Measuring Efficiency and Performance of Selected Indian Steel Companies in the Context of Working Capital Management

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Abstract

Working capital management involves managing the relationship between a firm's short term assets and its short term liabilities. Efficient working capital management is necessary for achieving both liquidity and profitability of a company. A poor and inefficient working capital management leads to tie up funds in idle assets and reduces the liquidity and profitability of a company.

Working capital management efficiency is vital especially for manufacturing firms, where a major part of assets is composed of current assets. For an intensive study of working capital management of Indian steel industry focus of the study is on major and significant players of the industry of public and private sector viz Steel Authority of India Ltd., Tata Steel Ltd, JSW Steel Ltd. and Essar Steel Ltd. The objective of this study is to measure working capital managing efficiency of selected Indian steel companies for which different activity ratios are used in appraising the efficiency of selected companies. Cash Conversion Cycle (CCC) is a powerful measure for assessing how well a company is managing its working capital. It is used as a comprehensive measure for working capital management and to analyze profitability and performance of selected companies inter firm comparison is done to their judge performance. The ratios of ROCE, assets turnover and profit margins of selected companies are used as standards of performance.

Keywords:

Working Capital, Working Capital Management, Steel Sector, Cash Conversion Cycle, Liquidity.

Introduction

Working Capital Management is an important corporate financial decision as it directly affects the liquidity and profitability of the firm. Management of working capital is concerned with the management of all the aspects of both the current assets and current liabilities, so as to minimize the risk of insolvency while maximizing return on assets. Efficient management of working capital is a fundamental part of the overall corporate strategy to create shareholder value. Working capital management calls for addressing two basic issues-how much of current assets should an organization hold and how to finance such investment in current assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinarily within a year, and such temporary investment as may be readily converted into cash upon need (Raheman and Nasr, 2007). Efficient working management involves planning and controlling current

assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets.

Organizations which could tackle these two issues reasonably are able to combat liquidity problems comparatively more efficiently. An optimal level of working capital is that in which a balance between risk and efficiency is attained, and both carrying costs and opportunity costs are minimized. It requires continuous monitoring to maintain the proper level of the various components of working capital, i.e., cash receivables, inventory and payables, etc. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short term debt and upcoming operational expenses.

The ultimate goal of any company is to maximize profits. But, preserving its liquidity is also an important objective (Shin and Soenen, 1998; Raheman and Nasr, 2007). Liquidity is a precondition to ensure that firms are able to meet its short-term obligations and its continued flow can be guaranteed from a profitable venture. It is not a simple task for managers to manage working capital, the dilemma in working capital management is to achieve the desired balance between liquidity and profitability. One of the objectives should not be achieved at the cost of the other because both have their importance.

Indian Steel Industry

The iron and steel industry in India is one of the most essential industries in India which boosts its industrial development. It has helped in generation of several subsidiaries and small scale industries and also supports the power, transport, fuel and communication industries in the country. Although India's steel industry is growing at a rate higher than a lot of the other developing countries, the effect of the worldwide 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 2011. In 2010, India was the fifth largest producer, after China, Japan, USA and Russia had recorded a growth of 11.3% in steel production as compared to 2009. It is slated to become the second-largest steel producer by 2015. The steel industry in India features both public sector companies with strong incumbent footing as well as rapidly developing private enterprises. The government owned Steel Authority of India with its five integrated plants and three special and allow plants is the biggest and most diverse in terms of production player. Rashhriya Ispat Nigam Limited is the corporate entity of Visakhapatnam Steel plant, the most modern and successful plant owned by the government. Although the public run enterprises are losing their dominating positions, they are still accounting for a quarter of the industry. The private sector's biggest players are Tata Steel Limited, part of Tata Steel Group — a truly global steel company and Jindal South West Limited.

Literature Review

Chowdhury and Amin (2007) elucidate that the performance / profitability of a firm largely depends upon the manner of its working capital management. If a firm is inefficient in managing working capital, it will not only reduce profitability but may also lead to financial crisis. Both inadequate and excessive working capital is detrimental for a business concern. The excessive working capital can result in idle funds which could be used for earning profit while the inadequate working capital will interrupt the operations and will also impairs profitability .

Padachi (2006) conducted study on small business firms in Mauritania according to him working capital is very important for small firms. Working capital plays an important role for all the firms, whether they are small firms or large firms, but it becomes even more when the firm size is small because. This happens because small firms tend to emphasize more on the working capital, so that they can increase their returns and improve their performance by better working capital management.

