

# SPEL ANALYSIS OF FINANCIAL STATEMENTS OF SELECTED PUBLIC SECTOR STEEL MANUFACTURING COMPANIES – INDIA

*M. Kondala Rao,*

Assistant Professor & Research Scholar  
Department of Management,  
ACE Engineering College, Hyderabad, India.

## ABSTRACT

*Financial statements are the records that outline the financial activities of a business, an individual or any other entity. Financial statements are meant to present the financial information of the entity in question as clearly and concisely as possible for both the entity and for readers. The objective of financial statements is to provide information about the financial position, performance and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions through balance sheet, income statement, statement of changes in equity, cash flow statement and others. The analysis of financial performance reflects the financial position of the company. A ratio analysis is a quantitative analysis of information contained in a company's financial statements. It is used to evaluate various aspects of a company's operating and financial performance such as its Solvency, Profitability, Efficiency, and Liquidity (SPEL). The objective of this paper is to assess the financial performance of Public Sector Steel Manufacturing Companies (PSSMC) in India on the basis of various tools and techniques. This study investigates the financial performance of selected companies in India for a ten-year period from 2006 to 2015, which is assessed using financial ratios. This paper focuses the impact of disinvestment on the solvency, profitability, efficiency, and liquidity position of the selected PSUs. In the present study used statistical technique ANOVA to analyze the financial performance. The findings pointed out that overall company's performance is gradually decreased until the year 2015.*

**Keywords:** *Financial Statements Analysis, Solvency, Profitability, Efficiency, Liquidity, PSUs, Mean, CV, CAGR and ANOVA.*

## Introduction:

Financial analysis is structured and logical way to present overall financial performance of a financial institution. It's also helped to evaluate and decision making in business operation. In the financial analysis process ratio analysis is the most dominant and logical structure to help business related stakeholder. Under the financial ratio analysis process, there are a few categories to the identical area of financial institution. So business stakeholders try to concentrate to get an overall business overview from ratio analysis. These ratios not only help with the decision making process also emphasized on risk avoiding and profit raising related factors. To calculate this ratio need to take

quantitative data from a company's financial statements from audited reports. Ratio analysis is based on line items in the financial statements like the balance sheet, income statement and cash flow statement; the ratios of one item – or a combination of items - to another item or combination are then calculated. Ratio analysis is used to evaluate various aspects of a company's operating and financial performance, such as its efficiency, liquidity, profitability and solvency. Ratios are also compared across different companies in the same sector to see how they stack up, and to get an idea of comparative valuations. The ratio analysis is the most powerful tool of financial analysis. Concepts of Financial Statements One of the most important functions of the

accounting process is to accumulate and report historical accounting information. This study evaluates public sector steel manufacturing company's performance for the period 2006-2015 using financial ratio analysis (called SPEL analysis). Financial ratio analysis has the wide range advantage to show the steel manufacturing company's financial position compare to past year performance.

### Statement of the Problem:

The study of the production performance is important to know the operating level of the business and financial efficiency of the business enterprise. Survival of the business in the present competitive world depends on the quality production and the technological development in the business. Therefore, the present study attempts to study the production trend of the Indian Steel Industry after Liberalization. To evaluate financial ratio I used the various instrument for analysis like Descriptive analysis, ANOVA -test for finding the difference between variable. The problem statement is "to Analysis the financial performance of selected public sector steel manufacturing companies in India Using Financial ratio."

### Significance of the study:

Performance appraisal is of special importance in industries and Steel is one such industry. From the point of view of the socioeconomic development of the country, Steel industry is also significant enough in terms of investment and employment. The sales and profitability function in the Steel industry differ from that of other industries. Even though many studies in this direction have been conducted, the present one would be of greater significance to many. It would help to understand the pattern and the structure of financial variables of leading companies in their respective industries. The change in the economic policy of the government certainly has got impact on the performance of corporate units in India

### Objectives of the Study:

The study aims (i) to study the Production, Sales and Profit trend of selected Steel companies (ii) to analyze the Solvency position of selected Steel Companies (iii) to analyze the Profitability position of selected Steel Companies (iv) to analyze the Efficiency of selected Steel companies (v) to analyze the Liquidity position of selected Steel companies (vi) to study the Financial Structure of selected Steel Companies (vii) To make suggestions for improvement of financial soundness.

### Data Base and Methodology:

The study is mainly based on secondary data. The data analyzed and interpreted in this study related to all those industries selected are collected from "Capitaline"

and company's annual reports and databases, which are the most reliable on the empowered corporate database of Bombay Stock Exchange and Centre for Monitoring Indian Economy (CMIE) respectively. They contain highly normalized databases built on a sound understanding of disclosure in India more than 12,000 companies, which include public, private, cooperative and joint-sector companies. The databases provide financial statements, ratio analysis, funds flow, cash flow, product profiles, returns and risk on the stock market etc.

### Hypothesis of the study:

1. **H<sub>0</sub>** – There is no significant difference in debt-equity ratio between the companies and between years.
2. **H<sub>0</sub>** – There is no significant difference in interest coverage ratio between the companies and between years.
3. **H<sub>0</sub>** – There is no significant difference in Gross Profit Ratio between the companies and between years
4. **H<sub>0</sub>** – There is no significant difference in Net Profit Ratio between the companies and between years
5. **H<sub>0</sub>** – There is no significant difference in Return on Capital Employed Ratio between the companies and between years.
6. **H<sub>0</sub>** – There is no significant difference in Return on Net worth Ratio between the companies and between years.
7. **H<sub>0</sub>** – There is no significant difference in Investment Turnover Ratio between the companies and between years
8. **H<sub>0</sub>** – There is no significant difference in Fixed Assets Turnover Ratio between the companies and between years.
9. **H<sub>0</sub>** – There is no significant difference in current ratio between the companies and between years.
10. **H<sub>0</sub>** – There is no significant difference in Quick Ratio between the companies and between years

### Period of Study:

The period 2005-2006 to 2014-2015 is selected for this study. This 10 year period is chosen in order to have a fairly long, cyclically well balanced period, for which reasonably homogeneous, reliable and up-to-date financial data would be available.

### Tools of Analysis:

In this section it is intended to briefly outline the various statistical and economic techniques employed in the study. Statistical measures like Mean, Co-Efficient of Variation, Compound Annual Growth Rate, Analysis of Variance.

**Limitations of the Study:**

However, there are some limitations of the study, which are generally inherent in all such studies conducted at human being level. The most important among them are:

i) The study is based on secondary data obtained from the published annual reports and as its finding depends entirely on the accuracy of such data. ii) The study is covered only four selected steel companies. So the finding may not be applicable to entire industries as a whole. iii) The present study is largely based on rational analysis, which has its own limitations. iv) Statistical test used in the study to interpret the analyzed data to generalize the findings of the study of the entire population has got their own limitations and result in the analysis is subject to the same constraints as are applicable to statistical tools.

