Financial Performance Analysis of Indian Companies Belongs to Automobile Industry with Special Reference to Liquidity & Leverage

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Abstract

This manuscript discussed the impact of liquidity ratio i.e. current ratio, quick ratio and inventory turnover ratio on measure of profitability i.e. operating profit ratio, net profit ratio and return on net worth and also discussed the impact of leverage ratio i.e. degree of operating leverage, degree of financial leverage and combined leverage on such measures of profitability of companies under study. For such analysis data for the period of five years 2011 to 2015, of 25 Indian automobile companies out of 29 companies which is part of CNX500 Index of NSE, was collected. For data analysis mean, median, standard deviation as descriptive statistics & correlation, regression, ANOVA, test of significance as inferential statistics is used with the help of statistical package for social science (SPSS). On the basis of result obtained from such statistical techniques it is found that inventory turnover ratio is negative association with operating profit, quick ratio is positive association with operating profit & net profit while current ratio has negative relation with net profit. Further, this study highlighted that except combined leverage both operating and financial leverage has significant and negative relation with profitability in case of Indian automobile companies under study.

Keywords: *Liquidity, Operating Leverage, Financial Leverage, Profitability, SPSS.*

Introduction

Liquidity is the ability to convert any assets into cash rapidly. The basic feature of liquidity ratio is to measure a company's capability to settle all current debt with all available current assets. The lower the liquidity ratio, the greater the chance that the company is or may be suffering financial difficulties while high liquidity ratio is not a good sign as it possess opportunity cost.as the accumulation of idle funds that don't fetch any profits for the company. Company should maintain the balance of liquidity position and should study the relationship between liquidity and profitability. Therefore, this study is conducted on this subject.

Further this study also includes impact of leverage on profitability of Indian automobile companies under study. Leverage for any business concern is fixed expenses incurred for business operations. There are two types of leverage i.e. operating and financial. In case of fixed expenses in business operation it is said operating leverage and if a business bears the cost of funds in terms of interest it is said to have a financial leverage. But excessive fixed cost in operation and more use of borrowed fund may cause of financial insolvency & distress thus there should be balance between fixed cost (interest) and flexible cost (dividend) funds. Therefore, to evaluate this aspect is, also an objective of the present manuscript.

Review of Literature

To understand the term liquidity, leverage and profitability and their association several theoretical & empirical literature is studied and on the basis of such literature review, understanding about it given below:

Theoretical Literature Review

Liquidity[12]:

Liquidity is defined as the amount of cash a company has on hand or securities which can be readily converted into cash to meet its short term financial obligation in time when it's become due. Liquidity refers to ability to convert the assets into cash. The ease with which financial instruments such as shares and bonds converted and ownership is transferred hence they are often termed as liquid assets. Another concept to consider in the discussion of liquidity is marketability. An assets liquidity requires a market place with a sufficient number of buyers. To analyse the ability of a company to pay off its current liabilities as they become due uses most commonly liquidity ratios are current ratio, quick ratio and inventory turnover ratio

Current ratio, is calculated by dividing current assets by current liabilities. It helps investors and creditors to

analyse the liquidity position of a company. A higher current ratio is always more favourable than a lower current ratio because it shows the company can more easily make current debt payments. The industry standard for current ratio is 2:1.

Quick ratio, measures the ability of a company to pay its current obligations with only quick assets. Cash, cash equivalents, short term investments or marketable securities and accounts receivables are considered quick assets. Inventories are not consider as quick assets. To calculate it quick assets is divided by current liabilities. The industry standard for quick ratio is 1:1.[13]

Inventory turnover ratio, It measures how many times a company sold its total average inventory during the year e.g. a company with Rs.1,000 of average inventory and sales of Rs.10,000 effectively sold its 10 times over. Thus, the formula to calculate it is divide cost of goods sold by average inventory. This ratio is important here because inventory is part of current assets and to check whether the profitability of the company is impacted by conversion of inventory into sales apart from current ratio and quick ratio.

Leverage[14]:

In business language if a company has fixed expenses in statement of profit & loss or debt in capital structure, the company is said to be levered. In the present scenario almost no business activity is away from leverage. In a finance term fixed expenses can be classified into operating fixed expenses e.g. depreciation and financial fixed expenses interest. Similarly leverage are also classified into operating leverage and financial leverage.
Leverage has its own advantages & disadvantages i.e. in case of operating leverage, operating profit increases sharply with small changes in sales as maximum part of the expenses are fixed and cannot further increase with sales. Similarly, in case of financial leverage, earnings per share increases significantly with an increase in operating profits. With such advantages leverages inherits the risk of bankruptcy along with it. Looking at the pros and cons of leverage, it seems that a balance is required between the rewards and risks associated with leverage. The method of calculating all the leverage is given below:

Operating Leverage = % change in EBIT divided by % change in Sales or Contribution divided by EBIT.

Financial Leverage = % change in EPS divided by % change in EBIT or EBIT divided by EBT.
Thus it is clear that leverage gives the sensitivity of change in profit due to changes in sales. High operating leverage means operating profits of the respective company will be very sensitive with the change in sales volume. This is both advantageous as well as disadvantageous for the company as a small increase in sales will bring significantly increase in profit and vice versa.

Combined Leverage is the product of both the leverage, operating leverage & financial leverage i.e. % change in EPS divided by % change in Sales or Contribution divided by EBT. In case of high combined leverage it shows there is more fixed cost associated with business operations and is a risker situation as compared to companies with less combined leverage.

Profitability[15]:

Operating profit ratio, to know about the strong & weak business operations of any company this ratio is calculate. It is essential from investors as well as creditors point of view to observe. It indicates that how much of total revenue is coming from business operations which will be available to cover non-operating expenses e.g. interest cost. It is calculate to divide operating profit by sales net of excise duty.

