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A Study on Profitability of Auto Ancillaries in India

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Abstract

Profitability is significant for survival and growth of the company. Several factors play an important role directly or indirectly in determining profitability. The objective of the study is to examine the determinants of profitability of selected Auto Ancillaries in the Indian Automobile Industry. Determinants of profitability are analysed using the technique of multiple regression analysis. It is event from the results that operating ratio is the stronger determinants of profitability followed by the variables Liquid Ratio, Past Profitability, Inventory turnover Ratio, size. The study concluded that Auto Ancillaries should consider all these possible determinants while considering its profitability.

Keywords: Auto Ancillaries, Profitability, Multiple Regressions

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Introduction

A well-developed transportation system plays a pivotal role in the development of economy. India is no exception to it, with the unprecedented growth of the transportation system, the automobile industry of India is also growing at rapid speed occupying a prominent place on the canvas of Indian economy. There are two distinct set of players in the Indian Automobile Industry namely the Automobiles manufacturers and the Auto Ancillaries manufacturers which are also referred to as original equipment manufacturers. While the former is engaged in manufacturing parts, components, bodies and chassis involved in automobile manufacturing, the latter is engaged in assembling of all these components in to an automobile.

Review of Literature

Nagarjunan and Barathwal (1989)[1] studied large size companies 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 company and profitability (Nagarjunan and Barathwal, 1989[5]).
Chandra Sekaran (1993)[2] examined Profitability is also determined by the assets structure and proper utilisation of the production capacity.
Agarwal (1999)[3] found that Profitability is also explained by the age of the companies, diversification, expansion of capacities and retained earnings.
VijayaKumar and Kadirvel (2003)[4] studied Vertical integration, leverage, liquidity, inventory turnover and operating expenses to sales ratio are also the strongest determinants of the profitability of an enterprise.

Objective of The Study

The prime objective of this study is to check determinants of profitability of the selected companies in Automobile industry in India during the period 2004-05 to 2013-14.

Research Methodology

The study is based on secondary data collected from capital line database. The data for this study has been selected based on stratified sampling in the following manner. (i) The automobile companies listed with stock exchange of India namely BSE/NSE of India and available in capital line database. (ii) The automobile companies with 10 years financial period from 2004-05 to 2013-14 have been considered for the study. Automobile industry consists of two sectors. One is Automobiles and the other one is Auto Ancillaries. The auto ancillaries has 204 companies in the capital line database. Out of which 71 companies have been selected on the basis of availability of 10 years (financial year) data from March 2004-05 to March 2013-14.

Variables Specification

Profitability analysis is made through Regression Analysis. The following is the Regression equation used for the present study.

$P = s_1 \text{Size}_y + s_2 \text{LR} + s_3 \text{ITR}_Y + s_4 \text{DER}_y + s_5 \text{FATR}_y + s_6 \text{OER}_y + s_7 \text{OR}_y + s_8 \text{PP}_y$

P = Measures the Company's profitability for company in year.
S = Regression co-efficient
Size_y = Total Assets for company in year
LR_Y = Liquid Ratio for company in year
ITR_Y = Inventory Turnover Ratio for company in Year
DER_y = Debt Equity Ratio for company in year

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$FATR_y$ = Fixed Assets Turnover Ratio for company in year
OER_y = Operating Expenses Ratio for company in year
OR_y = Operating Ratio for company in year
PP_y = Past Profitability for company in year.

Dependent Variable

Profitability

The Net Profit Ratio is indicative of management's ability to operate the business with sufficient success not only to recover from revenues of the period, the cost of merchandise or services, the expenses of operating the business (including depreciation) and the cost of borrowed funds, but also to leave a margin of reasonable compensation to the owners for providing the capital at risk. A high Net Profit Ratio would ensure adequate return to the owners as well as enable a company to withstand adverse economic conditions when selling price is declining cost of production is rising and demand for the product is falling. A low Net Profit Ratio has the opposite Implications.

Independent Variables

1. Size

Size of the company has been employed as one of the determinants of profitability. The reason for taking size of the company as the determinants of profitability is that the bigger the size of the company is, the lower the costs are and thus the higher returns are. On the basis of economic theory normally a positive relationship between size and profitability.

2. Liquid Ratio

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 company. To get an idea about liquidity of various companies, Liquid Ratio of each company is compared with one another. On one hand, the company having higher Liquid 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 company having lower Liquid Ratio is considered to be having inadequate margin of safety and thus poor liquidity.

