Determinants of Profitability in Indian Automotive Industry

Dharmendra S. Mistry*

Abstract: As the most of the firms contemplate profit maximisation as an indicator of growth and development of an enterprise, the concept of profitability has become significant. Profitability is considered to be the centre around which rotation of all the actions of business takes place. The main objective of this study is to ascertain the determinants of profitability of Indian Automobiles Industry for a period of five years i.e. 2004-05 to 2008-09. The study found that DE, ITR and SIZE were the most important determinants of the profitability which affected the profitability of the companies under the study positively. Only LIQ was found to have negative effect on the profitability.

Keywords: Debt-Equity Ratio, Inventory Turnover Ratio, Liquidity, Profitability, Size

Introduction

Profitability is significant for survival and growth of the business enterprise. Several factors play an important role directly or indirectly in determining profitability. Profitability is determined by pricing strategy as well as sales volume. It also depends not only on the factors affecting elements of cost of sales but cost of production also. Size, share in market, stage of growth and corporate policies and strategies of an enterprise also play a vital role in determining profitability thereof (Samuels and Smyth, 1968; Marcus, 1969; Gale, 1972; Penerose, 1980). As the large size firms have the advantage of technical know how and economies in manufacturing, marketing, supervision, and in raising capital; positive relationship exists between the size of the firms and profitability (Nagarjunan and Barathwal, 1989). Profitability is also determined by the assets structure and proper utilisation of the production capacity (Chandra Sekaran, 1993). Profitability is also explained by the age of the firms, diversification, expansion of capacities and retained earnings (Agarwal, 1999). Vertical integration, leverage, liquidity, inventory turnover and operating expenses to sales ratio are also the strongest determinants of the profitability of an enterprise (Vijaya Kumar and Kadirvel, 2003). The prime objective of this study is to check determinants of profitability of the selected three passenger vehicle players and three two-wheeler players in India during the period 2004-05 to 2008-09. For the purpose of analyzing the determinants of profitability, selection of variables has been made on the basis of empirical works and existing theory. It is hypothesized for the study that independent variables (i.e. Size (Total Assets), Liquidity (Current Ratio), Inventory Turnover Ratio and Debt-Equity Ratio) are statistically significant in explaining dependent variable (Profitability i.e. Return on Capital Employed) of the players under the study. This study is organised as follows: the next section following the introduction discusses the study methodology. The third section provides details of the results and analysis of the available data and the final section presents the main conclusions.

*Dr. Dharmendra S. Mistry, Associate Professor, Post Graduate Department of Business Studies, Sardar Patel University, Vallabh Vidyanagar – 388 120, Gujarat dsmistry76@yahoo.co.in

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Study Methodology

The main objective of this study is to ascertain the determinants of profitability of Indian Automobiles Industry for a period of five years i.e. 2004-05 to 2008-09. It includes following three Indian passenger vehicle players and three two-wheeler players selected on the basis of performance, position, sales and paid up capital:

Maruti Suzuki India Limited  
Tata Motors Limited  
Mahindra & Mahindra Limited  
Hero Honda Motors Limited  
Kinetic Motor Company Limited  
TVS Motor Company Limited

The study is mainly based on secondary data collected from annual reports of companies. This study uses a descriptive analysis to ascertain determinants of profitability of the entities.

Though number of factors affects profitability of the business, the following dependent variable i.e. Return on Capital Employed and independent variables i.e. Size, Liquidity, Inventory Turnover Ratio and Debt-Equity Ratio which are found dominant in determining profitability of Indian Automobiles Industry have been selected for the study.

Dependent Variable

In order to measure profitability of the enterprise, general and overall profitability ratios are used as measures. General profitability or Return on sales focuses on short-term perspective of profitability because sales are annual flows, while overall profitability or return on assets focuses on long-term perspective of profitability. Return on Capital employed has been used as dependent variable in this study.

