Dynamics of Financial Structure and value of firm: Evidence from Indian Automobile sector

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Abstract This study examines the effect of capital structure on value of firm of Automobile companies Listed at NIFTY during 2004 to 2018. Variables including Profitability, size, Liquidity, Tangibility, Business Risk, Age, Growth, ROA and Price to Book ratio. The study used OLS technique to refer the factors of capital structure in Indian Automobile industries. Business Risk and Growth were not associated with all leverage components i.e. Total Debt (TD), Long Term Debt (LTD) and Short Term Debt (STD). The main objective of study is to identify the effect of leverage on firm's performance and on value of the firm. The study is also flavored by identification of macroeconomic effect on Leverage, Firm performance and Firms value. The study found Tangibility and size significant positive effect on Total Debt. In addition, Liquidity found negative significant to total debt but positive to short term debt. Moreover, considering the firm performance, leverage found associated but negatively. Similarly, firm's value also found negative association with leverage. As we also included macroeconomic variables and found Money supply negatively associated to leverage while GDP negatively associated to firms value but not with performance.

Keywords — Indian Auto companies, capital structure decision, determinants of capital structure, firm performance, value of firm, National Stock Exchange.

I. INTRODUCTION

The word finance was used as capital but after taken as separate field of cooperate finance. In early 19 century cooperate finance was considered as part of economics. Various changes have been seen in last century. India is most emerging economy in past 2 decades with higher GDP proved to have potential to move up head with higher instant growth. Indian economy challenge others developed economy to have sustainable development to handle igniting issues as affect overall environment. Mostly, decision of capital structure is biggest confront same as European countries.

Capital is major part of business activity and decides the size as well as nature of business. Capital can be attained from various sources and to find out the adequate level is biggest challenge in world. Capital structure is proportion of various kinds of securities and what amount to be capitalized. It is mix of different sources i.e. equity, debt, bond, debenture, loan etc. capital structure decision is very important as it has effect on value of firm.

Generally, capital structure means proportion of debt and equity in total capital of any company. Greatest blueprint of financial structure is to make management effective to take appropriate decision on time and minimization of overall cost with maximization of profit and value to the firm.

Therefore, appropriate portion of capital structure may help to bear on profitability to the company.

Once company is formed it is necessary to procure the fund or to identify the portion of debt and equity. It is to be carefully designed and managed to achieve target capital structure. The company may need fund to finance the activities continuously. Every time finance manager has to procure funds and on bases of pros and cons it is being decided to have proportion of component of capital structure.

II. LITERATURE REVIEW

The capital structure is a dynamic area of research in financing decision. Over the past decades, various study conducted and plays vital role to judge the capital structure decision.

Pascareno et al. (2016) examined the impact of capital structure on value of firm of banking and insurance companies listed at Indonesia Stock Exchange. The result found that the financial performace do not effect the value of firm.

Chashmi NA, Fadaee M (2016) studied the impact of firms performance and growth opportunities on success and failure of companies listed on Tehran Stock Exchange during 2006 to 2012. The study found the relationship between EPS and ROA with success and failure.

Nassar S (2016) examined the impact of capital structure on the financial performance of companies listed on Istanbul Stock Exchange (ISE) during the period of 2005-20012. The result found that capital structure is negatively associated with the performance of company.

Salman and Shamsi (2015) examined the impact of capital structure on profitability of cement sector of Pakistan during 2005 to 2010. The study shown capital structure is significantly negatively associated with profitability.

Badar and saeed (2013) studied the capital structure on the performance of sugar sector of Pakistan. The paper studied period between 2007 to 2011. They found long-term debt has positive relation with firm performance while short term debt has negative relation.

Le and Phung (2013) examined the relation between capital structure and financial performances of Vietnamese Stock Exchange during the period from 2007 to 2011. They used Return on assets(ROA), return on equity(ROE) and Tobins Q as financial Performance measures while capital structure measured by Vietnamese Stock Exchange during the period from 2007 to 2011. They found significant negative relation.

Onaolapo and Kajola (2013) examined the capital structure and firms performances of Nigeria listed firms. The study covered the period between 2005-2009. The study used multiple egression model and variables used are Profit Margin (PM) and Return on Asset (ROA) for firms performance while Long term debts to Total assets (LTDTA), Short-term debts to Total assets (STDTA), and Total debt to Equity (TDE) for capital structure. The result shows STDTA and LTDTA found insignificant negative relationship with ROA and PM. On the other hand TD (Total Debt) found positive relationship with ROA and negative relationship with PM.

Iorpev and kwanum (2012) studied the capital structure and firms performances of Manufacturing Companies in Nigeria. They covered the period of 2005-2009. The study used multiple regression moded and the variables were Long term debts to Total assets (LTDTA), Short-term debts to Total assets (STDTA), and Total debt to Equity (TDE)) for capital structure while Return on Assets (ROA), and Return on Equity (ROE) to examine the firms performance. The result found the negative relation of capital structure and firm's performance.

With reference to the above discussion of theories and previous research using debt ratio as capital structure indicator and ROA as firm performance which is measured by EBIT to Total assets. ROA is most effective measure taken by many researchers.

