

ANALYSIS OF ROA AND ROE IN SELECT INDIAN AUTOMOBILE INDUSTRY

Abstract

The stock exchange shows a dynamic part in the evolution of the economy of a country. Indian stock market comprises of a huge number of corporates of various sectors which contribute in the development of the economy. And one such sector which has a massive share in the economic development of our country is Automobile sector. India's Automobile market has become 3rd largest in the world in the year 2018. It also covers 7.1% share of our country GDP. The Automobile sector contributes around 22% of country's manufacturing GDP. The empirical literature available shows that the past researches were merely focused on automobile sector contribution in the economy and there growth prospects in the future, while some aspects were not being raised in the past researches. Hence the researcher feels the need to find some new aspects related to automobile sector and stock market (e.g. various legal provisions related to Indian stock market, relation between stock price, market index and automobile sector index, stakeholder perception regarding investment in automobile sector, volatility of return on shares of selected automobile companies) and researcher will also examine different factors affecting stock markets and automobile sector.

Keywords: Return on Assets, Return on Equity, Standard Deviation, Variance, Covariance, Beta

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I. INTRODUCTION

As Indian auto manufacturing sector stocks are more honorable and steady exchanged stocks and wares the benchmark of Bombay stock trade, these stocks are arising as one of the predominant areas in the capital market. The exploration information acquired from the period first April 2016 to 31st March 2021 as long haul execution of auto versatile industry. Furthermore, the transient exhibition from second feb to 28th May 2022. The exploration research has assessed the gathered information by the factual devices like Descriptive measurable, Correlation, Regression and exponential moving normal. The investigation discovered that presence of ordinariness of chosen factors and furthermore Correlation result uncovered BSE Indices and chose organizations in car ventures are corresponded and in this manner advancement of one can be anticipated by the improvement of other. This demonstrates that monetary patterns and advancement of the nation are straightforwardly related by the presentation of auto area and its return in the Stock market. It recommends the financial backers who liking to put their interest in the auto organization to get the exceptional yield where the gamble is high.

II. OBJECTIVES OF THE STUDY

1. To analyses the average returns of selected companies' securities in the automobile industry.
2. To analyses the relationship between risk and return for the selected companies.
3. To examine the risk and return for the selected companies.

III. REVIEW OF LITERATURE

Kusum Dhaka (2020): Risk and return examination assume a most significant part while pursuing any venture decisions. Every reasonable financial backer, analysis of risk and return and the expected return prior to putting resources into any stock or security is a measuring yard for materialising the process of investment. The speculation cycle should be viewed as regarding both risk and return. It is for the most part trusted that to acquire better yield then he should face more challenge for procuring better yield, to face higher challenge then he can't procure better yield. Along these lines, better yield proportionate with higher risk. Nonetheless, loads of examinations had been directed to investigation hazard and return, barely any examinations expressed that higher risk is comparable with better yield while different examinations scrutinizes it and expressed that higher risk don't commonly similar with better yield. The motivation behind this paper is to audit the previous writing accessible on hazard and return to illuminate the connection between them.

L. N. Hindu College Rohtak, India (2020): Risk and return analysis assume a most significant part while pursuing any venture investment avenues. Each judicious financial backer analyse the risk and return prior to putting resources into any stock or security. The speculation cycle should be viewed as concerning both risk and return. It is for the most part trusted that to acquire better yield then he should face more challenge for procuring better yield, to face higher challenge then he can't procure better yield. Thus, better yield equivalent with higher risk. In any case, bunches of studies had been directed to dissect hazard and return, barely any examinations expressed that higher risk is comparable with better yield while different examinations censures it and expressed that higher risk don't commonly

equivalent with better yield. The motivation behind this paper is to survey the previous writing accessible on hazard and return to illuminate the connection between them.

James E. Smith(2018) - In this article, we foster a two-factor model of commodity costs that permits mean inversion in momentary costs and vulnerability in the momentum level to which costs revert. Albeit these two elements are not straightforwardly detectable, they might be assessed from spot and futures costs. Naturally, developments in costs for long-maturity futures contracts give data about the symmetry price level, and contrasts between the costs for the short-and long haul contracts give data about transient varieties in costs. That's what we show, albeit this model doesn't unequivocally consider changes in that frame of mind after some time, this present moment/long haul model is comparable to the stochastic accommodation yield model created in Gibson and Schwartz (2018). We gauge the boundaries of the model involving costs for oil fates contracts and apply the model to some speculative oil-connected resources for exhibit its utilization and a portion of its benefits over the Gibson-Schwartz mod.

