Impact of Liquidity Management on Profitability Performance of Steel Authority of India Limited

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Abstract
Profitability is an indication of the efficiency with which the operations of the business are carried on. Profitability performance analysis is an important criterion to evaluate the overall efficiency of an organisation. It is concerned with the total earnings or the income generated and the total expenditure or the investments incurred by a company. Thus, profitability performance analysis may be defined as the ability of a given investment, to earn a return on it and liquidity is the one of the important factor which affects the profitability of the company. The emphasis of the paper is to measure and analyse the impact of liquidity on the profitability performance of Steel authority of India Limited (SAIL) for the accounting period from 2000-01 to 2009-10. Secondary data collected from the published Annual Reports of SAIL are used in the study. Return on Capital Employed has been taken as dependent variable and three liquidity ratios, namely, current ratio, liquid ratio and cash ratio has been treated as independent variable. Correlation Coefficient is applied to examine the impact of liquidity on profitability performance and student t-test has been used to test the hypotheses. The findings of the study reveals that out of the three liquidity ratios undertaken for the study, current ratio has mostly affect the profitability of the company. Thus, the management of the company should focus on the maintenance of current ratio.
Keywords: Liquidity, Profitability, Working Capital Management, Correlation Coefficient, Student t-test.

Introduction

Working capital management is a vital fraction in firms' financial management decision. Management of working capital has profitability and liquidity implications. That is why; working capital proposes a familiar front for profitability and liquidity management. To reach optimal working capital management, a firm's manager should control the trade off between profitability and liquidity accurately. An optimal working capital management is expected to contribute positively to the creation of firms' value (Amalendu, 2011). The finance manager always faced with the dilemma of liquidity vs. Profitability. He has to strike a balance between the two. Liquidity means that:

- The firm has adequate cash to pay for its current liabilities.
- The firm has sufficient cash to make unexpected large purchases and, above all
- The firm has cash reserves to meet emergencies, at all times.

Liquidity is the ability of a firm to meet its short-term obligations like payment to creditors, bills payable and outstanding expenses. It measures the ability of the firm to honor all the maturing obligations. No firm can survive without liquidity. A firm not making profit may be considered as sick, but having no liquidity may soon meet its downfall and ultimately die (Suvarun Goswami, 2011). Liquidity management, thus, is an important issue during financial decision making since its being a part of investment in assets that requires appropriate financing investment. However, working capital always being ignore in financial decision making since it involve investment and financing in short-term period. It also acts as a control in financial performance, since it does not contribute to return on equity. Though, it should be critical for a firm to sustain their short-term investment since it will ensure the ability of a firm in longer period (Amalendu, 2010). The study of liquidity is of major importance to both the internal and external analysts because of its close relationship with day-to-day operations of a business. Dilemma in liquidity management is to achieve desired trade-off between liquidity and profitability (Raheman et.al. 2007). Referring to theory of risk and return, investment with more risk will result to more return. Thus, firms with high liquidity of working capital may have low risk then low profitability. Conversely, firm that has low liquidity of working capital, facing high risk results to high profitability.

Objective of the Study

The present study is focused on the liquidity management of Steel Authority of India Limited (SAIL) and to examine the impact of liquidity management on the profitability performance of SAIL.

Review of Literature

- D. Sur (1998) made an attempt to analyze the impact of working capital management on profitability in Indian Tea industry with the help of some statistical tools and techniques. The study revealed that, out of the nine ratios relating to working capital management five ratios registered positive association and

the remaining four ratios showed negative correlation with the profitability indicator.

- Lyroudi & I. Lazaridis (2000 examined the Working Capital Cycle (WCC) as a liquidity indicator of the Food Industry and tries to determine its relationship with the current and the quick ratios, with its component variables, and investigates the implications of the working capital cycle in terms of profitability, indebtedness and firm size. The results of their study indicate that there is a significant positive relationship between the working capital cycle and the traditional liquidity measures of current and quick ratios. The working capital cycle also positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. Conversely, the current and quick ratios had negative relationship with the debt to equity ratio, and a positive one with the times interest earned ratio. Finally, there is no difference between the liquidity ratios of large and small firms.
- P.J Garcia-Teruel and P. Martinez-Solano (2007) studied the effects of working capital management on the profitability of a sample of small and medium-sized Spanish firms. They found that managers can create value by reducing their inventories and the number of days for which their accounts are outstanding. Moreover, shortening the cash conversion cycle also improves the firm's profitability.
- K. Chakraborty (2008) evaluated the relationship between working capital and profitability of 25 selected companies in the Indian pharmaceutical industry during the period 1996-97 to 2007-08. He pointed out that there were two distinct thoughts on the issue: first thought said that working capital is not a factor of improving profitability and there may be negative relationship among them, while another thought revealed that investment in working capital plays a vital role to improve corporate profitability. This study revealed that the liquidity management, inventory management and credit management made positive contribution towards improvement of the corporate profitability.
- J.P Singh and S. Pandey (2008) suggested that, for the successful working of any business organization, fixed and current assets play a vital role, and that the management of working capital is essential as it has a direct impact on profitability and liquidity. They studied the working capital components and found a significant impact of working capital management on profitability for Hindalco Industries Limited.
- K.C. Nandi (2011) made an attempt to examine the influence of Working Capital Management on corporate profitability. For assessing impact of working capital management on profitability of National Thermal Power Corporation Ltd. (NTPC) during the period of 10 years i.e., from 1999-2000 to 2008-09. Pearson's coefficient of correlation and multiple regression analysis between some ratios relating to working capital management and the impact measure relating to profitability ratio (ROI) had been computed and applied. An attempt had been undertaken for measuring the sensitivity of Return on Investment (ROI) to changes in the level of Working Capital Leverage (WCL).

