CHAPTER - 1

INTRODUCTION AND DESIGN OF THE STUDY
CHAPTER I

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Steel is the backbone for any economy. As a multiple use commodity, increased consumption of steel is an indicator of enhanced construction activities, manufacturing, infrastructure, capital goods, defence and agriculture and so on. There is a close correlation between growth of Gross Domestic Product (GDP) of a country and consumption of steel, meaning a direct relation between investment in the economy and the growth of steel industry\(^1\). Steel industry plays a vital role in the economic development of the country in terms of foreign exchange, employment generation, infrastructure development, technology, etc. India being the seventh largest producer of steel in the world, the industry has been passing through difficult times for the last five years. This is due to overcapacity, poor demand, sluggishness in growth and declining tariffs\(^2\).

The Indian steel industry is in its best shape ever; both the long and flat product industries are thriving, companies across value chain are in the met coke, iron ore, pig iron, sponge iron or alloy steel, and are doing extremely well. This is largely due to the domestic demand buoyancy as well as the huge Chinese consumption, which is causing the global prices to rise. India has also established itself as a quality steel exporter and that is also increasing its prospects. The domestic prices have also moved more or less in line with international steel prices\(^3\). Hence gaining competitive edge and generating better returns in the value chain consolidation within the industry should see the light of the day in the near future.

1.1 Economical Importance of Large Scale Industry

Large scale industries refer to those industries which require huge infrastructure, man power and a heavy influx of capital assets. The term ‘large scale industries’ is a generic one including various types of industries in its purview. All the heavy industries of India like the iron and steel industry, cement industry, textile industry, automobile manufacturing industry fall under the large scale industrial arena. Iron and steel industry forms the indispensable part of the large scale industrial sector of India.

The iron and steel industry has played a key role in the industrial development of India from the pre-independence period. It tries to trace the myriad of factors which augmented the growth of iron and steel industry in India. The iron and steel industry not only directly accounts for about 2 per cent of GDP, it also has a bearing on how the consumer goods and downstream infrastructure sectors develop. Further, with a share of approximately 10 per cent, the sector is amongst the largest contributors to the central excise. Iron and steel are vital to the Indian economy for economic growth, national security, and economic well-being. No practical substitutes exist on a large scale for iron and steel because of the relatively high cost of alternative materials. Indian economy is heavily dependent on these large industries for its economic growth, generation of foreign currency and for providing job opportunities to millions of Indians.

1.2 Importance of Financial Performance Evaluation

The financial statements give vital information concerning the position of a business and the results of its operations. The information provided by the financial statements is useful for decision making. “Financial statements are prepared primarily for decision making. The statements are prepared not an end in them, but must be useful in a decision
making context". These statements are prepared for the purpose of presenting a periodical review or report on progress by the management and deal with the status of investment in the business and the results achieved during the period under review. The reliable information about economic resources is provided to various personnel, which is important in evaluating the enterprise's strength and weaknesses. It indicates how enterprise resources are financed and the pattern of its holdings of resources. Thus, financial statements indicate the operating results and financial position of a concern; therefore by analyzing and interpreting these statements performance can be evaluated. For this purpose, analysis of financial statements is made.

Financial statement analysis is a preliminary step towards the financial evaluation of the results drawn by the analyst or management accountant. Appraisal or evaluation of such results is made thereafter by the management. The analysis of financial statements spotlights the significant facts and relationship concerning management performance, corporate efficiency, financial strength and weakness to obtain a better understanding of firm's position and performance.

Performance evaluation of a company can be done through a careful and critical analysis of financial statement. A financial statement is a collection of data organized according to logical and consistent accounting procedures. The principal financial statements are the 'balance sheet' and the 'profit and loss account'. There are two other frequently used financial

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statements, one dealing with retained earnings and the other with the
sources and uses of enterprise funds. Financial statements are summarized
periodical reports of financial and operating data accumulated by an
enterprise in its books of accounts. The accounting figures which are
collected, tabulated and summarized by accounting methods are presented
in financial statements. By nature, therefore, the financial statements are the
end products of financial accounting or the final repositories of all
accounting figures. Financial statements are periodical statements and the
period for which they relate is known as accounting period, usually of one
year's duration.

1.3 Areas of Financial Performance Evaluation

Financial analysis is a process of getting an insight into the operating
activities of a business enterprise. It is a process of selection, relation and
evaluation. The first step is to select from the total information available
about a business the data relevant to the decision under consideration. The
second is to arrange the relevant data in a way that will bring out significant
relationships. The final step is to study these relationships and evaluate or
interpret the results. The important areas of performance evaluation for the
present study are: Production Trends, Sales Trends, Cost Trends,
Profitability, Financial Strength, Financial Health and Value added.

