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LIQUIDITY MANAGEMENT OF SELECTED PRIVATE SECTOR STEEL COMPANIES IN INDIA

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Abstract

Since privatization, to ensure swift economic development it was deemed essential that a sound steel production program on a formidable basis must be formulated. Accordingly, the private sector has set up many more integrated steel plants and enhanced the existing plants to increase current production capacity. To some extent the priority given by the country failed to flourish due to poor capacity, under-utilization and poor consumption. Working capital is accountable for poor capacity, under-utilization and poor consumption. The competence of the working capital in terms of short-term liquidity is of foremost significance in the case where we examine performs and guiding principle presently overcoming in an industry with a view to finding out whether they are reasonable or require enhancement. The effectiveness of working capital is of crucial importance if short-term liquidity position as well as short-term solvency position is very acceptable and at the same time, if judgment is made with its standard or benchmark. The overall efficiency is vital from the viewpoint of short-term liquidity and at the same time proper plane of profitability is required for the business enterprises. Consequently, the affiliation between short-term liquidity and profitability is one of the most imperative areas necessitating management analysis. Keeping this in view, a study of liquidity management of the selected private sector steel companies is undertaken in the present work.

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Liquidity Management of Selected Private Sector Steel Companies in India

Introduction

The Government of India has been extending its helping hands to regulate the inadequate resources with a view to drawing up a unified and well co-ordinate industrial infrastructure for achieving a balanced and speedy economic growth in the country, since independence. Indian economic growth increased on an average from 3.6 per cent to 6 per cent during the pre-liberalization period. After economic reforms these rate of growth increased from 6 per cent to 8.1 per cent (Sury, 2007).

Since privatization policy (July 1991), the Government of India has opened up the floodgates for multinationals to participate in the domestic market of the country. The new alterations in the policy are likely to bring in vast changes from an erstwhile near monopoly to a highly competitive environment around public sector, forcing them to modify their behavior and carry out changes to develop competitive capabilities to meet new challenges ahead.

In such a changed economic environment, the private sector investment was automatically increased. The share of investment was 53.6 per cent in 2004-05 (Bhunia, 2007). In Kolkata, p. 3; Bhunia, 2007). But the production capacity and growth rate in the private sector did not increase promptly due to under-utilization and poor financial management. Improper management of working capital in terms of liquidity, solvency, operating efficiency and profitability is accountable for inadequate financial performances.

Management of working capital has profitability and liquidity implications. Hence, working capital proposes a familiar front for profitability and liquidity management. The principal objective of the present research work is to conduct a study on the overall efficiency of the management of working capital with special reference to short-term liquidity. Liquidity refers to the ability of a concern to meet its short-term obligations as and when they become due. Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term compulsions. Shortfall in liquidity results in bad credit ratings, and finally it may result in the closure of the company. At the same time a very high degree of liquidity is also bad, as idle assets earn nothing. A study of liquidity is of major importance to both the internal and the external analysts because of its close relationship with day-to-day operations of a business.

After some investigation, steel Industry has been singled out for research in the present study. This is definitely the backbone of economic growth in any industrial country. A thick relationship has been found between the level of economic growth and the quantum of steel consumption in developed as well as developing countries.

Since privatization, to ensure swift economic development it was deemed essential that a sound steel production program on a formidable basis must be formulated. Accordingly, the private sector has set up many more integrated steel plants and enhanced the existing plants to increase current production capacity. To some extent the priority given by the country failed to flourish due to poor capacity, utilization and consumption. The per capita steel consumption in India is about 30 kg, which is very low compared to the other countries like; China where per capita consumption has already exceeded 180 kg whereas world average is over 400 kg in the developed countries (Bhunia, 2007)

According to the industry experts' current available resource and production capacity is under utilized as demonstrated by per capita consumption. This call for a full diagnosis of the malady, that is identification, analysis and quantification of the interfering constraints in achieving full utilization of the capacities, thus opens a vast field for research and enquiry. In the present study, therefore; an attempt has been made to examine and evaluate the management of short-term liquidity of the private sector companies as a factor accountable for poor performance in the steel Industry in India.

Review of Related Literature

In spite of such a greatcoat of liquidity management, it is strange that so long it could not draw towards as much mindfulness of the researchers in India as it desires. A brief review of the different pains of research in the field is attempted in the following paragraphs.

The National Council of Applied Economic Research (NCAER), New Delhi, was the first to present the volume: Structure of Working Capital in 1966 with special reference to three industries, namely, fertilizers, cement and sugar. This study was mainly devoted to the analysis of composition of the working capital in these industries for the period from 1959 to 1963. However, NCAER appear to have failed to put into sharp focus on various problems involved in the management of different components of working capital.

Dr. Ram Kumar Mishra made another study at the University of Rajasthan under the title "Problems of Working Capital**"** with special reference to selected public sector undertakings in India, Bombay, Somaiya (Publications Pvt. Ltd., 1975). The analysis and findings of this research relate to the functioning of a chosen sample of six large public sector enterprises during the period 1960-61 to 1967-68. No doubt, the basic issues outlined in Dr. Mishra's study and the findings therein have currency and relevance to many of the units in the public sector even today, but due to the functional and structural changes that public sector enterprises have witnessed in the post 1968 era, a repeated effort on a different samples is called for to bring the prescriptions up-to-date.

Dr. K. Rajeshwar Rao in his Ph.D. thesis under Kakatiya University, 1980 "Working Capital Problem of Public Enterprises in India (with special reference to selected undertakings)", has

enquired and suggested that a well developed working capital management technique which is a sine-qua-non for the liquidity and profitability did not exist in the public enterprises.

More subject specific works are: A. K. Mukherji's Management of Working Capital in Public Sector Enterprises**,** Allahabad, Vohra Publications and Distributors, 1988; N. K. Agarwal's Management of Working Capital, New Delhi, Sterling Publications Pvt. Ltd., 1983**;** P. K. Mitra and S. N. Bidani's Bank Finance For Industry—Working Capital and Term Loans, New Delhi, Vision Book Company, 1984. Beginning with the enunciation of the conceptual framework and methodology, all these studies brought out a detailed analysis of basic essentials, such as, current assets, current liabilities and net working capital so as to ascertain their magnitude of changes. Most of these volumes have not been basically different except that they have considerably evoked a newer view and thinking towards a greater concretization of finance fundamentals both in theory and application.

Islam and Rahman (1994) had an article on "Working capital Trends of the Selected Enterprises in Bangladesh". optimum working capital enables a business to have its credit standing and permits the debt payments on the date of its maturity and helps to keep itself fairly in liquid position, which enables the business to attract borrowing from the banks. It also helps to maintain all-round efficiency in operations.