Independent Variables

Size: Size of the firm has been employed as one of the determinants of profitability by the many researchers in their study. The reason for taking size of the firm as the determinants of profitability is that the bigger the size of the firm is, the lower the costs are and thus the higher the returns are. On the basis of economic theory, the size-profitability relationship is more likely to be curvi-linear and hence in the initial stage, profitability is high due to big size of the firm, after reaching a certain stage, the advantage of the size comes to an end and beyond that there may be indirect relationship due to problem of the size. On the basis of economic theory normally a positive hypothesis is set for size-profitability relationship.

Liquidity: The management of the company is required to manage not only the fixed capital but working capital also. The management of the working capital is significant to maintain liquidity in the enterprise. To get an idea about liquidity of various firms, current ratio of each firm is compared with one another. On one hand, the firm having higher current ratio is considered to be having better liquidity position while on the other it also indicates poor credit management and thus indicates loose or liberal management practices. The firm having lower current ratio is considered to be having inadequate margin of safety and thus poor liquidity.

Inventory Turnover Ratio: Like working capital management, management of inventory is equally significant for any enterprise. Heavy investment in inventory than its requirement results into unnecessary blockage of capital. Lower investment in inventory than its need results into low sales and thus low degree of profitability. To know whether management of inventory is done adequately or not, inventory turnover ratio of the enterprise is determined. Inventory turnover ratio indicates number of times inventory moved during the year. If the inventory turnover ratio of the enterprise is high, the business is considered to be more profitable. While low inventory turnover ratio indicates inability of the firm in meeting customer demand, excessive investment in inventory, obsolescence of the inventory and ultimately affects the profitability of the firm. Review of empirical work also reveals inventory turnover ratio as one of the important variables that affects the profitability of the enterprise. In view of this, inventory turnover ratio has been used as independent variable in this study.

Debt-Equity Ratio: Debt- Equity Ratio focuses on the relationship between long term external equities and the internal equities. The higher ratio suggests greater pressure and interference form external equities providers. It also suggests fixed financial burden on the company’s profit. Even the lower ratio is no profitable from the view point of the equity shareholders because of non-availing of the benefit of trading on equity.
Specification of Model

Multiple Linear Regression model consisting of four independent variables has been used to test the effect of independent variables on dependent variable as shown below:

\[ y = b_0 + b_1x_1 + b_2x_2 + ... + b_kx_k \]

Where, \( y \) - The Dependent Variable, \( x_1, x_2, ..., x_k \) - Independent Variables and \( b_0, b_1, b_2, ..., b_k \) - The Regression Coefficients

The independent variable is the known, or predicted, variable. As the values for \( x_i \) vary, the corresponding value for \( y \) either increases or decreases, depending on the sign of \( b_i \).

\[ P = (b_0 + b_1\text{SIZE} + b_2\text{LIQ} + b_3\text{ITR} + b_4\text{DE}) \]

Where, \( P \) - Profitability (Return on Capital Employed)

\( \text{SIZE} \) - Total Assets
\( \text{LIQ} \) - Liquidity (Current Ratio)
\( \text{ITR} \) - Inventory Turnover Ratio
\( \text{DE} \) - Debt-Equity Ratio

For the analysis of data for five years i.e. 2004-05 to 2008-09 the technique of multiple linear regression analysis was used. An attempt was made to develop a multiple regression equation using identified key variables. The following hypotheses were tested:

\( H_0 \) - There is no relationship between the dependent variable and the independent variables.

\( H_1 \) - There is relationship between the dependent variable and the independent variables.

\( H_2 \) - The model fitted is best described the behaviour of dependent variable against suitable Alternatives.