Net profit ratio, it is calculated to evaluate the overall performance of the company. It shows the proportion of total profit which is remaining after cover all cost of production, administrative & financing costs and income tax. It is not consider as cash flows as it incorporates a number of non-cash items, e.g. depreciation, amortisation, provision and accrued items.

Return on net worth, this ratio is calculated to measure the return that a shareholders is received on the funds invested in a company. It is an indicator to know how competitively a company is utilising shareholders' funds to generate returns for them. The formula to determine this ratio is net profit divided by net worth (shareholder's capital including retained earnings).

Empirical Literature Review

Ferri and Jones (1979), in their paper determinants of financial structure: A new methodological approach investigated the relationship between a firm's financial structure and its industrial class, size, variability of income, and operating leverage. They put operating leverage as the use of fixed cost and concluded that the use of fixed assets can magnify the variability of the firm's future income and hence operating leverage should be negatively associated with the firm's financial structure.
Moss and Stine (1989), examined the liquidity characteristics of small and large manufacturing firms and found that liquidity decreases as firm size become larger. They also found that liquidity between small and large firms was different which was statistically significant.
Smith and Begemann (1997), in their study on industrial firms listed on Johannesburg Stock Exchange, used both traditional and alternative approaches of liquidity measures. Their findings exhibited that working capital

leverage ratio displayed high association with return on investments, the current and quick ratio possessed insignificant association while leverage ratio indicated significant association with return on investments.

In his study on liquidity- profitability trade-off in small and medium sized enterprises (SMEs) in the Malaysian manufacturing sector **Zainudin (2006)** found that there is a moderate positive association between liquidity levels using the nonparametric spearman rank correlation coefficient analysis and the Kruskal-Wallis test statistic was applied to investigate whether or not different industry sectors had different levels of liquidity. The outcome confirms that different industry sectors do have different of liquidity

Eljelly (2004) evaluated the relation between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia. Using correlation and regression analysis the study found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio.

Vishnani and Shah (2007) examined the relationship between liquidity and profitability to make an empirical study of Indian Consumer Electronics Industry during the period 1994–95 to 2004–05. The impact of working capital policies on profitability has been examined by computing coefficient of correlation and regression analysis between profitability ratio and some key working capital policy indicator ratios and concluded that a higher current ratio indicates a larger investments in current assets which will not yield enough return thus, liquidity and profitability has adversely associated with each other.

Singh and Pandey (2008), conducted a study to identify the impact of working capital management on profitability of Hindalco Industries for the period from 1990 to 2007. The result of this study showed that working capital ratio i.e. current ratio, liquid ratio, receivable turnover ratio and working capital to total assets ratio had statistically significant influence on the profitability of the Hindalco Industries Limited.

Saleem and Rehman (2011) conducted the study i.e. impact of liquidity rations on profitability on the basis of data collected for the period 2004 to 2009 of the Oil & Gas Companies listed in Karachi Stock Exchange. They take return on assets, return on equity & return on investments as a variable for profitability ratio and current ratio, quick ratio & liquid ratio as a variable for liquidity and found that return on assets is significantly affected by liquidity ratio, return on equity is not affected by current ratio, quick ratio and liquid ratio whereas return on investment is significantly affected by all the three ratios.

Elangkumaran and Karthika (2013), attempt to analysis the effect of liquidity on profitability and risk of listed food, beverage and tobacco companies on Colombo Stock Exchange (CSE) in Sri Lanka. This study purpose, six companies have been selected from CSE for six years

period from 2006/2007 to 2011/2012. The following ratios were used as indicators such as current ratio and quick ratio for liquidity, Earnings per Share (EPS) and Return on Assets (ROA) for profitability and Degree of Combined Leverage (DCL) for combined risk. This study highlights that liquidity is insignificant impact on profitability.

Kumar (2014), examined the relationship between leverage and profitability of Bata India Limited and also an attempt is made to evaluate the performance of Bata India Limited and on the basis of analysis of seven years data for the period from 2006 to 2013 he suggested to Bata to revise its capital structure which should include the optimum blend of equity and borrowed funds so that it has positive impact on Return on Investment. More over degree of combined leverage is positively correlated with ROI of Bata India. The financial performance of the Bata India is satisfactory. The Bata India is employing less debt funds so it cannot availed the financial leverage benefits. Therefore the Bata India has to revise its capital structure so that financial leverage will help to maximize the shareholders wealth.

Khedkar(2015). discussed in his paper the relationship between financial leverage and return on investment, operating leverage and return on investment and combined leverage and return on investment for Dr Reddy's Laboratories taking data for the financial year 2013-14 and observed that degree of operating leverage is significant & negatively correlated with return on investments, the degree of financial leverage and combined leverage is positive but not significant association with return on investments and suggested to Dr Reddy''s Laboratories to revise its capital structure which should include the optimum blend of equity and borrowed funds so that it has positive impact on Return on Investment

Objective

After completed literature reviews both existing empirical and theoretical studies, following objectives are framed to achieve by this research paper:

- To study the relationship between liquidity and profitability of the 25 companies operates in Indian Automobile Sector formulate CNX500 Index.
- To study the relationship between leverage and profitability of the 25 companies operates in Indian Automobile Sector formulate CNX500 Index.

Variables

Independent variables are those variables which are used as input to find the dependent variable. To achieve the predefined objectives for this manuscript variables used are given in Table A below.

