CHAPTER I

INTRODUCTION
INTRODUCTION

Cement industry in India has come a long way since the first unit to manufacture cement was commissioned in 1914. During the 2nd World war (1944), cement was included in essential products and was covered under price and distribution controls. The control continued even in post independence era. In 1982, The Government partially decontrolled the industry and started fixing levy cement quota in advance every year which kept manufacturers always in uncertainty. In 1989, Government fully decontrolled the industry and since then cement industry is on its own.

The cement industry has faced severe problems of price rigidity in the form of three-tier pricing, two tier pricing, freight equalisation, shortage of raw material, fuel, capital, power, transport, technological obsolescence and cost escalation. Though, recently the Government has taken direct and indirect measures to overcome these problems through modernisation and expansion schemes, self-reliance schemes and tax exemption/deferral schemes, the cement industry has not completely freed itself from the clutches of these problems and economic recession, which have adversely affected its performance.

1.1 Statement of the Problem

During 1990s, the industrial sector has been through periods of robust growth and severe slow down. These variations in performance took place with a backdrop of substantial policy changes during the period of study. While policy changes in most cases were across the board, in several cases, the policy impacted specific industries, including the cement industry. As a result, the cement industry's performance of the 1990s provide a fertile ground to investigate into its performance of profitability during this period since growth in the profitability of a company will reflect on its all round accumulation of intrinsic wealth.
Though the Government introduced many policy changes like uniform pricing, dual pricing, partial control and permit system before 1990s, the cement industry has been freed to have a healthy democratic financial status after 1990-91 as a result of the decontrol measures administered by the Government. It is worth noting that though the demand for cement has been growing at the rate of 8 per cent to 10 per cent per annum, the actual production rate has been lesser, constituting nearly 77 per cent of the installed capacity.

Further, despite the encouragement shown by the Central Government in the form of modernisation and expansion programmes, self-reliance projects and tax concessions in the housing sector and infrastructure development programmes, and the State Governments' incentive schemes like Sales Tax exemptions / deferrals, to attract investment in cement industry, the industry has not shown the expected growth.

In the light of the above backdrop, the following questions emerge:

(i) How far the companies have been efficient in terms of profitability?
(ii) Does its size, age and location influence the profitability of the company?
(iii) Has the profitability of the companies been influenced by their liquidity?
(iv) To what extent are the internal factors contributing to the growth of the companies?
(v) Is there any possibility that the companies will face a financial crisis in future?

1.2 Objectives of the Study

The main objective of the study is to analyse the profitability of cement industry in India. The specific objectives are:

1. To analyse the various measures of profitability of selected companies and to construct a composite profitability index to discriminate the more profitable companies from the less profitable/loss companies.
2. To make a variable wise analysis of overall profitability.
3. To compute and analyse the quality of earnings.

4. To examine the measures of liquidity and their association with the overall profitability and quality of earnings.

5. To determine the sustainable growth.

6. To predict the financial crisis; and

7. To recapitulate the key findings and offer suggestions.

1.3 Hypotheses

1. Earning capacity and overall profitability of a company do not depend on the age, size and region it belongs to.

2. Quality of earnings of a company is influenced by its efficiency in cost management, asset management and leverage management.

3. There is a relationship between the liquidity of a company and its profitability and quality of earnings.

4. Growth of a company depends on its internal factors, namely, financial policies relating to capital structure and payout pattern and operating performance levels reflected by its profit margin and asset turnover.

1.4 Scope of the Study

The study aims to make an analysis of the profitability of cement industry in India. The scope of profitability is very wide and broad based. Hence, the study has analysed only the accounting profitability.

Accordingly, only those companies whose main product of manufacture is cement, have been considered for the study.
1.5 Sampling Design

The companies which have undergone the three phases of the period, namely crisis period, rapid growth period and slow down period have been selected for the study.

The companies for which the data was not available for one and more than one year in between or in the beginning or at the end of the study period have been dropped. The companies which have been merged, have been considered as one company.

In selecting the sample, the Official Directory and database of the Centre for Monitoring Indian Economy (CMIE) namely, PROWESS has been mainly used.

