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## DETERMINANTS OF CAPITAL STRUCTURE IN TRANSPORT AND TEXTILE SECTORS IN INDIA: A COMPARATIVE STUDY

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### ABSTRACT

*A multiple regression method has been applied to find out determinants of capital structure in manufacturing sector which consisted two subsectors Textile and Transport. Data from 136 companies of 2 sub-sectors listed in Bombay Stock Exchange (BSE) for fourteen years (1999 – 2012) has been collected from. Total number of observations was 1904. Multiple regressions for panel data of two sub sectors have been applied. Long term debt to book value of the company was used as the leverage ratio as dependent variable. The results show that assets composition and firm age have positive significant impact on debt equity, whereas liquidity has significant negative impact on debt equity in transport sector in India. In textile sector profitability has significant negative impact and Tobin q has significant positive effect on debt equity at book value.*

### KEYWORDS

capital structure, textile sector.

### 1. INTRODUCTION

Decisions on capital structure or the plan of long term financing are not always based on a consideration of intent factors. Unfortunately, there is no clear enchantment percentage of debt that a company can take on. The critical trouble facing companies while raising funds is whether to raise debt or equity. However, strong balance sheets always attract lenders to put their money into companies. Generally speaking, lower debt and higher equity levels is one of this reason but we also know that using more debt provides tax shield to company which ultimately increase the EPS to the Shareholders. Capital structure is the mixture of sources of funds a firm uses (debt, preference shares, Equity shares) and the debt portion that a firm uses to finance its assets is called leverage. A firm with a lot of debt in its capital structure is said to be highly levered and with no debt is said to be unlevered. Equity consists of a company's Equity and Preference shares including retained earnings, which are summed up in the shareholders' funds.

As it is well known that Expected earnings stream and the rate used to discount earnings (cost of capital) are the two important factors that determine the value of firm. So that capital structure decision can affect the value of the firm either by changing the expected earnings or the cost of capital or both. We know that leverage cannot change the total expected earnings of the firm, but it can affect the residual earnings of the shareholders. The term company's capitalization is an amount of capital and debt, which is long-term variety. Deciding capital structure or capitalization is an important function of the financial manager, and the management of company use different combinations of debt and equity. Debt capital is cheaper than equity because of providing tax shield, but such deductions is not allowed for dividends, consequently effective rate of interest, which the company has to bear, would be less than the normal rate at which debt securities are issued. So cost principle suggests to minimize cost of capital and maximize earnings per share debt source is an ideal pattern of financing. On the other hand debt also involves financial risk, so adhering risk principle suggest minimizing the level of debt in the capital structure. Deciding capital structure is also affected by control principle, because we know that issue of new equity dilute control to new sh. holders, but debt is flexible source of finance because of its time limiting factor. However more primary questions to be answered are: Does use of debts in the capital structure enhance value of firm? And do firms able to achieve the target of an optimum mix of debt and equity. The theoretical principle to answer these questions involves trade-off theory, pecking order theory.

### THEORIES OF CAPITAL STRUCTURE

- a. Trade-off Theory: The marginal benefit (the tax shield) of further increases in debt declines and the marginal cost increases (the bankruptcy costs) of using more debt level in the capital structure. So that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing, (Modigliani and Miller, 1963), (Mazur, 2007), (Jensen and Meckling, 1976)
- b. Pecking Order Theory: This theory states that companies prioritize their sources of financing (from internal financing to equity) according to the law of least effort. The pecking order theory is popularized by Myers (1984). Businesses adhere to a hierarchy of financing and always prefer retained earnings first then debt and in last equity as external financing.

The above said theories clearly indicate that, debt is a good example of the well-known two-edged sword. Greater leverage maximizes EPS but also increases risk. Thus, the highest stock price is not reached by maximizing EPS. The optimal capital structure usually involves some debt, but not 100 per cent debt. The optimal level of leverage is not easy to identify but companies always try to find an optimal range for the capital structure.

Capital structure, sectors and sub sectors: There are many researchers who conducted study on various sectors and sub-sectors and tried to find out industry and firm specific factors to determine the capital structure. Jordan et al. (1998) tried to find out whether industry's determination and capital structure are interrelated. Service businesses for instance are less likely to be aspirant for bank loans because they often lack assets which can be used as collateral, Hisrich (1989). Twenty Five percent of the variations affected by industry classification only and capital intensive firms were more levered Bradley et al. (1984). Industry factors were not nearly as important as firm specific ones, Balakrishnan and Fox (1993). Financial structures of small and large firms in the manufacturing industry were different as SMEs have no access to capital market to raise external equity finance but simply rely on retained earnings, debt and additional investment by the owner-manager, Holmes and Kent (1991). Firms operating in different industries displayed different levels of debt in their capital structure, Prasad et al. (2001). Harris and Raviv (1990) found in their study that firms within an industry have more in common with each other than with firms in different industries in context of capital structure. Drug, instrument, electronic, and food industry sectors have consistently low leverage and textile, mill products, steel, airline, and cement industries have consistently high leverage, Bradley et al. (1984). Industry classification to be significant although not in every case examined by Remmers et al. (1974), Errunza (1979) and Aggarwal (1981). Textiles, building and construction, mining and exploration have more debt in their capital structure compared to automobile, agriculture, food and transport, Boateng (2004). Johsen and McMahon (2005) found in their study that industry has an effect on long-term debt, particularly for manufacturing, retail trade, and transport.

