# CHAPTER-3

Research Design

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PROBLEM IDENTIFICATION:

Steel is crucial to the development of any modern economy and is considered to be the backbone of human civilization. The level of per capita consumption of steel is treated as an important index of the level of socioeconomic development and living standards of the people in any country. It is a product of a large and technologically complex industry having strong forward and backward linkages in terms of material flows and income generation. All major industrial economies are characterized by the existence of a strong steel industry and the growth of many of these economies has been largely shaped by the strength of their steel industries in their initial stages of development. Steel industry was in the vanguard in the liberalization of the industrial Sector and has made rapid strides since then. The new Greenfield plants represent the latest in technology. Output has increased, the industry has moved up in the value chain and exports have raised consequent to a greater integration with the global economy. The new plants have also brought about a greater regional dispersion easing the domestic supply position notably in the western region. At the same time, the domestic steel industry faces new challenges. Some of these relate to the trade barriers in developed markets and certain structural problems of the domestic industry notably due to the high cost of commissioning of new projects. The domestic demand too has not improved to significant levels. The litmus test of the steel industry will be to surmount these difficulties and remain globally competitive.

Financial soundness and profitability of a business enterprise largely depend upon the working capital management of firm. Working capital comprises of different components like raw material, work in progress, debtor, bills receivable and cash etc. The management of receivable is very crucial in order to control collection cost and bad debt. The cash management is also very significant because firm should have optimum level of cash during the year. The raw material and work in progress and finished goods are very important part of inventory therefore they should be properly managed. Another problem of the industry is short fall in electricity supply and heavy electric charges. It also makes effect on cost of production and financial position. The objectives of financial analysis can be classified on the basis of persons interested in the analysis as (a) External and (b) Internal. An external analyst has to depend upon the published information of financial statements, which are not enlightening themselves. While internal analysis knows everything regarding information provided in financial statements.
Study of financial statement analysis always is made objectively. Generally, external analysts use information as per their requirement. Financier would like to know profitability. Management would be interested in the operational efficiency liquidity position and profitability. The various stakeholders of business enterprises like management, investors, bankers, financial institutions, creditors, employees, government, economist, prospective investor’s etc., look at sound financial position of the business enterprise.

SURVEY OF THE EXISTING LITERATURE:

There is wide range of literature available on financial performance analysis of different companies in conforming to its dynamic value and significance of intuitive nature. A good dealing in analytical part of literature exists at broad levels like size and technology, problem Associated with productivity, financial performance, and capacity utilization. Relevant existing literature and studied have been clipped below. A researcher has studied of this literature for gaining insight into the problem,

Miss Nandini Jaimini published an article “Evaluation of cash management performance of the selected Textiles Mills in Rajasthan” in “Indian Journal of Public enterprise” in 1988-89. She made analysis of selected textiles units by using various liquidity ratios and concluded that the inadequate cash balance to meet their currently maturing obligations. She suggested various measures to overcome this deficit of working capital.


In the year 1988 one book published on “working capital structure of private enterprises” by J.Panda and A.K. Satapathy. It covers a study of 10 private sectors Company engaged in production of cement. The study covers the various aspects of working capital period from 1965 to 1985. He had analyzed working capital position of selected units as a whole and as well as individual analysis. Finally He had made suggestions for the better utilization of various components of working capital.

Dr.Pramod Kumar published a Book in 1991, “Analysis of Financial statements of Indian industries.” The study covered the 17 private, 5 state owned and 1 central public sector companies. He studied analysis of activities, assessment of profitability, return on capital
investment, Analysis of financial structure, Analysis of fixed assets and working capital. In this research he revealed various problems of cement industries and suggested remedies for the problems. He also suggested for the improvement of profitability and techniques of cost control.

Dr Sanjay Bhayani published a book in 2003, “Practical financial statement analysis” The study covered 16 public limited cement companies in private sector. He made study of analysis of profitability, working capital, capital structure and activity of Indian cement industry. In his research he revealed various problems of cement industries and suggested remedies for the problems. He also suggested for the improvement of profitability and techniques of cost control.

Chakravarty and reddy made study on ratio analysis as major tool for financial performance by studying 22 ratios of productivity, profitability proprietary, liquidity and turnover groups of the industries for the period from 1961 to 1971.