Sathyannarayana K (2018): Investors' venture movement normally spins around high-development enterprises to exploit development in particular industry. Anticipated Return, Expected Risk, Coefficient of Variation (CV) and Beta of stock have been determined and area wise relative examination of the multitude of above boundaries have been made to investigation and present the exhibition of supplies of 35 organizations across seven areas. This would assist financial backers with recognizing the normal return and chance related with the stock according to the securities exchange and backing financial backers to settle on suitable venture choices. From the examination it is found that a gamble disinclined financial backer can consider putting resources into Godrej Properties and HDFC Bank in light of the fact that both these stocks have higher expected return, lower expected hazard and low CV and Beta worth of under 1. Next class of the stock that financial backer can consider putting resources into will be the loads of TCS and PVR in light of the fact that both these stocks have higher expected return, lower CV and Beta worth of under 1. However, with regards to anticipated risk, both of these stocks have higher anticipated risk.

Sujata saha(2015): While changes in stock costs are said to influence trade rates, conversion standard changes are additionally said to influence stock costs. The reason for this paper is triple. To start with, the creators survey all experimental writing by separating them into two gatherings of univariate and multivariate investigations. Second, a table which sums up the fundamental elements of each study is given to assist future scientists with having simple admittance to the rundown of each review. At last, another course for future exploration is proposed. This new course depends upon a nonlinear ARDL approach and tells the best way to research symmetric versus deviated impacts of conversion scale changes on stock costs.

Julian Villanueva (2014): Companies can gain clients through exorbitant yet effective promoting speculations or through more slow however less expensive informal exchange processes. Their drawn out progress relies basically upon the commitment of each gained client to in general client value. The creators propose and test an observational model that catches these drawn out impacts. An application to a Web facilitating organization uncovers that promoting instigated clients add all the more transient worth, yet informal exchange clients add almost two times as much long haul worth to the firm. The creators outline their discoveries for certain powerful reproductions of the drawn out effect of various asset portions for procurement showcasing.

Koen Pauwels (2013): Many years, chiefs endeavor to work on monetary execution and firm worth through advertising activities like new item presentations and limited time motivating forces. This study explores the short-and long haul effect of such advertising activities on monetary measurements, including top-line, main concern, and financial exchange execution. The creators apply multivariate time-series models to the auto business, in which both new item presentations and special motivations are viewed as significant execution drivers. Prominently, while both showcasing activities increment top-line firm execution, their drawn out impacts unequivocally contrast for the reality. To start with, new item presentations increment long haul monetary execution and firm worth, however advancements don't. Second, financial backer response to new item presentation develops over the long run, showing that helpful data unfurls in the initial two months after item send off. Third, item passage in another market yields the most elevated top-line, primary concern, and financial exchange benefits. Supervisors might utilize these outcomes to legitimize new item endeavors and to weigh short-and long haul results of special motivators.

Vijay Bhasker (2013): says that Indian Automobile Industry is worldwide quite possibly of the biggest business and a critical area of the Economy and that with the rising number of unfamiliar organizations in the Indian market, how much work have and will keep on expanding essentially. It has endeavored to concentrate on the FDI in this area and how the public authority ought to attempt to expand this areas proficiency.

Kevin vinod (2012): This paper reports the long-run stock value execution of firms with compelling Total Quality Management (TQM) programs. The triumphant of value grants is utilized as an intermediary for viable TQM execution. We look at stock value execution of grant champs against different matched control bunches for a five-year execution period and a five-year post implementation period. During the execution time frame there is no distinction in the stock cost execution, yet during the post implementation time frame grant victors fundamentally beat firms in the different benchmark groups. Contingent upon the benchmark group utilized, the mean outperformance goes from 38% to 46%. Our outcomes plainly demonstrate that viable execution of TQM standards and ways of thinking prompts critical abundance creation. Moreover, our outcomes ought to lighten a considerable lot of the worries in regards to the worth of value grant frameworks. By and large, these frameworks are important as far as perceiving TQM firms and advancing mindfulness.