### DETERMINANTS OF CAPITAL STRUCTURE

There are many researchers who used different forms of leverage ratio to represent the capital structure of a firm. The main differences exist in the numerator as well as in the denominator of the leverage ratio. Some researchers have used only long term debt (Chkir and Cosset, 2001) while others opted for total debt as the numerator (Bevan and Danbolt, 2002). As the denominator, some researchers have used market value of firm (Chkir and Cosset, 2001) while book value of the firm was used by others (Graham and Harvey, 2001, Mazur, 2007). Here dependent and independent variables are defined as

#### DESCRIPTION OF VARIABLES

- a. Dependent Variables

Debt equity at book value = Long term Debt (book value)/ Equity(book value)

## b. Independent Variables

I. Assets Composition: It has been asserted that companies tend to match the maturities of their assets and liabilities. In general the best financing strategies is to match the debt maturities with assets maturities. We would, therefore, expect to find sh. holder funds positive associated with fixed assets as the fixed assets involve large quantum of funds for long term period (Ezeoha,2008) and (Abor,2006). This study has taken the ratio of net fixed assets to total assets

Assets composition =  $\frac{\text{Net Fixed Assets}}{\text{Total Assets}}$

II. Liquidity: Liquidity is the ability of a company to meet the external obligations. A more liquid company is able to convert its assets into cash. In case of company incapability to pay its creditors on time and not able to honor its obligations leads to bankruptcy. Lack of liquidity can cause the company to miss the incentives of cheaper debt that may also affect the profitability position of the company. So that every stakeholder has interest in the liquidity position of a company. So liquidity position is a matter of concern for debt holders for providing finance to company, (Eriotis,2007). This study has taken the ratio of liquid assets to current liability.

$$\text{Liquidity} = \frac{\text{CA} - \text{Inventory}}{\text{CL}}$$

III. Earning Volatility: Earning Volatility indicates bankruptcy cost. The companies reduce the debt level in their capital structure when earning volatility is high, (Akhtar, 2005), (Chen, 1998). This study has taken the ratio of EBIT to total assets (5 yr. Avg).

$$\text{Earning Volatility} = \frac{\text{EBIT}}{\text{Total Assets (5 yrs. Avg.)}}$$

IV. Growth rate: Securities are sold when growth is expected at a more rapid rate than can be financed by retained earnings. In general, fast growing companies with great need for funds are more likely to use debt (Eriotis,2007). On the other hand the companies which are already on growth path may use its internal source as financing source. Management hopes to profit from trading on equity and to be able to retire such financial obligation from the project of expansion. If such expectations are realized, the existing equity sh. holders gain from the expended earning power. But if earnings do not materialize, the company risk a cash drain from paying heavy interest and principal of debt securities. High cost of floating new equity and grater desire for capital structure flexibility, the financial manager likely to use more debt, which can be acquired and liquidated more easily. This study has taken annual change of earnings as growth rate parameter.

Growth rate = Annual change of earnings

V. Log of Sales (Firm Size): It has been seen that sales level direct affect earning position of companies. In general the better earning position attracts more debt in capital structure. But the problem arises in case of credit sales. As we know the liquidity position also affects the capital structure decisions. In case of more credit sales, the internal funds position of company may not be good, (Chen,1998). This study has taken natural log of sales considering base 10.

Log of Sales = Natural log of sales (base 10)

VI. Profitability: More profitable companies rely more on internal funds, as we know that internal funds are not having any kind of explicit cost. Profitability was measured by net profit to sales ratio (Akhtar, 2005) and (Mazur, 2007) whereas (Mira ,2005) used EBIT to total asset ratio. In our study we have taken the ratio of EBIT to total assets.

$$\text{Profitability} = \frac{\text{EBIT}}{\text{Total Assets}}$$

VII. Log of Shares (Ownership): There is a common perception of debt holders that if the no. of shares in the market is high then there will not be having any kind of securities on their lending. So that in such case the debt holders do not show their interest in such companies. In such situations these companies have to depend on their internal funds than external borrowings (Pandy, 2008). This study has taken natural log of shares considering base ten.

Log of Shares = Natural log of shares (base 10).

VIII. Tobin Q: With the help of Tobin Q one can estimate the valuation of company, either it s undervalued or overvalued. When Tobin's Q ratio is less than one, it means that the market value of the company is less than the total asset value, indicating that it is undervalued and if it is more than one, it indicates the overvaluation of company (Pandy,2001) , (Chen,1998). This ratio is also called simply a Q ratio. This study has taken the ratio of sum of market value of equity , book value of long term debt and net current assets to book value of equity, book value of long term debt and net current assets.

