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An Analytical study of Profitability analysis of Public Sector Enterprises with special reference to SAIL

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ABSTRACT

This paper aims to access the position of SAIL from the year 2011 to 2015. To evaluate the profitability of the company, relevant ratios were used and statistical tools like mean, standard deviation, coefficient of variation, minimum, and maximum were applied, and to test the significant relationship between the relevant variable, the variables were tested with the help of correlation and regression analysis. In hypotheses testing, most of the hypothesis showed a statistically significant relationship between two variables. Hence it was concluded that the overall performance of Steel Authority of India Ltd. regarding profitability was declining during the study period, though the company's sales are growing, and its profitability was declining.

KEYWORDS:

Profitability, paper companies, profit margin, operational performance, correlation analysis, regression analysis.

INTRODUCTION

Profitability is the ability of a business to earn a profit. A **profit** is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue, such as producing a product, and other expenses related to the conduct of the business' activities**.** Profitability is an indication of the efficiency with which the operations of the business are carried on. Poor operational performance may indicate poor sales and hence, poor profits. A lower profitability may arise due to a lack of control over expenses. Bankers, financial institutions, and other creditors look at the profitability ratios as an indicator of whether or not a firm earns substantially more than it pays interest for the use of borrowed funds and whether the ultimate repayment of their debt appears reasonably certain. Owners are interested to know the profitability as it indicates the return which they can get on their investment. The profitability ratio measures the profitability or the operational efficiency of a firm. There are two groups of persons who may be especially interested in the analysis of the profitability of a firm.
There are:
I) The management which is interested in the overall profitability and operational efficiency of the firm; and
II) The equity shareholders who are interested in the ultimate returns available to them.

Both of these parties and any other party such as creditors can measure the profitability of the firm in terms of the profitability ratios. Different profitability ratios have been suggested to access the profitability of the firm from different angles. The performance of the firm can be evaluated in terms of its earnings with reference to a given level of assts or sales or owner interest, etc. broadly, the profitability ratios are calculated by relating the returns with the
I) sales of the firm; II) assets of the firm; and III) the owners' contribution.

Company Profile :
SAIL traces its origin to the formative years of an emerging nation - India. After independence the builders of modern India worked with a vision - to lay the infrastructure for rapid industrialisation of the country. The steel sector was to propel the economic growth. Hindustan Steel Private Limited was set up on January 19, 1954.

SAIL, a Public Sector Enterprise, is India's largest steel producing company, among the seven Maharatnas of the country's Central Public Sector Enterprises. The company has the distinction of being India's second largest producer of iron ore and of having the country's second largest mines network.

Steel Authority of India Limited (SAIL) is one of the largest state-owned steel making company based in New Delhi, India and one of the top steel makers in world. It is a public sector undertaking which trades publicly in the market is largely owned by Government of India and acts like an operating company. SAIL is the 24th largest steel producer in the world. Mr. P.K Singh is the current chairman of SAIL.
SAIL operates and owns 5 integrated steel plants at Rourkela, Bhilai, Durgapur, Bokaro and Burnpur and 3 special steel plants at Salem, Durgapur and Bhadravathi. It also owns a Ferro Alloy plant at Chandrapur.
Exxpansion & Globalisation: As part of its global ambition, the company is undergoing a massive expansion and modernisation programme involving upgrading and building new facilities with emphasis on state of the art green technology. SAIL is one of India's fastest growing Public Sector Units. Besides, it has R&D centre for Iron & Steel (RDCIS), Centre for Engineering and Technology (CET), Management Training Institute (MTI) and SAIL Safety Organisation (SSO) located at Ranchi capital of Jharkhand.
SAIL, is in the process of modernising and expanding its production units, raw material resources and other facilities to maintain its dominant position in the Indian steel market. The aim is to increase the production capacity from the base level production of 14.6 MT per annum to 26.2 MT per annum of Hot Metal.
The company also looking to establish one full capacity integrated plant in Andhra Pradesh or Telangana and surveying the possibilities to set up the plant. The plant, which was proposed to be the first steel plant of such scale in the state, was estimated to get an investment of Rs. 4,400 crore.
SAIL has received the prestigious Golden Peacock Environment Management Award for the year 2011. SAIL employees have won 4 out of 5 awards of Class A, which is the highest number of A Class awards won by any PSU in India.

