

# LEVERED CAPITAL STRUCTURE: BOOM OR DOOM FOR LONG-TERM SUSTAINABILITY

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**ABSTRACT:** *Performance of a company is related to its capital structure and literature supports this. But when we take into account a particular type of capital structure like high leverage, we need to answer different set of questions. We compare the performance of such companies in both the situations when the economy is doing good and when economy is not doing good. This paper has studied this that how the high leverage and performance of companies are linked for long-term sustainability. Three set of data analytics tools have been used and all the three are supporting this view that performance of companies and high debt are not linked for long-term sustainable performance of the companies.*

**KEY WORDS:** Leverage, Debt, Risk, Sustainability, Performance

## INTRODUCTION

India is a different market than rest of the world with respect to capital structure. In India debt does not make management of the company more accountable towards the efficiency or the performance of the company. In other words, level of debt is not a determinant for the efficiency of the company (Rastogi, 2011). The media and other reports are full of criticism of two types for debt financing in India. The first set of reports talk that the high debt is the bottleneck for the growth of companies in India in the long-run. The second set of reports talk that the debt financing should be replaced by equity financing from promoters. The second set of criticism encompasses that the promoters are doing business on the capital being provided to them through financial intermediaries or through debt financing. Both the criticism are targeted at debt financing and its drawbacks. Both the criticism are the motivation for doing this study. Author would like to empirically test the fact which is being discussed in

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media about debt financing by including the research rigour and analysis to establish the situation of debt financing and the status of companies in India who have majorly used debt as their main source of financing. Author is of the view that media reports may or may not be true and should be empirically tested. After 2008 financial crisis Indian media had been abuzz that the levels of debt in Indian companies are rising much faster than the income rate. Rastogi and Srivastava (2010) found that this was not the case and the rate of growth of income and profits were significantly higher than the increase in debt rate.

Performance is not a static thing. It is a continuous thing. Similarly sustainability needs self-sufficiency to survive. Having leverage in the capital structure may be with a purpose. Allowing to trade-off between bankruptcy cost and having tax advantage in terms of less cost of capital is always the reason for debt financing. But there is always a question that letting to have financial risk which is unsystematic risk or controllable risk, is justified in the long-run or not. Market risk is always there as long as a company is existing. There is very old question that how important is the financial risk in the operational efficiency of a company. Having flexibility in the capital structure should be there with every company. Whenever market moves down companies can reduce the debt and as the market comes back on the track, companies revive their high levered position. But all the companies do not have this flexibility to correct their capital structure so easily. All the industries also do not provide this flexibility due to the very nature of the industry. This study is for testing the association between performance and leverage of the companies. The companies feel the heat of high leverage when the market is in recession or in the just recovery phase. Sustaining during that time becomes acid test for a good company. An obvious question comes that market is something which is part of the business and every time market shows that downfall, companies having high financial risk come to brink and may have question mark on the survival. If this is the case, is it not advisable to always have no financial risk or to have low financial risk. This consequently lead to raise a question whether companies should have high debt for long-term sustainability or not. In literature, MM hypothesis is there to advocate debt does not impact the performance of a company but with riders of its own set of assumptions. This set of assumptions make MM hypothesis something which is far from reality and cannot be practically implemented. But the finance literature advocating for debt needs a reality check (Modigliani and Miller, 1958, 1963).

The paper has further been discussed in seven sections. The next section discusses review of literature followed by a conceptual framework which has been

tested in this paper. The fourth section discusses the research methodology adopted for doing the analysis of the paper. The next section shares the findings found in the data analysis. The sixth section discusses scope for future research and the last section concludes the paper.

## REVIEW OF LITERATURE

The review of the paper has been divided into seven categories. The first category used in the paper is on the financial system affecting the growth of the firms. The second category is on choice of capital structure based on the financial system or environment. Third category is reasons for change in the capital structure decisions. The fourth category is on life-cycle financing over general financing for firms. The fifth category is on different theories for capital structure and life-cycle financing. The sixth category is on information asymmetry deciding the capital structure decisions. The seventh category is on industry based decision for capital structure.