Another ingenious work with much wider, sharper and more singular focus on working capital management is V. P. Joshi's Working Capital Management Under Inflation, New Delhi, Anmol Publications Pvt. Ltd., 1995. The work has been done in the area of capital-intensive industries, that is, cement, chemicals and engineering covering sixty-four medium and large private and public sector enterprises. The study brought out the problem of inefficiency in the management of current assets in the cement industry while highlighting the dominant position of the inventories in total working capital—the study rightly called for maximum efficiency in the management of current assets.

Few research studies on the management of working capital of public sector Iron and Steel industry in India are also available. Among them, in 1995, A. Wajid on the "Management of Working Capital of Public Sector Iron and Steel Industry in India" under Rohilkhand University makes the relevant research work. It mainly focuses on the performance of working capital components, specially the management of inventories, receivables and cash. However, it does not pay much attention as to observe the trend of working capital and its components.

The conclusive sum of this retrospective review of relevant literature produced till date on the offered subject reveals wide room for the validity and originates of this work and reflects some decisive evidences that affirm its viability, as may be marked here it. Nor has any previous research examined the optimal level of working capital key components through working capital cycle, composition of working capital and the existence of liquidity and profitability relationship, efficiency and liquidity trends of private sector steel companies. No study has incorporated in this fashion before the present one.

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Objectives of the Study

The main objective of the present study is to examine the overall efficiency of the management of working capital in terms of short-term liquidity in selected private sector steel companies. More specifically it seeks to dwells upon mainly the following issues:

- To observe the working capital as well as liquidity position and area of weaknesses, if any, of the selected companies under the study;
- To search the liquidity-profitability relationship;
- To make some suggestions and specific recommendations for improvement of the liquidity management.

Hypotheses

The study has pursued to test the following null hypothesis with reference to steel industry in India:

H1: That inventory management is not satisfactory;
H2: That receivables management is not satisfactory;
H3: That cash management is not satisfactory;
H4: That payable management is not satisfactory;
H5: That a relationship does not exist between liquidity indicators and profitability indicators.

The alternative hypotheses are just reverse of null hypotheses.

Methodology

We selected four private sector steel companies operating in India in the present study (i. e., (i) Tata Steel Ltd. (ii) Lloyds Steel Inds Ltd. (iii) Kalyani Steels Ltd. and (iv) J S W Steel Ltd.). The study relates to a period of nine years**,** starting from 1997-98 and ending on 2005-06**.** For the purpose of study only secondary data have been used. The study is based on the secondary data obtained from the audited balance sheets and profit & loss accounts and also the annual reports of the respective companies. Besides, the facts, figures and findings advanced in similar earlier studies and the government publications are also used to supplement the secondary data.

In the course of analysis in this study, various accounting and statistical tools and techniques have been used. Accounting techniques includes ratio analysis, while among statistical techniques the A.M., S.D., C.V, test of significance ('t' test), multiple correlation and multiple regression analysis, co-efficient of determination (R^2) and linear regression equations have been applied. The use of all these techniques at different places has been made in the light of requirement of analysis.

Present Status of Indian Steel Industry with comparison to Global Scenario. The present status of the Indian Steel Industry is primarily a raw material based industry as for the production of

one ton of steel; an integrated plant consumes 4 ton of raw materials (Chatterjee, M, 2007). India with its abundant availability of high grade Iron ore, the requisite technical base and cheap skilled labor is thus well placed for the development of steel industry and to provide a strong manufacturing base for the metallurgical industries. The per capita consumption of steel is 33.0 kg is also well below even the World average of 173.4 kg while 1216.7 kg in UAE, 371.4 kg in USA and 610.2 kg in Japan, as per IISI statistics in 2005.

The world production of crude steel has gone up during the last 10 years (1997 to 2006) from 799 MT to 1244 MT, as per the latest information of IISI. Although this fantastic growth of the world steel production about 455 MT in 10 years, it looks previous 40 years to achieve that same growth. However it was not evenly achieved by all the countries and mainly due to the exceptional performance of Chinese Steel Industry, to extent also of India and such few other steel producing countries. China alone increased its steel production during the last 10 years from 109 MT to 423 MT that means by about 314 MT. India also increased its production during that time from 24 MT to 44 MT (Steel Scenario Yearbook, 2007). The major steel producing countries like Japan, Germany, Italy, Russia, USA, etc., although increased their steel production marginally during the last decade, their growth rate was very low compared to China and India etc. The trend growth in the year 2007 is also quite encouraging. Finished steel production in India has already reached to the level of about 50 MT in 2006-07 (Chatterjee, M, 2007). If this growth rate continues, India is expected to produce more than 75 MT within 5 years and the national target of 100 MT (for the year 2020) may be achieved even by the year 2015. The increasing trend of the Indian steel industry is described in Table 1 as compared to 2001-02.

Table -1: Increasing Trend of Indian Steel Statistics during this century

Items	2001-02 (MT)	2006-07 (MT)
Electric Energy Generation	517 billion KWH.	663 billion KWH.
Automobiles	5.32 (M in nos)	10.51 (M in nos)
Iron Ore	84	161
Crude Steel	28	45
Finished Steel (Mild)	31	49.3
Sponge Iron	5.7	16.3
Imports of Finished Steel products	1.27	4.42
Exports of Finished Steel products	2.7	4.75

Source: Steel Scenario Yearbook 2007

As a result India is holding the 7th place in the world of steel producing countries in 2006 (Steel Scenario Yearbook, 2007). For that growth, India needs comprehensive programs for development of infrastructure of steel industry including mining, railways, road net work, power

net work etc. Simultaneously, the growth of processing industries like automobiles, white goods industries as well as construction of building, bridges etc. should be accelerated.

According to the Economic Survey, railway route kilometers have been increased only marginally during last 5 years of this century. Length of roads also increased only by about 190 thousand km during that period. Crude oil production has remained stagnant. The productions of cooking and non-cooking coal both have gone down by few million tons. Except Iron Ore, productions of other metallic Minerals have shown only a marginal growth. However, cargo handled by major ports, electricity generation, production of automobiles; machine tools etc. have shown a significant growth in the first few years of this century. Growth of steel industry needs a balanced plan for coordinated growth of almost all segments of industry and economy. Steel industry is highly dependent on the growth of most of the economic sectors of the country.

Although it is true that promotion of steel production depends primarily on the steel consumption, perhaps the steel experts of the advanced countries forget that the world has remained much behind the requirements for construction and infrastructure developments. At least more than 50 per cent area of the world the vast underdeveloped areas in China, South East Asia, Middle East, Africa and Latin America etc. need, even today, billions of tons of more steel production for their essential development of infrastructure & industry. Therefore, the question of "over capacity" of steel production does not arise at all if we look in totally and consider the urgent need of huge underdeveloped areas of the present world.

