



## A Comparative Study of Working Capital Management in Steel Authority of India Limited and Tata Steel Limited

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### Abstract

Working capital has an impact on profitability because effective working capital management is about striking a trade off between profitability and liquidity. Working capital management refers to the administration of all components of working capital-cash, marketable securities, debtors and stock and creditors. Working capital is one of the powerful measurements of the financial position. The goal of working capital management is to manage the firm's current assets and current liabilities in such a way that a satisfactory level of working capital is maintained. In several units there is adequate working capital but the mismanagement of working capital increases the costs and reduces the rate of return. The efficient management of working capital minimizes the cost and can do much more for the success of the business. With this background this paper attempts to make a comparative study of working capital management with the help of financial and statistical tools in SAIL and Tata Steel Ltd, which are capital intensive firms of steel sector with significant investments in working capital i.e. inventory, receivables and cash.

**Keywords:** Working Capital Management SAIL, Tata Steel Ltd., Steel Industry.

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## 1. INTRODUCTION

Indian steel industry plays a significant role in the country's economic growth. The major contribution directs the attention that steel is having a stronghold in the traditional sectors, such as infrastructure & constructions, automobile, transportation, industrial applications etc. Although India's steel industry is growing at a rate higher than a lot of the other developing countries, the effect of the world-wide economic slowdown can be felt in the dampened rate of growth. With higher inflation and interest rates, the automotive and construction industry are likely to lower domestic demand in the short-term.

Indian steel companies are ramping up their capacity through both Greenfield and Brownfield projects. Small companies are developing niche sectors like the production of sponge iron. India has emerged as the fourth largest steel producing nation in the world, as per world steel association in April 2017. India became the 3rd largest producer of steel in 2015 and is now well on track to emerge as the 2nd largest producer after China. There is significant potential for growth given the low per capita steel consumption of 61 Kg in India, as compared to world average of 208 Kg.

In this study researcher has focused on the working capital management of government owned SAIL and private player truly global steel company Tata Steel Limited Steel.

### 1.1 Steel Authority of India Limited

SAIL is the sixth largest company in India. Steel Authority of India Limited (SAIL) is the leading steel-making company in India. It is a fully integrated iron and steel maker, producing both basic and special steels for domestic construction, engineering, power, railway, automotive and defence industries and for sale in export markets. SAIL is ranked amongst the top ten public sector companies in India in terms of turnover. SAIL manufactures and sells a broad range of steel products. The government of India owns about 86 per cent of SAIL's equity and retains voting control of the Company. 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, including the company's iron ore, limestone and dolomite mines. The company has the distinction of being India's largest producer of iron ore and having the country's second largest mines network. This gives SAIL a competitive edge in terms of captive availability of iron ore, limestone, and dolomite which are inputs for steel making.

### 1.2 Tata Steel Ltd.

Tata Steel is the **ninth largest company in India** with a sales turnover of Rs 37814.69 crore in 2016. Established in 1907, Tata Steel is the world's **6th largest steel company** with an existing annual crude steel capacity of 28 million tons. It has operations in 24 countries and commercial presence in over 50 countries. Founded by Jamsedji Nusserwanji Tata, Tata Steel completed 100 glorious years of existence on August 26, 2007. The first private sector steel plant which started with a production capacity of 1, 00,000 tons has today transformed into a global giant. The company also has three Greenfield steel projects in the states of Jharkhand, Orissa and Chhattisgarh and proposed steel making facilities in Vietnam and Bangladesh. Through investments in Corus, Millennium Steel (renamed Tata Steel Thailand) and NatSteel Asia, Singapore, the Tata Steel has created a manufacturing and marketing network in Europe, South



East Asia and the Pacific-rim countries. Tata Steel's vision is to be the global steel industry benchmark for value Creation and corporate citizenship. Tata Steel is one of the few steel companies in the world that is Economic Value Added (EVA) positive. It was ranked the "World's Best Steel Maker", for the third time by World Steel Dynamics in its annual listing in February, 2006. Tata Steel has been conferred the Prime Minister of India's Trophy for the 'Best Integrated Steel Plant' five times.