The first category of the review of literature is on how financial system affects the growth of a firm. The decision of getting the debt or equity capital for financing is secondary over availability and ease of procurement of all type of source of financing. This is being provided by the allocative efficiency of the financial markets. The issue of financial system becomes more germane in case of small and new companies as far as the decisions of capital financing are concerned. Rocca, Rocca and Cariola (2011) explained the issue of financial system, small firms and growth of the firms. Carpenter and Petersen (2002) and Gregory et al (2005) have discussed the impact of financial system and how it impacts the performance of the firms. In Italy and US based studies, Beck, Demirgüç-Kunt and Maksimovic (2002, 2005) have evinced the role of financial institution and growth of the firms. Rajan and Zingales (2005), Wald (1999), Booth et al (2001), Peterson and Rajan (1994, 1995) and Berger and Udell (1995) have also discussed the same in their studies.

The second category of studies have been on how the capital structure decisions are based on the financial system prevailing in the geographical region where the firm is located. The studies done by Rajan and Zingales (1995) on the G7 countries have supported the view that the choice of capital structure is dependent on the financial system. The choice of capital structure gets heavily affected by the availability of finances in the existing system of financing in that part of the world. Choice elements for the decision of the capital structure is not independent of the prevailing financial system (Gertler and Hubbard, 1993; Korajczyk and Levy, 2003; Berger and Udell, 1995; Gaud, Hoesli and Bender, 2005; Guiso, Sapienza and Zingales, 2004; Porta, Lopez-de-

Silanes and Shleifer, 1999; Petersen and Rajan, 2002; Pollard, 2003).

The third category of the literature is on the varied reasons for changes in the capital structure of the companies. Though, the issue of capital structure is an old concept (Modigliani and Miller, 1958; Modigliani and Miller, 1963; Miller, 1977), Mayer (1977), Myer and Majluf (1984) presented that the issue of capital structure follows a sequence for preference for some particular source of financing. They suggested that companies go for debt as preferred external source of financing after exhausting the option of internal equity financing. Later in his another research work Myer (2001) emphasized that having exhausted debt financing, the companies go for equity financing which is risky but suitable for high growth and small firms. Myer (2001) emphasized that the decision of capital structure is influenced by the choice of the management of the companies. Management of the companies have informal goals and the decision to follow a capital structure is based upon such informal goals. Lemmon, Roberts and Zender (2008) in his landmark work presented that the companies have tendency to go for a targeted capital structure. Initially companies start with having the capital structure as planned in their offer documents but later move towards the targeted capital structure. The proposed idea of Lemmon, Roberts and Zender (2008) was contradicted by Flannery and Kasturi (2006) and Hovakimian, Opler and Titman (2001). Akhtar (2012) supported the findings of Lemmon, Roberts and Zender (2008). The capital structure was proposed to vary with time in the long run, was the main theme of the difference. There have been several studies in which researchers have discussed several determinants for capital structure. Singhanian and Seth (2010) evinced that capital structure has size, liquidity, growth and interest coverage ratio as determinants of the capital structure. Titman and Wessels (1988) have used industry classification, size of the firm, volatility and profitability as the determinants for the capital structure of the companies. Bradley, Jarrell and Kim (1984) have used volatility, advertising and research and development as the determinant for explaining the capital structure differences in the companies. Rajan and Zingales (1995) proposed that the capital structure theories should involve more data to make the theories give accurate behaviour of companies for their capital structures. Rajan and Zingales (1995) discussed profitability as determinant of the capital structure. Graham and Harvey (2001) using empirical data from the companies and shared that some theories like pecking order and trade-off theories make sense empirically but rejected some of the prevailing notions of asymmetric information, asset substitution etc as the determinant of the capital structure. Later on in his paper Graham and Harvey (2011) have reiterated the two theories and condemned the other ideas for explaining the differences in capital structure. Baker and Wurgler (2002) evinced the

