

Relationship between Capital Structure and Its Determinants: Trend Analysis of the Sectors

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Abstract: The study mainly consists the explanation about the sectors selected for study, relationship between the entire variable is done through trend analysis, pattern is being observed and reasons were supported for the trends. The portion also depict about the capital structure with the advantages and limitations of each of the sectors. Trend analysis is mainly done to focus and have a clear picture of pattern among the variables at a glance.

Keywords: Capital structure, Determinants, Firm Value, Debt Equity ratio.

1. INTRODUCTION

Market situation have a considerable impact on a firm's capital-structure situation. Suppose a firm wishes to make new investment and needs to borrow funds for a new plant and if the market is under pressure, the investors are restrictive in companies' access to capital because of market concerns and the interest rate to borrow may be higher than a company would want to pay. In that situation, it may be sensible for a company to stay until market situation back to a more normal state and then tries to access funds for the plant. Firms that are in the growth stage usually finance growth through debt taking or borrow money to grow faster. The only problem that arises with this method is that the revenues of growth firms are typically unstable and unproven and therefore the fixed interest payment obligation is not preferable and firms need to go for equity financing as well.

An important consideration for making an investment by the investor is a company that favors good fundamentals and strong balance sheet. A good balance sheet can be appraised by three wide categories of quality investment activity, Adequacy of working capital and capital structure. Therefore importance of capital structure cannot be ignored and so the value of firm.

2. TREND ANALYSIS OF DIFFERENT SECTORS

Trend Analysis FMCG Sector:

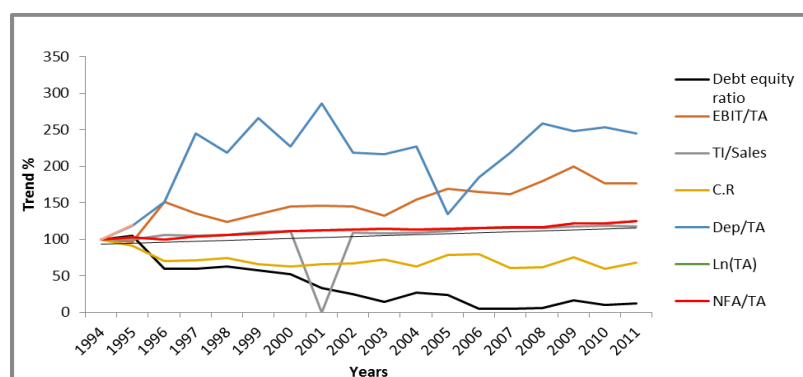


Figure 1.1: Trend Line FMCG Sector

From the above chart 1.1 it is clear that the trend of Debt equity ratio (FMCG) is going down and the same trend is also shown by liquidity ratio, both ratio move in coordination with each other and shows the same trend that means both follow the same trend in the sector, Return on Asset (profitability) has shown the increasing trend with fluctuations reaching highest during 2009 corresponding to the next year we can see a down trend during 2010 in debt equity ratio, that means internal profits are reinvested next year 2010. Non debt tax shield has shown altogether high fluctuations throughout the eighteen years of time period with highest dip in the year 2005. Another aspect of profitability that is Total income by sales remains stagnate throughout the period of 18 years with a high dip during 2001, in the same year we can see the highest increase in non debt tax shield forming the pattern, with this advantage the sector has lowered the debt equity ratio. Tangibility has shown an upward trend with very slow pace. Overall we can say that FMCG sector do not rely much on external financing and depends much on internal financing and other sources of capital. Here FMCG sector consist of Dabur, Proctor & Gamble, Nirma, HLL and ITC. As per the report of Boston Consulting group the Indian FMCG sector is growing at an annual rate of 12% per over the past decades. With decrease in crude price, companies have been transferring costs to end users and employing the saving to focus on increasing volumes by aggressive advertising and promotional activities. A good number of companies have begun refocusing on urban markets. The sector is expected to grow at the rate of 14% for the next decade driven by the factors such as increasing income and rising urbanization.