Shinde(2011): The vehicle area is a fascinating piece of the economy and its review could give us a few incredible experiences for the impending situation of the business. This is thinking about the incredible arrangement of monetary strength and furthermore after the examination of the past patterns of the auto business. The reviews that are being attempted will likewise chip away at similar notes and attempt to certify the cases of the other explores.

IV. DATA ANALYSIS AND INTERPRETATION

Regression analysis to find out impact on risk and return: Dependent variable - ROA

Null Hypothesis

- 1. Ho1:** There is no significant impact of current ratio on ROA
- 2. Ho2:** There is no significant impact of cash conversion ratio on ROA

3. **Ho3:** There is no significant impact of debt equity ratio on ROA
4. **Ho4:** There is no significant impact of current asset turnover on ROA
5. **Ho5:** There is no significant impact of total current asset on ROA
6. **Ho6:** There is no significant impact of total current liability on ROA
7. **Ho7:** There is no significant impact of NATLOGTA on ROA
8. **Ho8:** There is no significant impact of inventory turnover ratio on ROA

$$ROA = \beta_1 CR + \beta_2 CCR + \beta_3 DET + \beta_4 CAT + \beta_5 TCA + \beta_6 TCL + \beta_7 NATLOGTA + \beta_8 INV + c$$

Where

- ROA = RETURN ON ASSETS
 CR = CURRENT RATIO
 CCR = CASH CONVERSION RATIO
 DET = DEBT EQUITY RATIO
 CAT = CURRENT ASSET TURNOVER
 TCA = TOTAL CURRENT ASSET
 TCL = TOTAL CURRENT LIABILITY
 NATLOGTA = NATURAL LOG OF TOTAL ASSETS
 INV = INVENTORY TURNOVER RATIO

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.956 ^a	.913	.879	2.889330	1.952

1. **Predictors:** (Constant), INVTURN, NATLOGTA, CCR, CR, det, TCA, cat, TCL
2. **Dependent variable:** ROA

It was found from the above table that all the independent variables together impact dependent variable with 91.3%.

ANOVA^a

Model	Sum of Squares	DF	Mean Square	F	Sig.
1 Regression	1762.472	8	220.309	26.390	.000 ^b
Residual	166.965	20	8.348		
Total	1929.437	28			

1. **Dependent variable:** ROA
2. **Predictors:** (Constant), INVTURN, NATLOGTA, CCR, CR, det, TCA, cat, TCL

It was found that P value in the ANOVA table was less than 5% (0.05) which shows

that the model is fit.

Coefficients ^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	43.306	31.312		1.383	.182
CR	-.464	4.591	-.037	-.101	.921
CCR	-.519	.703	-.053	-.738	.469
Det	-1.507	1.758	-.100	-.857	.402
1 Cat	.076	.040	.411	1.909	.071
TCA	5.032	19.678	.067	.256	.801
TCL	-52.587	18.454	-.704	-2.850	.010
NATLOGTA	-3.033	2.209	-.280	-1.373	.185
INVTURN	.162	.129	.176	1.250	.226

1. Dependent variable: ROA

$$\text{ROA} = -0.464\text{CR} - 0.519\text{CCR} - 1.507\text{DET} + 0.076\text{CAT} + 5.032\text{TCA} - 52.587\text{TCL} - 3.033\text{NATLOGTA} + 0.162\text{INV} + 43.306$$

- Since P value for current ratio was greater than 0.05, null hypothesis is accepted. There is no significant impact of current ratio on ROA.
- Since P value for cash conversion ratio is greater than 0.05, null hypothesis is accepted. There is no significant impact of cash conversion ratio on ROA.
- Since P value for debt equity ratio is greater than 0.05, null hypothesis is accepted. There is no significant impact of debt equity ratio on ROA.
- Since P value for current asset turnover is greater than 0.05, null hypothesis is accepted. There is no significant impact of current asset turnover on ROA.
- Since P value for total current asset is greater than 0.05, null hypothesis is accepted. There is no significant impact of total current asset on ROA.
- Since P value for total current liability is less than 0.05, alternate hypothesis is accepted. There is significant impact of total current liability on ROA.
- Since P value for NATLOGTA is greater than 0.05, null hypothesis is accepted. There is no significant impact of NATLOGTA on ROA.
- Since P value for inventory turnover ratio is greater than 0.05, null hypothesis is accepted. There is no significant impact of inventory turnover ratio on ROA.

