Cost Structure Analysis of Selected Commercial Vehicle Manufacturing Firms in India

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Abstract

The commercial vehicle arm of the Indian automobile industry is one of the significant industries which move the wheels of the economy steady. The commercial vehicle manufacturing firms, of late, have been suffering from the skewed cost structure which increases cost of production and reduce the profits. The reason for this cost increase might have been attributed to the cost system's structural deficiencies which stemmed from misallocation of costs to the various factors of production and the firms' failure to rationalize and optimize the cost structure. In this backdrop, the researcher is interested in analyzing the cost structure of selected commercial vehicle manufacturing firms in India. The researcher has chosen Ashok Leyland Limited (ASL), Eicher Motors Limited (EML), Force Motors Limited (FML), Mahindra & Mahindra Limited (MML), SML Izuzu Limited (SML) and Tata Motors Limited (TML) for the study by using multi-stage sampling technique. The researcher has sourced data mainly from the cost records of these firms from the year 2009-10 to 2018-19. The researcher has used Financial Ratios of Variables of Cost Structure to Sales and Statistical Tools, such as, Mean, Standard Deviation, Co-Efficient of Variation, Compound Annual Growth Rate and One-Way ANOVA. The recommendations of the study were: ALL has to take cost control measures to have its cost of raw-materials consumed and expenses in check to have positive contribution in maximizing profits, EML has to reduce its depreciation cost through proper maintenance of its fixed assets, FML has to keep a tab of cost of material consumed so as to have its positive contribution to sales, MML has to control its depreciation cost and expenses under check to increase profits and SML and TML has to see that employee cost, depreciation cost and expenses positively contribute to sales.

Key Words: *Attributed, Cost Deficiencies, Misallocation, Significant.*

1.1. Introduction

The commercial vehicle arm of the Indian automobile industry is one of the significant industries which move the wheels of the economy steady, safer and faster. As the lifestyle of the people changes with the comforts of receiving goods and services is the mainstay of the people, the demand for goods carriers have been highly felt in the economy. The commercial vehicle manufacturing firms cater to this demand and contribute significantly to the state's exchequer. The firms, with a new demand in the form of electric vehicles and regulatory compliance to the production of BS VI vehicles, makes paradigm shifts in their production facilities to cater to the new demand and compliance. The commercial vehicle firms are one of the world's largest producers and sellers of commercial vehicles. The demand for the products of these firms mostly comes from construction, real estate, logistics and infrastructure in the country. The firms have been ranked as one of the growth engines of the Indian economy and offers direct and indirect employment to the millions of people from the length and breadth of the country. As the rural development of the country taking momentum, the significant of the firms is highly felt. The future prospects of the firms look bright, as the Indian economy transcends to the next phase of development in the years from 2020 to 2024-25.

The commercial vehicle manufacturing firms, of late, has been witnessing downward spiral in demand, due to economic slowdown, both in India and abroad. Add to this woe, the firms have been suffering from the skewed cost structure which increases cost of production and reduce the profits. The reason for this cost increase might have been attributed to the cost system's structural deficiencies which stemmed from misallocation of costs to the various factors of production and the firms' failure to rationalize and optimize the cost structure. In this backdrop, the researcher is interested in analyzing the cost structure of selected commercial vehicle manufacturing firms in India. The result of this analysis paves the way to the commercial vehicle manufacturing firms to rationalize and optimize the cost structure in order to reduce the impact of cost escalation and hence, transform the benefit of cost reduction to the customers in the form of reduced selling prices.

1.2. Review of Literature

Review of Literature has provided the researcher an insight into various dimensions in which earlier researches related to the present study has been carried out. The review enables the

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researcher to find out the research gap and hence, the researcher take into account this gap and give due consideration to the present study to fill the research gap. The following research studies have been thoroughly reviewed by the researcher to get the knowledge of multi-dimensions of these studies and also to know the dimension in which the previous studies failed to address, that is, research gap. The reviewed research studies were summarized hereunder:

Raghbendra Jha, et.al.,(1991), analyzed the cost structure of Indian Cement industry. A thorough review of cost structure and its management from the year 1960-61 to the year 1982-83 was made by the authors to know how the cement industry in India manages and controls its cost over these periods. They found that the industry was well within its efficiency to manage and control its costs through the application of principle of economic returns to scale to its production lines, made intensive allocation of capital in production technology and have rationalized and optimized its factors of production. The authors concluded that these measures of rationalization and optimization of costs yielded good results for the industry and the cement industry was in the path of growth. They suggested that the Government of the day shall give the tax incentives and concessions for the firms in the cement Industry in order to encourage them to have still better cost control mechanism so that industry flourish and the economy grows.

