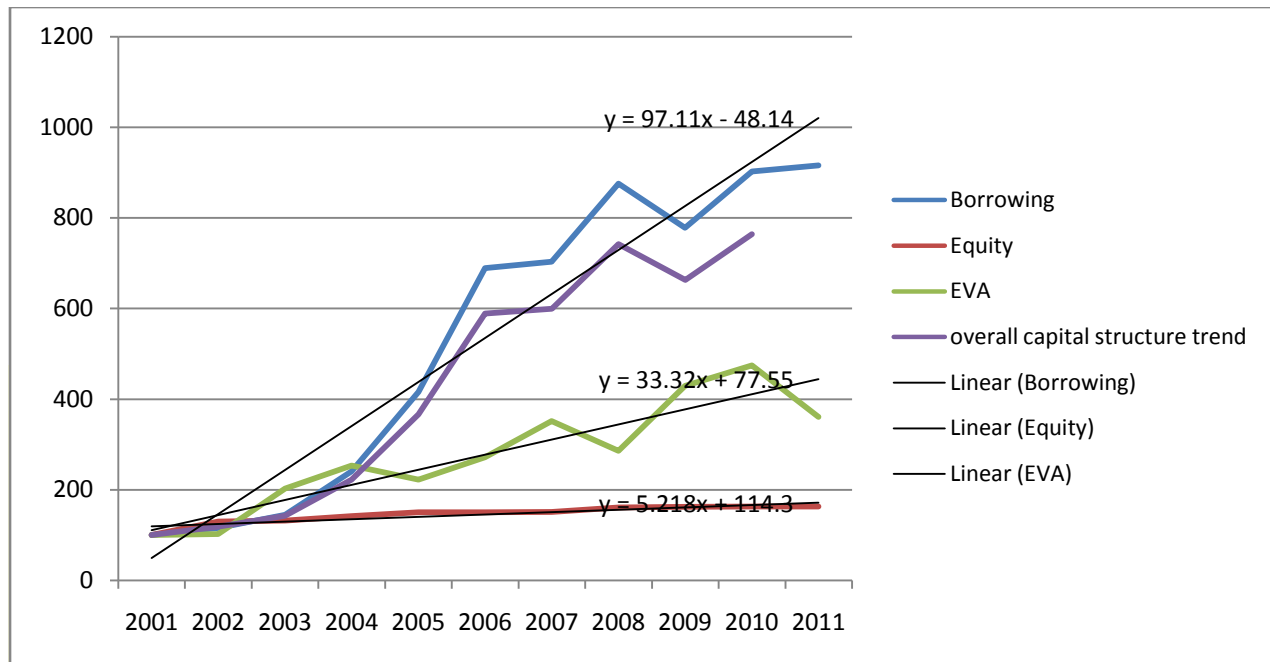


Figure 1.1

In the above graph Borrowings is showing an annual growth rate of 97.11% corresponding value of EVA (Enterprise value) is 33.32% and that of Equity is 5.218% so we can see from that Equity has remain almost constant over a period of time, borrowings

The Pharmaceutical industry pattern is build on the basis of average of five companies selected name Glaxosmithkline, Torrent, Ranbaxy, Glenmark, Aurobindo Pharma,

If we observe the trend of borrowings keeping 2001 as the base year then it has been observed that there is an increasing trend of borrowed amount year to year basis though not at consistent rate but fluctuating in nature, generally speaking the rapidity of debt financing around the world is always higher than that of equity, owing to number of reasons, it is found that bonds are traded by the investors mainly for two reasons. The first motive is to deploy funds in a safe and remunerative fixed income instruments keeping in view their risk relative reward nature. Traditionally Debt has been an institutional market all over the world. Banks and financial institution contribute more in terms of trading volume. Many of the investors are also the issuer of debt instruments.