Tobin Q =  $\frac{\text{Sum of market value of equity} + \text{book value of long term debt} + \text{Net CA}}{\text{Book value of equity} + \text{book value of long term debt} + \text{Net CA}}$

IX. Agency Cost: In Asset substitution effect, increasing debt level motivate the management to undertake risky (even negative NPV) projects. This is because if the project is successful, shareholders get all the upside, whereas if it is unsuccessful, debt holders get all the downside. In such case there is a chance of wealth transfer from debt holders to shareholders and decrease the value of the firm (Akhtar, 2005). On the other hand, if debt is risky the gain from the project will accrue to debt holders rather than shareholders. In such case management have an incentive to reject positive NPV projects, even though they have the potential to increase firm value. So increasing leverage in capital structure imposes financial discipline on management. This study has taken the ratio of change into total assets to total assets for a given period.

$$\text{Agency Cost (jm)} = \frac{\text{Total Assets}}{\Delta \text{Total assets}}$$

$$\Delta \text{ Total Assets} = \text{Total Assets}_t - \text{Total Assets}_{t-1}$$

X. Firm Age: Firm age means the number of years since listing. In many companies case we have seen that multiple growth opportunities and capital structure is affected by firm age (Shumway ,2001) ,(Loderer and Waelchli,2009). This study has taken no. of years of firm life since listing as firm age factor.

Firm Age = No. of years of firm life.

XI. Debt Service Capacity: The measure of debt service capacity is the interest coverage ratio. This ratio shows the relationship between a committed payment and the source for that payment. A high interest coverage ratio means that the firm can meet its interest burden even if earnings before interest and taxes suffer a considerable turn down. A low interest coverage ratio may result in financial mortification when EBIT decline, (Eriotis, 2007). A higher ratio is desirable, but too high ratio indicates that the firm is very conservative in using debt, and that is not using credit to the best advantage of sh. holder. A lower ratio indicates excessive use of debt, or inefficient operations. Thus, the higher the capacity of firm to serve the debt, the debt ratio of the firm is likely to be higher. This study has taken the ratio of EBIT to interest payment (long term).

$$\text{Debt Service Capacity} = \frac{\text{EBIT}}{\text{Interest Payment}}$$

## RESEARCH METHODOLOGY

### SAMPLING OF THE STUDY

A sample is a miniature of the entire group of aggregates from which it has been taken up. In studies which involve large populations, sampling provides an economical, more efficient and fast method of data collections. In fact it is not practically possible to collect the data from all the members of the population and thus the investigator restored to sampling techniques. The systematic sampling techniques as employed in the present study.

### DATA COLLECTION TECHNIQUES

The proposed research was collected from secondary sources.

### SAMPLE SIZE

This study conducted to find the determinants of capital structure in manufacturing sector which consisted two subsectors Textile and Transport. Multiple regressions have been applied on yearly data ranging from year 1999 to 2012 collected from 136 companies of 2 sub-sectors, listed in Bombay Stock Exchange (BSE). The total no. of observations studied is 1904.



## DESCRIPTION OF THE SECTOR WITH NO. OF COMPANIES AND TOTAL NUMBER OF OBSERVATIONS

N=14 Yrs.

TABLE-1

Sectors	No. Of Companies	Total no. of observation
Textile	85	1190
Transport	51	714

## DESCRIPTION OF THE VARIABLES

Dependent Variable

At book value

TABLE-2

1.	Total Debt/Equity ratio	(V1)	Long term Debt(book value)/ Equity(book value)
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Independent Variables

TABLE-3

1.	Assets Composition	(V2)	Net Fixed Assets/Total Assets
2.	Liquidity	(V3)	$\frac{CA - Inventory}{CL}$
3.	Earning Volatility	(V4)	$\frac{EBIT}{Total Assets (5 yrs. Avg.)}$
4.	Growth Rate	(V5)	Annual change of earnings
5.	Log of Sales	(V6)	Natural log of sales (base 10)
6.	Profitability	(V7)	$\frac{EBIT}{Total Assets}$
7.	Log of Share	(V8)	Natural log of shares (base 10).
8.	Tobin Q	(V9)	$(Sum\ of\ market\ value\ of\ equity + book\ value\ of\ long\ term\ debt + Net\ CA) / (Book\ value\ of\ equity + book\ value\ of\ long\ term\ debt + Net\ CA)$
9.	Agency Cost	(V10)	Total Assets / $\Delta$ Total assets
10.	Firm Age	(V11)	No. of years of firm's life
11.	Debt Service Capacity	(V12)	$\frac{EBIT}{Interest\ Payment}$

## Analytical Software: SPSS and E-View

Statistical Tools: The present study has used of multiple correlation and regression as statistical tools.