Trend Analysis Cement Sector:

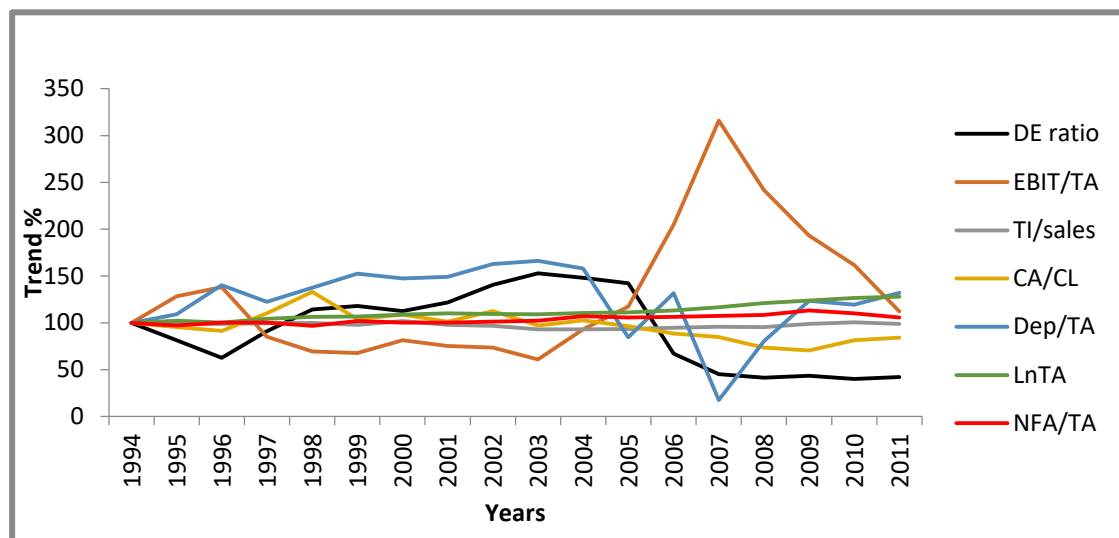


Figure 1.2: Trend Line Cement Sector

From the above chart 1.2 it is clear that Debt equity ratio is fluctuating, after 2005 it has gone down. Return on Asset has shown a little increase in trend from 1994 to 1996 and then it started to take a dip with fluctuations till 2004 from where it took an upward trend which continue till 2007 where it form a highest pick in all eighteen years and then it took a downward trend and fall down. Total income by sales has shown a constant down trend that means either there is need to increase the sales or decrease the expenses, liquidity ratio is fluctuating and going towards downward trend, the average current ratio maintained throughout the eighteen years of period is about 2 that is an ideal for the industry not indulging cash too much on current asset and not losing the interest benefit, Non Debt tax shield is fluctuating but going towards increasing trend till 2003, from there then it took a fall till 2005 and then it took a leap and again fall down during 2007, the Return on Asset is highest during 2007 and tangibility is lowest in the same year forming a pattern in the chart. Cement sector is able to generate the sales on its assets and utilizing it to its fullest.

The sector comprised of five companies naming Acc, Madras cement, India, Birla Corporation and Ambuja. The sector has grown about 8% per annum over the past decade as per the report of Boston consulting Group. The housing sector along with industrial and infrastructure sector have emerged as key drivers in the growth of sector. Economic growth is closely linked to the demand of cement, further the crash in the global crude oil prices must assist cement companies to reign over cost pressures and improve profitability of the sector. India has witnessed the substantial growth in sector since 2001 and that is the biggest reason of pick in Return on Asset during 2007.

Trend Analysis Oil & Energy Sector:

