A comparative study of Capital Structure and earning of Metal and Automobile companies

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Abstract: ***The current paper has aim to identify the capital structure pattern of companies mainly belongs to two major sectors Metal and Automobile and earning of the same companies for the same period. The primary objective was to verify whether capital structure has any impact on profitability of a company belongs to different sector and same time to check whether this impact is having a similarity or having some different trends. The research also aims to find out is there any significant difference exist in capital structure of these two sectors and earning of these sectors or not. Various statistical tools have been used for making conclusion such Student's t – test and regression Analysis. The result reveals that the trends of the sectors are relatively identical.***

Key Words: Capital Structure, Percentage of EPS

Introduction: One of the key decisions in business finance is capital structure decision apart from many other decision such as capital expenditure, dividend decision etc. According Gerestenberg "Capital structure of a company refers to the composition or make up of its capitalisation and it includes all long term capital sources viz. Loans, reserves, shares and bonds". In short capital structure refers to composition of long term sources of finance including debt and equity components.
Capital structure mainly consists of shareholder's fund, long term debts and short term debts. Optimal capital structure refers to that capital structure or such proportion of debt and equity component which leads to the maximisation of value of firm. Characteristics of optimal capital structure are flexibility, profitability, control, solvency and conservation.
Earnings are potentially used to measure the financial performance of the company. Earnings per share are calculated by dividing outstanding shares of a company to the profit available for equity share holders. It is a tool that market participants use frequently to estimate the profitability of company before buying its shares.
For investors who are looking for a steady source of income, the EPS ratio can tell the scope a company has for increasing its existing dividend. Although, EPS is very important and vital tool for investors, it should not be looked at in isolation. EPS of a company should always be considered in relation to other companies in order to make a more informed and prudent investment decision.

Automobile Industry: Indian Automobile industry is one of the largest in the world; it contributes around 7% to country's Gross Domestic Product (GDP). Indian Auto market is dominated by two wheeler and passenger vehicle segment. Two-wheelers and passenger cars accounted for 78 per cent and 15 per cent of production volume in FY17 respectively. Domestic passenger car sales are dominated by small and mid-size cars. Over 67 per cent of export volumes comprised of two-wheelers, followed by 22 per cent for passenger cars.
The automobile sector is going to witness key changes in the form of electric vehicles (EVs), shared mobility, Bharat Stage-VI emission and safety norms. Electric cars in India are expected to get new green number plates and may also get free parking for three years along with toll waivers. India's electric vehicle (EV) sales has increased to 25,000 units during FY 2016-17 and are hovering to rise further on the back of cheaper energy storage costs and the Government of India's vision to see six million electric and hybrid vehicles in India by 2020. Further, the Government of India encourages foreign investment in the automobile sector and allows 100 per cent FDI under the automatic route.

Metal Industry: Metal Industry is dominated by steel, iron and ore sector companies. India was ranked third largest producer of steel in the world. The key growth elements of Indian Steel sector are domestic availability of raw material such as iron and ore and cost effective labour force. Indian steel sector is major contributor to India's manufacturing output. Steel industry and its associated mining and metallurgy sectors have seen a number of major investments and developments in the recent past. According to the data released by Department of Industrial Policy and Promotion (DIPP), the Indian metallurgical industries attracted Foreign Direct Investments (FDI) to the tune of US$ 10.56 billion in the period April 2000–December 2017. Government of India's focus on infrastructure and restarting road projects is aiding boost to demand in metal industry. India is expected to take over Japan to become the world's second largest steel producer soon.

Research Methodology:
- List of the Companies selected for study FIVE each from Metal and Automobile
- Method of selection: random
- Source of Data Collection: Secondary
- Data of select companies has been gathered for analysis. The data mainly includes Debt Equity ratio for five years starting from 2012 – 13 to 2016 – 17 and Earring per share of these companies for the same period. The companies selected are mention below:

Metal companies	Automobile
Hindalco Industries Ltd	Ashok Leyland
JSW Steel Ltd	Maruti Suzuki India Ltd
Tata Steel Ltd	Hero Moto Corp Ltd
National Aluminium co Ltd	Mahindra & Mahindra Ltd
SAIL	Tata Motors

Objective: the present study aims to achieve the following objectives
1) To understand the capital structure pattern of both metal and automobile companies.