Data for the study

The study is based on secondary data collected from the published Annual Reports of SAIL. For the purpose of the study, Journals, conference proceedings and other relevant published literatures have been also consulted to supplement the data.

Period of the Study

The study will cover the period of ten years from 2000-01 to 2009-10.

Methodology

In the present study, liquidity and profitability position have been taken into consideration. The different key liquidity and profitability ratios have been calculated in order to judge the financial performance for the period under study. For establishing the relationship between various Liquidity ratios and Profitability ratios, Pearson's simple Correlation Coefficient (*r*) has been applied. The value of *r* has been computed with the help of the following formula:

$$\textbf{Correlation Coefficient (r)} = \sum xy / \sum x^2 . \sum y^2$$

Student's *t*-test has been also used for the purpose of testing the results obtained. The formula used for obtaining t-value is:

$$t = 1/ \sqrt{1-r^2} \times \sqrt{n-1}$$

The values of 'r' lie between -1 and +1. The tabulated value of *'t'* is 2.31 at 5% level of significance and 3.36 at 1% level of significance. If the calculated value is more than the tabulated value at 1% or 5% level in case of any independent variable, we can infer that the relationship between that particular variable with dependent variable is significant.

Selected Variables

Dependent variable: Return on Capital employed (ROCE) is taken as the dependent variable as it reflects as to how well a company is employing its capital. It is calculated as:

$$\frac{\text{Adjusted Net Profit}}{\text{Capital Employed}} \times 100$$

Capital Employed= Net Fixed Assets + Net Working Capital

Independent variables: The independent variables are interpreted as the commonly used financial (liquidity) ratios. These are:

Current ratio: The Current ratio is a measure of the firm's short-term solvency. A ratio of greater than one means that the company has more current assets than current claims against them.

Liquid (quick) ratio: Liquid ratio establishes a relationship between liquid assets and current liabilities.

Cash ratio: Cash ratio establishes relationship between cash and current liabilities. This is a variation of quick ratio.

Company Profile

Steel Authority of India Limited (SAIL) is a company registered under the Indian Companies Act, 1956 and is an enterprise of the Government of India. It has five integrated steel plants at Bhilai (Chattisgarh), Rourkela (Orissa), Durgapur (West Bengal), Bokaro (Jharkhand) and Burnpur (West Bengal). SAIL has three special and alloy steel plants viz. Alloy Steels Plant at Durgapur (West Bengal), Salem Steel Plant at Salem (Tamilnadu) and Visvesvaraya Iron & Steel Plant at Bhadravati (Karnataka). In addition, a Ferro Alloy producing plant Maharashtra Elektrosmelt Ltd. at Chandrapur, is a subsidiary of SAIL. SAIL has Research & Development Centre for Iron & Steel (RDCIS), Centre for Engineering & Technology (CET), SAIL Safety Organisation (SSO) and Management Training Institute (MTI) all located at Ranchi; Central Coal Supply Organisation (CCSO) at Dhanbad; Raw Materials Division (RMD), Environment Management Division (EMD) and Growth Division (GD) at Kolkata. The Central Marketing Organisation (CMO), with its head quarter at Kolkata, coordinates the country-wide marketing and distribution network.

The government of India owns about 86% of SAIL's equity and retains voting control of the company. SAIL, by virtue of its "Maharatna" status, enjoys significant operational and financial autonomy.

SAIL has been ranked amongst the top ten public sector enterprises in India in terms of turnover. SAIL manufactures and sells a broad range steel products including hot and cold rolled sheets and coils, galvanised sheets, electrical sheets, structural's, railway products, plates, bars and rods, stainless steel and other alloy steel. The company has the distinction of being India's second largest producer of iron ore and of having the country's second largest mines network. This gives SAIL a competitive aid in terms of captive availability of iron ore, limestone and dolomite which are inputs for steel making.