**Review of Literature:**

Vijayakumar (1998) has examined the determinants of corporate size, growth and profitability - the Indian experience. To meet the objectives of the study, Indian public sector industries were selected. The data relating to size, growth and profitability was collected from their annual reports published by the Bureau of Public Enterprises (BPE), Government of India. The study covers the period from 1980-81 to 1995-96. The technique of average, correlation and linear and linear and multiple regression analysis has been used in this study. Inter - industry analysis reveals that the growth is positive and significantly associated with the size in all the industry groups except textiles. Rajeswari (2000) studied the Liquidity Management of Tamil Nadu Cement Corporation Ltd. Alangulam-A Case Study. It can be concluded from the analysis; the liquidity position of TANCEM is not stable. Regarding liquidity ratios, there was too much of liquidity in the first two years of the study period. A very high degree of liquidity is also bad as idle assets earn nothing and affects profitability. It can be concluded that the liquidity management of TANCEM is poor and is not satisfactory. Sudarsana Reddy (2003) studied the Financial Performance of Paper industry in AP. The main objectives set for the study are to evaluate the financing methods and practices to analyze the investment pattern and utilization of fixed assets, to ascertain the working capital condition, to review the profitability performance and to suggest measures to improve the profitability. The data collected have been examined through ratios, trend, common size, comparative financial statement analysis and statistical tests have been applied in appropriate context. The main findings of the study are that A.P. paper industry needs the introduction of additional funds along with restructuring of finances and modernization of technology for better operating performance.

**Profile of Selected Steel Companies:****Steel Authority of India Limited:**

Steel Authority of India Limited (SAIL) is the largest steel-making company in India and one of the seven Maharatna's of the country's Central Public Sector Enterprises. SAIL produces iron and steel at five integrated plants and three special steel plants, located principally in the eastern and central regions of India and situated close to domestic sources of raw materials. SAIL manufactures and sells a broad range of steel products. Some of the products are Rails (13/26m), Long Rails, (65-260m), Blooms, Billets, Slabs, Channels, Joists, Angles, TMT Rebars, Wire Rods, Crane Rails, Plates, Pig iron & Coal Chemicals. It is located in Chattisgarh, West Bengal, Odisha, Jharkhand, Tamil Nadu, Karnataka, and Maharashtra.

**Ownership and Management:**

The Government of India owns about 75% of SAIL's equity and retains voting control of the Company. However, SAIL, by virtue of its 'Maharatna' status, enjoys significant operational and financial autonomy.

**Ferro Alloys Corporation Limited (FACOR):**

Ferro Alloys Corporation Limited incorporated in 1955 is one of the India's largest producers and exporters of Ferro Alloys, an essential ingredient for the manufacture of Steel and Stainless Steel. It exports to several countries like Korea, Japan, Italy, Netherlands, USA, Turkey, China and Taiwan. Facor Group, started its journey in 1956 from a Ferro Manganese plant at Shreeramnagar in Andhra Pradesh has come a long way. Today, FACOR stands synonymous to a name, which employs experienced, resources and technical know-how, not only in technology but in quality as well.

**Welspun Steel Ltd. (WSL):**

Since its inception in 1985, the Welspun group has grown rapidly to become a Global leader in almost every segment that it operates viz. Home Textiles, SAW Pipes, and Yarns. Besides its operations in core sector like - Steel, Steel pipes, Infrastructure, Energy, Oil and Gas, Welspun additionally touches numerous lives across the Globe with its world-class Home Textile products and Retail.

**Hindustan Steelworks Construction Limited (HSCL):**

Hindustan Steelworks Construction Limited was established in 1964 as a construction organization under the Ministry of Steel, Govt of India. It diversified into a versatile infrastructure portfolio all over the country. It became the major player in implementation of integrated steel plants. It has been a pioneer of Infrastructure projects in the North Eastern regions including Projects under Bharat Nirman

Programme of Govt of India. Now it is also an ISO 9001: 2008 certified company.

**Data Analysis and Interpretation:**

**A. Analysis of Long-term Solvency:**

1. Debt-Equity Ratio 2. Interest Coverage Ratio

**B. Analysis of Profitability**

1. Gross Profit Ratio 2. Net Profit Ratio 3. Return on Capital Employed 4. Return on Net Worth

**C. Analysis of Efficiency**

1. Investment Turnover Ratio  
2. Fixed Assets Turnover Ratio

**D. Analysis of Liquidity**

1. Current Ratio 2. Quick Ratio

**A. Analysis of Long-term Solvency**

Solvency ratios are primarily used to measure a company's ability to meet its long term -obligations. In general, a solvency ratio measures the size of a company's profitability and compares it to its obligations. By interpreting a solvency ratio, an analyst or investor can gain insight into how likely a company will be to continue meeting its obligations. A stronger or higher ratio indicates financial strength.

**Debt-Equity Ratio:**

Debt to equity ratio is a long term solvency ratio that indicates the soundness of long-term financial policies of the company. It shows the relation between the portion of assets provided by the stockholders and the portion of assets provided by creditors.

$$\text{Debt to equity ratio} = \frac{\text{Total liabilities}}{\text{Stockholder's equity}}$$

The Table 3 showed that the mean debt-equity ratio of SAIL was 0.44 which is statistically significant. The CV value further indicated highly fluctuation (0.36) in this ratio during the study period. Further, debt-equity ratio of SAIL registered positive (0.03) compound annual growth rate during the study period.

The mean debt-equity ratio of FACOR was 0.38 which is statistically significant. The CV value further indicated erratic fluctuation (0.50) in this ratio during the study period. Further, debt-equity ratio of FACOR registered negative (-0.09) compound annual growth rate during the study period.

The mean debt-equity ratio of WSL was 1.20 which is statistically significant. The CV value further indicated moderate fluctuation (0.43) in this ratio during the study period. Further, debt-equity ratio of WSL registered negative (-0.05) compound annual growth rate during the study period. The mean debt-equity ratio of HSCL was 2.48 which is statistically significant. The CV value further indicated moderate fluctuation (0.35) in this ratio during the study period. Further, debt-equity ratio of WSL registered positive (0.09) compound annual growth rate during the study period.

It is evident from the Table 3 that the debt-equity ratio only companies has registered better performance when compared to the standard norm 1:1 during the study period. So, the debt-equity ratio was better in SAIL and FACOR. Table 3. also indicated the HSCL had the highest mean debt-equity ratio, followed by WSL, SAIL and FACOR. The CV value also indicated that moderate fluctuation in debt-equity ratio of public sector steel companies during the study period. The compound annual growth rate of debt-equity ratio had registered positive value in positive value in all companies during the study period.

To judge whether the difference in the mean values of debt-equity ratio between the companies and between the years during the year period, the following hypothesis are framed and tested.

**H0** – There is no significant difference in debt-equity ratio between the companies and between years.

It is evident from the Table 4 that the differences between debt- equity in between the companies are not significant because the calculated value of 'F' (0.74) is less than the table value of 'F' (2.2.25) at the 5 per cent level of significance. Hence, the null hypothesis is accepted. Further, the difference between years are significant because the calculated value of 'F' (32.93) is more than the table value of 'F' (2.96) at the 5 percent value of significance and the null hypothesis is also rejected.

Hence, the financial structure of the selected companies measured through debt-equity ratio was not satisfactory and should not be adequate during the study period.

