Capital Structure Decision and Survival of Firms: A Dividend Approach

G Archa Sreekumar, Rajiv Nair

Abstract: Capital structure decisions create a lot of challenges to the firms. One of the most important strategic decisions is to reach an integral mix of debt and equity, in-order to form an optimal capital structure. However the debt and the equity have a huge impact on the survival of the firm. The present literature provides a positive relation between the capital structure and the survival of the firm. The paper examines this association in an Indian context using a sample size of 50 companies in the manufacturing sector. The dividend of the firms is considered as the determinant for the survival of the firms. The results show that there is no relationship between the capital structure and the survival of the firms. There might be other factors which affect the capital structure of the firms.

Keywords : Capital structure decisions, survival of firms, optimal capital structure, debt-equity ratio, dividend.

I. INTRODUCTION

Capital structure decisions form the backbone of every organization. Arriving at an optimal capital structure is a complex process. The firm may use only equity, only debt or a combination of equity and debt. One of the primary objectives of every organization is to minimize cost of capital and reduce risk of loss. An optimal capital structure decision can bring growth to the organization and also more wealth. Modigliani and Miller (1950), made two propositions on capital structure, firstly, in the absence of company taxes, an increase in leverage will not result in improved value creation. Secondly, in the presence of taxes, benefits will accrue when leverage is introduced to the organization. Thus, there are many merits as well as demerits to introducing leverage in an organization in combination with equity. In order to survive, a firm must reward its shareholders so that they continue to invest in its equity. A firm does this through dividend payouts that increase annually. Since dividends are paid from profits, it follows that profits need to increase annually too. Debt covenants need to be honored as well. Therefore, a balance between equity and leverage is of utmost importance to a firm. This study aims to examine the role of capital structure in the survival of firms. It uses a sample of 50 firms in the manufacturing sector. It covers the period 2011 and 2018. A positive relation between the optimal capital structure and dividend payout is expected, i.e. it is expected that an optimal capital structure will bring about greater dividend to distribute to the shareholders. The remainder of the paper is structured as follows. The next section reviews prior research in this domain.

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That is followed by a section detailing the research methodology adopted in this paper. The subsequent section provides an analysis of the findings and the last section concludes the paper.

II. LITERATURE REVIEW

Kehinde and Sunday (2014) **[1]** used dividend approach to study the effects of capital structure of a company. The study examines the capital structure of Cadbury Nigeria Ltd with the help of dividend approach. Here the optimal capital structure was based on the Modigliani and Miller 1958 (M&M) capital structure theorems. M & M theorem explains that if there are no company taxes, there are no benefits, in terms of value creation, to increasing leverage. Whereas in the presence of taxes, such benefits do accrue, by the way of interest tax shield, when leverage is introduced or expanded. The study covered the period 2001 to 2010 and the analysis was done by using multiple linear regression and asymptotic probability. The dependent variable, dividend, was regressed against equity and total debt of the firm. They concluded that a weak relationship between dividend and the equity and debt shows that the firm must improve their capital structure. It was also found that firms must introduce debt finance in order to enjoy the tax benefits of debt finance. Seung and Smith (2013) **[2]** examined whether the firms that deviate too far from the optimum capital structure face greater risk of failure or acquisition. Capital structure related to industry norms is considered as optimum. The research mainly focused on effects of leverage on firm survival, acquisition, and failure. For testing their hypothesis, a sample of 218 firms in the crude oil industry was used from the year 1970 to 2007. A multinomial probit analysis was used to test whether the survival, acquisition and failure probabilities is associated to capital structure. They came to the conclusion that firms with capital structures close to an economically important optimum perform better and are more likely to survive than others. Zhou, King Tan, Faff and Zuhu (2016) **[3]** analyzed the impact of leverage deviation on the implied cost of equity capital. M & M Theory suggests that there is positive relationship between cost of equity and leverage. The theory shows the impact on cost of equity when the leverage deviates from the target optimal leverage. Zhou et al. (2016) used a sample of 250 companies over the period 1965 to 2008. They came to the conclusion that the leverage deviation is significantly and positively related to a firm's cost of equity. They also added that the cost of equity is positively related to the leverage deviation, that is, the higher (lower) financial leverage deviates from target leverage, the higher (lower) is the cost of equity. According to Scott Jr. (1976) **[4]**, there is an existence of a unique optimal capital structure given the assumption that the probability of bankruptcy is zero. His study shows a

