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Revenue and operational, financial performance of the leading Indian automobile companies of India: A relational mutual analysis

Anis Ali[a*]

[a]*College of Business Administration, Prince Sattam Bin Abdulaziz University, Al kharj- 11942, Saudi Arabia*

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A B S T R A C T

The operational and financial performance of the business organization is to be measured by its revenue, profit-earning capacity, and financial soundness to pay its debts. The profit of a business organization depends on the level of activities or revenue while the earning capacity defines and accelerates the absolute profit. Also, the financial soundness facilitates the resources and working capital to run the business activities to earn the profit. The operational efficiency enhances the profit margin while financial soundness increases the absolute profit by lifting the production level. The financial resources, operational efficiency, and revenue govern the profit of a business organization. The Indian automobile industry is the most prominent and contributing sector in the Indian economy. The study considers the relationship of revenue and profitability, financial resources to determine the relationship and mutual governance of revenue and profitability and revenue and financial resources. Financial ratios and statistical tools i.e. gross profitability and mean, coefficient of variation, rank correlation, and fixed base index applied to analyze the data of leading Indian automobile companies for the period 2011 to 2020. The study finds that the profitability and growth of the smaller leading Indian automobile companies are better than the higher revenue companies. Total resources or capital employed governs the revenue of the Indian automobile companies. The study recommends the study of cost composition of products of lower revenue leading Indian automobile companies.

1. Introduction

The operational performance and financial performance measures the operational efficiency while the financial performance scales the financial soundness of the business organization. Operational efficiency refers to the velocity of the business activities or the profitability of the business organization. The velocity of the business activities indicates the utilization of the resources of the business organization. Profitability explains the profit earning capacity or cost efficiency while velocity sharpness or the turnover of the business activities. Jointly, the profitability and velocity of the business organization enhance the absolute amount of the profit. The financial soundness of the business organization refers to the paying capacity of debts of the business organization. There are two types of funds needed in the business organization i.e. funds to arrange the fixed assets and resources of the business organization and funds to operate or utilize the fixed assets and resources for the operation of business activities. The funds which are needed to manage the fixed assets or resources are called the capital employed while the fund needed to operate the business activities is called the working capital. The capital employed refers to the equity capital and long-term liabilities or long-term debts. The working capital which is involved in the operational

* Corresponding author.
E-mail address: ah.ali@psau.edu.sa (A. Ali)

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or business activities is the excess of current assets over the current liabilities. The revenue of the business organization refers to the income generated through business activities or operational activities. The revenue of the business organization is the barometer to measure the level of operation and the relative study of revenue with other financial variables indicates the profitability and utilization of financial resources. The relationship of revenue and gross profit or net profit measures the profitability while the relationship of revenue and total resources or capital employed and working capital measures the utilization of resources and velocity of business activities. In India, the automobile sector is a prominent and growing sector and contributes to the economy. As it was seen that the revenue in the leading Indian automobile sector companies is significantly different for the period 2011 to 2020. So, the present study considers the mutual relationship between revenue and profitability, total resources, capital employed of higher and lower revenue Indian leading automobile companies.