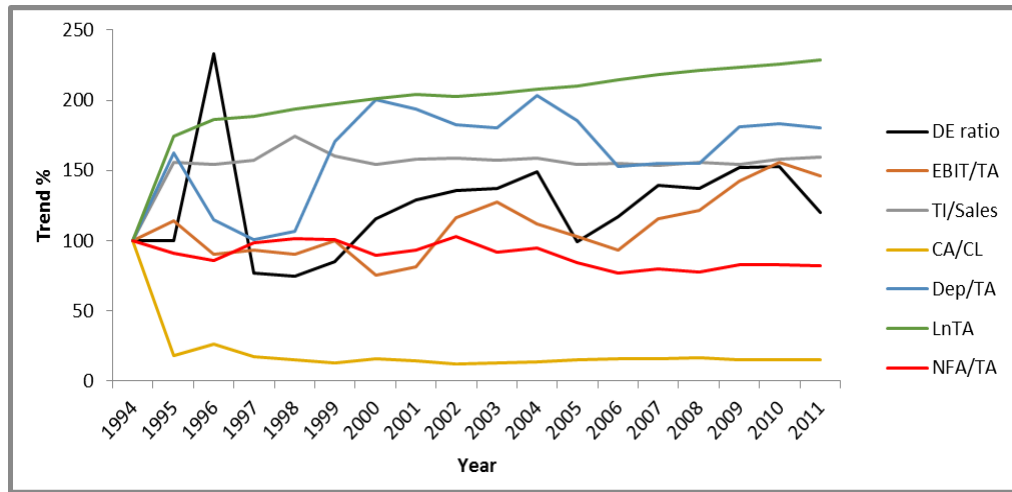


Figure 1.3: Trend Line Oil & Energy

From the above Fig 1.3 it was found that Debt equity ratio is fluctuating with highest pick during 1996 about 250% growth within two year from the base year 1994, then it fall down sharply during 1997 and remain variable till 2011. As compared to other sectors, oil & energy sector has shown the highest variability in terms of the trend. Since the inception of regulated debt market during 1994, the year 1996 has revealed a sharp rise in the leverage, but due to the risk of financial distress cost and improved situation of working capital the leverage ratio fall down sharply, the sector is also opting for ideal combination of debt and equity. Return on Asset remains average with minor fluctuation throughout the eighteen years of time period that means still there is a scope of much utilization of the Asset to generate the sales the sector suffered more in terms of returns due to the deregulation and regressive petroleum policies in past. In the initial year 1994 to 1999 ratio of total income by sales was fluctuating later on during 2000 it remain constant with minor up and down, with the enactment of new exploration policies, policy to encourage investments and competition across the value chain by Government of India the sector has observed the positive change in terms of regulated policy. There is a sharp fall in the liquidity ratio with much of improvement in working capital management. Non debt tax shield has shown the trend same as that of debt equity ratio, if we observe the pattern of two in the chart both follow the same trend in different pace. Size of the firm denoted by Ln(TA) is going towards increasing trend denoting that overall size of the sector is enlarged since the base year 1994. Tangibility is fluctuating and going downward trend and has not shown much of the shift.

Trend Analysis Pharmaceutical Sector:

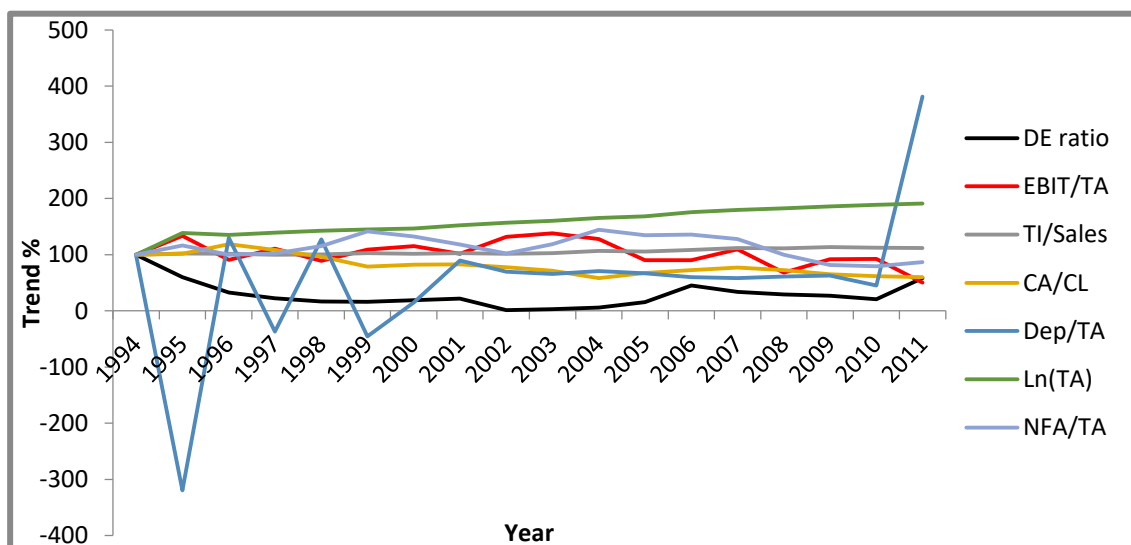


Figure 1.4: Trend Line Pharmaceutical

In the Fig 1.4 Debt equity ratios is going in a down trend and not showing much of the shifts with just minor fluctuations in the past years. The sector seems to be not much leveraged and prefer internal source of financing and follow pecking order preference. Indian Pharmaceutical sector accounts for about 2.4% of Global pharma Industry in terms of value. Return on Asset has shown the fluctuations in the past years both the of these aspect intersect at a point during 2011, with the utilization of its assets the sector is able to generate the sales but the capacity can be enhanced further as we can see that it has been used at a constant pace. Total income by sales has shown little increasing trend at a constant pace, besides the domestic market, the pharma companies are having large chunk of revenues coming from exports. Moreover the reason behind the constant pace of increase in revenue ratio is the Indian pharma companies have increased their R&D expenses and are spending more to establish their exclusive products, thus shrink the profits earned. Sometimes depreciating rupee helped some companies to earn better return whereas on the other hand companies having forex loans on their books may come across with higher payment of interest amount. With better management of working capital, liquidity ratio has shown a downward trend on an average the sector has maintain a ratio of about 1.5. Like other sector above, this sector has also shown much of the fluctuation in Non debt tax shield

and formed a pattern during initial years of time period. Size of company has shown an increasing pace due to overall increase in size of sector accounted for about 10% in terms of volume. Tangibility has shown minor fluctuations with downward trend. Overall IPS is expected to grow at 10-12% with increase health care insurance, rapid urbanization and consumer income.