1. Descriptive statistical techniques namely mean, standard deviation,

## SKEWNESS AND KURTOSIS

2. Pearson correlation coefficient of correlation 'r' was calculated.

3. Regression analysis

## OBJECTIVES OF THE STUDY

The main objective of proposed study is to find out the determinants of capital structure in manufacturing Sector in India. To achieve this objective, the following sub-objectives have been formulated:

- To find out the determinants of the Capital Structure as subsector wise which consisted Textile and Transport sectors.
- To study the relationship between capital structure at book value and various company characteristics including Assets Composition, Liquidity, Earning Volatility, Growth Rate, Log of Sales, Profitability, Log of Shares, Tobin Q, Agency Cost, Firm Age, Debt Service Capacity.

## HYPOTHESIS OF THE STUDY

H1: There is no relationship between assets composition and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H2: There is no association between company's liquidity and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H3: There is no association between earnings volatility and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H4: There is no relationship between company's growth and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H5: There is no relationship between sales level and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H6: There is no relationship between profitability and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H7: There is no association between the nos. of outstanding shares and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H8: There is no association between the Tobin Q and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H9: There is no relationship between agency cost and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H10: There is no relationship between firm age and debt equity ratio on the basis of book value in the transport sector as well as in the textile sector in India.

H11: There is no association between the company's debt service capacity and debt equity ratio on the basis of book in the transport sector as well as in the textile sector in India.

**ANALYSIS AND INTERPRETATION**

Descriptive analysis of transport sector

N=714

**TABLE-4**

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Debt Equity ( book value)	0	20.1	1.047	1.3464	6.964	76.443
Assets Composition	0.04	0.78	0.3882	0.14606	0.061	-0.419
Liquidity	0.12	4.68	0.7335	0.37685	3.291	24.933
Earning Volatility	-0.28	2.98	0.1715	0.18078	6.542	85.071
Growth Rate	-1906.06	133.31	-2.1296	71.59244	-26.443	704.464
Log of Sales	0.63	4.77	2.3687	0.74107	0.417	0.181
Profitability	-0.23	0.9	0.1291	0.11102	2.369	9.828
Log of Shares	5.51	9.43	7.0295	0.68716	0.774	1.001
Tobin Q	0.4	8.1	1.358	0.9346	3.196	13.945
Agency Cost	-0.47	7.84	0.1587	0.34287	16.162	354.832
Firm Age	7	81	31.91	15.062	0.807	-0.041
Debt Service Capacity	-13.88	2143.5	26.9336	126.13485	11.016	149.083

The mean value for debt equity (V1) is 1.047 and standard deviation is 1.346. Kurtosis value is 76.443 which mean peak of the data is very high. The standard deviation for Assets Composition (V2) is 0.146 and Skewness value of Assets Composition is .061 which shows that data is negatively skewed and skewness value is  $\pm 1$  which is within the acceptable limits of normality and may be accepted as having skewness of moderate degree. The maximum score for Liquidity(V3) can be 4.68. Skewness value of Liquidity is 3.291 which shows that data is positively skewed. Kurtosis value is 24.933 which shows that distribution of scores for Liquidity is leptokurtic. The mean value for Earning Volatility (V4) is 0.171 and standard deviation is 0.180. The mean value for Growth Rate (V5) is -2.1296 and standard deviation is 71.592. The maximum score for Growth Rate can be 133.31. Skewness value of Growth Rate is -26.443 which shows that data is negatively skewed. Kurtosis value is 704.464 which shows that the peak of the data is very high and distribution of scores for Growth Rate is leptokurtic. The mean value for Log of Sales (V6) is 2.368 and standard deviation is 0.741. The maximum score for Log of Sales can be 4.77. The maximum score for Profitability (V7) can be 0.90. Skewness value of Profitability (V7) is 2.369 which shows that data is positively skewed. The mean value for debt Service Capacity (V12) is 26.933 and standard deviation is 126.134.

PEARSON CORRELATION VALUES OF TRANSPORT SECTOR (BOOK VALUE) (N= 714)

**TABLE-5**

	Debt Equity(book value)	Assets Composition	Liquidity	Earning Volatility	Growth Rate	Log of Sales	Profitability	Log of Shares	Tobin Q	Agency Cost	Firm Age	Debt Service Capacity
Debt Equity(book value)	1	.295(**)	-.212(**)	-.138(**)	0.002	-0.062	-.155(**)	-0.049	-0.022	-0.028	-0.032	-.127(**)
Assets Composition		1	-.224(**)	-.118(**)	-0.017	0.055	-.098(**)	-.107(**)	-.087(*)	-0.036	-.505(**)	-.211(**)
Liquidity			1	.077(*)	0.044	-.207(**)	.128(**)	-.218(**)	-.108(**)	-0.06	-0.006	.116(**)
Earning Volatility				1	.083(*)	.108(**)	.903(**)	0.033	.139(**)	.628(**)	0.054	.132(**)
Growth Rate					1	-.077(*)	0.062	-.075(*)	0.011	.087(*)	-0.058	0.013
Log of Sales						1	.118(**)	.813(**)	.392(**)	.075(*)	.330(**)	0.063
Profitability							1	0.032	.150(**)	.313(**)	0.045	.111(**)
Log of Shares								1	.344(**)	0.042	.253(**)	0.02
Tobin Q									1	.130(**)	.147(**)	.080(*)
Agency Cost										1	0.002	.098(**)
Firm Age											1	-0.011
Debt Service Capacity												1