Whether we will be able to achieve that goal in this present 21st century is still remain unanswered due to various interest-clash of the development and less developed economies of the world. But, it is certain that even by doubling the present production of steel in the future decades, the need of more steel will remain unchallenged in the world in this century also.

Working Capital Analysis. The effectiveness of working capital is of crucial importance if short-term liquidity position as well as short-term solvency position is very acceptable and at the same time, if judgment is made with its standard or benchmark. So, the present area compacts with the computation of short-term liquidity position of the selected private sector steel companies under the

Meaning and Concept of Liquidity. The term 'Liquidity' means the debt-paying ability of a concern when it becomes due. Liquidity may be defined as "The ability to realize value in money - the most liquid among all assets. It has two dimensions – (a) the time required to convert the assets into money and (b) the certainty of the realized price" (Gentry, E. J., 1976). Corporate liquidity covers the quantum of current/liquid assets, their structure, the circular flow of these assets and technical solvency in the sense of measuring the extent of current assets as cover over short-term obligations.

Importance of Liquidity Position. The importance of adequate liquid position in the sense of the ability of an enterprise to meet current/short-term obligations when they become due for payment can hardly be over-stressed. In fact, Liquidity position of a pre-requisite for the very survival of an enterprise. "A sound liquidity position creates the market image of a prompt pay

mastership for the enterprise, vendors of raw materials, stores and services can be assured of prompt payments and this leads to reasonable price quotations from them as they do not have to add the effect of cost of locked money due to uncertain delays in receipt of payments from the enterprise. The balancing of fund requirements has led to development of tools for control of cash flows"(James C. Van Horne, 1973).

Measurement of Liquidity Positions. Generally current ratio, liquid ratio, absolute liquid ratio, debt-equity ratio, age of inventory, age of debtors and age of creditors, cash to average daily cost of sales (in days), operating cash flow to sales are very useful in ascertaining the short-term debt-paying ability or liquidity of a concern. For measuring liquidity position, appropriate level of short-term liquidity is required with whom comparison can be made. As such, grand industry average/industry average has been computed on the basis of all the operating steel companies in India. Comparison of company-wise various liquidity ratios with that of the grand industry average/industry average, which is considered as a yardstick, would undoubtedly help in examining the pros and cons of the management of short-term liquidity. Component-wise liquidity position of each of the selected steel companies under the study is drafted one by one in the sub-sections that follow.

Results

Liquidity Position based on Current Ratio. Current ratio is a measure of general liquidity and is most widely used to make the analysis of short-term liquidity of firm. A relatively high current ratio is an indication that the firm has liquidity and has the ability to pay the current obligation as and when they become due. Current ratios of operating selected four private sector steel companies are depicted in Table 2.

Table: 2 - Current Ratio of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	1.47	1.01	0.92	0.52	1.07
1998-99	1.13	0.67	0.84	0.31	0.90
1999-00	1.07	0.52	1.11	0.27	0.84
2000-01	0.92	0.36	1.78	0.38	0.80
2001-02	1.19	0.36	2.06	0.31	0.71
2002-03	0.90	0.32	1.71	0.32	0.79
2003-04	0.92	0.33	1.21	0.75	0.89
2004-05	0.83	0.40	1.27	0.95	1.27
2005-06	1.11	0.40	1.39	1.08	1.33

A.M.	**1.06**	**0.49**	**1.37**	**0.54**	**0.96**
S.D.	**0.20**	**0.23**	**0.41**	**0.31**	**0.22**
C.V. (%)	**18.87**	**46.94**	**29.93**	**57.41**	**22.92**

Source: CMIE database

Table 2 shows that current ratio of Tata Steel Ltd. during the period of study is satisfactory as its average are 1.06 which is slightly higher than 0.96, grand industry average, which is taken as yardstick. Satisfactory current ratio is also observed in Kalyani Steel Ltd. (1.37). This indicates the company is able to meet their matured current obligations in every year under the study period. This ratio in case of J S W Steel Ltd. (0.54) and Lloyds Steel Inds Ltd. (0.49) is very poor because the ratio is lower than industry average through out the study period. This indicates that they have not been able to meet their matured current obligations in every year under the study period.

Coefficient of variation of the current ratio of industry as a whole is 22.92%. Coefficient of variation of the current ratio is 18.87% in case of Tata Steel Ltd., which is lower than the industry average. In the matter of the management of liquidity, it also shows consistency during the study period of these companies. In case of J S W Steel Ltd., Lloyds Steel Inds Ltd. and Kalyani Steel Ltd. coefficient of variation of current ratio is higher than industry average and as follows 57.41%, 46.94% and 29.93% respectively, which shows less consistency during the study period of this companies. Greater variability in the current ratio indicates improper or less efficient management of fund inasmuch as the excess liquidity could have otherwise been used for investment purposes thereby enabling the company to lead a path of growth.

Liquidity Position Based on Liquid Ratio. Liquid ratio is more rigorous test of liquidity than current ratio. A high liquid ratio is an indication that the company has liquidity and ability to meet its current liabilities in time. But a low liquid ratio represents that liquidity position of the company is not good. Liquid ratios of operating four private sector steel companies are portrayed in Table 3.

As per Table 3, a very unsatisfactory liquidity position is seen in case of J S W Steel Ltd. and Lloyds Steel Inds Ltd. with an average of 0.12 and 0.07 and it is lower than industry average throughout the study period except only 2003-04 in J S W Steel Ltd. and 1997-98 in Lloyds Steel Inds Ltd. It is notable that negative liquid ratio is also seen in J S W Steel Ltd. Liquid ratio of Tata Steel Ltd. is satisfactory with averages of 0.47 under the study period; because it is more than grand industry average of 0.32, which is taken as yardstick. Liquid ratio in case of Kalyani Steel Ltd. is very satisfactory and it is more the industry average throughout the study period. This indicates that they have been able to meet their matured current obligations in every year under the study period.

Table: 3 - Liquid Ratio of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.

		Ltd.			
1997-98	0.68	0.29	0.49	0.01	0.26
1998-99	0.53	0.14	0.52	- 0.02	0.20
1999-00	0.51	0.01	0.34	0.05	0.24
2000-01	0.37	0.02	0.46	0.16	0.23
2001-02	0.43	0.01	1.14	0.12	0.21
2002-03	0.37	0.02	0.81	0.11	0.25
2003-04	0.50	0.01	0.73	0.36	0.34
2004-05	0.34	0.06	0.65	0.18	0.58
2005-06	0.51	0.10	0.60	0.12	0.60
A.M.	**0.47**	**0.07**	**0.64**	**0.12**	**0.32**
S.D.	**0.11**	**0.09**	**0.24**	**0.11**	**0.16**
C.V. (%)	**23.40**	**128.57**	**37.50**	**91.67**	**50.00**

Source: CMIE database

Coefficient of variation liquid ratio of J S W Steel Ltd. and Lloyds Steel Inds Ltd. is 91.67% and 128.57% is higher than whole industry average of 50.00%. It indicates less consistency during the study period in these companies. Again in case of Tata Steel Ltd. and Kalyani Steel Ltd., coefficient of variation of liquid ratio is 23.40% and 37.50% respectively, which is lower than whole industry average. In the matter of the management of liquidity, it indicates consistency in these companies during the study period because it is lower than the industry, as a whole, coefficient of variation is 50%. It is clear from the above study; greater variability in the liquid ratio indicates improper or less efficient management of fund inasmuch as the excess liquidity could have otherwise been used for investment purposes thereby enabling the company to lead a path of growth.