## **2. REVIEW OF THE LITERATURE**

Many researchers have studied working capital from different views and in different environments. The following studies are useful for our research:

**2.1 Sharma, M. G.** (2016) examined the working capital performance of Bharti Airtel during the period 2007-08 to 2014-15. An attempt has been made to measure the working capital performance with the help of ratio analysis. Motatals test also indicated significant improvement in liquidity performance during the study period. Finally, there exists significant negative relationship between liquidity and profitability, which indicates that Bharti Airtel has maintained post optimal level of liquidity (i.e., excess liquidity) during the period under study.

**2.2 Sasikala, R. and Balakrishnan, K.P.** (2015) explained in their study which was based on secondary data collected from companies report, and profile of the organization. The strength of any research is based on the efficient method of data collection analysis. Financial analysis is a powerful mechanism which helps in ascertaining the strength & weakness in the operation and financial position of the companies. The current study has frightened major absorption ratio analysis, from the 5 years balance sheet and profit and loss a/c. The objectives of the study are to compute financial position of the company and to suggest ways and means to improve present conditions. Examine overall performance of the company. To study the profitability, liquidity, solvency position of the industries. Based on the data suggestions are given by the researcher to the industries for better improvement in weaker sections.

**2.3 Babu N. Suresh and Chalam, G.V.** (2014) suggested that managers can create value for their shareholders by reducing the number of day's accounts receivable and increasing the account payment period and inventories to a reasonable maximum and also suggests that managers of these firms should spend more time to manage cash conversion cycle of their firms and make strategies of efficient management of working capital.

**2.4 Madhavi, K.** (2014) studied "Working Capital Management of Paper Mills" during the period from 2002-2003 to 2010-2011 with the help of accounting tools and statistical techniques. From the study, it analyzes that the management of Andhra Pradesh Paper Mills Ltd (APPML) must initiate necessary steps to utilize its idle cash and bank balances in attractive investments or to pay back in short term liabilities.(current ratio).The low quick ratio may also have liquidity position, if it has fast moving inventories and is more satisfactory in Seshasayee Paper Boards Ltd (SSPBL) with APPML. Cash ratio is not satisfactory in APPML as compared to SSPBL and it needs the attention of the management to induce effective utilization of cash and bank balances.

**2.5 Makoril Daniel Mogaka and Jagongo Ambrose** (2013) concluded that the management of a firm can create value for their shareholders by reducing the number of day's accounts receivable.

The management can also create value for their shareholders by increasing their inventories to a reasonable level. Firms can also take long to pay their creditors in as far as they do not strain their relationships with these creditors. Firms are capable of gaining sustainable competitive advantage by means of effective and efficient utilization of the resources of the organization through a careful reduction of the cash conversion cycle to its minimum. In so doing, the profitability of the firms is expected to increase.

**2.6 Hareesh** (2012) explained in his paper, Working capital refers to the firms' investment in short terms assets. The management of working capital is important to the financial health of business of all sizes. The management of working capital affects the liquidity and profitability of the corporate firm and consequently its net worth.

**2.7 Ray** (2012) in his study has tried to investigate the relationship between working capital management components and the profitability of a sample of Indian manufacturing firms using a sample of 311 Indian manufacturing firms for a period of 14 years from 1996-97 to 2009-10 and have studied the effect of different variables of working capital management including the average collection period, inventory turnover in days, average payment period, cash conversion cycle and current ratio, debt ratio, size of the firm and financial assets to total assets ratio on the net operating profitability of Indian firms. The result suggests a strong negative relationship between the measures of working capital management including the number of days accounts receivable and cash conversion cycle, financial debt ratio with corporate profitability.

**2.8 Gumber and Kumar** (2012) the main objective of their paper was to analyze the significance and growth of various constituents of both current assets and current liabilities among the co-operative sector and the public sector fertilizer companies. The co-operative sector possessed more amounts of working capital than the public sector and the former's working capital need grew at a rate which was almost double the rate of the public sector. It was observed and concluded that the co-operative sector was better off than the public sector as regard liquidity and payment to creditors as their credit period were much shorter than the public sector.