There is also relationship found between ROA (Return on Assets) and ROE (Return on Equity). If company has good ROA will generate Better ROE. Based on model discussed above the overall research can be arrange in a way to analyze firm capital structure decision and macro economic factors relation with performance and value of firm.
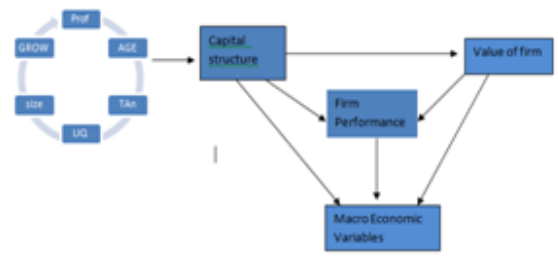
Model
(Fig. 1)

This study is attempt to fill the gap as well as expand the existing literature on determinants of capital structure and the impact on firm performance and value of firm.

III. RESEARCH METHODOLOGY

The study involved the sampling techniques, in order to analyze the association between financial structure decision and firm's value. We also consider the economic factors effect on NSE listed companies. We choose 14 Automobile companies of NSE out of 199 company's data were sufficient for prior study. The study period comprises of 15 years. The data collected from the period of 2004 to 2018. Based on the output of regression, the test of data used and hypotheses analyzed and presented by descriptive approach.

Variables

The study is applied to examine the impact of capital structure decision on the value of firm and firm's performance. In previous study many variables were used:

Leverage is the utilization of borrowed money to increase the potential return of investment. When the firm use the word highly leveraged means firm deals with more debt than equity. Many researchers used the three components they are Total debt, Long Term Debt and Short term Debt.

Total Debt: TD is measured by Total Debt/Total Assets

Long Term Debt: LTD is measured by Long Term Debt to Total Assets.

Short Term Debt: STD is measured by Current Liabilities to Total Assets.

On basis of previous research many determinants are found seven main determinants were selected and used several time but based on specific sector. Manufacturing sector explored many times in India but still automobile get less attention. The seven determinants are:

Profitability: Profitability ratio is used to evaluate the company's ability to generate income as compare to expenses and cost associated to generation of income

during the particular period. Many researchers used the measurement and calculated by income to total assets.

Liquidity: Liquidity describes the degree to which assets is quickly bought and sold in market without any change in price recorded. The researcher mainly used Current ratio to indicate the liquidity position of company. The ratio is calculated by current assets to current liability. Current ratio is easily to be converted to cash in one year. Liquidity while measures the edge where individual or company can meet their financial obligation.

Tangibility: The tangible ratio is also known as assets covering ratio. The formula that determines the financial health of company by determining the company's ability to cover the debt after satisfying all existing liabilities.

Growth: The question is arise how we identify the growth of business it can be measure by profit, change in customer, change in sales value or it can be identified by change in total assets value. Most of the researcher used change in Assets value as main indicator of Growth. The growth can be calculated by change in financial assets.

Size: Firm size becomes most of the used variable in research as the control variable. According to Tradeoff theory larger firm don't consider direct bankruptcy cost and decide level of leverage as fixed amount is fixed and consider small portion of firms value. Generally the positive relation is expected with leverage. Larger firm is diversified and less chance of bankruptcy cost (Titman and Wessels 1988). However, Titman and Wessels (1988) measure size as natural logarithm of total assets.

Age: Age is the existence of company or can say experience of company. This also plays decisive role but somehow previous theories doesn't delivers any clear picture. Based on empirical evidence such as Michaelas et al. (1999) and Petersen and Rajan (1994) are parallel with pecking order theory of inverse relation that usage of debt decrease with age of firm. Sakai et al. (2010) found significant relationship. The age can be measure by Log of existence since establishment.

Business Risk: According to both pecking order theory and tradeoff theory consider the same as volatility is considered to be either the inherent business risk in the operation of firm or inefficiency of business practices. In previous studies many researcher shared their views to show challenges occurred due to financial distress and firm has to repay to outsiders or to pay risk premium to outsiders this is also suggested that earning volatility has negative relation due to minimization of risk. Moreover, Rafiq et al. (2008) and Mary et al. (2011) found positive relation. However, most of studies including found negative relation. The Business Risk is measured by operating income volatility (change in operating income).

Firms Performance: Firm's performance can be determined to know the real position of firm. Nationally and internationally many research were conducted and mostly two indicators were used they are Return on Assets (ROA) and Return on Equity (ROE). ROA is used to measures the marginal profit of the company where high ratio is known better by experts.

Firm's value: In financial management, profit maximization is advanced with the wealth maximization and identification of value of firm is more emphasized in present studies so impact of financial decision must be analyzed to know the worthiness of financial decisions. As literature review we identify the variable Tobins Q and price to book ratio. In this study we used Price to book ratio as indicator of Firms value.

Macro economic Variables: Macro factors we have included four factors i.e. inflation rate, Money supply, Consumer Price Index and GDP growth rate. Higher inflation firm raised more debt than raise equity. Since we studied period of 15 years, we expect significant and positive relation with value of firm.