multi-period model of debt, equity and firm valuation. The author concludes that the optimal level of debts is a function of increasing liquidation value of the firm, size of the firm and the corporate tax rate. In this study, debt is given more importance than equity and shows that debt is valuable primarily because interest payments are tax deductible. This paper gives an idea that there exists a unique optimal capital structure. It concludes that ample amount of debt is required for an organization. Mukherjee and Mahakud (2010) **[5]** analyzed the dynamics of capital structure in the context of Indian manufacturing companies during 1993 to 2008. The paper clearly specified a partial adjustment model and used the generalized method of moments technique to determine the variables which affect the target capital structure. The study concluded that there are certain other factors which affect the capital structure of the firms like size, tangibility, profitability and market to book ratio. Lemma and Nagesh (2014) **[6]** examined the role of institutional, industry and firm characteristics on speed of adjustment of corporate capital structure within the context of developing countries. A sample of 986 firms was drawn from 9 developing countries in Africa over a period of ten years (1999-2008). The study showed that capital structure of the developing countries changes temporarily. Overall study shows how the characteristics of the firm can affect the capital structure. Lee (2009) **[7]** explains how the optimal capital structure of pyramidal structure (when family business establish a subsidiary of existing parent firm) or horizontal structure (establish a new stand-alone entity) relate to the dividend policies of the firm. An empirical study is done on the data set of Korean business groups. Finally, he came to the conclusion that leverage ratio seems to be closely related to the business group structure and the dividend is decided based on the amount of debt and equity that has been used to build an optimal capital structure. The above review indicates that there appears to be a relationship between capital structure and the survival of a firm. However, the strength of this relationship appears to be indeterminate. Using a sample of top 50 Indian companies (by market capitalization) from the manufacturing sector, the following hypothesis is proposed:

H1: The capital structure of a firm is positively associated with the survival of the firm.

III. SAMPLE & RESEARCH DESIGN

The original sample contains top 100 manufacturing companies (by market capitalization) for duration of 8 years (2011 to 2018). But the final sample is 50 companies because of missing data in the years 20011 to 2013. The sample has been collected from Prowess database of Centre for Monitoring Indian Economy (CMIE) and augmented by data from moneycontrol.com. [**12**].Random testing was carried out to ensure that data from Money Control matched that reported by Prowess.The study aims to evaluate the relationship between the capital structure and the survival of firms. We measure the survivability using a dividend approach following prior literature (Kehinde, Sunday; 2014). **[1]**

The portion of the company's earnings which is paid to the shareholders is used to measure the survival of firms in the study. The following regression is run to test the hypothesis:

Dividend = $\alpha + \beta 1(D/E\ Ratio) + \beta 2(Total\ assets) + €$

Where dividend is the dependent variable, whereas, debt-equity ratio (D/E ratio) is the independent variable. D/E ratio is taken as the independent variable because it is a determinant of the capital structure of the firms. It is a measure which a company funds its operations using debt and wholly owned funds. Here the D/E ratio is derived by using the equity (total paid up equity) and the debt of the firm (short term borrowings and long term borrowings are considered here).

The total assets of the firms are taken as a control variable. Linear regression is used to obtain the results. Since there is a huge variation in the range of the data, the natural log of all the values are taken for the analysis.

IV. ANALYSIS & INTERPRETATION

TABLE-1

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.024	1	.024	.012	.913[b]
	Residual	808.277	398	2.031		
	Total	808.301	399			
2	Regression	47.730	2	23.865	12.457	.348
	Residual	760.572	397	1.916		
	Total	808.301	399			

a. Dependent Variable: Dividend

b. Predictors: (Constant), D/E Ratio

c. Predictors: (Constant), D/E Ratio, Total assets

TABLE-2

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.575	.272		31.512	.000
	D/E Ratio	.023	.212	.005	.110	.913
2	(Constant)	6.789	.445		15.259	.000

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Total assets	-.198	.211	-.047	-.939	.348

