THE STUDY OF MARKET SHARE-PROFITABILITY RELATIONSHIP: AN EMPIRICAL STUDY OF THE PASSENGER VEHICLE (PV) SEGMENT IN INDIAN AUTOMOBILE INDUSTRY.

[1]A. Alwin Peter, [2]Katsuki Ito, [3]Dr.Vinnarasi. B
[12]PG student, [3]Associate Professor
[123]Department of Commerce,
[123]Christ (deemed to be university), Bangalore, India

Abstract
This paper examined the relationship between market-share and profitability of passenger vehicles segment in Indian automobile industry. For this study, annual market share data of the top eight automobile companies and ROA, ROCE over a period of ten years (2008-2018) were collected. The results suggest that there is a significant relationship on market share-profitability relationship of passenger vehicle sector. Hence, market share is a vital factor for profitability in Indian automobile industry.

Key words: Indian automobile industry, passenger vehicle, market share-profitability relationship, return on assets, return on capital employed.

Introduction
In general, the person in charge of strategy making, marketing, sales in company consider that market share and profitability are important performance indicator of their company and work. They usually set up certain number as a goal of the company, but how do they achieve the goal without thinking the relationship among these factors if there is relationship. In past study, it is widely known that there is a positive relationship between market share and business profitability [Buzzell, 1975]. Additionally, in Gale's research, though there is a positive relationship between two factors, impact of market share on profitability varies depending on conditions such as concentration of the market, size of the firm and growth of the market [Gale, 1972]. Even the positive relationship is widely known, in some actual cases, negative relationship has been figured out. In 1993, Mazon conducted research about market share-profitability relationship of 1,111 companies in 22 industries in Spain. There is a negative correlation among market share and profitability at the rate of 18.2% of all industries [Mazón, 1993]. Since we have examined the relationship between market share and company's profitability, not shareholders wealth, return on assets (ROA) and return on capital employed (ROCE) are used as profitability. Both financial ratios are subject to measures of company's profitability. ROA is a measure of efficient utilization of company's total assets. ROCE is a measure of efficient utilization of company's capital employed. In this research, formula of ROA and ROCE are defined as flows.

- ROA = Net Income / Total Assets
- ROCE = EBIT / Capital Employed

Society of Indian Automobile Manufacturers (SIAM) defines that Passenger Vehicle includes Passenger Cars, Utility Vehicles (UV) and Vans. Market share is calculated based on unit of domestic sales. Calculation of market share is as follows.

- One company's unit of domestic sales / Total unit of domestic sales

According to Ministry of Heavy Industries and Public Enterprises, an authority of Government of India, automotive industry plays important roles in whole India economy, for instance, contribution to 27% of India's industrial GDP, generation of 19 million of employment from 2006, 8% of the country's R&D expenditure etc. [Ministry of Heavy Industries and Public Enterprises, 2016]. In FY2018, approximately 79% of four wheelers is passenger vehicle which include Passenger Cars, Utility Vehicles and Vans [SIAM, 2018].

Review of literature
[Gale, 1972] The research examined market share-rate of return relationship in terms of three categories which are degree of concentration, growth of the market and size of firm. The research figured out that market share impact especially on profitability where the situation that large firm predominate high concentrated market. There is only minor impact on profitability when there are small firms in rapid growth market. It is implied that small companies try to take market share in high growth market by sacrificing profits.
[Buzzell, 1975] The authors examine how market share is profitable, with the help of listing economies of scale, market power and quality management descriptions; utilizing PIMS database, it shows how market share of overall industry is identified with Return

on Investment (ROI). The authors suggest that a business is probably to have a higher profit margin, as market share increases and a decrease in promoting costs as a level of sales, higher quality and higher priced products.

[Bradley T. Gale, 1982] This article gives the view that market share, not concentration, is the central structural determinant of profitability. By contrast, as market share increases, the relative direct costs decline in a significant way. Most of the observed share-related differences in relative prices appear to be due to the greater perceived- product-quality of the high-share businesses.

[Wernerfelt, 1986] This article gives new insights about under what conditions and by what amount should a firm endeavor to increase market share and suggests a higher market share will give higher profit from over or under shooting the equilibrium and attempting to hold too huge or too little a market share will not lead to maximum profits.

