Vol 4 Issue 7 Jan 2015 ISSN No :2231-5063

International Multidisciplinary Research Journal

Golden Research Thoughts

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RNI MAHMUL/2011/38595 **ISSN No.2231-5063**

Golden Research Thoughts Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board.Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

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Golden Research Thoughts
ISSN 2231-5063
Impact Factor : 3.4052(UIF)
Volume-4 | Issue-7 | Jan-2015
Available online at www.aygrt.isrj.org

CAPITAL STRUCTURE OF INDIAN AUTOMOTIVE INDUSTRY – AN EMPIRICAL STUDY

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Abstract:-The automotive industry comprising of automobiles and auto component sectors is an important driver for any economy. It is called as the 'industry of industries'. India has already become one of the fastest growing automobile markets in the world and infact the automobile industry has scripted a new, inspirational story to learn from and build on. The automobile industry is one of the largest and most important industries in the world both in terms of its contribution to national income and the number of jobs it provides. It is moreover, a major employment generator in the country. The automobile industry, along with the auto components industry, occupies a prominent place in the fabric of the Indian economy. This is primarily due to the fact that this industry has strong forward and backward linkages with several key segments of the economy. Thus the automotive industry has a strong multiplier effect and is capable of being the driver of economic growth.

Keywords: Capital Structure , Indian Automotive Industry , auto component sectors .

INTRODUCTION

In order to survive in the long run, every company needs to plan about its capital structure and decide the combination of sources of funds after observing the factors affecting capital structures.

LITERATURE REVIEW

Joshua Abor (2008) has made a study on "Determinants of the Capital Structure of Ghanaian Firms". The study has compared the capital structure of quoted firms, large unquoted firms and small and medium enterprises using a panel regression model. The results indicated that the size of the firm, asset structure and profitability have influenced the capital structure of Ghanaian Firms. It has been found that quoted and large unquoted firms exhibited significantly higher debt ratios than SMEs. The study has also revealed that short term debt constituted a relatively high proportion of total debt of all the sample groups.

Rao (2007) in his study on "Capital Structure and Financial Performance: Evidence from Oman" has examined the relationship between capital structure and financial performance. The results of the study suggested that, as contrary to the trade off theory of capital structure, there has been a negative association between the level of debt and financial performance. This can be attributed to the high cost of borrowing and the under developed nature of debt market in Oman. The tax savings that the firm receives by using debt does not seem to be sufficient to outweigh the cost of using debt including the high interest cost.

Bhavik Panchasara, Kumargaurav Ghela, Sagar Ghetia and Ashish Chudasama, (2011) have conducted an empirical study on "Judging the Short Term Solvency of Selected Indian Automobile Sector Companies". The accounting techniques of ratio analysis have been used in conjunction with the techniques of inferential statistics to draw the inferences regarding short- term solvency of the company selected for the study. Besides the main liquidity ratios, the relevant turnover ratios have also been used to know how quickly different components of current assets were converted into cash so as to maintain liquidity in the business.

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Wald and John (2011) in their study on "How Firm Characteristics Affect Capital Structure?: An International Comparison" have examined the factors correlated with capital structure in the United States, Japan, United Kingdom, France, and Germany. Although both mean leverage and many firm factors appear to be similar across countries, some significant differences have been found. Specifically, differences appear in the correlation between long-term debt/asset ratios and the firms' riskiness, profitability, size, and growth. These correlations may be explained by differences in tax policies and agency problems, including differences in bankruptcy costs, information asymmetries, and shareholder/creditor conflicts. The findings of this study have suggested links between varying choices in capital structure across countries and legal and institutional differences.

OBJECTIVES OF THE STUDY

The main objective of the study is to analyse the capital structure of the selected automotive companies in India. The specific objectives are:

1. To compute the capital structure of the selected companies and their trends.
2. To investigate the determinants that influences the capital structure.
3. To analyse the impact of determinants on capital structure.

HYPOTHESES OF THE STUDY

Based on the objectives the following hypotheses are framed:

1. The capital structure ratios do not differ significantly among slow, moderate and high growth groups of companies and they do not change significantly across the years for the study period and also do not differ due to the interaction of years and company groups.
2. The determinants of capital structure ratios do not differ significantly among the various growth groups of companies and do not significantly change across the years for the study period and also do not differ due to the interaction of years and company groups.
3. The selected determinants do not exert influence on the capital structure ratios.