**2.9 T. Chandrabai, D. J.** (2011) proposed that the working capital management refers to efficient management of short term assets. There is a direct relationship between a firm's growth and its working capital needs. The firm needs to invest more in components of working capital with increase in sales. Working capital indicates the liquidity position of the firm and suggests the extent to which the working capital maintained.

**2.10 Singh** (2011) analyzed the impact of working capital on the return on capital employed for cement companies in India. Some results of the study are in complete departure from previous results. He has found that there exists on relationship between days sales outstanding and cash conversion cycle and profitability of a firm in cement industry in India.

**2.11 Bagchi, B. and Khamrui, B.** (2010) In this study, Selected a sample of 10 FMCG (Fast Moving Consumer Goods) companies in India from CMIE database covering a period of 10 years from 2000-01 to 2009-10. Profitability has been measured in terms of return on assets (ROA). Cash conversion cycle (CCC), interest coverage ratio, age of inventory, age of creditors, age of debtors and debt-equity ratio have been used as explanatory variables. Pearson's correlation and pooled ordinary least squares regression analysis are used in the study. The study results confirm that

there is a strong negative relationship between variables of the working capital management and profitability of the firm. As the CCC increases, profitability of the firm decreases, and managers can create a positive value for the shareholders by reducing the CCC to a possible minimum level. There is also a stumpy negative relationship between debt used by the firm and its profitability.

**2.12 Abdul Raheman and Mohamed Nasr (2004)** In this paper the author made an attempt to examine the Working Capital Management And Profitability – Case Of 94 Pakistani Firms selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 – 2004, Found that there is a significant negative relationship between liquidity and profitability. They cleared that there is a significant positive relationship between size of the firm and its profitability. There is also a significant negative relationship between debt used by the firm and its profitability.

### **3. OBJECTIVES OF THE STUDY**

The objectives of this study are as follows:

- To study the efficiency of working capital in steel majors through financial ratio.
- To make a comparative study of working capital management between SAIL and Tata Steel Limited recommend ways and means to improve present condition.
- To give suggestions to improve the working capital management in such a cash intensive sector.

### **4. HYPOTHESIS OF THE STUDY**

- There is no difference between Current Ratio, Quick Ratio and Cash Ratio of the selected companies; and
- There is no difference between the mean of Working capital Turnover Ratio and Fixed Assets Turnover Ratio of Tata Steel Limited and SAIL.

### **5. METHODOLOGY**

The methodology adopted for this study regarding source of data, period of study, data analysis and research tools & techniques are as follows: Source of the data is mainly based on the secondary data. These were collected from the annual reports of selected companies as well as from various journals, magazines and newspapers. Period of this study is ten years starting from 2006-07 to 2015-16. Researcher has used in this research financial and statistical tools and techniques which are mainly ratios analysis (Current Ratio, Quick Ratio, Cash Ratio, Working Capital Turnover Ratio & Fixed Assets Turnover Ratio) and Student's t-test in Statistical tools.

### **6. SCOPE OF THE STUDY**

This is an attempt to have a micro level imperial analysis in the financial progress and performance of Tata Steel Limited. The findings and suggestions throw light on the guidelines for future policy formulation and implementation for the effective functioning of Steel industries in other districts of the state and the country also. Every effort has been made to conclude relevantly and suggest for the best performance in the most adoptable way, keeping in view the market and production levels.

### **7. LIMITATIONS OF THE STUDY**

This study is based on only secondary data; the limitations of the secondary data would have affected the study. Ratios are computed on the basis of financial statements of the selected

companies. Hence, future performance of these units will not reflect. The financial statements are subject to window dressing by the corporate. It will affect the results in the process of analysis. The absolute figures may prove decorative as ratio analysis is primarily quantitative analysis and not qualitative analysis. Many people may interpret the results in different ways as ratio is not an end by itself.

## 8. DATA ANALYSIS

The data analysis has been done in this study is given below:

### 8.1 Current Ratio

Current ratio may be defined as the relationship between current assets and current liabilities. This ratio also known as working capital ratio is a measure of general liquidity and is most widely used to make the analysis of a short-term financial position or liquidity of a firm. It calculated by dividing the total of current assets by total of the current liabilities.