The trend of Equity Financing in past eleven years has grown consistently but not at a considerable pace compared to that of debt financing, the reason might be the debt instruments, ranging from fixed deposits, debentures to convertible debentures and so on, are considered to be

cheaper source of finance in view of tax advantage of interest payments. Prior to 1980s Indian financial managers interested in debt financing due to its low cost, tax advantages and the intricate measures to be observed in acquiring equity capital. The substitute of short term debt for long term loan was desirability. However, with the influence of liberalization, privatization and globalization extensive the capital market in recent years, the business world has started encouraging equity capital in a big way. With the advent of a medium of new financial instruments such as commercial papers, asset securitization, factoring and forfeiting services, and the market related interest rate structure and their tough conditions for lending, force modern enterprises to invite equity finance.

The enterprise value of the pharmaceutical Industry is fluctuating over the period of eleven years though increased with that of the base year 2001, the trend has been observed that whenever there is increase in employment of Debt amount in the capital structure there is decrease in the value of Enterprise. The trend through graphical presentation clearly states that whenever there is increase in the amount of Borrowings there is decrease in the value of Enterprise. The industry is said to be highly levered as it includes greatest of Debt finance in its capital structure which results in, Industry find its freedom of action constrained by its creditors and may have its profitability affected with the payment of high interest cost and leads to decrease in the value of Enterprise. There is a significant difference between the industry and the companies within the industry in terms of capital structure.

FMCG Sector-The FMCG industry pattern is build on the basis of average of five companies selected name **ITC, Nirma, HLL, Godrej and Dabur**