Data Analysis

Profitability Position of SAIL:

The Profitability position of SAIL for the period of ten years from the year 2000-01 to 2009-10 has been depicted in the table 1:

Table 1: General Profitability Position of SAIL

(In Percentage)

Year	Gross profit ratio	Net profit ratio	Operating profit ratio
2000-01	15.3	(5.16)	15.35
2001-02	7.4	(12.63)	7.47
2002-03	12.8	(1.88)	12.85
2003-04	21.8	11.79	21.84
2004-05	38.9	23.90	38.90
2005-06	26.4	14.41	26.41
2006-07	32.3	18.28	32.32
2007-08	32.8	19.07	32.79
2008-09	25.3	14.37	25.35
2009-10	29.2	16.65	29.27
A.M	24.22	9.89	24.25
S.D	16.03	12.07	9.88

Source: Annual Reports of SAIL

A.M = Average Mean

S.D = Standard Deviation

The above Table shows the profitability position of SAIL in terms of Gross profit ratio, Net profit ratio and Operating profit ratio. The Gross profit ratio shows a fluctuating rising trend during the period under consideration. The highest gross profit ratio has been found 38.9% in the year 2004-05 while the lowest ratio has been observed 7.4% in the year 2001-02. The fluctuating ratio reveals the inconsistency in the production and sale efficiency of SAIL. Further, the net profit ratio also shows a fluctuating rising trend during the period under the study. It has ben negative in first three years i.e, frrom 2000-0 to 2002-03 and thereafter it has been observed positive. The highest net profit ratio has been found 23.90% in the year 2004-05 while the lowest has been found 11.79% in the year 2003-04. The Operating profit ratio has been found satisfactory during the period the under study. It has shown fluctuating rising trend. The lowest operating profit ratio has been found 7.47% in the year

2001-02 while the highest ratio 38.90% has been found in the year 2004-05. Thus, it may be said that SAIL managed its affairs effectively during the period under study.

Earning Position of SAIL:

The overall earning position of SAIL during the period of ten years has been shown in Table 2.

Table 2: Overall Earning Position of SAIL

(In Percentage)

Year	ROI	ROE	ROCE	EPS	CTR
2000-01	0.13	0.24	(3.90)	(1.76)	0.84
2001-02	0.32	0.03	(9.66)	(4.13)	0.89
2002-03	0.05	0.24	(1.88)	(0.74)	1.19
2003-04	0.49	0.82	16.55	6.08	1.71
2004-05	0.66	1.27	53.09	16.50	1.71
2005-06	0.31	0.88	27.27	9.72	1.62
2006-07	0.35	1.27	39.88	15.02	1.61
2007-08	0.32	1.51	42.54	18.25	1.60
2008-09	0.22	1.29	29.85	14.95	1.45
2009-10	0.20	1.40	26.54	16.35	1.14
A.M	0.30	0.89	22.02	9.02	1.37
S.D	0.17	0.54	21.32	8.56	0.33

Source: Annual Report of SAIL. A.M = Average Mean**,** S.D = Standard Deviation

The above table depicts overall earning position of SAIL in terms of Return on Investment, Return on Equity, Earning per Share, Capital Turnover and Return on Capital Employed. Out of these, Return on Capital Employed is most important indicator of profitability. It shows a fluctuating rising trend during the period under consideration. It has been negative in the first three years and thereafter it has been observed positive. The highest positive return on capital employed has been found 53.09% in the year 2004-05 while the lowest negative ratio has been observed (9.66%) in the year 2001-02. Similar trend has been also observed in case of earning per share during the period under the study. It has been found highest 18.25% in the year 2007-08 while lowest negative ratio has been observed (4.13) in the year 2001-02. Again, retun on equity and return on investment shows a fluctuating rising trend with highest ratio of 1.51% in the year 2007-08 in case of return on equity and 0.66% in the year 2004-05 in case of return on investment. The lowest ratio of return on equity has been found 0.03% in the year 2001-02 and 0.05% in case of retun on investment in the year 2002-03.

