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Determinants of Profitability in Indian Automobile Industry

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Abstract

The automobile industry has emerged as sunrise sector in the Indian economy. It embarked a new journey in 1991 with de-licensing of the sector and subsequently opening up for 100% FDI through the automatic route. The industry produced a total 25,316,044 vehicles including passenger vehicles, commercial vehicles, three wheelers, two wheelers and quadricycle in April-March 2017 as against 24,016,599 in April-March 2016, registering a growth of 5.41 percent over the same period last year. Therefore, automobile companies have been selected for this study in order to determine their profitability during the study period. A firm's Profitability is determined by leverage, size, age, working capital, assets turnover ratio etc. Data required for the study is Secondary in nature. The secondary data have been collected from the Capitaline database from 2008-2017 for the select Motor Cycle companies. The collected data is analyzed by making use of correlation and Multiple Regression. The result reveals hat there exist relationship between age, expenses to income ratio and assets turnover ratio on profitability.

Keywords: Automobile Industry, Profitability, Asset Turnover Ratio.

1. Introduction

Automobile industry plays a predominant role in the economic development of a Country. Automobile industry occupies a crucial place not only in the industrially advanced countries, but also in the developing countries like India. It acts as an effective and organized system for the growth of the industrial as well as non-industrial sectors of the economy. Automobile company's have short-term as well as long-term goals. Short-term goals such as improving annual profits and value addition and long-term goals as such contribution to national wealth, creation of more employment, building up infrastructural facilities, building up a broad-based and healthy capital structure, operation of essential services, creating export potential and thus participating actively in the overall economic growth of a country and improving the standard of living of its people. The rapid growth of the automobile sector in India and the increasing scale of its operations and investment have turned it into the most dominant form of economic organization. The ever increasing importance and role of automobile sector in the economic growth of a country, particularly in a developing country like India, has attracted several academicians, professional institutions, researchers, administrators to conduct diversified studies in this area. Company profitability is affected by, credit period offered by companies to the buyers (Arindam Ghosh, 2007), growth in sales (Samiloglu F. and Demirgunes, 2008).Working Capital (Mian Sajid Nazir and Talat Afza, 2009), Liquidity (Jamal Zubairi, 2010), Size of the firm (Vijayakumar, 2011), Return on Assets and Cash Conversion Cycle, Inventory turnover period (Sayeda Tahmina Quayyum, 2012), Leverage (Thomas Korankye Rosca Serwaah Adarquah, 2013)   Thus, in this study an attempt has been made to ascertain the factors determining of profitability of automobile industry as a whole.

2. Review of Literature

George Paul (1985) in his study observes that performance of diversified companies are far better than non-diversified companies in terms of profitability, safety and market evaluation. Deepak Chawola (1986) in his study identifies that concentration and vertical integration of the company influences profitability. Agarwal (1987) in his study finds that profit earning capacity in the car sector depended on its sales, capacity utilization, product prices and market share. Nagarajan and Burthwal (1990) in their observes that vertical integration and growth rate of sales had a greater impact on profitability. Conyon and Machin (1991) in their study ascertains that import intensity, concentration and capital stock are significant in explaining inter-firm variations in profit margins. Vijayakumar and Venkatachalam (1995) in their study observes that liquid ratio, inventory turnover ratio, receivables turnover ratio and cash turnover ratio had influenced the profitability of sugar industry in Tamil Nadu.

Aggarwal and Singla (2001) in their study finds that inventory turnover ratio,

interest coverage ratio, net profit to total assets and earning per share are the most important indicators of financial performance. Vijayakumar and Kadirvel (2003) in their study identifies that age is the strongest determinant of profitability followed by the variables vertical integration, leverage, size, current ratio, inventory turnover ratio, operating expenses to sales ratio and growth rate. Mathuva (2009) in his study observes that there exists significant association between the average payment period and profitability (i.e.) The more the time taken to disburse the creditors, the profitability will increase. Adina Elena Danuletiu (2010) in her study finds that there is a negative correlation between working capital and profitability. Abdul Qayyum, Dr.Talat Afza and Abdul Raheman (2011) in their study identifies that company's earning capacity may be maximized by minimizing the Number of Days in Inventories, Cash Conversion Cycle and Net Trade Cycle. Aloy Niresh (2012) in his study reveals that there is a negative relationship between cash conversion cycle, inventory maintenance and company's performance measures. Ganesamoorthy and R. Rajavathana (2013) in their study identifies that Current ratio had positive relationship with profitability. Average Collection Period and Average Payment Period had negative relationship with profitability. Cash Conversion Cycle had positive relationship with profitability.