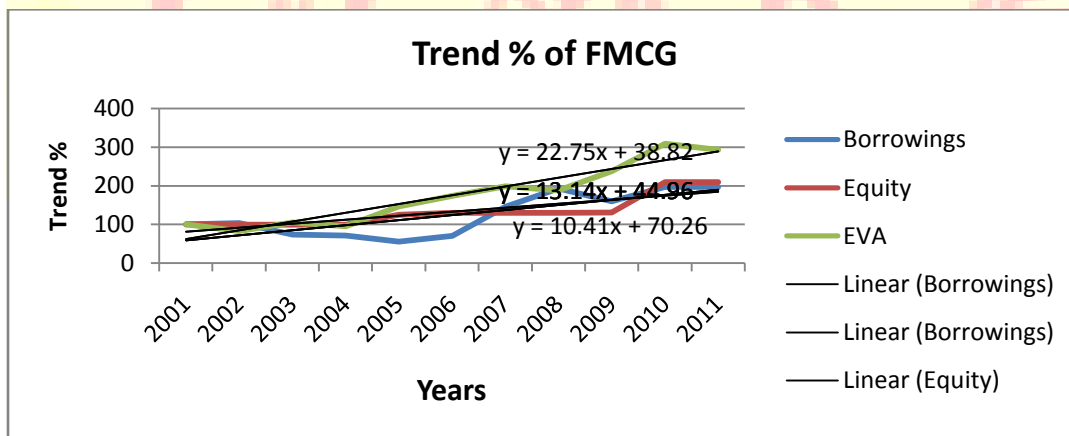


Figure 1.2

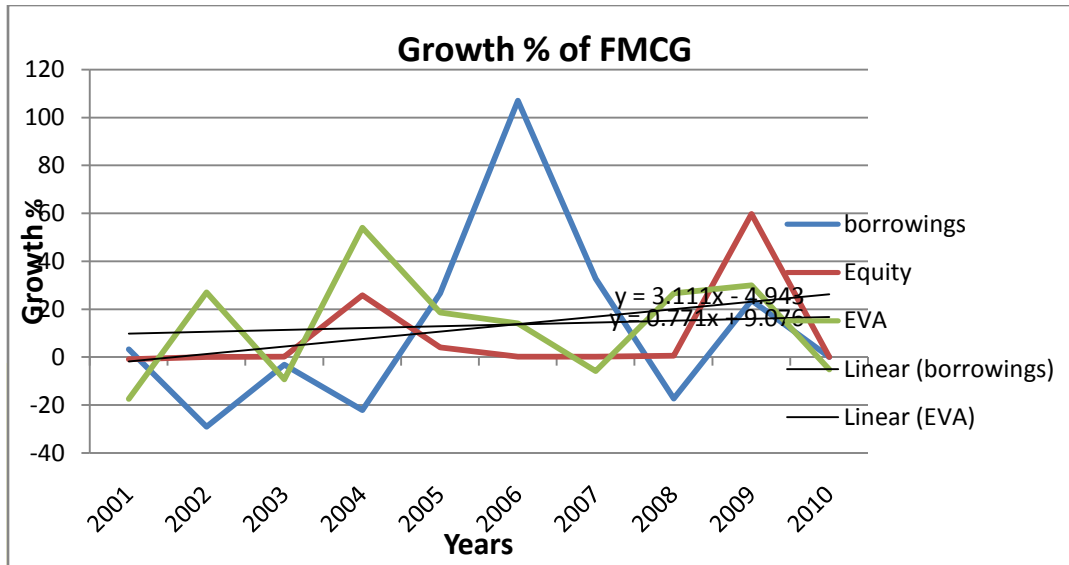


Figure 1.3

In the above graph with that of base year 2001 Enterprise value is showing an annual growth rate of 22.75% corresponding value of Borrowings is 13.14% and that of Equity is 10.41% so we can see from that Equity has remain almost conservative over a period of time, by looking at the figures though it has showing the increasing trend but the trend with which enterprise value is increasing is much more than that of increasing trend of Borrowings and the Equity, therefore besides debt there are some other variable which is helping in the creation of EVA, however these variable has not been considered in the study.

As we know the theory cost of Debt is less than the cost of equity, so this might be the reason of more growth in the borrowings than that of the Equity leading to less overall cost of the capital and growth in the value of enterprise.

In comparison to Pharmaceutical industry and FMCG, Pharmaceutical industry has shown more growth in all the three variables.

If we observe the trend of borrowings keeping 2001 as the base year then it has been observed that there is a decreasing trend of borrowed amount from the year 2003 to the year 2005 on year to year basis though not at consistent rate but fluctuating in nature, whereas the growth of equity is stable during this period through which we can say that the FMCG sector does not rely much on the financing either through Debt and Equity whereas on the other hand The value of Enterprise is going in a increasing trend as the overall cost of capital is low

After 2005 there is a slight increasing trend in both the Equity as well as Borrowings of the FMCG Sectors though not at a considerable rate, one more interesting pattern that we can observe through the graph that whenever there is a decreasing trend in the borrowings of the sectors there is an increasing trend in the Enterprise value and vice versa.

The enterprise value of FMCG Industry is fluctuating over the period of eleven years though decreased with that of the base year 2001 and remain constant thereafter then it has increasing trend after 2004 though fluctuating in nature it has been observed that whenever there is increase in employment of Debt amount in the capital structure there is decrease in the value of Enterprise. The trend through graphical presentation clearly states that whenever there is increase in the amount of Borrowings there is decrease in the value of Enterprise and vice versa. It has also been observed that in a short term the pattern of Enterprise value and Equity is same and opposite of Borrowings and Enterprise value, but over a period of time due to the use cheaper source of capital the Enterprise value has shown a increasing trend. Simultaneously when we look at the yearly growth in the borrowings and equity both are seemingly going in a opposite direction. There is a positive impact on the Enterprise value over a longer period of time with the given proportion of debt and equity mix.

Simultaneously when we look at the yearly growth in the borrowings, there is negative impact on the Enterprise value over a longer period of time; the company has been resilient to overcome this negative impact. The short term impact of the borrowings is that whenever there is growth in the borrowings there is decrease in the value of enterprise but in the long term there is positive impact of mix of equity and borrowings. Capital structure policy involves a choice between these risk and returns and thus examines the value of enterprise

Energy Resource- Energy Sector is built on the basis of Reliance Industries, Oil & Natural Gas, Indian Oil Corporation, Bharat Petroleum, Hindustan Petroleum