[ROBERT D. KURTZ, 1992] The study investigates if there is a breakpoint or critical level in the often-observed association between the firm market share and profit rate. The analysis focuses on the sample firms from banking sector. The results of the study show that firm market share has a significant influence on the profitability. The market share of the overall industry variable stays positive and there is no significant breakpoint in the relationship between market share and profitability, the results show that profit rates increase at a diminishing rate of market share.

[Mazón, 1993] In this research, study of market share-profitability relationship has been conducted in Spanish manufacturing industries. Total of 1,111 companies in 22 industries, such as chemical, meat products, leather, electronic materials, pharmaceutical, textile, wine and etc., were examined for this research. He has figured out that 36.4% of all industries have positive and 18.2% have negative correlation between market share and profitability. It is concluded that relationship between market share and profitability depends on industry.

[J. Scott Armstrong, 1996] This paper results recommend that the utilization of computer-oriented objectives is adverse to profitability. In view of this pattern the author suggest that the firms should disregard their rivals when setting goals and rather focus on profit maximization.

[Moshe Hagigi, 1999] This paper mentions scale of economies results in decreasing of unit cost. This researcher has conducted the research about asset efficiency. Asset efficiency is nothing but having minimum amount of asset, it makes profitability higher. He concluded that asset efficiency is a determinant to gain high market share, and also Return on asset (ROA) is positively correlated on multinational market share. In addition, both multinational market share and profitability can be achieved simultaneously, no need to sacrifice either one.

[Jónsson, 2007] This article centers the relationship among size of firm and its profitability especially fisheries, banks and building consulting firms of Icelandic firms. The study shows that no statistically impact of size on the profitability, independent of how size or profitability is estimated. However, the results showed there exists a weak inverse relationship between size and profitability among all the firms.

[Wenyi Chu, 2008] This study shows empirical study by utilizing efficient and comprehensive information to explore the relationship between market share and profitability among the securities industry the experimental outcomes show that there is a positive association between firm profitability and the market share, growth of market.

[Mutshinyani, 2009] Research has been conducted about relationship among profitability and market share in retail sector consisting of eight companies five years data. These companies are listed in Johannesburg Securities Exchange. As a conclusion, there is no relationship between two factors.

[Yannopoulos, 2010] This article studies the market share-profitability relationship with the evidence that market share and profitability are not linked directly with the result of a spurious correlation from any observed relationship. The outcome of the results of the study does not support the positive market share and profitability hypothesis and the outcome show no support for the U- shaped relationship.

[Alireza Fazlzade, 2010] The paper studies the market share-profitability relationship of the companies listed in Tehran Stock Exchange (TSE) using structure equations, this examination shows the relationship between variables depends on restraining statistical assumption, the outcome demonstrates that there is no significant direct association on market share-profitability relationships.

[Genchev, 2012] Findings of the study indicates that the market share is a meaningful and precise indicator for the banks. The study examines by utilizing complete and efficient information to study the relationship in the Bulgarian banking sector, hypothesis with respect to the market share-profitability relationship were studied and analyzed. Results given by pooled OLS and random effect model shows there exists a positive association among market share and ROE.

[Muhammad Aqil, 2014] The paper discovers the influence of market share on profitability among the commercial vehicles manufacturers by considering the instance of Hino, the outcomes demonstrate that market share has a significant influence on gains, ROA and NPM (Net Profit Margin). Consequently, the market share has significant influence on the firm's profitability.

[Lyndon M. Etale, 2016] This paper has conducted research in Banking sector in Nigeria. Profit after tax is as profitability, and market share are defined as two definition. One is amount of deposit of customers, another one is loans of customers. It is concluded that there is a positive relationship between market share and profitability. Since R-squared is 0.97 in regression analysis in this paper, 97% of change of profitability as dependent variable can be explained.