2. Literature Review

Jamali and Asadi (2012) found a positive relationship between managerial efficiency and profitability and recommended the improvement of managerial efficiency for the enhancements of profitability. Ashraf (2012) observed the negative relationship between working capital and profitability. But there is a positive relationship between the size of and profitability of the various sectors. Gopalakrishnan (2014) found a negative trend in the working capital of the Indian automobile sector companies. He recommended the appropriate marketing strategy, cost reduction and revision of the sale prices of the products, and expansion in the range of the products to enhance the turnover and profit. Suresh and Sengottaiyan (2015) observed the positive and negative relationship between capital structure and profitability in leading Indian automobile companies. Tripathi and Rao (2016) observed the growth trend in the revenue of the passenger and two-wheeler vehicles in the Indian automobile companies. Kumar and Kaur (2016) studied and found the mixed relationship between the size and profitability of Indian automobile companies for the period 1998 to 2014. Kaur & Kaur (2016) assessed and studied the profitability of Indian automobile sector companies listed in the BSE (India) from 2003-04 to 2014. Liquidity, payment to creditors and proprietary position, growth of the firm, and manufacturing velocity govern the profitability. Jaisinghani and Tandon (2016) found a positive relationship between research and development and profitability in 105 Indian automobile companies of India for the period 2003 to 2013. There was a U Shaped relationship between profitability and research and development. Further, they recommended the optimum investment in the research in research and development activities. Hiran (2016) found that the operating and financial leverage of the Indian automobile companies negatively affects profitability. Arumugam, Kumar and Preetha (2016) revealed the contribution of the Indian automobile companies in the developing economy. Paliwal and Chouhan (2017) found a positive relationship between liquidity and profitability and suggested the optimum relationship between liquidity and profitability. Shajar (2017) found that the influence of cash conversion cycle and working capital on the profitability and recommended that the efficient management of working capital enhance the profitability of the Indian automobile companies. Gandhi (2017) explored the Indian automobile sector in the developing sector in the economy. Ranjithkumar and Eahambaram (2018) studied the Indian automobile companies listed in the BSE (India) and found that the financial performance is governed by the velocity of operational activities, liquidity position, and growth of the firms, and payment strategies and policies. Simlai and Guha (2019) revealed that the ratio of internal and external is 1:2 in Indian automobiles and affects the profitability. Kumar & Choudhary (2019) explored that the governments' industrial policy and policy of taxation, investment affects the financial performance of automobile companies. Hassan & Shrivastava (2019) studied the relationship between working capital and profitability and found the positivity in Indian automobile companies. Singh, Kashyap, Tomar, and Garg (2020) found that the Indian automobile industry is the most prominent in the Indian economy with a 7.64% growth per annum. There are challenges for new entrants for survival in the Indian automobile industry and enhance profit and profitability. Tripathi & Talukder (2020) studied the mutual relationship of profitability and supply chain performance and found that the weaker supply chain performance affects the profitability more than the operational efficiency and utilization of resources. Swalih, Adarsh and Sulphey (2021) explored the strong financial soundness of the Indian automobile sector companies. Most of the studies reveal that the Indian automobile sector contributes to the Indian economy and working capital, research development, and supply chain performance, industrial policy and taxation, the velocity of operation and managerial efficiency affects the profitability of the Indian automobile companies. But there is no study available that explore the relationship of revenue and operational, financial governance of the leading Indian automobile companies of India.

3. Research Methodology

The research is based on the secondary data taken from the websites of the leading automobile companies of India for the period 2011 to 2020. Statistical tools were applied to establish the relationship between the financial variables of the Indian automobile companies to infer conclusions. The following formula applied to get the averages of the variables (Mean), degree and direction of the association (Rank correlation), variability (coefficient of variation) between the financial variables, and growth (FBI) of the Indian automobile companies:

$$\text{Mean} = \frac{Sum\ of\ the\ Financial\ variables}{Number\ of\ the\ Fiancial\ Variables}$$

Rank Correlation (r_s) = $1-\frac{6\sum(D*D)}{n(n*n-1)}$;

Co-efficient of variation (CV) = $\frac{Mean}{Standard\ Deviation}$

Fixed Base Index (FBI) = $\frac{Value\ of\ the\ financial\ varible\ in\ the\ current\ year}{Vale\ of\ the\ variable\ in\ the\ base\ year}$ 100

The average of the financial variables of the Indian automobile companies calculated to assign the ranks. The rank correlation was calculated between the associated variables of leading Indian automobile companies to get the degree and direction of the relationship (Ali, A., 2020). The coefficient of variation (CV) is calculated to get the comparative variability of variables of Indian automobile companies and facilitate the relational financial analysis. The fixed base index numbers of financial variables calculated to get the growth trend of Indian automobile companies (Ali, A., 2021).