3. Statement of the Problem

For any company efficiency or performance of a company is get reflected on its market value of share whereas, market value of share depends on earning potential or profit earned by the company. Further, the sustainability of any company depends on the profit earning capacity. The company which earn low profit or whose profit fluctuates year by year may not sustain for a longer period of time. Thus, the profitability should be studied not as an isolated event, but with other factors such as liquidity, leverage and assets utilisation in an integrated manner. Leverage plays a vital role in attracting or diverting investments in corporate field. Since, the Indian Automobile Companies face threats to their viability, this study bears a relevance to the present problems. For these reasons companies are developing various strategies to improve their financial position. Profitability is the test of efficiency, powerful motivational factor and the measure of control in any business. Thus, a company earning potential depends on Firm Size (Whittington, 1980), turnover (Agarwal, 1987), Current Asset Management (Chandrasekaran, 1993), Age of the Company (Vishnu Kantapurohit, 1998), Proper Inventory Management (Vijayakumar, 2002) and Proper Management of Working Capital (Ram Kumar Kakani, Biswatosh Saha and Reddy, 2003). Hence, an attempt has been made to study the Profitability, Short-term Solvency and Long-term Solvency of Automobile companies and to identify the factors influencing the Profitability, Short-term Solvency and Long-term Solvency.

Objective of the study

- To identify the factors influencing profitability of Indian Automobile Industry

4. Research Methodology

The present study is analytical in nature. Secondary data required for the study.
Source of Data

Data used for the study are secondary in nature. Secondary data are collected from Capitaline Plus data base. The variables used in the study have been selected after a detailed survey of the available literature on the subject and discussions with several knowledgeable persons in the field of finance.
Sampling

The first step in selecting companies has been the identification of a global set from which all further selections have been performed. A list of companies that constitutes the population has been drawn from the Capitaline plus database. The present study is based on a composite sample of 55 companies with five sectors ranging in size from four to six companies. The sample has been chosen on the basis of purposive sampling. Companies for which information relating to profit and loss account and balance sheet is available for most of the years under study have been included in the sample. Initially, 55 companies, comprising of 11 Commercial Vehicles, 5 Motor Cycles/Mopeds, 15 Passenger Cars, 14 Scooters and Three Wheelers and 10 Tractor, have been identified. But, on scrutiny, it has been found that some companies have data for the entire study period, while the others do not. The inclusion of companies having data for a heterogeneous period of time would undoubtedly distort the method of analysis. As such, the sample finally holds 23 companies for which the much-needed financial information is available for the entire study period. Thus, companies selected for the study are:

S.No.	Company Name
Light Commercial Vehicle	
1	Ashok Leyland Ltd.,
2	Eicher Motors Ltd.,
3	Force Motors Ltd.,
4	SML ISUZU Ltd.,
5	Tata Motors Ltd.,
Scooters and Three Wheelers	
1	Scooters India Ltd.,
2	Atul Auto Ltd.,
3	LML Ltd.,
4	Maharashtra Scooters Ltd.,
Passenger Cars	
1	Hindustan Motors Ltd.,

2	Honda Siel Cars
3	Hyundai Motor India Ltd.,
4	Maruti Suzuki India Ltd.,
Motorcycles / Mopeds	
1	Hero Motocorp Ltd.,
2	Kinetic Engineering Ltd.,
3	Majestic Auto
4	TVS Motor Company Ltd.,
Tractors	
1	Escorts Ltd.,
2	HMT Ltd.,
3	International Tractors Ltd.,
4	Mahindra and Mahindra Ltd.,
5	Tractors and Farm Equipment Ltd.,
6	VST Tillers Tractors Ltd.,

Period of Study

The study covers period of ten years from 2008 to 2017.The financial year runs from 1st April to 31st March every year.