Regression analysis to find out impact on risk and return: Dependent variable – ROE Null Hypothesis

1. **Ho1:** There is no significant impact of current ratio on ROE
2. **Ho2:** There is no significant impact of cash conversion ratio on ROE
3. **Ho3:** There is no significant impact of debt equity ratio on ROE
4. **Ho4:** There is no significant impact of current asset turnover on ROE
5. **Ho5:** There is no significant impact of total current asset on ROE

6. **Ho6:** There is no significant impact of total current liability on ROE
7. **Ho7:** There is no significant impact of NATLOGTA on ROE
8. **Ho8:** There is no significant impact of inventory turnover ratio on ROE

$$ROE = \beta_1CR + \beta_2CCR + \beta_3DET + \beta_4CAT + \beta_5TCA + \beta_6TCL + \beta_7NATLOGTA + \beta_8INV + c$$

Where

ROE	=RETURN ON EQUITY
CR	=CURRENT RATIO
CCR	= CASH CONVERSION RATIO
DET	=DEBT EQUITY RATIO
CAT	=CURRENT ASSET TURNOVER
TCA	=TOTAL CURRENT ASSET
TCL	=TOTAL CURRENT LIABILITY
NATLOGTA	= NATURAL LOG OF TOTAL ASSETS
INV	=INVENTORY TURNOVER RATIO

Model Summary ^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.905 ^a	.818	.746	7.489331	2.417

1. **Predictors:** (Constant), INVTURN, NATLOGTA, CCR, CR, det, TCA, cat, TCL
2. **Dependent Variable:** ROE

It was found from the above table that all the independent variables together impact dependent variable with 81.8 %.

ANOVA ^a

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	5051.014	8	631.377	11.256	.000 ^b
	Residual	1121.802	20	56.090		
	Total	6172.815	28			

1. **Dependent variable:** ROE
2. **Predictors:** (Constant), INVTURN, NATLOGTA, CCR, CR, det, TCA, cat, TCL

It was found that P value in the ANOVA table was less than 5% (0.05) which shows that the model is fit.

Coefficients ^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	88.402	81.162		1.089	.289
CR	-2.779	11.901	-.124	-.233	.818
CCR	.049	1.823	.003	.027	.979
Det	-.791	4.558	-.029	-.174	.864
1 Cat	.246	.103	.744	2.387	.027
TCA	8.896	51.006	.067	.174	.863
TCL	-116.876	47.833	-.874	-2.443	.024
NATLOGTA	-6.544	5.726	-.338	-1.143	.267
INVTURN	-.194	.336	-.118	-.578	.570

1. Dependent variable: ROE

$$\text{ROE} = -2.779\text{CR} + 0.049\text{CCR} - .791\text{DET} + 0.246\text{CAT} + 8.896\text{TCA} - 116.876\text{TCL} - 6.544\text{NATLOGTA} - 0.194\text{INV} + 88.402$$

- Since P value for current ratio was greater than 0.05, null hypothesis is accepted. There is no significant impact of current ratio on ROE.
- Since P value for cash conversion ratio is greater than 0.05, null hypothesis is accepted. There is no significant impact of cash conversion ratio on ROE.
- Since P value for debt equity ratio is greater than 0.05, null hypothesis is accepted. There is no significant impact of debt equity ratio on ROE.
- Since P value for current asset turnover is less than 0.05, alternate hypothesis is accepted. There is significant impact of current asset turnover on ROE.
- Since P value for total current asset is greater than 0.05, null hypothesis is accepted. There is no significant impact of total current asset on ROE.
- Since P value for total current liability is less than 0.05, alternate hypothesis is accepted. There is significant impact of total current liability on ROE.
- Since P value for NATLOGTA is greater than 0.05, null hypothesis is accepted. There is no significant impact of NATLOGTA on ROE.
- There is no significant impact of inventory turnover ratio on ROE.