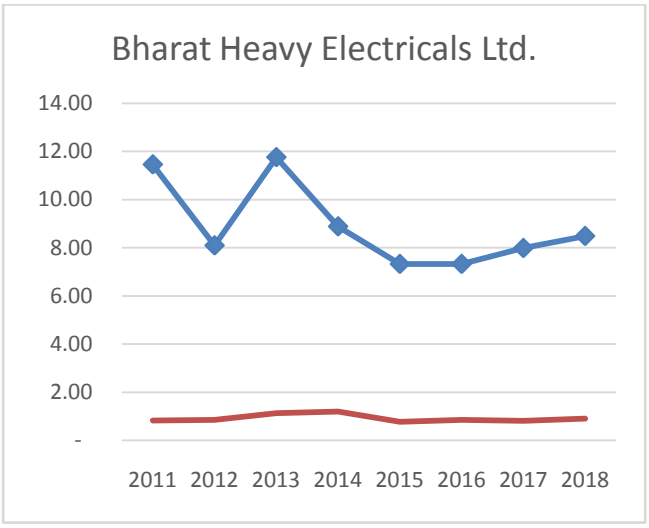
a. Dependent Variable: Dividend(ln)

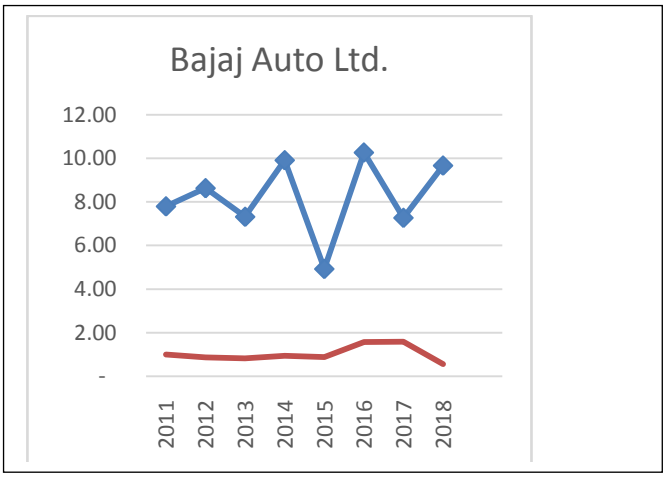
The above tables show the effect of D/E ratio on the dependent variable. Each of these tests is at p of 0.05 which is the standard level of significance. Hypothesis states that the capital structure of a firm is positively associated with the survival of the firm. From table-2 it is evident that the p value of debt-equity ratio is 0.913 which is greater than 0.05 and hence there is no significant effect on the dividend.

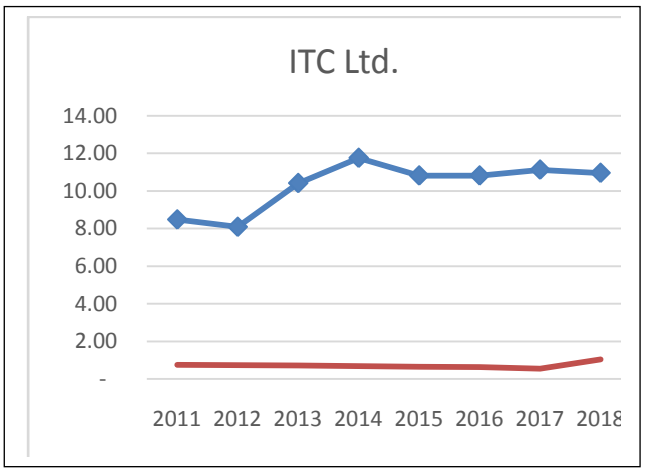
The results show that the firms do not have a positive association on the dividend to the shareholders. For further analysis, the companies are classified based on the D/E ratio and separate regressions are run for companies with higher and lower D/E ratio.