Filbeck and Krueger (2005) and Yadav, Kamath and Manjreka (2009) in their study said that working capital requirement of a firm varies with the economic cycles. Hence, during downturn, the working capital requirement will be low while, during the upturns, the working capital requirement will be high. They also concluded that, working capital policy is dynamic as it will change in accordance with the economic cycles. They also suggested that the type of industry determines the working capital requirement of the firm. Hence the working capital requirement will differ from industry to industry. Moreover, since inventory levels are different for firms as well, hence the working capital requirement will be different from firm to firm. This can also be observed in the difference in the working capital requirement of services firms which do not require any inventory and manufacturing firms which require huge amounts of inventory.

Eljelly (2004) elucidate, that efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets. The study found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. Narasimhan and Murty (2001) stress on the need for many industries to improve their return on capital employed (ROCE) by focusing on some critical areas such as cost containment, reducing investment in working capital and improving working capital efficiency.

Nobanee and AlHajjar (2009) analyzed Japanese non-financial companies and concluded that company managers can increase profitability by shortening the cash conversion cycle, the receivables collection period and the inventory conversion period. The results also suggested that extending the payables deferral period could increase profitability. However, managers should be careful because extending the payables deferral period could damage the company's credit reputation and harm its profitability in the long run.

Objectives of the Study

1. To measure working capital managing efficiency of selected companies.

2. To analyze profitability and performance of selected companies.

Research Methodology

Sample and Data

The sample selected for this study is top four Indian steel Companies namely Steel Authority of India Ltd., Tata Steel Ltd, JSW Steel Ltd. and Essar Steel Ltd. The study covers five years period from 2008-2009 to 2012-13.This study is based on secondary data which is collected from annual reports of companies, different publications and websites. The collected data has been tabulated, analyzed and interpreted with the help of different financial ratios and statistical tools.

Hypothesis

H0: There is no significant difference between the working capital ratios of selected Indian steel companies.

H1: There is significant difference between the working capital ratios of selected Indian steel companies.

Variables

Activity ratios measure the efficiency with which a firm manages its resources. They act as independent variables. Return on Capital Employed (ROCE), the dependent variable, is used as a measure of firm's profitability and performance. ROCE is computed as Profit before Interest and tax divided by total assets. ROCE is considered as an indicator of how effectively a company uses its assets to generate earnings before meeting contractual obligations. Inter firm comparison is done to judge performance of selected companies. The ratios of ROCE, Assets Turnover and Profit Margins of selected companies are used as standards of performance. With regards to independent variables, working capital management which is key variable of the study used as vector of Receivables Collection Period, Inventory Conversion Cycle, Payables Deferral Period, Cash Conversion Cycle of the firm. Current and Quick ratios are used as proxy to measure the liquidity of firm. The formulae for calculating all the above variables are listed in Appendix 1

Data Analysis and Interpretation

The major components of gross working capital include inventories (raw materials, work-in-progress and finished goods), debtors, cash and bank balances, loans and advances. The composition of working capital depends on a multiple factors, such as operating level, level of operational efficiency, inventory policies, credit policy, technology used and nature of the industry. Working Capital and Performance ratio analysis of Steel Authority of India Limited (SAIL), Tata Steel Limited, JSW Steel Limited and Essar Steel Limited for a period of last five years from 2009 to 2013 is presented in Table – 1 (a) to Table -1(d) respectively.

Table-1(a): Working Capital and Performance Ratio Analysis of Steel Authority of India Ltd.

Ratio	2009	2010	2011	2012	2013	Mean	S.D.
Inventory Turnover	5.79	4.66	4.68	4.07	3.36	4.51	0.89
Receivables Turnover	16.21	13.71	12.49	11.49	10.89	12.96	2.11
Working Capital Turnover	2.81	2.03	3.85	5.47	9.78	4.79	3.07
Receivables days	22.51	26.63	29.21	31.75	33.49	28.72	4.33
Inventory Days	63.04	78.36	77.9	89.57	108.62	83.5	16.91
Payable days	33.12	56.84	45.76	28.06	28.26	38.41	12.56
Current Ratio	2.02	2.28	1.51	1.51	1.23	1.71	0.43
Quick Ratio	1.43	1.76	1.04	0.76	0.52	1.1	0.5
Payables turnover	11.02	6.42	7.97	13.01	12.91	10.27	2.96
Total Assets turnover	1.04	0.73	0.66	0.67	0.62	0.74	0.17
ROCE	31.28	24.63	14.43	10.38	6.74	17.49	10.21
EBIT Margin	19.6	23.57	16.1	11.42	7.98	15.73	6.23

Source: Data collected and compiled from annual reports

Table-1 (b): Working Capital and Performance Ratio Analysis of Tata Steel Ltd.