4. Interpretation and Data Analysis

The interpretation and data analysis of the leading Indian automobile companies can be bifurcated into two categories to assess the growth and development.

1. Relational operational growth of leading Indian automobile companies
2. Relational financial growth of leading Indian automobile companies

4.1 Relational operational growth of leading Indian automobile companies

The relational operational growth is the relational analysis of the revenue and its variability, revenue and gross profitability, revenue, and variability of profitability of leading Indian automobile companies.

4.1.1 Relational analysis of revenue and variability of revenue of leading Indian automobile companies

The relational analysis of the revenue and its variability of the leading Indian automobile companies will reveal the relationship between the revenue and its impact on the variability.

Table 1
Relationship between Revenue and variability revenue of leading Indian automobile sector companies (Rs. in Cr.)

Years	Tata	Maruti	Mahindra	Hero	Bajaj	Ashok	TVS	Eicher
2011	125707	40102	25137	20774	16830	12034	6711	737
2012	169878	38614	33893	25185	19827	13459	7580	1174
2013	192419	48115	42875	25627	20618	13020	7633	1911
2014	234470	47823	42575	27126	20727	10353	8545	3304
2015	264283	53769	40579	29236	22013	14235	10632	4622
2016	274175	63958	43151	30618	23448	19616	11953	6957
2017	270298	76141	46709	30541	22695	21055	13064	7914
2018	289386	80337	48872	32231	25099	26242	15310	9168
2019	299191	83027	52961	33125	29567	28614	17913	9715
2020	258594	71690	44898	28408	29112	17267	16074	9009
Mean	237840	60357	42165	28287	22994	17590	11542	5451
SD	56952	16790	7833	3725	4016	6192	3971	3517
CV	24	28	19	13	17	35	34	65
Revenue Mean(R1)	1	2	3	4	5	6	7	8
Rank-CV(R2)	5	4	6	8	7	2	3	1
D^2 (R1-R2)	16	4	9	16	4	16	16	49
					∑D2 = 130			

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies.

$r_s = 1-\frac{6\sum(D*D)}{n(n\times n-1)} = 1-\frac{6\sum(130)}{8(8\times 8-1)} = -0.55$

From Table 1 it is obvious that there is a moderate negative relation between the absolute revenue and the variability of the revenue for the period 2011 to 2020. Indian automobile companies whose absolute revenue is comparatively low have the highest positive trend of growth of absolute revenue.

4.1.2 Relational analysis of revenue and gross profitability of leading Indian automobile companies

The relational analysis of the revenue and gross profitability of the leading Indian automobile companies will reveal the relationship between the revenue and its impact on the gross profitability.

$r_s = 1-\frac{6\sum(D*D)}{n(n\times n-1)} = 1-\frac{6\sum(99)}{8(8\times 8-1)} = -0.18$

From Table 2 it is obvious that there is a low degree and negative relation between the absolute revenue and the gross profitability for the period 2011 to 2020. Indian automobile companies whose absolute revenue is comparatively low have the highest positive trend of growth of profitability.

Table 2
Relationship between Revenue and Gross profitability of leading Indian automobile sector companies (2011-2020)

(Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
Mean-gross ptly	7.505	14.508	14.27	14.598	23.373	9.438	7.392	29.204
Rank- Gross Ptlty (R2)	7	4	5	3	2	6	8	1
$D^2 =(R1-R2)^2$	36	4	4	1	4	0	1	49
							$\sum D^2 = 130$	

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 1).

4.1.3 Relational analysis of revenue and variability of gross profitability of leading Indian automobile companies

The relational analysis of the revenue and variability of gross profitability of the leading Indian automobile companies will reveal the relationship between the revenue and its impact on the gross profitability.