IV. ECONOMETRIC MODELS

This section elaborates the proper statistical econometric financial models which are being used to forward the study from data towards inferences. The detail of methodology is given as follows.

$$TD = \beta_0 + \beta_1(Prof) + \beta_2(Tang) + \beta_3(Size) + \beta_4(Grow) + \beta_5(Age) + \beta_6(Liq) + \beta_7(Busrisk) + \varepsilon \ \dots\dots. Equation\ 1$$

$$LTD = \beta_0 + \beta_1(Prof) + \beta_2(Tang) + \beta_3(Size) + \beta_4(Grow) + \beta_5(Age) + \beta_6(Liq) + \beta_7(Busrisk) + \varepsilon \dots. Equation\ 2$$

$$STD = \beta_0 + \beta_1(Prof) + \beta_2(Tang) + \beta_3(Size) + \beta_4(Grow) + \beta_5(Age) + \beta_6(Liq) + \beta_7(Busrisk) + \varepsilon \dots. Equation\ 3$$

$$TD = \beta_0 + \beta_1(ROA) + \beta_2(PB) + \varepsilon \dots.. Equation\ 4$$

$$LTD = \beta_0 + \beta_1(ROA) + \beta_2(PB) + \varepsilon \dots.. Equation\ 5$$

$$STD = \beta_0 + \beta_1(ROA) + \beta_2(PB) + \varepsilon \dots.. Equation\ 6$$

$$ROA = \beta_0 + \beta_1(PB) + \varepsilon \dots.. Equation\ 7$$

For macroeconomic model, the study has been used panel regression equation to examine the impact of capital structure variables on the form value. The model equation used:

$$TD = \beta_0 + \beta_1(GDP) + \beta_2(INF) + \beta_3(CPI) + \beta_4(M3) + \varepsilon \ \dots..Equation\ 8.$$

$$LTD = \beta_0 + \beta_1(GDP) + \beta_2(INF) + \beta_3(CPI) + \beta_4(M3) + \varepsilon\dots.. Equation\ 9.$$

$$STD = \beta_0 + \beta_1(GDP) + \beta_2(INF) + \beta_3(CPI) + \beta_4(M3) + \dots. Equation\ 10.$$

$ROA = \beta_0 + \beta_1(GDP) + \beta_2(INF) + \beta_3(CPI) + \beta_4(M3) + \varepsilon$… Equation 11.

$PB = \beta_0 + \beta_1(GDP) + \beta_2(INF) + \beta_3(CPI) + \beta_4(M3) + \varepsilon$…. Equation12.

Where,

β_0 =Coefficient of intercept (constant)

$\beta_1 - \beta_7$ = Coefficient of Slope

Prof = Profitability

Tang = Tagibility

Size = Size

Grow = Growth

Age =Age

Liq = Liquidity

Busrisk = Business Risk

ROA= Return on Assets

PB= Price to Book

GDP= Gross Domestic Product

INF= Inflation

CPI= Consumer Price Index

M3= Money Supply (M3)

ε = an error term.

Once model is formed must be analyzed with the help of statistical tools. We used E- Views 9 to analyze the panel Data. Panel unit root test has been proposed by several researchers. It's mostly referred than single time series units because approximately the test statistics are approximately normally the test statistics are approximately normally distributed for the finite sample sizes. In this study we also used unit root test to examine data is stationary or not. Firstly, it is necessary to check the stationary. The series is said to be stationary when mean and auto covariance does not depend on time. All variable of unit root study it is found in our study at first difference except size.

V. RESULT AND DISCUSSION.

As all the dependent and independent variable has stationary data and can go for regression Analysis. As table attach on appendix.

	TD	STD	LTD	GROW	AGE
Mean	0.250713	1.206152	0.608653	17.42758	3.702716
Median	0.213465	0.847292	0.621927	15.45185	3.688879
Maximum	1.262710	14.24827	0.960120	150.6439	4.672829
Minimum	0.000000	0.048660	1.23E-05	-56.01874	2.890372

Std. Dev.	0.247814	1.975821	0.147398	22.31956	0.448217
Skewness	1.223655	5.342955	-1.056548	2.773670	0.255577
Kurtosis	5.104093	31.95452	6.431084	18.60625	2.208848
Jarque-Bera	91.14464	8334.837	142.0782	2400.370	7.763006
Probability	0.000000	0.000000	0.000000	0.000000	0.020620
Observations	210	210	210	210	210

(TABLE 1)

	BUSRISK	ROA	PB	PROF
Mean	21.34319	8.451667	5.700571	0.250859
Median	16.51628	8.395000	3.670000	0.239807
Maximum	516.3355	27.34000	63.52000	0.777007
Minimum	-338.1097	-25.80000	-36.61000	-0.216152
Std. Dev.	64.38712	7.749440	7.881280	0.160404
Skewness	2.400895	-0.130441	2.761017	0.311630
Kurtosis	28.41527	4.080054	24.32237	4.219054
Jarque-Bera	5853.690	10.80255	4244.944	16.40227
Probability	0.000000	0.004511	0.000000	0.000274
Observations	210	210	210	210

(TABLE 2)