Ratio	2009	2010	2011	2012	2013	Mean	S.D.
Inventory Turnover	8.82	8.16	9.07	8.39	8.36	8.56	0.37
Receivables Turnover	45.51	50	74.34	55.73	49.73	55.06	11.37
Working Capital Turnover	5.31	5.39	6.36	-9.21	-8.54	-0.14	7.99
Receivable days	8.02	7.3	4.91	6.55	7.34	6.82	1.19
Inventory Days	41.37	44.73	40.22	43.46	43.63	42.68	1.83
Payable days	84.15	91.73	85.54	86.9	81.97	86.06	3.66
Current Ratio	1.56	1.55	1.38	0.76	0.7	1.19	0.43
Quick Ratio	1.18	1.21	1.08	0.47	0.38	0.86	0.41
Payables turnover	4.33	3.98	4.26	4.2	4.45	4.24	0.17
Total Assets turnover	0.44	0.38	0.39	0.4	0.43	0.41	0.03
ROCE	16.89	14.93	16.43	14.99	11.75	14.99	2.01
EBIT Margin	32.8	33.87	36.09	31.84	22.95	31.51	5.04

Source: Data collected and compiled from annual reports

Table-1 (c): Working Capital and Performance Ratio Analysis of JSW Steel Ltd.

Ratio	2009	2010	2011	2012	2013	Mean	S.D.
Inventory Turnover	8.43	8.39	7.53	7.45	7.79	7.92	0.47
Receivables Turnover	41.29	40.46	36.14	32.71	24.69	35.06	6.75
Working Capital Turnover	-5.19	-10.49	-6.77	-10.5	-31.41	-12.87	10.62
Receivable days	8.84	9.02	10.1	11.16	14.78	10.78	2.42
Inventory Days	43.29	43.5	48.44	48.97	46.85	46.21	2.69
Payable days	43.58	39.55	26.77	21.15	24.47	31.1	9.86
Current Ratio	0.61	0.76	0.7	0.81	0.92	0.76	0.12
Quick Ratio	0.34	0.42	0.38	0.51	0.61	0.45	0.11
Payables turnover	8.37	9.23	13.63	17.26	14.92	12.68	3.79
Total Assets turnover	0.62	0.66	0.7	0.75	0.74	0.69	0.05
ROCE	8.79	18.36	14.4	10.32	11.7	12.71	3.77
EBIT Margin	9.98	19.12	14.34	9.45	10.88	12.75	4.04

Source: Data collected and compiled from annual reports

Table-1 (d): Working Capital and Performance Ratio Analysis of Essar Steel India Ltd.

Ratio	2009	2010	2011	2012	2013	Mean	S.D.
Inventory Turnover	5.96	4.89	3.39	3.79	4.14	4.43	1.02
Receivables Turnover	33.09	26.68	27.07	32.24	26.03	29.02	3.36
Working Capital Turnover	6.83	3.56	2.8	-2.13	-1.91	1.83	3.83
Receivable days	11.03	13.68	13.48	11.32	14.02	12.71	1.41
Inventory Days	61.28	74.6	107.42	96.31	88.1	85.54	18.09
Payable days	40.82	58.45	54.21	47.49	69.93	54.18	11.06
Current Ratio	1.63	1.66	0.79	0.5	0.5	1.02	0.59
Quick Ratio	0.9	1.13	0.37	0.26	0.28	0.59	0.40
Payables turnover	8.94	6.24	6.73	7.69	5.22	6.96	1.42
Total Assets turnover	0.86	0.49	0.37	0.43	0.37	0.51	0.21
ROCE	9.44	4.96	2.73	1.68	-4.99	2.76	5.26
EBIT Margin	8.58	8.36	6.17	3.3	-10.68	3.146	8.01

Source: Data collected and compiled from annual reports

From the analysis of components given in Table -1(a) to Table -1(d) following inferences can be drawn

Inventory turnover ratio is a measure of the number of times inventory is sold in a year. It is an indicator of inventory quality (whether the inventory is obsolete or not), efficient buying practices, and inventory management. Table -1(a) to 1(d) indicates fluctuating trend of inventory turnover ratio of all the companies during the entire study period. Average inventory turnover ratio of Tata Steel is highest i.e 8.56 times followed by JSW Steel Ltd i.e7.92 times. High value of inventory turnover of these companies indicates their greater sales efficiency while the inventory turnover ratio of Essar Steel India Ltd is least i.e.4.43 times. A relatively low inventory turnover ratio of Essar Steel India Ltd. indicates ineffective inventory management (that is, carrying too large inventory) and poor sales or carrying out-of-date inventory to avoid writing off inventory losses against income.