The data base of CMIE has made compilation for 67 companies (both large and small), of which only 32 companies have financial data available for a continuous period of 10 years, namely, 1990-91 to 1999-2000. Such companies have been selected as sample companies. The sample consists of 31 public limited companies in the private sector and 1 company from the central sector.

1.6 Classification of the sample companies

The sample companies have been classified into different groups on the basis of size, region and age of the companies for the purpose of group-wise analysis. The classification of total sample companies into different groups gives an overall idea on the coverage of the sample.
1.6.1 Classification by Size

Size has been determined on the basis of the investment in total assets of a company during the end of the study period. The sample companies have been divided into three size groups, the details of which are presented below.

Table 1.1 Classification of companies based on the value of the total assets

<table>
<thead>
<tr>
<th>Size</th>
<th>Value of Total Assets (in Rs.)</th>
<th>Number of Companies</th>
<th>Percentage to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Less than 500 crores</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>Medium</td>
<td>500 – 1000 crores</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>Large</td>
<td>Above 1000 crores</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

1.6.2 Classification by Age

The sample companies are distributed by their age which is determined by considering their year of incorporation as the birth year and 31st March, 2000 as the concluding year. The classification is based on the sample companies being divided into,

1. Companies registered/incorporated prior to the plan period as old companies (1950)
2. Companies registered/incorporated after the period of emergency proclaimed in 1977-78 as new companies
3. Companies registered/incorporated between 1950 and 1978 as moderately old companies

The Table No. 1.2 gives the details of the age and classification details.
Table 1.2 Classification of sample companies by age-groups

<table>
<thead>
<tr>
<th>Age-groups</th>
<th>Year of incorporation</th>
<th>Number of Companies</th>
<th>Percentage to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old</td>
<td>Prior to 31st March, 1950</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Moderately old</td>
<td>1st April to 31st March 1979</td>
<td>17</td>
<td>53</td>
</tr>
<tr>
<td>New</td>
<td>1st April to 31st March 2000</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

1.6.3 Classification by Region

Based on the states in which the companies are incorporated, the sample companies have been classified mainly into two Region-groups, namely northern region and southern region. The states of Andra Pradesh, Karnataka, Kerala and Tamil Nadu have been categorised as Southern Region and the remaining states, as Northern Region. The Table No 1.3 shows the number of companies with their regions.

Table 1.3 Classification of companies based on the region

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Companies</th>
<th>Percentage to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>South</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

1.7 Sources of Data

The data used for the study is secondary data. The required data for the sample companies of India were collected from the compilation made by the Centre for Monitoring Indian Economy (CMIE) for the period 1990-91 to 1999-2000.
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 over 7000 companies in India. The database provides financial statements, ratio analysis, fund flows, products profile, returns and risk on the stock market.