	SIZE	TAN	LIQ
Mean	7.673875	0.490029	1.353214
Median	7.891694	0.443331	1.298327
Maximum	10.64228	1.814533	2.814930
Minimum	3.119276	0.017616	0.232931
Std. Dev.	1.668297	0.317260	0.537578
Skewness	-0.601892	1.885468	0.356589
Kurtosis	3.147566	8.033029	2.514551
Jarque-Bera	12.87013	346.0743	6.512485
Probability	0.001604	0.000000	0.038533
Observations	210	210	210

(TABLE 3)

The preliminary analysis consist of descriptive statistics is given on table. The mean value of TD is 0.250713, LTD is 0.608653, STD is1.206152, growth is 17.42758, age is 3.702716, liquidity is 1.353214, profitability is 0.250859, size is 7.673875, tangibility is 0.490029, and business risk is 21. 34319, ROA is 8.451667 and Price and Book ratio is 5.700571. Jarque-Bera test statistics fails the rejection of null hypothesis as not a normal distribution of the entire variable.

After the collection of various data it is necessary to form hypothesis formulated. For further testing we used E-views. As E-views provide you variety of tools. Firstly it is needed to test the stationary when mean and auto covariance does not depend on time. All variable of unit root study it is found that only growth opportunity has unit root data and we drop this variable from study.

Variable	t-Statistics	Difference	Prob
Total Debt	-12.8047	first difference	0.0000
Long Term debt	-10.3815	first difference	0.0000
Short Term Debt	-11.2676	first difference	0.0000
Profitability	-9.85720	first difference	0.0000
Liquidity	-12.2273	first difference	0.0000
Growth	-10.1384	first difference	0.0000
Business Risk	-13.2927	first difference	0.0000
Tangibility	-10.9907	first difference	0.0000
Size	-7.76026	first difference	0.0000
Age	-27.4831	Second difference	0.0000
ROA	-9.02360	first difference	0.0000
PB	-12.4238	first difference	0.0000

(TABLE 4)

For unit root test Levin, Lin & Chu conducted. The hypothesis of this test are Null hypothesis process has unit root and Alternative hypothesis process has no unit root. Since our test has significant p-value as less than .05 indicates the rejection of Null Hypothesis which means data in not unit root and result is desirable. As Debt ratio has stationary data and can go for regression Analysis. **(TABLE 4)**

1. TD and Determinants of capital structure

The regression model is applied to identify the determinants of capital structure of Total debt. (Equation 1)

Independent variable	Pooled OLS		
TD	Coefficient	t-statistics	P value
C	0.926111	5.376631	0.0000
PROF	-1.036377	-11.41256	0.0000
LIQ	-0.072041	-2.044008	0.0423
GROW	0.001416	2.523594	0.0124
BUS_RISK	0.000215	1.104399	0.2707
TAN	0.364816	7.773746	0.0000
SIZE	-0.005659	-0.548967	0.5836
AGE	-0.130321	-4.312009	0.0000
R Square	0.504777		
Adjusted R-squared	0.487616		
Prob (F-statistic)	29.41392		
sig	0.000000		
D-W statistics	0.503989		
Hausman test	Chi-Sq. Statistic 76.991763	Chi-Sq. d.f. 7	Prob 0.0000
	Means Fixed Effect Model accepted.		

(TABLE 5)

Independent variable	Fixed Effect		
TD	Coefficient	t-statistics	P value
C	4.131896	10.64834	0.0000
PROF	-0.357834	-3.308591	0.0011

LIQ	-0.017252	-0.539310	0.5903
GROW	0.000417	0.990392	0.3232
BUS_RISK	0.000256	1.855249	0.0651
TAN	0.412416	8.268059	0.0000
SIZE	0.206962	6.972694	0.0000
AGE	-1.504597	-9.706115	0.0000
R Square	0.765922		
Adjusted R-squared	0.741151		
Prob (F-statistic)	30.92110		
sig	0.000000		
D-W statistics	0.857714		

(TABLE 6)

Independent variable	Random Effect		
TD	Coefficient	t-statistics	P value
C	1.437878	6.738001	0.0000
PROF	-0.727121	-7.574157	0.0000
LIQ	-0.016373	-0.537569	0.5915
GROW	0.001065	2.592930	0.0102
BUS_RISK	0.000293	2.127302	0.0346
TAN	0.358412	7.781443	0.0000
SIZE	0.009586	0.681054	0.4966
AGE	-0.339374	-5.451034	0.0000
R Square	0.378624		
Adjusted R-squared	0.357091		
Prob (F-statistic)	17.58357		
Sig	0.000000		
D-W statistics	0.633227		

(TABLE 7)

In case of first equation where Total debt taken as dependent variable and Profitability, Liquidity, Growth, Business risk, Tangibility, Size and Age. When Hausman test is applied we found significant and null hypothesis is rejected and fixed effect to be observed. The fixed model reflects R square found 76.59, F Statistics 30.92110 and significant which shows the model is good fit and dependent variable explain the independent variable. The study found Profitability and Age negative significant to Total Debt at 1% significance Level while Tangibility and size positive significant to Total Debt at 1% significance Level. Moreover, Business Risk also found positive significant at 10% significance level. **(TABLE 6)**

