Profitability in the Indian Automobile Industry Factors to Consider

*Dr. Madhusudan Agarwal

Abstract

The automobile industry has become a sunrise industry.   The total volume of automotive exports increased from April through March 2015 compared to the same period in 2014. In comparison to the same time in 2014, sales of passenger cars, commercial trucks, three-wheelers, and two-wheelers increased by 4.42 percent, 11.33 percent, 15.44 percent, and 17.93 percent, respectively (SIAM). To be able to meet worldwide standards in production and cost, the top local businesses have signed more than 200 technological cooperation agreements with overseas businesses. This industry's steady growth and healthy development have always been crucial to the Indian economy. This essay tries to quantify profitability and examine the influences of different variables on profitability in the Indian automobile sector. In order to do this, 21 variables from 16 organisations were selected, and multiple correlation analysis and stepwise multiple regression were used to analyse the data. It has been shown that the Operating Ratio plays a critical role in the Indian automobile industry's profitability and affects Return on Sales by 93.40 percent.

Keywords: Ratio analysis, profitability, multiple correlation analysis, regression analysis, and financial performance.

Introduction:

Although there have been significant fluctuations in its development rate, India's manufacturing sector has risen at a pace of 6.9% annually since 1992–1993. The adoption of international standards is another factor contributing to the rise in vehicle exports. Following a brief decline in 1998–1999 and 1999–2000, these exports had strong rise in the most recent few years. Investments are a significant contributor to the expansion of the Indian automotive sector; in 2002–2003, these investments totaled more than US$ 11.11 billion, while the sector's revenue surpassed US$ 13.22 billion. In April through March 2015, the industry produced a total of 23,366,246 vehicles, including passenger cars, commercial trucks, three-wheelers, and two-wheelers, compared to 21,500,165 during the same period in 2014. This represents an increase of 8.68 percent. In comparison to the same time in 2014, passenger vehicle sales increased by 3.90 percent in April through March 2015. In

the Passenger Vehicles sector, Passenger Cars and Utility Vehicles increased 4.99 percent and 5.30 percent, respectively, while Vans had a loss of (-) 10.19 percent from April through March 2014 to 2015. In comparison to the same time previous year, the Commercial Vehicles category as a whole saw a de-growth of (-) 2.83 percent in April through March 2015. Light Commercial Vehicles (LCVs) decreased by (-) 11.57 percent, while Medium & Heavy Commercial Vehicles (M&HCVs) increased by 16.02 percent. Sales of three-wheelers increased by 10.80 percent between April and March 2015 compared to the same time previous year. Between April and March 2015, passenger and goods transportation increased by 12.16% and 5.27%, respectively, compared to April and March 2014. Sales of two-wheelers increased 8.09 percent from April through March 2015 compared to April through March 2014. Compared to April-March 2014, sales of scooters, motorcycles, and mopeds in the two-wheelers market increased by 25.06 percent, 2.50 percent, and 4.51 percent, respectively. The total volume of automotive exports increased from April through March 2015 compared to the same period in 2014. In comparison to the same time in 2014, sales of passenger cars, commercial trucks, three-wheelers, and two-wheelers increased by 4.42 percent, 11.33 percent, 15.44 percent, and 17.93 percent, respectively (SIAM).This industry has started to shine in the present. However, many of the participants are plagued by the overcapacity issue since it's possible that demand won't increase considerably. As a result, a lot of businesses are searching for a foreign market for Indian cars. Component industry prospects are quite promising. To be able to meet worldwide standards in production and cost, the top local businesses have signed over 200 technological cooperation agreements with foreign businesses.

Selection of Automobile Industry:

Indian Automobile Industry accounts 7 per cent of total FDI in India. The Indian economy has a special position for the automobile sector. It helps thousands of individuals by providing work opportunities, income sources, and industrial output.   A significant portion of India's income from other nations comes from its exports.   It has always been crucial for the Indian economy that this sector continues to expand quickly and sustainably. Consequently, the analysis of the automotive industry's financial performance has been chosen.