METHODOLOGY

SOURCES OF DATA

Secondary data are used in this study which have been collected from the PROWESS database of the Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE). Variables pertaining to determinants of capital structure have been collected from the balance sheet and profit and loss account of the selected automobile and auto ancillary companies for a period of 10 years i.e. from the financial year 2003-04 to 2012-13.

SELECTION OF THE SAMPLE

The study is confined to the Automobile and Auto ancillary industries in India. The final sample of this research consisted of 14 automobile companies and 79 auto ancillary companies.

PERIOD OF THE STUDY

The study covers a period of ten accounting years from 2003-04 to 2012-13.

FRAMEWORK OF ANALYSIS

The statistical techniques used are Descriptive statistics such as Mean, Standard deviation, Coefficient of variation, Annual growth rate, Linear annual growth rate and Compounded annual growth rate. The other tools used are Ratio analysis, Analysis of variance, Panel data regression analysis. Statistical tools like F- test, Wald test, Hausman test and Lagrange Multiplier test are also used.

DATA TABULATION, COMPUTATION, ANALYSIS AND INTERPRETATION

The automotive industry comprises of automobile manufacturing companies and auto ancillary companies.

The objective of the present research study is to examine the capital structure and the determinants of capital structure of the industry.

Objective: 1. To compute the capital structure of the selected companies and their trends.

In order to achieve the above objective the statistical tools such as Summary statistics showing mean, standard deviation, co-efficient of variation, annual growth rate, linear annual growth rate and compounded annual growth rate have been applied. The following is the result of summary statistics:

Table 1: Capital Structure Ratios

VARIABLES	MEAN		CO-EFFICIENT OF VARIATION	
	AUTO MOBILES	AUTO ANCILLARIES	AUTO MOBILES	AUTO ANCILLARIES
Total Liabilities Ratios	0.540	0.575	3.424	1.456
Long-Term Liabilities Ratios	0.136	0.182	14.573	7.329
Short-Term Liabilities Ratios	0.405	0.393	4.227	3.146

The capital structure ratios for automobiles and auto ancillaries do not show a high difference. The analysis shows that the automobile companies and auto ancillary companies have relied more on short-term liabilities than on long-term liabilities to finance the assets and the ratios are on the higher side for automobile companies.

Objective: 2. To investigate the determinants that influence the capital structure.

To attain the above objective, summary statistics have been calculated for the determinants of capital structure. Thirteen factors namely return on assets, EBIT margin, tangibility, non-debt tax shield, size of the company, sales growth, asset growth, free cash flow, interest incidence, dividend payout, business risk, liquidity and growth opportunities have been taken as determinants.

SUMMARY STATISTICS FOR THE DETERMINANTS OF CAPITAL STRUCTURE

Table 2: Determinants of Capital Structure

Variables	Mean		Co-efficient of Variation	
	Auto Mobiles	Auto Ancillaries	Auto Mobiles	Auto ancillaries
Return on Assets Ratios	0.101	0.103	20.380	17.092
EBIT Margin Ratios	0.139	0.078	78.308	54.1
Tangibility Ratios	0.603	0.732	5.596	4.454
Non-Debt Tax Shield Ratios	0.135	0.370	388.39	83.841
Size of the Company	6.761	4.607	5.246	9.355
Sales Growth Ratios	0.104	0.141	94.980	72.298
Asset Growth Ratios	0.136	0.150	41.653	53.287
Free Cash Flow Ratios	0.029	0.017	135.892	230.190
Interest Incidence Ratios	0.077	0.263	358.48	67.229
Dividend Payout Ratios	0.249	0.188	52.681	84.460
Business Risk Ratios	0.067	-0.043	364.319	507.777
Liquidity Ratios	1.478	2.172	15.000	5.179
Growth Opportunities Ratios	1.620	1.290	21.940	22.430

The mean value of automobile industry is higher than auto ancillary industry in respect of ratios namely EBIT margin, size of the company, free cash flow, business risk, growth opportunities and dividend payout. The mean value of auto ancillary industry has shown negative figure for business risk ratio. Further the mean value for auto ancillary industry is higher than the automobile industry in case of return on assets, tangibility, non-debt tax

shield, sales growth, asset growth, interest incidence and liquidity ratios.

Repeated measures ANOVA has been applied after classifying the sample companies into three groups as slow growth, moderate growth and high growth groups of companies based on the Compounded Annual Growth Rates.