The coefficient of correlation between debt equity and asset composition is 0.295 which is both positive and highly significant at 0.01 level of significance, which means debt equity an asset composition are significantly correlated to each other. According to this Asset composition highly effect the debt equity. The coefficient of correlation between debt equity and liquidity is -0.212 which is negatively significant at 0.01 level of significance, which means debt equity and liquidity are significantly correlated to each other. According to this, liquidity is negatively effect to the debt equity. The coefficient of correlation between debt equity and earning volatility is -0.138 which is negatively significant at 0.01 level of significance, which means debt equity and volatility are significantly correlated to each other. According to this, volatility negatively effect to the debt equity. Profitability is significantly correlated with Tobin Q, Agency cost and debt service capacity at 0.01 level of significant. The coefficient of correlation between log of shares and Tobin Q is 0.344 which is both positive and significant at 0.01 level of significance, which means log of shares and Tobin Q are significantly correlated to each other and same is found in the relationship with firm age and debt service capacity. With Agency Cost, debt Service Capacity is highly correlated as their Pearson correlation value is .098 which also shows that with Firm Age, Agency cost is positively correlated.

Equation of Prediction	R	Std. Error of the Estimate	F	Sig.	95% Confidence Interval for B		T	Sig.	
					Variable	Lower Bound			Upper Bound
Debt Equity(book value)=1.366+3.543(Assets Composition)-0.531 (Liquidity)+0.058(Earning Volatility)+0(Growth Rate)-0.205(Log of Sales)-1.345(Profitability)-0.199(Log of Shares)+0.082(TobinQ)+0.044(Agency Cost)+0.02(Firm Age)+0(Debt Service Capacity)	0.407	1.23926	12.691	0	Assets Composition	2.73	4.356	8.557	0
					Liquidity	-0.791	-0.272	-4.019	0
					Earning Volatility	-2.197	2.312	0.05	0.96
					Growth rate	-0.001	0.002	0.468	0.64
					Log of Sales	-0.431	0.021	-1.78	0.076
					Profitability	-4.372	1.682	0.872	0.383
					log of Shares	-0.431	0.032	1.692	0.091
					Tobin Q	-0.027	0.192	1.479	0.14
					Agency Cost	-0.494	0.582	0.16	0.873
					Firm Age	0.012	0.028	4.918	0
					Debt Service Capacity	-0.001	0.001	0.333	0.739

TABLE 6: RESULTS OF REGRESSION ANALYSIS (TRANSPORT SECTOR) AT BOOK VALUE

Regression Model was designed to find how much variance towards the prediction of dependent variable of debt equity was accounted for by the independent variable of book value. A value of R was found to be .407 which implied that 40.70 of variance in predicting the dependent variable of debt Equity were accounted for by the independent variables. Since the F-value (F=12.691) was significant at .01 level. The intercept value of debt equity is 1.366 and regression coefficient values for asset composition, liquidity and firm age are 3.543, -0.531 and 0.02 and t score values are 8.557, -4.019 and 4.918 which are highly significant.

Regression coefficient value for earning volatility is 0.058; t-score is 0.05 which is not significant. Regression coefficient value for growth rate is 0, t-score is 0.468 which is not significant. Regression coefficient value for log of sales is -0.205, t score is -1.78 which is not significant. Regression coefficient value for profitability is -1.345, t score is -0.872 which is not significant. Regression coefficient value for Tobin Q is 0.082, t score is 1.479 which is not significant. Regression coefficient value for agency cost is 0.044, t score is 0.16 which is not significant. Regression coefficient value for debt service capacity is 0 and t-score is -0.33 which is not significant. t-score for all the dependent variables except the Asset composition and liquidity is found less than 0.05 which means they are the good predictors of transport manufacturing sector.

**DISCUSSION BASED ON HYPOTHESIS**

The coefficient of correlation between debt equity and asset composition is 0.298 which is positive and significant, which means debt equity and asset composition are significantly correlated to each other. So Hypothesis-1: There is no relationship between assets composition and debt equity ratio on the basis of book value in the transport sector in India is not accepted. The coefficient of correlation between debt equity and liquidity is -0.212 which is negative and significant, which means debt equity and asset composition are significantly correlated to each other and liquidity ratio has negative but significant effect on debt equity. So Hypothesis-2: There is no association between company's liquidity and debt equity ratio on the basis of book value in the transport sector in India is not accepted.

The coefficient of correlation between debt equity and earning volatility is -0.138 which is negative and significant, which means debt equity and earning volatility are significantly correlated to each other and earning volatility has negative and significant effect on debt equity. So Hypothesis-3: There is no association between earnings volatility and debt equity ratio on the basis of book value in the transport sector in India is not accepted. The coefficient of correlation between debt equity and growth rate is 0.002 which is positive but not significant, which means debt equity and growth rate are insignificantly correlated to each other. According to this, growth rate has not much effective relationship with debt equity. So Hypothesis-4: There is no significant relationship between company's growth and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and log of sales is -0.062 which is negative but not significant, which means debt equity and log of sales are insignificantly correlated to each other. According to this, log of sales is negatively effect to the debt equity. So Hypothesis-5: There is no significant relationship between sales level and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and profitability is -0.155 which is negatively significant at 0.01 level of significance, which means debt equity and profitability, are significantly negatively correlated to each other. So Hypothesis-6: There is no relationship between profitability and debt equity ratio on the basis of book value in the transport sector in India is not accepted.