Liquidity Position based on Absolute Liquid Ratio. Cash and near cash is the most liquid asset. Absolute liquid ratio is more accurate test of liquidity than current and liquid ratio. The ratio of cash and near cash to current liabilities is taken as absolute liquid ratio, which is considered as most effective indicator to test the absolute liquidity position of any enterprise. In determining the cash, inventories and accounts receivable are deducted from current assets. Absolute liquid ratio of operating four private sector steel companies is shown in Table 4.

Table: 4 – Absolute Liquid Ratio of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	0.24	0.03	0.07	- 0.10	0.03
1998-99	0.22	0	0.03	- 0.11	0.01

1999-00	0.22	0	0.07	- 0.06	0.05
2000-01	0.08	0.01	0.07	0	0.04
2001-02	0.09	0	0.55	0.01	0.04
2002-03	0.18	0	0.09	- 0.02	0.07
2003-04	0.37	0	0.14	0.06	0.15
2004-05	0.24	0.01	0.05	0.06	0.35
2005-06	0.41	0.02	0.13	0.04	0.41
A.M.	**0.23**	**0.01**	**0.13**	**- 0.01**	**0.13**
S.D.	**0.11**	**0.01**	**0.16**	**0.06**	**0.15**
C.V. (%)	**47.83**	**100.00**	**123.08**	**- 600.00**	**115.38**

Source: CMIE database

It is interesting to seen from Table 4 that average of absolute liquid ratio in case of J S W Steel Ltd. is (-) 0.01, not just only poor, it is also negative. This indicates that the above three company does not maintained any liquid cash (taken short-term borrowings as a spontaneous source for which interest is to be paid, erosion of profits is the ultimatum) to meeting short-term matured obligations and day to day expenditures. Again, a very poor liquidity position is found in case of Lloyds Steel Inds Ltd. with an average of 0.01 and also five years of the study period it belong zero. From the viewpoint of short-term liquidity it is observed that this ratio is satisfactory in the case of Tata Steel Ltd. and Kalyani Steels Ltd. is 0.23 and 0.13 respectively.

Coefficient of variation of absolute liquid ratio of industry as a whole is 115.38%. Coefficient of variation of absolute liquid ratio is 47.83%, (-) 600.00% and 100.00% in case of Tata Steel Ltd., J S W Steel Ltd. and Lloyds Steel Inds Ltd. which is lower than industry average. In the matter of the management of liquidity, it also shows perfect consistency during the study period of these companies. In case of Kalyani Steel Ltd. coefficient of variation of current ratio is higher than industry average and as follows 123.08%, which shows less consistency during the study period of this companies. However, greater variability in the cash position ratio indicates improper or less efficient management of cash inasmuch as the excess liquidity could have otherwise been used for investment purposes thereby enabling the company to lead a path of growth.

Liquidity Position based on Short-term Debt-Equity Ratio. Short-term debt-equity ratio is an indicator of liquidity position and also important for soundness of financial position as well as financial policies in a short period of the firm. It is measures the direct proportion of debt to equity capital. It is a proportion of outside liabilities and tangible net worth relating to short period of the company. It also indicates the proportion of owners' stake in the business. In other words, this indicates the extent to which the firm depends upon outsiders for its existence. The ratio provides a margin of safety to the creditors. If the ratio is over 100%, it is indicates a highly geared company and any prudent lender will not be will to extend loan finance to such business.

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Short-term debt-equity ratios of operating four private sector steel companies are depicted in Table 5.

Table: 5 – Short-term Debt-Equity Ratio of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	1.51	1.65	0.71	2.42	1.93
1998-99	1.37	2.59	0.76	3.33	2.23
1999-00	1.33	7.24	0.72	4.85	2.21
2000-01	1.18	0	0.37	10.39	2.44
2001-02	1.37	0	0.35	24.24	3.00
2002-03	1.33	0	0.31	34.90	3.02
2003-04	0.78	0	0.65	4.64	1.58
2004-05	0.40	0	0.57	1.30	0.89
2005-06	0.26	0	0.29	1.03	0.87
A.M.	**1.06**	**1.28**	**0.53**	**9.68**	**2.02**
S.D.	**0.46**	**2.43**	**0.19**	**11.91**	**0.79**
C.V. (%)	**43.40**	**189.84**	**35.85**	**123.04**	**39.11**

Source: CMIE database

Table 5 shows that debt-equity ratio of JSW Steel Ltd. is 9.68, which is higher than the 2.02 grand industry average, which is taken as yardstick. This indicates the company is able to meet their matured current obligations in every year under the study period. Again, a very underprivileged debt-equity ratio is found in case of Lloyds Steel Inds Ltd. with an average of 1.28. In the case of Tata Steel Ltd. (1.06) and Kalyani Steels Ltd. (0.53) it is very poor because the ratio is lower than industry average through out the study period. This indicates an unfavorable condition to assemble their matured obligations in time.

Coefficient of variation of debt-equity ratio of Tata Steel Ltd., JSW Steel Ltd. and Lloyds Steel Inds Ltd., is 43.40%, 123.04%, 189.84% respectively. This indicates less consistency and thus, the companies under study not only depends upon short-term outsiders but also very dependent on the long-term sources. While perfect consistency is seen for the remaining companies during the study period because the industry, as a whole, coefficient of variation is 39.11.

Liquidity Position based on Age of Inventory. Age of inventory establishes the relationship between the costs of goods sold and average stock. This ratio measures the velocity of conversion of stock into sales. Usually, a high inventory turnover indicates efficient management of inventory because more frequently the stock is sold, the lesser amount of money is required to finance inventory. A low inventory turnover ratio indicates inefficient management of inventory,

over investment in inventories, sluggish business, and poor quality of goods that lead to lower profit as compared to total investment.

Age of inventory indicates duration of inventory in organization. It shows moving position of inventory during the year. If age of inventory is minimum it means companies activity position are satisfactory, they are able to sell their product within shorter period of time which indicate sound liquidity position of organization. On the contrary, if age of inventory is too high, it indicates slow moving of stock due to lower demand of product or excessive production by company, due to stocking policy, which affected directly liquidity position of company. Inventory is one of the major items in current assets, which shows investment of working capital in stock. The age of inventory of operating four private sector steel companies is tabulated in Table 6.