- To examine the determinants of capital structure the companies have been grouped into three categories based on the Compounded Annual Growth Rate of Assets. Based on their percentile values, the companies have been grouped into Slow growth if the asset growth rate falls below 30th percentile value and High growth if the asset growth rate falls above 70th percentile value.
- The companies whose asset growth rate falls between 30th and 70th percentile values have been considered as moderate growth companies.

Table 3: Classification of Companies Based on Asset Growth

Group		CAGR
Automobiles	Mean	12.8393
	Standard Deviation	10.4591
Auto Ancillaries	Mean	15.6153
	Standard Deviation	10.9077
Total	Mean	15.1974
	Standard Deviation	10.8317

The overall result shows that the Compounded annual growth rate based on total assets for auto ancillary companies is higher than automobile companies.

Table 4: Classification of Automobile Companies Based on CAGR

	No. of companies	Percent
Slow growth (<=13.41) (Below 30th Percentile)	4	28.6
Moderate growth (13.41-19.04) (Between 30th and 70th Percentile)	6	42.9
High growth (>19.04) (Above 70th Percentile)	4	28.6
Total	**14**	**100.0**

Table 5: Classification of Auto Ancillary Companies Based on CAGR

	No. of companies	Percent
Slow growth (<=10.24) (Below 30th Percentile)	24	30.4
Moderate growth (10.24-19.50) (Between 30th and 70th Percentile)	32	40.5
High growth (>19.50) (Above 70th Percentile)	23	29.1
Total	**79**	**100.0**

REPEATED MEASURES ANOVA BASED ON ASSET GROWTH

The following null hypotheses have been framed to test the significance of the ANOVA results in respect of the capital structure ratios and their determinants.

1. The mean ratios do not differ significantly among slow, moderate and high growth groups of companies.
2. The mean ratios do not change significantly across the years of the study period.
3. There is no significant difference in the mean ratios due to the interaction of years and company groups.

Table 6: Repeated Measures ANOVA for the Capital Structure Ratios

VARIABLES	FACTORS	AUTOMOBILES		AUTO ANCILLARIES	
		F-RATIO	SIG	F-RATIO	SIG
Total Liabilities ratios	Between growth based groups	0.529	NS	2.557	NS
	Between Years	0.468	NS	0.596	NS
	Years * Growth based groups	0.760	NS	1.819	*
Long-Term Liabilities ratios	Between growth based groups	0.454	NS	3.231	*
	Between Years	1.040	NS	2.006	*
	Years * Growth based groups	0.549	NS	2.887	**
Short-Term Liabilities ratios	Between growth based groups	1.261	NS	0.126	NS
	Between Years	0.517	NS	2.045	*
	Years * Growth based groups	1.004	NS	1.908	*

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

In the case of automobile companies, the leverage ratios such as total liabilities ratio, long-term liabilities ratio and short-term liabilities ratio do not vary significantly across the three groups of growth companies, across the years of the period of study and across the interaction between the years and company groups.

In the case of the auto ancillary companies, the long-term liabilities ratios have been different for different growth based groups of companies and the difference is also observed across the study period. The total liabilities ratio has not shown significant difference between different growth based groups and also during the entire period of study the ratio has not shown significant variation. In the case of short-term liabilities ratio, the auto ancillaries have not shown significant difference between the different types of growth based companies. But there has been variation during the study period in respect of this ratio.

Table 7: Repeated Measures ANOVA for the Determinants Of Capital Structure

VARIABLES	FACTORS	AUTO MOBILES		AUTO ANCILLARIES	
		F-RATIO	SIG	F-RATIO	SIG
Return on Assets ratios	Between growth based groups	4.459	*	6.613	**
	Between Years	1.156	NS	5.961	**
	Years * Growth based groups	0.620	NS	1.010	NS
EBIT Margin ratios	Between growth based groups	0.697	NS	1.019	NS
	Between Years	1.302	NS	0.542	NS
	Years * Growth based groups	1.202	NS	1.246	NS
Tangibility ratios	Between growth based groups	0.852	NS	0.064	NS
	Between Years	0.896	NS	5.516	**
	Years * Growth based groups	2.065	*	1.999	**
Non-debt tax shield ratios	Between growth based groups	1.306	NS	0.177	NS
	Between Years	1.409	NS	0.951	NS
	Years * Growth based groups	1.295	NS	1.110	NS