Table A: Summary of Variables used

S.No.	Variable	Proxy Variables	Measurement of Proxy Variables
Independent Variables:			
1.	Liquidity		
		Current Ratio	Current Assets divided by Current Liabilities
		Quick Ratio	Current Assets net of Inventories divided by Current Liabilities
		Inventory Turnover Ratio	Cost of goods sold divided by average inventory.
2.	Leverage		
		Degree of Operating Leverage (DOL)	% change in EBIT divided by % change in Sales
		Degree of Financial Leverage (DOF)	% change in EPS divided by % change in EBIT
		Combined Leverage	DOL multiply by DOF
Dependent Variables:			
1.	Profitability		
		Operating Profit Ratio	EBIT divided by Sales
		Net Profit Ratio	Net Profit divided by Sales
		Return on net worth	Net profit divided by Net worth

Sample Size

This study is restricted to companies incorporated under automobile sector and listed in Indian stock exchange market NSE. To achieve the objectives of this manuscript, CNX500 Index is taken into consider and all the 25 companies out of 29 companies which is part of CNX500 Index of NSE has been considered as Sample of this study.

Data Collection

In order to achieve the objectives and test the hypothesis of this study, data are collected from secondary sources i.e. Annual report of companies under study which is published by respective companies and available on its official website and website of NSE & Indiabulls.com.

Period of the Study

The period of the study is five years i.e. from financial year 2011 to 2015.

Hypothesis of the Study

This is causal & quantitative study hence hypothesis is required to frame which is tentative and formal prediction about the relationship between variables in the population being studied.

- **Null hypotheses** (*Statistical Hypothesis)*, which assumed that there is no relationship between two variables.
- **Alternative hypothesis** (*Research Hypothesis)*, it is just reverse to null hypothesis. A positive statement of the null hypothesis.

Alternative hypothesis is usually the one which one wishes to prove and the null hypothesis is the one which one wishes to disprove. Thus, a null hypothesis represents the hypothesis we are trying to reject, and alternative hypothesis represents all other possibilities. On the basis of literature review following hypothesis are framed for this study:

1. H_0: There is no significant relation between liquidity and operating profit of the companies under study.
   H_1: There is a significant relation between liquidity and operating profit of the companies under study.
2. H_0: There is no significant relation between liquidity and net profit of the companies under study.
   H_1: There is a significant relation between liquidity and net profit of the companies under study.
3. H_0: There is no significant relation between liquidity and return on net worth of the companies under study.
   H_1: There is a significant relation between liquidity and return on net worth of the companies under study.
4. H_0: There is no significant relation between leverage & operating profit of the companies under study.
   H_1: There is a significant relation between leverage & operating profit of the companies under study.
5. H_0: There is no significant relation between leverage & net profit of the companies under study.
   H_1: There is a significant relation between leverage & net profit of the companies under study.
6. H_0: There is no significant relation between leverage & return on net worth of the companies under study.
   H_1: There is a significant relation between leverage & return on net worth of the companies under study.
   It is important to explain here that for liquidity there are three measures i.e. current ratio, quick ratio and inventory turnover ratio and for leverage also there is three measures i.e. operating leverage, financial leverage and combined leverage is considered.

Research methodology

For this research paper following data is collected and calculated above mentioned proxy variables as per basis of measurement given above.

Operating Revenue	Operating Profit (EBIT)	Interest
Earnings Per Share (EPS)	Current Assets	Current Liabilities
Inventories	Share Capital	Reserves & Surplus
Secured & Unsecured Loan	Total Assets	Total Liabilities

After collected these data, data scanning i.e. editing, coding and tabulated is done in MS-Excel to make raw data available for data analysis. For data analysis Statistical Package for Social Science (SPSS) version 17.0 is used. Various descriptive statistics e.g. mean, maximum, minimum, standard deviation and inferential statistics e.g. correlation, regression and significance test i.e. ANOVA & t test is applied to data analysis and test the hypothesis of this study.

Data Analysis & Findings

Data analysis and findings on the basis of outcome emerged by the SPSS is given below.

Descriptive Statistics

Table 1 Statistics

		Current Ratio	Quick Ratio	Inventory Turnover Ratio	Degree of Operating Leverage	Degree of Financial Leverage	Combined Leverage	Operating Profit Ratio	Net Profit Ratio	Return on Net Worth
N	Valid	125	125	125	125	125	125	125	125	125
	Missing	0	0	0	0	0	0	0	0	0
Mean		1.4621	1.0009	10.1960	1.4062	.9853	1.3039	12.9660	7.2069	17.3029
Median		1.2100	.8200	9.7800	1.1400	.9600	.9795	11.9706	6.3600	17.7700
Std. Deviation		.78852	.58689	4.50603	2.22186	1.67859	6.59515	6.46954	5.08132	11.03880
Range		4.02	2.76	27.19	18.11	13.50	82.33	33.29	33.41	81.65
Minimum		.23	.15	2.57	-3.14	-4.26	-19.13	-3.40	-13.05	-31.93
Maximum		4.25	2.91	29.76	14.97	9.24	63.20	29.89	20.36	49.72

The Table 1, exhibited the descriptive statistics mean, median, standard deviation, minimum and maximum value of independent and dependent variables. The mean value of current ratio, quick ratio and inventory turnover ratio is 1.4621, 1.0009 & 10.1960 respectively. The mean value of current ratio showed that this is below the expected standard 2 while quick ratio is as per the expected standard 1. The mean value of degree of operating leverage (DOL), degree of financial leverage (DOF) and degree of combined leverage is 1.4062, 0.9853 and 1.3039 respectively which showed that on average fixed cost are more in business operation of the companies under study as the operating leverage is more than financial leverage . The mean value of operating profit ratio, net profit ratio and return on net worth is 12.9660, 7.2069 & 17.3029 respectively. The standard deviation which presents the dispersion or variation of data distribution is 0.78852, 0.58689, 4.50603, 2.22186, 1.67859, 6.59515, 6.46954, 5.08132 & 11.03880 for current ratio, quick ratio, inventory turnover ratio, DOL, DOF, combined leverage, operating profit ratio, net profit ratio and return on net worth respectively. The observation of minimum and maximum values of variable under study indicates that the operation & performance varies substantially among the companies under study.