Table: 6 – Age of Inventory of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	31.99	6.24	30.75	15.43	71.99
1998-99	42.59	3.40	30.27	13.03	71.57
1999-00	41.95	6.46	62.39	17.43	54.40
2000-01	32.76	6.32	34.47	15.97	43.76
2001-02	25.24	4.17	28.06	6.35	39.63
2002-03	23.78	4.81	14.61	4.21	30.17
2003-04	25.44	4.48	11.58	3.19	23.09
2004-05	31.82	6.28	10.68	4.83	21.40
2005-06	37.17	10.77	22.32	12.89	26.35
A.M.	**32.53**	**5.88**	**27.24**	**10.37**	**42.48**
S.D.	**7.00**	**2.15**	**15.86**	**5.66**	**19.69**
C.V. (%)	**21.52**	**36.56**	**58.22**	**54.58**	**46.35**

Source: CMIE database

As per Table 6, age of inventory shows a very satisfactory trend in the case of all the companies under the study as compared to grand industry average of 42.48. Age of inventory in case of JSW Steel Ltd., Lloyds Steel Industries Ltd. is less than industry average throughout the study period and for remaining companies under the study it is more or less than industry average due to inefficient inventory control policy.

Coefficient of variation of the age of inventory of J S W Steel Ltd. and Kalyani Steel Ltd. is 54.58% and 58.22% respectively, which shows less consistency in the case of liquidity management because in the industry, as a whole, coefficient of variation is 46.35%. While

coefficient of variation in case of remaining companies under the study is less variable that indicates more consistency from the viewpoint of liquidity. It is clear from the study, greater variability in the age of inventory indicates improper or less efficient management of inventory policy inasmuch as low inventory indicates unnecessary recurring expenditure in respect of order placing and receiving whereas high inventory results in unnecessary blockage of money that could otherwise have been invested.

Liquidity Position based on Age of Debtors. Age of debtors' ratio gives an indication of the efficiency of the credit and collection policy of the firm and it will directly affect the liquidity position of the company. It is a test of speed in which debtors are converted into cash. Lower the debtors to sales ratio, better is the liquidity of debtors and it means prompt payment by the customers. Age of debtors of operating four private sectors steel is shown in Table 7.

Table: 7 – Age of Debtors' of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	73.74	71.01	162.95	1460.00	66.24
1998-99	91.25	145.42	153.36	12166.67	67.59
1999-00	78.83	282.95	328.83	73.00	61.66
2000-01	62.39	228.13	149.59	69.79	54.72
2001-02	56.50	299.18	131.77	48.86	51.34
2002-03	37.86	150.83	101.67	35.13	39.00
2003-04	24.65	108.63	66.00	34.89	31.08
2004-05	14.18	36.94	40.92	17.46	24.68
2005-06	11.94	19.66	51.99	13.62	27.06
A.M.	**50.15**	**149.19**	**131.90**	**1546.60**	**47.04**
S.D.	**29.18**	**102.33**	**86.92**	**4010.10**	**16.96**
C.V. (%)	**58.19**	**68.59**	**65.90**	**259.28**	**36.05**

Source: CMIE database

It is observed from Table 7 that the age of debtors during the period of study fluctuates between 13.62 days to 12166.67 days with an average of 1546.60 days in the case of J S W Steel Ltd. This indicates unsatisfactory and very poor situation. This ratio is also not satisfactory in case of Lloyds Steel Inds Ltd. and Kalyani Steel Ltd. because its average during period of study comes to 149.19, and 131.90 days, which is too high. This ratio is not satisfactory in case of Tata Steel Ltd. as disclosed by Table 3.6. But it is shows that in coming Years Company will be able to control their debtors and collection period because trend of this ratio is decreased.

Table 7 shows perfect consistency in the case of these companies because in the industry, as a whole, coefficient of variation is 36.05%. While coefficient of variation of the age of debtors of Tata Steel Ltd., J S W Steel Ltd., Lloyds Steel Inds Ltd., Kalyani Steel Ltd. is 58.19%, 259.28%, 68.595, 65.90% respectively. This indicates less consistency in case of these companies. It is clear from the study that there is greater variability in the age of debtors indicating improper or less efficient management of fund inasmuch as the fund for working capital shall not be available according to pre-determined plans. Moreover, there is a consequent increase in the bad debt risk.

Liquidity Position based on Age of Creditors. Age of creditors gives an indication of efficiency of the credit and payment policy of the firm and liquidity position directly depends on this period. Higher the credit payment period the longer is the age of creditors as well as better is the management of liquidity whereas shorter the age of creditors shows inefficient and poor payment policy that is accountable to decrease current liabilities (credit) burden and suffering condition of liquidity position. Age of creditors of operating four private sector steel companies is furnished in Table 8.

Table: 8 – Age of Creditors' of Selected Private sector Steel Companies

Year	Tata Steel Ltd.	Lloyds Steel Inds Ltd.	Kalyani Steel Ltd.	J S W Steel Ltd.	Inds Avg.
1997-98	82.58	126.30	55.56	715.69	78.33
1998-99	102.82	155.32	84.69	445.12	84.30
1999-00	100.27	202.78	238.56	401.10	83.33
2000-01	95.05	140.93	127.62	296.75	80.40
2001-02	85.48	125.86	112.65	168.98	73.29
2002-03	76.84	82.58	72.56	132.73	61.86
2003-04	78.49	82.95	69.26	102.82	59.06
2004-05	89.90	61.97	64.26	73.15	51.34
2005-06	95.55	70.87	114.42	107.99	57.84
A.M.	**89.66**	**116.62**	**104.40**	**271.59**	**69.97**
S.D.	**9.40**	**46.18**	**56.28**	**214.82**	**12.51**
C.V. (%)	**10.48**	**39.60**	**53.91**	**79.10**	**17.88**

Source: CMIE database

Table 8 shows that average age of creditors in case of JSW Steel Ltd. it is very high, which indicate better management of the liquidity. Table 8 also exposed that Tata Steel Ltd., Lloyds Steel Inds Ltd., Kalyani Steel Ltd. have lengthened period. It gives a clear indication of very satisfactory short-term liquidity.

Coefficient of variation of age of creditors of J S W Steel Ltd., Lloyds Steel Inds Ltd., Kalyani Steel Ltd., is 79.10%, 39.60% and 53.91% respectively, is higher than whole industry average of 17.88%. It indicates less consistency during the study period in these companies. Again in case of Tata Steel Ltd., coefficient of variation liquid ratio is 10.48% respectively, which is lower than whole industry average. In the matter of the management of liquidity, it indicates more consistency in these companies during the study period because it is lower than the industry, as a whole, coefficient of variation is 17.88%. It is obvious that there is a lower variability in the age of creditors indicating efficient management of payment policy.