2. LTD and Determinants of capital structure

The regression model is applied to identify the determinants of capital structure of Long Term Debt (Equation 2). When Hausman test is applied we found significant and null hypothesis is rejected and fixed effect to be observed. The fixed model reflects R square found 69.86, F Statistics 21.90498 which shows the model is good fit and dependent variable explain the independent variable. The study found profitability, Liquidity and Age negative significant to Long Term Debt while size positive significant to Long Term Debt. **(TABLE 9)**

Independent variable	Pooled OLS		
LTD	Coefficient	t-statistics	P value
C	0.668255	5.595858	0.0000
PROF	-0.119860	-1.903777	0.0584
LIQ	-0.069618	-2.849076	0.0048
GROW	-0.000341	-0.877705	0.3811
BUS_RISK	-2.72E-05	-0.201442	0.8406
TAN	-0.252068	-7.747333	0.0000
SIZE	0.005420	0.758432	0.4491
AGE	0.041357	1.973749	0.0498
R-squared	0.327154		
Adjusted R-squared	0.303838		
Prob (F-statistic)	14.03106		
Sig	0.000000		
D-W statistics	0.484076		
Hausman test	Chi-Sq. Statistic 23.651683	Chi-Sq. d. 7	Prob 0.0013
Means Fixed Effect Model accepted.			

(TABLE 8)

Independent variable	Fixed Effect		
LTD	Coefficient	t-statistics	P value
C	1.421316	5.276544	0.0000
PROF	-0.129153	-1.720254	0.0870
LIQ	-0.083436	-3.757380	0.0002
GROW	-0.000152	-0.521359	0.6027
BUS_RISK	8.21E-06	0.085699	0.9318
TAN	-0.032957	-0.951802	0.3424
SIZE	0.127265	6.176560	0.0000
AGE	-0.438960	-4.079216	0.0001
R-squared	0.698612		
Adjusted R-squared	0.666720		
Prob (F-statistic)	21.90498		
Sig	0.000000		
D-W statistics	0.813078		

(TABLE 9)

Independent variable	Random Effect		
LTD	Coefficient	t-statistics	P value
C	0.560985	3.600745	0.0004
PROF	-0.217231	-3.215666	0.0015
LIQ	-0.063855	-2.996064	0.0031
GROW	-2.67E-05	-0.093537	0.9256
BUS_RISK	1.38E-05	0.144531	0.8852
TAN	-0.093253	-2.881477	0.0044
SIZE	0.041805	4.013227	0.0001
AGE	-0.023325	-0.493786	0.6220
R-squared	0.238728		
Adjusted R-squared	0.212347		

Prob (F-statistic)	9.049325		
sig	0.000000		
D-W statistics	0.725272		

(TABLE 10)

3. STD and Determinants of capital structure

The regression model is applied to identify the determinants of capital structure of Short Term Debt.

Independent variable	Pooled OLS		
STD	Coefficient	t-statistics	P value
C	2.456584	1.574592	0.1169
PROF	-1.675704	-2.037284	0.0429
LIQ	0.374714	1.173793	0.2419
GROW	0.000646	0.127140	0.8990
BUS_RISK	-0.000516	-0.292574	0.7701
TAN	3.956841	9.308821	0.0000
SIZE	0.067173	0.719496	0.4727
AGE	-1.024068	-3.740950	0.0002
R-squared	0.360886		
Adjusted R-squared	0.338738		
Prob (F-statistic)	16.29465		
Sig	0.000000		
D-W statistics	0.282935		
Hausman test	Chi-Sq. Statistic 13.538760	Chi-Sq. d. 7	Prob 0.0600
Means Fixed Effect Model accepted.			

(TABLE 11)

Independent variable	Fixed Effect		
STD	Coefficient	t-statistics	P value
C	5.569341	1.310792	0.1915
PROF	0.019718	0.016650	0.9867
LIQ	0.783719	2.237509	0.0264
GROW	0.004023	0.872924	0.3838
BUS_RISK	0.000652	0.430921	0.6670
TAN	4.717633	8.637539	0.0000
SIZE	0.015147	0.046606	0.9629
AGE	-2.144562	-1.263459	0.2080
R-squared	0.582679		
Adjusted R-squared	0.538518		
Prob (F-statistic)	13.19445		
sig	0.000000		
D-W statistics	0.487404		

(TABLE 12)

Independent variable	Random Effect		
STD	Coefficient	t-statistics	P value
C	2.958316	1.492517	0.1371
PROF	-0.805963	-0.817071	0.4149

LIQ	0.610335	1.898253	0.0591
GROW	0.003703	0.831806	0.4065
BUS_RISK	0.000508	0.338064	0.7357
TAN	4.546288	9.542589	0.0000
SIZE	-0.008487	-0.067852	0.9460
AGE	-1.246101	-2.489873	0.0136
R-squared	0.355159		
Adjusted R-squared	0.332813		
Prob (F-statistic)	15.89365		
sig	0.000000		
D-W statistics	0.409892		

(TABLE 13)

Equation 3 is to know effect of Short term Debt effect on determinants of Capital structure. When Hausman test is applied we found insignificant and null hypothesis is accepted and Random Effect to be observed. The fixed model reflects R square found 35.51, R2 which is very low, F Statistics 15.89365 which shows the model is good fit and dependent variable explain the independent variable. The study found Age negative significant at 10% significance level while Liquidity positive significant at 10% significances level. **(TABLE 13)**

4. TD on (ROA PRICE_TO_BOOK)

The regression model is applied identify the effect of Total Debt on ROA and Price to Book.