Correlation-relationship between selected study variable

Table No:4.1.8 Correlations									
		ROA	Sales	WC	CI	Ca	INV	ACCREC	Cr
ROA	Pearson Correlation	1	-.239	.674**	-.782**	-.420*	-.631	.570	.671**
	Sig. (2-tailed)		.203	.000	.000	.021	.369	.614	.000
	N	30	30	30	30	30	4	3	30
Sales	Pearson Correlation	-.239	1	-.432*	.675**	.532**	-.442	-.526	-.409*
	Sig. (2-tailed)	.203		.017	.000	.002	.558	.647	.025
	N	30	30	30	30	30	4	3	30
WC	Pearson Correlation	.674**	-.432*	1	-.751**	-.003	-.589	.786	.821**
	Sig. (2-tailed)	.000	.017		.000	.986	.411	.424	.000
	N	30	30	30	30	30	4	3	30
CI	Pearson Correlation	-.782**	.675**	-.751**	1	.663**	.014	-.602	-.581**
	Sig. (2-tailed)	.000	.000	.000		.000	.986	.589	.001
	N	30	30	30	30	30	4	3	30
Ca	Pearson Correlation	-.420*	.532**	-.003	.663**	1	-.523	-.501	.051
	Sig. (2-tailed)	.021	.002	.986	.000		.477	.666	.788
	N	30	30	30	30	30	4	3	30
INV	Pearson Correlation	-.631	-.442	-.589	.014	-.523	1	. ^c	-.683
	Sig. (2-tailed)	.369	.558	.411	.986	.477		.	.317
	N	4	4	4	4	4	4	1	4
ACCREC	Pearson Correlation	.570	-.526	.786	-.602	-.501	. ^c	1	.972
	Sig. (2-tailed)	.614	.647	.424	.589	.666	.		.152
	N	3	3	3	3	3	1	3	3
Cr	Pearson Correlation	.671**	-.409*	.821**	-.581**	.051	-.683	.972	1
	Sig. (2-tailed)	.000	.025	.000	.001	.788	.317	.152	
	N	30	30	30	30	30	4	3	30
Correlation									
<ul style="list-style-type: none"> • Correlation is significant at the 0.01 level (2-tailed). • Correlation is significant at the 0.05 level (2-tailed). • Cannot be computed because at least one of the variables is constant. 									

V. INTERPRETATION

From the above table, there is a significant positive relationship between Return on Assets and Working capital, there is significant negative relationship between Return on Assets and current liability, there is significant negative relationship between Return on Assets and current asset, there is significant positive relationship between Return on Assets and current ratio, there is significant negative relationship between sales and working capital, there is significant positive relationship between sales and current liability, there is a significant positive relationship between sales and current asset, there is significant negative relationship between sales and current ratio, there is significant positive relationship between working capital and Return on Assets, there is significant negative relationship between working capital and sales, there is significant negative relationship between working capital and current liability, there is significant positive relationship between working capital and current ratio, there is significant negative relationship between current liability and Return on Assets, there is significant positive relationship between current liability and Sales, there is significant negative relationship between, current liability and working capital, there is significant positive relationship between age and current liability and current asset, there is significant negative relationship between current asset and Return on Assets, there is significant positive relationship between current asset and sales, there is significant positive relationship between current asset and current liability, there is significant positive relationship between current ratio and Return on Assets, there is significant negative relationship between current ratio and sales, there is significant positive relationship between current ratio and working capital, there is significant negative relationship between current ratio and current liability.

VI. CONCLUSION

This study on “Risk and Return Indian automobile industry” as major objectives like – to find out the relationship between profitability, liquidity and Firm value, to investigate the working capital on profitability, find the impact of working capital and firm value. To separately analysis the effects of different components of working capital on profitability and to examine the working capital policies of the selected companies, leads to find out the different working capital approach on the selected companies & to find out the impact of market price on profitability. The study used five years data, five automobile Company such as TATA Motors, HERO Motors, MARUTHI Suzuki, TVS Motors and Robert Bosch GmbH. Tools used for analysis are – Return on Assets and Return on Equity, As per dependent variable - ROA, it was found that TCL, there is significant impact on profitability. There is significant difference between ROI of the selected companies. There is significant different between ROE of the selected companies. In correlation there is significant positive relation between ROA and Working capital, ROA and current ratio, working capital and ROA. In correlation there is significant positive relation between sales and current liability, sales and current asset, working capital and current ratio, current liability and current asset, current asset and sale, current asset and current liability, current ratio and working capital.

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