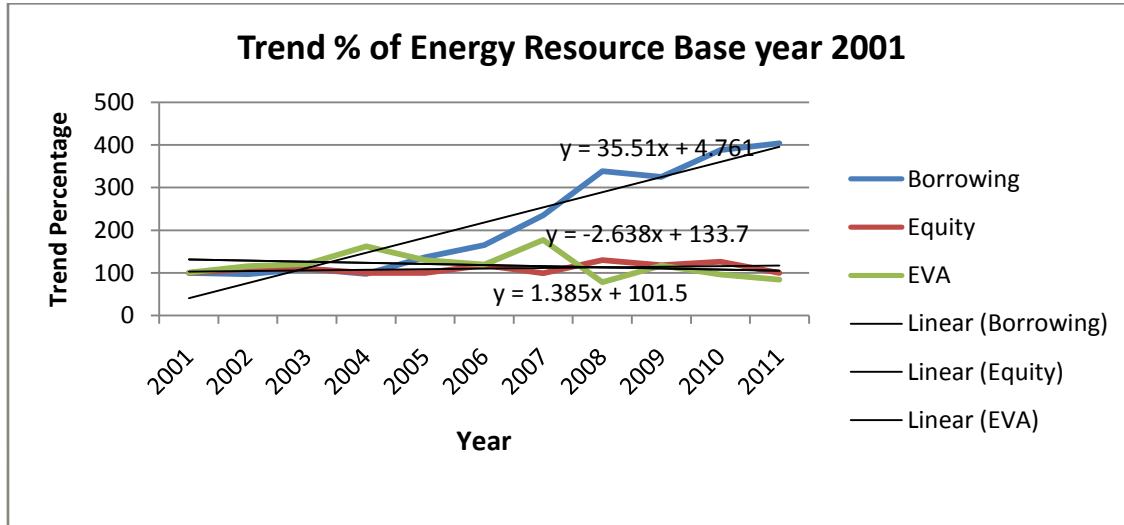


Figure 1.4

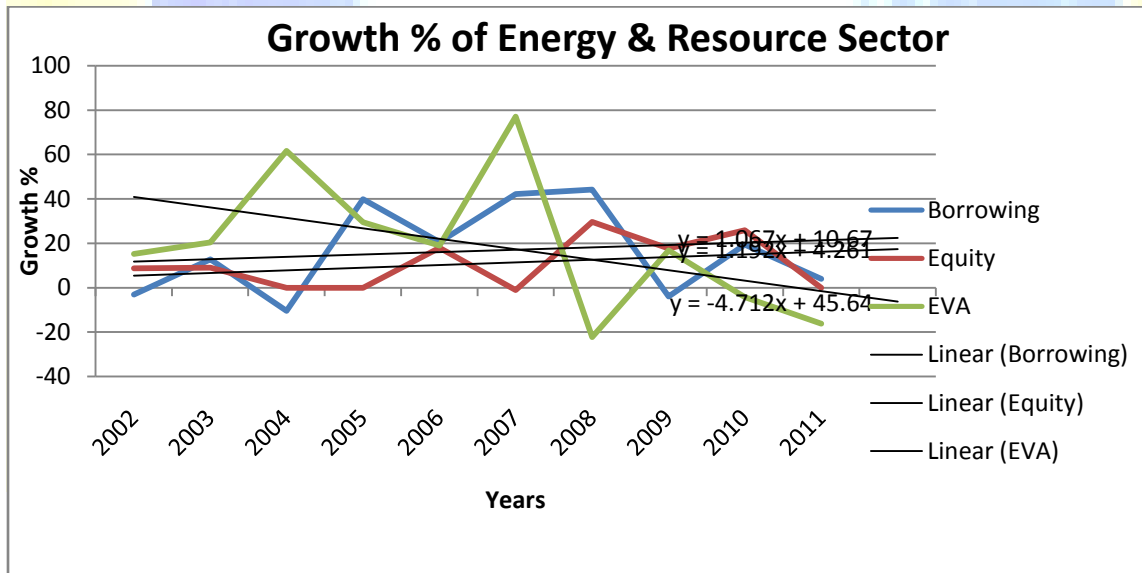


Figure 1.5

In the above graph Enterprise value is showing an annual growth rate of -2.638% corresponding value of Borrowings is 35.51% and that of Equity is 1.385% so we can see examine; with that of increased use of Borrowings the Enterprise value is decreasing, this fact may be clear with the