The Annual published financial reports of the companies have been used for random checking of the data. The Stock Exchange Official Directory, Mumbai and Kotharis' Industrial Directory of India have also been used to supplement the data wherever necessary. The Reserve Bank of India Bulletin, CMIE Monthly and Yearly Reports on Corporate Sector, Industrial Sector and Economic Intelligence Service have also been used. The Fortnightly issues of "Cement News Digest" and Quarterly journal published by the Cement Manufacturers' Association (CMA) have also been used as a data source.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Company Name</th>
<th>Abbreviation</th>
<th>Age</th>
<th>Size</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ambuja Cements Eastern Ltd.</td>
<td>AMB</td>
<td>New</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>2</td>
<td>Andhra Cements Ltd.</td>
<td>AND</td>
<td>Old</td>
<td>Medium</td>
<td>South</td>
</tr>
<tr>
<td>3</td>
<td>Associated Cement Company Ltd.</td>
<td>ACC</td>
<td>Old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>4</td>
<td>Birla Corporation Ltd.</td>
<td>BIR</td>
<td>Old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>5</td>
<td>Cement Corporation of India</td>
<td>CCI</td>
<td>Moderately old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>6</td>
<td>Chettinad Cement Corporation Ltd.</td>
<td>CHE</td>
<td>Moderately old</td>
<td>Medium</td>
<td>South</td>
</tr>
<tr>
<td>7</td>
<td>Coromandal Cements Ltd.</td>
<td>COR</td>
<td>Moderately old</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>8</td>
<td>Dalmia Cements (Bharat) Ltd.</td>
<td>DAL</td>
<td>Moderately old</td>
<td>Large</td>
<td>South</td>
</tr>
<tr>
<td>9</td>
<td>Damodar Cements and Slag Ltd.</td>
<td>DAM</td>
<td>Moderately old</td>
<td>Small</td>
<td>North</td>
</tr>
<tr>
<td>10</td>
<td>Deccan Cements Ltd.</td>
<td>DEC</td>
<td>Moderately old</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>11</td>
<td>Gujarat Ambuja Cements Ltd.</td>
<td>GUJ</td>
<td>New</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>12</td>
<td>Gujarat Sidhee Cements Ltd.</td>
<td>GSI</td>
<td>Moderately old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>13</td>
<td>Hemadri Cements Ltd.</td>
<td>HEM</td>
<td>New</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>14</td>
<td>India Cements Ltd.</td>
<td>IND</td>
<td>Old</td>
<td>Large</td>
<td>South</td>
</tr>
<tr>
<td>15</td>
<td>Jagadamba Cements Ltd.</td>
<td>JAG</td>
<td>New</td>
<td>Small</td>
<td>North</td>
</tr>
<tr>
<td>16</td>
<td>Jaiprakash Industries Ltd.</td>
<td>JAI</td>
<td>New</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>17</td>
<td>Kakatia Cement Sugar and Industries Ltd.</td>
<td>KAK</td>
<td>Moderately old</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>18</td>
<td>Kalyanpur Cements Ltd.</td>
<td>KAL</td>
<td>Old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>19</td>
<td>Marge Cements Ltd.</td>
<td>MAD</td>
<td>Moderately old</td>
<td>Large</td>
<td>South</td>
</tr>
<tr>
<td>20</td>
<td>Mangalam Cements Ltd.</td>
<td>MAN</td>
<td>Moderately old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>21</td>
<td>Mysore Cements Ltd.</td>
<td>MYS</td>
<td>Moderately old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>22</td>
<td>NCL Industries Ltd.</td>
<td>NCL</td>
<td>Moderately old</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>23</td>
<td>Narmada Cement Co. Ltd.</td>
<td>NAR</td>
<td>Moderately old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>24</td>
<td>OCL India Ltd.</td>
<td>OCL</td>
<td>Old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>25</td>
<td>Panyam Cement and Mineral Industries Ltd.</td>
<td>PAN</td>
<td>Moderately old</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>26</td>
<td>Priyadarshini Cement Ltd.</td>
<td>PRI</td>
<td>Moderately old</td>
<td>Medium</td>
<td>South</td>
</tr>
<tr>
<td>27</td>
<td>Saurashtra Cement Ltd.</td>
<td>SAU</td>
<td>Moderately old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>28</td>
<td>Shree Cement Ltd.</td>
<td>SHR</td>
<td>Moderately old</td>
<td>Large</td>
<td>North</td>
</tr>
<tr>
<td>29</td>
<td>Shree Digvijay Cements Ltd.</td>
<td>SDV</td>
<td>Old</td>
<td>Medium</td>
<td>North</td>
</tr>
<tr>
<td>30</td>
<td>Sri Vishnu Cements Ltd.</td>
<td>SVC</td>
<td>New</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>31</td>
<td>Srichakra Cements Ltd.</td>
<td>SCK</td>
<td>New</td>
<td>Small</td>
<td>South</td>
</tr>
<tr>
<td>32</td>
<td>Suvarna Cements Ltd.</td>
<td>SUV</td>
<td>New</td>
<td>Small</td>
<td>South</td>
</tr>
</tbody>
</table>

The words ‘company’ and ‘firm’ are synonymous and interchangeably used.

The sample selected constitutes 48 per cent of the population.
1.8 Period of Study

The period of study has been confined to one decade, namely, 1st April, 1990 to 31st March, 2000. This period has come across three different phases, namely,

(i) The period of initiation of reforms – 1990-91 to 1992-93, the first year being the immediately following year of 'crisis'.

(ii) The period of rapid growth – 1993-94 to 1995-96 and,


For the purpose of easy reference the year, 1990-91 is mentioned as 1991, and so on, throughout the study.

1.9 Framework of Analysis

To analyse the profitability of cement industry in India, the following tools and models have been applied.