Framework of Analysis

The statistical tools used to analyze the data include (i) Correlation and (ii) Multiple Regression.

5. Limitations of the Study

Financial information collected for the present study is entirely secondary in nature. In such a case, the study carries all the limitations inherent with the secondary data and financial information. The study is restricted to select companies for the period of ten years. While computing the data for the purpose of analysis, the approximation of decimal places leads to minor variations in ratios as well as percentage analysis and hence these are bound to exist in the present study. Further, the annualized data are unlikely to reveal the true financial performance of the sample companies. The hidden inconsistencies of the financial statements are not probed into. While extending the results of the study, one should be careful to use the same judiciously by taking the limitations into consideration.

6. Findings

Nature of Association of Selected Variables with Profitability

In order to examine the nature and quantum of association of variables with profitability, correlation analysis is used. Return on Investment has introduced as Dependent Variable, for measuring profitability of the company. Leverage, Size, Age, Current Ratio, Expenses to Income Ratio, Growth in Sales, Asset

Turnover Ratio, Inflation and Index of Industrial Production are introduced as Independent variables.

All the five sectors namely LCV, Motor Cycle, Passenger Car, Scooters and Tractors are collectively named Automobile Industry. Out of nine independent variables Leverage, Size, Age, Expenses to Income Ratio, Growth in Sales and Asset Turnover Ratio are found to be significant at one per cent level. The results of the study coincide with the study results of Krishnaveni (1991), Smith Beaumont and Begemann (1997), Vishnu Kantapurohit (1998) and Samiloglu F. and Demirgunes (2008).

Table 1: Variables associated with Profitability –Automobile Industry - Correlation Analysis

Variables	r	r^2
Leverage	-0.326**	0.107
Size	0.367**	0.135
Age	-0.243**	0.059
Current Ratio	0.086	0.007
Expenses to Income Ratio	-0.219**	0.048
Growth in Sales	0.304**	0.092
Assets Turnover Ratio	0.483**	0.234
Inflation	-0.135	0.018
Index of Industrial Production	0.019	0.000

* Significant at five per cent level **Significant at one per cent level
i. Leverage

Leverage and Profitability are negatively correlated. This shows that level of profitability is more with low leverage companies. The coefficient of determination (r^2) shows that leverage accounts for 10.70 per cent of the variation in the level of profitability.
ii. Size

Size and Profitability are positively correlated. This shows that level of profitability is more with large size companies. The coefficient of determination (r^2) shows that size accounts for 13.50 per cent of the variation in the level of profitability
iii. Age

Age and Profitability are negatively correlated. This shows that level of profitability is more with newly established companies. The coefficient of determination (r^2) shows that age accounts for 5.90 per cent of the variation in the level of profitability.
iv. Expenses to Income Ratio

Expenses to Income Ratio and Profitability are negatively correlated. This shows that level of profitability is more with companies, which reduces their

expenditure to a maximum extent. The coefficient of determination (r^2) shows that expenses to income ratio accounts for 4.80 per cent of the variation in the level of profitability.

v. Growth in Sales

Growth and Profitability are positively correlated. This shows that level of profitability is more with companies, where growth in sales is noticed. The coefficient of determination (r^2) shows that growth in sales accounts for 9.20 per cent of the variation in the level of profitability.

vi. Assets turnover Ratio

Assets turnover Ratio and Profitability are positively correlated. This shows that level of profitability is more with companies, which utilizes their asset optimally. The coefficient of determination (r^2) shows that assets turnover ratio accounts for 23.40 per cent of the variation in the level of profitability.

Determinants of Profitability − LCV

In order to find out the variables that determine profitability, all the variables included for correlation analysis have been regressed on Return on Investment. The following regression equation has been framed to ascertain the impact of the variables on Profitability:

$$Pr = a + b_1 \, LEV + b_2 \, S + b_3 \, AG + b_4 \, CR + b_5 \, ETIR + b_6 \, GIS + b_7 \, ATR + b_8 \, INF + b_9 \, IIP + e$$