1.3.1 Production Trend

Production is one of the most important areas of performance. Production
performance of a company can also be measured by analyzing
capacity utilization. The production of a concern or sector can be compared
for different years with that of the companies in the same industry and may
give an idea as to how the company has performed in the particular year under consideration.

1.3.2 Sales Trend

The figure of sales is the index of progress made by the company. It can also be used as an indicator of managerial efficiency. Marketing of the product is also one of the most important areas of operations. In the process of performance evaluation, sale indices are computed and compared with those of other similar companies for arriving at an objective conclusion.

1.3.3 Cost Trend

Cost is defined as 'the amount of expenditure incurred on or attributable to a specified article, product or activity'. Thus, cost has been defined as expenditure incurred on a thing. A study of cost trends helps in measuring efficiency or inefficiency with which each task has been carried out. It also helps in having control over expenditure and in fixing prices on the basis of the study of the cost trend which plays an important role in forecasting, planning, and budgeting and in break even analysis; wasteful expenditure, if any, can be avoided.

1.3.4 Profitability

The word 'Profitability' is composed of two words 'Profit' and 'ability'. Therefore, profitability means the profit-making ability of the enterprises. Profitability is an indication of the efficiency with which the operations of the enterprise are carried on. Profitability indicates the efficiency or the performance of an enterprise and shows how the enterprise is utilizing its resources. Various profitability ratios in relating to sales and investment are calculated for evaluating the performance of an enterprise.
1.3.5 Financial Strength

Performance evaluation is also done by evaluating financial position of a business. Financial strength indicates the financial position of the enterprise. An enterprise is deemed to be financially sound if it is in a position to carry on its business smoothly and meet all its obligations both long-term as well as short-term without strain. The evaluation of financial strength of an enterprise is useful for all the parties interested in the enterprise directly or indirectly such as share-holders, creditors, investors, deposit-holders, financial institutions, government employees, public and researchers, etc.

1.3.6 Financial Health

A healthy unit is one which assures a reasonable rate of return on its capital and reserves after providing for depreciation. In the finance literature a lot of importance has been attached to financial ratios for assessing the financial health of a firm. The financial institutions and commercial banks are interested in knowing whether a particular company will be in a position to repay its debts. It is a single measure of the probability of sickness or failure (bankruptcy). The technique of Multiple Discriminate Analysis (MDA) helps to do so. The use of MDA helps to consolidate the effects of all ratios.

1.3.7 Value Added

Value added is a financial performance measure that comes closer than any other measure is capturing the true economic profit of an enterprise. Economic Value Added (EVA) is a performance measure, which reflects the impact of the performance on the shareholders wealth.
Market Value Added (MVA) measures market’s assessment of firms’ value. Hence, the shareholders are not in a position to evaluate the performance of the company. Thus, the techniques of Economic Value Added and Market Value Added help to evaluate the performance of the enterprises.

1.4 Significance of the study

The study has an academic and practical significance. It helps the academicians and researchers to develop new ideas for future study. The study focuses only on the financial performance of large scale iron and steel industry in India. It would also enable shareholders, investors and investment analyst to identify the determinants of corporate performance. This study will be useful to the management to take investment decisions and strengthen their intrinsic value.

1.5 Scope of the study

The study confines itself to issues relating to the financial performance of some selected large scale iron and steel companies in India. It excluded non-financial areas such as productivity, marketing, personnel and research and development from its purview. Any research study can explore only a limited field of knowledge. There are many aspects which need to be researched further. In the present case also, there is considerable scope for further research. Industry wise, firm distribution studies can be undertaken on various aspects of performance. Another interesting area to explore is the financial performance of Indian iron and steel industry before and after liberalization periods. Another interesting theme would be to identify sick and healthy units separately in the steel industry and find out the discriminating characteristics of each group with respect to profitability. The coverage of this study is limited to only six companies of large scale
iron and steel industry in India. This can further be extended. This study have used financial facts of the selected companies from 1997-98 to 2006-07. The financial performance of sample companies is evaluated in terms of profitability, liquidity, financial health and value creation to its shareholders.