Table 3
Relationship between revenue and variability of gross profitability of leading Indian automobile sector companies (2011-2020)

(Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
CV of gross ptly	45	21	10	20	7	33	13	20
Rank- CV of gross ptlty (R2)	1	3	7	4.5	8	2	6	4.5
$D^2 =(R1-R2)^2$	0	1	16	0.25	9	64	1	12.25
						$\sum D^2 = 91.25$		

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 1)

$$r_s = 1 - \frac{6\sum(D\times D)}{n(n\times n-1)} = 1 - \frac{6\sum(91.25)}{8(8\times 8-1)} = -0.09$$

From Table 3 it is obvious that there is a very low degree negative relation between the absolute revenue and the variability of gross profitability for the period 2011 to 2020. Indian automobile companies whose absolute revenue is comparatively low have the highest positive trend of the variability of profitability.

4.2 Relational financial growth of leading Indian automobile companies

The relational financial growth is the relational analysis of the revenue and total resources, revenue and variability total resources, revenue and growth total resources, revenue and capital employed, revenue and growth of capital employed of leading Indian automobile companies.

4.2.1 Relational analysis of revenue and total resources of leading Indian automobile sector companies

The relational analysis of the revenue and total resources of the leading Indian automobile companies will reveal the relationship between the revenue and total resources.

Table 4
Relationship between revenue and total resources of leading Indian automobile sector companies (2011-2020). (Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
Mean-total resources	55884	40959	36122	13104	17639	14049	5305	4726
Rank- total resources (R2)	1	2	3	6	4	5	7	8
$D^2 =(R1-R2)^2$	0	0	0	4	1	1	0	0
							$\sum D^2 = 6$	

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 2)

$$r_s = 1 - \frac{6\sum(D\times D)}{n(n\times n-1)} = 1 - \frac{6\sum(6)}{8(8*8-1)} = 0.93$$

From Table 4 it is obvious that there is a high degree and positive relation between the absolute revenue and the total resources for the period 2011 to 2020. Indian automobile companies whose absolute total resources are comparatively high

have the highest positive impact on absolute revenue. The total resources proportionately and positively govern the absolute revenue of the leading Indian automobile sector companies of India.

4.2.2 Relational analysis of revenue and variability of total resources of leading Indian automobile sector companies

The relational analysis of the revenue and variability of total resources of the leading Indian automobile companies will reveal the relationship between the revenue and variability of total resources, and the impact of the variability of total resources on absolute revenue.

Table 5
Relationship between revenue and variability of total resources of leading Indian automobile sector companies (2011-2020) (Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
CV of TR	8	42	31	27	35	18	44	80
Rank- CV of TR (R2)	8	3	5	6	4	7	2	1
$D^2=(R1-R2)^2$	49	1	4	4	1	1	25	49
							$\sum D^2 = 134$	

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 2)

$$r_s = 1 - \frac{6\sum(D*D)}{n(n\times n-1)} = 1 - \frac{6\sum(134)}{8(8\times 8-1)} = -0.60$$

From Table 5 it is obvious that there is a moderate negative relationship between the absolute revenue and the variability of total resources for the period 2011 to 2020. Indian automobile companies whose variability of absolute total resources is comparatively high have a low negative impact on absolute revenue. The movement of total resources negatively governs the absolute revenue of the leading Indian automobile sector companies of India.

4.2.3 Relational analysis of revenue and growth of total resources of leading Indian automobile sector companies

The relational analysis of the revenue and growth of total resources of the leading Indian automobile companies will reveal the relationship between the revenue and growth of total resources, and the impact of the growth of total resources on absolute revenue.

Table 6
Relationship between revenue and growth of total resources of leading Indian automobile sector companies (2011-2020) (Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
Mean-FBI of TR	103	222	185	122	191	133	186	544
Rank- FBI of TR (R2)	8	2	5	7	3	6	4	1
$D^2=(R1-R2)^2$	49	0	4	9	4	0	9	49
							$\sum D^2 = 126$	

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 3).

$$r_s = 1 - \frac{6\sum(D*D)}{n(n\times n-1)} = 1 - \frac{6\sum(126)}{8(8\times 8-1)} = -0.48$$

From Table 6 it is obvious that there is a moderate negative relationship between the absolute revenue and the growth of total resources for the period 2011 to 2020. Indian automobile companies whose growth of absolute total resources is comparatively high have a low negative impact on absolute revenue. The growth of total resources negatively governs the absolute revenue of the leading Indian automobile sector companies of India.