Statement of the Problem:

For the previous five years, the Indian automobile industry has grown on average at a pace of 17%. 7.1% of the nation's Gross Domestic Product (GDP) is made up by this sector. Approximately 31% of compact automobiles sold worldwide as of FY 2014–15 are produced in India.Due to a burgeoning middle class and a youthful population, the two-wheeler category leads the Indian automobile industry with an 81 percent market share. Additionally, the sector's expansion was assisted by the corporations' rising interest in researching rural areas.13% of the market is taken up by the Passenger Vehicle (PV) category overall, according to DIPP. Analysing the financial performance of

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the automotive industry is crucial in light of this situation.   In order to help future policymakers determine whether to maintain, enhance, decrease, or eliminate the significance and aid provided to this sector, it is crucial to evaluate the financial performance of this industry.

Objectives of the Study:

Basically, to assess the financial performance of the Indian automobile industry, to determine its profitability, and to examine the impact of numerous variables on that profitability.

Research Methodology:

The secondary source was used to get the financial information and data needed for the investigation. The primary sources utilised were the Prowess corporate databases created by the CMIE (Centre for Monitoring Indian Economy) and CLP (Capital Line Plus). The other pertinent information was gathered from journals, magazines, websites, and daily newspapers.The crucial information for this study's fifteen-year time frame, which ran from 2000 to 2014, has been gathered. The researcher opted to include all 48 automobile-related firms operating before to or between the years of 1998 and 2012 in the study's first phase. However, due to a variety of limitations, such as the lack of financial records or a company's inability to operate during a certain year, etc., it is necessary to limit the sample firms to just 16. Purposive sampling is the methodology used in the research, which examined sixteen businesses in the Indian car sector. It represents 33.33 percent of all the enterprises present in the Indian automotive sector. Ratios may be highly useful when analysing the financial health of various organisations. The list of companies involved in the current analysis is shown here. Numerous metrics may be used to evaluate the financial health of the automotive industry. Previous investigations, in particular those by A. Dharmaraj, Dr. N. Kathirvel (2013), Adolphus J. Toby (2008), and R. N. Agarwal (1991), helped to identify the predictive variables. Ahmed Arif Almazari (2012), Aggarwal, N. and Singla, S.K. (2001), Burange, L.G., and Shruti Yamini (2008) Giulio Bottazzi, Angelo Secchi, and Federico Tamagni (2008), Chandra H. and Selvaraj A. (2013), Debaprosanna Nandy (2011), Dharmendra S. Mistry (2011), Hamasalakshmi R. (2009), and Jagan Mohan Rao, P. (1993) are among authors who have written on this topic. Juliet D. Souza and William L. Megginson, 1999; Janaki Ramudu P and Parasuraman N.R, 2012. Authors include: Lind, L., Pirttilä, M., Viskari, S., Schupp, F., and Kärri, T. Muthumoni. Kamalnath, P. (2010); Krishnaveni, M. (2008). A (2008) Rajalakshmi K. and Ramachandran T. and Neha Mittal (2012) Saranga, H. (2009), Rakesh Kumar Manjhi and S.R. Kulkarni (2012).   Shishir Pandey (2012), Shurveer S. Bhanawat (2011), Swati Dhaval Modi (2012), Tushkar K. Mahanti (2013), Velu Suresh Kumar (2011), and Vijayakumar, D. A. (2011) are among the authors who have written Sarumathi I (2010). The financial ratios of the Indian automobile industry, which are specified in the accompanying table, are the predictive variables in this research.

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Table 1: List of Sample Companies

S. No	Companies	Sectors	Code
1	Ashok Leyland	LCVs / HCVs	C1
2	Atul Auto	Scooters & 3 – Wheelers	C2
3	Eicher Motors Ltd	LCVs / HCVs	C3
4	Force Motors Ltd	LCVs / HCVs	C4
5	Hero MotoCorp Ltd	Motorcycles/ opeds	C5
6	Hindusthan Motors	Passenger Cars	C6
7	HMT Ltd	LCVs / HCVs	C7
8	Hyundai Motors	Passenger Cars	C8
9	Kinetic Engineering Ltd	Motorcycles/Mopeds	C9
10	Maharashtra Scooters Ltd	Scooters & 3 – Wheelers	C10
11	Mahindra & Mahindra Ltd	LCVs / HCVs	C11
12	Majestic Auto Ltd	Motorcycles/Mopeds	C12
13	Maruthi Suzuki	Passenger Cars	C13
14	Scooters India Ltd	Scooters & 3-Wheelers	C14
15	SML ISUZU Ltd	LCVs / HCVs	C15
16	Tata Motors Ltd	LCVs / HCVs	C16