OBJECTIVES OF THE STUDY
1) To analyze the profile of Steel Authority of India Ltd. (SAIL)
2) To evaluate the profit margins in relation to sales.
3) To examine the profitability in relation to investment.
4) To examine the profitability in relation to total assets.

SCOPE OF THE STUDY
For the present study, one of the leading large size public sector companies was considered for analysis. The scope covered under the present study is 5 years, beginning from 20011 to 2015.

REVIEW OF LITERATURE:
Chandra, chouhan, and Goswami (2012) enquired the relationship between profitability and working capital analysis of information technology companies. In their study, they found a statistically significant relationship between capital and profitability of all the selected companies. The positive direction of the relationship in all significant cases connotes that growth in working capital will result in increased profitability.
Rajagam and Selvaraj (2012) studied the relationship between liquidity and profitability and risk and profitability. In this study, the researchers applied Spearman's
Rank correlations to test the significant relationships. The study revealed that the Tamil Nadu Newsprint and Papers Limited (TNPL) maintained an overall control over the liquidity position of current assets, and all the techniques of liquidity management were satisfied during the study period. In testing of the hypotheses, the researchers observed that there was no significant relationship between liquidity and profitability and also, there was an insignificant relationship between risk and profitability.
Pandey (2012) evaluated the relationship between capital structure and profitability of IFCI Ltd. During the study period from 2005 to 2011, profitability was measured on the basic of EPS and return on assets had declined, which showed that the financial structure of the company failed to increase the profitability. For the testing of the hypotheses, correlation and multiple regressions were used. There was a negative correlation between loan fund and EPS, which meant that funds had failed to enhance the profitability of the company. Due to inefficient capital mix and lack of favourable impact of working capital on IFCI's profitability, negative correlation results were observed. In this study, insignificant regression results were obtained, and it made clear that the working capital was not favourably influencing the profitability of the company.
Singh (2012) made an investigation for the relationship between capital and profitability in the information technology and telecom industry in India. He used the correlation and regression analysis. He investigated that the working capital turnover is positively related with ROCE (return on capital employed), it means that we

accept that more working capital returns will result in higher return on capital employed, which is a measure of profitability. The results of the regression analysis showed that the coefficient of working capital turnover is positive, which means that working capital turnover affects the profitability of the firm positively. However, day's inventory was negatively related to profitability.
Zabiulla (2011) in his study entitled" Analysis of profitability Ratios of Selected of FMCG Companies in India" used profitability variables like gross profit margin, net profit margin, operating profit margin, return on total assets, return on capital employed, and return on net worth, and earnings per share. In this study, he applied statistical tools like average and f-test and one-way ANOVA to test the significant relationship between selected profitability variables, and the present study was conducted to examine the profitability ratios of selected FMCG companies in India. The study found that ITC Ltd. Recorded the highest values of GPM, OPM, and NPM against its peer companies. Britannia Industries Ltd. showed the highest EPS. An upward movement in ROTA was found in Colgate Palmolive (India)
Ltd., generated significant higher returns on the capital employed by the investors.

RESEARCH METHODOLOGY

- **Method of Data Collection:** The research is present entirely based upon secondary data and the data was collected from the official directory of the Bombay Stock Exchange, official website of SAIL and money control.
- **Time Period of the Study:** The selected study unit focuses on a number of profitability variables during the period from 2011 to 2015 , covering a time period of 5 years.
- **Selection of the Sample:** The sample was drawn from the list of companies coming under the top 10 steel sector companies listed at the Bombay Stock Exchange and one amongst them is Steel Authority of India.
- **Statistical Tools:** for the purpose of statistical analysis, applied mean, Standard deviation, Coefficient of variations minimum, maximum, correlations F test & graphical analysis is done with the use of MS excels.

LIMITATIONS OF THE STUDY

This study had the following limitations:
1) The selected unit, SAIL is a public sector company based in different states of India.
2) The study used the secondary data from the published annual reported of SAIL and the study is limited to five years from 2011 to 2015.
3) The study covered only one out of all large size public sector companies in India.

HYPOTHESIS

The following hypothesis was framed to conduct the analysis and evaluate the profitability results of SAIL :
· H01: There is no significant relationship between operating profit margin and net sales.
· H02:There is no significant relationship between net profit margin and net sales
· H03: There is no significant relationship between net profit and total assets.
· H04: There is no significant relationship between net profit and net worth.
· H05: There is no significant relationship between ROCE and net sales.