3. Inventory Turnover Ratio

Inventory is the most significant part of current assets of a company. 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 company is determined. Inventory Turnover Ratio indicates number of times inventory moved during the year. If the Inventory Turnover Ratio of the company is high, the business is considered to be more profitable. While low Inventory Turnover Ratio indicates inability of the company in meeting customer demand, excessive investment in inventory, obsolescence of the inventory and ultimately affects the profitability of the company.

4. 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.

5. Fixed Assets Turnover Ratio

Fixed Assets Turnover ratio is an Activity Ratio that measures how successfully a company is utilizing its fixed assets in generating revenue. A higher Fixed Assets Turnover Ratio is generally better. This would lead to process modernization, improved product quality, wastage reduction and better cost of production.

6. Operating Expenses Ratio

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This ratio shows that the efficiency of a company's management by comparing operating expenses to net sales. The smaller the ratio, the greater the organisation's ability to generate profit.

7. Operating Ratio

This ratio is used to measure the operation efficiency of the management. It shows whether the cost component in the sales figure is with in normal range. A low Operating Ratio means high Net Profit Ratio.

8. Past Profitability

Past profitability may have the relevance as determinant of current profitability. Profitability is primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring the current and past profitability projecting future profitability is very important. If profitability depends on the quality of company's management or on the monopoly power which the company enjoys these factors over successive years.

The Regression model has been estimated for all the sectors of automobile industry in India and the results are presented in table no. 1.1 to table no. 1.6. It presents the beta co-efficient, t-value of the variables. The results of the individual sectors have been described in the following paragraph.

Analysis and Interpretation

The following are list of sectors in the Auto Ancillaries to study the Determinants of Profitability.

1. Gears
2. Engine Parts
3. Lamps
4. Sheet Metal
5. Springs
6. Others

1. Gears

Table No. 1.1
Determinants of Profitability in Gears (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	133.61		
Size	0.15	5.69	Significant
LR	8.46	2.52	Not Significant
ITR	0.65	7.47	Significant
DER	0.14	5.83	Significant
FATR	-26.19	4.07	Significant
OPER	0.87	5.55	Significant
OR	-1.64	6.27	Significant
PP	-0.57	8.59	Significant

R^2 - 1.00
Adjusted R^2 - 0.99

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Source: Computed from the Annual Reports of Indian Automobile Industry

In this sector the Regression Model explains 100 per cent variation in profitability of companies included in the Gears sector in the Auto Ancillaries Industry (Table No. 1.1). The analysis shows variables Like Size, Inventory Turnover Ratio, Debt Equity Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio, Operating Ratio and Past Profitability which are found to be statistically significant in explain profitability of Gears sector in the industry. The other variable Liquid Ratio is found to be statistically insignificant in explaining the profitability of Gears sector in the industry. It is evident from the results that Past Profitability is the stronger determinant of profitability followed by Inventory Turnover Ratio, Operating Ratio, Debt Equity Ratio, Size, Operating Expenses Ratio and Fixed Assets Turnover Ratio. As expected Liquid Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Fixed Assets Turnover Ratio shows the decrease of 26.19 per cent in profitability as a result one per cent increase in Fixed Assets Turnover Ratio which is statistically significant at 5 per cent level. The Co-efficient of Operating Ratio and Past Profitability indicates that the decrease of 1.64 per cent and 0.57 per cent in profitability has a result of one per cent increase in Operating Ratio and Past Profitability which are significant at 5 per cent level.

The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. $R^2$100 per cent and the adjusted R^2 explanation is around 99 per cent.

2. Engine Parts

Table No. 1.2
Determinants of Profitability in Engine Parts (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	70.75		
Size	1.21	2.12	Not significant
LR	-5.81	12.16	Significant
ITR	-0.28	6.71	Significant
DER	0.03	2.02	Not significant
FATR	-0.43	4.32	Significant
OPER	-0.042	4.47	Significant
OR	-0.46	8.53	Significant
PP	1.45	14.11	Significant

R^2 - 0.99
Adjusted R^2 - 0.86
Source: Computed from the Annual Reports of Indian Automobile Industry

In this sector the Regression Model reveals 99 per cent variation in profitability of companies included in the Engine Parts sector in the Auto Ancillaries Industry (Table No. 1.2). The analysis shows variables Like Liquid Ratio, Inventory Turnover Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio, Operating Ratio and Past Profitability which are found to be statistically significant in explain profitability of Engine Parts sector in the industry. The other variables Size and Debt Equity Ratio are found to be statistically insignificant in explaining the profitability of Engine Parts sector in the industry.