growth% graph where it is clearly shown that whenever there is growth in the use of borrowings the enterprise value is decreasing that can be observed with the loop formation in the graph the green line represents the Enterprise value and the blue line represents the borrowings of the Sector, whenever there is negative growth in the borrowings there is positive growth in the enterprise value and vice versa which leads to loop formation Equity has remain almost conservative over a period of time, one more interesting pattern being observed with that of Equity and borrowing there is also a loop formation with this two variables also, Whenever there is increase use of Debt amount in the capital structure, the Equity gets down which shows that at a time the sector prefers to have financing from one source either Equity or Debt maintaining the proper mix of the funds to achieve and maintain the optimum capital structure keeping in view value maximization objective of the firm. The firms in the sector must have to chalk out a plan to collect debt in such a way that the acceptance of debt becomes beneficial for the company in terms of increase in EPS, profitability and value of the firm. If the cost of capital is greater than the return, it will have an adverse effect on company's profitability, value of firm and EPS.

In capital structure decisions, two elements of risk that is i) business risk and ii) financial risk is considered. Here in the Energy Sector the firms are vulnerable to financial risk due to debt funds and preferred capital. Financial risks represent the risks from financial leverage. The higher proportion of debt increases the commitment of the firm with regard to fixed charges and repayment of principal amount in time. The final risk is least if the project is financed by equity capital, since the equity capital need not be refunded during the life time of the firms, here in the study of the energy sector there is use of equity capital but not with the rate with which the Debt amount is being infused in the capital structure, therefore the overall cost of capital is not least and so the value of Enterprise is not maximized, cost of different components of capital will influence the capital structuring decisions. A firm should possess earning power to generate revenues to meet its cost of capital and finance its future growth. Firms that adjust their capital structure in order to keep the riskiness of their debt and equity reasonable should have lower cost of capital. A firm having high amount of gearing, its ability to meet fixed interest payments out of current obligations diminishes. This increases the probability of bankruptcy and as a result, the cost (risk and premium) of both debt and equity raises. Particularly in the energy sector there is increased use of debt amount and this increased gearing causes the increase in financial risk due to higher component of debt providers for accepting more risk and this increase in financial risk

due to higher component of debt depress the enterprise value and remain one of the major reason for depress value of enterprise.

About Textile Industry- Textile Industry is based on the average of the four companies Welspun, Arvind mills, SRF & Vardhman

