CHAPTER – I

INTRODUCTION AND DESIGN OF THE STUDY
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INTRODUCTION

The prosperity of a country depends, to a larger extent, on the performance of the economy. A major portion of any country’s Gross Domestic Product is contributed by its corporate sector. India is a country with more than 1000 million people with 3.28 square million kilometers of land and endowed with million kilometers of natural resources\(^1\). The success of India depends on the exploitation of all these resources for its developments. Corporates provide the medium through which these resources could be profitably exploited. The success of the country and its economy to a larger extent depend on the performance of its corporations. By endowing the resources to the able performers, India could prosper well. Hence, it is imperative to evaluate the performance of the corporate sector.

The term Financial and operating performance evaluation may be defined as a critical assessment or evaluation of various activity in different areas of operation of an organization\(^2\). It includes planning as to what should be achieved by an organization, comparing actual performance against what
was expected and making a judgement on the quality of that performance, having regard to the actual circumstances under which it was achieved. In the evaluation of performance a broader view is necessary. Performance might be improved by concentrating attention on how a unit has improved on an accepted standard so that the lessons learned may be applied with advantage to other units rather than directing the efforts to eliminate deviations from the plan. “Checking performance is the third management activity which the financial planning and control function aims to assist in particular. It implies the existence of a benchmark against which the actual results can be compared.”

Performance of a business enterprise is affected by so many factors which are inter-related and cannot be satisfactorily examined in isolation. Control systems and the motivation of personnel are the key elements in this process.

NEED FOR THE STUDY

In the changing techno-economic scenario, economic factors like world wide intense competition ,increasing pace of industrialization, rapid population growth, inflationary trend, government regulation and fiscal and monetary policy have significant influence on the development of a modern
economy. In a developing economy like India, it is more important to procure funds economically and allocate them effectively for the optimum growth of the company.

It is needless to pinpoint the various impediments to resource flows and result in performance differentials and therefore, it necessitates cautious and sagacious exploitation of the available resources so as to maximize the profits, especially, in the ongoing cut-throat competitive business world. The study of such impediments is the root cause of performance differential and it has been the principal concern of the industrial organization economics.

In contrast to industrial organization economics, strategic management researchers have studied the causes of differential performance from a very different perspective. They have sought to relate corporate economic performance to the unique endowment and actions of individual corporations or business units. It is important to make a comparison between the financial and operational efficiency among various industries in India to know whether the type of industry has any influence on the financial and operating performance. In this context, the researcher makes an attempt to analyze the operating and financial performance of select Indian industries in the liberalized economic environment and also to suggest the ways and means by which the management can improve their performance of financial
and operational performance and is done by way of assessing the efficiency in the optimum use of human, financial, operational and natural resources available to the industry and its units.

STATEMENT OF THE PROBLEM

The micro, small and medium enterprises face problems at every stage of their operation whether it is buying of raw materials, manufacture of products, marketing of goods or raising of finance. These industries are therefore, not in a position to secure the internal and external economics of scale.

The sector industries are suffering owing to the various factors after the introduction of globalisation. At present, the majority of the industries practising old method of technology becomes almost obsolete. It creates a tough time for its survival. Further, it is noted that efficient management practices are very much lacking in different functional areas of the organisation. A culmination of both technological obsolescence and inefficient management leads to production of substandard quality of outputs, and these substandard products finds difficulty in the global competition. The existing infrastructure facilities and marketing network are not favourable to face the global threat in the marketing. Further, the delayed
payment practice also degrades the financial soundness of the select industries for the study.

Many international business researchers are of the opinion that increased globalization of markets and increasing international competition imply that firms in all nation will face similar, if not identical, competitive environments. In India due to industrialization of economy, the companies are facing acute competition in the international markets. In advanced countries, funds are procured at low cost and they enable the firms to meet the competitive market in an effective way. Hence, an attempt is made in this study to ascertain the impact of various determinants so that appropriate financial operations could be designed by the companies in order to make themselves competitive and cost effective.