DATA ANALYSIS AND INTERPRETATION

This section presents the results of the profitability ratios and discussion based on them. The financial ratios like gross profit margin, net profit margin, operating profit margin, earning per share, ROCE, ROTA, and RONW were used and the significant relationship between them were tested by using the mean, standard deviation, minimum & maximum and f test.

HYPOTHESIS 1

Ho: There is no significant relationship between operating profit margin and net sales.
Ha: There is a significant relationship between operating profit margin and net sales.

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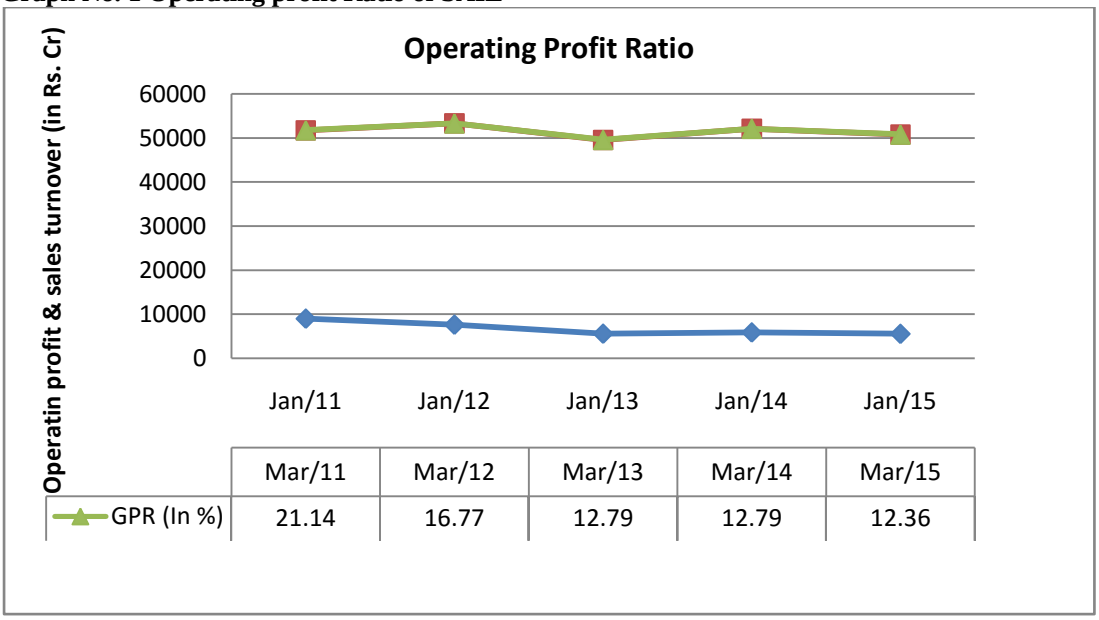
Table No. 1 Operating profit Ratio of SAIL

YEAR	Operating Profit	Sales Turnover	GPR (In %)
Mar-11	9030	42719	21.14
Mar-12	7658	45654	16.77
Mar-13	5621	43961	12.79
Mar-14	5909	46189	12.79
Mar-15	5586	45208	12.36
Mean	6760.8	44746.2	15.17
S.D.	1529.632211	1400.456247	3.79
Variance	2339774.7	1961277.7	14.36
Minimum	5586	42719	12.36
Maximum	9030	46189	21.14

Graph No. 1 Operating profit Ratio of SAIL



On the basis of Table 1 & figure 1 , it is observed that operating profit ratio of SAIL showed average progress or the period from 2010-11 and 2014-15, the lowest ratio (12.36) was observed in the year 20014-15, and the highest ratio (about 21.14) was evidenced in the year 2010-11. The coefficient of variance was 14.36 percent. The average operating profit was 15.17 percent during the study period. The figure 2 shows the operating profit ratio of SAIL and it can be seen that it fluctuated form the year 2011 to 2015. The net sales initially slowed down but again it started increasing.