Table 2: The List of selected Financial Variables

S. No	Code	Ratios	S. N	Code	Ratios
1	X_1	Current Ratio	12	X_{11}	Net Income to Total Debts Ratio
2	X_2	Quick Ratio	13	X_{12}	Inventory Turnover Ratio
3	X_3	Inventory to Total Assets Ratio	14	X_{13}	Debtors Turnover Ratio
4	X_4	Quick Assets to Total Assets Ratio	15	X_{14}	Fixed Assets Turnover Ratio
5	X_5	Current Assets to Total Assets Ratio	16	X_{15}	Working Capital Turnover Ratio
6	X_6	Working capital to Total Assets Ratio	17	X_{16}	Total Debt to Total Assets Ratio
7	Y	Return on Sales	18	X_{17}	Net Fixed Assets to Equity Ratio
8	X_7	Return on Equity	19	X_{18}	Debt – Equity Ratio
9	X_8	Return on Total Assets	20	X_{19}	Total Assets to Equity Ratio
10	X_9	Return on Capital Employed	21	X_{20}	Long Term Debt-Equity Ratio
11	X_{10}	Operating Ratio			

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Statistical Analysis:

The researcher used the Multiple Correlation Analysis to pinpoint the key elements that contribute significantly to the profitability of the automotive sector as well as to gauge the strength of the link between the independent and dependent variables. Data interpretation and analysis: Multiple Correlation Analysis makes an effort to investigate the link between two variables. In order to determine the most significant variable that has a greater link with the dependent variable, the correlation coefficient of the chosen independent variables with the profitability of automobiles has been calculated in this research. The significance test has also been used to pinpoint the factors that significantly correlate with one another.

Table 3: Profitability of Indian Automobile Industry

	Financial Variables	R	R Square
X_1	Current Ratio	-.166**	0.027556
X_2	Quick Ratio	-0.116	0.013456
X_3	Inventory to Total Assets	-.142*	0.020164
X_4	Quick Assets to Total Assets	-.158*	0.024964
X_5	Current Assets to Total Assets	-.163*	0.026569
X_6	Working capital to Total Assets	-.143*	0.020449
X_7	Return on Equity	.128*	0.016384
X_8	Return on Total Assets	.909**	0.826281
X_9	Return on Capital Employed	0.099	0.009801
X_{10}	Operating Ratio	.966**	0.933156
X_{11}	Net Income to Total Debts	0.058	0.003364
X_{12}	Inventory Turnover Ratio	0.051	0.002601
X_{13}	Debtors Turnover Ratio	0.027	0.000729
X_{14}	Fixed Assets Turnover Ratio	-0.029	0.000841
X_{15}	Working Capital Turnover Ratio	0.025	0.000625
X_{16}	Total Debt to Total Assets	-.280**	0.0784
X_{17}	Net Fixed Assets to Equity	-0.001	0.000001
X_{18}	Debt – Equity Ratio	-.153*	0.023409
X_{19}	Total Assets to Equity	-0.064	0.004096
X_{20}	Long Term Debt– Equity Ratio	-.159*	0.025281