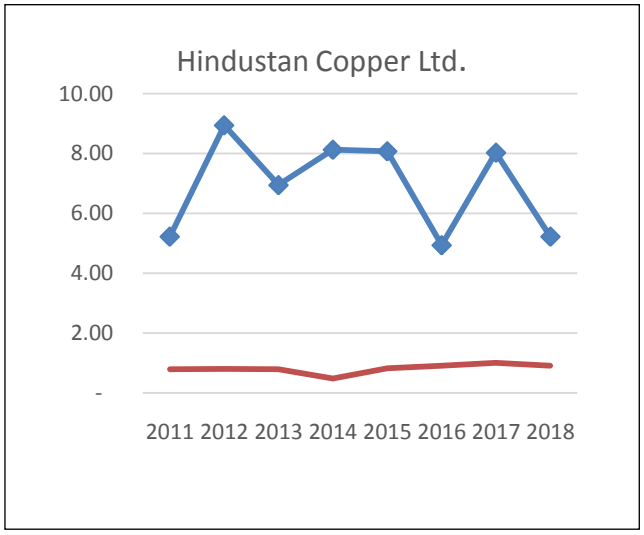
A. Companies with low D/E ratio

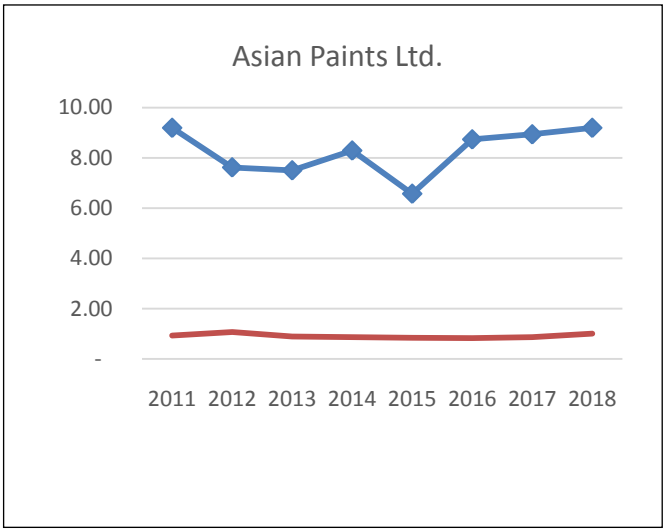
The companies are classified based on debt-equity ratios. Companies with D/E ratio less than 1.5 arecategorized as companies with low D/E ratio and for companies with D/E ratio greater than 1.5 are categorized as companies with high D/E ratio. A few companies are selected from this sample and the regression is done where dividend is the dependent variable and D/E ratio is the independent variable.