Trend Analysis Software Sector:

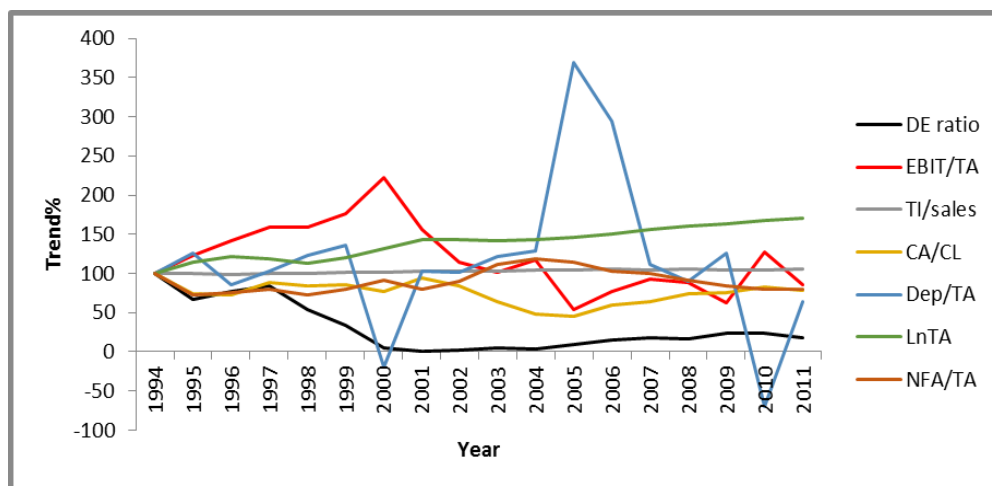
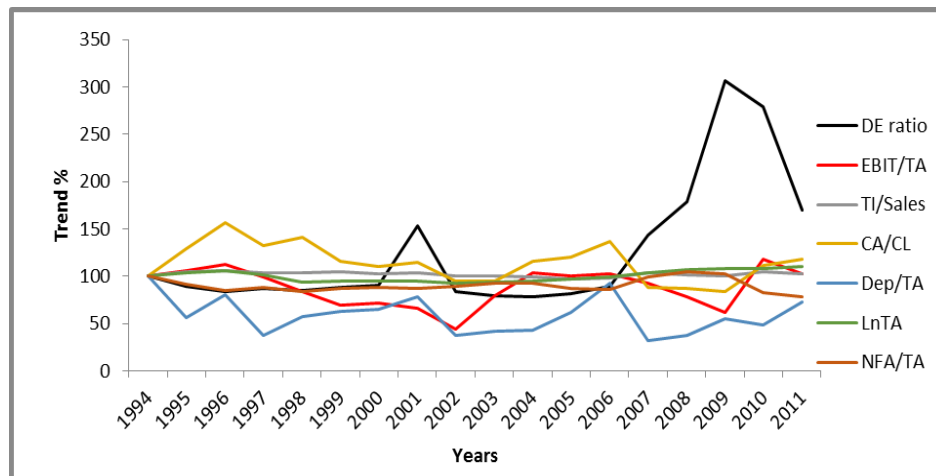
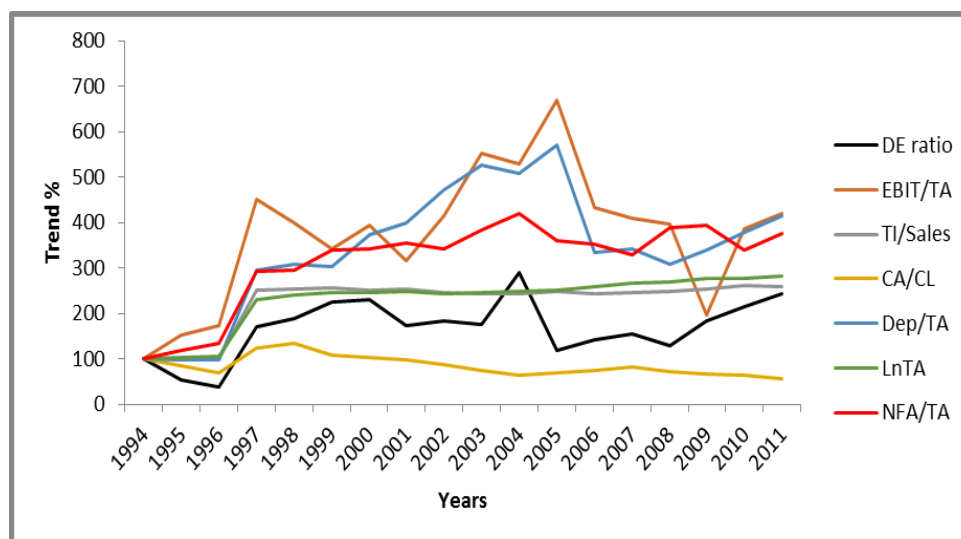