**Interest Coverage Ratio:**

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

The interest coverage ratio calculation shows how easy it is for a company to pay interest on its outstanding debt. It also gives you a picture of how far a company's earnings would have to fall before it was in danger of defaulting on its debt and is therefore a good gauge of its short-term health. Most shareholders look for an interest coverage ratio of at least 1.5. The fixed interest coverage ratio for the selected public sector steel companies during the study period presented.

It is evident from the table 5 that the interest coverage ratio of SAIL had registered fluctuating trend and ranged from 12.81 in the year 2005-2006 to 2.66 in the year 2014-2015 during the study period. The Table 5 showed that the highest mean interest coverage ratio of SAIL was 18.56 which is statistically significant. The CV value further indicated erratic fluctuation (0.86) in this ratio during the study period. Further, interest coverage ratio of SAIL registered negative (-0.16) compound annual growth rate during the study period.

The interest coverage ratio of FACOR was registered fluctuating trend and ranged from 5.58 in the year 2005-2006 to 2.48 in the year 2014- 2015 during the study period. The Table 5 showed that the mean interest coverage ratio of FACOR was 8.68 which is statistically significant. The CV value further indicated erratic fluctuation (0.89) in this ratio during the study period. Further, interest coverage ratio of FACOR registered negative (-0.09) compound annual growth rate during the study period.

Table 5 also indicated the SAIL had the highest mean interest coverage ratio, followed by FACOR, WSL and HSCL. The CV value also indicated that erratic fluctuation in interest coverage ratio of public sector steel companies during the study period. The compound annual growth rate of interest coverage ratio had registered negative value in all the selected steel companies during the study period.

To judge whether the difference in the mean values of interest coverage ratio between the companies and between the years during the year period, the following hypothesis are framed and tested.

**H<sub>0</sub>** – There is no significant difference in interest coverage ratio between the companies and between years.

It is evident from the Table 6 that the differences between interest coverage in between the companies are significant because the calculated value of ‘F’ (2.53) is more than the table value of ‘F’ (2.25) at the 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of ‘F’ (8.18) is more than the table value of ‘F’ (2.96) at 5 percent value of significance and the null hypothesis is rejected.

Hence, the financial structure of the selected companies measured through interest coverage ratio was not satisfactory and should not be adequate during the study period.

**Analysis of Profitability:**

**Gross Profit Ratio:**

Gross profit ratio (GP ratio) is a profitability ratio that shows the relationship between gross profit and total net sales revenue. It is a popular tool to evaluate the operational performance of the business. Generally, a higher ratio is considered better.

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

The Table 7 showed that the mean gross profit ratio of SAIL was 14.96 which are statistically significant. The CV value further indicated moderate fluctuation (0.49) in this ratio during the study period. Further, gross profit ratio of SAIL registered negative (-0.10) compound annual growth rate during the study period. The mean gross profit ratio of FACOR was 11.00 which is statistically significant. The CV value further

indicated moderate fluctuation (0.62) in this ratio during the study period. Further, gross profit ratio of FACOR registered negative (-0.09) compound annual growth rate during the study period.

The mean gross profit ratio of WSL was 8.48 which are statistically significant. The CV value further indicated consistency (0.79) in this ratio during the study period. Further, gross profit ratio of WSL registered negative (-0.28) compound annual growth rate during the study period.

The mean gross profit ratio of HSCL was 9.65 which are statistically significant. The CV value further indicated consistency (0.28) in this ratio during the study period. Further, gross profit ratio of HSCL registered positive (0.05) compound annual growth rate during the study period.

It is evident the Table 7 that the gross profit ratio all the selected companies has registered higher performance during the study period. So, the gross profit ratio was good during the study period. Table 7 also indicated the SAIL had the highest mean gross profit ratio, followed by FACOR, HSCL and WSL. The CV value also indicated that fluctuations in gross profit ratio of public sector steel companies during the study period. The compound annual growth rate of gross profit ratio had registered negative value in SAIL, FACOR and WSL and positive value in HSCL during the study period.

To judge whether the difference in the mean values of Gross Profit Ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**H<sub>0</sub>** – There is no significant difference in Gross Profit Ratio between the companies and between years

It is evident from the Table 8 that the differences between gross profit ratios in between the companies are significant because the calculated value of ‘F’ (4.22) is more than the table value of ‘F’ (2.25) at 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of ‘F’ (3.79) is higher than the table value of ‘F’ (2.96) at 5 percent value of significance and the null hypothesis is also rejected.

Hence, the financial structure of the selected companies measured through gross profit ratio was not satisfactory and should not be adequate during the study period.

**Net Profit Ratio:**

Net profit ratio (margin) is a key financial indicator used to assess the profitability of a company that shows relationship between net profit after tax and net sales. A low profit margin indicates a low margin of safety: higher risk that a decline in sales will erase profits and result in a net loss.

$$\text{Net profit (NP) ratio} = \frac{\text{Net profit after tax}}{\text{Net sales}}$$

The Table 9 showed that the mean net profit ratio of SAIL was 10.37 which is statistically significant. The CV value further indicated moderate fluctuation (0.62) in this ratio during the study period. Further, net profit ratio of SAIL registered negative (-0.11) compound annual growth rate during the study period. The mean net profit ratio of FACOR was 6.45 which is statistically significant. The CV value further indicated moderate fluctuation (0.68) in this ratio during the study period. Further, net profit ratio of FACOR registered negative (-0.10) compound annual growth rate during the study period.

The mean net profit ratio of WSL was 4.36 which is statistically significant. The CV value further indicated consistency (0.78) in this ratio during the study period. Further, net profit ratio of WSL registered negative (-1.77) compound annual growth rate during the study period.

The mean net profit ratio of HSCL was 1.75 which is statistically significant. The CV value further indicated consistency (2.21) in this ratio during the study period. Further, net profit ratio of HSCL registered negative (-0.15) compound annual growth rate during the study period.

It is evident the Table 9 that the net profit ratio all the selected companies has registered lesser performance during the study period except SAIL and FACOR. So, the net profit ratio was poor during the study period. Table 5 also indicated the SAIL had the highest mean net profit ratio, followed by FACOR, WSL and HSCL. The CV value also indicated that fluctuations in net profit ratio of public sector steel companies during the study period. The compound annual growth rate of net profit ratio had registered negative values in all the companies during the study period.

To judge whether the difference in the mean values of Net Profit Ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**H<sub>0</sub>** – There is no significant difference in Net Profit Ratio between the companies and between years

It is evident from the Table 10 that the differences between net profit ratios in between the companies are significant because the calculated value of 'F' (3.74) is more than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of 'F' (10.21) is higher than the table value of 'F' (2.96) at 5 percent value of significance and the null hypothesis is also rejected.

Hence, the financial structure of the selected companies measured through net profit ratio was not satisfactory and should not be adequate during the study period.

### Return on Capital Employed:

Return on capital employed (ROCE) is a profitability ratio that measures how efficiently a company can generate profits from its capital employed by comparing net operating profit to capital employed. ROCE is a long-term profitability ratio because it shows how effectively assets are performing while taking into consideration long-term financing. Higher the ratio performance of the companies is effective or satisfactory.