concept of timing of the market in explaining the capital structure differences among companies. Barker and Wurgler (2002) were contradicted by Leary and Roberts (2005) in advocating the persistence theory. After Modigliani and Miller, two theories have dominated the capital structure literature. The first theory is trade-off theory which is often in competition with another theory on pecking order theory. In his seminal work Kraus and Litzenberger (1973) proposed the trade-off theory in which he emphasized that there is capital target of every company to be followed. The decision to go for a particular option is based on the cost-benefit analysis being done by the companies. Gramham and Leary (2001,2011), Baker and Wurgler (2002), Frank and Goyal (2011), Bradley, Jarrell and Kim (1984), Stulz (1990) and Hart and Moore (1995) all in their respective studies claimed for trade-off theory. Ghosh (2008) explained in his work that as the debt in the capital structure increases, the profitability decreases. Mande and Son (2012), Fan, Titman and Twite (2012) and Guad et al (2005) evinced that the choice of capital structure is based upon the corporate governance practices of the companies. The equity financing choice increases due to corporate governance which was against as proposed in pecking-order theory. It was also even much debated that apart from all the theories, the choice of management for capital decision far more outweigh than anything else. These theories starting from Modigliani Miller hypothesis to trade-off and pecking-order theories about capital structure cannot explain all the situations in all the capital markets. It was also proposed by some studies that there cannot be unanimity in theories for capital structure (Parsons and Titman, 2009; Chang and Dasgupta, 2011; Graham and Leary, 2011, Rajan and Gingales,1995).

The fourth category of review of literature is on the topic of having no optimum time-invariant capital structure rather having life-cycle approach for capital structure. There is set of literature which supports that there is no permanent capital structure but the capital structure keeps on changing according to the age of the companies and have been termed as life-cycle capital structure approach (Berger and Udell, 1998; Rocca, Rocca, Cariola, 2011; Akhtar, 2012; Harris and Raviv, 1991; Beck, Demirgüç-Kunt and Maksimovic, 2002; Rajan and Zingales, 2004 ; Utrero-González, 2007). Rocca, Rocca and Cariola (2011) talked capital structure in small and medium enterprises and linked the capital structure with life-cycle of such firms. Hall, Hutchitnson and Michaelas (2002), Gregory et al (2005) and Rocca, Rocca and Cariola (2011) have explained that the life cycle financing of the capital structure is dependent upon industry of the firm. Rocca, Rocca and Cariola (2011) evinced that life-cycle financing is related to small and medium enterprises. Yeh and Roca (2012) recognized the life-cycle financing for Taiwan market.

The fifth category of literature is on different theories explaining the capital structure approach to the capital structure decisions. In this part of the literature all the studies were supporting the life-cycle based capital structure decisions but the explanations provided for the same were different. In first set of such explanations, it is discussed that cost of capital is the reason for life-cycle financing decisions (Flannery and Rangan, 2006; Hovalimian, 2006; Myer, 1984; Holmes and Kent, 1991; Chittenden and Hutchinson, 1996; Michaelas, Chittenden and Poutziouris, 1999). In second set of studies it was discussed that in life-cycle financing decisions, equity is used first as the information about the firms were less and later when the firms become know, the debt is used (Rocca, Rocca and Cariola, 2011; Helwege and Liang, 1996; Kaplan and Stromberg, 2003). Diamond (1991) expressed that it is level of maturity in the firm which lead to the debt financing while firms go for life-cycle financing. Diamond also shared his results that initially getting bank finance work as certification for taking finances from other sources. Another set of studies evinced that it is the newer firms which needed more debt financing (Berger and Udell, 1998; Peterson and Rajan 1994; Robb, 2002).