Figure 1.5: Trend Line Software

From the Fig 1.5 it is clear that Debt Equity ratio is moving towards a downward trend. The capital structure of Software industry is altogether different from other sectors mainly because software companies do not include much debt to financially leverage their earnings because the industry is basically knowledge intensive and it experience high volatility of its intangible assets moreover these assets cannot be hedged or put to mortgage for purpose of getting loan. Assets are very specific in case of software firms and it requires considerable investment to exploit. Return on Asset has shown considerable movements of up and down, later years after 2003 have witnessed the downward trend with fluctuations. The industry was impacted by global financial crisis during 2008 and because of this total income by sales has shown a constant growth and move very little towards rising trend, software firms don't require much long term funds once they initiate their operations and their business risk is also very high therefore in order to minimize overall risk they keep their financial risk low with less leverage. Liquidity ratio is moving towards down trend but software firms wish to ensure high liquidity to enable them to make rapid shifts, through internal accruals and cash flows they fund their operations. Non Debt tax shield formed one high pick and two dips in the chart. Size of firms has shown an upward trend indicating that the overall size of the sector has increased, it is expected that it will grow further with 12% to 14% in coming years. Tangibility has also shown the fluctuations as the industry have more of the intangible assets as compared to tangible one. The global sourcing industry is continues to grow with increase in market share of IT firms therefore outlook of industry remain robust and firms are expected to preserve their margins through improved employee utilization and increase in use of software automation.

Trend Analysis Textile Sector:**Figure 1.6: Trend Line Textiles**

From the chart 1.6 it was found that Debt equity ratio is low during initial years and it took a small leap in 2001 and again dropped down to same level and shows upward trend after 2006 till 2009 and again dropped down. Indian government has come up with 100% FDI in Indian Textile centre under the automatic route. Profitability (ROA) has shown the fluctuations indicating not much of the profits on its asset base, total income by sales is constant with little upward moment as the Indian Textile industry has strong base of raw material, cheap labour, skilled and unskilled workforce, good export potential all these feature made the industry largest and oldest sector employing nearly about 35 million people. Liquidity ratio has shown the fluctuations, initially it took a small leap and then it move forward but from the year 1996 it start moving towards the decreasing trend, textile is basically a manufacturing industry require a flow of cash and good amount of investment in working capital. Non Debt tax shield has shown much of the movements as compared to other aspects of the industry the industry has observe the surge in foreign investment during the last five years and thus giving way to FDIs. Size of the firms has shown a constant little growth, the industry has contributed about 12 to 14% to industrial production and about 2 to 4% to country's GDP. The industry is very fragmented and therefore competition from low cost producing nation is likely to intensify. The textile firms can expect a better a prospect in terms of higher export demand; fall in the price of raw cotton, falling interest rates and favorable exchange rates. Textile industry has direct linkage to the rural economy and also with agriculture sector and it's estimated that every six thousand Indians depends either directly or indirectly for its livelihood.

Trend Analysis Automobile Sector:**Figure 1.7: Trend Line Automobile**

It was found from above Fig 1.7 that Debt Equity ratio is hovering up and down and was highest during 2004. The industry is highly capital intensive and capital expenditure will rise as the market is moving towards complying with global standards to accommodate the safety regulations and other features, thus the sector will comply for the optimal mix of debt and equity. Return on Asset is fluctuating as high cost of capital, technology, availability of auto components and also there is a need of strong distribution network. Ratio of Total Income by sales was constant from 1994 to 1996 and then it took a leap and remains constant till 2011. Increase in Operating efficiency with maximum localization of components and raising the output per employee is significant because the industry increases profitability by selling more units and with every increased number of units sold, average cost of selling an incremental unit will get decrease, moreover the industry has high fixed cost that can be bring down with every one more units sold. Liquidity has very little fluctuations with better working capital management in the industry. Non debt tax shield is hovering up and down on year to year basis; Size of the company has shown the same moment to that of ratio of total income by sales, most companies have improved operating margins due to various cost rationalization methods. Tangibility has shown the moment same as that of Debt Equity Ratio, the automobile sector need to maintain the inventory according to demand because demand is largely cyclical in nature, seasonality is a vital factor, it also depend upon economic growth and per capita income. The government aimed to develop India as a global manufacturing and research centre, with alternative fuel resource available, it boost the demand of vehicles.