In order to manage the macro – economic crisis, the government of India announced a major policy shift by announcing the reforms package. The reform measures have an impact on the performance of industrial sector in general and companies in particular\textsuperscript{6}.

The sales, productivity and profitability function in the Indian industry differs from that of other industries. Even though many studies in the direction have been conducted, the present one would be of greater significance to many. It would help to understand the pattern and the
structure of the financial variables of the leading companies apart from identifying the financial relationship of companies with their respective industries. The change in the economic policy of the government has got the impact on the performance of corporate units in India. The need at the present junction is therefore felt to study the impact of such changes on the performance of corporate sector and hence, the research problem is taken as “A Study on the financial and Operating Performance of Select Indian Industries in the Liberalized Economic Environment”

Based on the above issues, the following questions are probed:

1) What is the financial progress of select Indian Industries?

2) What is the inclination of sales, cost and production for the listed companies in the selected industries?

3) How far the solvency and liquidity position affects the overall progress in the select Indian industries?

4) What are the variables that influenced profitability and the financial performance of select Indian industries?

5) Whether factor of productivity expands with operational capacity?
OBJECTIVES OF THE STUDY

The major objectives of this study is to investigate the performance differences among various industries in India and the specific objectives of the study are as shown below.

1. To study the Profile of the select Indian industries and their progress.

2. To analyze the trends of Production, Sales and Cost of the select Indian industries in the liberalized economic environment.

3. To study the Profitability position and the determinants of profitability of the select Indian industries.

4. To analyze the production functions of the select Indian industries.

5. To measure the liquidity position of the select industries in India.

6. To study the performance differences among various industries vis-à-vis their financial strength.

7. To suggest better ways and means for the improvement and successful functioning in the competitive Business environment.
METHODOLOGY AND TOOLS

The major objective of the study is to evaluate the financial and operating performance of select Indian industries in the liberalized economic environment. The liberalization measures announced by the Government of India have freedom for the entry norms for multinational companies and hence competition is intense in the market. The structural changes made in the economy have impact on all the constituents of the economy. The companies functioning in the economy have also made suitable adjustments to function in the liberalization on the performance of companies in the selected industries. The methodology used in the study is explained in this chapter.

A. Selection of the Indian Industries

The seven major industries were selected under the corporate Databases (PROWESS) of the Centre for Monitoring Indian Economy (CMIE) for the present study.
### TABLE 1.1

**MAJOR INDUSTRIES**

<table>
<thead>
<tr>
<th>S.No</th>
<th>KIND OF INDUSTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Automobile industry</td>
</tr>
<tr>
<td>2.</td>
<td>Cement industry</td>
</tr>
<tr>
<td>3.</td>
<td>Chemical industry</td>
</tr>
<tr>
<td>4.</td>
<td>Cotton Textile industry</td>
</tr>
<tr>
<td>5.</td>
<td>Metal industry</td>
</tr>
<tr>
<td>6.</td>
<td>Paper industry</td>
</tr>
<tr>
<td>7.</td>
<td>Sugar industry</td>
</tr>
</tbody>
</table>

#### B. Sampling design

To carry out the study, 171 companies were identified. Out of 171 companies, seven major industries have been selected based on multi-stage sampling method and they also belong to seven major manufacturing industries in India. The selection of sample industries is chosen on the basis of the following criteria.

- Continuous availability of data from 1998-99 to 2007-08 i.e, 10 years.
- Positive Net worth in the year 2007-08.
- Turnover is more than or equal to Rs.100 crores in the year 2007-08.
The company for which the data are not available for one or / and more than one year in between or in the beginning or at the end of the study period have been deleted.

A sample of 171 companies satisfying all the above criteria have been selected as sample for the study. The number of companies drawn from each industry is presented in the following table.