Correlation Analysis

Correlation analysis is used to find association between independent and dependent variables under study. For this study Karl Pearson coefficient of correlation is applied to find such relationship. The Table 2 correlation given

below construed that operating profit is positively associated with current & quick ratio as correlation coefficient is 0.557 & 0.580 respectively which is statistically significant. Further from the table 2 it is clear that there is an inverse & significant relation between inventory turnover ratio and operating profit as the correlation coefficient is -0.339. DOL, DOF and combined leverage are significant negative association with operating profit as respective correlation coefficient is -0.214, -0.298 & -0.052.

It is indicated from table 2 below that net profit is positively associated with current & quick ratio as correlation coefficient is 0.249 & 0.306 respectively which is statistically significant. From the table 2 it is clear that there is an inverse but not significant relation between inventory turnover ratio and net profit as the correlation coefficient is -0.020. DOL, DOF and combined leverage are significant negative association except combined leverage, with net profit as respective correlation coefficient is -0.238, -0.247 & -0.016.

It is noticed from the table 2 below that return on net worth is negatively associated with current & quick ratio as correlation coefficient is -0.100 & -0.067 respectively which is not statistically significant. From the table 2 it is clear that there is a significant positive relation between inventory turnover ratio and return on net worth as the correlation coefficient is 0.193. DOL, DOF and combined leverage are significant negative association except combined leverage, with return on net worth as respective correlation coefficient is -0.191, -0.182 & -0.017.

Table 2 Correlations

		Current Ratio	Quick Ratio	Inventory Turnover Ratio	Degree of Operating Leverage	Degree of Financial Leverage	Combined Leverage	Operating Profit Ratio	Net Profit Ratio	Return on Net Worth
Current Ratio	Pearson Correlation	1	.972**	-.466**	-.140	-.085	-.045	.557**	.249**	-.100
	Sig. (2-tailed)		.000	.000	.121	.347	.615	.000	.005	.265
	N	125	125	125	125	125	125	125	125	125
Quick Ratio	Pearson Correlation	.972**	1	-.360**	-.154	-.098	-.027	.580**	.306**	-.067
	Sig. (2-tailed)	.000		.000	.087	.275	.764	.000	.001	.457
	N	125	125	125	125	125	125	125	125	125
Inventory Turnover Ratio	Pearson Correlation	-.466**	-.360**	1	.105	.310**	.180*	-.339**	-.020	.193*
	Sig. (2-tailed)	.000	.000		.242	.000	.045	.000	.824	.031
	N	125	125	125	125	125	125	125	125	125
Degree of Operating Leverage	Pearson Correlation	-.140	-.154	.105	1	-.091	.246**	-.214*	-.238**	-.191*
	Sig. (2-tailed)	.121	.087	.242		.314	.006	.017	.008	.033
	N	125	125	125	125	125	125	125	125	125
Degree of Financial Leverage	Pearson Correlation	-.085	-.098	.310**	-.091	1	.169	-.298**	-.247**	-.182*
	Sig. (2-tailed)	.347	.275	.000	.314		.059	.001	.005	.043
	N	125	125	125	125	125	125	125	125	125
Combined Leverage	Pearson Correlation	-.045	-.027	.180*	.246**	.169	1	-.052	-.016	-.017
	Sig. (2-tailed)	.615	.764	.045	.006	.059		.561	.861	.852
	N	125	125	125	125	125	125	125	125	125
Operating Profit Ratio	Pearson Correlation	.557**	.580**	-.339**	-.214*	-.298**	-.052	1	.775**	.388**
	Sig. (2-tailed)	.000	.000	.000	.017	.001	.561		.000	.000
	N	125	125	125	125	125	125	125	125	125
Net Profit Ratio	Pearson Correlation	.249**	.306**	-.020	-.238**	-.247**	-.016	.775**	1	.689**
	Sig. (2-tailed)	.005	.001	.824	.008	.005	.861	.000		.000
	N	125	125	125	125	125	125	125	125	125
Return on Net Worth	Pearson Correlation	-.100	-.067	.193*	-.191*	-.182*	-.017	.388**	.689**	1
	Sig. (2-tailed)	.265	.457	.031	.033	.043	.852	.000	.000	
	N	125	125	125	125	125	125	125	125	125
**. Correlation is significant at the 0.01 level (2-tailed).										
*. Correlation is significant at the 0.05 level (2-tailed).										

Regression Analysis

Table 3 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.608[a]	.370	.354	5.19877	2.078
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio					
b. Dependent Variable: Operating Profit Ratio					

Table 4 ANOVA[b]

Sum of Squares	df	Mean Square
1919.725	3	639.908
3270.295	121	27.027
5190.02	124	
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio		
b. Dependent Variable: Operating Profit Ratio		

Liquidity and Operating Profit

Table 3 depicts the correlation of current ratio, quick ratio and inventory turnover ratio with operating profit is moderately positive as it is 0.608. Coefficient of determination (r^2) is 0.370 which indicates that 37% of operating profit of companies under study is effected by liquidity ratios.

From table 4, it is noticed that p (sig.) value is less than level of significance 0.05 hence the overall model is statistically significant and concluded that liquidity position among the companies under study is significantly associated with operating profit.

It is observe from histogram & p-p plot given in figure 1 and value 2.078 of Durbin Watson test in table 3 that data are normally distributed, errors are homogeneously distributed and these are independent. From the table 2 correlation it is noticed that there is no issue of multicollinearity mean independent variables are not closely associated with each other. Thus, it is concluded after test the regression assumptions of normality, homoscedasticity, autocollinearilty and multicollinearity that data collected is qualified such tests of regression assumptions and ready for parametric test.