The coefficient of correlation between debt equity and Log of Share is -0.049 which is negative and non significant, which means debt equity and log of shares are insignificantly correlated to each other. So Hypothesis-7: There is no association between the nos. of outstanding shares and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and Tobin Q is -0.022 which is negative and insignificant, which means debt equity and Tobin Q are negatively and not significantly correlated to each other. So Hypothesis-8: There is no significant association between the Tobin Q and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and Agency Cost is -0.028 which is negative but not significant, which means debt equity and Agency cost are negatively correlated to each other. So Hypothesis-9: There is no relationship between agency cost and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and Firm Age is -0.032 which is negative but not significant, which means debt equity and Firm Age are insignificantly correlated to each other. So Hypothesis-10: There is no relationship between firm age and debt equity ratio on the basis of book value in the transport sector in India is accepted. The coefficient of correlation between debt equity and debt service capacity is -0.127 which is negative but significant which means debt equity and Debt service capacity are significantly correlated to each other but in negative manner. So Hypothesis-11: There is no association between the company's debt service capacity and debt equity ratio on the basis of book in the transport sector in India is not accepted.

TABLE-7

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Debt Equity (book value)	0	442.9	2.478	13.4761	29.828	963.52
Assets Composition	0.04	0.86	0.494	0.14876	-0.352	-0.268
Liquidity	-0.02	6.74	0.7417	0.5701	4.282	30.663
Earning Volatility	-0.24	0.52	0.0868	0.06715	0.407	3.779
Growth Rate	-83.46	20	-0.1768	3.81897	-11.992	223.381
Log of Sales	-0.54	3.97	2.1198	0.61913	-0.299	0.621
Profitability	-0.28	0.32	0.0714	0.05384	-0.516	4.546
Log of Shares	5.72	8.92	7.0064	0.51747	0.812	0.964
Tobin Q	-1.62	3.67	0.8592	0.25163	1.755	25.734
Agency Cost	-0.5	1.8	0.096	0.1986	2.193	10.301
Firm Age	3	115	30.41	21.267	1.941	3.69
Debt Service Capacity	-99.65	334.38	4.3753	18.10876	10.944	160.734

The mean value for debt equity (V1) is 2.478 and standard deviation is 13.476. The maximum score for debt equity can be 442.9. Skewness value of debt equity is 29.828 which shows that data is positively skewed. Kurtosis value is 963.520 which mean peak of the data is high and data is leptokurtic, The Kurtosis value for Assets Composition (V2) is -0.268 which shows that distribution of scores for Assets composition is platokurtic. The mean value for Assets Composition (V2) is 0.494 and standard deviation is 0.148. The maximum score for Liquidity(V3) can be 6.74. The mean value for Earning Volatility (V4) is 0.0868 and standard deviation is 0.067. The maximum score for Earning Volatility can be 0.52. Skewness value of Earning Volatility is 0.407 which shows that data is positively skewed. The maximum score for Growth Rate (V5) can be 20.0. Skewness value of Growth Rate is -11.992 which shows that data is negatively skewed. The mean value for Log of Sales (V6) is 2.119 and standard deviation is 0.619. The maximum score for Log of Sales can be 3.97. Skewness value of Log of Sales is -0.299 which shows that data is negatively skewed. Skewness value is within the acceptable limits of normality and may be accepted as having skewness of moderate degree. Kurtosis value is 0.621 which show that distribution of scores for Log of Sales is leptokurtic. The mean value for Profitability (V7) is 0.071 and standard deviation is 0.053. The maximum score for Log of share(V8) can be 0.92. Skewness value of log of shares is 0.812 which shows that data is positively skewed. The mean value for Tobin Q (V9) is 0.859 and standard deviation is 0.251. The Skewness value of Agency Cost (V10) is 2.193 which shows that data is positively skewed. The mean value for Firm Age (V11) is 30.41 and standard deviation is 21.267. The maximum score for debt Service Capacity (V12) is 334.38. PEARSON CORRELATION VALUES OF TEXTILE SECTOR (BOOK VALUE) (N= 1190)