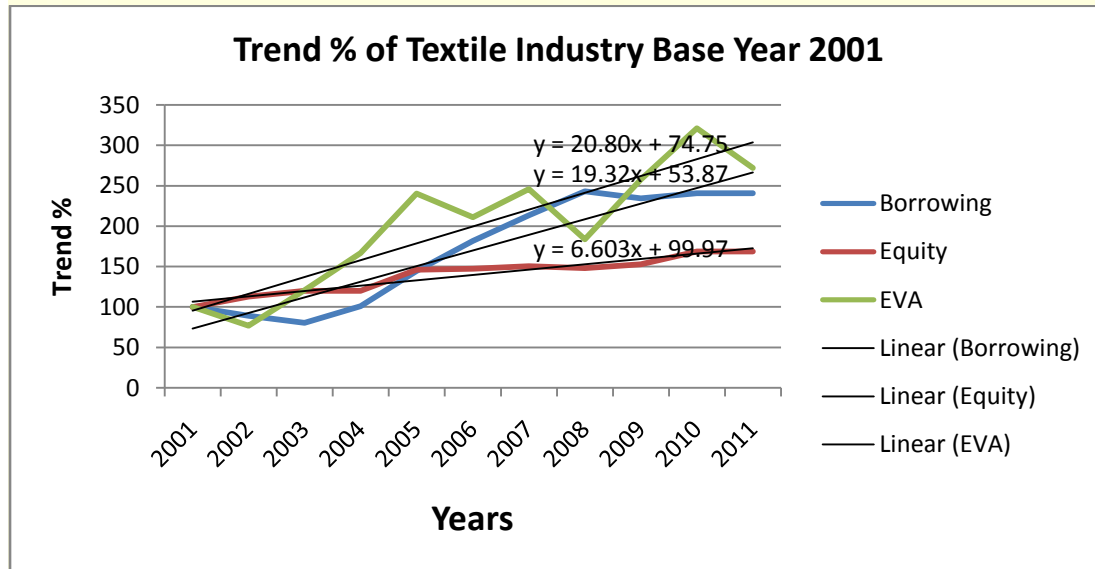


Figure 1.6

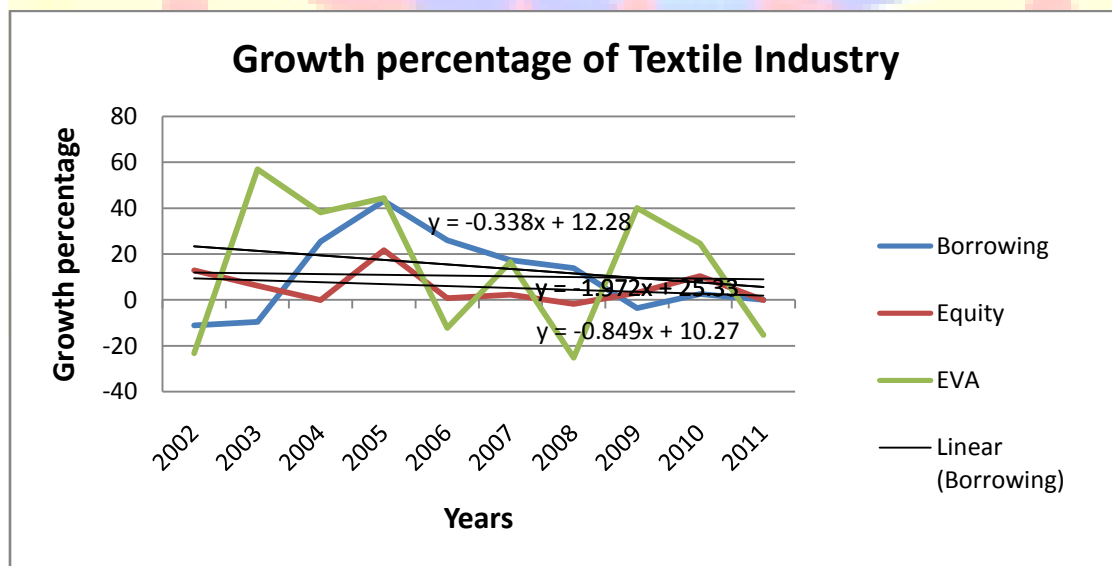


Figure 1.7

In the above graph with the base year 2001 and over a period of eleven years Enterprise value is showing the increasing trend of 20.80% corresponding value of Borrowings is 19.32% and that of Equity is 6.603% so we can examine that the enterprise value and borrowings both have shown an equal increasing trend with fluctuations of up and down, Among the four sectors discussed so far Textile sector has shown an almost equal increasing trend to that of Enterprise value and Borrowings whereas Equity has shown a steep growth of 6.603% in an eleven years time period,

On the other hand if we observe the fig where growth of the three variables are measured we came to know that Enterprise Value has shown the negative growth of -1.972% corresponding Borrowings and Equity have also shown the negative growth of -0.849, -0.338 respectively, as depicted in the figure...Enterprise value has shown the highest plunge among the three variables followed by the borrowings and Equity, though on year to year basis if we observe the Enterprise Value, after 2002 it has shown a boost during 2003 and down again during 2004 and like vice, this fluctuation might be because of changes in the mix of Debt and Equity having an impact on the enterprise value, there might some other factors too though not taken in to the consideration. The basic intend of optimum capital structure is to enhance the wealth of the firm by enhancing the market value of share. The firm's wealth is increased, if after tax earnings are increased. A company raises debt at low cost with a view to enhance the earnings of the equity shareholders. The cost of debt is lower due to tax advantage. A fixed rate of return is payable on debt funds, any excess earnings over cost of debt will be added up to the equity shareholders. Capital structure decisions should always be aim at having debt component in total component in order to increase the earnings available for equity shareholders, here in the textile sector mix of Debt and Equity is there but the external source that is debt contribute a major source of financing throughout the study period except during 2009, 2010, and 2011. It is also noticed that the effective rate of tax paid by the manufacturing sector grew negatively while the resources mobilized by this sector.