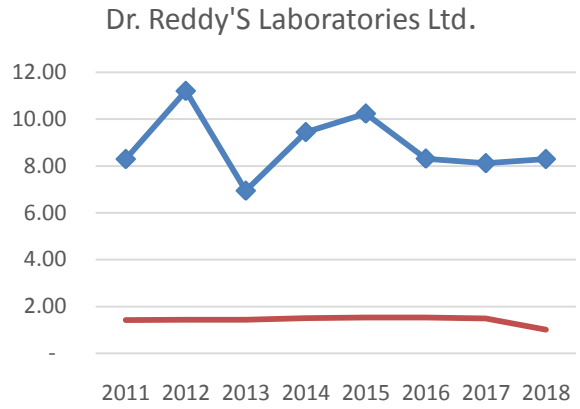


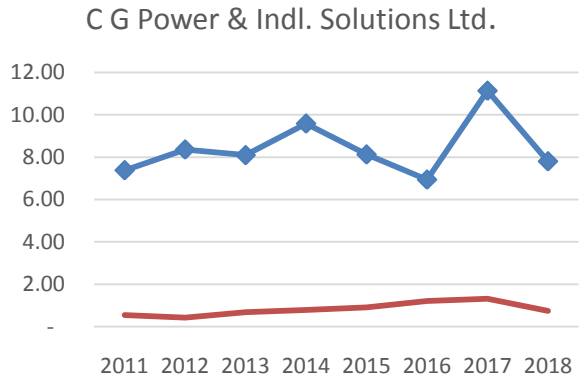




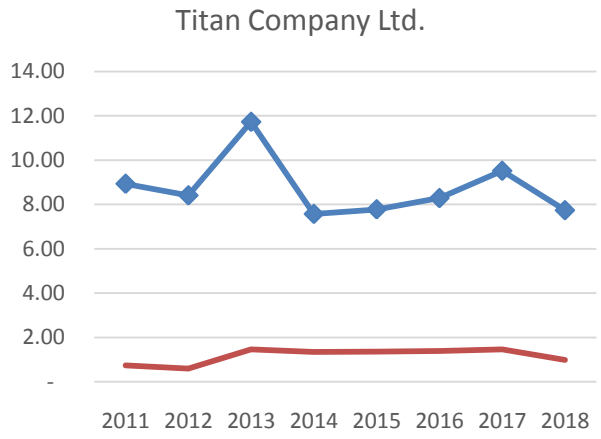


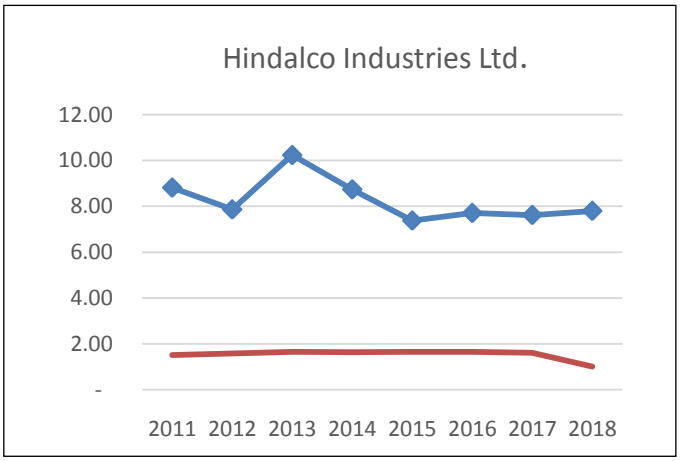






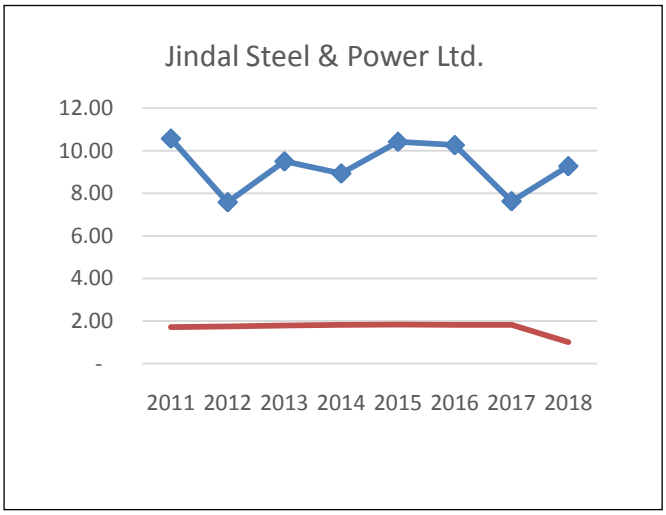
Company X	Significance
ITC Ltd	0.809
Bharat Heavy Electricals Ltd.	0.317
Bajaj Auto Ltd	0.846
Hindustan Copper Ltd	0.449
Asian Paints Ltd	0.753
C G Power &Indl. Solutions Ltd	0.332
Titan Company Ltd	0.474

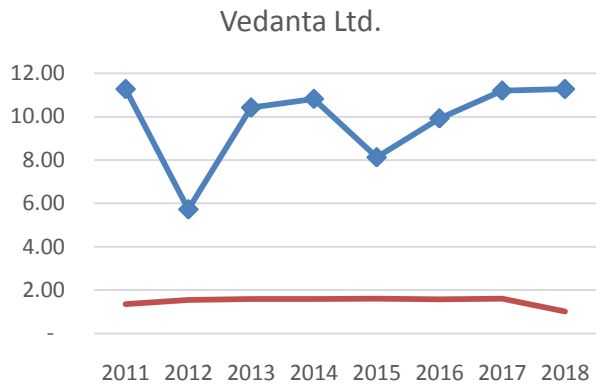




The above graphs show the variation of dividend (line with markers) and D/E ratio (line below) from 2011 to 2018. From the regression results it was found that for all the above companies, the significance was greater than 0.05 and hence there is no positive relation between the D/E ratio and dividend of the firms.