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

The statistical data relating to calculation of current ratio was computed through the financial statements referred in their respective annual reports of Tata Steel Limited for the study period from 2006-07 to 2014-16 are depicted in the below mentioned table.

As a conventional rule, a current ratio of 2:1 is considered satisfactory. This rule of thumb should not blindly be followed because low current ratio indicates that the unit may not be having sufficient funds to pay off liabilities or it may be trading beyond its capacity. Higher current ratio may not be favourable because of slow moving stocks, stocks may pile up due to poor sale, debt collection may not be satisfactory, cash and bank balances may be lying idle because of insufficient investment opportunities. This ratio is below the accepted standard norm in Tata Steel limited in the entire study period, excepting 2006-07 and 2007-08. In case of SAIL it was up to the standard till 2009-10. Later on, it clearly indicates that the company adopted the normal general accepted solvency to meet their current obligations in time. The management of both the steel companies must initiate necessary steps to utilize its idle cash and bank balances in attractive investments or to pay back its short term liabilities.

**Table 1: Current Ratio**

Years	Current Ratio	
	Tata Steel	SAIL
2006-07	2.03	1.81
2007-08	4.64	1.96
2008-09	0.96	1.84
2009-10	1.23	1.90
2010-11	1.38	1.51
2011-12	0.76	1.52
2012-13	0.70	1.23
2013-14	0.61	0.95
2014-15	0.71	0.83
2015-16	0.68	0.58

\* Source: Annual Reports of Tata Steel Ltd. and SAIL

### 8.1.1 Testing Hypothesis

**Null Hypothesis:** There is no difference between the mean of Current Ratio of Tata Steel Limited and SAIL.

**Table 2: Test Statistic: Student t-test**

t-Test: Two-Sample Assuming Equal Variances		
	Tata Steel	SAIL
Mean	1.37	1.413
Variance	1.514066667	0.24209
Observations	10	10
Pooled Variance	0.878078333	
Hypothesized Mean Difference	0	
df	18	
t Stat	-0.102609324	
P(T<=t) one-tail	0.459703769	
t Critical one-tail	1.734063592	
P(T<=t) two-tail	0.919407539	
t Critical two-tail	2.100922037	

Test statistic has t-distribution with  $10+10-2=18$  degree of freedom. Critical value for this two-tailed test at 5% level of significance is 2.100922037 at 18 degree of freedom. Computed value of test statistic is -0.102609324 which is smaller than table value, hence null hypothesis is accepted.

### 8.2 Quick Ratio or Liquid Ratio

Quick ratio is also called Acid-test ratio because it is the acid test of a concern's financial soundness. Quick ratio is the relationship between quick assets and quick liabilities. Quick assets are those assets which are readily converted into cash. They include cash and bank balances, bills receivable, debtors, short-term investments. Quick liabilities include creditors, bills payable, outstanding expenses.

**Quick ratio = Quick Assets/Quick Liabilities**

Quick Assets = Current assets- (Stock +Prepaid expenses)

Quick Liabilities = Current Liabilities –Bank Overdraft.

A quick ratio of 1:1 is considered satisfactory. The quick ratio supplements current ratio.

**Table 3: Quick Ratio**

Years	Quick Ratio	
	Tata Steel	SAIL
2006-07	1.50	1.22
2007-08	0.13	1.25
2008-09	0.23	1.13
2009-10	0.56	1.26
2010-11	0.59	0.99
2011-12	0.37	0.71
2012-13	0.25	0.47
2013-14	0.23	0.37
2014-15	0.12	0.22
2015-16	0.29	0.13

\*Source: Annual reports-Tata Steel Ltd. and SAIL

A quick ratio of 1:1 is considered to represent a satisfactory current financial condition. A quick ratio of 1:1 does not necessarily mean satisfactory liquidity position, if all debtors cannot be realized and cash is needed immediately to meet current obligations. A low quick ratio does not necessarily mean a bad liquidity position as inventories are not an absolutely non-liquid. It is observed from the above data the quick ratio is less than the accepted norm from 2007-08 to 2015-16 in Tata steel, whereas it is well above the standard in 2006-07 to 2009-10 and exactly equal to the standard in 2010-11 in case of SAIL. In rest of the years Quick ratio is very poor in both the companies, so these selected companies shall increase their liquidity position, it will help to meet day to day expenses.