The sixth category is on the capital structure and asymmetric information about the capital receiver and capital providers. It was discussed that asymmetric information about a firm impacts the decision of capital structure. The information about the firms in the financial markets are least for the newer firms and therefore they are maximum affected with this (Berger and Udell, 1998; Rajan and Zingales, 1995; Demirguc-kunt and Maksimovic, 1998; Chittender and Hutchintson, 1996; Lopez-Iturriaga and Rodriguez-sanz, 2008; Utrero-Gonzalez, 2007). Narayanan (1988) advocated that debt is always better for firms who have the issues related with asymmetric information about the firms. Klein, O'Brien and Peters (2002) evinced that the theory of asymmetric information about the firms for capital structure need more empirical testing and has scope for improvement in explaining the causes of financing. Even Myers (1984) study on pecking-order theory has its genesis in this information asymmetry theory of capital structure in firms.

The seventh and last category of literature of review used in this paper, is on industry specific capital structure. Though, capital structure is a company specific decision but a lot is also dependent upon the industry. The capital intensive industry has to be dependent upon the borrowed capital more than an industry which is less capital intensive (Yeh and Roca,2012; López-Iturriaga and Rodriguez-Sanz, 2008; Cassar and Holmes, 2003; Bradley, Jarrell and Kim, 1984; Harris and Raviv,1991; Hall, Hutchinson and Michaelas, 2000; Michaelas, Chittenden and Poutziouris, 1999; Van der Wijst and Thurik, 1993; Rochester, 75).

## CONCEPTUAL FRAMEWORK

This study has made several assumptions while doing the study.

1. The companies which have been incorporated after 1985 would be operating not that long enough to experience the fluctuations successfully as compared the relatively matured company which would have got incorporated before 1985.
2. The second assumption has been made that the debt-equity ratio of less than .6 is considered as low debt company and has been categorized in no-debt segment for bi-sectional categorization of the companies. Companies having debt-equity ratio of more than .6 has been categorized as debt segment. This variable has been used in as dependent variable in bi-variate discriminant analysis.
3. In another classification of the companies on the basis of debt, a third category has been added. Companies having debt-equity ratio more than 1.2 has been segmented as high debt companies. This another classification of three categories has been used for one-way ANOVA analysis.

The theoretical model developed in this paper is based on this premise that debt financing is having its impact on the profitability of the companies. The impact of financial leverage on profitability changes with respect to economic cycles. In this study three such time-periods have been taken for analysis. First time period is 1991 balance of payment crisis in India. The second period is of economic and stock market continuous growth in 2004 and the third period is of 2008 financial crisis. The model used in the study is that the profitability measures have been compared for non-debt companies, medium-debt companies and high-debt companies. The five performance measures or profitability measures have been used in the model. They are sales, operating profit, net profit and cash profit. This is the hypothesis that there is no impact of the debt-financing on the performance of the companies in the long-run.

## OBJECTIVE OF THE STUDY

The objective of the study is to find out impact of debt financing on the long-term sustainability and performance of the companies in India during the three time periods taken in the study.

## RESEARCH METHODOLOGY

### *Data*

Sustainability has been defined as withstanding all type of economic upheavals and surviving and remaining profitable in the long-run. The selection of companies have been such that only surviving companies have been part of the sample. The study is not on those who are not part of the game. High debt may be a big problem for companies that they close the shop and move out of the business. This study is focused for those who are surviving despite all the odds present in the system.

The data for the study has been taken from CMIE-Prowess. In 1992, 2010 and 2014, there have been 737, 612 and 1479 companies taken respectively. The difference in the sample size is mainly due to availability of complete data. As the more recent time comes, more data is available and therefore number of companies have also been increased.