Poddar presented two important books in 1962 and 1966 in which he elaborated all the facts regarding various aspects of the industry. Institutions as C.M.A., Association of trade and industry, commerce research bureau. Economic times, Tariff commission, National productivity council etc. have made efforts to study the general problems in historical perspective.

Some institute like DGCI&S, IEEMA, Commerce research bureau ELCINA. The economic times, CETMA etc. have attempted to study the general problem related to industry.

Prof. Amit Mallick and Debasish sur presented an article on tea industry “Working capital and profitability a case study in interrelation which was published in the management accountant, November 1998. It explores the correlation between ROI and several ratios to working capital management. They made analysis of the impact of working capital on profitability by using simple correlation between ROI and each of some important ratios of working capital.

Most of the studies on receivable management in Indian context highlight inefficiency: Khandelwal (1985) investigated the working capital management process and practices among 40 small-scale industries in the state of Rajasthan, between 1975-76 and 1979-80. The study revealed that the management of receivables was highly ineffective and disorderly. It
was found that bills of receivable constituted as much as 50% of total current assets. Highlighting the sickness in the Jodhpur industrial estate, the study attributed the main reason to the inefficient management of working capital. The study also revealed that entrepreneurs had to be educated on the concept of working capital management.

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Dr. Bhayani (2004) has conducted study on working capital and profitability of cement industry and found that profitability is highly influenced by working capital and Linkage between asset management and profitability of Indian Industry.

In their survey among 57 small firms in Canada, 105 largest firms in the US and 39 largest firms in Australia, Khoury et al,(1999) attempted to compare the working capital practice among three nations. The major aspects of the study were working capital policy, cash and equivalents, account recoverable, inventory, accounts and note payable and managing working capital itself. The study revealed that 7 % of the Canadian firms had formal working capital polices and 28.5 % had a cautious working capital policy. Further Canadian firm were learning more on the effect on sales whereas the Australian and the US companies were found to focus more on the impact on the firm’s profit while evaluating the credit worthiness of the customers.

While many studies have noted that receivable management was a neglected area, oppedahl and Richard (1990) examined the causes for such neglect. They found that managements were pre-occupied with capital budgeting projects, which affected the quality of working capital decision. The essay revealed that receivable constituted the most important element of working capital and hence, recommended that the managers need to be very cautious in the management of the same, in order to minimize default risk It is thus possible to note that management of receivable is found inefficient not only in the Indian context but also in other parts of the world. Considering the fact that the refinery industry is poised for unprecedented growth, it is pertinent to examine the trends in various measures of
receivable management in the light of various developments taking place in the place in the economy.

THE RESEARCH METHODOLOGY:

Title of the Problem:
The title of the problem is “Analysis of liquidity of steel industry in India.”

Objectives of Study

The broad objectives of the study are to analyse the liquidity position of steel companies in India. The objectives are as under:

1. To analyse liquidity position
2. To study profitability of selected units
3. To analysis the receivable management
4. To examine the cash position
5. To analysis cash flow statement
6. To make suggestions for improvement of financial soundness

HYPOTHESIS:

“A hypothesis is a special proposition, formulated to be tested in a certain given situation as a part of research which states what the researcher is looking for.”¹ In the research study, two hypotheses have been tested, these are as under:

One-way Analysis of Variance Test (ANOVA)

It is useful for inter-unit comparisons. The following null and alternative hypotheses have been tested on the basis of ANOVA one-way analysis of variance test.

Null Hypothesis (Ho):

There is no any significant difference among the liquidity, and profitability, ratios of the selected steel units come from identical populations.

The acceptance of the null hypothesis would suggest that there is no significant difference between the productivity of the selected units, which means that the productivity ratios of the units came from identical populations, in such steel units as the comparison of the liquidity, and profitability will have little significance. In contrast, the rejection of the Null hypothesis will reveal that there is significant difference between liquidity, and profitability ratios of the units, suggesting the usefulness of comparisons the level of

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significance used in this case will also be at 5 percent, while degrees of freedom was 37 in the present study.