1.6 Statement of the Problem

India is the fifth largest crude steel producers of steel in the world. Steel is the most widely used metal known to man. We use it everyday in the cars we drive, the bridges we cross, the cans we open and the building in which we live and work and countless facets in between. The per capita consumption globally stands at around 150 kg. The key consuming sectors include construction, automobiles, consumer durables, capital goods, engineering industry, petrochemical, etc. The per capita consumption of steel in India is 31 kg. The country’s steel production will touch the envisaged mark of 100 million tonnes by 2020 the demand for scrap was bound to go up to 18 to 20 million tonnes by that year, with iron ore supplies remaining an area of concern for the steel industry in terms of both availability and pricing. There is a lot of potential in this space. There may be some two or three million tonnes of sourcing and procurement of iron ore annually. This will lead to greater challenges in matching the right companies and their product making facilities to right marketing. On account of these facts, it is of considerable interest to study the steel industry.

Production is considered the backbone of the manufacturing sector. The production performance is important to know the operating level of the production.

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business enterprise. Sales is the important component for the development of the business. Due to the pricing policy of the government, the iron and steel industry has to face some fluctuations in the sales. These fluctuations lead to increase or decrease in the financial risk. The profitability of the business depends on the cost incurred for the production of goods. If the cost increases, the profit of the business is reduced and ultimately the business may go to the liquidation stage. Therefore, the analysis of production, sales and cost of an iron and steel industry is utmost importance.

Profitability is the indication of the efficiency with which the operations of the enterprise are carried on. The efficiency of the business is measured by the amount of profit. The greater of profit, the more efficient is the business considered to be. Poor operational performance may indicate poor sales and hence poor profits. Thus, profits are the soul of the business concern without which it is lifeless.

Corporate liquidity is a vital factor in business. Liquidity measures the relationship between cash and other current assets to current obligations. A firm should ensure that it does not suffer from lack of liquidity, and also that it does not have excess liquidity. The failure of a company to meet its obligations due to lack of sufficient liquidity will result in poor credit worthiness and loss of creditors’ confidence.

A financial analysis reveals where a company stands in respect to profitability, liquidity, leverage and an effective use of assets. The financial reports provide the frame work in which the business planning take place. Hence, an attempt has been made to study the profitability and liquidity of iron and steel industry.

The shareholder value is the essential measure of corporate performance. The real measures of financial performance comprise the
value added twins: Market Value Added and Economic Value Added. The MVA is the most accurate measure of the economic performance of the company. The EVA is the perfect measure of company’s ability to create wealth. Hence, an attempt has been made to find out whether or not the firm has created the value of shareholders.

1.7 Objectives of the Study

The study is carried out with the following specific objectives:

1) To study the profile of Indian iron and steel industry with a view to assess their achievement.
2) To analyze the trends of production, sales and cost of the selected iron and steel units in India.
3) To study the profitability and liquidity position of the selected iron and steel units in India.
4) To assess the financial health of the selected iron and steel units in India.
5) To examine whether the selected study units have been able to generate value of its shareholders.
6) To present summary of the study and to make suitable suggestion for improvement in the competitive business world.

1.8 Methodology

A scientific approach to the research methodology is very much essential to evaluate the research problem systematically. In the present study, the data used for secondary in nature and the required data were collected from the compilation made by the Centre for Monitoring Indian Economy (CMIE) for the period 1997-1998 to 2006-2007. Prowess database of CMIE is the most reliable and empowered corporate database. It contains a highly normalized database built on a sound understanding of disclosures
on well around 12000 companies in India. The annual published financial reports of the companies have been used for random checking of the data.

1.9 Sample Design

The iron and steel industry is purposively selected for the present study, considering its importance as the backbone of economic growth in any country. The database of CMIE has made compilation for 50 steel companies of which only 31 companies have financial data for a continuous period of 10 years namely from 1997-98 to 2006-07. Owing to several constraints such as non-availability of financial statements or non-working of a company in a particular year, etc. for the purpose of the present study only six large steel companies have been selected. The criterion adopted for the selection of companies in the present study is the size of their total assets of nine thousand crore rupees and above, as it is the only characteristics for which information is available at the population level. It is also inferred that the percentage of market share of 31 companies is 72.57 and among these, the sample companies contribute 53.46 percentage of market share.