Independent variable	Pooled OLS		
TD	Coefficient	t-statistics	P value
C	0.400341	15.56226	0.0000
ROA	-0.016307	-8.398794	0.0000
PRICE_TO_BOOK	-0.002071	-1.084688	0.2793
R-squared	0.254252		
Adjusted R-squared	0.247047		
Prob (F-statistic)	35.28680		
Sig	0.000000		
D-W statistics	0.293018		
Hausman test	Chi-Sq. Statistic 2.7581	Chi-Sq. d. 2	Prob 0.2518
Means Random Effect Model accepted.			

(TABLE 14)

Independent variable	Fixed Effect		
TD	Coefficient	t-statistics	P value
C	0.351911	13.04199	0.0000
ROA	-0.008891	-3.192129	0.0016
PRICE_TO_BOOK	-0.004570	-2.311320	0.0219
R-squared	0.565752		
Adjusted R-squared	0.532176		

Prob (F-statistic)	16.84995		
sig	0.000000		
D-W statistics	0.475313		

(TABLE 15)

Independent variable	Random Effect		
TD	Coefficient	t-statistics	P value
C	0.364492	7.913424	0.0000
ROA	-0.010824	-4.285952	0.0000
PRICE_TO_BOOK	-0.003911	-2.055246	0.0411
R-squared	0.106796		
Adjusted R-squared	0.098166		
Prob (F-statistic)	12.37500		
sig	0.000008		
D-W statistics	0.441932		

(TABLE 16)

Equation 4 results adoption of random effect as Hausman shows positive significant result. Random effect shows a good fit value as R square value is 10.6 % R2 which is very low and ROA and PB were found significant at 5% significance level but negative while. On the other way, fixed effect get R2 value is 56.57 % and F-statistics 16.84 % which shows the model is good fit and dependent variable explain the independent variable. Results indicate that ROA and PB were found significant same as negative effect like Radom. Perhaps, when we include sector OLS pooled regression model discover TD is negatively associated to only ROA and PB is insignificant. In short result proved that the PB and ROA negatively related to Total debt. **(TABLE 16)**

5. LTD ON ROA PRICE_TO_BOOK

The regression model is applied identify the effect of Long Term Debt on ROA and PB.

Independent variable	Pooled OLS		
LTD	Coefficient	t-statistics	P value
C	0.581107	34.48129	0.0000
ROA	-0.000562	-0.441754	0.6591
PRICE_TO_BOOK	0.005665	4.529558	0.0000
R-squared	0.095326		
Adjusted R-squared	0.086585		
Prob (F-statistic)	10.90580		
sig	0.000031		
D-W statistics	0.466002		
Hausman test	Chi-Sq. Statistic 12.767	Chi-Sq. d. 2	Prob 0.0017
Means Fixed Effect Model is accepted.			

(TABLE 17)

Independent variable	Fixed Effect		
LTD	Coefficient	t-statistics	P value
C	0.619522	38.11798	0.0000
ROA	-0.000734	-0.437287	0.6624
PRICE_TO_BOOK	-0.000819	-0.687685	0.4925
R-squared	0.554669		
Adjusted R-squared	0.520236		
Prob (F-statistic)	16.10874		
sig	0.000000		
D-W statistics	0.634246		

(TABLE 18)

Independent variable	Random Effect		
LTD	Coefficient	t-statistics	P value
C	0.616616	23.39276	0.0000
ROA	-0.001091	-0.725996	0.4687
PRICE_TO_BOOK	0.000220	0.193212	0.8470
R-squared	0.002479		
Adjusted R-squared	-0.007159		
Prob (F-statistic)	0.257236		
sig	0.773433		
D-W statistics	0.556339		

(TABLE 19)

Equation 5 results adoption of random effect as Hausman shows positive significant result. Random effect shows a good fit value as R square value was very low and ROA and PB were found insignificant. On the other way, fixed effect get R2 value is 55.4 % and F-statistics 16.10 % which shows the model is good fit and dependent variable explain the independent variable. Results indicate that ROA and PB were found in significant effect like Radom. Further when we include sector OLS pooled regression model discover LTD positively associated to only PB and ROA insignificant. In short, result proved that the PB and ROA insignificant to long term debt. **(TABLE 18)**

6. STD ON ROA PRICE_TO_BOOK

The regression model is applied identify the effect of Short Term Debt on ROA and PB.