Statement of the problem

Since the government of India has announced "Make in India" movement, industry sector has been more highlighted than service sector. "Make in India" which was started on 25 September 2014 by the Government of India and covers 25 sectors of the economy such as automobiles, aviation, chemicals etc. which encourages companies to manufacture the products in India. The current policy, allows 100% Foreign Direct Investment (FDI) for all 25 sectors, except for space, defense and news media. According to Automotive Mission Plan 2026 which is the comprehensive vision of Indian Government, automobile industry is one of the most important drivers of manufacturing sector and "Make in India" policy. Due to an average annual production of 25 million vehicles

in March/2016 to April/2017, India is ranked fourth of largest automobile market in the world. Potential and growth of Indian automobile sector is attracting all automobile manufacturer, foreign companies as well. Indian passenger vehicle market is predominated by mainly top four companies which are Maruti Suzuki, Hyundai Motor India Ltd (HMIL), Mahindra & Mahindra and TATA Motors, total market share of these companies are about 80 percent in 2017. Especially, Maruti Suzuki has approximately 50 percent of market share in 2017. It is very unique condition that one company has around half of the market share in comparison with other automobile market in the world. Though many researchers have studied there exists a positive relationship among market share and profitability, there has not been any research conducted in Indian automobile market. Therefore, we have examined whether positive market share-profitability relationship is applicable to Indian automobile market.

Research methodology / Data source

The sample data of this study including eight companies in Indian automobile industry with ten years' time series data. Time period of data is from FY2008 to FY2017. The study has been based on the secondary data. Market share data are collected from SIAM (Society of Indian Automobile Manufacturers). ROA and ROCE data are collected from Centre for Monitoring Indian Economy (CMIE) database.

Findings

This uses pooled regression type of analysis with panel data. The pooled regression, which is also called as constant coefficients model, where both intercepts and slopes are presumed to be constant.

The following regression models are used:

$ROA = \beta_0 + \beta_1 MS + \mu$

$ROCE = \beta_0 + \beta_1 MS + \mu$

The two residual model paneling methods Fixed-Effects model (FEM) and the Random Effect Model (REM) used by the Generalized Least Square (GLS) to select appropriate model for the test.