Receivables turnover ratio is an important indicator of a company's financial and operational performance. It indicates the velocity of a company's debt collection, the number of times average receivables are turned over during a year. From table -1(a) to 1(d) fluctuating trend of receivables turnover ratio of Tata Steel Ltd and Essar Steel India Ltd can be observed while SAIL and JSW Steel Ltd shows a declining trend. The higher value of average receivables turnover of Tata Steel Ltd and JSW Steel Ltd indicates that these companies are more efficient in management of debtors. Similarly, low average receivables turnover ratio of Essar Steel India Ltd and SAIL implies that they have less liquid receivables.

Working capital turnover ratio measures how efficiently a firm uses its working capital to generate sales. An increasing working capital turnover shows that the company is more able to generate sales from its working capital on the contrary a decreasing working capital turnover shows that the company is less able to generate sales from its working capital. From table -1(a) to 1(d) it is observed that average working capital turnover ratio of SAIL is higher than industry average margin means SAIL is performing better than similar businesses while the management of other companies is not performing up to par. Average working capital turnover ratio of JSW Steel Ltd is least i.e. is – 12.87 which indicates that the activities are not generating enough revenue to cover expenses.

The ideal current ratio is 2:1. But from table -1 (a) to 1(d) it can be noted that the ratio is below the conventional standard norm of 2:1 in all the years under study of all the selected companies except SAIL for the year 2009 and 2010. Hence, the performance of the selected companies in terms of current ratio is not satisfactory during the study period. The current ratio of all the selected companies has shown a declining trend except JSW. An increase in current ratio of JSW represents that there is improvement in liquidity position of the firm.

Quick ratio is also known as liquid ratio. The standard quick ratio is 1:1. From table -1(a) to 1(d) it can be noted that the quick ratio of Essar steel India ltd in the year 2010 and Tata steel Ltd and SAIL for the year 2009-2011 is above the standard. It means during this period liquidity position of these companies is satisfactory. But the

quick ratio of JSW steel during the whole study period is below the standard norm of 1:1. It indicates that the firm has faced an acute liquidity crisis during this period.

Payables turnover ratio evaluates the number of times a company pays its suppliers during a specific accounting period. A high ratio shows relatively short time between purchase of goods and services and payment for them. From Table -1(a) to 1(d) it can be noted that the average payables turnover ratio of JSW Steel Ltd. is highest i.e. is 12.68 times. This high ratio indicates that the company is getting less credit from suppliers while the average payables turnover ratio of Tata steel Ltd is least i.e. 4.24 times. Low payables turnover ratio of Tata Steel Ltd signifies that it enjoys more credit and able to get extra liquidity.

Total asset turnover ratio measures how efficiently a company's assets generate revenue. It is the ratio of a company's sales to its total assets. A high assets turnover ratio indicates that company uses its assets more efficiently and it is able to generate more sales with fewer assets. A lower turnover ratio tells that the company is not using its assets optimally. Table - 1(a) to 1(d) reveals that total asset turnover ratio of JSW Steel Ltd is increasing over time. This indicates that the company is growing into its capacity while a decreasing ratio of Essar Steel India Ltd and SAIL indicates that these companies are declining into their capacity. Average assets turnover ratio of Tata Steel Ltd is lowest. This shows that the company is likely to be operating below its full capacity.

Return on Capital Employed (ROCE) is a performance measure and it shows how much return is generated from invested capital. A higher value of ROCE is favorable indicating that the company generates more earnings per rupee of capital employed. A lower value of ROCE indicates lower profitability therefore companies with higher percentage of ROCE are considered as better performers and with low percentage of ROCE. Table - 1(a) to 1(d) shows ROCE trend of selected companies. Tata Steel Ltd and JSW Steel Ltd indicates fluctuating ROCE trend over the study period while Essar Steel India Ltd and SAIL shows declining trend. A declining ROCE may point to a loss of competitive advantage to these companies. Based on average return SAIL and Tata steel Ltd appears to be making better use of its capital as compared to JSW Steel Ltd and Essar Steel India Ltd.

Earning before interest and tax (EBIT) margin is used to analyze company's operating efficiency. It is equal to EBIT divided by net revenue. EBIT is profit before taking into account interest payments and taxes. This margin nulls the effects of the different capital structures and tax rates used by different companies. A higher value of EBIT margin reflects that the company is able to keep its earnings at a good level via efficient processes that have kept certain expenses low. From Table - 1(a) to 1(d) it can be noted that the EBIT margin of Essar Steel India Ltd is showing a declining trend with an average of 3.15% and there is no uniform EBIT margin trend of other selected companies. Average EBIT margin of Tata Steel Ltd is highest i.e.31.51%. This trend of showing impressive profits and posting good EBIT margins of Tata Steel Ltd enables it to raise above all adverse effects and competition.