**TABLE 1.2**

**Distribution of sample companies in the select Indian Industries**

<table>
<thead>
<tr>
<th>S.NO</th>
<th>KIND OF INDUSTRY</th>
<th>NO. OF COMPANIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Automobile industry</td>
<td>24</td>
</tr>
<tr>
<td>2.</td>
<td>Cement industry</td>
<td>23</td>
</tr>
<tr>
<td>3.</td>
<td>Chemical industry</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Cotton Textile industry</td>
<td>39</td>
</tr>
<tr>
<td>5.</td>
<td>Metal industry</td>
<td>22</td>
</tr>
<tr>
<td>6.</td>
<td>Paper industry</td>
<td>20</td>
</tr>
<tr>
<td>7.</td>
<td>Sugar industry</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>171</strong></td>
</tr>
</tbody>
</table>
C. Sources of Data

The study was based mainly on secondary data. The following data needed for the study were collected from the official Directory of the Bombay Stock Exchange and Corporate Data base (PROWESS) of the Centre for Monitoring Indian Economy (CMIE).

The Centre for Monitoring Indian Economy (CMIE) publishes key financial data of the larger business units. It also provides information very lucidly and systematically on the type of ownership and industry category of each company covered by it. Hence, the Stock Exchange Official Directory (SEOD) and CMIE proved to be complimentary to finalise the sample for this study. The researcher compiled an exhaustive list of companies pertaining to different industries from SEOD and cross checked every company with CMIE to sort out the total number of 171 companies.

D. Tools for analysis

Various accounting and statistical techniques have been made by the researcher in an efficient manner. The major tools used for the analysis are Trend analysis, Chi-Square analysis, Compound growth rate, Trend Indices, ANOVA, Ratio analysis, Productivity models such as Kendrick index, TFP
and PFP production function the ‘t’ test has been applied to study the productivity performance of the selected companies in the Indian industries.

a). Trend Analysis

The least square linear trend equation of the production, cost and sales is obtained as \( Y_c = a + bX \) the origin of \( X \) is 1998-99 where as \( X \) represents years and \( Y \) represents production of the sample industries. The above trend equation has been estimated by the method of least squares. The value of ‘a’ and ‘b’ are determined by solving the following two normal equations:

\[
\sum y = Na + b\sum x \quad \text{(1)}
\]
\[
\sum xy = N\sum x + b\sum x^2 \quad \text{(2)}
\]

\[ a = \frac{\sum y}{N} \]
\[ b = \frac{\sum xy}{\sum x^2} \]

b). Chi-square Test

The significance of the difference between the actual and the trend values of production, Cost and Sales have also been examined by applying the statistical Chi-square (\( \chi^2 \)) test.

\[ (\chi^2) = \frac{E(O-E)^2}{E} \]

\( O = \) Observed Frequency  \( E = \) Expected Frequency

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c) Compound Growth Rate (CGR)

The year by year rate of growth of production, cost and sales over a specified period of time is calculated by taking the $n^{th}$ root of the total percentage growth rate of production, cost and sales.

$$\text{CGR} = \left( \frac{\text{Ending Value}}{\text{Beginning value}} \right)^{\frac{1}{n-1}}$$

Where ‘n’ is the number of years in the period is being considered.

d) Trend Indices

Trend Indices measure the size or magnitude of some object at a particular point in time as a percentage of some base. It relates a variable or variables in a given period to the same variable or variables in another period called the base period. Simple aggregative index method is used to construct an index, the current year value of variable is divided by base year value and the quotient is multiplied by 100, symbolically it is represented as follows.

$$P_{01} = \frac{\sum P_1}{\sum P_0} \times 100$$

$\sum P_1 = \text{Current year}, \quad \sum P_0 = \text{Base year}$

The device of index number has been used to analyse the movement of variables from time to time.
e) Analysis of Variance

The analysis of variance has been developed specially to test the hypothesis whether the production, cost and sales have significant difference or not between the sectors 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. In a One-way classification, the analysis of variance table has the following form.