TABLE 1.1

THE SELECTION OF SAMPLE COMPANIES

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Company Name</th>
<th>Total Assets As on March 2007 (Rs.in crores)</th>
<th>Market Share As on March 2007 (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tata Iron And Steel Company Limited (TISCO)</td>
<td>23594.41</td>
<td>9.48</td>
</tr>
<tr>
<td>2</td>
<td>Steel Authority of India Limited (SAIL)</td>
<td>16899.00</td>
<td>22.62</td>
</tr>
<tr>
<td>3</td>
<td>ESSAR Steel Limited</td>
<td>11271.32</td>
<td>5.61</td>
</tr>
<tr>
<td>4</td>
<td>ISPAT Industries Limited</td>
<td>11257.20</td>
<td>5.31</td>
</tr>
<tr>
<td>5</td>
<td>Rastriya Ispat Nigam Limited (RINL)</td>
<td>10455.16</td>
<td>5.46</td>
</tr>
<tr>
<td>6</td>
<td>JSW Steel Limited</td>
<td>9745.32</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td><strong>Total Market Share of Sample Companies (above 6 Companies)</strong></td>
<td><strong>53.46</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Market Share of Population (31 Companies)</strong></td>
<td><strong>72.57</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Centre for Monitoring Indian Economy (CMIE)
1.10 Framework of Analysis

The data from various sources have been examined through simple mathematical tools like ratios, percentage, trends etc. Statistical tools and models have been applied. The Statistical Package for Social Science (SPSS) 11.5 version statistical software package has been used for computing various results in this study. The test of significance namely “t” and F test have been applied to test the hypothesis wherever necessary.

1.10.1 Ratio Analysis

Ratio analysis is an effective tool for evaluating the financial position and performance of firms. Ratios help to summarize large quantities of financial data and to make qualitative judgment about the firm’s financial performance.

1.10.2 Trend Indices

In order to compute the index of change in a variable, the following formula has been used,

\[ I_t = \left( \frac{y_t}{y_o} \right) \times 100 \]

Where \( y_t \) is the value of variable in the year ‘t’ for which the index is to be computed; \( y_o \) is the value of the variable in the base year. In order to measure the change in the production and sales such indices have been computed.

1.10.3 Index Numbers

Index Numbers are described as parameters of economic activity and they show the variation and the change in magnitude. They measure the
effect of changes over a period of time. The Index Number in this study has been calculated by taking the year 1997-98 as base year.

1.10.4 Co-efficient of Variations (CV)

Co-efficient variation is used to measure of relative variation. If it we want to compare the variability of two or more series.

\[ CV \ (\%) = \frac{\sigma}{\overline{X}} \times 100 \]

where,

\[ CV \quad = \quad \text{Co-efficient of Variation} \]
\[ \sigma \quad = \quad \text{Standard Deviation} \]
\[ \overline{X} \quad = \quad \text{Mean value} \]

1.10.5 Annual Growth Rate (AGR)

Annual Growth Rate or percentage of annual variation is calculated by the following method,

\[ AGR \ (\%) = \frac{Y_2 - Y_1}{Y_1} \times 100 \]

Whereas,

\[ Y_1 \quad = \quad \text{Previous year value} \]
\[ Y_2 \quad = \quad \text{Current year value} \]

1.10.6 Compound Growth Rate (CGR)

The compound growth rates are estimated for the over all period under study.

\[ Y = ab^t \]

Where,

\[ Y \quad = \quad \text{Production value} \]
\[ a \quad = \quad \text{Intercept} \]
\[ b \quad = \quad \text{Regression co-efficient of y on t} \]
The growth rate \( r \) as worked out using the following formula

\[
r = (b-1) \times 100
\]

### 1.10.7 Analysis of Variance (ANOVA)

The analysis of variance has been developed specially to test the hypothesis that the profitability ratio has significant difference or not between the companies and years. From this technique, one is able to determine whether the samples have the same mean as the population from which they have been drawn. The technique of analysis of variance is also applied for the analysis of cost trend, profitability ratios, liquidity ratios and turnover ratios. In a two way classification the analysis of variance table has the following form.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degree of Freedom</th>
<th>Mean square</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between columns</td>
<td>SSC</td>
<td>(C-1)</td>
<td>( MSC = \frac{SSC}{(C-1)} )</td>
<td>( F = \frac{MSC}{MSE} )</td>
</tr>
<tr>
<td>Between Rows</td>
<td>SSR</td>
<td>(R-1)</td>
<td>( MSR = \frac{SSR}{(R-1)} )</td>
<td>( F = \frac{MSR}{MSE} )</td>
</tr>
<tr>
<td>Residual or error</td>
<td>SSE</td>
<td>(C-1)(R-1)</td>
<td>( MSC = \frac{SSE}{(C-1)(R-1)} )</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>SST</td>
<td>(N-1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The calculated values of F are compared with the table values. If calculated value of F is greater than the table value at pre assigned levels of significance, the null hypothesis is rejected otherwise it is accepted.