**Table: 1 Group Statistics Data**

		1992		2010		2014	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
No debt segment	PAT	123.9458	316.43160	4057.9983	17385.54396	2777.0083	16113.43038
	Cash Profit	196.4664	501.15946	5113.6285	25225.80292	3753.0875	24408.96316
	Sales	3462.9421	14276.2929	31673.5029	176251.23774	23780.1789	157330.77153
	Debt Equity	.3693	.16961	.2702	.18044	.1559	.18541
	PBIT	261.3206	599.98515	5965.6426	24450.91273	4396.8391	23986.62146
Debt Segment	PAT	73.0638	276.73052	1384.3666	7569.79076	957.6398	6668.05474
	Cash Profit	145.7531	574.37453	2077.3269	10187.37649	1830.3114	10014.00761
	Sales	2037.4769	5601.09946	33987.4000	224867.12948	32854.2235	245326.27084
	Debt Equity	2.6311	4.40594	2.5918	5.62104	3.6925	14.87639
	PBIT	234.1223	697.40708	2996.9921	14109.52846	3449.5811	17662.90918



Total	PAT	80.4812	283.20243	2445.0533	12484.29635	1957.3064	12783.55446
	Cash Profit	153.1459	564.25994	3281.8925	17792.47151	2886.7961	19319.49016
	Sales	2245.2763	7517.95692	33069.4277	206800.49083	27868.4171	201759.74765
	Debt Equity	2.3013	4.14978	1.6708	4.51062	1.7493	10.13622
	PBIT	238.0872	683.75967	4174.7190	18938.57064	3970.0596	21368.77941

## *Methodology*

Having divided the companies into two categories of debt and non-debt companies, in this paper they have been tested for their performance for long-term sustainability. To test the long-run performance, the data for performance has been tested at three points of time. To compare the performance of debt-versus non-debt companies following three data analysis tools have been used.

- Discriminant Analysis
- One Way ANOVA
- Dummy Variable Regression

To use discriminant analysis, the bivariate dichotomous variable has been taken. This dichotomous variable has two categories, debt and non-debt companies. This variable has been taken as dependent variable (criterion variable). All the performance measures, operating profit, net profit, cash profit and sales have been taken as predictor independent variables (IVs) for discriminant analysis. The discriminant analysis has been done at all the three point of time undertaken for the study separately.

Another tool used in this study is dummy variable regression analysis to ascertain the results for the constructed hypothesis. In this analysis, all the five performance measures have been regressed individually for bivariate dummy variable (the dichotomous variable of debt and non-debt companies have been used as dummy variable, having two values, 0 and 1; '0' for no debt and '1' for debt companies). The significant dummy variable coefficient proves the point that the dependent variable is significantly different for both debt and non-debt companies. The same process has been repeated for all the five performance measures undertaken in the study.

The third and last tool used in the study for data analysis is one-way ANOVA. To run one-way ANOVA a separate process is done for all the five performance measures.

For the categorical variable used in the analysis, according to the debt levels, the companies have been divided into three categories, low debt, average debt and high debt. Significant F-test for ANOVA makes the point that the performance measure is significantly different for all the three categories of the categorical variable (which has been made on the basis of level of debt in their capital structure).

## RESULTS

### *Discriminant Analysis Results*

The results of the discriminant analysis have been reported in table-2 to 6. The box's M results has been shared in table 2 for all the three point of time of analysis. The assumption of having equal variance for each group is not holding true as all results for three points of time is coming out to be significant. Eigenvalues have been reported in table-4. The eigenvalues for all the three years is high but level of variance explained measured with the help of canonical variance is less than 10% in all the three cases which is quite less. Though, the Wilk's lambda is significant, the predictive accuracy is poor in all the three years and is less than 70% in all the three cases (Table-5). The discriminant analysis results have not been conclusive. The output of discriminant analysis is not explicitly accepting nor is explicitly rejecting the null hypothesis of impact of debt on the long-term sustainability of the performance of the companies. Using structure matrix it is found that except debt ratio, no other variable is significantly having major impact on the discrimination between debt and non-debt companies (Table-6).

**Table: 2 Box's M Results**

1992		2010		2014				
Box's M	1716.800							
F	Appro.	112.474	F	Appro.	208.306	F	Appro.	579.301
	df1	15		df1	15		df1	15
	df2	137892.288		df2	1066421.575		df2	8059679.724
	Sig.	.000		Sig.	.000		Sig.	.000

Tests null hypothesis of equal population covariance matrices.