### 8.2.1 Testing Hypothesis

**Null Hypothesis:** *There is no difference between the mean of Quick Ratio of Tata Steel Limited and SAIL*

**Table 4: Test Statistic: Student t-test**

<b>t-Test: Two-Sample Assuming Equal Variances</b>		
	<i>Tata Steel</i>	<i>SAIL</i>
Mean	0.427	0.775
Variance	0.167668	0.201828
Observations	10	10
Pooled Variance	0.184748	
Hypothesized Mean Difference	0	
df	18	
t Stat	-1.8104	
P(T<=t) one-tail	0.04348	
t Critical one-tail	1.734064	
P(T<=t) two-tail	0.08696	
t Critical two-tail	2.100922	

Test statistic has t-distribution with 10+10-2=18 degree of freedom. Critical value for this two-tailed test at 5% level of significance is 2.100922 at 18 degree of freedom. Computed value of test statistic is -1.8104 which is smaller than table value, hence null hypothesis is accepted.

### 8.3 Cash Ratio (Absolute Liquid Ratio)

Cash is the most liquid asset. The relationship between cash including cash at bank and short term marketable securities with current liabilities is examined to know the immediate solvency. Although receivables, debtors and bills receivable are generally more liquid than inventories, yet there may be doubts regarding their realization into cash immediately or in given time. The formula to calculate the cash ratio is as under.

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

\* Cash means, cash in hand and cash at bank.



Table 5: Cash Ratio

Years	Cash Ratio	
	Tata Steel	SAIL
2006-07	1.14	0.86
2007-08	0.06	1.02
2008-09	0.15	0.97
2009-10	0.32	1.09
2010-11	0.55	0.72
2011-12	0.30	0.34
2012-13	0.16	0.17
2013-14	0.18	0.10
2014-15	0.09	0.07
2015-16	0.25	0.01

\*Source: Annual reports of Tata Steel Ltd. and SAIL

The ideal cash ratio is 1:2 or 0.5 or 50 percent. In case of Tata Steel Ltd., Cash ratio is less than the standard and not encouraging for the entire study period except in 2006-07 and 2010-11. On the other hand the Cash Ratio of SAIL gives a better picture till 2010-11 from 2006-07 later on the situation becomes worse, so these selected companies shall increase their liquidity position, it will help to meet day to day expenses.

### 8.3.1 Testing Hypothesis

**Null Hypothesis:** There is no difference between the mean of Cash Ratio of Tata Steel Limited and SAIL

Table 6: Test Statistic: Student t-test

t-Test: Two-Sample Assuming Equal Variances		
	Tata Steel	SAIL
Mean	0.32	0.535
Variance	0.1028	0.191628
Observations	10	10
Pooled Variance	0.147214	
Hypothesized Mean Difference	0	
df	18	
t Stat	-1.25299	
P(T<=t) one-tail	0.113121	
t Critical one-tail	1.734064	
P(T<=t) two-tail	0.226241	
t Critical two-tail	2.100922	

Test statistic has t-distribution with  $10+10-2=18$  degree of freedom. Critical value for this two-tailed test at 5% level of significance is 2.100922 at 18 degree of freedom. Computed value of test statistic is -1.25299 which is smaller than table value, hence null hypothesis is accepted that there is no difference between the means of the selected companies.

#### 8.4 Working Capital Turnover Ratio

This ratio indicates whether working capital has been effectively utilized in making sales or not. It can be calculated by:

$$\text{Net sales/Net Working capital}$$

**Table 7: Working Capital Turnover Ratio**

Years	Working Capital Turnover Ratio	
	Tata Steel	SAIL
2006-07	2.51	3.76
2007-08	0.68	3.11
2008-09	-53.80	2.79
2009-10	10.89	2.19
2010-11	5.79	3.50
2011-12	-8.32	4.76
2012-13	-7.61	8.73
2013-14	-5.64	-32.22
2014-15	-8.68	-7.65
2015-16	-5.67	-2.46

\*Source: Annual reports of Tata Steel Ltd. and SAIL

Working Capital turnover ratio is not satisfactory. Additional funds raised are invested in fixed asset instead of providing necessary working capital, as it is shown from the data of both the companies. In case of Tata Steel Limited in 2008-09 and since 2011-12 onwards, working capital turnover ratio is in negative on the other hand in case of SAIL WCTR is negative in the last three years of study. The companies may not be in a position to meet its obligations in time.