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Karl Pearson's correlation coefficients between Return on Sales and a selection of indicators pertaining to the Indian car sector before and after foreign direct investment are used to determine the influence of certain financial factors on profitability (Table 3). According to the research, Current Ratio and Return on Sales are inversely correlated; Return on Sales rises as Current Ratio falls. Current Ratio explains 2.75 percent of the variance in Return on Sales, according to the co-efficient of determination r2. The relationship between the inventory to total assets ratio and return on sales is inverse, with return on sales increasing as the inventory to total assets ratio falls.   The inventory to total assets ratio, according to the co-efficient of determination r2, is responsible for 2.01% of the variance in the return on sales. Return on Sales and Quick Assets to Total Assets Ratio have an inverse relationship; when Quick Assets to Total Assets Ratio declines, Return on Sales increases.   Rises in Return on Sales. According to the co-efficient of determination r2, the Quick Assets to Total Assets Ratio explains 2.49 percent of the variance in Return on Sales. Return on Sales and Current Assets to Total Assets Ratio are inversely connected, meaning that when Current Assets to Total Assets Ratio declines, so does Return on Sales   Rises in Return on Sales. The current assets to total assets ratio is shown to be responsible for 2.65% of the variance in the return on sales using the co-efficient of determination (r2). Working capital to total assets ratio and return on sales are inversely associated, with return on sales rising as current assets to total assets ratio falls. Working Capital to Total Assets Ratio is shown to be responsible for 2.04 percent of the variance in Return on Sales using the co-efficient of determination (r2). The rise in Return on Equity causes an increase in Return on Sales, hence the two metrics have a positive relationship. According to the coefficient of determination r2, 1.63 percent of the fluctuation in the return on sales may be attributed to Return on Equity. The rise in Return on Total Assets causes an increase in Return on Sales, indicating a positive correlation between the two metrics. The co-efficient of determination (r2) demonstrates that the Return on Total Assets Ratio explains 82.62 percent of the variance in the Return on Sales. Return on Sales and Operating Ratio have a positive inverse relationship; Return on Sales rises as Operating Ratio rises. According to the coefficent of determination r2, the operating ratio is responsible for 93.31% of the variance in return on sales. Return on Sales and Total Debt to Total Assets Ratio are inversely associated, and as they decline, so does Rises in Return on Sales. Total Debt to Total Assets Ratio, according to the co-efficient of determination r2, explains 7.84% of the variance in Return on Sales. Return on Sales and Debt-Equity Ratio are inversely associated; as the latter declines, so does the former Rises in Return on Sales. According to the co-efficient of determination r2, 2.34 percent of the volatility in the return on sales may be attributed to the debt-equity ratio. Return on Sales and Long-Term Debt Equity Ratio are inversely associated, with a decline in Long-Term Debt Equity Ratio being accompanied by a rise in Return on Sales Rises in Return on Sales. Long Term Debt Equity Ratio explains 2.52% of the variance in Return on Sales, according to the coeficient of determination r2.

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Step Wise Multiple Linear Regression Analysis:

The stepwise multiple regression is an adaptation of the forward technique, with the exception that each time a new predictor variable is stepped in, the relationship between the criterion and the predictor variable is reevaluated to see if the predictor variable already chosen is still significantly contributing when additional variables are added. A predictor entered earlier could be eliminated later when additional predictors are added to the equation.

Table 4: Financial Performance of Indian Automobile Industry –Using Step Wise Multiple Linear Regression Analysis

Model	Constant	X_{10}	X_{20}	X_{17}	X_8	X_2	X_{16}	X_{18}	X_1	X_{12}	r^2
1	-7.677	0.943									0.934
2	-5.321	0.94	-2.721								0.952
3	-3.973	0.938	-3.972	-1.013							0.961
4	-2.747	0.778	-3.886	-1.01	0.219						0.967
5	-0.374	0.808	-3.297	-0.876	0.181	-2.099					0.971
6	1.202	0.789	-2.956	-0.795	0.198	-2.171	-3.764				0.972
7	0.696	0.793	-6.491	-0.575	0.194	-2.023	-4.722	2.921			0.973
8	-0.587	0.8	-6.113	-0.551	0.191	-3.855	-5.153	2.714	2.355		0.974
9	-3.68	0.798	-6.388	-0.536	0.2	-4.124	-3.883	2.97	3.05	0.151	0.975