Size of the Company	Between growth based groups	1.006	NS	4.654	*
	Between Years	20.374	**	321.274	**
	Years * Growth based groups	6.182	**	53.425	**
Sales Growth Ratios	Between growth based groups	11.691	**	25.669	**
	Between Years	2.274	*	15.182	**
	Years * Growth based groups	0.972	NS	1.099	NS
Asset Growth ratios	Between growth based groups	10.465	**	25.956	**
	Between Years	0.660	NS	4.337	**
	Years * Growth based groups	1.158	NS	1.660	*
Free Cash Flow ratios	Between growth based groups	0.313	NS	16.907	**
	Between Years	1.281	NS	16.005	**
	Years * Growth based groups	1.123	NS	2.309	**
Interest Incidence ratios	Between growth based groups	1.304	NS	0.671	NS
	Between Years	1.381	NS	0.368	NS
	Years * Growth based groups	1.307	NS	1.063	NS
Dividend Payout ratios	Between growth based groups	0.052	NS	1.146	NS
	Between Years	1.179	NS	1.132	NS
	Years * Growth based groups	0.917	NS	1.096	NS
Business Risk ratios	Between growth based groups	3.734	NS	5.656	**
	Between Years	0.736	NS	3.835	**
	Years * Growth based groups	0.606	NS	1.441	NS
Liquidity ratios	Between growth based groups	0.101	NS	0.079	NS
	Between Years	2.753	**	2.323	*
	Years * Growth based groups	0.840	NS	0.843	NS
Growth Opportunities ratios	Between growth based groups	1.166	NS	4.432	*
	Between Years	5.122	**	16.661	**
	Years * Growth based groups	1.021	NS	1.874	*

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

In case of the automobile companies, significant variation is observed across the different growth based groups in respect of return on assets ratio and asset growth ratio. The sales growth ratio has shown significant variation across the various groups of companies and across the study period, but the interaction of different growth based groups and period of study has not shown any significant variation.

In the case of the auto ancillary companies, the size of the company, asset growth, free cash flow and growth opportunities ratios have shown significant variation across the various groups of companies, across the year of the study period and across the interaction of different growth based groups of companies and period of study. The return on assets, sales growth and business risk ratios has shown significant variation across the various growth based groups of companies and across the study period.

Objective: 3. To analyse the impact of determinants on capital structure.

In order to achieve the above mentioned objective, panel data regression analysis has been applied for all the leverage ratios namely total liabilities ratio, long term liabilities ratio and short-term liabilities ratio. Eleven determinants have only been considered for the analysis. Fixed effects and random effects model has been used and the appropriate model has been found out based on the Hausman test and Lagrange multiplier test.

Table 8: Panel Data Regression Analysis for Automobiles – Total Liabilities Ratio

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.6576	-3.910	**	-0.7249	-4.420	**
Tangibility	0.0486	0.580	Ns	0.0825	1.190	Ns
Non-debt tax shield	-0.0032	-0.510	Ns	-0.0028	-0.440	Ns
Company size – Total Assets	-0.0110	-0.560	Ns	-0.0074	-0.490	Ns
Growth of sales income	0.0034	0.100	Ns	0.0127	0.370	Ns
Free Cash Flow	0.0170	0.220	Ns	-0.0008	-0.010	Ns
Interest coverage ratio	0.0017	0.510	Ns	0.0015	0.440	Ns
Dividend Payout Ratio	0.0030	0.160	Ns	-0.0004	-0.020	Ns
Business Risk	0.0068	0.590	Ns	0.0135	1.230	Ns
Liquidity Ratio	-0.1121	-5.540	**	-0.1023	-5.400	**
Growth Opportunities	-0.0013	-0.110	Ns	-0.0012	-0.100	Ns
Constant	0.8184			0.7653		
R^2	0.4564			0.4534		
F-statistic	8.78		**			
Wald (? ^{2})				99.65		**
Hausman (? ^{2})	10.00		Ns			
LM (? ^{2})				171.12		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between total liabilities ratio and the selected independent variables. Random Effects model serves as the appropriate model which leads to further inferences that return on assets and liquidity ratios have negative impact on firm's leverage parameter (Total liabilities ratio) which are found to be significant at 1% level.