Susanne Muller (2010), has analyzed the cost-benefit analysis of sourcing raw materials off-shore by the US automotive industry through the effective and cost-reductive logistics and supply-chain management. They focused their study mainly on cost reduction and control from the point of sourcing raw materials from the off-shore original equipment manufacturers and to the point of delivery of materials to the industry. They considers the costs of materials of various original equipment manufacturers and associated costs of logistics and supply-chain management, such as, costs of ocean carriers, logistic service providers, freight forwarders and custom brokers for this purpose. The author suggest the ways of sourcing off-shore raw-materials at cheap cost and also suggest the various measures for reducing transit time, customs clearance etc., The author was of the strong view that, if the industry implements these measures in a time-bound manner, then, the total cost of sourcing the materials to the industry reduced and benefits exceeded.

Sudesh Kumar, Bimal Anjum, Suman Nayyar (2012), analyzed the cost of financing the capital of the selected firms in Indian Pharmaceutical Industry. The authors found that capital

structure decision of the selected pharmaceutical firms were highly influence by the cost of capital. They also found that high cost of capital in financing the capital of the firms daunt the firms' profitability. Hence, they suggested that firms' shall take into account the cost of capital as the significant benchmark, while raising funds for the needed capital and, therefore, shall source funds which involve least cost of capital, increase the profits and improve shareholders' wealth.

Jadhav (2013), analyzed the cost of producing oral anti-diabetic drugs in pharmaceutical industry and found that the cost of producing them vary significantly in India, as compared to the international peers. He also found that there were sharp variations in cost of production of these drugs, even among the Indian peers. Hence, he suggested, as a corporate social responsibility measure, pharmaceutical industry, both in India as well as abroad, shall take pro-active steps to minimize the cost of these life-saving drugs by adopting a uniform cost and pricing policies, so as to have price affordability to the common public in the world.

Kumar and Vimala (2016), studied the impact of cost structure on financial performance of selected pharmaceutical companies in India. The authors were of the view that the financial performance of the pharmaceutical firms was directly linked to the cost minimization. They have also found that the pharmaceutical firms were suffering from high cost structure and this resulted in profit minimization. Hence, they opined that it was imperative of the firms to maximize the profits of the firms. They suggested that these firms shall have a strict control on costs so that they have their good financial performance and also their profits.

Motwani & Mudit Sharma (2017), analyzed the cost structure and its variations of selected firms in the cement industry in India. The aim of the study was to analyze the significant contributions of different costs and their variations to the total cost of the industry over the period and to know how these costs affects the profitability of the cement firms. The authors of the study found that there were significant differences among the selected firms and even within the firms over different course of time with respect to the cost structure and its constituents. The authors suggested that the selected cement firms shall install fool-proof cost control mechanisms and shall continue to monitor the costs of production and marketing to improve their financial bottom-line, Profit before tax, to have a say in the minds of their stakeholders.

1.3. Rationale for the Present Study

The earlier research studied failed to study cost structure of the selected units in a holistic manner. But, in the present study, the researcher has taken the totality of the units and the cost structure, such as, majority of the leading commercial vehicle manufacturing firms and the factors of cost structure of these firms, such as, raw materials consumed, employee cost, finance cost, depreciation cost and expenses and relate these factors to sales to ascertain how each of these factors of cost contribute to increasing/decreasing sales. So, the present study "Cost Structure Analysis of Selected Commercial Vehicle Manufacturing Firms in India" is justified on these grounds.

1.4. Statement of the Problem

The existence, continuance and the growth of commercial vehicle manufacturing firms is very vital to the India's economic development, because it connects people locally and globally through catering to the demand of construction, real estate, infrastructure and logistics sectors, thereby increasing the standard of living of the people. Hence, adequate care shall be taken by all the stakeholders to see that the firms exist, continue and grow. But, of late, the firms has been seeing more pressure on the cost of production, due to escalating raw material cost, employee cost, finance cost, depreciation cost and others. This results in tweaked demand for the final products of these firms from the customers Hence, these firms shall rise to the expectation and face these cost challenges squarely so that they can able to control the various components of cost and have a good cost structure. This will result in substantial reduction of cost and increased demand for the final products of the firms.