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It is evident from the results that Past Profitability is the stronger determinant of profitability followed by Liquid Ratio, Operating Ratio, Inventory Turnover Ratio, Operating Expenses Ratio and Fixed Assets Turnover Ratio. As expected Size and Debt Equity Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Liquid Ratio and Fixed Assets Turnover Ratio shows the decrease of 5.81 per cent and 0.43 per cent in profitability as a result one per cent increase in Liquid Ratio and Fixed Assets Turnover Ratio which are statistically significant at 5 per cent level. The Co-efficient of Operating Expenses Ratio, Inventory Turnover Ratio and Operating Ratio indicates that the decrease of 0.042 per cent, 0.28 per cent and 0.46 per cent in profitability has a result of one per cent increase in Operating Expenses Ratio, Inventory Turnover Ratio and Operating Ratio which are significant at 5 per cent level.

The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. R^2 99 per cent and the adjusted R^2 explanation is around 86 per cent.

3. Lamps

Table No. 1.3
Determinants of Profitability in Lamps (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	58.73		
Size	-2.13	5.24	Significant
LR	-1.44	6.64	Significant
ITR	9.28	3.10	Not Significant
DER	4.16	14.18	Significant
FATR	2.35	5.12	Significant
OPER	2.08	3.52	Significant
OR	2.02	2.25	Not Significant
PP	-3.75	4.15	Significant

R^2 - 0.84
Adjusted R^2 - 0.70
Source: Computed from the Annual Reports of Indian Automobile Industry

In this sector the Regression Model shows 84 per cent variation in profitability of companies included in the Lamps sector in the Auto Ancillaries Industry (Table No. 1.3). The analysis shows variables Like Size, Liquid Ratio, Debt Equity Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio and Past Profitability which are found to be statistically significant in explain profitability of Lamps sector in the industry. The other variables Inventory Turnover Ratio and Operating Ratio are found to be statistically insignificant in explaining the profitability of Lamps sector in the industry. It is evident from the results that Debt Equity Ratio is the stronger determinant of profitability followed by Liquid Ratio, Size, Fixed

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Assets Turnover Ratio, Past Profitability and Operating Expenses Ratio. As expected Inventory Turnover Ratio and Operating Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Size shows the decrease of 2.13 per cent in profitability as a result one per cent increase in Size which is statistically significant at 5 per cent level. The Co-efficient of Liquid Ratio and Past Profitability indicates that the decrease of 1.44 per cent and 3.75 per cent in profitability has a result of one per cent increase in Liquid Ratio and Past Profitability which are significant at 5 per cent level.

The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. R^2 84 per cent and the adjusted R^2 explanation is around 70 per cent

4. Sheet Metal

Table No. 1.4
Determinants of Profitability in Sheet Metal (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	100.81		
Size	-5.04	11.42	Significant
LR	0.01	6.24	Significant
ITR	0.002	5.19	Significant
DER	0.013	4.26	Significant
FATR	0.006	2.18	Not Significant
OPER	-0.002	4.21	Significant
OR	-1.01	7.34	Significant
PP	4.68	5.04	Significant

R^2 - 1.00
Adjusted R^2 - 0.99
Source: Computed from the Annual Reports of Indian Automobile Industry

In this sector the Regression Model describes 100 per cent variation in profitability of companies included in the Sheet Metal sector in the Auto Ancillaries Industry (Table No. 1.4). The analysis shows variables Like Size, Liquid Ratio, Inventory Turnover Ratio, Debt Equity Ratio, Operating Expenses Ratio, Operating Ratio and Past Profitability which are found to be statistically significant in explain profitability of Sheet Metal sector in the industry. The other variable Fixed Assets Turnover Ratio is found to be statistically insignificant in explaining the profitability of Sheet Metal sector in the industry.

It is evident from the results that Size is the stronger determinant of profitability followed by Operating Ratio, Liquid Ratio, Inventory Turnover Ratio, Past Profitability, Debt Equity Ratio and Operating Expenses Ratio. As expected Fixed Assets Turnover Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Size shows the decrease of 5.04 per cent in profitability as a result one per cent increase in Size which is statistically significant at 5 per cent level. The Co-efficient of Operating Expenses Ratio and Operating Ratio indicates that the decrease of 0.002 per cent and 1.01 per cent in profitability has a result of one per cent increase in Operating Expenses Ratio and Operating Ratio which are significant at 5 per cent level.

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The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. $R^2$100 per cent and the adjusted R^2 explanation is around 99 per cent.