Table 5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.597	2.185		5.307	.000
	Current Ratio	-4.897	2.968	-.597	-1.650	.102
	Quick Ratio	11.877	3.781	1.077	3.142	.002
	Inventory Turnover Ratio	-.329	.131	-.229	-2.514	.013
a. Dependent Variable: Operating Profit Ratio						

Table 6 - Model Summary[b]

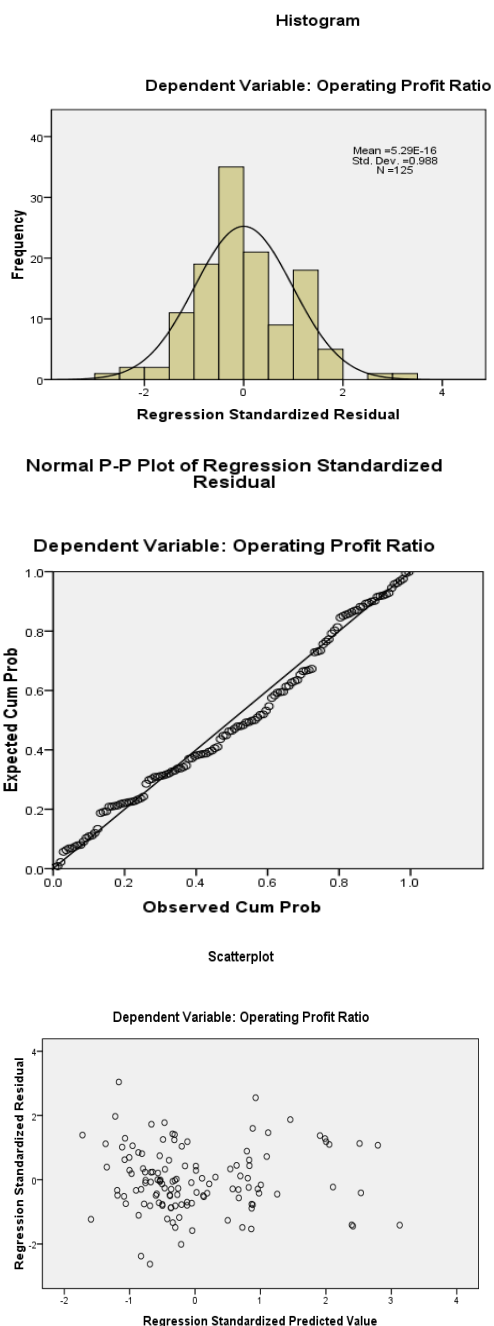| Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.369[a]	.137	.115	4.77993	1.959
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio					
b. Dependent Variable: Net Profit Ratio					

Figure 1 Chart

Table 5 showed constant or intercept and slop or coefficient in respect of direction and cause and effect relation between liquidity ratios and operating profit among the companies under study. From the observation of such table it is possible to test first null hypothesis i.e. there is no significant relation between liquidity and operating profit among the companies under study. The p (sig.) value 0.102 in case of current ratio, is more than 0.05 hence fail to reject null hypothesis (H_0) and concluded that current ratio has no significant relation with operating profit. Quick ratio has positive and significant relation with operating profit as sig value is 0.002 & coefficient is 11.877 consequently reject H_0. There is negative and significant association between inventory turnover ratio and operating profit as sig. value is 0.013 and coefficient is -0.329 consequently reject H_0. On the basis of Table 5 following model is formulated:

Operating Profit = 11.597 + 11.877 quick ratio + (-0.329) inventory turnover ratio.

Liquidity and Net Profit

Table 6 presents the correlation of current ratio, quick ratio and inventory turnover ratio with net profit is low positive as it is 0.369. Coefficient of determination (r^2) is 0.137 which indicates that 13.7% variance in net profit of companies under study is attributed by liquidity ratios.

From table 7, it is noticed that p (sig.) value is less than level of significance 0.05 hence the overall model is statistically significant and concluded that liquidity position among the companies under study is significantly effects the net profit.

It is noticed to observe histogram & p-p plot given in figure 2 and value 1.959 of Durbin Watson test in table 6 and concluded that data collected for this study qualified the test of regression assumptions of normality, homoscedasticity, autocollinearilty and multicollinearity and ready for parametric test.

Table 7 ANOVA[b]

Model	Sum of Squares
Regression	437.079
Residual	2764.576
Total	3201.656
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio	
b. Dependent Variable: Net Profit Ratio	

Table 8 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.750	2.009		2.862	.005
	Current Ratio	-5.904	2.729	-.916	-2.164	.032
	Quick Ratio	10.301	3.476	1.190	2.963	.004
	Inventory Turnover Ratio	-.022	.120	-.019	-.180	.857
a. Dependent Variable: Net Profit Ratio						

Table 9 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.203[a]	.041	.018	10.94136	1.881
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio					
b. Dependent Variable: Return on Net Worth					

Table 10 ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	624.721	3	208.240	1.739	.163[a]
Residual	14485.318	121	119.713		
Total	15110.039	124			
a. Predictors: (Constant), Inventory Turnover Ratio, Quick Ratio, Current Ratio					
b. Dependent Variable: Return on Net Worth					

