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PROFITABILITY ANALYSIS (A COMPARATIVE STUDY OF INDIAN SEMICONDUCTOR COMPANIES)

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ABSTRACT

This paper focuses on the profitability of selected Indian Semiconductor Companies in terms of ratios. The research analysis covers a period of five years 2012-2016 and applies various profitability ratios and found that the performance of Tata Elxsi was satisfactory except in Operating Profits and Gross profits whereas in case of Tata Consultancy Services (TCS) and Wipro Gross Profits and Operating profits are satisfactory. During the study period Wipro showed an average performance. Statistical Tools Mean, Standard Deviation, Coefficient of variation is used for data analysis. ANOVA is used to find out the significant difference between the companies and between the years. This paper also highlights the knowledge of the investor about the profitability of the Indian Semiconductor Companies.

Keywords: Mean, Standard Deviation, ANOVA, Gross Profit, Profitability

1. **Introduction**: The word profitability is poised of two words: profit and ability. Profitability is the ability of a business to create a profit. A profit is left over revenue that a business makes after it pays all expenses that are related to business, such as producing a product, and the other expenses that are related to conduct the business activities. Profitability is capability of a company to employ its resources to generate more revenues than expenses. This is a company's potential to generate profits from its

operations.Revenues and expenses are two main aspects of profitability. Revenue is the amount of money that is earned by providing services or selling products. Businesses use their resources to provide these services and produce these products. Profit is the financial gain. It is the difference between the amount earned and the amount spent. The ability of a business is the power of earning or the operational performance. Profit and profitability are very synonym related and are mutually dependent. But they are two different theories. Profit of a business is its operational and financial efficiency. Profitability infers the term profit in relation to other elements which affect these profits to help in decision making. Profit is regarded as a total implication against profitability, which is a relative concept. Profit is the remaining income left after meeting all the administrative and manufacturing expenses, whereas profitability is the profit making ability of a business enterprise. The profit indicates the amount of earning of a business during certain period, whereas profitability indicates where these profits are constant or improved or deteriorated, and to what extent and how these profits are improved. A company is doing well and performing well if the calculated ratio is higher w.r.t competitor and having the same value w.r.t previous period. For any business Profitability is the primary goal. Without it the business will not survive in the long run. Hence measuring current and past profitability and estimating the future profitability is very important. The profitability ratios are useful to get imminent of a business. It is useful to an analyst to get indication on the sufficiency or adequacy of profits. These statistical tools are used to find out how well a business is performing in terms of its capability to generate profit. By these tools one can understand the Growth, Profitability of a company and thus assist management and stakeholders to take corrective actions. Profitability ratios are useful for financial analysis and these tools correspond about the final goal of a company business. The rationale behind calculating the profitability ratios is to measure the Gross Profit ratio, operating efficiency and return on capital employed of a company and profits generated by a business. The Profitability ratios are useful for stakeholders, employees etc for different purposes. The stakeholders of a business include promoters, Government, management, lenders and creditors etc.

II**. Review of Literature**: Rakhi Hotwani have studied for ten years to know the financial soundness

of Tata Motors using ratios net worth, PAT, Return on Net worth and concluded that tata motors has created significant wealth for its stakeholders and provided handsome return on investment. Asma

Khan and Jyoti Singhalhave studied for five years performance of selected IT industries in terms of ratios (Operating Profit Ratio, net profit ratio, Return on Long Term Funds.

Monica Tulsian has studied for five years to know the financial soundness of steel companies using the ratios: Gross profit ration, operating profit ratio and return on capital employed. Koradia has examined the profitability of three public sector oil companies using four ratios (Gross profit, Operating Profit, Capital employed and Net profit) and found that there is significant difference between profitability ratios over the years apart from return on capital employed. In last five years, the profitability of Indian Semiconductor companies is seldom analyzed using any statistical tool. In this paper, authors have proposed that analysis using Mean, SD, ANOVA statistical tools.

III.Types of Profitability Ratios: By calculating the following ratios, profitability of the preferred companies under study has been analyzed:

a) **Gross Profit Ratio**: The gross profit ratio is also called as gross profit margin. This ratio conveys the relationship of gross profit to net sales in percentage. This ratio is intended to find the profitability of business. If gross profit ratio is more, then it means good management. The main purpose of computing this ratio is to find out the efficiency with which selling operations, production operations are carried on. In the current study the gross profit ratio has been calculated by using the following formula:

$$\text{Gross profit ratio} = \frac{GrossProfit}{Netsales} \times 100$$

b) **Operating Profit Ratio**: This ratio finds the relation between operating profit and net sales. The main idea of calculating this ratio is to find out the operational efficiency of the management. This ratio is also known as operating profit margin. Operating profit means the net profit that occur from the usual activities of the business and operations without considering irrelevant expenses and dealings of merely financial nature. The operational efficiency of the business is good, if the operating profit ratio is high. A high operating profit ratio means the business is increasing its sales and also cut down its operating expenses. Operating profit ratio can be calculated by formula as follows:

$$\text{Operating Profit Ratio} = \frac{OperatingProfit}{NetSales} \times 100$$

C) **Return on capital Employed Ratio**: This ratio finds the relationship between profit and capital employed. It evaluates the earning power of the net assets of the business. It is calculated by formula as follows:

$$\text{Return on capital employed Ratio} = \frac{NetProfit}{CapitalEmployed} \times 100$$