It is evident from the table 11 that the return on capital employed ratio of SAIL had registered fluctuating trend and ranged from 35.8 in the year 2005-2006 to 5.6 in the year 2014-2015 during the study period. The Table 11 showed that the highest mean return on capital employed ratio of SAIL was 21.15 which is statistically significant. The CV value further indicated erratic fluctuation (0.73) in this ratio during the study period. Further, return on capital employed ratio of SAIL registered negative (-0.19) compound annual growth rate during the study period.

The return on capital employed ratio of FACOR was registered fluctuating trend and ranged from 13.28 in the year 2005-2006 to 12.09 in the year 2014- 2015 during the study period. The Table 11 showed that the mean return on capital employed ratio of FACOR was 20.60 which is statistically significant. The CV value further indicated erratic fluctuation (0.70) in this ratio during the study period. Further, return on capital employed ratio of FACOR registered negative (-0.01) compound annual growth rate during the study period.

The return on capital employed ratio of WSL was registered fluctuating trend and ranged from 21.47 in the year 2005-2006 to 4.75 in the year 2014- 2015 during the study period. The Table 11 showed that the mean return on capital employed ratio of WSL was 12.89 which is statistically significant. The CV value further indicated erratic fluctuation (0.56) in this ratio during the study period. Further, return on capital employed ratio of WSL registered negative (-0.15) compound annual growth rate during the study period.

The return on capital employed ratio of HSCL was registered fluctuating trend and ranged from 6.7 in the year 2005-2006 to 13.03 in the year 2014- 2015 during the study period. The Table 11 showed that the mean return on capital employed ratio of HSCL was 9.43 which is statistically significant. The CV value further indicated erratic fluctuation (0.25) in this ratio during the study period. Further, return on capital employed ratio of HSCL registered positive (0.08) compound annual growth rate during the study period. Table 11 also indicated the SAIL had the highest mean return on capital employed ratio, followed by, FACOR, WSL and HSCL. The CV value also indicated that erratic fluctuation in return on capital employed ratio of public sector steel companies during the study period. The compound annual growth rate of return on capital employed ratio had registered

negative values in all the selected steel companies during the study period except HSCL.

To judge whether the difference in the mean values of return on capital employed ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**Ho** – There is no significant difference in Return on Capital Employed Ratio between the companies and between years.

It is evident from the Table 12 that the differences between return on capital employed in between the companies are significant because the calculated value of 'F' (3.17) is more than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of 'F' (4.12) is more than the table value of 'F' (2.96) at 5 percent value of significance and the null hypothesis is rejected.

Hence, the financial structure of the selected companies measured through return on capital employed ratio was not satisfactory and should not be adequate during the study period.

#### **Return on Net worth:**

Return on Net Worth (RONW) is used in finance as a measure of a company's profitability. It reveals how much profit a company generates with the money that the equity shareholders have invested. RONW is a measure for judging the returns that a shareholder gets on his investment.

It is evident from the table 13 that the return on net worth ratio of SAIL had registered fluctuating trend and ranged from 32.64 in the year 2005-2006 to 4.88 in the year 2014-2015 during the study period. The Table 13 showed that the highest mean return on net worth ratio of SAIL was 18.27 which are statistically significant. The CV value further indicated erratic fluctuation (0.67) in this ratio during the study period. Further, return on net worth ratio of SAIL registered negative (-0.19) compound annual growth rate during the study period.

The return on net worth ratio of FACOR was registered fluctuating trend and ranged from 16.16 in the year 2005-2006 to 7.37 in the year 2014- 2015 during the study period. The Table 13 showed that the mean return on net worth ratio of FACOR was 12.02 which are statistically significant. The CV value further indicated erratic fluctuation (0.60) in this ratio during the study period. Further, return on net worth ratio of FACOR registered negative (-0.08) compound annual growth rate during the study period.

The return on net worth ratio of WSL was registered fluctuating trend and ranged from 12.23 in the year 2005-2006 to -0.84 in the year 2014- 2015 during the study period. The Table 13 showed that the mean return on net worth ratio of WSL was 10.61 which are statistically significant. The CV value further

indicated erratic fluctuation (0.90) in this ratio during the study period. Further, return on net worth ratio of WSL registered negative (-1.74) compound annual growth rate during the study period.

The return on net worth ratio of HSCL was registered fluctuating trend and ranged from 14.03 in the year 2005-2006 to 5.88 in the year 2014- 2015 during the study period. The Table 13 showed that the mean return on net worth ratio of HSCL was 3.99 which is statistically significant. The CV value further indicated erratic fluctuation (2.58) in this ratio during the study period. Further, return on net worth ratio of HSCL registered negative (-0.09) compound annual growth rate during the study period.

Table 13 also indicated the SAIL had the highest mean return on net worth ratio, followed by, FACOR, WSL and HSCL. The CV value also indicated that erratic fluctuation in return on net worth ratio of public sector steel companies during the study period. The compound annual growth rate of return on capital employed ratio had registered negative values in all the selected steel companies during the study period.

To judge whether the difference in the mean values of return on net worth ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**Ho** – There is no significant difference in Return on Net Worth Ratio between the companies and between years.

It is evident from the Table 14 that the differences between return on net worth in between the companies are significant because the calculated value of 'F' (5.72) is more than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of 'F' (7.49) is more than the table value of 'F' (2.96) at 5 percent value of significance and the null hypothesis is rejected.

Hence, the financial structure of the selected companies measured through return on net worth ratio was not satisfactory and should not be adequate during the study period.

#### **Analysis of Efficiency:**

##### **Investment Turnover Ratio:**

Higher investment turnover ratios equate to more efficient companies. The investment turnover ratio tells the investor-analyst how effectively a company uses its resources to generate revenues.

The Table 15 showed that the mean investment turnover ratio of SAIL was 4.55 which is statistically significant. The CV value further indicated moderate fluctuation (0.56) in this ratio during the study period. Further, investment turnover ratio of SAIL registered negative (-0.06) compound annual growth rate during the study period.

The mean investment turnover ratio of FACOR was 8.30 which is statistically significant. The CV value further indicated moderate fluctuation (0.23) in this ratio during the study period. Further, investment turnover ratio of FACOR registered negative (-0.05) compound annual growth rate during the study period. The mean investment turnover ratio of WSL was 5.02 which is statistically significant. The CV value further indicated consistency (0.38) in this ratio during the study period. Further, investment turnover ratio of WSL registered negative (0.06) compound annual growth rate during the study period.

The mean investment turnover ratio of HSCL was 1.30 which is statistically significant. The CV value further indicated consistency (0.21) in this ratio during the study period. Further, investment turnover ratio of HSCL registered negative (-0.04) compound annual growth rate during the study period.

It is evident the Table 15 that the investment turnover ratio all the selected companies has registered lesser performance during the study period. So the investment turnover ratio was poor during the study period. Table 15 also indicated the FACOR had the highest mean investment turnover ratio, followed by WSL, SAIL and HSCL. The CV value also indicated that fluctuations in investment turnover ratio of public sector steel companies during the study period. The compound annual growth rate of investment turnover ratio had registered negative values in three companies and WSL registered positive during the study period.

To judge whether the difference in the mean values of Investment Turnover Ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**H<sub>0</sub>** – There is no significant difference in Investment Turnover Ratio between the companies and between years. It is evident from the Table 16 that the differences between investment turnover ratio in between the companies are not significant because the calculated value of 'F' (1.38) is less than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is accepted. Further, the difference between years are significant because the calculated value of 'F' (26.12) is higher than that the table value of 'F' (2.96) at 5 percent value of significance and the null hypothesis is rejected.