1.5. Significance of the Study

Commercial vehicle manufacturing firms, often seen as the propeller of India's economic growth, has been experiencing poor operational climate, due to subdued demand for their products and services on account of local and global factors. This low demand, apart from other factors, pushed the cost of final products and the firms have been feeling the pinch of cost escalations and reduced profits. Hence, it is vital for these firms to take some urgent measures to restore the cost structure in order to boost the demand for their final products and services so that their past glory revived and their contribution to the economic growth ensured.

1.6. Objectives of the Study

The researcher has framed the following objectives for the present study;

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1. To Study the relationship between the Cost of Raw-Materials Consumed and the Sales of Selected Commercial Manufacturing Firms in India

2. To Study the relationship between the Employee Cost and the Sales of Selected Commercial Manufacturing Firms in India

3. To Study the relationship between the Finance Cost and the Sales of Selected Commercial Manufacturing Firms in India

4. To Study the relationship between the Depreciation Cost and the Sales of Selected Commercial Manufacturing Firms in India

5. To Study the relationship between the Expenses and the Sales of Selected Commercial Manufacturing Firms in India

1.7. Hypotheses of the Study

The researcher has formulated the following null hypothesis (Ho) for this study:

Ho: There is no Significant Differences exist in the Cost Structure Ratios to net sales, such as, Cost of Raw-Materials to Sales, Employee Cost to Sales, Finance Cost to Sales, Depreciation Cost to Sales and Expenses to Sales among the Selected Commercial Vehicle Manufacturing Firms in India

1.8. Research Methodology

1.8.1 Selection of Sample Firms

The researcher has employed multi- stage sampling technique, involving three-Stages as follows:

First Stage-Commercial Vehicles Manufacturing Firms in India was selected because of its significant economic contribution to the nation. Second Stage- Based on the location and conglomeration of commercial vehicle manufacturers in India, a list has been drawn.Third Stage-Based on the Parameters, such as, Size, Capital Structure, Turnover, Market Share, Brand Image and BSE and NSE Share- Market –listed, all the firms were vetted and the following commercial vehicle manufacturing firms were chosen. They are:

Ashok Leyland Limited (ASL), Eicher Motors Limited (EML), Force Motors Limited (FML), Mahindra & Mahindra Limited (MML), SML Izuzu Limited (SML), Tata Motors Limited (TML).

1.8.2. Sources of Data

The researcher has collected data from the cost records of the selected commercial vehicle manufacturers in India. Besides, the researcher has collected data from the bulletins and circulars of Society of Indian Automobile Manufacturers (SIAM), Ministry of Commerce and Industry and other related web portals, journals, magazines and text books.

1.8.3. Period of Study

The researcher has collected cost and other related data of commercial vehicle manufacturers in India for ten years from the year 2009-10 to 2018-19 for the study.

1.8.4. Research Tools

The researcher has employed the following financial and statistical tools for the purpose of analyzing the collected data. They are:

1. Financial Ratios of Variables of Cost Structure to Sales
2. Statistical Tools, such as, Mean, Standard Deviation, Co-Efficient of Variation, Compound Annual Growth Rate and One-Way ANOVA.

1.9. Analysis & Interpretations

Table 1. Cost Structure Analysis

RAW MATERIAL CONSUMED TO NET SALES RATIO						
Firms	ALL	EML	FML	MML	SML	TML	Int.Avg
Mean	67.23	59.12	73.48	54.32	74.66	59.28	64.68
S.D.	4.79	6.76	2.70	6.22	2.45	1.46	2.91
C.V. (%)	7.12	11.43	3.68	11.45	3.28	2.46	4.50
CAGR (%)	0.19	-2.43	0.31	-2.52	-0.31	-0.07	-0.70
EMPLOYEE COST TO NET SALES RATIO						
Firms	ALL	EML	FML	MML	SML	TML	Int.Avg
Mean	8.32	6.63	12.09	5.78	9.51	9.57	8.65
S.D.	1.00	1.14	1.07	0.53	2.48	1.26	0.34
C.V. (%)	12.06	17.15	8.88	9.09	26.06	13.21	3.90
CAGR (%)	-2.34	-2.65	-1.19	-1.56	8.02	1.70	0.35
FINANCE COST TO NET SALES RATIO						
Firms	ALL	EML	FML	MML	SML	TML	Int.Avg
Mean	1.87	0.12	0.71	0.46	1.07	1.89	1.02
S.D.	1.35	0.18	0.67	0.19	0.65	0.21	0.36
C.V. (%)	72.29	160.08	94.25	41.88	60.82	11.01	35.37
CAGR (%)	-17.37	-27.86	-14.38	-14.17	-8.14	-2.05	-8.97
DEPRECIATION COST TO NET SALES RATIO						
Firms	ALL	EML	FML	MML	SML	TML	Int.Avg
Mean	2.78	2.16	3.63	2.49	1.64	5.38	3.01