Histogram

Dependent Variable: Net Profit Ratio

Mean =-1.88E-16
Std. Dev. =0.988
N =125

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Net Profit Ratio

Scatterplot

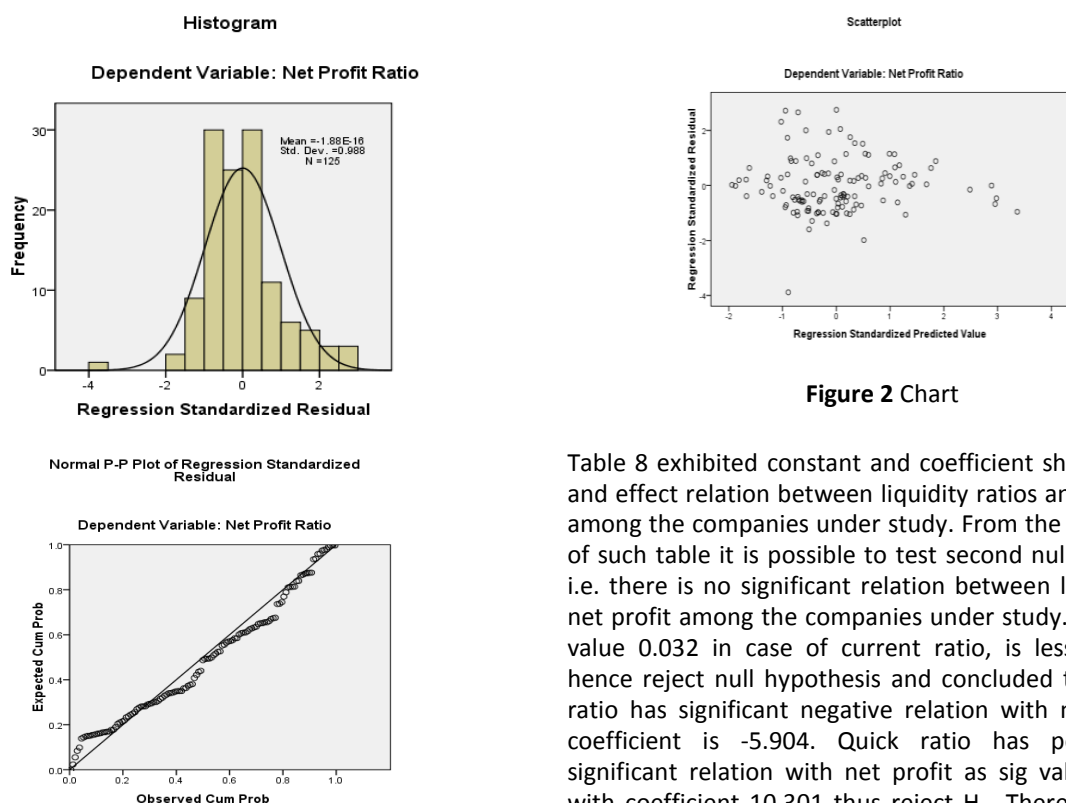Dependent Variable: Net Profit Ratio

Figure 2 Chart

Table 8 exhibited constant and coefficient showed cause and effect relation between liquidity ratios and net profit among the companies under study. From the observation of such table it is possible to test second null hypothesis i.e. there is no significant relation between liquidity and net profit among the companies under study. The p (sig.) value 0.032 in case of current ratio, is less than 0.05 hence reject null hypothesis and concluded that current ratio has significant negative relation with net profit & coefficient is -5.904. Quick ratio has positive and significant relation with net profit as sig value is 0.004 with coefficient 10.301 thus reject H_0. There is negative

but not significant association between inventory turnover ratio and net profit as sig value is more than significant level 0.05 consequently fail to reject H_0. On the basis of analysis in Table 8 following model is drawn:

Net Profit = 5.750 + (-5.904) current ratio + 10.301 quick ratio

Liquidity and Return on Net Worth

Table 9 presents the correlation of current ratio, quick ratio and inventory turnover ratio with return on net worth is low positive 0.203. Coefficient of determination (r^2) is 0.041 which indicates that only 4.1% variance in return on net worth of companies under study is attributed by liquidity ratios.

From table 10, it is noticed that p (sig.) value is more than level of significance 0.05 hence the overall model is not statistically significant and concluded that liquidity position among the companies under study is not significantly effects the return on net worth.

It is notice from histogram & p-p plot given in figure 3 and value 1.881 of Durbin Watson test in table 9 and it is concluded that data collected for this study qualified the test of regression assumptions of normality, homoscedasticity, autocollinearilty and multicollinearity and ready for parametric test.
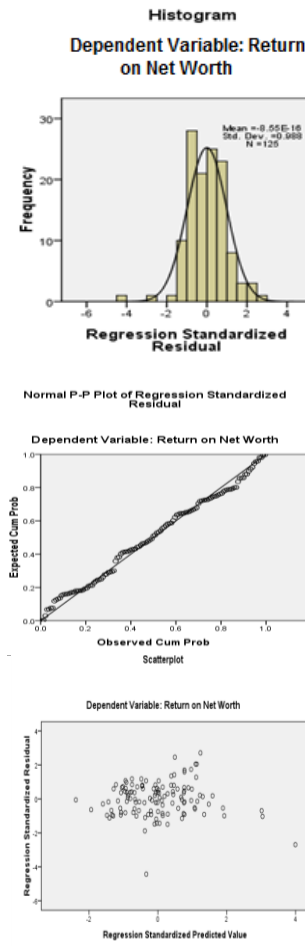

Figure 3 Chart

Table 11 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.414	4.599		3.134	.002
	Current Ratio	-4.402	6.246	-.314	-.705	.482
	Quick Ratio	5.515	7.957	.293	.693	.490
	Inventory Turnover Ratio	.373	.276	.152	1.353	.178
a. Dependent Variable: Return on Net Worth						

Table 12 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.389[a]	.151	.130	6.03340	1.435
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage					
b. Dependent Variable: Operating Profit Ratio					

Table 13 ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	785.381	3	261.794	7.192	.000[a]
	Residual	4404.639	121	36.402		
	Total	5190.020	124			
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage						
b. Dependent Variable: Operating Profit Ratio						

Table 11 exhibited constant and coefficient to show cause and effect relation between liquidity ratios and return on net worth among the companies under study. From the observation of such table it is possible to test third null hypothesis i.e. there is no significant relation between liquidity and return on net worth among the companies under study as the sig. value is more than 0.05 for all the liquidity ratios i.e. current ratio, quick ratio and inventory turnover ratio therefore fail to reject H_0.