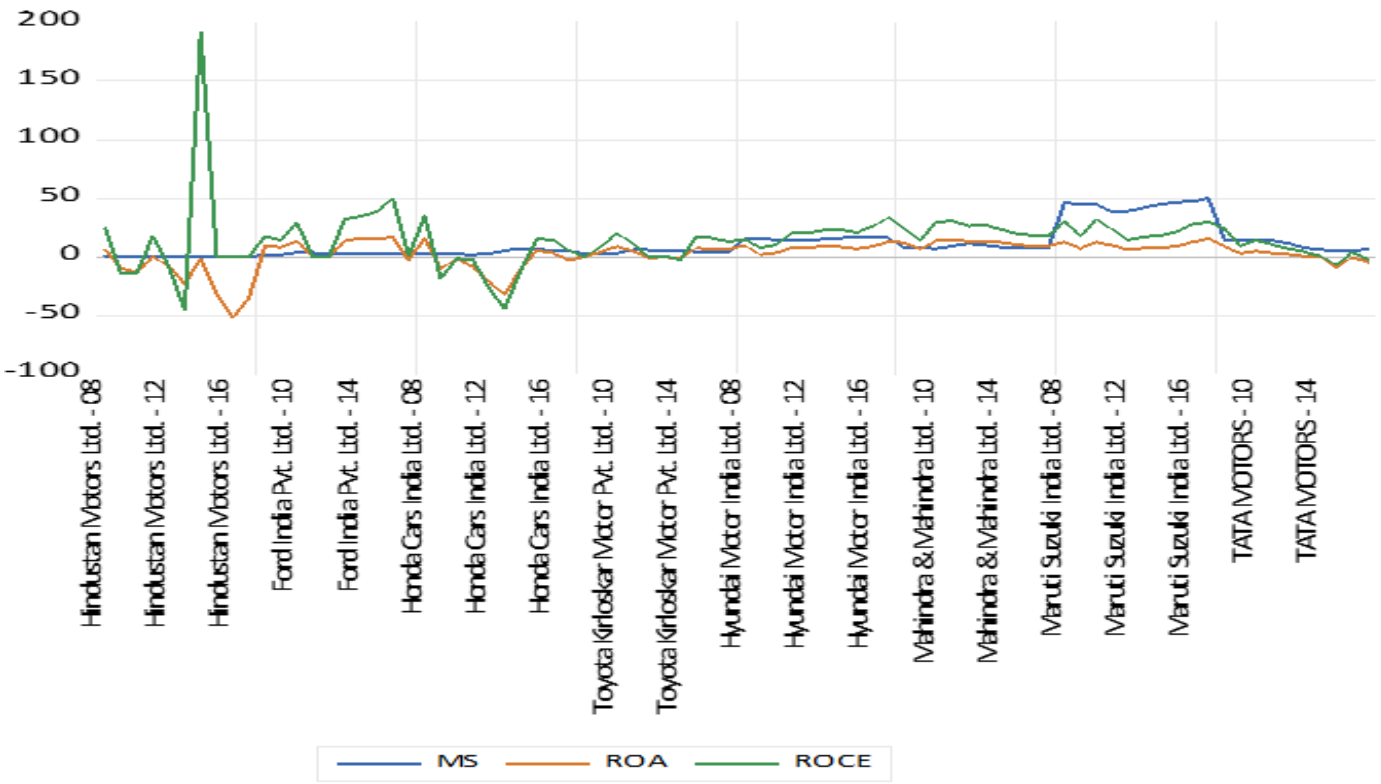
Descriptive Statistics

Descriptive analysis gives the insight into the behavior of the variable. The obtained descriptive statistics of the variables -mean, maximum, minimum, standard deviation etc. the ROCE and ROA have an average of 14.49463 and 2.606250 and a median of 15.23500 and 6.465000, respectively. The variable MS has a mean of 11.37625 and median of 6.190000. The standard deviation of ROCE is higher which means it is highly volatile, while the market share (MS) has a lower standard deviation which means it is less volatile. The kurtosis value for all the variable is more than one so they are leptokurtic and the skewness is the extent to which a distribution of values deviates from symmetry around the mean, the ROA is negatively skewed while all the other variables have positive skewness.

Correlation Matrix

MS	1	0.365886	0.155496
ROA	0.365886	1	0.484571
ROCE	0.155496	0.484571	1

The correlation matrix was calculated in EViews. Correlation analysis was calculated to determine the strength and course of the linear association among the variables. The correlation coefficients are displayed in the above table. it is observed that the market share (MS) is positively correlated with profitability by which market share have positive relation with the profits of the firm, this implies that profitability of the firm will increase as the market share increases.



Dependent Variable: ROA

	Pooled OLS				FIXED effect				RANDOM effect			
Independent variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
MARKET SHARE	0.33822	0.09741	3.47218	0.0008	0.749026	0.47771	1.56795	0.1213	0.415251	0.21731	1.91088	0.0597
R-squared	0.133873				0.546821				0.044932			
Adjusted R-squared	0.122768				0.495759				0.032687			
F-statistic	12.05604				10.70887				3.669565			
Prob(F-statistic)	0.000845				0				0.05908			
Durbin-Watson stat	0.630787				1.209573				1.102805			
Hausman Test	Chi-Sq. Statistic-0.615553 Prob-0.4327											

As the data is panel data the regression equation developed is run into three different models and test are applied to select the appropriate model and test. The models are as follows; random effect model, fixed effect model and pooled OLS.

H0: there is significant influence of market share on profitability

H1: there is no significant influence of market share on profitability

To select between fixed effect model and random effect model the hypothesis for selecting the appropriate model is

For null hypothesis(H0), random effects model is befitting

For alternative hypothesis (HA), fixed effects model is befitting

The probability value in the above table is 0.4327 which is greater than 5% thereby we accept null hypothesis and conclude that the random effects model is appropriate than fixed effect model in analyzing the relationship between the profitability and market share therefore random effect model is applied to test the null hypothesis. The random effect model estimation results show that the market share have a positive but significant relation with the profits of the firms and with a p-value of 0.0597. Since the p- value is greater than 5% thereby we accept null hypothesis thus it can be said that there is statistically significant relationship between two variables.