Trend Analysis Steel Sector:

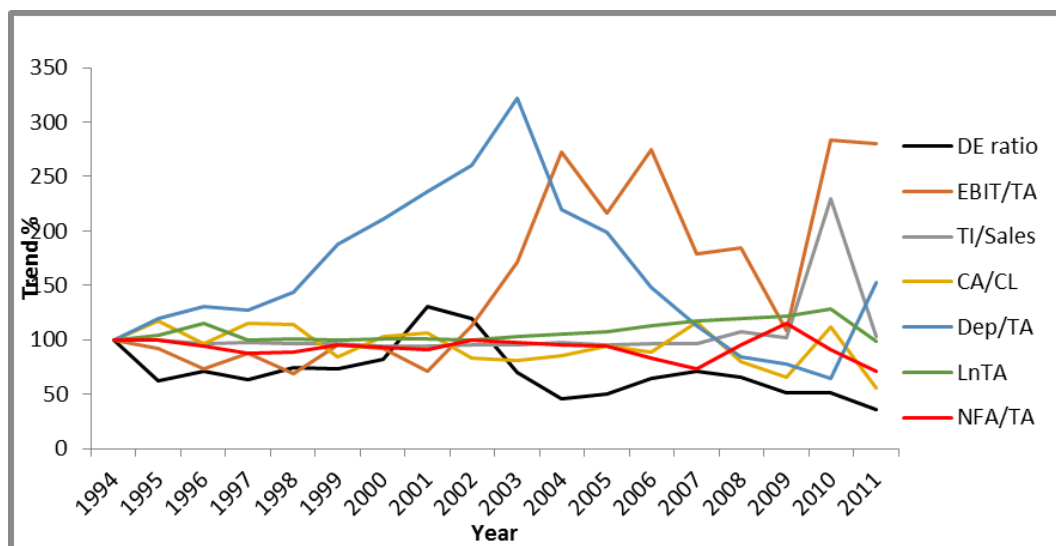
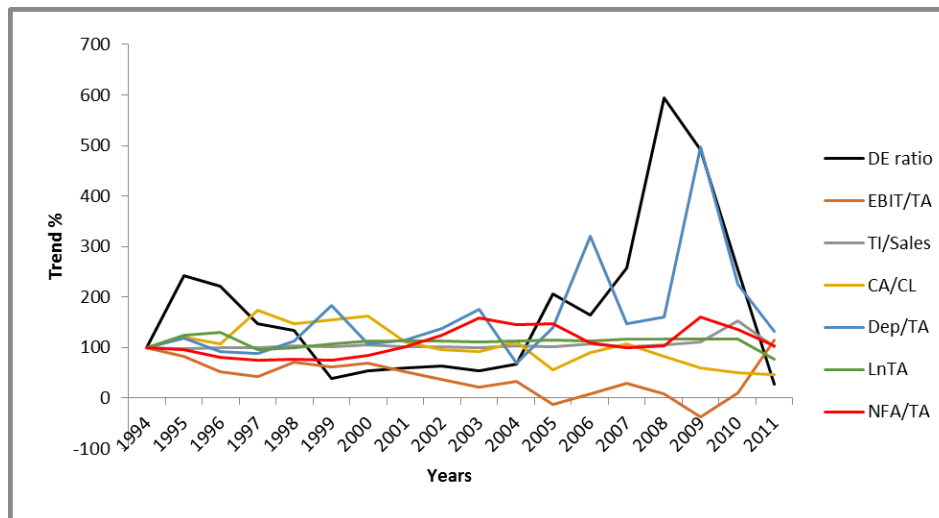
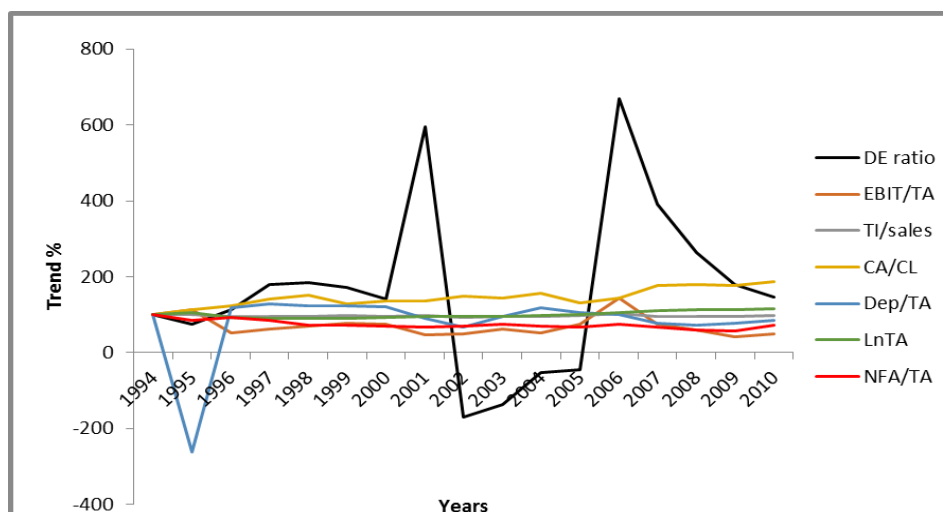