4.2.4 Relational analysis of revenue and capital employed of leading Indian automobile sector companies

The relational analysis of the revenue and capital employed of the leading Indian automobile companies will reveal the relationship between the revenue and capital employed in business activities, and the impact of capital employed on absolute revenue.

Table 7
Relationship between revenue and capital employed of leading Indian automobile sector companies (2011-2020). (Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
Mean-total resources	34418	31025	26391	8761	13534	8105	2802	3162
Rank- total resources (R2)	1	2	3	5	4	6	8	7
$D^2=(R1-R2)^2$	0	0	0	1	1	0	1	1
							$\sum D^2 = 4$	

Source: Author's calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 4) .

$r_s = 1 - \frac{6\sum(D*D)}{n(n*n-1)} = 1 - \frac{6\sum(4)}{8(8*8-1)} = 0.95$

From Table 7 it is obvious that there is a high degree and positive relation between the absolute revenue and the capital employed for the period 2011 to 2020. Indian automobile companies whose capital employed is comparatively high have the highest positive impact on absolute revenue. The capital employed proportionately and positively governs the absolute revenue of the leading Indian automobile sector companies of India.

4.2.5 Relational analysis of revenue and growth of capital employed of leading Indian automobile sector companies

The relational analysis of the revenue and growth capital employed of the leading Indian automobile companies will reveal the relationship between the revenue and capital employed in business activities, and the impact of the growth of capital employed on absolute revenue.

Table 8
Relationship between revenue and growth of capital employed of leading Indian automobile sector companies (2011-2020)

(Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
Mean-FBI of CE	98	215	194	186	251	119	166	569
Rank- FBI of CE (R2)	8	3	4	5	2	7	6	1
$D^2 = (R1-R2)^2$	49	1	1	1	9	1	1	49
							$\sum D^2 = 112$	

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & 5) .

$r_s = 1 - \frac{6\sum(D*D)}{n(n*n-1)} = 1 - \frac{6\sum(112)}{8(8*8-1)} = -0.33$

From Table 8 it is obvious that there is a moderate negative relationship between the absolute revenue and the growth of capital employed for the period 2011 to 2020. Indian automobile companies whose growth of capital employed is comparatively high have a low negative impact on absolute revenue. The growth of capital employed negatively governs the absolute revenue of the leading Indian automobile sector companies of India.

4.2.6 Relational analysis of revenue and growth variability of capital employed of leading Indian automobile sector companies

The relational analysis of the revenue and growth variability of capital employed of the leading Indian automobile companies will reveal the relationship between the revenue and capital employed in business activities, and the impact of growth variability of capital employed on absolute revenue.

Table 9
Relationship between revenue and growth variability of capital employed of leading Indian automobile sector companies (2011-2020)

(Rs. in Cr.)

Statistical tools	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
Mean-Revenue	237840	60357	42165	28287	22994	17590	11542	5451
Rank-Revenue(R1)	1	2	3	4	5	6	7	8
CV of CE	9	44	34	43	46	11	39	90
Rank- CV of CE (R2)	8	3	6	4	2	7	5	1
$D^2 = (R1-R2)^2$	49	1	9	0	9	1	4	49
							$\sum D^2 = 122$	

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies (Table 1 & Appendix 4).

$r_s = 1 - \frac{6\sum(D*D)}{n(n*n-1)} = 1 - \frac{6\sum(122)}{8(8*8-1)} = -0.45$

From Table 9 it is obvious that there is a moderate negative relationship between the absolute revenue and the growth variability of capital employed for the period 2011 to 2020. Indian automobile companies whose growth variability of capital employed is comparatively high have a low negative impact on absolute revenue. The growth variability of capital employed negatively governs the absolute revenue of the leading Indian automobile sector companies of India.