B. <u>Companies with high D/E ratio</u>




Vedanta Ltd.
12.00
10.00
8.00
6.00
4.00
2.00
-
2011 2012 2013 2014 2015 2016 2017 2018


J S W Steel Ltd.
12.00
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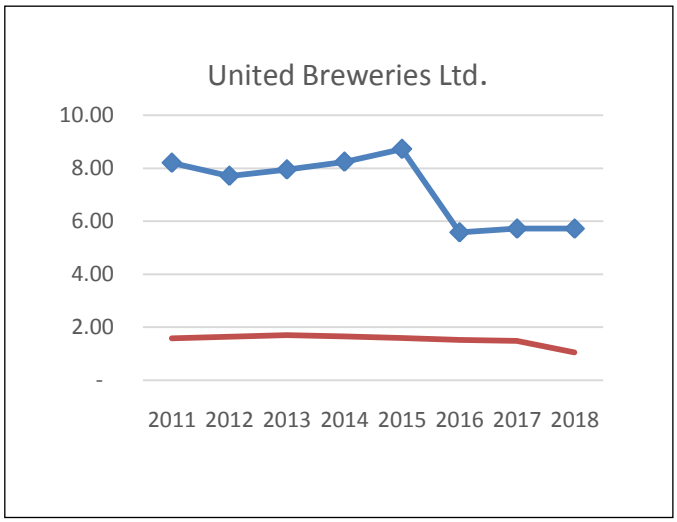
2011 2012 2013 2014 2015 2016 2017 2018


United Breweries Ltd.
10.00
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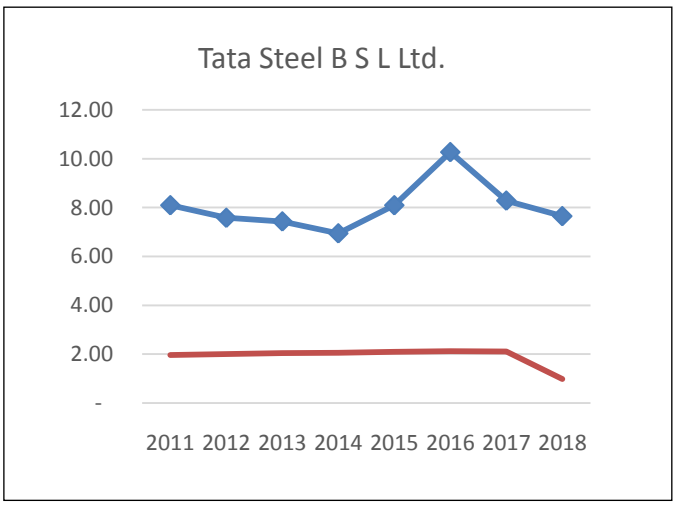
2011 2012 2013 2014 2015 2016 2017 2018


Tata Steel B S L Ltd.
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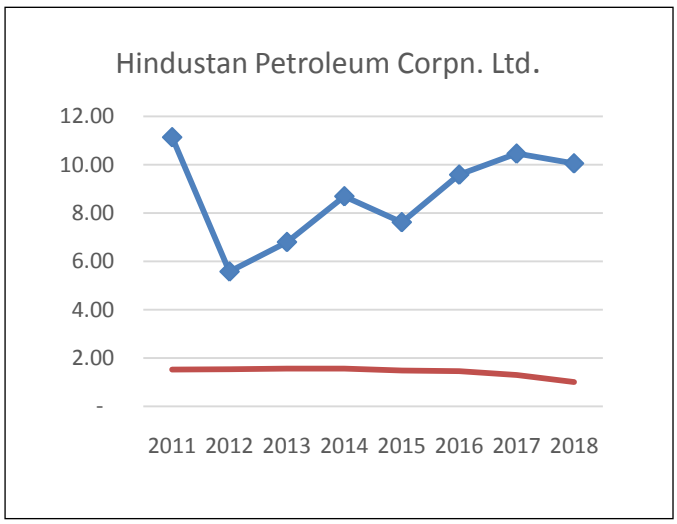
2011 2012 2013 2014 2015 2016 2017 2018