Liquidity and Profitability Analysis. Overall efficiency is vital from the viewpoint of short-term liquidity and at the same time a proper plan of profitability is required for the business enterprises. It is important for the firm to preserve an adequate level of working capital because inadequate level of working capital impairs profitability. Consequently, the affiliation between short-term liquidity and profitability is one of the most imperative areas necessitating management analysis. Profitability of the business may be dependent on many factors together with the adequate level of liquidity of a concern. Therefore, the present area endeavors to examine the relationship between short-term liquidity and profitability of the selected steel companies under the study.

Liquidity-Profitability Relationship. Liquidity-profitability relationship is linked with the continuance of the appropriate intensity of working capital. This concept tries to strike a level of liquidity that offers a relaxed balance of liquidity and profitability, that is to say, the investment of the company in working capital must be sufficient. It may generally be assumed that there is always a negative relationship between the two. But it is not true in all the cases. The existence of a linear relationship, though not continuous, between profitability and liquidity corresponding to the holding of current assets at least up to a certain level by firms, is not an impracticable proposition (Gentry, E. J., 1976).

To assess the liquidity-profitability relationship of selected steel companies under the study, it is important to study liquidity indicators, namely, current ratio (CR), liquid ratio (LR), absolute liquid ratio (ALR), debt-equity ratio (DER), age of inventory (AOI), age of debtors (AOD) and age of creditors (AOC) and the most popular profitability ratio, return on capital employed (ROCE). To study the mutual disparities of these relationships, multiple correlation and multiple regression analyses have been taking up.

In order to evaluate the association between the liquidity and profitability of selected steel companies in India in detail with the help of above-mentioned measures at a time, we sketched them in the paragraphs that follow.

Joint Impact of Liquidity Indicators on Profitability of Tata Steel Ltd. Multiple correlation and multiple regression analyses of Tata Steel Ltd. have been tabulated in Table 9.

Table- 9: Multiple Correlation and Multiple Regression Analysis of Tata Steel Ltd.

Variable	β	Std. Error	t value	Significance	
Constant	368.747	56.443	6.533	0.097	R = 0.999
CR	55.506	25.772	2.154	0.277	
LR	(-) 230.482	83.460	(-) 2.762	0.221	R^2 = 0.998
ALR	40.476	47.959	0.844	0.554	
DER	(-) 94.083	16.771	(-) 5.610	0.112	Adj. R^2 = 0.985
AOI	3.143	0.666	4.717	0.133	
AOD	1.066	0.394	2.709	0.225	Std. Error Of the
AOC	(-) 4.017	0.722	(-) 5.565	0.113	R = 2.55793

Source: Statistical results computed from Annual Reports of the selected enterprises

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 are given in Table 9. It was observed from the above that an increase in CR by one unit; the ROCE increased by 55.506 units that were statistically significant at 1 per cent level. When LR increased by one unit, the ROCE decreased by 230.482 units, which was statistically significant at 1 per cent level. However, when ALR increased by one unit, the ROCE of the company increased by 40.476 units though the influence of ALR on ROCE was very significant. However, when DER increased by one unit, the ROCE of the company decreased by 94.083 units though the influence of DER on ROCE was very significant. Again, three important indicators of liquidity, AOI, AOD and AOC, increased by one unit, ROCE increased by 3.143 units and 1.066 units in case of AOI and AOD and decreased by 4.017 units in case of AOC respectively which was statistically at 1 per cent level.

The Multiple correlation coefficient between the dependent variable ROCE and the independent variables CR, LR, ALR, DER, AOI, AOD and AOC taken together was 0.999. It indicates that the profitability was highly responded by its CR, LR, ALR, DER, AOI, AOD and AOC. It is also evident from the value of R^2 that 99.8 per cent of variation in ROCE was accounted by the joint variation in CR, LR, ALR, DER, AOI, AOD and AOC.

Joint Impact of Liquidity Indicators on Profitability of Lloyds Steel Inds Ltd. Multiple correlation and multiple regression analysis of Lloyds Steel Inds Ltd. have been depicted in Table 10.

Table- 10: Multiple Correlation and Multiple Regression Analysis of Lloyds Steel Inds Ltd.

Variable	β	Std. Error	t value	Significance	

Constant	274.092	575.876	0.476	0.717	R = 0.814
CR	(-) 588.346	1336.659	(-) 0.440	0.736	
LR	881.221	2346.157	0.376	0.771	R^2 = 0.662
ALR	5803.831	9840.534	0.590	0.661	
DER	22.861	44.725	0.511	0.699	Adj. R^2 = (-) 1.701
AOI	(-) 24.842	44.579	(-) 0.557	0.676	
AOD	(-) 0.077	0.326	(-) 0.237	0.852	Std. Error Of the
AOC	0.180	0.726	0.248	0.845	R = 24.42945

Source: Statistical results computed from Annual Reports of the selected enterprises

Table 10 shows the strength of relationship between the dependent variable, ROCE and all the independent variables taken together and the impact of these independent variables on the profitability. It was observed that CR increase by one unit; the ROCE decreased by 588.346 units that were statistically significant at 1 per cent level. When LR increased by one unit, the ROCE increased by 881.221 units, which was statistically significant at 1 per cent level. However, when ALR increased by one unit, 5803.831 units also increase the ROCE of the company though the influence of ALR on ROCE was very significant. However, when DER increased by one unit, 22.861 units also increase the ROCE of the company though the influence of DER on ROCE was very significant. Again, three important indicators of liquidity, AOI, AOD and AOC, increased by one unit, ROCE decreased by 24.842 units and 0.077 units in case of AOI and AOD and increased by 0.180 units in case of AOC respectively which was statistically at 1 per cent level.

The Multiple correlation coefficient between the dependent variable ROCE and the independent variables CR, LR, ALR, DER, AOI, AOD and AOC taken together was 0.814. It indicates that the profitability was almost perfectly influenced by its CR, LR, ALR, DER, AOI, AOD and AOC. It is also evident from the value of R^2 that 66.2 per cent of variation in ROCE was accounted by the joint variation in CR, LR, ALR, DER, AOI, AOD and AOC.

Joint Impact of Liquidity Indicators on Profitability of Kalyani Steel Ltd. Multiple correlation and multiple regression analysis of Kalyani Steel Ltd. have been tabulated in Table 11.

Table- 11: Multiple Correlation and Multiple Regression Analysis of Kalyani Steel Ltd.