1.9.1 Statistical tools used

Annual Growth Rate (AGR):

This shows the rate of growth of a variable at a point of time in the study period.

Given the trend \( y = a + bt \),

\( a \) and \( b \) are calculated as follows.

\[
b = \frac{N\Sigma yt - \Sigma y \Sigma t}{N\Sigma t^2 - (\Sigma t)^2}
\]

\( b \) gives the rate of growth at a point of time \( t \) of the series or study period.

\[
a = \bar{y} - b \bar{t}
\]

where \( \bar{y} \) is mean of \( y \) and \( \bar{t} \) is mean of \( t \) series.
**Compound Growth Rate (CGR):**

To ascertain the growth of overall profitability in the cement industry, the Compound Growth Rate is calculated. The temporal and inter-temporal growth of overall profitability of the firms is computed by using CGR.

Compound growth rate can be computed by using the following growth model:

\[ y = a \times b^t \]

which is further defined as

\[ \log y = \log a + \log b^t \]

i.e \( Y = Y_0 + B^t \)

where \( Y = \log (y) \)

\( Y_0 = \log a \)

\( B = \log b \)

Where \( Y_0 \) and \( B \) can be computed as in AGR,

\[ \text{CGR} = \left[ \text{antilog}(B) - 1 \right] \times 100 \]

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

**Analysis of Variance (ANOVA):**

It is a technique of analysing the variance explained by the dependent variable based on selected independent variables. The independent variables are termed as group variables or factors. ANOVA is used to find out whether the group means of the dependent variable differ significantly or not based on the classification of the independent variables.

The ANOVA test is applied to find out whether the internal variables of profits differ significantly or not among the years. The ANOVA test is also extensively applied in this study to find out whether there is any significant difference in the profitability ratios among years, among age groups, among size groups, among profitability groups, among the regions and among the years.
Spearman Rank Correlation Co-efficient

Correlation or Rank Correlation ($r_s$) is the technique of determining the degree of correlation between two variables in case of ordinal data where ranks are given to the different values of the variables. The spearman rank correlation co-efficient is calculated because this statistical tool does not assume any specific distribution for the two variables. The spearman rank correlation technique is applied in this study to select the profitability ratios for ranking the companies. For calculating $r_s$ between the profitability ratios, all the thirty two sample companies are considered as the number of observations.

Correlation Matrix and Correlation Analysis

Correlation Matrix is an array of Correlation Co-efficient values arranged in a tabular form where row and column variables show the correlation of each variable with the other variables in the array. It is used in this study to select the internal variables determining the profits. It is also employed to identify the liquidity. If there is a correlation of more than 0.80 between two liquidity ratios, the one which has high correlation with the dependent variable is selected. This tool is applied shortlist the liquidity ratios, for the purpose of further analysis. Correlation Analysis is used to determine the degree of relationship between the liquidity and profitability and liquidity and quality of earnings. The degree of relationship between the components of quality of earnings taken together and the quality of earnings is ascertained through correlation analysis. This analysis is used to ascertain the relationship of internal factors with the sustainable growth of a firm.

Multiple Regression Analysis

This technique has been used to study the extent to which the independent variables influence the dependent variable. To assess the relationship and impact of liquidity on profitability and liquidity on Quality of Earnings, stepwise Multiple Regression has been used.
The Stepwise Multiple Regression is a method of construction of a Multiple Regression equation wherein each variable is entered into the equation based on certain selection criteria. Initially, the equation starts with no predictor variable. As a first step, the variable with the maximum correlation with the dependent variable is selected based on the ‘F’ value, (The ‘F’ value is fixed as 3.84 with an associated probability of 0.05) which should be greater than or equal to the cut-off value fixed already and is considered for inclusion in the equation. Thus, the remaining variables are selected and considered for entry into the equation based on their highest partial correlation values and their respective ‘F’ values.

This study attempts to find out the extent to which the selected liquidity measures through correlation matrix have significant impact on the dependent variable viz., Return on Total Assets (Return on Investment). The Stepwise Multiple Regression analysis (Pooled) is also carried out to determine the extent to which the liquidity measures have influenced the dependent variable (i.e) Quality of Earnings. Pooled Multiple Regression Analysis is conducted to ascertain the influence of internal factors of growth with the growth (sustainable) of a firm.