**TABLE-1.3**

**ANALYSIS OF VARIANCE (ONE-WAY)**

<table>
<thead>
<tr>
<th>Sources of Variation</th>
<th>Sum of Squares</th>
<th>D.F</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Samples</td>
<td>SSS</td>
<td>Vi=C-1</td>
<td>MSC = SSC / (C-1)</td>
<td>MSC/MSE</td>
</tr>
<tr>
<td>Within Samples</td>
<td>SSE</td>
<td>Vr=N-C</td>
<td>MSR = SSE / (N-C)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>SST</td>
<td>N-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SSC – Sum of squares between the columns
SSE – Sum of squares within rows
SST – Total sum of squares of variations
MSC = Mean sum of Squares between samples
MSE = Mean sum of Squares within samples
f) Ratio analysis

Ratio analysis is regarded as one of the best tools of analysis and comparing the time series accounting data of different firms. That is why it has been extensively used in the present study. Various ratios computed in order to analyse the profitability and its various components have been explained at the relevant places in the fifth chapter. To make the analysis and interpretations more precise and accurate, the values of summary of statistics have been computed from the profitability ratios.

(g) Arithmetic Mean

Arithmetic mean gives a single value to describe the whole data. It has been obtained by adding the values of all observations and dividing it by the number of observations.

\[
\bar{X} = \frac{\Sigma X}{N}
\]

Where, \(\Sigma X\) = Sum of variables and

\(N\) = Number of observations

For the purpose of different profitability ratios between the years and sectors, mean values should be computed.
(h) Co-Efficient of Variation (C.V)

It is used in problems which require comparing the variability of two or more than two series. The series for which the co-efficient of variation is greater is said to be more variable or conversely less consistent, less stable or less homogeneous. On the other hand, the series for which co-efficient of variation is less is said to be less variable or more consistent, more stable or more homogeneous. It is determined as follows,

\[ C.V = \frac{\sigma}{X} \]

Where, \( \sigma \) is the Standard deviation and \( X \) is the mean.

The above method is applied for the purpose of comparison of variability in the profitability ratios between the years and the sectors.

i) Methods of Measurement of Total Factor Productivity (TFP)

The trends in Total Factor Productivity (TFP) in this study have been measured by using the method of Kendrick Index.

Kendrick Index

The Kendrick index indicates the difference between the ratio of the actual output and this change in output which would have resulted from the
use of increased inputs in the absence of technological changes. It is defined as,

\[ V_t \]

\[ \text{TFP (K)} = \frac{V_t}{W_0 L_t + r_0 K_t} \]

Where, \( V \) stands for indices of real value added,

\( L \) for indices of Labour,

\( K \) for indices of Capital,

\( W_0 \) and \( r_0 \) being the share of labour and capital in value added in the base year.

**Constant Elasticity of Substitution (CES) production function**

CES production function including exponential technological progress variable can be stated as follows:

\[ V = A e^{\delta t} \left[ (\delta) L - P + (1-\delta) K - P \right] \]

Where, \( V \) is value added, \( L \) is labour, \( K \) is capital, \( t \) is time and \( \delta \) is distribution parameter. \( V \) gives returns to scale. \( P \) is related to elasticity of substitution by the following formula:

\[ \sigma = 1 / (1+P) \]
And $\lambda$ is exponential growth rate of TFP. For estimating CES production function we consider equation based on equality of marginal productivity of labour to wages ($w$). Under the assumption of perfect competition and profit maximization:

$$\log \frac{V}{L} = a + b_1 \log w + b_2 l + b_3 \log L$$

Where, 

$$b_1 = \frac{V}{(V+P)}$$

$$b_2 = \frac{\lambda p}{(V+P)}$$

$$b_3 = \frac{P (V-l)}{(V+P)}$$

$$\sigma = \frac{b_1}{1 + b_3}$$

If a return to scale is constant, then co-efficient $b_3$ is significant. If co-efficient $b_3$ is insignificant implying returns to scale to be unity, then co-efficient $b_1$ gives elasticity of substitution.