If companies are taken individually it could be examined that Vardhman, SRF, Arvind and Welspun all were having debt as a major source of financing and , Arvind mills and Welspun have a growth in the Equity financing as compared to Vardhman and SRF where the Equity financing remain almost constant throughout the eleven years of period.

About Software and IT Industry- The industry average is taken on the basis of Wipro, Zenith, Zensar, Satyam and HCL

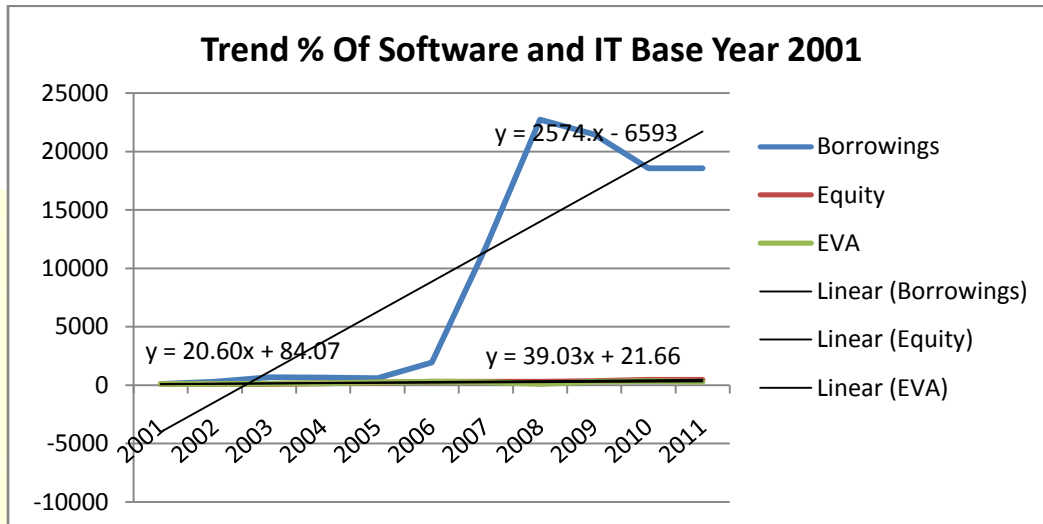


Figure 1.8

In the above graph with the base year 2001 and over a period of eleven years Enterprise value has shown the increasing trend of 39.03% corresponding value of Borrowings is 2574% and that of Equity is 20.60% so we can examine that among the three variables borrowings have shown an increasing trend with thousands times whereas the Equity and Enterprise value has shown very fewer increased trend compare to that of the Borrowings. The sector is heavily flooded with the external financing not have much of the Equity financing. Till 2005 there is a suitable mix of Debt and Equity but after 2005 it slightly get on a higher side during 2006 and then take a peak following 2007, 2008, 2009, after a slight fall during 2008 following the pattern till 2010 and then stable during 2011. Among the five companies taken for the analysis of software and IT except HCL rest four companies have shown a rise in the borrowings after 2005 and this rise may continue till 2007 or 2008 and after that it fall down till 2011. These four companies named Wipro, Zenith, Satyam, Zensar have shown exactly the same pattern as in the case of borrowings, before 2005 there an almost equal weight age of Debt and Equity in the Capital structure and having a same value of Enterprise.

The main benefit of debt financing is the fact that interest payments are deducted in calculating taxable income, allowing a tax shield to the firms. This tax shield allows firms to pay lower taxes than they should, when using debt capital instead of using their own capital. As researcher

moved in examining deeper notion of capital structure, several theories emerged all of which conclude the existence of an optimal capital structure based on balancing the benefits and costs of debt financing.