Regression Analysis

Leverage and Operating Profit

Table 12 disclose the correlation of DOL, DOF, and combined leverage with operating profit is low positive 0.389. Coefficient of determination (r^2) is 0.151 which specifies that only 15.1% variance in operating profit of companies under study is attributed by leverages considered in this study.

From table 13, it is noticed that sig. value is less than level of significance 0.05 hence the overall model is statistically significant and concluded that leverage position among the companies under study is significantly associated with operating profit.

It is observe from histogram & p-p plot given in figure 4 and value 1.435 of Durbin Watson test in table 12 that data collected for this study qualified the test of regression assumptions of normality, homoscedasticity, autocollinearilty and multicollinearity and ready for parametric test.
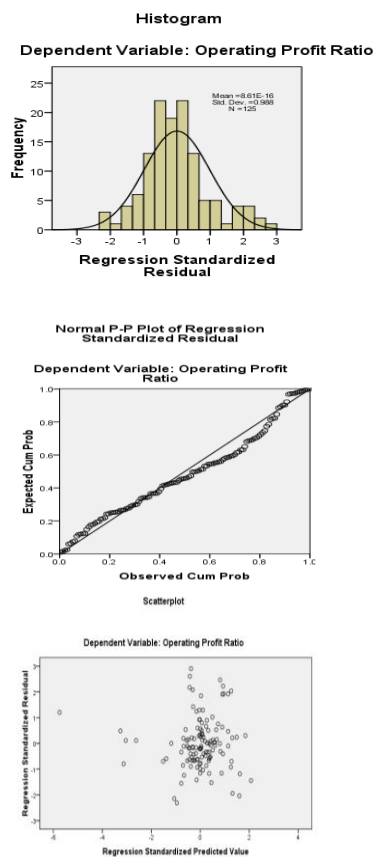

Figure 4 Chart

Table 14 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.211	.731		20.817	.000
	Degree of Operating Leverage	-.760	.254	-.261	-2.990	.003
	Degree of Financial Leverage	-1.283	.331	-.333	-3.879	.000
	Combined Leverage	.067	.086	.068	.771	.442
a. Dependent Variable: Operating Profit Ratio						

Table 15 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.373[a]	.139	.118	4.77222	1.781
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage					
b. Dependent Variable: Net Profit Ratio					

Table 14 revealed constant and coefficient shown direction and cause and effect relation between DOL, DOF, combined leverage and operating profit among the companies under study. From the observation of such table it is possible to test fourth null hypothesis i.e. there is no significant relation between leverage and operating profit among the companies under study. The p (sig.) value 0.003 in case of DOL is less than 0.05 hence reject null hypothesis and concluded that DOL has significant negative relation with operating profit as sig value is 0.003 with coefficient -0.760. DOF has negative and significant relation with operating profit as sig value is 0.000 thus reject H_0 & coefficient is -1.283. There is

positive but not significant association between combined leverage and operating profit and fail to reject H_0 sig. value is more than 0.05. On the basis of analysis in Table 14 following model is given:

Operating Profit = 15.211 + (-0.760) DOL + (-1.283) DOF.
Leverage and Net Profit

Table 15 unveil the correlation of DOL, DOF, and combined leverage with net profit is low positive as it is 0.373. Coefficient of determination (r^2) is 0.139 which specifies that only 13.9% variance in net profit of companies under study is attributed by leverages considered in this study.

Table 16 ANOVA[b]

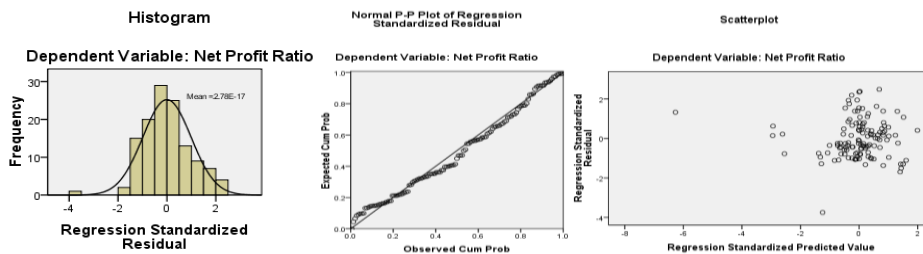|	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	445.991	3	148.664	6.528	.000[a]
	Residual	2755.665	121	22.774		
	Total	3201.656	124			
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage						
b. Dependent Variable: Net Profit Ratio						

Histogram

Dependent Variable: Net Profit Ratio

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Net Profit Ratio

Scatterplot

Dependent Variable: Net Profit Ratio

Figure 5 Chart

Table 17 Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.903	.578		15.404	.000
	Degree of Operating Leverage	-.663	.201	-.290	-3.298	.001
	Degree of Financial Leverage	-.882	.262	-.291	-3.373	.001
	Combined Leverage	.081	.068	.105	1.180	.240
a. Dependent Variable: Net Profit Ratio						

Table 18 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.285[a]	.081	.059	10.70981	1.961
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage					
b. Dependent Variable: Return on Net Worth					

Table 19 ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1231.334	3	410.445	3.578	.016[a]
Residual	13878.705	121	114.700		
Total	15110.039	124			
a. Predictors: (Constant), Combined Leverage, Degree of Financial Leverage, Degree of Operating Leverage					
b. Dependent Variable: Return on Net Worth					

From table 16, it is noticed that sig. value is less than level of significance 0.05 hence the overall model is statistically significant & concluded that leverage position among the companies under study is significantly associated with net profit. It is observe from histogram & p-p plot given in figure 5 and value 1.781 of Durbin Watson test in table 15 that data collected for this study qualified the test of regression assumptions of normality, homoscedasticity, autocollinearilty & multicollinearity and ready for parametric test.