S.D.	0.50	0.44	0.50	0.69	0.60	1.60	0.53
C.V. (%)	17.82	20.25	13.68	27.58	36.52	29.70	17.69
CAGR (%)	-2.58	2.60	-0.31	6.44	9.56	7.14	3.75
EXPENSES TO NET SALES RATIO							
Firms	ALL	EML	FML	MML	SML	TML	Int.Avg
Mean	10.57	11.84	11.36	10.52	8.70	19.10	12.01
S.D.	1.74	1.47	3.46	1.13	1.14	2.55	1.08
C.V. (%)	16.45	12.43	30.47	10.71	13.10	13.36	8.97
CAGR (%)	2.91	-0.26	-3.83	2.49	1.79	5.18	2.06

Source: Computed

The average cost of raw material consumed to net sales ratio of ALL, EML, FML, MML, SML and TML were 67.23%, 59.12%, 73.48%, 54.32%, 74.66% and 59.28% respectively. This implies that the cost of raw-materials consumed was more in SML and, in MML, it was less. The standard deviation of MML was high (6.22%). This suggests that the cost of raw-materials highly fluctuated in between the years. The co-efficient of variation of TML was less (2.46%) which implies that the firm maintained consistency in keeping the cost of raw-materials consumed during the period of study. All the selected firms were shown negative compound annual growth rate, except ALL and FML, which implies that the cost of raw-materials consumed of these firms contribute to the sales positively throughout the period of study.

The average employee cost to net sales ratio of ALL, EML, FML, MML, SML and TML were 8.32%, 6.63%, 12.09%, 5.78%, 9.51% and 9.57% respectively. This implies that the employee cost was more in FML and, in MML, it was less. The standard deviation of SML was high (2.48%). This suggests that the employee cost highly fluctuated in between the years. The co-efficient of variation of FML was less (8.88%) which implies that the firm maintained consistency in keeping the employee cost during the period of study. All the selected firms were shown negative compound annual growth rate, except SML and TML, which implies that the employee cost of these firms contribute to the sales positively throughout the period of study.

The average finance cost to net sales ratio of ALL, EML, FML, MML, SML and TML were 1.87%, 0.12%, 0.71%, 0.46%, 1.07% and 1.89% respectively. This implies that the finance cost was more in TML and in EML, it was less. The standard deviation of ALL was high (1.35%). This suggests that the finance cost highly fluctuated in between the years. The co-efficient of variation of TML was less (11.01%) which implies that the firm maintained consistency in keeping the finance cost during the period of study. All the selected firms were shown negative

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compound annual growth rate, which implies that the finance cost of these firms, contribute to the sales positively throughout the period of study.

The average depreciation cost to net sales ratio of ALL, EML, FML, MML, SML and TML were 2.78%, 2.16%, 3.63%, 2.49%, 1.64% and 5.38% respectively. This implies that the depreciation cost was more in TML and in SML, it was less. The standard deviation of TML was high (1.60%). This suggests that the depreciation cost highly fluctuated in between the years. The co-efficient of variation of FML was less (13.68%) which implies that the firm maintained consistency in keeping the depreciation cost during the period of study. All the selected firms were shown positive compound annual growth rate, except ALL and FML, which implies that the depreciation cost of these firms negatively contribute to the sales throughout the period of study.

The average expenses to net sales ratio of ALL, EML, FML, MML, SML and TML were 10.57%, 11.84%, 11.36%, 10.52%, 8.70% and 19.10% respectively. This implies that the expenses was more in TML and in SML, it was less. The standard deviation of FML was high (3.46%). This suggests that the expenses highly fluctuated in between the years. The co-efficient of variation of MML was less (10.71%) which implies that the firm maintained consistency in keeping the expenses during the period of study. All the selected firms were shown positive compound annual growth rate, except EML and FML, which implies that the expenses of these firms negatively contribute to the sales throughout the period of study.

1.9. Results of Hypotheses Testing

To Test whether there exist a significant difference among variables of Cost structure in the Selected Commercial Vehicle Manufacturing Firms in India, One-Way ANOVA test has been applied. The Financial Ratios, such as, Cost of Raw-Materials consumed to Sales Ratio, Employee Cost to Sales Ratio, Finance Cost to Sales Ratio, Depreciation Cost to Sales Ratio and Expense to Sales Ratio have been taken as Cost Structure Variables for this Purpose. The researcher has formulated the following Null (Ho) hypotheses and Alternative Hypotheses (H1) in this connection.