TABLE-8

	Debt Equity(book value)	Assets Composition	Liquidity	Earning Volatility	Growth Rate	Log of Sales	Profitability	Log of Shares	Tobin Q	Agency Cost	Firm Age	Debt Service Capacity
Debt Equity(book value)	1	0.006	-.065(*)	-.117(**)	-0.036	.066(*)	-.142(**)	-.080(**)	.096(**)	-0.037	-0.005	-0.036
Assets Composition		1	-.124(**)	-0.024	0.037	-0.055	-0.018	-.091(**)	0.019	0.013	-.237(**)	-.104(**)
Liquidity			1	.176(**)	0.022	-.097(**)	.168(**)	0.021	-.062(*)	.061(*)	-0.028	.294(**)
Earning Volatility				1	.076(**)	.119(**)	.953(**)	-.064(*)	.168(**)	.416(**)	-.088(**)	.274(**)
Growth Rate					1	0.02	.077(**)	-0.019	-0.012	0.013	0.006	-0.027
Log of Sales						1	.083(**)	.603(**)	.344(**)	.097(**)	.273(**)	-0.039
Profitability							1	-.103(**)	.093(**)	.259(**)	-.063(*)	.288(**)
Log of Shares								1	.180(**)	0.042	-.119(**)	-.110(**)
Tobin Q									1	.197(**)	.186(**)	0.012
Agency Cost										1	-.066(*)	.093(**)
Firm Age											1	.157(**)
Debt Service Capacity												1

The coefficient of correlation between debt equity and asset composition is 0.006 which is positive and not significant, which means debt equity an asset composition are insignificantly correlated to each other. The coefficient of correlation between debt equity and earning volatility is -0.117 which is negatively significant at 0.01 level of significance, which means debt equity and earning volatility are significantly correlated to each other. The coefficient of correlation between debt equity and growth rate is -0.036 which is negative but not significant, which means debt equity and growth rate are insignificantly correlated to each other. According to this, growth rate negatively effect to the debt equity. The coefficient of correlation between debt equity and Tobin Q is 0.096 which is both positive and significant at 0.01 level of significance, which means debt equity and Tobin Q are significantly correlated to each other. According to this, growth rate positively effect to the debt equity. Assets composition is significantly correlated with liquidity, log of shares, firm age and debt service capacity as their values are -.124, .091, -.237 and -.104 respectively and from them assets composition is negatively correlated with liquidity, firm age and debt service capacity. Liquidity is significantly correlated with earning volatility, log of sales, profitability, Tobin Q, Agency cost and debt service capacity as their values are 0.176, -.097, 0.168, -.062, 0.061 and .294 respectively and from them liquidity is negatively correlated with log of sales and Tobin Q. Firm age is also found highly correlated with debt Service Capacity as their correlation value is .157 which is positively significant at 0.01 level of significance.

REGRESSION ANALYSIS (TEXTILE SECTOR)



TABLE-9

Results of Regression Analysis (Textile Sector) at book value										
Equation of Prediction	R	Std. Error of the Estimate	F	Sig.	Variable Name	95% Confidence Interval for B		T		
						Lower Bound	Upper Bound			
Debt Equity(book value)=-2.344-0.749(Assets Composition)-1.006 (Liquidity)+38.094(Earning Volatility)-0.078(Growth Rate)+0.936(Log of Sales)-80.37(Profitability)+0.466(Log of Shares)+5.002(TobinQ)-4.042(Agency Cost)-0.03(Firm Age)+0.023(Debt Service Capacity)	0.203	13.25676	4.607	0	Assets Composition	-6.07	4.572	-	0.276	0.782
					Liquidity	-2.44	0.429	-	1.376	0.169
					Earning Volatility	-9.217	85.405	1.58	0.114	
					Growth rate	-0.277	0.121	-	0.773	0.44
					Log of Sales	-0.897	2.769	1.002	0.317	
					Profitability	-	-	-	0.004	
					log of Shares	-1.598	2.531	0.443	0.658	
					Tobin Q	1.65	8.353	2.928	0.003	
					Agency Cost	-8.868	0.784	-	1.643	0.101
					Firm Age	-0.073	0.013	-	1.384	0.167
					Debt Service Capacity	-0.023	0.069	0.981	0.327	

Regression Model was designed to find how much variance towards the prediction of dependent variable of debt equity was accounted for by the independent variable of book value. Value of R was found to be 0.203 which implied that 20.30 of variance in predicting the dependent variable of debt Equity were accounted for by the independent variables. Since the F-value (F=4.607) was significant at .01 level, therefore the independent variables of Assets composition, liquidity and firm age were found to be the good predictor in predicting the debt equity in book value of textile manufacturing sector as the intercept value of debt equity is 2.344 and regression coefficient values for Earning Volatility and Profitability are 38.094 and 80.37 and t score values are 1.58 and -2.855. Regression coefficient value for Assets Composition is -0.749, t-score is -0.276 which is not significant. Regression coefficient value for Liquidity is 1.006, t-score is -1.376 which is not significant. Regression coefficient value growth rate is 0.078, t-score is -0.773 which is not significant. Regression coefficient value for log of sales is 0.936, t score is 1.002 which is not significant. Regression coefficient value for Log of shares is -0.466 and t-score is 0.443 which is not significant. Tobin Q is 5.002, t score is 2.928 which is found significant which means it also can be found as a good predictor. Regression coefficient value for agency cost is -4.042 and t score is -1.643 which is not significant. Regression coefficient value for Firm Age is 0.03 and t score is -1.384 which is not significant. Regression coefficient value for debt service capacity is 0.023 and t-score is 0.981 which is not significant. t-score for all the dependent variables except the Earning Volatility and Profitability which means they are the good predictors of Textile manufacturing sector. Earning volatility and profitability are also dependent variable and according to their multi collinearly value, they also have good relationship with other variables.