**Table: 3 Eigenvalues**

Year	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1992	.065 <sup>a</sup>	100.0	100.0	.248
2010	.101 <sup>a</sup>	100.0	100.0	.304
2014	.054 <sup>a</sup>	100.0	100.0	.225

**Table: 4 Wilks' Lambda**

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1992	.939	46.210	5	.000
2010	.908	58.513	5	.000
2014	.949	76.742	5	.000

**Table 5: DA Classification Table**

	1992	2010	2014
Classification Results (Predictive Accuracy) Hit Ratio	67.7%	62.0%	59.5%

**Table 6: Structure Matrix**

	1992	2010	2014
debt_equity	.767	.818	.762
Sales	-.262	.017	.097
Pat	-.249	-.331	-.307
cash_profit	-.124	-.263	-.214
Pbit	-.055	-.242	-.095

### *Dummy Variable Regression Results*

The dummy variable regression is also non-conclusive as for some performance measures are concerned; the result is significant for some year but consistently for all the three data points; no performance measure is having significant coefficient in the dummy variable regression. For the sales, in year 1992, the results are marginally significant but for all the other two time periods, the sales related performance are not significantly different. The performance measure net profit is having significantly different results for debt and non-debt companies for two years out of three years taken in to consideration. The other performance measure PBIT and cash profit also have significantly different results for debt and non-debt companies only for one year each (Table-7).

**Table: 7 Coefficient of Dummy Variable (Non Debt=0, Debt=1)**

Performance Measure	Year	Coefficient	T	Sig. (p-value)
Sales	1992	-1425.465	-1.816	.070#
	2010	2313.89	.135	.893
	2014	9074.45	.86	.39

PAT	1992	-50.882	-1.720	.086
	2010	-2673.63	-2.6	.01*
	2014	1819.36	-2.726	.006*
PBIT	1992	-27.198	.380	.704
	2010	-2968.65	-1.898	.058#
	2014	-947.258	-.847	.397
Cash Profit	1992	-50.713	-.859	.391
	2010	-3036.30	-2.067	.039*
	2014	-1922.76	-1.904	.057#

\*significant at 5% level of significance

#marginally significant at 5% level of significance

### One-way ANOVA Results

The one-way ANOVA results are also inconclusive. Net profit is coming out to be significant for all the three time periods undertaken for the study. But all the other performance measures at all the three data points are insignificant. Means the performance of companies are not differing on the basis of their leverage. The inconclusive results accepts the hypothesis that the for long-run performance non-debt companies and debt companies perform same and the difference in performance is not significant.

**Table: 8 One Way ANOVA Results**

		F-Statistics	Sig.
1992	pat	4.509	.011*
	cash_profit	1.869	.155
	sales	2.494	.083
	pbit	1.454	.234
2010	pat	3.863	.022*
	cash_profit	2.642	.072
	sales	.767	.465
	pbit	2.026	.133
2014	pat	3.744	.024*
	cash_profit	1.830	.161
	sales	.565	.569
	pbit	1.096	.335

\*sig. at 5% level of significance

### SCOPE FOR FUTURE RESEARCH

In the future to know the Indian scenario better as compared to the World companies the common time periods may be identified and the study of debt financing and performance of companies can be done on companies of other countries including Indian companies. This way the different behaviour of companies in India may be

understood better and the newly acquired knowledge may be used for creating better financing environment in India.

## CONCLUSION

The result of the paper clarifies that the linking of leverage with the performance of the company is not appropriate. Performance and level of debt in the companies are two different things. A good performing company performs well irrespective of the level of leverage in the company. Bad phases of the economy only reduce the volume of performance but a performing company in true sense does not become a non-performing company. On the contrary, a company which is originally not doing good may artificially appear to be doing well when the economy is doing good. But as the economy takes a backtrack temporarily only the truly performing companies flourish.

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