Figure 1.8: Trend Line Steel

From the above Fig 1.8 it was found that Debt equity ratio remains fluctuating throughout the given period and remains on lower side indicating not much of debt is being employed in the steel sector. With rise in infrastructure expansion and growth for automotive, consumption of steel will increase on year to year basis, moreover consumption per capita would also increase with rapid growth in industrial sector and rise in expenditure on infra projects like that of railways, roadways etc and with so much of increase in demand of steel it is expected of increase in production, that leads to increase in investment particularly in steel sector. Return on asset has shown a minor fluctuating trend till 2001 and after that it rises drastically till 2004 and again has a trend of up and down in consecutive years till 2009, thereafter it again rises and remains stable, with this trend it can be anticipated that assets are utilized properly to increase the returns. Total income by sales remains stable till 2009 and took a surge during 2010 and back to earlier low levels. Liquidity has minor fluctuations of up and down all through the eighteen years of time stating the suitable management of working capital. Non debt tax shield has highest point during 2002 and before 2002 it has increasing trend from base year 1994 and decreasing trend after 2002 till 2010. Size of industry has minor increasing trend with positive global economic growth and increase in demand of steel considerably. Tangibility has highest trend during 2004 and remains variable during rest of years. Overall Indian Steel Industry faced challenges during the period on the other hand Indian steel industry do enjoys the advantage of cheap labor and availability of raw materials. This provides major cost advantage to the domestic steel industry.

Trend Analysis Telecom Sector:**Figure 1.9: Trend Line Telecom**

From the Fig 1.9 it was established that Debt Equity ratio has shown a substantial moment during the given time period, from 1994 to 1999 it has first shown an increasing trend and then a downward trend and remain stable till 2004 and thereafter an upward trend till 2008 and goes down after that, with this fluctuations it could be predicted the industry have mixed proportion of debt and equity financing in the capital structure. During 2008 Debt equity ratio was highest because the operator's balance sheet was under pressure due to the debt taken for the spectrum auctions and increase in capex requirement as the operators putting their continuous effort for improving capacity and efficiency of their networks to embrace the growth in data consumption. Return on Asset has a downward trend because the fixed line business continues to remain subdued and the increasing demand for internet or data based services is the major catalyst in the sectoral growth leading to immense opportunity of mobile in India. Total income by sales ratio remains stable with little increase during 2010, with lowest tariffs in the world and increasing choice. Liquidity remains stable with little fluctuations over a period of time indicating the better management of working capital meeting the timely short term requirement. Non Debt tax shield, if observed closely has shown a movement opposite to that of debt equity ratio that means whenever the latter increases the former goes down and vice-versa, indicating inverse relationship between each other. Size of the industry indicated by natural log of total asset remains stable over a period of time though the number companies have increased that gives immense choice among the end users to go for a particular network that also made lowest tariffs in India all over the world making attractive for average consumers.

Trend Analysis Power Sector:**Figure 1.10: Trend line power**

From the Fig 1.10 it was found that Debt Equity ratio form a patten U, initially it was bit constant for three year and then shows an upward moment till 1998 and then shows a down trend, again took a leap during 2001 and form a pattern of 'U' between the year 2002 and 2005 and then it give a downtrend, the power sector shows very different pattern of debt and Equity ratio as compared to other sample industry in the study, power industry is one of the key driver for economic growth and poverty alleviations. One of the biggest limitations of sector is availability of raw material coal and improvement of operating performances and restoration of financial health of SEBs, it remain one of the critical issues in the growth of power industry. The sector still needs reform because still there is sparsely distribution of loads in large rural areas, scope of investment in distribution system, large amount of energy still sold at low voltage with high pilferage and improper billing. Thus we can see that all other variables does not have shown much of the moment and have impact of above mentioned limitations on the way. There is large fluctuation in Debt equity ratio because of 75% of the loan on SEBs books have shifted in the books of their respective state governments after this action SEBs have got some relief in terms of fixed financial charges, the situation will get much better with hikes in regular tariff, most of the political parties intend to gain vote bank from farmers on the cost of free power and are reluctant to increase the power tariffs later on. There is adequate room for many players, shortage of inputs such as and natural gas and regulatory hurdles has dissuaded new entrants. Barriers to entry are high due to state monopolies especially in the transmission and distribution segments.