TABLE No. 2: ANOVA ANALYSIS – OPERATING PROFIT & SALES TURNOVER

Model	*df*	*Sum of Squares*	*Mean Square*	*F*	*Significance F*
Regression	1	2770624.376	2770624.376	1.261577809	0.343127757
Residual	3	6588474.424	2196158.141		
Total	4	9359098.8			

a. Dependent Variable: operating Profit
b. Predictors: (Constant), sales Turnover

From table 2 mentioned above results, it can be seen that the calculated F value is 1.261 & p value is (.343). Calculated F value is more than the table value and on the basis of this we can reject the null hypothesis and

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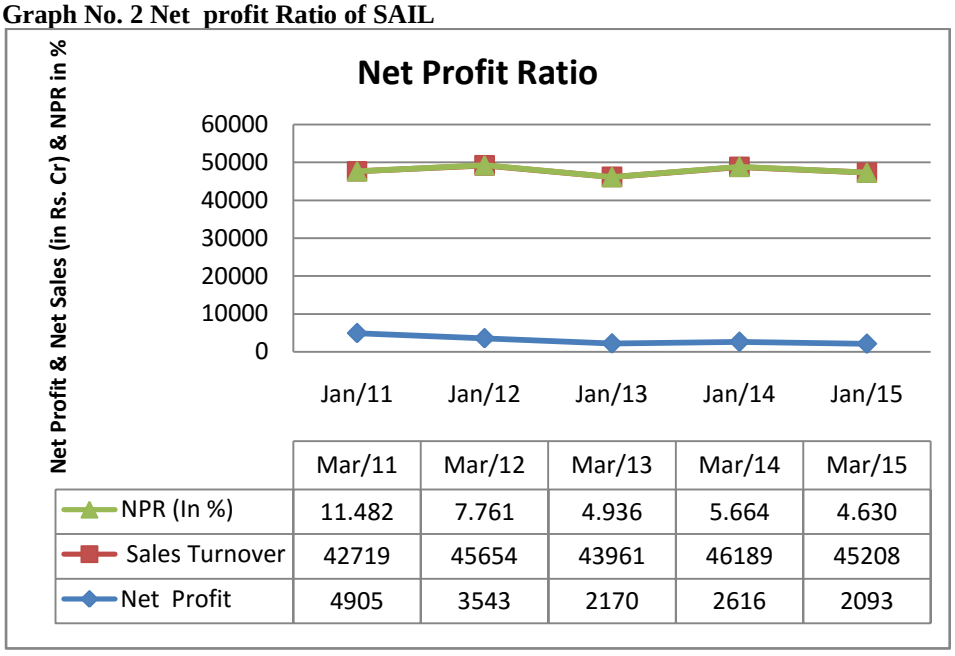
the alternative hypothesis is accepted. Therefore, there was a significant relationship between operating profit and net sales.

HYPOTHESIS 2
Ho: There is no significant relationship between net profit margin and Sales turnover.
Ha: There is a significant relationship between profit margin and Sales turnover.

Table No. 3 Net Profit Ratios of SAIL

YEAR	Net Profit	Sales Turnover	NPR (In %)
Mar-11	4905	42719	11.482
Mar-12	3543	45654	7.761
Mar-13	2170	43961	4.936
Mar-14	2616	46189	5.664
Mar-15	2093	45208	4.630
Mean	3065.4	44746.2	6.894
S.D.	1179.140916	1400.456247	2.841
Variance	1390373.3	1961277.7	8.069
Minimum	2093	42719	4.630
Maximum	4905	46189	11.482

Graph No. 2 Net profit Ratio of SAIL



It can be observed form the Table 3 & Graph 2 that the net Profit ratio of the company was volatile during the study period. The lowest NPR percent was observed in the year 2014-15, where it was 4.63 percent, and the highest value was observed during the year 2010- 11, when it was 11.48 percent. The average NPR stood at 6.89 percent. The coefficient of variation was 8 .069 percent. It showed a fluctuating trend during the study period and a poor performance was observed for years in the last.

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TABLE No 4: ANOVA ANALYSIS – NET PROFIT & SALES TURNOVER

Model	*df*	*Sum of Squares*	*Mean Square*	*F*	*Significance F*
Regression	1	2448350.87	2448350.87	1.361011552	0.327667048
Residual	3	5396759.93	1798919.977		
Total	4	7845110.8			

a. Dependent Variable: Profit After Tax
b. Predictors: (Constant), Sales Turnover