Table 17 specified constant & coefficient in respect of direction and cause and effect relation between DOL, DOF, combined leverage and net profit among the companies under study. From the observation of such table it is possible to test fifth null hypothesis i.e. there is no significant relation between leverage and net profit among the companies under study. The p (sig.) value 0.001 in case of DOL is less than 0.05 hence reject null hypothesis and concluded that DOL has significant negative relation with operating profit as sig value is

0.001 & coefficient is -0.663. DOF has negative and significant relation with net profit as sig value is 0.001 & coefficient is -0.882 and reject H_0. There is positive but not significant association between combined leverage and net profit and fail to reject H_0. On the basis of analysis in Table 17 following model is produced:

Net Profit = 8.903 + (-0.663) DOL + (-0.882) DOF.

Leverage and Return on Net Worth

Table 18 presents the correlation of DOL, DOF, and combined leverage with return on net worth is low positive as it is 0.285. Coefficient of determination (r^2) is 0.081 which specifies that only 8.1% variance in return on net worth of companies under study is attributed by leverages considered in this study.

From table 19, it is noticed that sig. value is less than level of significance 0.05 hence the overall model is statistically significant and concluded that leverage position among the companies under study is significantly impact on return on net worth.

It is notice to observe histogram & p-p plot given in figure 6 and value 1.961 of Durbin Watson test in table 18 that data collected for this study qualified the test of regression assumptions of normality, homoscedasticity,

autocollinearilty and multicollinearity and ready for parametric test.

Table 20 indicated constant and coefficient in respect of direction and cause and effect relation between DOL, DOF, combined leverage and return on net worth among the companies under study. From the observation of such table it is possible to test sixth null hypothesis i.e. there is no significant relation between leverage and return on net worth among the companies under study. The p (sig.) value 0.013 in case of DOL is less than 0.05 hence reject null hypothesis and concluded that DOL has significant negative relation with return on net worth & coefficient is -1.138. DOF has negative and significant relation with return on net worth as sig value is 0.017 consequently reject H_0 and coefficient is -1.415. There is positive but not significant association between combined leverage and return on net worth and fail to reject H_0. On the basis of Table 20 following model is given:

Return on Net Worth = 20.132 + (-1.138) DOL + (-1.415) DOF.

Figure 6 Chart
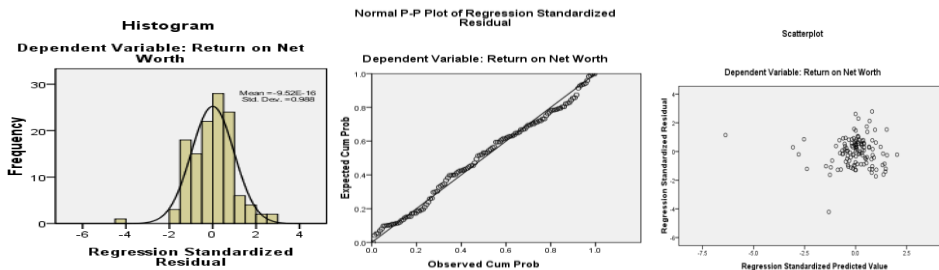
Table 20 Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	20.132	1.297		15.521	.000
Degree of Operating Leverage	-1.138	.451	-.229	-2.523	.013
Degree of Financial Leverage	-1.415	.587	-.215	-2.411	.017
Combined Leverage	.127	.153	.076	.826	.410
a. Dependent Variable: Return on Net Worth					

Conclusion

This manuscript is concentrates on relationship between liquidity & profitability and leverage & profitability in case of Indian Automobile companies under study.

In respect of liquidity it is observed that the average current ratio is 1.4621 which is less than standard norm of 2:1. Therefore, it is observed that liquidity position of the companies under study is not satisfactory on an average. The average quick ratio is 1.0009 which is as per standard

norm of 1:1 hence it is concluded that there is a less opportunity cost due to excessive liquidity. Average inventory ratio is 10.196 which shows that approx. 10 times companies under study sold of its total average inventory or in other words that inventory can cover approx. 36 days sales. From the above analysis & findings it is concluded that quick ratio (+) and inventory turnover ratio (-) is significantly associated with operating profit whereas current ratio has no significant consequence on operating profit. Inventory turnover ratio is negatively

associated with operating profit ratio which reveals that there is no sufficient stock with companies under study to complete their sales order in time. Hence it is recommended to the management of companies under study to **revisit their inventory management policy** and ensure to maintain sufficient stock level so that sales can increase above the BEP level significantly and able to cover fixed cost. Further, in case of net profit it is concluded that current ratio (-) and quick ratio (+) is significantly associated with net profit whereas inventory turnover ratio has no significance relation with net profit of the companies under study. Further, in case of return on net worth it is concluded that current ratio, quick ratio and inventory turnover ratio has irrelevant to study about return on net worth of the companies under study

In respect of leverage, it is observed that average combined leverage of the companies under study is 1.3039 which indicates that companies under study are not maintaining optimum level of leverage. A moderate financial leverage and low operating leverage is recommended for the companies. From the above analysis & findings it is concluded that DOL (-) and DOF (-) is significantly associated with operating profit whereas combined leverage has no significant consequence on operating profit. Further, in case of net profit, in is concluded that DOL (-) and DOF (-) is significantly associated with net profit whereas combined leverage has no significant consequence on net profit. The impact of operating leverage is inverse on operating profit shows higher proportion of fixed cost in total cost. Financial leverage is inversely related to return on net worth because operating profit is less due to higher proportion of fixed cost hence to increase operating profit management should try to increase sales, further management of the companies should also study the pattern of capital structure and try to **use retained earnings** to meet their financial needs or **restructuring** existing debts to reduce interest burden and increase earnings available to shareholders. Further, in case of return on net worth, in is concluded that DOL (-) and DOF (-) is significantly associated with return on net worth whereas combined leverage has no significant consequence on return on net worth.

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