Ho: There is no Significant Differences exist in the Cost Structure Ratios to net sales, such as, Cost of Raw-Materials to Sales, Employee Cost to Sales, Finance Cost to Sales, Depreciation

Cost to Sales and Expenses to Sales among the Selected Commercial Vehicle Manufacturing Firms in India

H₁: There exist Significant Differences in the Cost Structure Ratios to net sales, such as, Cost of Raw-Materials to Sales, Employee Cost to Sales, Finance Cost to Sales, Depreciation Cost to Sales and Expenses to Sales among the Selected Commercial Vehicle Manufacturing Firms in India

Table 2.
Summary of One Way Analysis of Variance Results

Ratios	F	P-value	F crit	S/NS
Raw Material Consumed To Net Sales Ratio	34.31	0.00*	2.39	S
Employee Cost To Net Sales Ratio	26.97	0.00*	2.39	S
Finance Cost To Net Sales Ratio	11.49	0.00*	2.39	S
Depreciation Cost To Net Sales Ratio	26.29	0.00*	2.39	S
Expenses To Net Sales Ratio	30.19	0.00*	2.39	S

Source: Computed *P<0.05 S- Significant   NS – Not Significant.*

From the above table, it is inferred that the calculated F values of all these ratios were more than the table values at 5% level of significance, null hypothesis (Ho) was rejected. Hence there exist Significant Differences in the Cost Structure Ratios to net sales, such as, Cost of Raw-Materials to Sales, Employee Cost to Sales, Finance Cost to Sales, Depreciation Cost to Sales and Expenses to Sales among the Selected Commercial Vehicle Manufacturing Firms in India.

1.10 Study Outcomes

The researcher has given the findings of the study in the form of firms-wise study outcomes, which were given hereunder:

1. ALL
- Cost of raw-materials consumed and expenses negatively contributed to sales.
- Employee Cost, depreciation cost and finance cost contribute to sales positively.
- There were wide fluctuations in keeping the finance cost.

2. EML
- ➢ Cost of raw-materials consumed, employee cost, finance cost and expenses contribute positively to sales.

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➢ The average finance cost was less.

➢ Depreciation cost negatively contributed to sales.

3. FML

▪ Cost of raw-materials consumed negatively contributed to sales.

▪ Employee cost, Depreciation cost, finance cost and Expenses contribute positively to sales.

▪ There were wide fluctuations in keeping the expenses.

4. MML

➢ Cost of raw-materials consumed and Employee cost were less.

➢ Cost of raw-materials consumed, employee cost and finance cost contribute positively to sales.

➢ Depreciation cost and Expenses negatively contributed to sales.

➢ There were wide fluctuations in keeping the cost of raw-materials consumed.

5. SML

⇨ Cost of raw-materials consumed is more and failed to contribute to sales.

⇨ Employee cost, depreciation cost and expenses cost negatively contributes to the sales.

⇨ Finance cost positively contributes to sales.

6. TML

✓ Cost of raw-materials consumed seen wide fluctuations.

✓ Cost of raw-materials consumed finance cost positively contribute positively to sales.

✓ Employee cost, Depreciation and Expenses negatively contribute to sales.

1.11. Recommendations

Based on the study outcomes, the researcher has made the following recommendations to the commercial vehicle manufacturing firms in India to have good cost structure.

1. ALL has to take cost control measures to have its cost of raw-materials consumed and expenses in check to have positive contribution in maximizing profits.

2. EML has to reduce its depreciation cost through proper maintenance of its fixed assets.

3. FML has to keep a tab of cost of material consumed so as to have its positive contribution to sales.

4. MML has to control its depreciation cost and expenses under check to increase profits.

5. SML and TML have to see that employee cost, depreciation cost and expenses positively contribute to sales.

1.12. Conclusion

The objectives of the firm are to maximize its profits and shareholders' wealth. These objectives are to be pursued by the firm only with the help of cost minimization and sales maximization. Of these two, cost minimization plays a vital role in firm's perusal of its stated objectives. This is true for every firm, commercial vehicle manufacturing firms, in particular. To have minimized cost, the firm shall have a good cost structure. This study is attempted to analyze the cost structure of selected commercial vehicle manufacturing firms in India and suggested the ways for these firms to have good cost structure. The outcomes and recommendations of the study will surely paves the way for the firms to prune their costs in order to have good cost structure to fulfill its objectives.

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