Table-2: Cash Conversion Cycle of Selected Companies

(in days)

Year	Steel Authority of India Ltd	Tata Steel Ltd.	JSW Steel Ltd.	Essar Steel India Ltd.
2009	52.43	-34.76	8.55	31.49
2010	48.15	-39.7	12.97	29.83
2011	61.35	-40.41	31.77	66.69
2012	93.26	-36.89	38.98	60.14
2013	113.85	-31	37.16	32.19
Average	14.76	-7.3	5.18	8.81
Rank	**4**	**1**	**2**	**3**

Cash Conversion Cycle (CCC) is used as a comprehensive measure for working capital efficiency. Cash conversion cycle is the time duration in which a firm is able to convert its inventories in to sale and collect cash from sale of the goods after making payments for resources acquired by the firm. From table-2 it is observed that cash conversion cycle of all the selected companies is showing fluctuating trend over the study period. Tata Steel Ltd. occupies first rank while SAIL stands on fourth rank in terms of cash conversion. Average CCC is highest with SAIL i.e 14.76 days followed by Essar Steel India Ltd i.e 8.81 days and JSW Steel Ltd i.e 5.18 days. The longer this time lag indicates that larger is the investment of these companies in working capital. Negative CCC of Tata Steel Ltd each year shows its effective and efficient working capital management.

Hypothesis testing using one way Anova

ANOVA Table

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Between Groups	321.8487	3	107.2829	0.15569	0.925338
Within Groups	24806.84	36	689.079		
Total	25128.69	39			

In this output, the test statistic, F, is reported in the analysis of variance table, F (3, 36) = 0.155, p>0.05. The p-value for this statistics is p > 0.05 (reported in the table as 0.925338). This means that there is evidence that there are no differences in the means across groups. Therefore null hypothesis that there is no significant difference between the working capital ratios of selected Indian steel companies is fail to reject.

Conclusion

Every organization whether public or private irrespective of its size and nature of business needs adequate amount of working capital. The efficient working capital management is most crucial factor in maintaining survival, liquidity, solvency and profitability of any business organization. Study shows the over all performance of all selected steel companies has been quite satisfactory during the study period with certain variations like inspite of all adverse economic conditions and competition Tata Steel Ltd is able to show impressive profits and posting good EBIT margin while SAIL is fetching highest average return on capital employed. It is also concluded that the SAIL a public sector undertaking is better off than private sector companies as regard liquidity. Study also reveals that Cash Conversion Cycle (CCC) of Tata Steel Ltd is negative in fact it is shortest also. This shortest cash conversion cycle of Tata Steel Ltd reflects very good working capital management of company. It is recommended to other companies to shorten their CCC either by reducing the inventory conversion period via processing and selling goods more quickly; or by decreasing the receivables collection period via speeding up collections; or by lengthening the payables deferral period through slowing down payments to suppliers This will increase companies efficiency of internal operations and results on higher profitability. But lowest average assets turnover ratio of Tata Steel Ltd also shows that the company is likely to be operating below its full capacity so management should try to utilize its assets properly At the same time increasing total asset turnover ratio of JSW Steel Ltd indicates that the company is growing into its capacity which is a good sign for company's growth.

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Appendix 1

Formulae to calculate the variables:

1. Inventory Turnover Ratio (times) = Net Sales/Inventory
2. Receivables Turnover Ratio (times) = Net Sales/ Receivables
3. Working Capital turnover Ratio (times) = Net Sales / working capital
4. Receivables Days = Receivables/ (Sales/365)
5. Inventory Days = Inventories/ (Sales/365)
6. Payables Days = Payables/ (Purchases /365)
7. Current Ratio (CR) = Current assets/Current liabilities
8. Quick Ratio (QR) = (Current assets - Inventories)/Current liabilities
9. Payables Turnover Ratio (times) = Net Purchases/ Payables
10. Total Assets turnover Ratio (times) = Net Sales/ Total Assets
11. Cash Conversion Cycle (CCC) = (Receivables days+ Inventory days) - Payables days
12. Earning before interest and tax (EBIT) margin (%) = (EBIT/ Net Revenue)*100
13. Return on Capital Employed (ROCE) (%) = (EBIT/Total Assets) *100