5. Results

Based on the above analysis and interpretations it can be concluded regarding the financial growth and development of the leading Indian automobile companies of India. The leading Indian automobile companies whose revenue is comparatively

low have the highest positive trend of growth of absolute revenue, profitability, and positive variability of profitability. It indicates that the smaller Indian automobile companies are operationally growing positively than the bigger Indian automobile companies. The total resources and capital employed positively and proportionately govern the absolute revenue of the leading Indian automobile companies. The investment in the total resources or investment in capital employed directly affects the revenue of the Indian automobile companies. Indian automobile companies whose variability of absolute total resources, growth of absolute total resources, growth of capital employed, growth variability of capital employed are comparatively high have a low negative impact on absolute revenue. The movement of total resources and capital employed negatively governs the absolute revenue of the leading Indian automobile sector companies of India.

6. Discussion

There is remarkable growth seen in the Indian automobile companies whose revenue or turnover is low. This refers to the maximum utilization of resources and salability of automobile products of smaller Indian automobile companies. There is a positive trend seen in the low revenue Indian automobile companies refers to the potentials to further investments in production level. The profit margin i.e. gross profitability of the smaller Indian automobile companies is higher than the higher revenue Indian automobile companies. This growth or variability of growth indicates that smaller automobile companies' products are much more salable that than the higher revenue Indian automobile companies. Total resources and capital employed in the business activities directly and proportionately governs the revenue of the Indian automobile companies. After reading the growth variability of revenue and governance of the revenue by the total resources and capital employed of the Indian automobile companies it can be concluded that the growth of profitability is only due to high contribution or high margin of the profitable products. The reason for the high margin of the profit is the low cost of production in smaller Indian automobile companies comparatively in higher revenue Indian automobile companies. The variability of absolute total resources, growth of absolute total resources, and growth of capital employed, growth variability of capital employed negatively governs the absolute revenue of the Indian automobile companies. This refers to the total resources and capital employed that governs the absolute revenue. But, in higher revenue Indian automobile companies, the growth trend is negative while in smaller Indian automobile companies the trend is positive.

7. Conclusion

From the above results and discussion, it can be concluded that the profitability of the smaller leading Indian automobile companies is better than the higher revenue companies. The growth of the profitability of the lower revenue leading Indian automobile is higher than the higher revenue Indian automobile companies. This refers to studying the profitability and cost composition of the products of the automobile and enhancing the production of the high profitability automobile products. The investment in total resources and capital employed is also beneficial in the lower revenue Indian automobile companies. Although, total resources and capital employed governs the revenue of the leading Indian automobile companies. The growth revenue in the context of total resources in total resources and capital employed is better in smaller leading automobile companies. So, there is a need to consider the automobile products of the higher revenue Indian automobile companies. In higher revenue Indian automobile companies, there is a need to consider the cost composition of the products. There should be special consideration of the direct cost of automobile products to control the cost of the higher revenue companies. The smaller leading automobile companies can enhance their absolute profit by enhancing their level of production.

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Appendices

Appendix 1

Gross profitability and its variability of Indian Automobile sector companies

Years	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
2020	1.66	14.18	16.41	16.42	22.82	7.42	8.39	31.05
2019	10.82	15.76	15.53	16.7	21.92	11.17	7.91	35.24
2018	8.27	17.68	14.91	18.01	24.36	11.98	8.42	35.56
2017	5.84	18.59	13.3	18.09	25.93	11.61	8.49	34.57
2016	10.15	17.98	13.38	16.91	25.92	12.52	8.22	32.19
2015	1.77	15.09	12.89	12.66	21.74	8.48	6.3	30.69
2014	8.52	13.54	13.42	11.39	23.88	2.34	6.38	28.03
2013	8.48	11.56	13	10.69	22.15	7.52	6.12	23.13
2012	8.74	9.38	13.29	12.23	22.16	10.09	6.89	18.22
2011	10.8	11.32	16.57	12.88	22.85	11.25	6.8	23.36
Mean	7.505	14.508	14.27	14.598	23.373	9.438	7.392	29.204
SD	3.38	3.11	1.45	2.88	1.58	3.10	0.98	5.90
CV	0.45	0.21	0.10	0.20	0.07	0.33	0.13	0.20

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies.