5. Springs

Table No. 1.5
Determinants of Profitability in Springs (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	7.17		
Size	2.04	5.86	Significant
LR	1.64	2.24	Not Significant
ITR	0.54	13.50	Significant
DER	0.54	2.17	Not Significant
FATR	7.31	4.57	Significant
OPER	-0.82	3.68	Significant
OR	1.00	7.10	Significant
PP	-2.20	5.12	Significant

R^2 - 0.87
Adjusted R^2 - 0.59
Source: Computed from the Annual Reports of Indian Automobile Industry

In this sector the Regression Model reveals 87 per cent variation in profitability of companies included in the Springs sector in the Auto Ancillaries Industry (Table No. 1.5). The analysis shows variables Like Size, Inventory Turnover Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio, Operating Ratio and Past Profitability which are found to be statistically significant in explain profitability of Springs sector in the industry. The other variables Liquid Ratio and Debt equity ratio are found to be statistically insignificant in explaining the profitability of Springs sector in the industry. It is evident from the results that Inventory Turnover Ratio is the stronger determinant of profitability followed by Operating Ratio, Size, Past Profitability, Fixed Assets Turnover Ratio and Operating Expenses Ratio. As expected Liquid Ratio and Debt Equity Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Operating Expenses Ratio shows the decrease of 0.82 per cent in profitability as a result one per cent increase in Operating Expenses which is statistically significant at 5 per cent level. The Co-efficient of Past Profitability indicates that the decrease of 2.20 per cent in profitability has a result of one per cent increase in Past Profitability which are significant at 5 per cent level.

The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. R^2 87 per cent and the adjusted R^2 explanation is around 59 per cent.

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6. Others

In this sector the Regression Model explains 100 per cent variation in profitability of companies included in the Others sector in the Auto ancillaries Industry (Table No. 1.6). The analysis shows variables Like Size, Liquid Ratio, Inventory Turnover Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio, Operating Ratio and Past Profitability which are found to be statistically significant in explain profitability of Ancillaries Others sector in the industry. The other variable Debt Equity Ratio is found to be statistically insignificant in explaining the profitability of Others sector in the industry. It is evident from the results that Operating Ratio is the stronger determinant of profitability followed by Size, Past Profitability, Liquid Ratio, Fixed Assets Turnover Ratio, Operating Expenses Ratio and

Table No. 1.6
Determinants of Profitability in Others (2004-05 to 2013- 14)
(Dependent Variable - NPR)

Particulars	Beta Co-efficient	t-value	Significant/Not Significant
(Constant)	131.81		
Size	0.50	13.52	Significant
LR	-9.00	8.50	Significant
ITR	-0.90	3.54	Significant
DER	0.04	2.10	Not Significant
FATR	-0.11	6.12	Significant
OPER	-.095	5.64	Significant
OR	-1.00	24.93	Significant
PP	-0.005	12.38	Significant

R^2 - 1.00
Adjusted R^2 - 0.99
Source: Computed from the Annual Reports of Indian Automobile Industry

Inventory Turnover Ratio. As expected Debt Equity Ratio did not support the hypothesis with expected sign.

It is evident from the results that the Co-efficient of Liquid Ratio, Inventory Turnover Ratio and Fixed Assets Turnover Ratio shows the decrease of 9.00 per cent, 0.90 per cent and 0.11 per cent in profitability as a result one per cent increase in Liquid Ratio, Inventory Turnover Ratio and Fixed Assets Turnover Ratio which are statistically significant at 5 per cent level. The Co-efficient of Operating Expenses Ratio, Operating Ratio and Past Profitability indicates that the decrease of 0.095 per cent, 1.00 per cent and 0.005 per cent in profitability has a result of one per cent increase in Operating Expenses Ratio, Operating Ratio and Past Profitability which are significant at 5 per cent level.

The overall explanatory power of Multiple Regression appears to be good. This may be inferred from the Co-efficient of determination (R^2) which is the measure of the extend of movement in the dependent variable that is explained by the independent variables. $R^2$100 per cent and the adjusted R^2 explanation is around 99 per cent.

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Conclusion

It can be concluded from the above analysis the selected variables explain 100 per cent of variation in profitability in Gear sector, Sheet Metal sector Others, 87 per cent in Springs sector, 84 per cent in Lamps sector and 99 per cent in Engine Parts sector. It is evident form the results that Operating Ratio is the stronger determinant of profitability followed by the variables Liquid Ratio, Size, Past profitability, Debt Equity Ratio, Inventory Turnover Ratio, Operating Expenses Ratio and Fixed Assets Turnover Ratio. The selected variable have both positive and negative contribution in variation of profit rate. It can be concluded that sectors should consider all these possible determinants while considering its profitability.

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