2) To assess the earning trends of Metal and Automobile companies
3) To evaluate the impact of capital structure on earning of Metal and Automobile companies

Hypothesis: the following hypothesis has been set for the study. These are

1) There is no significant difference between the debt equity ratio of Metal companies and Automobile companies
2) There is no significant difference between the percentage of earning per share of Metal and Automobile companies
3) There is no significant difference between the Impact of Debt Equity ratio on EPS in Metal and Automobile sector

Data Analysis:

Debt Equity Ratio of Metal Sector companies for 5 year's

Sr. No	Name of the Company	D/E Ratio					
		2016-17	2015-16	2014-15	2013-14	2012-13	Average of 5 years
1	Hindalco Industries Ltd	0.48	0.77	0.77	0.72	0.72	0.692
2	JSW Steel Ltd	1.36	1.33	1.03	1.06	0.84	1.124
3	Tata Steel Ltd	0.56	0.41	0.36	0.39	0.43	0.43
4	National Aluminium co Ltd	0.01	0	0	0	0	0.002
5	SAIL	1.08	0.8	0.65	0.57	0.52	0.724
Average of 5 companies		0.698	0.662	0.562	0.548	0.502	

Debt Equity ratio of Indian Automobile companies for last 5 years

Sr. No	Name of the Company	D/E Ratio					Average of 5 years
		2016-17	2015-16	2014-15	2013-14	2012-13	
1	Ashok Leyland Ltd	0.22	0.44	0.63	1.19	1.11	0.718
2	Maruti Suzuki India Ltd	0.01	0	0.01	0.08	0.07	0.034
3	Hero Moto Corp Ltd	0	0	0	0	0.06	0.012
4	Mahindra & Mahindra Ltd	4.22	3.56	3.47	3.56	3.21	3.604
5	Tata Motors Ltd.	0.92	0.63	1.35	0.76	0.75	0.882
Average of 5 companies		1.074	0.926	1.092	1.118	1.04	

The above mentioned tables are indicating the debt equity ratio of companies belonging to the Industries selected for present research. Primarily it has been observed that debt-equity ratio of the companies in automobile sector is relatively higher than the metal sector companies. To test first hypothesis, the average ratio of last 5 years for each company in both the sample has been calculated. To test the first hypothesis, Student's t test for two samples assuming equal difference is used. The t statics are mentioned below:

	Metal	*Auto*
Mean	0.5944	1.05
Variance	0.1711908	2.192766
Observations	5	5
Pooled Variance		1.1819784
Hypothesized Mean Difference		0
degree of freedom (n1 + n2) – 2		8
α (level of significance		0.05
t Stat		-0.662596213
P(T<=t) one-tail		0.263107102

t Critical one-tail	1.859548033
P(T<=t) two-tail	0.526214205
t Critical two-tail	2.306004133

From the above statistics, it can be said that the calculated t value at 5 % level of significance with degree of freedom 8 (N1 + N2 – 2 = 5 + 5 -2 = 8) is - 0.6626 where as critical t value for two tail test is 2.306. The calculated value is lower than the critical t value also P value for 5% is higher. Thus we will accept the hypothesis 1 that there is no significant difference between the debt equity ratio of Metal companies and Automobile companies

Percentage of Earning per share of Metal Sector Companies

Sr. No	**Name of the Company**	**EPS (%)**					**Average of 5 years**
		2016-17	**2015-16**	2014-15	2013-14	2012-13	
1	Hindalco Industries Ltd	145	267	448	684	887	486.2
2	JSW Steel Ltd	1488	-1471	716	552	807	418.4
3	Tata Steel Ltd	336.7	486.7	644.9	642.1	502.8	522.64
4	National Aluminium co Ltd	69.2	61	102.6	57.8	46	67.32
5	SAIL	-68.6	-97.4	50.7	63.3	52.5	0.1
Average of 5 companies		394.06	-150.74	392.44	399.84	459.06	

Percentage of Earning per share of Automobile Sector Companies

Sr. No	**Name of the Company**	**EPS %**					**Average of 5 years**
		2016-17	**2015-16**	**2014-15**	**2013-14**	**2012-13**	
1	Ashok Leyland Ltd	430	137	118	11	163	171.80
2	Maruti Suzuki India Ltd	4858.2	3026.6	2460	1842.6	1583.8	2754.24
3	Hero Moto Corp Ltd	9257.5	8455.5	7912.5	5973	5280.5	7375.80
4	Mahindra & Mahindra Ltd	666.4	540.7	561.6	636.7	568	594.68
5	Tata Motors Ltd.	-365	-9	-736	52	47.5	-202.10
Average of 5 companies		2969.42	2430.16	2063.22	1703.06	1528.56	