The variable "Operating Ratio" was entered into step-wise linear regression in the first stage, as shown in Table 4. This accounts for 93.40% of the difference in return on sales. In phase two, the term "Long Term Debt Equity Ratio" is introduced. Together with "Operating Ratio," this variable accounts for 95.20 percent of the total. There was a 1.08 percent rise in the donation. The third variable has raised its contribution from 95.20 percent to 96.10 percent in the third phase, "Net Fixed Assets to Equity Ratio." With the addition of the variable "Return on Total Assets" in the fourth phase, the contribution climbed by 0.60 percent more to 96.70 percent.Step five introduces the Quick Ratio. This factor contributes for 97.10% of the total, together with "Operating Ratio, Long Term Debt Equity, Net Fixed Assets to Equity, Return on Total Assets, and Quick Ratio." There was a 0.40 percent rise in the donation. With the inclusion of the option "Total Debts to Total Assets Ratio" in the sixth phase, the contribution grew by another 0.1% to 97.2%. Step seven introduces the "Debt Equity Ratio," which adds an additional 0.1 percent.Step 8 introduces the "Current Ratio," which along with

the other variable accounts for 0.1 percent of the contribution. Inventory Turnover Ratio, introduced in step nine, is the last variable. These nine factors together account for 97.5% of the overall contribution.   The post-foreign direct investment period's multiple regression analysis's $r2$ value is 99.9%. Other factors have contributed to the disparity of 2.4%.

Findings

The results of the analysis show that the independent factors jointly account for 99.9% of all changes in profitability.   It has been shown that operating ratio has a significant impact on the profitability of the Indian automobile industry.   Atul Auto Ltd., Kinetic Engineering Ltd., Maharashtra Scooters Ltd., Majestic Auto Ltd., and Scooters India Ltd. saw their equity capital increase at a slower rate than that of Ashok Leyland Ltd., Hero Motorcorp Ltd., Hundai Motors Ltd., Mahendra & Mahendra Ltd., Maruti Suzuki Ltd., and Tata Motors Ltd. According to step-wise linear regression, Operating Ratio explains 93.31% of the variance in Return on Sales. This is responsible for 93.40% of the volatility in return on sales.

Suggestions

Interest costs have had a negative impact on net profit as a proportion of revenue. A review of the Indian automobile industry's productivity and financial efficiency is advised. Only a few businesses should continue to finance fixed assets without having a clear policy in place.To increase financial efficiency, core current assets and a portion of short-term current assets must be financed with long-term funds. It is preferable if the businesses can cut down on excessive short-term loans and advances and avoid risk by routinely arranging financing.Projects' costs grow as a result of poor planning and delays in execution. Therefore, careful preparation should be done. Appropriate methods for planning and controlling cash may be employed in order to regularise and optimise the usage of cash balance. Reducing inventory investments is a good idea."The companies should make extensive use of borrowed funds and should attempt to gradually lighten the burden of fixed charges by reducing borrowed funds and enhancing owner's fund." Companies should issue additional equity shares to increase their equity share capital for this reason.The Indian government may take action to lower the tax and excise charge imposed on certain hybrid car components. This might result in a decrease in excise tax on certain components provided to producers of electrical and hybrid vehicles, which would encourage the development of environmentally friendly automobiles.

Conclusion

The Indian car industry faces significant domestic demand.   This demand also entices major auto suppliers from across the globe to visit and invest in India's automotive sector. The demand for and sales of automobiles are continuously increasing as a result of the contribution of numerous different factors, including sales incentives, the introduction of new models and variants, as well as easy access

to low-cost financing with convenient repayment options. This industry has started to shine in the present. However, many of the participants are plagued by the overcapacity issue since it's possible that demand won't increase considerably. As a result, a lot of businesses are searching for a foreign market for Indian cars. The study's results clearly imply that the government should support this industry's export by providing the necessary infrastructure and incentives to improve output. In order to improve the development of our economy, it should continue to prioritise this sector. According to the Automotive Mission Plan 2016–26 created jointly by the Society of Indian Automobile Manufacturers (SIAM) and government, the Indian automotive industry has the potential to generate up to US$ 300 billion in annual revenue by 2026, create 65 million additional jobs, and contribute over 12% to India's Gross Domestic Product.

*Associate Professor
Department of ABST
Government Commerce College, Kota

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