Result and Analysis

Table 1 displays that in Indian automobiles industry; DE and LIQ were the most important determinants of the profitability as the regression coefficients of these variables had the highest values during the study period. The regression coefficients of SIZE had positive values during the most of the years under the study, which suggests that there was a positive relationship between profitability and SIZE. It means that the companies that are big in SIZE have a good profitability as compared to the companies which are small in SIZE. The regression coefficients of LIQ show negative values during the most of the years under the study which suggests that there was a negative relationship between profitability and LIQ. It means that decreasing LIQ affects the profitability adversely. The regression coefficients of ITR show positive values during the period of the study which suggests that there was a positive relationship between profitability and ITR. It means that the higher the ITR is, the higher the profitability will be. The regression coefficients of DE show positive values during the most of the years under the study which suggests that there was a positive relationship between profitability and DE. It means that low DE affects the profitability adversely because of low benefit of ‘Trading on Equity’. The above analysis was also supported by the values of

<table>
<thead>
<tr>
<th>Year</th>
<th>Regression Coefficients</th>
<th>Model Summary (at 5 percent Significant Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SIZE</td>
<td>LIQ</td>
</tr>
<tr>
<td>2004-05</td>
<td>0.00077</td>
<td>-11.97968</td>
</tr>
<tr>
<td></td>
<td>(0.61098)</td>
<td>(-1.45773)</td>
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<tr>
<td>2005-06</td>
<td>0.00201</td>
<td>-12.245</td>
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<tr>
<td></td>
<td>(3.86655)</td>
<td>(-3.07939)</td>
</tr>
<tr>
<td>2006-07</td>
<td>0.00185</td>
<td>-11.4473</td>
</tr>
<tr>
<td></td>
<td>(0.95953)</td>
<td>(-0.50041)</td>
</tr>
<tr>
<td>2007-08</td>
<td>0.00098</td>
<td>4.32073</td>
</tr>
<tr>
<td></td>
<td>(1.32585)</td>
<td>(0.13732)</td>
</tr>
<tr>
<td>2008-09</td>
<td>-1.09905</td>
<td>-16.70768</td>
</tr>
<tr>
<td></td>
<td>(-0.06683)</td>
<td>(-4.17195)</td>
</tr>
</tbody>
</table>

Values in Brackets are t values
coefficient of determinants $r^2$ which ranges between 0.93733 and 0.99815. This indicates that the independent variables have been causing more than ninety seven percent of the variation in profitability of the companies under the study. The ‘F’ values also support that the independent variables were the most important variables to determine the profitability. The results of the model give reliable estimates and is best described the behaviour of dependent variable against suitable alternatives and therefore Alternate Hypotheses $H_1$ and $H_2$ are accepted.

**Conclusion**

It may be concluded that DE, ITR and SIZE were the most important determinants of the profitability which affected the profitability of the companies under the study positively. Only LIQ was found to have negative effect on the profitability. DE was the most important determinant of profitability of the automobiles industry because its regression coefficients were the highest and found statistically significant for the most the years under the study which suggests that there was a positive relationship between profitability and DE. Second highest regression coefficient of LIQ suggests that it was also another significant determinant of profitability and there was a negative relationship between profitability and LIQ. ITR was the only determinant which affected the profitability of the companies during the study period positively but due to its lower regression coefficient, it was at the third place. Finally, SIZE was the determinant which was positively related with the profitability of the companies during the most of the years of the study period and its the lowest regression coefficients made it last in the list of the determinants selected for the present study.

From the analysis of various determinants of profitability, it is clear that the firms having big SIZE are earning good return on capital employed. As the SIZE of the firm is the strongest factor in determining the profitability, it is therefore suggested that the management should concentrate on increasing the size because the firms having big size have access to capital market and enjoy benefit of low cost of sales and hence they earn good return on capital employed. ITR is also found to be a significant factor in shaping the profitability of the selected companies under the study. It is therefore recommended to improve inventory turnover ratio through creation of demand of goods by increasing geographical boundary of the market for company’s products. With a view to improving the ratio, the company should also focus on controlling cost of goods sold by making effective purchase of raw material and reducing wastage in production. With a view to manage LIQ, it is also suggested to have trade off between solvency and profitability because it is the outcome of properly managed working capital and it takes care of not only composition of the current assets but funds invested in obtaining current assets too. In order to manage solvency, it is suggested to have the balance DE so as to reduce fixed financial burden on the company’s profit on one hand and give the benefit of trading on equity to the shareholders.

**References**

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