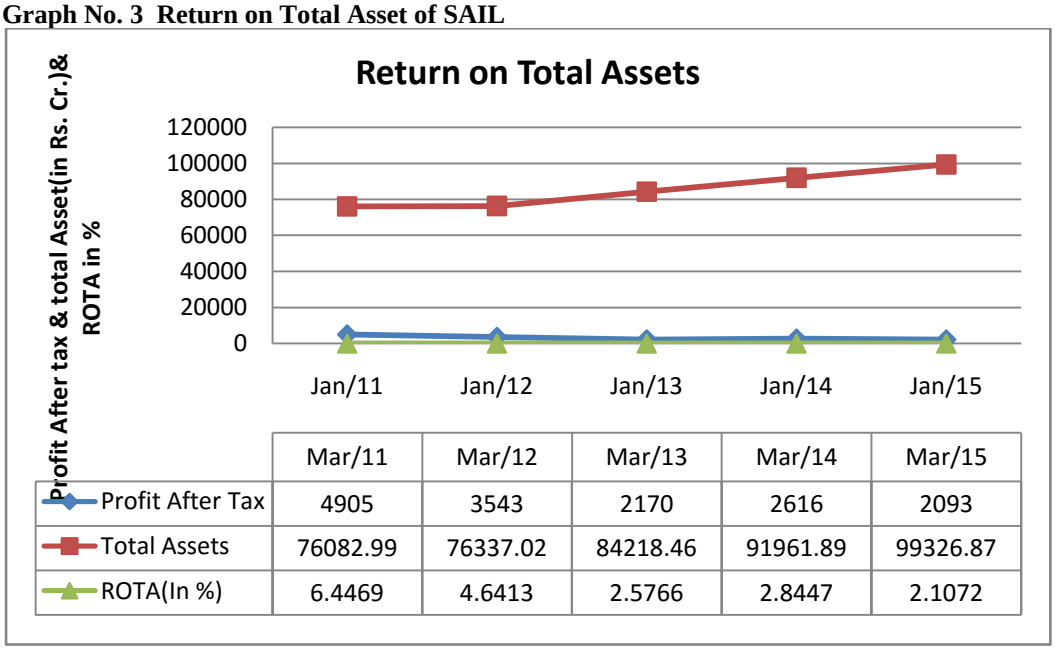
From table 4 mentioned above results, it can be seen that the calculated F value is 1.361 & p value is (.3276) which is significant at 5% level of significance. On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted. Therefore, there was a significant relationship between net profit and net sales.

HYPOTHESIS: 3
Ho: There is no significant relationship between profit after tax and total assets.
Ha: There is a significant relationship between profit after tax and total assets.

Table No. 5 PROFIT AFTER TAX & TOTAL ASSESTS RATIOS OF SAIL

YEAR	Profit After Tax	Total Assets	ROTA(In %)
Mar-11	4905	76082.99	6.4469
Mar-12	3543	76337.02	4.6413
Mar-13	2170	84218.46	2.5766
Mar-14	2616	91961.89	2.8447
Mar-15	2093	99326.87	2.1072
Mean	3065.4	85585.446	3.7233
S.D.	1179.140916	10089.40627	1.8000
Variance	1390373.3	101796119	3.2398
Minimum	2093	76082.99	2.1072
Maximum	4905	99326.87	6.4469

Graph No. 3 Return on Total Asset of SAIL



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Return on Total Assets: The Table 5 & graph 3 provides the results of return on total assets. The highest value of ROTA was 6.44 percent in March 2011, and the least Value was about 2.10 in March 2015 and the mean value was observed at about 3.723 percent and the coefficient of variation was 3.239 percent. Hence, the ROTA showed a declining trend over the study period. The graph 3 depicts the return on total assets of SAIL The total assets gradually increased during the study period from a minimum of Rs. 76082.99 cr. to the maximum of 99326.87 cr.

TABLE No 6: ANOVA ANALYSIS OF PAT AND TOTAL ASSETS

Model	*df*	*Sum of Squares*	*Mean Square*	*F*	*Significance F*
Regression	1	3344235.616	3344235.616	4.524827	0.12334201
Residual	3	2217257.584	739085.8614		
Total	4	5561493.2			