It has been primarily observed from the above tables of % EPS, the automobile companies are having higher % EPS than of the metal sector companies. To test second hypothesis, the average ratio of last 5 years for each company in both the sample has been calculated. To test this hypothesis, Student's t test for two samples assuming equal difference is used. The t statics are mentioned below:

	Metal	*Auto*
Mean	298.932	2138.884
Variance	60582.965	9884535.936
Observations	5	5
Pooled Variance		4972559.45
Hypothesized Mean Difference		0
Df		8
t Stat		-1.304627431
P(T<=t) one-tail		0.114148548
t Critical one-tail		1.859548033
P(T<=t) two-tail		0.228297097
t Critical two-tail		2.306004133

From the above statistics, it can be said that the calculated t value at 5 % level of significance with degree of freedom 8 (N1 + N2 – 2 = 5 + 5 -2 = 8) is - 1.3046, where as critical t value for two tail test is 2.306. The calculated value is lower than the critical t value also P value for 5% is higher. Thus we will accept the hypothesis 2 that is there is no significant difference between the percentage of earning per share of Metal and Automobile companies.

Impact of Debt-equity on Earning per share:

Here, the impact of debt – equity ratio on earning per share for the sample industries has been calculated. For this purpose regression analysis has been used.

Regression Analysis of Metal Sector

Table showing Average Debt – equity ratio and average % EPS for Metal Sector

Year	Debt - Equity Ratio	% EPS
2016 -17	0.698	394.06
2015 -16	0.662	-150.74
2014-15	0.562	392.44
2013-14	0.548	399.84
2012-13	0.502	459.06

Regression Statistics

Multiple R	0.518
R Square	0.268
Adjusted R Square	0.024
Standard Error	249.860
Observations	5

ANOVA

	Df	*SS*	*MS*	*F*	*P - Value*
Regression	1	68531.77	68531.77	1.10	0.372
Residual	3	187289.62	62429.87		
Total	4	255821.39			

Coefficients

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Constant	1245.16	910.01	1.37	0.264
D/E	-1591.90	1519.38	-1.04	0.3712

y = 1245.16 – 1591.90 (% of D/E Ratio)

Since the p-value is greater than 0.05, we can say for metal sector there is impact of Debt – equity ratio on Earning per share. To see whether same is true for automobile sector. Regression analysis of DE ratio and % EPs is also calculated

Regression Analysis of Automobile Sector

Table showing Average Debt – equity ratio and average % EPS for Automobile Sector

Year	Debt - Equity Ratio	% EPS
2016 -17	1.074	2969.42
2015 -16	0.926	2430.16
2014-15	1.092	2063.22
2013-14	1.118	1703.06
2012-13	1.04	1528.56

Regression Statistics

Multiple R	0.247
R Square	0.061
Adjusted R Square	-0.252
Standard Error	648.279
Observations	5

ANOVA

	Df	*SS*	*MS*	*F*	*P – Value*
Regression	1	81999.57	81999.57	0.20	0.69
Residual	3	1260795.17	420265.06		
Total	4	1342794.74			

Coefficient

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4146.05	4553.25	0.91	0.43
D/E	-1911.59	4327.63	-0.44	0.69

y = 4146.16 – 1911.59 (% of D/E Ratio)
Since the p-value is greater than 0.05, we can say for automobile sector there is impact of Debt – equity ratio on Earning per share.
Clubbing both the sector impact, it has been observed that for both sector impact of debt-equity ratio on earning per share is exist. Therefore we will accept hypothesis 3, that there is no significant difference between the Impact of Debt Equity ratio on EPS in Metal and Automobile sector

Conclusions:
For the given research, both the sector has certain identical patterns. The patterns mostly observed in three areas, which have tested. These areas are Capital structures (i.e., combination of Debt and Equity) are showing identical pattern through debt to equity ratio. Earnings per share are one of the critical parameter of financial performance, it has been found that EPS patterns for both Metal and Automobile sector are more or less similar. Lastly the impact of debt equity ratio on earning per share, here both the sectors, there exist a relation between debt equity ratio and earnings per share. Thus we concluded that earning per share is positively depending upon debt equity ratio for both the sectors.

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