Hence, the financial structure of the selected companies measured through investment turnover ratio satisfactory and should be adequate during the study period.

#### **Fixed Assets Turnover Ratio:**

The fixed-assets turnover ratio measures a company's ability to generate net sales from fixed asset investments – specially property, land and equipment (PP&E)- net of depreciation. A higher fixed-assets turnover ratio shows that the company has been more effective.

$$\text{Fixed Asset Turnover} = \frac{\text{Net Sales}}{\text{Net Property, Plan, and Equipment}}$$

It is evident from the table 17 that the fixed assets turnover ratio of SAIL had registered constant trend and ranged from 0.95 in the year 2005-2006 to 0.7 in the year 2014-2015 during the study period. The Table 17 showed that the lowest mean fixed assets turnover ratio of SAIL was 1.06 which is statistically not significant. The CV value further indicated erratic fluctuation (0.18) in this ratio during the study period. Further, fixed assets turnover ratio of SAIL registered negative (-0.03) compound annual growth rate during the study period.

The fixed assets turnover ratio of FACOR was registered fluctuating trend and ranged from 5.99 in the year 2005-2006 to 3.25 in the year 2014- 2015 during the study period. The Table15 showed that the mean fixed assets turnover ratio of FACOR was 3.75 which is statistically significant. The CV value further indicated erratic fluctuation (0.43) in this ratio during the study period. Further, fixed assets turnover ratio of FACOR registered negative (-0.07) compound annual growth rate during the study period. Table 17 also indicated the FACOR had the highest mean interest coverage ratio, followed by, HSCL, WSL and SAIL. The CV value also indicated that erratic fluctuation in fixed assets turnover ratio of public sector steel companies during the study period. The compound annual growth rate of fixed assets turnover ratio had registered negative values in all the selected steel companies during the study period.

To judge whether the difference in the mean values of fixed assets turnover ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**H<sub>0</sub>** – There is no significant difference in Fixed Assets Turnover Ratio between the companies and between years

It is evident from the Table 18 that the differences between fixed assets turnover in between the companies are not significant because the calculated value of 'F' (1.47) is less than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is accepted. Further, the difference between years are significant because the calculated value of 'F' (19.56) is more than the table value of 'F' (2.96) at 5 percent value of significance and the null hypothesis is rejected.

Hence, the financial structure of the selected companies measured through fixed assets turnover ratio was not satisfactory and should not be adequate during the study period.

#### **Analysis of Short-term Solvency (Liquidity): Current Ratio:**

The management of working capital involves decisions about the amount and composition current assets and

how they are financed. Such decisions involve a trade-off between solvency and profitability. In inter-firm comparison, the firm with higher current ratio has better liquidity. Therefore, current ratio is used to explain profitability of Indian steel manufacturing companies. The current ratio for the selected public sector companies during the study period presented in Table 19.

The Table 19 showed that the mean current ratio of SAIL was 1.21 which is statistically significant. The CV value further indicated consistency (0.50) in this ratio during the study period. Further, current ratio of SAIL registered negative (-0.07) compound annual growth rate during the study period.

The mean current ratio of FACOR was 1.24 which is statistically significant. The CV value further indicated consistency (0.42) in this ratio during the study period. Further, current ratio of FACOR registered negative (-0.07) compound annual growth rate during the study period.

The mean current ratio of WSL was 0.94 which is statistically significant. The CV value further indicated consistency (0.19) in this ratio during the study period. Further, current ratio of WSL registered zero (0.00) compound annual growth rate during the study period.

The mean current ratio of HSCL was 1.44 which is statistically significant. The CV value further indicated consistency (0.24) in this ratio during the study period. Further, current ratio of HSCL registered negative (-0.07) compound annual growth rate during the study period.

It is evident from the Table 19 that the current ratio of all the four companies had registered lower performance when compared to the standard norm 2:1. So, the current ratio was poor during the study period. Table 1 also indicated that the HSCL had the highest mean current ratio, followed by FACOR, SAIL and WSL. The CV value also indicated that the fluctuation in current ratio of public sector steel companies during the study period. The compound annual growth rate of current ratio had registered negative value in three selected steel companies and one company zero during the study period.

To judge whether the difference in the mean values of current ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

**H<sub>0</sub>** – There is no significant difference in current ratio between the companies and between years.

It is evident from the Table 20 that the differences between current ratio in between the companies are not significant because the calculated value of 'F' (3.63) is more than the table value of 'F' (2.25) at 5 percent level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because the calculated value of 'F' (3.57) is higher than the table value of 'F' (2.96) at 5 percent level of significance and the null hypothesis is also rejected.

Hence, the financial structure of the selected companies measured through current ratio was not satisfactory and should not be adequate during the study period.

#### Quick Ratio:

The current ratio is not a sufficient indicator of the weakness or soundness of the liquidity of a company. The important question is whether the current assets are held in liquid form or not. If working capital is tied up in inventories and prepaid expenses, which cannot be converted promptly into cash, the company may be unable to honor its obligations for want of cash funds. Therefore, the solvency of a company can be better judged by quick ratio. The quick ratio is an important device for judging the liquidity position of a business. The liquidity ratio for the selected public sector steel companies during the study period presented in Table 21.

The Table 21 showed that the mean quick ratio of SAIL was 0.88 which is statistically significant. The CV value further indicated moderate fluctuation (0.52) in this ratio during the study period. Further, quick ratio of SAIL registered negative (-0.04) compound annual growth rate during the study period.

The mean quick ratio of FACOR was 1.08 which is statistically significant. The CV value further indicated moderate fluctuation (0.35) in this ratio during the study period. Further, quick ratio of FACOR registered negative (-0.08) compound annual growth rate during the study period.

The mean quick ratio of WSL was 0.75 which is statistically significant. The CV value further indicated consistency (0.26) in this ratio during the study period. Further, quick ratio of WSL registered zero (0.00) compound annual growth rate during the study period.

The mean quick ratio of HSCL was 0.84 which is statistically significant. The CV value further indicated consistency (0.47) in this ratio during the study period. Further, quick ratio of HSCL registered negative (-0.01) compound annual growth rate during the study period.

It is evident from the Table 21 that the quick ratio of all the selected companies has registered lower performance except FACOR when compared to the standard norm 1:1 during the study period. So, the quick ratio was poor during the study period. Table 21 also indicated that the FACOR had the highest mean quick ratio, followed by SAIL, HSCL and WSL. The CV value also indicated that consistency in quick ratio of public sector steel companies during the study period. The compound annual growth rate of quick ratio had registered negative value in SAIL, FACOR and HSCL and zero value in WSL during the study period.

To judge whether the difference in the mean values of Quick Ratio between the companies and between the

years during the year period, the following hypothesis is framed and tested.

**H0** – There is no significant difference in Quick Ratio between the companies and between years

It is evident from the Table 22 that the differences between quick ratios in between the companies are not significant because the calculated value of ‘F’ (0.60) is less than the table value of ‘F’ (2.25) at 5 percent level of significance. Hence, the null hypothesis is accepted. Further, the difference between years are not significant because the calculated value of ‘F’ (1.30) is lesser than the table value of ‘F’ (2.96) at 5 percent level of significance and the null hypothesis is also accepted.