**Functions of Annual Variations in Factor Productivity**

It is postulated that factor productivity depends on scale of production and institutional framework such as labour – management relations. Growth in scale of production permits adoption of technologies, which improve productivity. Expansion of scale also provides division of labour, which in turn improves the productivity.
Labour management relations affect motivation of workers; which in turn affects their will to work. Based on the above hypothesis, function for TFP is specified as below:

\[ P = f(V, t), \text{Where} \]

\[ P = \text{Productivity index} \]

\[ V = \text{Real value added as proxy for scale of production} \]

\[ T = \text{Time variable as proxy for management and labour relations} \]

For \( P \), all measures of total factor productivity (TFPK, TFPS, TFPD) and partial productivity of labour are taken separately. The functions are estimated in log form.

The trends in Total Factor Productivity (TFP) in this study have been measured by using the following three different methods of productivity: Kendrick Index, Solow Index and Divisia Index.

E. Period of the study

The study covers a period of 10 years from 1998-99 to 2007-08. The rationale behind the choice of this study period is based on the fact that the period captures a complete business cycle that has witnessed both a financial and operating performance.
F. Hypothesis

The researcher has formulated and tested the following null hypotheses keeping in view the wider theoretical framework and objectives of the study.

**Trend analysis**

- There is no significant association between the production among the selected industries.
- There is no significant difference in the cost among the selected industries.
- Sales and the sample industries are not closely associated.

**Productivity analysis**

- There is no significant relationship between operational capacity and factor productivity.
- There is no significant relationship between labour management relationship and factor productivity.
- There is no significant relationship between labour productivity and factor productivity.
➢ There is no significant relationship between capital productivity and factor capital intensity.

➢ There is no significant relationship between total factor productivity and capital intensity.

SCOPE OF THE STUDY

In view of achieving the objectives of the research problem, the present study has been analyzed and mainly based on the financial and operating performance of the select Indian industries for a period of the study which was extended over ten years from 1998-99 to 2007-08. The study, further, does not consider qualitative factors which may affect the financial policy of the selected sectors of the study and also does not help the finance executives in evaluating the genuine financial needs of their companies and in deciding the appropriate variables which will increase the operating and financial efficiency of the selected industries. As such the study is expected to help the corporate management, the financiers, the investors and government, at large, to take the valuable decisions of their own.
LIMITATIONS OF THE STUDY

☆ All possible steps have been taken to make the results of this study fruitful. Going to certain constraints, the study has been confined to select companies in the Indian industries for a period of ten years only.

☆ This study is based on secondary data taken from published annual reports and accounts of selected companies and as such its findings depend entirely on the accuracy of such data.

☆ Details of market capitalization of companies were not accessible.

☆ There are different methods to measure the profitability of an industry. In this study, the researcher has employed only six ratios to predict the profitability position of the select industries.

☆ Due to time constraint, only seven Indian industries were selected for this research.
SCHEME OF THE REPORT

The study has been organized into seven chapters, each devoted to some aspects of the study of financial and operating performance of selected Indian industries in the liberalized economic environment.

Chapter – I

Deals with the Introduction and design of the study, which includes Introduction, Need for the study, Statement of the problem, Selection of the techniques of performance evaluation, Objectives of the study, Methodology and Tools, Hypotheses, scope of the study, Limitations and Chapter scheme.

Chapter – II

This chapter has been devoted to a brief review about the financial and operating performance and review of the other empirical literature pertaining to the present study. It concludes with a brief outline of the present study.

Chapter – III

This chapter analyses the Profile and Growth of the select industries in the liberalized economic environment.
Chapter – IV

It is concerned with the measurement of Production, Cost and Sales Trends.

Chapter – V

Focuses on the analysis of Profitability and Financial Performance.

Chapter – VI

Deals with the Productivity Analysis.

Chapter – VII

Recapitulates the key findings and conclusions. Based on these research findings, a few suggestions have been recommended for the successful survival of the select Indian Industries.
REFERENCES