##### 8.4.1 Testing Hypothesis

**Null Hypothesis:** *There is no difference between the mean of Working capital Turnover Ratio of Tata Steel Limited and SAIL*

**Table 8: Test Statistic: Student t-test**

t-Test: Two-Sample Assuming Equal Variances		
	Tata Steel	SAIL
Mean	-6.985	-1.349
Variance	314.6502	136.8905
Observations	10	10
Pooled Variance	225.7704	
Hypothesized Mean Difference	0	
df	18	
t Stat	-0.83873	
P(T<=t) one-tail	0.20631	
t Critical one-tail	1.734064	
P(T<=t) two-tail	0.412621	
t Critical two-tail	2.100922	

Test statistic has t-distribution with  $10+10-2=18$  degree of freedom. Critical value for this two-tailed test at 5% level of significance is 2.100922 at 18 degree of freedom. Computed value of test statistic is -0.83873 which is smaller than table value, hence null hypothesis is accepted that there is no difference between the means of the selected companies.

### 8.5 Fixed Asset Turnover Ratio

This ratio indicates the extent to which the investment in fixed assets contributed towards sales.

This ratio can be calculated by:

$$\text{Net sales/Net fixed Assets}$$

**Table 9: Fixed Assets Turnover Ratio**

Years	Fixed Assets Turnover Ratio	
	Tata Steel	SAIL
2006-07	1.58	3.02
2007-08	1.56	3.55
2008-09	1.68	3.69
2009-10	1.56	3.34
2010-11	1.67	3.16
2011-12	1.23	2.95
2012-13	1.12	2.93
2013-14	0.96	1.85
2014-15	0.86	1.32
2015-16	0.72	0.92

\*Source: Annual reports of Tata Steel Ltd. and SAIL

Fixed asset of a company are not held for sale but use in the business for a long span of time. Therefore, a lower fixed asset turnover ratio is better. Tata Steel limited maintain lower ratio. Lower fixed assets ratio is satisfactory. On the other hand, in case of SAIL the FATR is higher during the first five-six years of study but it shows a decreasing trend and in the last couple of years it comes to the level of Tata Steel.

#### 8.5.1 Testing Hypothesis

**Null Hypothesis:** There is no difference between the mean of Working Capital Turnover Ratio of Tata Steel Limited and SAIL

**Table 10: Test Statistic: Student t-test**  
**t-Test: Two-Sample Assuming Equal Variances**

	Tata Steel	SAIL
Mean	1.294	2.673
Variance	0.130827	0.925512
Observations	10	10
Pooled Variance	0.528169	
Hypothesized Mean Difference	0	
df	18	
t Stat	-4.2429	
P(T<=t) one-tail	0.000245	
t Critical one-tail	1.734064	
P(T<=t) two-tail	0.000489	
t Critical two-tail	2.100922	

Test statistic has t-distribution with  $10+10-2=18$  degree of freedom. Critical value for this two-tailed test at 5% level of significance is 2.100922 at 18 degree of freedom. Computed value of test statistic is -4.2429 is greater than table value, hence null hypothesis is rejected.

## 9. CONCLUSIONS

The Lower fixed assets ratio of Tata Steel Limited is satisfactory but differs with SAIL as test statistic shows clearly. On the rest of Ratios both the companies is below standard and not encouraging for the entire study period i.e. 2006-07 to 2015-16 except for one or two years. The study shows that the additional funds raised are invested in fixed assets instead of providing necessary working capital, therefore, the Working Capital turnover ratio is not satisfactory in both the companies. Accordingly, the management may resort to effective utilization of cash and bank balances in attractive investments or to pay back in short term liabilities (current ratio).

## DIRECTION FOR FUTURE RESEARCH

The present study is limited to the extent of only two companies. Hence, further research may be conducted to reflect the overall view of working capital management in the Indian Steel industry.

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