**HYPOTHESIS FOR STUDY:**

**Hypothesis for liquidity management**

1. There is no any significant difference in current Ratio of steel units under study.
2. There is no any significant difference in quick ratio of steel units under study.
3. There is no any significant difference in Absolute liquidity ratio of steel units under study.
4. There is no any significant difference in Current Assets to Total Assets Ratio of steel units under study.
5. There is no any significant difference in Debtors to Sales Ratio of steel units under study.
6. There is no any significant difference in working capital turnover ratio of steel units under study.
7. There is no any significant difference in debt equity ratio of steel units under study.
8. There is no any significant difference in Proprietary Ratio of steel units under study.
9. There is no any significant difference in fixed asset to net worth ratio of steel units under study.

**Hypothesis for profitability management**

1. There is no any significant difference in Net Profit Ratio of steel units under study.
2. There is no any significant difference in Return on gross capital employed ratio of steel units under study.
3. There is no any significant difference in Return on Net Capital Employed ratio of steel units under study.
4. There is no any significant difference in Return on Shareholders Fund ratio of steel units under study.
5. There is no any significant difference in Return on Equity Capital Ratio of steel units under study.
6. There is no any significant difference in EPS of steel units under study.
7. There is no any significant difference in percentage of dividend of per share of steel units under study.
8. There is no any significant difference in Dividend Payout Ratio of steel units under study.
9. There is no any significant difference in total assets turnover ratio of steel units under study.
10. There is no any significant difference in fixed assets turnover ratio of steel units under study.
11. There is no any significant difference in current assets turnover ratio of steel units under study.

**UNIVERSE OF STUDY:**

The universe of the study consists of all the limited steel companies working in India and listed in stock exchanges of India

**Sampling**

There are about 527 such steel companies which are working in India on 31st March 2000. Out of these 168 companies were listed in stock exchanges of India out of it 7 companies were in A group, among them top 4 companies according to sales were selected as sample for the study. The sample has been selected by considering following factors:

1. The data which are available for the period of study i.e. from 2000-01 to 2008-09.
2. The companies, which are engaged in production of steel Industry
3. The company should be listed in Stock exchanges of India.
PERIOD OF STUDY AND DATA COLLECTION AND DATA ANALYSIS:

The study is based on secondary data taken from published annual reports of steel companies. The published annual reports of companies have been collected from the registered and corporate offices of respective companies. The present study is made for nine years from 1999-2000 to 2008-09. Various publication of steel manufacturer’s association, National council for steel and building material (NCB), world steel stock exchange official directory and individual companies have been used for this purpose. Other information related to the industries have been collected from the economics times, financial express, R.B.I. Bulletin, other periodicals, journals and other various documents of companies.

Personal interviewing of the additional director, Chairmen, Directors, Joint president, Company secretary, chief accountant, General Manager Finance, Executives Joint technical advisory (planning), and assistant Director Technical) have conducted to collect some keynote information of the Companies and cement industry.

The figure contained in the annual reports and accounts have been rounded off to crores up to two decimal places. All the collected data have been presented and formulating in the form of condensed balance sheet and income statement. All the ratios and mentioned statement have been analyzed and interpreted.

As conclusion point of view inter -firm comparison has been made for analysis of performance of selected company. Various techniques of analysis e.g. Ratio analysis, Trend analysis, Regression, Graphs, Means, Diagrams Percentage and simple average Methods have used for the presentation and interpretation of the data and at the end on basis of the conclusion, some suggestion have been made for development of performance

The following four companies have been chosen for the study:

1. J S W STEEL LTD.

2. JINDAL STEEL & ALLOY LTD.

3. STEEL AUTHORITY OF INDIA LTD.

4. TATA STEEL LTD.
1. Tools for analysis

For the present study, following tools have been used for analysis liquidity of steel industry in India.

(A) Ratio Analysis:

Ratio is well known and most widely tool of financial analysis can be defined as “the indicated quotient of two mathematical expression.” as operation definition or ratio is the relationship between one item to another in a simple mathematical form.” a ratio is simply one number expressed interims of anther. It is found by dividing one number the base into the other.

“Generally there are two methods of expressing relationship in ratios” (i) The percentage method like 100 percent etc. “Analysis use ratio to connecting different parts of the financial statements in a to find clues about the status of particular aspects of the business” (ii) The Phrase method such as one and half to one and two for one. Ratio is useful analysis for financial statement. It is conveniently and clearly capsulize the data in a form that is easily understood interpreted as “ratio are simply a means of highlighting in arithmetical terms, the relationship between figures drawn from financial statements” The technique of ratio analysis is the process of determining and interpreting numerical relationship based on the financial statements.