### 1.10.8 Chi-Square Test

In order to find out whether there is any association between actual MVA and trend value of MVA or not, chi-square test is applied, where chi-square is defined as
\[ \chi^2 = \frac{\sum (O - E)^2}{E} \]

Where \( O \) refers to the observed frequencies and \( E \) refers to the expected frequencies. The calculated value of chi-square is compared with the tabulated of chi-square test \((c-1)(r-1)\) d.f., and results are interpreted. If the calculated value of chi-square is more than the tabulated value of chi-square the difference between observed and expected value is considered to the significant.

1.10.9 Regression Analysis

The regression analysis has been used to estimate the impact of selected number of factors on profitability. This techniques is used mainly to decide how many factors inclusion in the estimated multiple regression model for explaining the profitability. This model used in the study is presented below.

\[ \hat{Y} = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \ldots + b_n X_n + e \]

- \( Y \) = Profitability (Dependent Variable)
- \( b_0 \) = Intercept
- \( b_1, b_2, b_3 \ldots, b_n \) = Regression co efficient
- \( x_1, x_2, x_3 \ldots \) = Independent Variables
- \( e \) = Error term (Residual).

Models Used

1.10.10 Edward I. Altman’s bankruptcy model

To predict financial distress, Edward I Altman’s bankruptcy model has been used. Here several ratios that significantly influence the health are computed and a single composite index viz, ‘Z’ score which takes into
accounts the weight influence of different ratios has been developed. This model was given by
\[ Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.99X_5 \]

Where,
- \( X_1 = \text{Working capital / Total Assets} \)
- \( X_2 = \text{Retained Earnings (loss) / Total Assets} \)
- \( X_3 = \text{Earning Before Interest and Taxes (EBIT) / Total Assets} \)
- \( X_4 = \text{Market value of Equity / Book value of Total Debt} \)
- \( X_5 = \text{Sales / Total Assets} \)

1.10.11 Economic Value Added (EVA)

EVA introduced by Stern Stewart & Company is an in corn action of residual income concept. EVA holds a company accountable for the cost of capital. It used to expand and operate its business and attempts to show whether a company is creating a real value for its shareholders. Maximizing EVA consistently would lead to maximization of market capitalization.

\[ \text{EVA} = \text{NOPAT} - \text{WACC} \times \text{Capital Employed}. \]

Where
- \( \text{NOPAT} \) means Net Operating Profit After Tax
- \( \text{WACC} \) represents Weighted Average Cost of Capital.

1.10.12 Market Value Added (MVA)

Market value added is a measure of shareholder’s wealth. It the corporate objective is to enhance shareholder’s wealth, it can be achieved by improving MVA. It is the difference between the market value of invested capital and book value of invested capital.

\[ \text{MVA} = \text{Market Value of Equity - Book Value of Equity} \]
1.11 Period of the Study

The period of study has been confined to ten years, from 1997-98 to 2006-07.

1.12 Limitations of the study

1. The period covered under the study is ten years only (from 1997-98 to 2006-07).
2. The study solely depends on the published financial data, so it is subject to all limitations that are inherent in the condensed published financial statement.
3. As per requirement and necessity some data are grouped and sub grouped.
4. This study has focused only on selected large scale iron and steel companies in India. So, it implies that the conclusion drawn from the present study could not be generalized to small and medium size of companies.
5. Also, in spite of being aware of the fact that inflation is so certain a factor, it could not be taken into consideration in the present study.

1.13. CHAPTER SCHEME

The present study is organized into seven chapters.

The First Chapter deals with introduction, statement of problem, objectives of the study, sample design, frame work of analysis, significance, scope and limitations of the study.

The Second Chapter presents a brief note on the related review of literature.
The *Third Chapter* focuses on the general profile of the iron and steel industry. It highlights the production of iron and steel at a global level as well as India level. It also evaluates problems faced by iron and steel industry, structure, products and profile of the study companies.

The *Fourth Chapter* analyses production, sales and cost trends of select iron and steel companies.

The *Fifth Chapter* analyses profitability and liquidity analyses through ratio techniques and also deals with determinants of profitability of select iron and steel companies.

The *Sixth Chapter* analyses the financial health, Economic Value Added and Market Value Added of the select companies. This chapter also analyses the various financial factor affecting the MVA of the select companies.

The *Final Chapter* gives a summary of the findings of the present study; Suggestions are offered to enrich financial performance of iron and steel companies and forms the conclusion of the study.