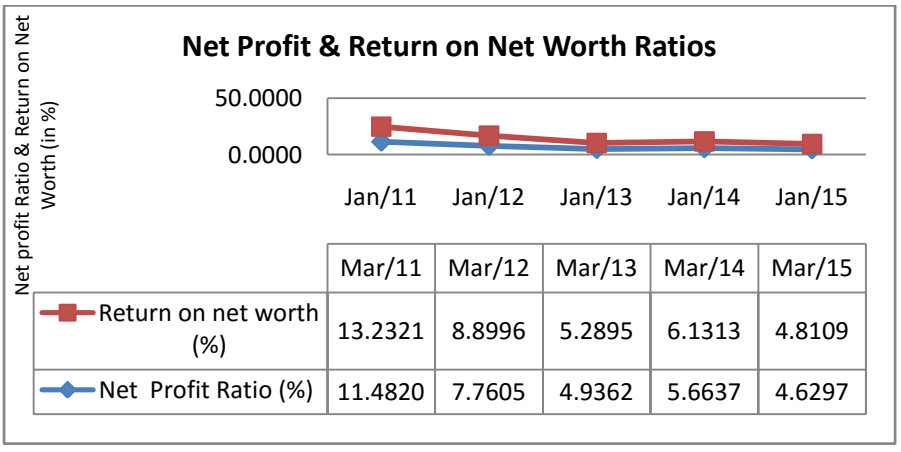
a. Dependent Variable: Profit After Tax
b. Predictors: (Constant), Total Assets
From table 6 mentioned above results, it can be seen that the calculated F value is 4.524 & p value is (.123). On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted at 5 % level of significance. Therefore, there was statistically significant relationship between profit after tax and total assets.

Hypothesis 4
Ho: There is no significant relationship between net profit ratio and return on net worth.
Ha: There is a significant relationship between net profit ratio and return on net worth.

TABLE No 7: NET PROFIT RATIO & RETURN ON NET WORTH OF SAIL

YEAR	Net Profit Ratio (%)	Return on net worth (%)
Mar-11	11.4820	13.2321
Mar-12	7.7605	8.8996
Mar-13	4.9362	5.2895
Mar-14	5.6637	6.1313
Mar-15	4.6297	4.8109
Mean	6.8944	7.6727
S.D.	2.8405	3.4877
Variance	8.0686	12.1643
Minimum	4.6297	4.8109
Maximum	11.4820	13.2321

Graph No 4 : NET PROFIT RATIO & RETURN ON NET WORTH OF SAIL



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From the above table 7 & Graph 4 show the profitability ratios of SAIL during the study period. It has been observed that the value of Net Profit Margin fluctuated with a continuous decline during the study period. The mean value of Net Profit Margin was 6.89 observed in the study period. The minimum value of Net Profit Margin was 4.629 percent, observed in the last year, and the maximum value of Net Profit Margin (11.48 percent) was attained in the year 2010-11. RONW could be observed from the table 7 that the return on net worth ratio fluctuated during the study period. The average RONW was evidenced to be 7.672, and the years 2010-11, 2011-12, attained the above average. A High coefficient of variation was observed during the study period. The table 7 also shows that the RONW of SAIL declined from 13.23 to 4.81. The graph 7 exhibits the Net Profit Margin, RONW, for SAIL during the study period.

TABLE No 8: ANOVA ANALYSIS OF NET PROFIT RATIO AND NET WORTH

Model	*df*	*Sum of Squares*	*Mean Square*	*F*	*Significance F*
Regression	1	48.61714417	48.61714417	3645.238	1.00104E-05
Residual	3	0.040011493	0.013337164		
Total	4	48.65715566			

From table 8 mentioned above results, it can be seen that the calculated F value is 3645.23 & p value is (1.001). On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted. Therefore, there was a significant relationship between net profit ratio and net worth.