According to Batty “accounting ratio describe the significant relationship which exist between figures shown in a Balance sheet, in a profit and loss account, in a budgetary control system or another part of accounting organization”

It concludes whether the financial condition of a business enterprise is good or bad it is universally used for appraising the performance of a business firm.

There are many techniques which may be used for analysing the liquidity position. These techniques may be classified as follows

(B) Statistical Tools

Statistical tools are utilized for data analysis and interpretation of the firm. A brief outline of the various statistical techniques being used for present study those are:

(I) Index Numbers

“Index number as a number which is used to measure the level of a given phenomenon as compared to the level of the same phenomenon at same standard date” Index numbers nothing more than a relative number, or a relative which expresses the relationship between two figures, where one of the figures is used as a base present study
indices of sales, production and capacity utilization of selected Steel companies have been found out by taking 1999-2000 as the base year and indices of the rest years have been calculated.

(2) Arithmetic Means

It is called as the average of difference of the values of items from some average of the series. According to Gulerian “the most commonly used average is the arithmetic mean, briefly referred to as the mean”\(^8\) the mean has been found by adding all the variables and dividing it by the total number of years taken.

(3) Standard Deviation

Standard deviation may be defined as positive square root of the variance. While the variance of a sample is the average square deviation of values from the mean \(^9\)

(4) Diagrammatic and Graphical Presentation of Data

The ratio of different companies was presented through graphs and some diagrams were used to make presentation understandable.

CHAPTER PLAN:

The present study is divided into nine chapters, which are as under:

The present study is divided into eight chapters, which are as under:

Chapter-1

Conceptual Framework of Liquidity Management

This chapter deals with the conceptual framework of Liquidity Management, Meaning of Liquidity Management, Principles of Liquidity Management, Techniques of Liquidity Management, Relationship between Liquidity and Profitability about the Study is given.

Chapter-2

Profile of Steel Industry in India

This chapters covers a brief profile steel industry, history of steel industry- global steel industry- demand and supply of steel in India, production of steel in India-cost and revenue concept-export and import, major players of steel-competition analysis-merger and acquisition- swot analysis- expected growth- factor holding back to Indian steel- and factor
for financial crisis- critical success factors- global perspective and outlook which includes facts and figure about exports- import and production capital of Indian steel industry.

**Chapter – 3**

**Research Design**

This chapter covers Problem Identification, Survey of Existing Literature- Statement of Problem, Objectives of the study-Hypothesis, Universe of Study, Sampling Design, Period of Study- Data collection and data analysis, Tools and techniques for analysis of working capital management and Limitations of the study.

**Chapter-4:**

**Analysis of Liquidity**

This chapter deals with Concept of Liquidity Analysis - Importance of Liquidity Analysis - Determinant of Liquid Capital- Structure of Liquid Assets - Structure of liquid Liabilities - Liquidity analysis steel Companies in India – liquidity analysis through ratios like-current ratio-quick ratio-absolute ratio- Current Assets to Total Assets Ratio – debt to Sales Ratio - working capital turnover ratio debt equity ratio - Proprietary Ratio - fixed asset to net worth ratio

**Chapter-5:**

**Analysis of Profitability**

Chapter-6:

**Analysis of Receivable Management**

This chapter deals with the concept of receivable management—goals of receivable management—credit procedure of payment—optimum credit policy—credit evaluation and control of accounts receivable—analysis with the help of ratios and ANOVA test.

Chapter – 7

**Analysis of Cash Management**


Chapter-8

**Analysis of Cash Flow**

This chapter deals with cash flow statement analysis of selected companies.

Chapter-9

**Summary, Findings and Suggestions**

This chapter gives its emerging conclusion based on the analysis carried out and points out the variations if any from the literature. Besides, it also gives concrete suggestions for enhancing profitability, for financial soundness, for cost reduction and control and liquidity position.
LIMITATIONS OF THE STUDY:

1. This study is based on secondary data taken from published annual reports of selected cement companies.

2. There are different approaches to measure the working capital, liquidity, inventory, receivable management, cash management and financial management of working capital in this regard expert views differ from one another.

3. The different views have been applied in the calculation of different ratios.

4. The present study is largely based on ratio analysis. It has its own limitations.
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