IV: Research Methodology: The present study is mainly based on secondary data which has been collected from the Websites, journals, company documents, newspapers. Data has been collected for the last five years (i.e. from 2011 to 2016) to analyze profitability of Wipro, Tata Elxsi, TCS and Sasken Communications. Profitability of these companies has been analyzed with the help of ratio analysis and various ratios have been calculated. Statistical tools such as Mean, SD, CV, has been used to interpret the data. Hypothesis has been tested by using F test.

V. Objectives of the Study: The present study has been conducted to examine and evaluate all the aspects of the profitability of Indian Semiconductor companies on certain parameters through ratio analysis. The following are the broad objectives of the study:

1. To analyze the trends in the profitability of Indian Semiconductor Companies during the last five years.
2. To appraise the financial position of Indian Semiconductor Companies through various ratios.
3. To study the significance relationship between the companies and between the years by using ANOVA.

V: Hypotheses of Study

H_0: There is no significant difference in Gross Profit Ratio between the companies and between years.

H_0: There is no significant difference in Operating Profit Ratio between the companies and between years.

H_0: There is no significant difference in Return on Capital Employed between the companies and between years

VI: Data Analysis:

Table No 1

Gross Profit Ratio (in %) of Selected Semiconductor Companies in India:

No	**Year**	**Wipro**	**TCS**	**Tata Elxsi**
1	**2012**	16.71	27.52	9.04
2	**2013**	18.75	27.88	7.49
3	**2014**	21.6	31.62	13.09
4	**2015**	20.43	26.68	17.87
5	**2016**	18.43	29.57	21.34
	Mean	19.184	28.654	13.766
	SD	1.888	1.9632	5.839
	CV	0.09844	0.0685	0.424

From the table no 1 it can be noted that the Gross profit ratio of Wipro and Tata Elxsi showed an increasing trend during the whole period of the study because during the year 2011-2012 the gross profit ratio of Wipro was 16.71% and for Tata Elxsi it is 9.04%. TCS showed a mixed fluctuating trend during the period. TCS also showed a mixed fluctuating trend during the whole period. TCS gross profit ratio increased for the years 2011, 2012 and 2013 and later decreased. The average TCS ratio was 28.654, which is the highest of all the semiconductor companies. This trend shows inefficiency of the management and it is recommended that the TCS management should try to manage the decreasing trend of the ratio by controlling the cost of goods sold and by increasing the sales.

Inference: On the basis of the average of the gross profit ratio it can be concluded that TCS performed better though the gross profit ratio showed a decreasing trend. The fluctuations in the gross profit of Tata Elxsi were high as the coefficient of variation was 42.4% which should be controlled while the coefficient of variation of gross profit ratio for Wipro and TCS was 9.8% and 6.8% showing a moderate consistency in the ratio.

Testing of Hypothesis:

Table No 2

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	Significance
Between Years	72.95	4	18.23	1.566	Non-Significant
Between Companies	567.8135	2	283.906	24.39	Significant
Residual	93.12	8			
Total	733.88	14			

Analysis of variance is computed in order to test the significant difference among the companies and between years for Gross Profit ratio. The result shows that the calculated F value for the between years is 1.566 which is less than the table value of 3.83 at 5% significant level. For between companies it is 24.39 which are more than the table value of 4.45 at 5% significant level. There is Significant difference in the Gross profit ratio in case of between companies where as there is a no significant difference between the years at 5% level. Hence the hypothesis is rejected for between companies and accepted for between years.

Operating Profit Ratio (in %) of Selected Semiconductor Companies in India:

Table No 3

No	Company	Wipro	TCS	Tata Elxsi
1	**2012**	19.07	29.3	13.03
2	**2013**	20.86	29.54	11.42

3	**2014**	23.5	33.29	17.62
4	**2015**	22.32	28.57	20.88
5	**2016**	20.38	31.38	23.89
	Mean	21.226	30.41	17.368
	SD	1.722	1.911	0.062
	CV	0.0811	0.062	0.3

From the above table no 3 it can be noted that operating profit ratio of Wipro showed mixed trend. The ratio increased for first three years and showed a recorded 23.5%.During 2015 and 2016 it shown a decreasing trend. TCS also showed a mixed trend from 2012 to 2014. During the last five years in the year 2014 it recorded a highest operating profit ratio. In the year 2015 it recorded lowest operating profit ratio. Compared to both Wipro and TCS, Tata Elxsi shown an increasing trend for the last five years. The mean operating profit ratio for Wipro was 21.226, for Tata Elxsi it is 17.368 and for TCS it is 30.416. Of the three companies, Tata Elxsi showed a lower ratio. TCS average ratio was good (30.41%) which can be regarded as good management, but the decreasing trend should be controlled.