Hence, the financial structure of the selected companies measured through quick ratio was satisfactory and should be adequate during the study period.

**Conclusion:**

The analysis of Production, Sales and Profit of the selected steel manufacturing companies indicates average performance during the study period. The analysis of solvency of selected steel companies showed the poor solvency position. The analysis of profitability of selected steel companies showed the efficiency of Steel Companies in not utilizing their resources effectively in generating their return. However, the selected companies should improve their Liquidity position. It is high time that the authorities and the government also need to give due attention to the financial viability of public sector steel manufacturing companies. Finally it is concluded that the selected companies could re-frame their optimum capital structure, capacity utilization and liquidity position for enhancing the further profitability in future.

**References:**

1. Jagan Mohan Rao, P. (1993). Financial Appraisal of Indian Automotive Tyre Industry, Finance India, Vol.VII, No.3, pp.683-685.

2. Kallu Rao, P. (1993). Inter Company Financial Analysis of Tea Industry Retrospect and Prospect, Finance India, Vol. VII, No.3, pp.587-602.  
 3. Pai V.S, Vadivel.V and Kamala K.H. (Dec 1995). ‘Diversified companies and financial performance: A study, Finance India, Vol.IX, No.4, pp. 977-988.  
 4. Vijayakumar, A. (1996), Assessment of Corporate Liquidity – A Discriminant Analysis approach, The Management Accountant, Vol.31, No.8, pp.589-591.  
 5. Key Sengupta (1998). An empirical exploration of the performance of Fertilizers Industry in India: An econometric analysis, Artha Vijnana, Vol.XL, No.3, pp.252-262.  
 6. Raghunathan V. and Prabina Das, (1999). Corporate Performance: Post-Liberalization, The ICAI Journal of Applied Finance, Vol.5, No.2, pp.6- 29.  
 7. Rajeswari (2000). Liquidity Management of Tamil Nadu Cement Corporation Ltd, Alangulam- A Case Study, The Management Accountant, Vol.II, No.2, pp. 377-378.  
 8. Aggarwal, N. and Singla, S.K. (2001). How to develop a single index for financial performance, Indian Management, Vol.12, No.5, pp.59-62.  
 9. Dabasish Sur (2001). Liquidity Management: An overview of four companies in Indian Power Sector, The Management Accountant, pp.407-412.  
 10. Mansur, A. and Mulla, (2002). Use of ‘Z’ score analysis for evaluation of financial health of textile mills – A case study, Abhigyan, Vol.XIX, No.4, pp.37-40.  
 11. Sudarsana Reddy, G. (2003). Financial Performance of Paper industry in A.P, Finance India, Vol. XVII, No.3, pp. 1027-1033.  
 12. Ram Kumar Kakani, Biswatosh Saha and Reddy, V.N. (2003). Determinants of financial performance of India corporate sector in the post-liberalization era; an exploratory study, NSE Research Initiative, Paper No: 5, National Stock Exchange of India Limited, pp. 1-38.

**Table 1: Sample Companies**

S. No.	Sectors/Companies	Year of Corporation	Ownership
1	Steel Authority of India Limited (SAIL)	1973	Government of India
2	Ferro Alloys Corporation Limited (FACOR)	1955	Government of India
3	Welspun Steel Limited (WSL)	2004	Government of India
4	Hindustan Steel Corporation Limited (HSCL)	1964	Government of India

Source: Company’s websites

Table 2: Debt-Equity Ratio

Year	Sail		Facor		Wsl		Hscl	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	0.52	100	0.7	100	1.74	100	1.46	100
2006-07	0.31	60	0.5	71	2.34	134	1.72	118
2007-08	0.17	33	0.21	30	1.21	70	1.87	128
2008-09	0.27	52	0.19	27	1.41	81	2.35	161
2009-10	0.36	69	0.14	20	0.72	41	1.66	114
2010-11	0.57	110	0.24	34	0.87	50	2.28	156
2011-12	0.42	81	0.52	74	0.94	54	2.62	179
2012-13	0.54	104	0.59	84	0.62	36	3.93	269
2013-14	0.58	112	0.39	56	1.08	62	3.64	249
2014-15	0.65	125	0.31	44	1.11	64	3.3	226
<b>Mean</b>	<b>0.44</b>		<b>0.38</b>		<b>1.20</b>		<b>2.48</b>	
<b>Std.Dev.</b>	<b>0.16</b>		<b>0.19</b>		<b>0.52</b>		<b>0.87</b>	
<b>CV</b>	<b>0.36</b>		<b>0.50</b>		<b>0.43</b>		<b>0.35</b>	
<b>CAGR</b>	<b>0.03</b>		<b>-0.09</b>		<b>-0.05</b>		<b>0.09</b>	
<b>CAGR (%)</b>	<b>2.51</b>		<b>-8.65</b>		<b>-4.87</b>		<b>9.48</b>	

Source: Computed from the Annual reports of the respective companies.

Table 3: Analysis of variance of Debt-Equity Ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	1.95	9	0.22	0.74	2.25
Between (Columns)	28.78	3	9.59	32.93	2.96
Residual Error	7.86	27	0.29		
<b>Total</b>	<b>38.59</b>	<b>39</b>			

Source: Compute

Table 5: Interest Coverage Ratio

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	12.81	100	5.58	100	17.75	100	3.03	100
2006-07	29.85	233	6.52	117	11.48	65	2.53	83
2007-08	47.36	370	16.6	297	12.96	73	2.09	69
2008-09	39.98	312	20.31	364	2.84	16	1.59	52
2009-10	22.98	179	5.96	107	6.08	34	1.65	54
2010-11	13.42	105	21.62	387	5.07	29	1.31	43
2011-12	8.14	64	0.85	15	1.31	7	0.74	24
2012-13	5.31	41	3.04	54	1.47	8	0.61	20
2013-14	3.13	24	3.85	69	0.88	5	1.15	38
2014-15	2.66	21	2.48	44	0.88	5	1.2	40
<b>Mean</b>	<b>18.56</b>		<b>8.68</b>		<b>6.07</b>		<b>1.59</b>	
<b>Std.Dev.</b>	<b>15.88</b>		<b>7.76</b>		<b>5.98</b>		<b>0.77</b>	
<b>CV</b>	<b>0.86</b>		<b>0.89</b>		<b>0.99</b>		<b>0.48</b>	
<b>CAGR</b>	<b>-0.16</b>		<b>-0.09</b>		<b>-0.28</b>		<b>-0.10</b>	
<b>CAGR (%)</b>	<b>-16.03</b>		<b>-8.62</b>		<b>-28.38</b>		<b>-9.78</b>	

Source: Computed from the Annual reports of the respective companies.