**DISCUSSION BASED ON HYPOTHESIS**

The coefficient of correlation between debt equity and asset composition is 0.006 which is positive and insignificant, which means debt equity and asset composition are insignificantly correlated to each other. So Hypothesis-1: There is no relationship between assets composition and debt equity ratio on the basis of book value in the textile sector in India is accepted. The coefficient of correlation between debt equity and liquidity is -0.065 which is negative and significant at 5 percent level of significance, which means debt equity and asset composition, are significantly correlated to each other and liquidity ratio has negative and significant effect on debt equity. So Hypothesis-2: There is no association between company's liquidity and debt equity ratio on the basis of book value in the textile sector in India is not accepted. The coefficient of correlation between debt equity and earning volatility is -0.117 which is negative and significant, which means debt equity and earning volatility are significantly correlated to each other and earning volatility has negative and significant effect on debt equity. So Hypothesis-3: There is no association between earnings volatility and debt equity ratio on the basis of book value in the textile sector in India is not accepted. The coefficient of correlation between debt equity and growth rate is -0.036 which is negative but not insignificant, which means debt equity and growth rate are insignificantly correlated to each other. According to this, growth rate has not much effective relationship with debt equity. So Hypothesis-4: There is no significant relationship between company's growth and debt equity ratio on the basis of book value in the textile sector in India is accepted. The coefficient of correlation between debt equity and log of sales is 0.066 which is positive but significant, which means debt equity and log of sales are significantly correlated to each other. According to this, log of sales is positively effect to the debt equity. So Hypothesis-5: There is no significant relationship between sales level and debt equity ratio on the basis of book value in the textile sector in India is not accepted. The coefficient of correlation between debt equity and profitability is -0.142 which is negatively significant at 0.01 level of significance, which means debt equity and profitability, are significantly negatively correlated to each other. So Hypothesis-6: There is no relationship between profitability and debt equity ratio on the basis of book value in the textile sector in India is not accepted. The coefficient of correlation between debt equity and Log of Share is 0.080 which is positive and significant at 0.01 level of significance, which means debt equity and log of shares are significantly and positively correlated to each other. So Hypothesis-7: There is no association between the nos. of outstanding shares and debt equity ratio on the basis of book value in the textile sector in India is not accepted.

The coefficient of correlation between debt equity and Tobin Q is 0.096 which is positive and significant, which means debt equity and Tobin Q are positively and significantly correlated to each other. So Hypothesis-8: There is no significant association between the Tobin Q and debt equity ratio on the basis of book value in the textile sector in India is not accepted. The coefficient of correlation between debt equity and Agency Cost is -0.037 which is negative but not significant, which means debt equity and Agency cost are negatively and insignificantly correlated to each other. So Hypothesis-9: There is no relationship between agency cost and debt equity ratio on the basis of book value in the textile sector in India is accepted. The coefficient of correlation between debt equity and Firm Age is -0.005 which is negative but not significant, which means debt equity and Firm Age are insignificantly correlated to each other. So Hypothesis-10: There is no relationship between firm age and debt equity ratio on the basis of book value in the textile sector in India is accepted. The coefficient of correlation between debt equity and debt service capacity is -0.036 which is negative but insignificant which means debt equity and Debt service capacity are insignificantly correlated to each other in negative manner. So Hypothesis-11: There is no association between the company's debt service capacity and debt equity ratio on the basis of book in the textile sector in India is accepted.

**5. CONCLUSION**

In the present study, only the secondary data have been used. The secondary data have been collected from the PROWESS , the data base of centre for monitoring Indian economy Pvt. Ltd. India. Multiple regressions have been applied on yearly data ranging from year 1999 to 2012 collected from 136 companies



of 2 sub-sectors transport and textile, listed in Bombay Stock Exchange (BSE). The total no. of observations studied is 1904. The results of transport sector indicated that Assets Composition and Firm Age have highly significant positive impact on debt equity, whereas Liquidity has highly significant negative impact on debt equity at book value. However, the correlation results clearly indicated that Assets Composition, Liquidity, Earning Volatility, Profitability, Debt Service Capacity have significant relation with debt equity at book value. The hypothesis testing clearly shows that there is positive and significant relationship between assets composition and debt equity, while negative and significant relationship liquidity and debt equity. The regression results of textile sector indicated that profitability has significantly negative impact and Tobin Q has significantly positive impact on debt equity, whereas the correlation results indicated that Liquidity, Earning Volatility, Log of sales, Profitability, Log of Shares and Tobin Q have significant relation with debt equity at book value. The hypothesis regarding relationship between debt equity and earning volatility shows negative and significant relationship, while there is positive and significant relationship between debt equity and Log of Share.

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