Independent variable	Pooled OLS		
STD	Coefficient	t-statistics	P value
C	1.496622	6.359871	0.0000
ROA	-0.011611	-0.653726	0.5140
PRICE_TO_BOOK	-0.033740	-1.931997	0.0547
R-squared	0.018338		
Adjusted R-squared	0.008854		
Prob (F-statistic)	1.933490		
sig	0.147246		
D-W statistics	0.196875		
Hausman test	Chi-Sq. Statistic	Chi-Sq. d. 2	Prob 0.4486

	1.603		
Means Random Effect Model accepted.			

(TABLE 20)

Independent variable	Fixed Effect		
STD	Coefficient	t-statistics	P value
C	1.342139	5.043109	0.0000
ROA	-0.015937	-0.580124	0.5625
PRICE_TO_BOOK	-0.000226	-0.011602	0.9908
R-squared	0.335469		
Adjusted R-squared	0.284088		
Prob (F-statistic)	6.529010		
sig	0.000000		
D-W statistics	0.253490		

(TABLE 21)

Independent variable	Random Effect		
STD	Coefficient	t-statistics	P value
C	1.350294	3.483265	0.0006
ROA	-0.012020	-0.504105	0.6147
PRICE_TO_BOOK	-0.007464	-0.404610	0.6862
R-squared	0.002200		
Adjusted R-squared	-0.007440		
Prob (F-statistic)	0.228230		
sig	0.796141		
D-W statistics	0.237870		

(TABLE 22)

Equation 6 results adoption of random effect as Hausman shows not significant result means fixed effect is accepted. Random effect shows a good fit value as R square value is very low and ROA and PB were found insignificant. On the other way, fixed effect get R2 value is 33.5 % and F-statistics 6.52 which shows the model is good fit and dependent variable explain the independent variable. Results indicate that ROA and PB were found in significant effect like Radom. Further when we include sector OLS pooled regression model discover STD is negatively associated to only PB and ROA found insignificant. In short result proved that the PB negatively associated. **(TABLE 22)**

7. ROA and PB

The regression model is applied identify the effect of ROA and PB.

Independent variable	Pooled OLS		
ROA	Coefficient	t-statistics	P value
C	9.296962	14.20377	0.0000
PRICE_TO_BOOK	-0.148283	-2.200106	0.0289
R-squared	0.022742		
Adjusted R-squared	0.018044		
Prob (F-statistic)	4.840468		

sig	0.028900		
D-W statistics	0.385732		

Hausman test	Chi-Sq. Statistic	Chi-Sq. d.	Prob
	3.6328	1	0.0567
Means Random Effect Model accepted.			

(TABLE 23)

Independent variable	**Fixed Effect**		
ROA	Coefficient	t-statistics	P value
C	7.765731	18.72553	0.0000
PRICE_TO_BOOK	0.120328	2.401875	0.0172
R-squared	0.704963		
Adjusted R-squared	0.683781		
Prob (F-statistic)	33.28100		
sig	0.000000		
D-W statistics	0.957117		

(TABLE 24)

Independent variable	**Random Effect**		
ROA	Coefficient	t-statistics	P value
C	7.846447	4.561945	0.0000
PRICE_TO_BOOK	0.106168	2.142931	0.0333
R-squared	0.021337		
Adjusted R-squared	0.016631		
Prob (F-statistic)	4.534755		
sig	0.034389		
D-W statistics	0.882446		

(TABLE 25)

Equation 7 results adoption of random effect as Hausman shows positive significant result. Random effect shows a good fit value as R square value is very low and PB is found positively significant. On the other way, fixed effect get R2 value is 70.49 % and F-statistics 33.28 which shows the model is good fit and dependent variable explain the independent variable. Results indicate that PB found positively significant effect like Radom. Further when we include sector OLS pooled regression model discover positively is negatively associated to only PB. In short result proved that the ROA significant to PB. **(TABLE 25)**

8. Impact of Macro Economic Variables.

Independent variable	**TD**		
	Coefficient	t-statistics	P value
C	141.3161	1.888336	0.0883
INF	6.529399	0.574284	0.5785
GDP	-22.36121	-2.241805	0.0489
M3	-0.048475	-0.079285	0.9384
CPI	2.271854	0.350040	0.7336
R-squared	0.389725		
Adjusted R-squared	0.145615		
Prob (F-statistic)	1.596513		

sig	0.249602		
D-W statistics	2.247331		

(TABLE 26)

Independent variable	**LTD**		
	Coefficient	t-statistics	P value
C	0.652084	35.79807	0.0000
INF	-0.002052	-0.741368	0.4755
GDP	0.003222	1.327194	0.2139
M3	-0.000422	-2.836125	0.0177
CPI	0.001114	0.705097	0.4968
R-squared	0.607294		
Adjusted R-squared	0.450212		
Prob (F-statistic)	3.866092		
sig	0.037700		
D-W statistics	1.571819		

(TABLE 27)

Independent variable	**STD**		
	Coefficient	t-statistics	P value
C	-0.337606	-0.180035	0.8607
INF	-0.044307	-0.155520	0.8795
GDP	0.070730	0.282988	0.7830
M3	0.066299	4.327518	0.0015
CPI	-0.162300	-0.997966	0.3418
R-squared	0.778361		
Adjusted R-squared	0.689706		
Prob (F-statistic)	8.779620		
sig	0.002616		
D-W statistics	1.001158		