Table 6: Analysis of Variance of Interest Coverage Ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	1435.75	9	159.53	2.53	2.25
Between(Columns)	1547.54	3	515.85	8.18	2.96
Residual Error	1703.62	27	63.10		
<b>Total</b>	<b>4686.909</b>	<b>39</b>			

Source: Computed

Table 7: Gross Profit Ratio

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	17.94	100	14.03	100	16.25	100	9.93	100
2006-07	24.82	138	16.6	118	14.6	90	7.86	79
2007-08	25.3	141	24.58	175	15.18	93	10.33	104
2008-09	17.62	98	15.3	109	8.19	50	9.75	98
2009-10	20.3	113	4.81	34	15.21	94	9.48	95
2010-11	13.55	76	10.59	75	10.22	63	9.51	96
2011-12	10.13	56	1.31	9	1.8	11	7.09	71
2012-13	7.87	44	7.86	56	2.11	13	5.23	53
2013-14	5.32	30	8.65	62	0.44	3	12	121
2014-15	6.75	38	6.24	44	0.8	5	15.27	154
<b>Mean</b>	<b>14.96</b>		<b>11.00</b>		<b>8.48</b>		<b>9.65</b>	
<b>Std.Dev.</b>	<b>7.34</b>		<b>6.78</b>		<b>6.67</b>		<b>2.73</b>	
<b>CV</b>	<b>0.49</b>		<b>0.62</b>		<b>0.79</b>		<b>0.28</b>	
<b>CAGR</b>	<b>-0.10</b>		<b>-0.09</b>		<b>-0.28</b>		<b>0.05</b>	
<b>CAGR (%)</b>	<b>-10.29</b>		<b>-8.61</b>		<b>-28.44</b>		<b>4.90</b>	

Source: Computed from the Annual reports of the respective companies.

Table 8: Analysis of variance of Gross Profit ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	798.09	9	88.68	4.22	2.25
Between(Columns)	238.66	3	79.55	3.79	2.96
Residual Error	567.25	27	21.01		
<b>Total</b>	<b>1604.00</b>	<b>39</b>			

Source: Computed

Table 9: Net Profit Ratio

Year	SAIL		FERROW		WELSPUM		HINDUSTAN	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	13.76	100	7.76	100	3.33	100	8.22	100
2006-07	17.53	127	8.17	105	5.31	159	3.27	40
2007-08	18.26	133	15.75	203	8.7	261	3.47	42
2008-09	14.25	104	9.17	118	3.93	118	3.74	45
2009-10	16.77	122	3.96	51	8.09	243	2.22	27
2010-11	0	0	7.57	98	5.81	174	1.73	21
2011-12	7.7	56	-0.69	-9	1.12	34	-5.57	-68
2012-13	5.16	38	4.82	62	8	240	-3.59	-44

Year	SAIL		FERROW		WELSPUM		HINDUSTAN	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2013-14	5.62	41	4.81	62	-0.36	-11	1.99	24
2014-15	4.69	34	3.16	41	-0.31	-9	1.97	24
<b>Mean</b>	<b>10.37</b>		<b>6.45</b>		<b>4.36</b>		<b>1.75</b>	
<b>Std.Dev.</b>	<b>6.48</b>		<b>4.39</b>		<b>3.41</b>		<b>3.85</b>	
<b>CV</b>	<b>0.62</b>		<b>0.68</b>		<b>0.78</b>		<b>2.21</b>	
<b>CAGR</b>	<b>-0.11</b>		<b>-0.10</b>		<b>-1.77</b>		<b>-0.15</b>	
<b>CAGR (%)</b>	<b>-11.27</b>		<b>-9.50</b>		<b>-176.81</b>		<b>-14.68</b>	

Source: Computed from the Annual reports of the respective companies.

Table 10: Analysis of variance of Net Profit Ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	437.96	9	48.66	3.74	2.25
Between (Columns)	398.34	3	132.78	10.21	2.96
Residual Error	351.22	27	13.01		
<b>Total</b>	<b>1187.51</b>	<b>39</b>			

Source: Computed

Table 11: Return on Capital Employed

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	35.8	100	13.28	100	21.47	100	6.7	100
2006-07	44.13	123	23.59	178	17.4	81	8.62	129
2007-08	42.76	119	55.21	416	19.19	89	11.57	173
2008-09	26.92	75	29	218	15.27	71	10.73	160
2009-10	20.29	57	10.36	78	22.51	105	9.24	138
2010-11	13.03	36	26.81	202	12.61	59	8.55	128
2011-12	11.06	31	4.26	32	4.64	22	8.28	124
2012-13	7.03	20	13.96	105	6.18	29	5.58	83
2013-14	4.84	14	17.42	131	4.84	23	12.03	180
2014-15	5.6	16	12.09	91	4.75	22	13.03	194
<b>Mean</b>	<b>21.15</b>		<b>20.60</b>		<b>12.89</b>		<b>9.43</b>	
<b>Std.Dev.</b>	<b>15.34</b>		<b>14.41</b>		<b>7.27</b>		<b>2.38</b>	
<b>CV</b>	<b>0.73</b>		<b>0.70</b>		<b>0.56</b>		<b>0.25</b>	
<b>CAGR</b>	<b>-0.19</b>		<b>-0.01</b>		<b>-0.15</b>		<b>0.08</b>	
<b>CAGR (%)</b>	<b>-18.63</b>		<b>-1.04</b>		<b>-15.43</b>		<b>7.67</b>	

Source: Computed from the Annual reports of the respective companies.

**Table 12: Analysis of variance of Return on Capital Employed Ratio**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	2317.62	9	257.51	3.17	2.25
Between(Columns)	1004.44	3	334.81	4.12	2.96
Residual Error	2196.16	27	81.34		
<b>Total</b>	<b>5518.22</b>	<b>39</b>			

Source: Computed

**Table 13: Return on Networkth**

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	32.64	100	16.16	100	12.23	100	14.03	100
2006-07	36.1	111	19.17	119	21.82	178	8.76	62
2007-08	32.7	100	4.76	29	23.59	193	10.99	78
2008-09	22.1	68	19.86	123	15.12	124	12.66	90
2009-10	20.29	62	9.12	56	19.66	161	5.36	38
2010-11	13.34	41	20.15	125	11.91	97	4.66	33
2011-12	8.92	27	-1.86	-12	1.8	15	-17.09	-122
2012-13	5.59	17	12.39	77	1.2	10	-11.83	-84
2013-14	6.12	19	13.09	81	-0.39	-3	6.46	46
2014-15	4.88	15	7.37	46	-0.84	-7	5.88	42
<b>Mean</b>	<b>18.27</b>		<b>12.02</b>		<b>10.61</b>		<b>3.99</b>	
<b>Std.Dev.</b>	<b>12.25</b>		<b>7.25</b>		<b>9.54</b>		<b>10.30</b>	
<b>CV</b>	<b>0.67</b>		<b>0.60</b>		<b>0.90</b>		<b>2.58</b>	
<b>CAGR</b>	<b>-0.19</b>		<b>-0.08</b>		<b>-1.74</b>		<b>-0.09</b>	
<b>CAGR (%)</b>	<b>-19.04</b>		<b>-8.35</b>		<b>-174.26</b>		<b>-9.21</b>	

Source: Computed from the Annual reports of the respective companies.