Table 9: Panel Data Regression Analysis for Auto Ancillaries - Total Liabilities Ratio

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.4093	-5.760	**	-0.4423	-6.170	**
Tangibility	0.0899	3.270	**	0.0578	2.360	*
Non-debt tax shield	0.0003	0.170	Ns	-0.0001	-0.050	Ns
Company size – Total Assets	0.0291	4.480	**	0.0197	3.570	**
Growth of sales income	0.0647	4.630	**	0.0652	4.600	**
Free Cash Flow	-0.0937	-2.460	**	-0.0908	-2.390	*
Interest coverage ratio	0.0030	1.640	Ns	0.0035	1.910	Ns
Dividend Payout Ratio	-0.0002	-1.350	Ns	-0.0002	-1.350	Ns
Business Risk	-0.0026	-0.610	Ns	-0.0041	-1.000	Ns
Liquidity Ratio	-0.0106	-1.960	*	-0.0143	-2.770	**
Growth Opportunities	-0.0065	-1.380	Ns	-0.0050	-1.070	Ns
Constant	0.4406			0.5169		
R^2	0.1893			0.1850		
F-statistic	14.81		**			
Wald ($?^2$)				41.23		**
Hausman ($?^2$)	41.23		**			
LM ($?^2$)				1203.08		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between total liabilities ratio and the selected independent variables. Fixed Effects model serves as the appropriate model which leads to further inferences that return on assets, free cash flow and liquidity ratio have negative impact on firm's leverage parameter (Total liabilities ratio) which are found to be significant. Tangibility, size of the company and sales growth ratios have significant positive effect on total liabilities ratio.

Table 10: Panel Data Regression Analysis for Automobiles - Long-Term Liabilities Ratio

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.2959	-2.200	*	-0.3467	-2.790	**
Tangibility	0.0612	0.920	Ns	0.0825	1.880	Ns
Non-debt tax shield	0.0017	0.330	Ns	0.0025	0.510	Ns
Company size – Total Assets	0.0156	0.990	Ns	0.0165	1.830	Ns
Growth of sales income	-0.0037	-0.130	Ns	-0.0004	-0.020	Ns
Free Cash Flow	-0.0512	-0.850	Ns	-0.0583	-1.020	Ns
Interest coverage ratio	-0.0009	-0.340	Ns	-0.0013	-0.520	Ns
Dividend Payout Ratio	-0.0195	-1.310	Ns	-0.0214	-1.490	Ns

Business Risk	0.0003	0.040	Ns	0.0046	0.580	Ns
Liquidity Ratio	-0.0109	-0.680	Ns	-0.0056	-0.410	Ns
Growth Opportunities	-0.0150	-1.520	Ns	-0.0153	-1.660	Ns
Constant	0.0697			0.0487		
R^2	0.1826			0.1800		
F-statistic	2.34		*			
Wald (? ^{2})				35.53		**
Hausman (? ^{2})	7.15		Ns			
LM (? ^{2})				60.78		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between long-term liabilities ratio and the selected independent variables. Return on assets ratio is found to have significant negative effect on long-term liabilities ratio. Random Effects model serves as the appropriate model which leads to further inferences that return on assets have negative impact on firm's leverage parameter (Long-term liabilities ratio) which are found to be significant.

Table 11: Panel Data Regression Analysis for Auto Ancillaries - Long-Term Liabilities

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.3631	-5.690	**	-0.3857	-6.040	**
Tangibility	0.1058	4.290	**	0.1081	5.220	**
Non-debt tax shield	-0.0016	-1.030	Ns	-0.0021	-1.380	Ns
Company size – Total Assets	0.0277	4.740	**	0.0284	6.180	**
Growth of sales income	0.0232	1.850	Ns	0.0243	1.920	*
Free Cash Flow	-0.1309	-3.820	**	-0.1264	-3.740	**
Interest coverage ratio	0.0029	1.760	Ns	0.0036	2.180	*
Dividend Payout Ratio	0.0001	0.700	Ns	0.0001	0.820	Ns
Business Risk	0.0025	0.670	Ns	0.0020	0.550	Ns
Liquidity Ratio	0.0269	5.520	**	0.0224	5.020	**
Growth Opportunities	-0.0145	-3.420	**	-0.0118	-2.800	**
Constant	-0.0265			-0.0232		
R^2	0.2134			0.2137		
F-statistic	17.22		**			
Wald (? ^{2})				208.24		**
Hausman (? ^{2})	38.29		**			
LM (? ^{2})				847.32		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between long-term liabilities ratio and the selected independent variables. Fixed Effects model serves as the appropriate model which leads to further inferences that return on assets, free cash flow and growth opportunities ratios have negative impact on firm's leverage parameter (Long-Term Liabilities ratio) which are found to be significant at 1% level. Tangibility, size of the company and liquidity ratios have significant positive effect at 1% level on long-term liabilities ratio.