Variable	β	Std. Error	t value	Significance	
Constant	63.387	102.271	0.620	0.647	R = 0.948
CR	(-) 26.881	23.150	(-) 1.161	0.453	
LR	(-) 2.707	95.079	(-) 0.028	0.982	R^2 = 0.898
ALR	18.372	120.531	0.152	0.904	
DER	(-) 30.286	51.328	(-) 0.590	0.661	Adj. R^2 = 0.183
AOI	(-) 0.135	2.244	(-) 0.060	0.962	
AOD	(-) 0.113	0.289	(-) 0.391	0.763	Std. Error Of the
AOC	0.161	0.125	1.291	0.420	R = 7.68674

Source: Statistical results computed from Annual Reports of the selected enterprises

Table 11 clears the strength of relationship between the dependent variable, ROCE and all the independent variables taken together and the impact of these independent variables on the profitability. It was observed that increase in CR by one unit; the ROCE decreased by 26.881 units that were statistically significant at 1 per cent level. When LR increased by one unit, the ROCE decreased by 2.707 units, which was statistically significant at 1 per cent level. However, when ALR increased by one unit, the ROCE of the company increased by 18.372 units though the influence of ALR on ROCE was very significant. However, when DER increased by one unit, the ROCE of the company decreased by 30.286 units though the influence of DER on ROCE was very significant. Again, three important indicators of liquidity, AOI, AOD and AOC, increased by one unit, ROCE decreased by 0.135 units and 0.113 units in case of AOI and AOD and increased by 0.161 units in case of AOC respectively which was statistically at 1 per cent level.

The Multiple correlation coefficient between the dependent variable ROCE and the independent variables CR, LR, ALR, DER, AOI, AOD and AOC taken together was 0.948. It indicates that the profitability was highly responded by its CR, LR, ALR, DER, AOI, AOD and AOC. It is also evident from the value of R^2 that 89.80 per cent of variation in ROCE was accounted by the joint variation in CR, LR, ALR, DER, AOI, AOD and AOC.

Joint Impact of Liquidity Indicators on Profitability of J S W Steel Ltd. Multiple correlation and multiple regression analysis of JSW Steel Ltd. have been depicted in Table 12.

Table 12: Multiple Correlation and Multiple Regression Analysis of JSW Steel Ltd.

Variable	β	Std. Error	t value	Significance	
Constant	37.107	49.234	0.754	0.589	R = 0.939
CR	10.367	31.431	0.330	0.797	
LR	(-) 49.069	93.699	(-) 0.524	0.693	R^2 = 0.882
ALR	(-) 20.850	376.204	(-) 0.055	0.965	
DER	(-) 0.625	0.894	(-) 0.699	0.612	Adj. R^2 = 0.056
AOI	(-) 1.187	1.498	(-) 0.792	0.574	
AOD	(-) 0.001	0.002	(-) 0.398	0.759	Std. Error Of the
AOC	(-) 0.031	0.074	(-) 0.424	0.745	R = 10.9500

Source: Statistical results computed from Annual Reports of the selected enterprises

The relationship between the dependent variable, ROCE and all the independent variables taken together and the impact of these independent variables on the profitability, which is shown in Table 5.8. It was observed that increase in CR by one unit; the ROCE increased by 10.367 units that were statistically significant at 1 per cent level. For one unit increase in LR, the profitability of the company decreased by 49.069 units, which was statistically significant at 1 per cent level. However, when ALR increased by one unit, the ROCE of the company decreased by 20.850 units though the influence of ALR on ROCE was very significant. However, when DER

increased by one unit, the ROCE of the company decreased by 0.625 units, which was statistically significant at 1 per cent level. Again, three important indicators of liquidity, AOI, AOD and AOC, increased by one unit, ROCE decreased by 1.187 units, 0.001 units and 0.031 units respectively, which was statistically at 1 per cent level.

The Multiple correlation coefficient between the dependent variable ROCE and the independent variables CR, LR, ALR, DER, AOI, AOD and AOC taken together was 0.939. It indicates that the profitability was perfectly responded by its CR, LR, ALR, DER, AOI, AOD and AOC. It is also evident from the value of R^2 that 88.2 per cent of variation in ROCE was accounted by the joint variation in CR, LR, ALR, DER, AOI, AOD and AOC.

Findings at a Glance.

- Rapid growth has been noticed in the private sector steel companies during privatization.
- More and more investments have been made admirably in the private sector steel companies India immediately after LPG.
- In spite of more investments and rapid growth in steel production, India is far lag behind than that of world steel scenario.
- The slopes of the ROCE, that is, profitability equation associated with CR, LR, ALR, DER, AOI, AOD and AOC witnessed both positive and negative influences of variations in the independent variables. Out of the seven regression coefficients of the ROCE line, four coefficients that were associated with CR, ALR, AOI and AOD showed positive influences on the Profitability. There was a reduction in the profitability for a unit increases in the value of LR, DER and AOC. The coefficient of multiple determinations (R^2) makes it clear that 99.80 per cent of the total variation in the profitability of the company was explained by the seven independent variables CR, LR, ALR, DER, AOI, AOD and AOC. Adjusted 'R' square (R^2) signifies that 98.50 Per Cent of the variations in the ROCE of TSL are explained by the independent variable. Standard error of regression coefficients being very low certifies that there exists really line of estimates among the variables.
- The slopes of the ROCE that is, profitability equation associated with CR, LR, ALR, DER, AOI, AOD and AOC witnessed both positive and negative influences of variations in the independent variables. Out of the seven regression coefficients of the ROCE line, four coefficients that were associated with CR, ALR, AOI and AOD showed positive influences on the profitability. There was a reduction in the profitability for a unit increases in the value of LR, DER and AOC. The coefficient of multiple determinations (R^2) makes it clear that 81.40 per cent of the total Variation in the profitability of the company was explained by the seven independent variables CR, LR, ALR, DER, AOI, AOD and AOC. Adjusted 'R' square (R^2) signifies that 66.20 per cent of the variations in the ROCE of LSL are explained by the independent variable. Standard error of regression coefficients being very low certifies that there exists really line of Estimates among The variables.

- The slopes of the ROCE, that is, profitability equation associated with CR, LR, ALR, DER, AOI, AOD and AOC witnessed both positive and negative influences of variations in the independent variables. Out of the seven regression coefficients of the ROCE line, two coefficients that were associated with ALR and AOC showed positive influences on the profitability. There was a reduction in the profitability for a unit increases in the value of CR, LR, DER, AOI and AOD. The coefficient of multiple determinations (R^2) makes it clear that 89.80 per cent of the total variation in the profitability of the company was explained by the seven independent variables CR, LR, ALR, DER, AOI, AOD and AOC. Adjusted 'R' square (R^2) signifies that 18.30 per cent of the variations in the ROCE of KSL are explained by the independent variable. Standard Error of regression coefficients being very low certifies that there exists really line of estimates among the variables.
- The slopes of the ROCE, that is, profitability equation associated with CR, LR, ALR, DER, AOI, AOD and AOC witnessed both positive and negative influences of variations in the independent variables. Out of the seven regression coefficients of the ROCE line, only one coefficient that was associated with CR showed positive influences on the profitability. There was a reduction in the profitability for a unit increases in the value of LR, ALR, DER, AOI, AOD and AOC. The coefficient of multiple determinations (R^2) makes it clear that 88.20 per cent of the total variation in the profitability of the company was explained by the seven independent variables CR, LR, ALR, DER, AOI, AOD and AOC. Adjusted 'R' square (R^2) signifies that 5.60 per cent of the variations in the ROCE of JSWSL are explained by the independent variable. Standard Error of regression coefficients being low certifies that there exists really line of estimates among the variables.