**Table 14: Analysis of variance of Return on Capital Employed Ratio**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	2359.41	9	262.16	5.72	2.25
Between(Columns)	1029.90	3	343.30	7.49	2.96
Residual Error	1237.23	27	45.82		
<b>Total</b>	<b>4626.53</b>	<b>39</b>			

Source: Computed

Table 15: Investment Turnover Ratio

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	5.22	100	11.55	100	3.72	100	1.62	100
2006-07	7.43	142	11.45	99	5.89	158	1.67	103
2007-08	8.58	164	9.57	83	3.34	90	1.73	107
2008-09	5.84	112	7.8	68	2.71	73	1.33	82
2009-10	6.01	115	6.71	58	5.67	152	1.1	68
2010-11	0	0	6.8	59	5.45	147	0.97	60
2011-12	3.36	64	6.37	55	3.5	94	1.17	72
2012-13	3.13	60	7.35	64	4.5	121	1.04	64
2013-14	3.07	59	8.04	70	9.2	247	1.23	76
2014-15	2.87	55	7.39	64	6.19	166	1.16	72
<b>Mean</b>	<b>4.55</b>		<b>8.30</b>		<b>5.02</b>		<b>1.30</b>	
<b>Std.Dev.</b>	<b>2.54</b>		<b>1.90</b>		<b>1.90</b>		<b>0.28</b>	
<b>CV</b>	<b>0.56</b>		<b>0.23</b>		<b>0.38</b>		<b>0.21</b>	
<b>CAGR</b>	<b>-0.06</b>		<b>-0.05</b>		<b>0.06</b>		<b>-0.04</b>	
<b>CAGR (%)</b>	<b>-6.43</b>		<b>-4.84</b>		<b>5.82</b>		<b>-3.64</b>	

Source: Computed from the Annual reports of the respective companies.

Table 16: Analysis of variance of Investment Turnover Ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	39.09	9	4.34	1.38	2.25
Between(Columns)	246.16	3	82.05	26.12	2.96
Residual Error	84.81	27	3.14		
<b>Total</b>	<b>370.05</b>	<b>39</b>			

Source: Computed

Table 17: Fixed assets turnover ratio

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	0.95	100	5.99	100	2.37	100	2.91	100
2006-07	1.13	119	6.83	114	2.02	85	2.2	76
2007-08	1.28	135	4.44	74	1.79	76	2.23	77
2008-09	1.33	140	1.81	30	2.22	94	1.99	68
2009-10	1.14	120	1.79	30	2.24	95	2.02	69
2010-11	1.1	116	3.28	55	2	84	2.08	71
2011-12	1.1	116	3.19	53	1.49	63	1.96	67
2012-13	1.04	109	3.31	55	1.65	70	1.88	65
2013-14	0.86	91	3.61	60	1.15	49	2.02	69
2014-15	0.7	74	3.25	54	1.14	48	2.08	71
<b>Mean</b>	<b>1.06</b>		<b>3.75</b>		<b>1.81</b>		<b>2.14</b>	
<b>Std.Dev.</b>	<b>0.19</b>		<b>1.62</b>		<b>0.44</b>		<b>0.29</b>	
<b>CV</b>	<b>0.18</b>		<b>0.43</b>		<b>0.24</b>		<b>0.14</b>	
<b>CAGR</b>	<b>-0.03</b>		<b>-0.07</b>		<b>-0.08</b>		<b>-0.04</b>	
<b>CAGR (%)</b>	<b>-3.34</b>		<b>-6.57</b>		<b>-7.81</b>		<b>-3.66</b>	

Source: Computed from the Annual reports of the respective companies.

**Table 18: Analysis of variance of Fixed Assets Turnover Ratio**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	8.69	9	0.97	1.47	2.25
Between(Columns)	38.53	3	12.84	19.56	2.96
Residual Error	17.73	27	0.66		
<b>Total</b>	<b>64.96</b>	<b>39</b>			

Source: Computed

**Table 19: Current ratio**

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	1.29	100	1.32	100	0.92	100	2.15	100
2006-07	1.58	122	1.49	113	1.32	143	1.75	81
2007-08	1.71	133	2.18	165	0.94	102	1.49	69
2008-09	1.75	136	1.87	142	0.87	95	1.59	74
2009-10	2.03	157	1.41	107	1.06	115	1.55	72
2010-11	0	0	1.22	92	0.81	88	1.4	65
2011-12	1.2	93	0.85	64	0.94	102	0.97	45
2012-13	1.02	79	0.7	53	1.02	111	1.27	59
2013-14	0.79	61	0.72	55	0.64	70	1.19	55
2014-15	0.68	53	0.67	51	0.91	99	1.08	50
<b>Mean</b>	<b>1.21</b>		<b>1.24</b>		<b>0.94</b>		<b>1.44</b>	
<b>Std.Dev.</b>	<b>0.61</b>		<b>0.52</b>		<b>0.18</b>		<b>0.35</b>	
<b>CV</b>	<b>0.50</b>		<b>0.42</b>		<b>0.19</b>		<b>0.24</b>	
<b>CAGR</b>	<b>-0.07</b>		<b>-0.07</b>		<b>0.00</b>		<b>-0.07</b>	
<b>CAGR (%)</b>	<b>-6.87</b>		<b>-7.26</b>		<b>-0.12</b>		<b>-7.36</b>	

Source: Computed from the Annual reports of the respective companies.

**Table 20: Analysis of variance of Current Ratio**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	3.88	9	0.43	3.63	2.25
Between(Columns)	1.27	3	0.42	3.57	2.96
Residual Error	3.21	27	0.12		
<b>Total</b>					

Source: Computed

Table 21: Quick Ratio

Year	SAIL		FACOR		WSL		HSCL	
	Ratio	Index	Ratio	Index	Ratio	Index	Ratio	Index
2005-06	0.78	100	1.06	100	0.75	100	1.41	100
2006-07	1.11	142	1.25	118	0.99	132	0.58	41
2007-08	1.31	168	1.62	153	0.62	83	0.48	34
2008-09	1.25	160	1.75	165	0.64	85	0.4	28
2009-10	1.61	206	1.09	103	1.13	151	0.47	33
2010-11	0	0	1.04	98	0.81	108	0.56	40
2011-12	0.82	105	0.7	66	0.67	89	0.78	55
2012-13	0.7	90	1.03	97	0.65	87	1.16	82
2013-14	0.63	81	0.77	73	0.47	63	1.32	94
2014-15	0.56	72	0.52	49	0.75	100	1.25	89
<b>Mean</b>	<b>0.88</b>		<b>1.08</b>		<b>0.75</b>		<b>0.84</b>	
<b>Std.Dev.</b>	<b>0.46</b>		<b>0.38</b>		<b>0.19</b>		<b>0.40</b>	
<b>CV</b>	<b>0.52</b>		<b>0.35</b>		<b>0.26</b>		<b>0.47</b>	
<b>CAGR</b>	<b>-0.04</b>		<b>-0.08</b>		<b>0.00</b>		<b>-0.01</b>	

Source: Computed from the Annual reports of the respective companies

Table 22: Analysis of variance of Quick ratio

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F. Ratio	F Critical Value (5%level)
Between (Rows)	0.84	9	0.09	0.60	2.25
Between(Columns)	0.59	3	0.19	1.30	2.96
Residual Error	4.14	27	0.15		
<b>Total</b>	<b>5.58</b>	<b>39</b>			

Source: Computed

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