Table 12: Panel Data Regression Analysis for Automobiles - Short-Term Liabilities Ra

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.3617	-2.700	**	-0.3882	-3.000	**
Tangibility	-0.0126	-0.190	Ns	0.0019	0.030	Ns
Non-debt tax shield	-0.0049	-0.970	Ns	-0.0048	-0.980	Ns
Company size – Total Assets	-0.0266	-1.700	Ns	-0.0246	-1.880	Ns
Growth of sales income	0.0070	0.250	Ns	0.0114	0.420	Ns
Free Cash Flow	0.0682	1.130	Ns	0.0602	1.030	Ns
Interest coverage ratio	0.0026	0.980	Ns	0.0025	0.990	Ns
Dividend Payout Ratio	0.0225	1.510	Ns	0.0210	1.450	Ns
Business Risk	0.0065	0.700	Ns	0.0093	1.060	Ns
Liquidity Ratio	-0.1012	-6.280	**	-0.0969	-6.380	**
Growth Opportunities	0.0137	1.390	Ns	0.0138	1.450	Ns
Constant	0.7487			0.7227		
R^2	0.4379			0.4371		
F-statistic	8.15		**			
Wald (? ^{2})				93.82		**
Hausman (? ^{2})	5.47		Ns			
LM (? ^{2})				243.47		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between short-term liabilities ratio and the selected independent variables. Random Effects model serves as the appropriate model which leads to further inferences that return on assets and liquidity ratios have negative impact on firm's leverage parameter (Short-term liabilities ratio) which are found to be significant at 1% level.

Table 13: Panel Data Regression Analysis for Auto Ancillaries-Short-Term Liabilities ratio

Independent Variables	Fixed Effects			Random Effects		
	B	t-value	Sig.	B	z-value	Sig.
Return on Assets	-0.0462	-0.770	Ns	-0.0655	-1.090	Ns
Tangibility	-0.0160	-0.690	Ns	-0.0518	-2.560	**
Non-debt tax shield	0.0019	1.290	Ns	0.0019	1.290	Ns
Company size – Total Assets	0.0014	0.260	Ns	-0.0092	-2.020	*
Growth of sales income	0.0414	3.510	**	0.0413	3.490	**

Free Cash Flow	0.0372	1.150	Ns	0.0369	1.160	Ns
Interest coverage ratio	0.0001	0.070	Ns	0.0002	0.120	Ns
Dividend Payout Ratio	-0.0003	-2.340	*	-0.0003	-2.460	*
Business Risk	-0.0051	-1.440	Ns	-0.0064	-1.840	Ns
Liquidity Ratio	-0.0375	-8.180	**	-0.0381	-8.870	**
Growth Opportunities	0.0080	2.000	*	0.0076	1.930	*
Constant	0.4672			0.5460		
R^2	0.1480			0.1416		
F-statistic	11.02		**			
Wald (? ^{2})				135.23		**
Hausman (? ^{2})	25.25		**			
LM (? ^{2})				1003.45		**

Source: Computed
NS – Not Significant; * - Significant at 5% level; ** - Significant 1% level

F-test and Wald Chi square test showed that there is a significant correlation between short-term liabilities ratio and the selected independent variables. Fixed Effects model serves as the appropriate model which leads to further inferences that sales growth and growth opportunities ratios have significant positive effect on short-term liabilities ratio. Dividend payout and liquidity ratios have negative impact on firm's leverage parameter (Short-Term Liabilities ratio) which is found to be significant.

The panel data regression analysis reveals that random effects model serves as the appropriate model for automobiles and fixed effects model is considered as the appropriate model for auto ancillary companies.

CONCLUSION

The present study reveals that the capital structure ratios do not show much difference among automobile companies and auto ancillary companies. The results show that the dependency on short-term debt is more than on the long-term debts. The panel data regression analysis shows significant negative relationship for the profitability ratio (Return on assets) with the capital structure ratios supporting the pecking order theory and the studies made by various authors. The liquidity ratio has not been considered in the most of the studies on capital structure but in the present study it is found to have significant negative impact with most of the capital structure ratios. The tangibility ratio, size of the company and sales growth ratio are found to have significant positive effect on all capital structure ratios in the case of auto ancillary companies only.

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