Dependent Variable: ROCE

	Pooled OLS				FIXED effect				RANDOM effect			
Independent variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
MARKET SHARE	0.301129	0.21661	1.39021	0.1684	1.242127	1.3868	0.89568	0.3735	0.309115	0.24879	1.24249	0.2178
R-squared	0.024179				0.12983				0.019539			
Adjusted R-squared	0.011668				0.031782				0.006969			
F-statistic	1.932684				1.324151				1.5544			
Prob(F-statistic)	0.16842				0.245831				0.216218			
Durbin-Watson stat	2.283379				2.56097				2.346809			
Hausman Test	Chi-Sq. Statistic-0.467687 Prob-0.4941											

The regression equation is used to measure the impact of market share on profitability the following hypothesis are tested:
H0: there is significant influence of market share on profitability
H1: there is no significant influence of market share on profitability
Using Hausman test the hypothesis that random effect model is more appropriate than fixed effect model the result show the probability value in the above table is 0.4941 which is greater than 5% therefore we accept null hypothesis and conclude that the random effects model is appropriate. The random effect model results state that the market share has a positive and significant relation with the profits of the firms and with a p-value of 0.2178 greater than 5% thereby we accept null hypothesis thus it can be said that there is statistically significant relationship between profitability and market share.

CONCLUSION

The study used data of ten automobile companies that manufacture passenger vehicles for the period of 2008-2017. From the obtained results that the market share is positively correlated with profits of the firm (ROA, ROCE). The focus of this study is to examine the relationship between market share and profitability among automobile firms, particularly passenger vehicles firms. The analysis indicates that market share has statistically significant influence on profitability.

References:

Alireza Fazlzade, M. S. (2010). The Study of Relathionship between Market share and Profitability in Tehran Stock Exchange.

Bradley T. Gale, B. S. (1982). Concentration versus market share: which detemines performance and why does it matter? *Antitrust Bull*.

Buzzell, R. D. (1975). Market share-a key to profitability. *Harvard business review*, 97-106.

Gale, B. T. (1972). Market Share and Rate of Return. *The Review of Economics and Statistics*, 412-423.

Genchev, E. (2012). Effects of market share on the bank's profitability. *Review of Applied Socio-Economic Research*, 87-94.

J. Scott Armstrong, F. C. (1996). Competitor Orientation: Effects of Objectives and Information on Managerial Decisions and Profitability. *the Journal of Marketing Research*, 188-199.

Jónsson, B. (2007). Does the size matter? the relationship between size and porfitability of Icelandic firms.

Lyndon M. Etale, P. F. (2016). MARKET SHARE AND PROFITABILITY RELATIONSHIP: A STUDY OF THE BANKING SECTOR IN NIGERIA. *International Journal of Business, Economics and Management*, 103-112.

Mazón, C. (1993). *IS PROFITABILITY RELATED TO MARKET SHARE AN INTRA-INDUSTRY STUDY IN SPANISH MANUFACTURING*. Spain: Banco de España.

Ministry of Heavy Industries and Public Enterprises, G. o. (2016). *REVIEW OF AUTOMOTIVE MISSION PLAN 2006 - 2016*. Ministry of Heavy Industries and Public Enterprises, Government of India.

Moshe Hagigi, G. B. (1999). Increase Asset Efficiency to Gain Multinational Market Share. *Management International Review*, 205-222.

Muhammad Aqil, S. F. (2014). Impact of Market Share on Profitability of Heavy Vehicles Manufacturers - A Case Study of Hino Pak Ltd. *IOSR Journal of Economics and Finance* , 16-20.

Mutshinyani, M. (2009). *A study of the relationship between market share and profitability listed South African retail companies.* University of Pretoria.

ROBERT D. KURTZ, S. A. (1992). A Note on the Market share - Profitability Relationship. *Review of Industrial Organization*, 39-50.

SIAM. (2018). *Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of April-March 2018 and Growth.* Society of Indian Automobile Manufacturers.

Wenyi Chu, C.-n. C.-H. (2008). The market share-profitability relationships in the securities industry . *The Service Industries Journal*, 813-826.

Wernerfelt, B. (1986). THE RELATION BETWEEN MARKET SHARE AND PROFITABILITY. *Journal of Business Strategy*, 67-74.

Yannopoulos, P. (2010). The market share effect: New insights from Canadian data. *Journal of Global Business Management*.