3. CONCLUSION

Table 1. Descriptive Statistics

	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>Sam Vari</i>	<i>Minimum</i>	<i>Maximum</i>
<i>DE ratio</i>	0.78	0.74	0.64	0.42	-0.70	3.54
<i>EBIT/TA</i>	0.21	0.21	0.11	0.01	-0.11	0.51
<i>TI/Sales</i>	0.97	0.97	0.14	0.02	0.36	2.25
<i>C.R</i>	2.33	2.18	0.96	0.93	0.81	9.17
<i>Dep/TA</i>	0.11	0.04	0.22	0.05	-0.13	1.25
<i>Ln(TA)</i>	7.03	7.13	1.12	1.25	2.92	9.67
<i>NFA/TA</i>	0.67	0.70	0.15	0.02	0.22	1.01
<i>EBIT/Int</i>	858.9	24.89	6564.78	43096396	-548.00	85850.71

From table 1 gives the information regarding Mean, Median, Standard Deviation and Sample variance, Minimum and Maximum value of dependent and independent variable, from the above information it was found that the value of EBIT/Int in all case is very far away from other values of the variable and therefore it may called as outliers. The minimum value of dependent variable is -0.70 and maximum is 3.45 with mid value 0.74, here the negative leverage ratio means that the sector made an investment using the borrowed fund and the fund have greater cost than the return on investment or the other reason could be negative shareholders equity due to failure of raising of money to cover its losses made in the past. High leverage ratio means sector is aggressive in financing with a borrowed fund and there may be a greater chance of bankruptcy if earnings do not exceed the cost of borrowed fund. Value of standard deviation is used to determine how spread out the data from its mean value, if we look in to the mean value of DE ratio it is 0.78 and the SD is 0.64 which means that values are not much spread out from its mean value. If we look in to the profitability aspect Return on asset (EBIT/TA) is having a minimum value of -0.11 that means negative return, it happened mainly when firms are inducing high amount of capital in to its production and getting little income and if negative ROA is supported by high intensity of debt levels the effect of negative ROA is overstated. The maximum ROA is 0.51 that means firms are able to utilize their assets to produce the profits and it shows how profitable are company's assets. The standard deviation is 0.11 that indicate the values are much spread out around its mean value and its risky to invest high amount on capital assets, if company is not able to employ its asset with maximum utility it may turned out to be in negative profits. Total income by sales ratio or the profit margin ratio indicates how much firms are getting on its total turnover, income can be increased by two ways either by reducing the expenses or by increasing the sales at given level of expenses, here the maximum value is 2.25 that means 2.25% of sales has been converted in to profits, the minimum value is 0.36 and the standard deviation is 0.14 that is very much spread out from its mean value of 0.97 and is very risky because if by any chance sales

reduced or expenses increased the profits turned out to be negative, that also can be cleared from a low profit margin of 2.25%. Current ratio has a maximum value of 9.17, which is very high as compared to ideal ratio 2:1, the higher ratio means firms are highly capable to pay its debt but leaving the cash idle and not utilizing it and therefore loosing the interest cost, this ratio also tells about company's operating efficiency. It has a minimum value of 0.81 less as compared to that of 2:1 and do not have enough asset to pay off its current liabilities. Standard deviation is 0.96 and the mean value is 2.33 which mean liquidity aspect is very risky as it is going as high as 9.71 and going as down as 0.81 levels. Non debt tax shield has maximum value of 1.25 an increasing value of this ratio indicate that company has acquired new assets and made progress to its operation, the lower value is -0.13, the decreasing value showcase that the company is not making any addition to its assets because of constrained budget. Deviation of Non debt tax shield is 0.22 from its mean value 0.11 show the data are not very much scattered and hovering around its mean value. Natural log of total asset has the highest value of 9.67 indicate the size of firm; lowest value is 2.92 with a standard deviation of 1.12 and means value is 7.03 that means data scattered away from each other. Tangibility has the maximum value of 1.01, tangibility can be used to raise loans it serve as a collateral, tangible assets like plants and machinery can be readily sold to raise cash in case of emergencies. Standard deviation is 0.15 with mean value of 0.67.

With respect to size and asset tangibility, if at all firm face the financing deficit, the manager may use these dimensions to assess his firm's eligibility to borrow, and also to know about his firm's bargaining power to negotiate the price of external debt. A firm with large total assets in general and in terms of tangibly/collateralizable assets, one may be able to bargain low rate of interest on loan amount. Thus the above aspects can be judged to have association with the capital structure.

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