Tests of Hypotheses. To test the hypotheses, following inferences may be drawn from the above-mentioned findings:

1. Inventory management performance is unsatisfactory and poor in case of all companies under the study except TSL and LSIL means that there have been excessive or under blocking of funds in inventory. Coefficient of variation of the age of inventory of J S W Steel Ltd. and Kalyani Steel Ltd. is 54.58% and 58.22% respectively, which shows less consistency in the case of inventory management because in the industry, as a whole, coefficient of variation is 46.35%. Therefore, null hypothesis has been satisfied in the case of J S W Steel Ltd. and Kalyani Steel Ltd. and alternative hypothesis has been satisfied in the case of TSL and LSIL.
2. The performance of receivable management is also unsatisfactory in case of LSIL, KSL and JSWSL during the study period. As a result, there has been heavy accumulation of receivables/low receivables and bad debt risk. Since coefficient of variation of the age of debtors of Tata Steel Ltd., J S W Steel Ltd., Lloyds Steel Inds Ltd., Kalyani Steel Ltd. is 58.19%, 259.28%, 68.595, 65.90% respectively, which is more than C.V. (%) of grand industry average. This indicates less consistency in case of these companies. Therefore, null hypothesis has been satisfied in case of all the companies under the study.

3. Payables management performance is unsatisfactory and poor in case of all the companies except TSL under the study that means that there have been excessive burden of current liabilities and provisions. Coefficient of variation of age of creditors of J S W Steel Ltd., Lloyds Steel Inds Ltd., Kalyani Steel Ltd., is 79.10%, 39.60% and 53.91% respectively, is higher than whole industry average of 17.88%. Therefore, null hypothesis has been satisfied in the case of above three companies under the study and alternative hypothesis has been satisfied in the case of TSL.
4. Cash management performance is weak in case of KSL and JSWSL which means liquidity crunch exists. Coefficient of variation of absolute liquid ratio of industry as a whole is 115.38%. since coefficient of variation of absolute liquid ratio/cash position ratio is 123.08% and (-) 600.00% in case of KSL and J S W Steel Ltd. which is much lower and greater than industry average. Therefore, null hypothesis has been satisfied in the case of above two companies under the study and alternative hypothesis has been satisfied in the case of TSL and LSIL.

- There exists a relationship between liquidity and profitability indicators. Since R is maximum positively correlated, the relationship between liquidity and profitability exists. Therefore, null hypothesis has been satisfied in case of all the companies under study.

Discussion/Suggestions and Recommendations

This is the ultimate stage in which several proposals and suggestions have been offer; to overcome the noticeable problems in the study. It also sketches limitations of the study and gives prospect for future research. In order to solve the problems relating to the study of short-term liquidity management, a lot of modifications are necessary. However, the modifications are divided in three types, namely, (i) structural type; (ii) specific type and (iii) General type.

Suggestions on Structural Changes.

- Steel quality and price should be cost effective so that domestic demands are commendably increased.
- Full utilization of production capacity is advised through proper management of liquidity as well as profitability.
- As a global player, exports of private sector steel companies must have to be enhanced with government interference. At the same time, imports should be curtailed so that India is converted from net importer to net exporter. However, foreign currency is also increased.
- Tax structure should be made liberal not only in the interests of the steel industry but also in the interests of the domestic consumption.
- Political intervention should have to be stopped completely in the case of use of captive mines by special considerations and encouragements to the private sector steel companies with the intention that production system are not hampered.

- Use of modern technology is very much needed to survive present competitive global business environment.

Specific Suggestions.

- Overall inventory management is required to be progressed in case of all the selected steel companies by way of proper application of inventory control system, such as, EOQ, JIT, ABC analysis, etc. and improvement of their sales management so as to reduce stock piling of finished goods.
- Proper composition of net current assets should be sustained by means of the indexes of the Indian steel companies.
- Liquidity position is very unsatisfactory in case of all the selected steel companies except KSL. To remove poor liquidity position of the above companies, further investment is required to be bringing in the form of liquid resource for significant reduction in the weigh down of current liabilities in order to improve liquidity position.
- On the whole, receivable management is not good enough in case of the entire selected companies under the study. Solution to the enormous problem of receivables management, an effective professional co-ordination between sales, production and finance departments is called for. On time billing, timely reminders to defaulting customers and immediate action should be ensured. The investment in loans and advances should be minimized to the extent possible.
- Suitable awareness should be pre-arranged with careful examination of payment policy for the improvement of the management of payables in case of the entire companies. It should be made by way of prompt payment policy, keeping no idle cash in hand or investment, finance from long-term source and taking short-term loan with lower interest. However, it should repay in one accounting year, otherwise harm profitability.
- Multiple correlation of 0.814 in case of LSIL would be further improved through external involvement and government interference.

General suggestions.

- Experts and specialized management consultants are very much necessitated to offset the confrontation of present competitive globalized steel economy.
- Proper administration of net current assets should be indispensable for smooth running of business. At the same time, maximization of assets as well as minimization of liabilities should be preserved.
- Appropriate symphony of working capital components should always be maintained in which profitability are not affected. It should be prepared through global steel indexes.
- Cash management performance should be progressed to improve liquidity position by way of accurate forecasting and scheming of cash.

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Limitations of the Study

The study endures from certain limitations. In spite of our best efforts, we could not avoid them because of many practical constraints. Hence, we could not but accept the possibility of a certain degree of error.

- Study solely depends on the published financial data, so it is subject to all limitations that are inherent in the condensed published financial statements. We have selected operating four private sector steel companies but not considered all the operating units as sample, which may leave some grounds of error.
- Again, our study is based on the data and information relating to the year 1997-98 to 2005-06, that is, nine years period. But, even these data and information do not appear widespread. We are fully conscious that many more data and information would have made our study more exhaustive.
- Inflation could not be taken into contemplation in the present study. It was not possible to convert the relevant financial data into their present values because of non-availability of sufficient information required for the purpose.
- Study is purely based on private sector steel companies, we could not compare with the data and information of efficiently managed public sector companies for testing of liquidity position and its efficiency.
- Special ratios used in the study are taken from CMIE data base.

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