**Discriminant Function**

The discriminant function analysis attempts to construct a function with the selected profitability ratios so that the companies belonging to more profitable or less profitable/loss groups are differentiated at the maximum. The linear combination of the variables is known as discriminant function and its parameters are called, discriminant function co-efficients. The typical discriminant function will be of the form

\[ Z = a_0 + a_1 x_1 + a_2 x_2 + a_3 x_3 + \ldots + a_n x_n. \]

Where, \( a_0 = \text{constant} \)

\( a_1, a_2, \ldots, a_n = \text{discriminant function coefficients of the independent variables} \)

\( x_1, x_2, \ldots, x_n \text{ respectively} \)
Canonical Correlation

The Canonical Correlation is applied for discriminant function. This is interpreted as a percentage of the variation in the dependent variable explained by all the discriminating variables. Once the discriminant function is arrived at, then efficiency of the function as to how accurately it classifies the companies into the respective groups is assessed. For this a classification matrix is developed using, ‘actual’ and ‘predicted’ group membership of the companies. From this, overall classification accuracy is calculated which in turn shows the efficiency of the discriminating ratios in the discriminant functions to classify the companies into their respective groups. The discriminant function is applied in this study in order to identify the key ratios which have classified the companies into more profitable and less profitable/loss categories. For this purpose eighteen profitability ratios and Interest Coverage Ratio are selected.

Average Deviation and Co-efficient of Average Deviation

To analyse the convergence of overall profitability of a few firms in the industry over a period of time, the average deviation (AD) and co-efficient of Average Deviation (CAD) of the top three and bottom three firms from the median overall profitability of the cement industry have been calculated.

Average Deviation (AD) is calculated by averaging the deviations of the overall profitability of the firms from the median overall profitability of the industry. Co-efficient of Average Deviation (CAD) is calculated as Average Deviation/Median.

Ratio Analysis

Ratio Analysis is an effective tool used for analysis of financial statements. It is mainly used for analyzing the profitability, throughout the study.
Mean, Median, Standard Deviation and Co-efficient of Variation

The ten-yearly mean of the profitability ratios has been calculated. To study the variation in the ratios, Standard Deviation (S.D) and Co-efficient of Variation (C.V) have been used. Median has been used to discriminate the firms into more profitable and less profitable/loss groups. It has also been used in the study of convergence of overall profitability.

1.9.2 Models used

In this study, a few models have been applied which are given below:

i. Quality of earnings is computed by using an accounting model consisting of integrated ratios as prescribed by Prof.Narasimhan and Prof.Balasubramanian.

\[ QE = RONW - (BR + FR), \]

Where,

\( QE \) = Quality of Earnings
\( RONW \) = Return on Networth
\( BR \) = Business Risk which is represented by the average return on investment of the industry.
\( FR \) = The risk undertaken by the firm by using of the external funds.

ii. Sustainable growth of firms is computed using Robert C.Higgins Extended sustainable growth model, viz.,

\[ SGR = \frac{\Delta S}{S} = \frac{P(1-d)(1+D/E)+NE}{TA} \]

where

\( \Delta S \) = anticipated rise in the sales in rupees for the ensuing year.
\( S \) = Current years’ annual sales in rupees.
\( P \) = Net Profit of the current year
\( d \) = Dividend payout ratio.
\( 1-d \) = Retention rate
D/E = Total Debt/Total Shareholders’ funds.
NE = New addition to the equity capital in rupees for the current year.
TA = Total Assets of the current year in rupees.

iii. Edward I. Altman’s bankruptcy model

iv. Lambda Index Model.

1.9 Other Statistical Techniques

The tests of significance, namely ‘t’ and F - tests have been applied to test the hypothesis made wherever necessary. Percentage analysis is used to study the level of proportion of variables expressed as a percentage.

iii. To predict financial distress, Edward I. Altman’s Bankruptcy model has been used.