Where,

Pr	=	Profit
a	=	Intercept Term
$b_1....b_9$	=	Regression Coefficients
LEV	=	Leverage
S	=	Size
AG	=	Age
CR	=	Current Ratio
ETIR	=	Expenses to Income Ratio
GIS	=	Growth in Sales
ATR	=	Assets Turnover Ratio
INF	=	Inflation
IIP	=	Index of Industrial Production
e	=	Error Term

The results of regression analysis are consolidated in Table 2. Out of nine independent variables introduced, five variables are found to be significant. Leverage, Size, Growth in Sales and Assets Turnover Ratio are found to be significant at one per cent level. Index of Industrial Production is found to significant at five per cent level. The findings of the study are similar to the study results of Samuels and Smyth (1968), Ram Kumar Kakani, Biswatosh Saha and Reddy (2003), Samiloglu F. and Demirgunes (2008).

Table 2: Determinants of Profitability – Automobile Industry - Multiple Regression Analysis

Variables	Regression coefficient	Standard error	t
Leverage	-1.662**	0.571	-2.909
Size	0.018**	0.003	5.574
Age	-0.067	0.060	-1.109
Current Ratio	2.897	1.799	1.611
Expenses to Income Ratio	-0.320	0.272	-1.179
Growth in Sales	0.149**	0.036	4.142
Assets Turnover Ratio	5.255**	0.705	7.457
Inflation	-0.621	0.321	-1.933
Index of Industrial Production	0.170*	0.078	2.164

* Significant at five per cent level **Significant at one per cent level

Constant: 9.800, Std. Error of Estimate: 5.694, R^2: 0.$\overline{458}$, R^2: 0.481 **

i. Leverage

The regression coefficient indicates that leverage negatively influences the level of profit. The value of regression coefficient indicates that a unit of decrease in leverage shall increase profit by 1.662 units. Lower amount of leverage leads to higher level of profit.

ii. Size

The regression coefficient indicates that company size positively influences the level of profit. The value of regression coefficient indicates that a unit increase in company size shall increase profit by 0.018 units. As size of company increases the earning capacity also increases.

iii. Growth in Sales

The regression coefficient indicates that growth in sales positively influences the level of profit. The value of regression coefficient indicates that a unit of increase in sales shall increase profit by 0.149 units. Growth in sales leads to higher level of profit.

iv. Assets Turnover Ratio

The regression coefficient indicates that Assets turnover ratio positively influences the level of profit. The value of regression coefficient indicates that a unit of increase in asset turnover ratio shall increase profit by 5.255 units. Higher assets turnover ratio leads to higher level of profit.

v. Index Industrial Production

The regression coefficient indicates that Index Industrial Production positively influences the level of profit. The value of regression coefficient indicates that a unit of increase in Index Industrial Production shall increase profit by 0.170 units. Growth in Index of Industrial Production leads to higher level of profit.

The value of R^2 is found to be significant at one per cent level. This shows that the regression equation framed is a good fit. Around 48.10 per cent of variation in level of profit is due to the selected variables.

7. Suggestions

- Companies which have huge earning potential alone should mobilize more funds through debentures. Companies which have low earning potential or whose earnings fluctuates prefers to mobile cheap source of funds like equity.

- High expenditure is noticed with age old companies, thereby their profitability is deteriorated. Hence, age old companies should took necessary steps to contain their expenditure to a maximum extent, which assist them to increase their earning potential.

- Sales and profitability are directly related. Hence, automobile companies may `initiate necessary steps for improving their sales by arranging cheap credit facility to their customers, by offering discount, by offering better after sales service at free of cost etc.

- Automobile companies should utilize their fixed assets to a maximum extend and to generate more revenue by enhancing their sales volume.

Conclusion

The result of analysis disclose that leverage, size of the company, growth in sales, asset turnover ratio, index of industrial and production are the factors that determine profitability of automobile companies. In India too, automobile companies occupies a significant position by contributing more job openings to the unemployed youth, Thus, in order to sustain for longer period of time, automobile companies have to reduce their expenditure to a maximum extent. Further, automobile companies have to utilize their fixed assets at optimal level (i.e.) fixed assets like machinery should not be kept idle. Further, the result of study also discloses that company survival also depends on industrial situation that prevails in a country. Hence, Government has to provide necessary financial and infrastructural assistance for the survival of automobile company's, thereby automobile companies may reach new height in the nearby future.

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15312

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