Liquidity Position of SAIL:

The Liquidity position of SAIL for the period of ten years from the year 2000-01 to 2009-10 has been depicted in the following table:

Table 3: Liquidity Position of SAIL

Year	Current Ratio	Liquid Ratio	Cash Ratio
2000-01	1.23	0.56	0.10
2001-02	1.05	0.45	0.06
2002-03	0.99	0.48	0.07
2003-04	0.91	0.57	0.22
2004-05	1.40	0.99	0.60
2005-06	1.39	0.89	0.49
2006-07	1.86	1.25	0.87
2007-08	1.99	0.97	1.04
2008-09	2.01	1.42	1.06
2009-10	2.27	1.30	1.30
A.M	**1.51**	**0.93**	**0.58**
S.D	**0.66**	**0.53**	**0.60**
C.V	**0.43**	**0.28**	**0.36**

Source: Annual Report of SAIL A.M = Average Mean S.D = Standard Deviation C.V = Coefficient of Variance

The above Table presents various financial ratios covering liquidity position of the company for the period under the study. These ratios are the measures of the company's short-term solvency position. They indicate the ability of the company to meet its current obligations. Standard norm for current ratio is 2:1. The average current ratio of the company has been found as 1.51 which indicates that the liquidity in terms of current ratio has been quite adequate for the company. Again, the average liquid ratio has been observed 0.93 and standard norm for the liquid ratio is 1:1. So, it can be viewed from the table that liquidity position in terms of liquid ratio is also quite

good and SAIL is enough competent to pay its most immediate liabilities. The average cash ratio has been found 0.58 which indicates that the liquidity in terms of cash ratio has been quite satisfactory. The cash ratio is the most vigorous measure of the liquidity poisition. However, it is not widely used in practice.

Table 4: Relationship between Liquidity Ratios and Return on Capital Employed.

The Table presents the relationship between various Liquidity Ratios (independent variables) and Return on Capital Employed (dependent variable).

Year	Independent Variables			Dependent Variable
	Current Ratio	Liquid Ratio	Cash Ratio	ROCE
2000-01	1.23	0.56	0.10	-3.90
2001-02	1.05	0.45	0.06	-9.66
2002-03	0.99	0.48	0.07	-1.88
2003-04	0.91	0.57	0.22	16.55
2004-05	1.40	0.99	0.60	53.09
2005-06	1.39	0.89	0.49	27.27
2006-07	1.86	1.25	0.87	39.88
2007-08	1.99	0.97	1.04	42.54
2008-09	2.01	1.42	1.06	29.85
2009-10	2.27	1.30	1.30	26.54
Average	**1.51**	**0.93**	**0.58**	-
Correlation (r)	0.81*	0.74**	0.72**	-
Calculated value of *'t'*	3.94	3.12	2.95	-
Critical value of *'t'*	3.36	2.31	2.31	-
Level of significance	1%	5%	5%	-
Degree of freedom	8	8	8	-

Source: Statistical results computed from Annual Reports of SAIL.

*Significant at 1% (Two-Tailed)

**Significant at 5% (Two-Tailed)

The above table presents the strength of the relationship between the dependent variable (ROCE) and all the independent variables taken together and the impact of these independent variables on the Profitability (ROCE) of SAIL.

Major Findings

1. In Table 4, an attempt has been made to measure the impact of liquidity on profitability by computing Karl Pearson's Correlation Coefficient between selected measures relating to the liquidity management and ROCE. Table 4 shows that the correlation coefficient between ROCE and Current ratio is 0.81, which indicates that there is a positive high degree of correlation between the profitability and the liquidity of the company and correlation coefficient is found to be statistically significant at 1% level, since the calculated value of *'t'* is more than the tabulated value (3.94>3.36) at 1% level. That means there is significant relationship between ROCE and Current ratio during the period under study.
2. In case of liquid ratio, it is observed (Table 4) that the correlation coefficient between ROCE and liquid ratio during the period under study is positively high and is calculated at 0.74, which is found to be significant at 5% level, since the calculated value of *'t'* is more than the tabulated value (3.12>2.31). It depicts that liquid ratio of the company is positively related with the ROCE.
3. Table 4 also exhibits that the correlation coefficient between ROCE and cash ratio is positively high and is computed at 0.72 during the period under study. The coefficient is found to be statistically significant at 5% level of significance, since the calculated value of *'t'* is more than the tabulated value at 5% level. It reveals that the cash ratio has a significant influence on the profitability of the company during the study period.

CONCLUSION

The study of correlation coefficient reveals that out of three ratios depicted in Table 4 relating to the liquidity management, current ratio have registered the highest positive correlation with selected profitability ratio (i.e., ROCE) and has a significant influence on the profitability of the company at 1% level of significance. Despite this, other two ratios showed a positive relationship with ROCE but they influence the profitability at 5% level of significance as the calculated value of 't' is more than tabulated value at 5% level. Therefore, the management of the company should focus on its current ratio and try to realise its current assets in an efficient manner to meet

the short-term obligations as it is a crude-and-quick measure of liquidity than the liquid ratio and cash ratio and also affects the profitability of the company. Further, the company should focus on the liquid ratio. The assets which are considered to be liquid are debtors, bills receivables and market securities (temporary quoted investments). Thus, the company should keep in mind that it has no slow-paying, doubtful and long duration outstanding debtors.

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