(TABLE 28)

Equation 8 result shows R2 of 38.97% indicates a good fit value as R square value is very low found. In case of Total Debt F statistics is 1.5965 but not significant indicates the model is not fit in case of total debt **(TABLE 26)**. In case of Equation 9 shows R value is 60.70% and adjusted R2 is 45%. F statistics is 3.86 and significant and indicates m3 is positively significant at 5% while Inflation, GDP and CPI are insignificant to LTD **(TABLE 27)**. In addition, Equation 10 R2 of 77.83% and F-statistics is 8.77 and significant indicates a good fit value. On the other hand M3 negatively associated to STD and Inflation, GDP and CPI were insignificant. **(TABLE 28)**

Independent variable	**ROA**		
	Coefficient	t-statistics	P value
C	20.87919	6.404486	0.0001
INF	-0.173927	-0.351159	0.7328
GDP	-0.178564	-0.410941	0.6898
M3	-0.042464	-1.594340	0.1419
CPI	-0.033831	-0.119656	0.9071
R-squared	0.401659		
Adjusted R-squared	0.162322		

Prob (F-statistic)	1.678216		
sig	0.230710		
D-W statistics	2.677825		

(TABLE 29)

Equation 11 analysis shows R2 is 40.16 and adjusted R2 is 16.23 indicates a good fit value as R square value found. Where ROA is insignificant to Inflation, GDP, M3 and CPI **(TABLE 29)** . and Equation 12 analyzed shows R2 is 38.97 indicates a good fit value as R square value is very low found where PB is also significant to Inflation, GDP, M3 and CPI. **(TABLE 30)**

Independent variable	PB		
	Coefficient	t-statistics	P value
C	141.3161	1.888336	0.0883
INF	6.529399	0.574284	0.5785
GDP	-22.36121	-2.241805	0.0489
M3	-0.048475	-0.079285	0.9384
CPI	2.271854	0.350040	0.7336
R-squared	0.389725		
Adjusted R-squared	0.145615		
Prob (F-statistic)	1.596513		
sig	0.249602		
D-W statistics	2.247331		

(TABLE 30)

Findings

1. Profitability found negative effect on long term as well as short term.

2. Age found negative effect in long term as well as short term

3. Size is positively associated with long term debt but no association found in short term Debt.

4. Tangibility also found positive impact with long term as well as short term.

5. Liquidity found negative impact with long term debt but positive with Short term debt.

6. Business Risk and Growth found no relation.

7. Total debt found negative relation with ROA and PB.

8. Short term debt found impact on ROA and PB.

9. ROA found positive relation with PB.

10. GDP and M3 found negative relation with Long term Debt.

11. M3 found positive relation with short term Debt.

12. GDP found negative impact with PB

13. Macroeconomic variable found no relation with ROA.

Discussions

Our study supports pecking order theory as profitability negatively and tangibility positively associated to debt. Bhattacharjee and Mihir Dash (2015) also found same result but in case of sugar industry. While most of study supports negative relation of profitability and debt also

found by Mahdi Salehi (2009), Gharaibeh (2015), Bhattacharjee and Mihir Dash (2015) & Huang and Song (2006). Age also found negative relation supported by Michaelas et al. (1999) and Petersen and Rajan (1994). Moreover, size found positive relation with long term debt. Total Debt found negative impact on performance and value of firm but no relation established argued by Qurrat-ul-Ain et al. (2011).

GDP found negative relation with debt and with value of firm as suggested by Bokpin (2009). Tehrani and Najafzadehkhoee (2015) argue no significant relation between perceived macroeconomic variable and firm performance. In addition, Money Supply found negative relation with long term debt bout negative relation with short term debt.

VI. CONCLUSION

The automobile sector is highly profitable but need more investment than other sector. The preliminary analysis consist of descriptive statistics is given on table 1, 2 and 3. It gives surprising when automobile companies prefer Short Term debt than long term debt. Thus, this particular industry need more short term fund.

The study also identifies the determinant of capital structure where Business Risk and Growth is not associated with all leverage components i.e. Total Debt (TD), Long Term Debt (LTD) and Short Term Debt (STD). The main objective of study to identify the effect leverage on firm performance and on value of firm. The study is also flavored by identification of macroeconomic effect on Leverage, Firm performance and Firms value.

As we know this sector need higher investment with the change in technology uncertainties exist while sector prefers to use internal fund as well as external fund in best possible way. Thus, old Auto companies prefer less debt than new company.

While considering the firm performance leverage is associated but negatively, similarly firm's value is also negatively associated to leverage. As we also included macroeconomic variable and found Money supply is negatively associated to leverage while GDP is negatively associated to firms value but not on performance.

Perhaps, it can say that Indian policy maker has to liberalize the policy of borrowings and need to take initiative to change the mindset of traditional as well as small firm to convert risk averse to risk taker. We can also predict that auto sector companies were very old and control over the sector. Thus government should provide the better condition for new entrants. Although, macroeconomic variables found strong effect on capital structure decision. Further, there is still scope for further study of impact of capital structure and value of firm.

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