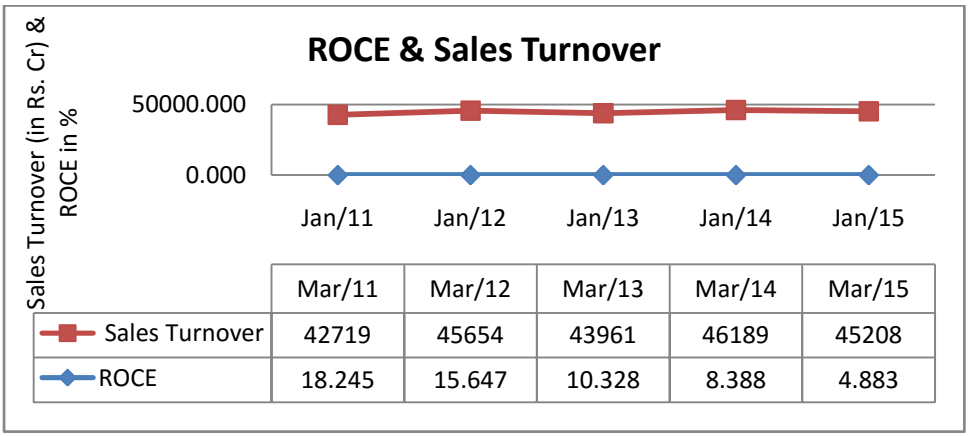
HYPOTHESIS 5

Ho: There is no significant relationship between ROCE and sales Turnover.
Ha: There is a significant relationship between ROCE and net sales.

TABLE No. 9 : RETURN ON CAPITAL EMPLOYED & SALES TURNOVER OF SAIL

YEAR	ROCE	Sales Turnover
Mar-11	18.245	42719
Mar-12	15.647	45654
Mar-13	10.328	43961
Mar-14	8.388	46189
Mar-15	4.883	45208
Mean	11.498	44746.2
S.D.	5.421	1400.45625
Variance	29.383	1961277.7
Minimum	4.883	42719
Maximum	18.245	46189

Graph No 5: RETURN ON CAPITAL EMPLOYED & SALES TURNOVER OF SAIL



From table no. 9 & graph 5 shows the relationship between ROCE & Sales Turnover of SAIL. The ROCE was minimum in the year 2014-15 (4.88%) and was maximum in the year 2010-11 (18.24%), whereas the sales turnover was minimum in the year 2010-11 (42719cr.), and was maximum in the year 2014-15 (45208 cr.). The ROCE and Sales turnover fluctuated during the study period.

TABLE No 10: ANOVA ANALYSIS- ROCE AND SALES TURNOVER

Model	*df*	*Sum of Squares*	*Mean Square*	*F*	*Significance F*
Regression	1	34.84854483	34.84854483	1.264389	0.342672487
Residual	3	82.68473201	27.56157734		
Total	4	117.5332768			

a. Dependent Variable: Return On Capital Employed (%)
b. Predictors: (Constant), sales Turnover
From the above results, it is clear that the calculated value 1.264 is more than p value(Table value) ie 0.3426 hence, the null hypothesis is rejected. Therefore, there was significant relationship between ROCE and net sales.

FINDINGS AND SUGGESTIONS
Ratio analysis enables stockholders, lenders, and the firm's mangers to evaluate the firm's performance. It can be performed on a cross – sectional or a time –series basis. To achieve the main purpose of this study, a time-series analysis was used to find the profitability ratios of the Steel Authority of India Ltd.
The results are as follows:
1) Operating profit margin ratio represents the pure profit of the company, for the given period of study operating profit was continuously decreasing which is not a good indication of the public sector industries performance.
2) Net profit margin ratio, which measures how profitable a company's sales are after deducting all expenses, interests, taxes, and preferred stock dividends declined from 11.48% to4.63 % in the year 2015.
3) Return on net worth – which measures the returns earned on the common stockholders' investment in the firm – decreased drastically from 6.45% (2011) to 2.12 % (March, 2015). This indication reflects the low performance of the management on the invested financial resources.
4) ROCE measured the overall profitability of SAIL , and it declined regularly from 18.24% (March, 2011) to a lower level of 4.88 %.
5) The overall performance of SAIL regarding profitability was poor during the study period and was drastically falling with respect to operating profit, net profit, RONW and ROTA. The company's customer base has been growing, as it was depicted from the growing sales figure hence, it has good future opportunities if it improves on the Profitability.

CONCLUSION AND RECOMMENDATIONS
Operating profit, which represents the profits earned from producing and selling products, was also low as compared to the sales volume of the company. Therefore, the company needs to reduce its expenses to be able to pay its debts and gain more earnings after taxes.
Earnings after taxes, which are available for common stockholders, were also low as compared to the sales volume of the company. This is due to the effect of high expenses on the costs of goods sold and other expenses. These factors need to be controlled by following accounting and financial policies.
Finally, though the company is a profitable one and has good future opportunities, it has to look carefully at controlling the costs of goods sold and reduce its expenses to avoid facing difficult conditions in the future.
As far as the above analysis is concerned though SAIL is one of 'Maharatnas' in PSUs, its profitability graph has fallen down that is producing a threat in front of the public sector enterprises of India.

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