Appendix 2

Total Resources and its variability of Indian Automobile sector companies.(Rs. in Cr.)

Years	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
2011	54190	18425	19540	10726	9248	10593	2858	782
2012	54519	22302	23912	9889	11081	11916	3141	1024
2013	52185	26734	27454	9642	12479	13097	3119	1483
2014	49734	30536	31289	10097	14748	12808	3565	2229
2015	49943	33551	32945	10522	15562	13311	4604	
2016	56676	41940	35500	12341	16487	12774	4952	3624
2017	58878	51251	39968	14694	20815	14040	5905	5540
2018	59212	59370	47417	16739	23819	17336	7179	7795
2019	60910	62932	52697	17641	27380	18224	8369	9477
2020	62590	62552	50502	18749	24773	16390	9361	10579
Mean	55884	40959	36122	13104	17639	14049	5305	4726
sd	4502	17051	11338	3535	6219	2468	2329	3777
cv	8	42	31	27	35	18	44	80

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies.

Appendix 3

Growth of total Resources (FBI) of Indian Automobile sector companies.

Years	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
2011	100	100	100	100	100	100	100	100
2012	101	121	122	92	120	112	110	131
2013	96	145	141	90	135	124	109	190
2014	92	166	160	94	159	121	125	285
2015	92	182	169	98	168	126	161	0
2016	105	228	182	115	178	121	173	463
2017	109	278	205	137	225	133	207	708
2018	109	322	243	156	258	164	251	996
2019	112	342	270	164	296	172	293	1211
2020	115	339	258	175	268	155	328	1352
Mean	103	222	185	122	191	133	186	544

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies

Appendix 4

Capital employed and its variability of Indian Automobile sector companies. (Rs. in Cr.)

Years	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
2011	35190	14406	13588	4710	5392	6833	1692	555
2012	32342	15755	16552	5547	6456	7072	1795	648
2013	31080	20007	19303	5471	8345	7801	1865	848
2014	30937	22462	22522	5674	10017	8221	2036	1272
2015	29573	24728	23971	6638	11086	8276	2361	
2016	37974	30901	25655	8292	13706	7884	2636	2422
2017	37340	38024	30334	10601	17602	7618	3054	4058
2018	34993	43928	34094	12395	19708	8517	3400	5600
2019	37969	48782	38363	13511	22507	9435	4328	7499
2020	36779	51257	39529	14773	20520	9391	4850	8718
MEAN	34418	31025	26391	8761	13534	8105	2802	3513
SD	3186	13678	8964	3758	6198	863	1099	3145
CV	9	44	34	43	46	11	39	90

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies

Appendix 5

Growth of Capital employed (FBI) of Indian Automobile sector companies.

Years	Tata	MSIL	M&M L	Hero	Bajaj	Ashok	TVS	Eicher
2011	100	100	100	100	100	100	100	100
2012	92	109	122	118	120	103	106	117
2013	88	139	142	116	155	114	110	153
2014	88	156	166	120	186	120	120	229
2015	84	172	176	141	206	121	140	0
2016	108	214	189	176	254	115	156	436
2017	106	264	223	225	326	111	180	731
2018	99	305	251	263	366	125	201	1008
2019	108	339	282	287	417	138	256	1350
2020	105	356	291	314	381	137	287	1570
Mean	98	215	194	186	251	119	166	569

Source: Author's own calculation based on data contained in the financial statements of the concerned Indian automobile companies