Hindustan Petroleum Corpn. Ltd.
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10.00
8.00
6.00
4.00
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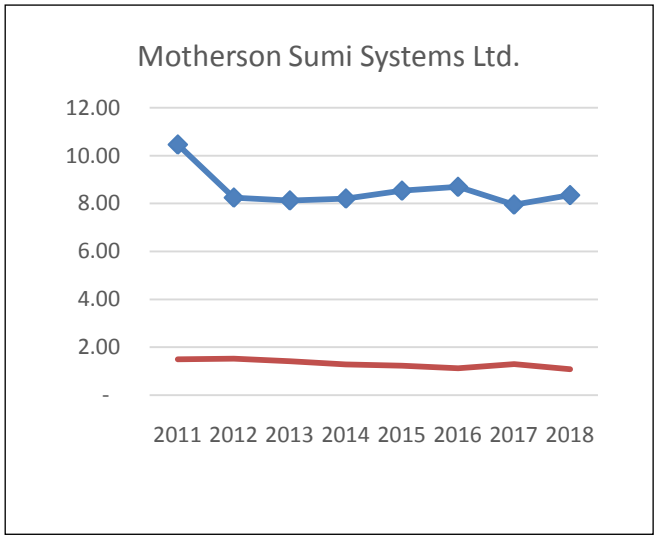
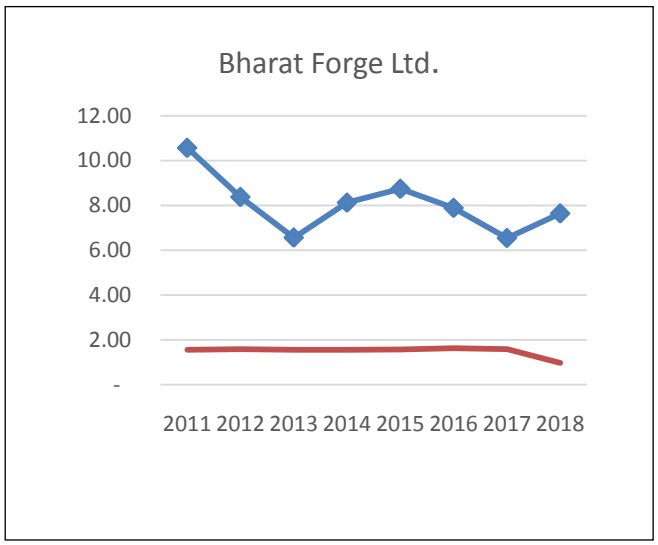
2011 2012 2013 2014 2015 2016 2017 2018





The above graphs show the variation of dividend (line with markers) and D/E ratio (line below) from 2011 to 2018 of high D/E ratio companies. From the regression results it was found that for all the above companies, the significance was greater than 0.05. Thus, it clearly shows that there is no significant relationship between the capital structure and the dividend of the firms.It can be summarized that, after performing an overall regression with 50 companies along with further regression for high and low D/E ratio companies, there is no relationship between the capital structure and the dividend of the firm. This largely concurs with Kehinde's and Sunday's paper (2014)**[1]** where they found that there is a weak relationship between the dividend and capital structure of the firms.

Company XX	**Significance**
Jindal Steel & Power Ltd	0.970
Hindalco Industries Ltd	0.700
Dr. Reddy'S Laboratories Ltd.	0.664
Vedanta Ltd.	0.343
J S W Steel Ltd.	0.681
United Breweries Ltd.	0.069
Hindustan Petroleum Corpn. Ltd.	0.270
Tata Steel B S L Ltd.	0.673
Motherson Sumi Systems Ltd.	0.430
Bharat Forge Ltd	0.760

V. CONCLUSION

The current paper finds there is no relationship between the capital structure and the survival of a firm. There has been considerable research in finding out the optimal capital structure for a firm and . The results are not consistent i.e. there is no consensus on an optimal capital structure. Consistent with prior research, we could not find an optimal capital structure. Results from the study do not support the hypothesis that the capital structure of a firm is positively associated with the survival of the. There may be certain other factors which affect the capital structure of the firms which further research could explore.

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