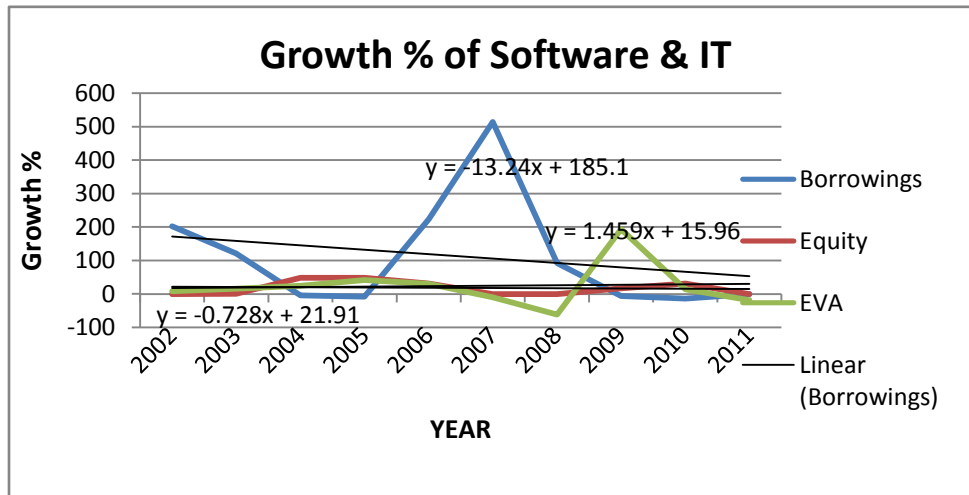


Figure 1.9

In the Above graph Borrowings have shown the growth -13.24%, Enterprise value has shown the positive growth with 1.459% whereas Equity have shown -0.728% growth over eleven years of time period. During initial years that is 2002 borrowings have grown almost 200% compare to the base year 2001 and during 2007 it has grown to its highest with 513% growth within seven years it has grown almost double depending heavily on the Debt capital corresponding Equity has grown 0% and Enterprise value just 8%

Conclusion- The enterprise value of the pharmaceutical Industry is fluctuating over the period of eleven years though increased with that of the base year 2001, the trend has been observed that whenever there is increase in employment of Debt amount in the capital structure there is decrease in the value of Enterprise. The trend through graphical presentation clearly states that whenever there is increase in the amount of Borrowings there is decrease in the value of Enterprise. The enterprise value of FMCG Industry is fluctuating over the period of eleven years though decreased with that of the base year 2001 and remain constant thereafter then it has increasing trend after 2004 though fluctuating in nature it has been observed that whenever there is increase in employment of Debt amount in the capital structure there is decrease in the value of Enterprise. In energy sector with that of increased use of Borrowings the Enterprise value is

decreasing, this fact may be clear with the growth% graph where it is clearly shown that whenever there is growth in the use of borrowings the enterprise value is decreasing that can be observed with the loop formation in the graph the green line represents the Enterprise value and the blue line represents the borrowings of the Sector, whenever there is negative growth in the borrowings there is positive growth in the enterprise value and vice versa which leads to loop formation Equity has remain almost conservative over a period of time.

In textile sector, Enterprise Value, after 2002 it has shown a boost during 2003 and down again during 2004 and like vice, this fluctuation might be because of changes in the mix of Debt and Equity having an impact on the enterprise value, there might some other factors too though not taken in to the consideration. The basic intend of optimum capital structure is to enhance the wealth of the firm by enhancing the market value of share. The firm's wealth is increased, if after tax earnings are increased. A company raises debt at low cost with a view to enhance the earnings of the equity shareholders. In software and IT sector Enterprise value has shown the increasing trend of 39.03% corresponding value of Borrowings is 2574% and that of Equity is 20.60% so we can examine that among the three variables borrowings have shown an increasing trend with thousands times whereas the Equity and Enterprise value has shown very fewer increased trend compare to that of the Borrowings. The sector is heavily flooded with the external financing not have much of the Equity financing.

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