Inference: On the basis of the average of the operating profit ratio it can be concluded that TCS performed better though the gross operating profit ratio showed a decreasing trend. The fluctuations in the operating profit of Tata Elxsi were high as the coefficient of variation was 30% which should be controlled while the coefficient of variation of operating profit ratio for Wipro and TCS was 8.11% and 6.28% showing a moderate consistency in the ratio.

Testing of Hypothesis:

Table no 4

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	Significance
Between Years	63.49	4	15.8	1.76	Non-Significant
Between Companies	449.31	2	224.65	24.92	Significant
Residual	72.11	8	9.0143		
Total	584.92	14			

Analysis of variance is computed in order to test the significant difference among the companies and between years for Operating profit ratio. The result shows that the calculated F value for the between years is 1.76 which is less than the table value of 3.83 at 5% significant level. For between companies it is 24.92 which are more than the table value of 4.45 at 5% significant level. There is Significant difference in the Operating profit ratio in case of between companies where as there is a no significant difference between the years at 5% level. Hence the hypothesis is rejected for between companies and accepted for between years.

Return on Capital Employed (in %) of Selected Semiconductor Companies in India

Table no 5

No	**Company**	**Wipro**	**TCS**	**Tata Elxsi**
1	**2012**	22.04	23.59	53.63
2	**2013**	26.72	20.59	48.07
3	**2014**	29.47	49.76	53.39
4	**2015**	26.85	55.04	52.77
5	**2016**	23.12	61.32	49.34
	Mean	25.64	41.996	51.44
	SD	3.0253	18.685	2.55
	CV	0.11799	0.4437	0.0497

From the above table no 5 it can be noted that operating profit ratio of Wipro showed mixed fluctuating trend during the period of the study and varied within in the range of 22.04% in 2012 and 29.42% in 2016 which shows inefficiency of the management and signifies that the management of the company failed to make an optimum utilization of the capital funds. Such a situation cannot be regarded satisfactory. The average of the ratio was 23.41 which can be regarded satisfactory but the decreasing trend of the ratio should be controlled by the management of the company. For this purpose efforts should be made to control and reduce the operating cost and increase the sales. For both TCS and Tata Elxsi the ratio of return on capital employed showed a decreasing trend during the whole period of study and varied within the range of 23.59 percent in 2011-12 to 61.32 percent in 2015-16. The average of the ratio was 41.998 percent which is though not poor but decreasing trend implies inefficient management. It is suggested that the management of the company should try to ratio by increasing the profit. The coefficient of variation was 4.37 percent denoting a moderate fluctuating trend but the decreasing trend should be controlled by the management.

Inference: On the whole it can be said that the return on capital employed position of Tata Elxsi was better than Wipro and TCS because the average of the ratio was higher but a decreasing trend in both the companies shows inefficiency of the management which should be controlled

Testing of Hypothesis:

Table no 6

Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio	Significance
Between Years	532.04	4	133.0103	1.14	Non-Significant
Between Companies	1705.308	2	852.6538	7.32	Significant
Residual	931.2151	8	116.4019		
Total	3168.564	14			

Analysis of variance is computed in order to test the significant difference among the companies and between years for Return on Capital employed. The result shows that the calculated F value for the between years is 1.14 which is less than the table value of 3.83 at 5% significant level. For between companies it is 7.32 which are more than the table value of 4.45 at 5% significant level. There is Significant difference in the Return on Capital employed in case of between companies where as there is a no significant difference between the years at 5% level. Hence the hypothesis is rejected for between companies and accepted for between years.

Limitations of the study:

The study covered three service based companies, in order to measure and compare the profitability. The study has been conducted during the period from 2011 to 2016. Any change made after this period has not been covered in this study.

IV. Conclusion:

(1) It is evident from the gross profit ratio of all the three semiconductor companies showed a mixed fluctuating trend. All the companies showed a decreasing trend for first two years, which shows inefficiency of the management, however on the basis of the average it can be concluded

that TCS performed better. Therefore it is suggested that management of all the companies should increase the gross profit ratio by controlling cost of goods sold and by increasing sales and try maintaining the same position in future also.

(2)The operating profit ratio was lower in Tata Elxsi and it is suggested that the company should try to increase this ratio and also high fluctuation should be controlled by management. On the other hand the operating profit ratio was satisfactory in Wipro and it is suggested that company should try maintaining this ratio. Therefore it can be concluded that TCS has performed better from view point of this ratio as coefficient of variation was higher for Wipro and Tata Elxsi

(3)Analyzing the return on capital employed ratio it can be concluded that return on capital employed position of Tata Elxsi was better than Wipro and TCS because the average of the ratio 51.44% was higher but the decreasing trend in both the company implies inefficiency of the management and inefficient utilization of the capital funds.

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