According to him, the multiple discriminant analysis score is called as ‘Z’ score.

\[ Z = 1.2x1 + 1.4x2 + 3.3x3 + 0.6x4 + 1.0x5 \]

Where,

X1 = Working Capital/Total Assets.
X2 = Cumulative Retained Earnings/Total Assets.
X3 = Earnings Before Interest and Taxes/Total Assets.
X4 = Market value of Equity/Book Value of Total Debt.
X5 = Sales/Total Assets.

iv. Lambda Index Model:

To study whether the firms face the probability of cash insolvency, Emery’s Lambda Model as modified by Prof. George Gallinger has been used. According to him,

Where,

Net Liquid Reserve = Cash + Marketable Securities + Unused lines of credit.
Free Cash Flow = Operating Cash Flow less Capital Expenditure.
1.10 Importance of the Study

The study has academic and practical significance. It helps the academicians and researchers to develop new ideas for future study. The study focuses on the performance of profitability of cement industry, which may interest not only those who are interested in manufacturing cement or related products but also others to see the process of change within the industry.

This study will be useful to the management to take investment decisions and anticipate future conditions, identification of its areas of strength and weakness, and to take appropriate decisions for the maximisation of its intrinsic value. The study will help the policy makers in the evaluation of profitability of cement industry. The study may also be useful to creditors and the financial institutions in their effective credit policy formulation. The study will act as a guide to investors in their investment decisions.

1.11 Limitations of the Study

The study is subject to the following limitations:

1. A few of the sample companies have not been following uniform accounting period. In such cases, the financial data have been so organised that they relate to the twelve months of the relevant accounting year.

2. A few of the companies had to be compulsorily excluded from analysis because of non-availability of data either due to non-submission of statements, or due to their closure/merger/suspension of operation during the study period.

3. The financial statements from which the data have been extracted are historical and quantitative in nature. Hence the study incorporates all the limitations that are inherent in the financial statements.

4. The effect of inflation has not been considered in the present study.
1.12. Concepts used in the study

1. **Net Sales**: Sales excluding indirect taxes and duties such as excise, Sales tax, octroi.

2. **Cost of Goods Sold**: Cost of production – change in stocks.

3. **Cost of Production**: Total Raw Material expenses, Power and Fuel, 70 per cent of wages and Salaries, other operating expenses.

4. **NNRT**: Income from non-recurring transactions net of non-recurring expenses. Non-recurring transactions include profit/loss on sales of fixed assets/sale of investments, provisions written back, prior period income/expenses, insurance claims form part of NNRT.

5. **Current Liabilities**: Current Liabilities includes Sundry Creditors, acceptances, interest accrued and due... etc. Tax, Dividend and other provisions form part of current liabilities. Short term borrowings are included in the current liabilities, but share application money amount is excluded from it.

6. **Current Assets**: Inventory of raw materials, stores, finished and semi-finished goods, cash and bank balance, receivables such as sundry debtors, advances, investments in marketable securities excluding that of in group companies form part of current assets. Inter corporate loan and Housing loans to employees are excluded from current assets.

7. **Total Assets (TA)**: The sum of all the assets net of depreciation.

8. **Total Tangible Assets (TTA)**: The excess of TA over intangible assets.

9. **Capital Employed (CE)**: Aggregate of the long term loans, debentures, short term loans and advances and shareholders’ equity.
10. **Shareholders’ Equity (SHE)**: Total paid up capital (ordinary and preference) and accumulated reserves and surplus adjusted for losses.

11. **Tangible Portion of Shareholders’ Equity (TPSHE)**: The excess of Shareholders’ equity over intangible assets.

12. **Industry average**: Average of the Sample Companies.


15. **Retained Cash Flow (RCF)**: Sum of retained earnings and depreciation provided during the period.

### 1.13 Organisation of the Study

The study has been organised as follows:

- **Chapter 1**: Deals with the introduction and design of the study.
- **Chapter 2**: Reviews in brief the literature available in the area of study.
- **Chapter 3**: Traces the background of cement industry in India.
- **Chapter 4**: Analyses the measures of profitability and details an approach to measure composite profitability and accordingly ranks the companies.
- **Chapter 5**: Makes a variable wise analysis of the profitability.
- **Chapter 6**: Deals with the computation of quality of earnings and examines the association of liquidity with the overall profitability and quality of earnings.
- **Chapter 7**: Deals with the ascertainment of sustainable growth of the selected companies.
- **Chapter 8**: Makes a prediction of the financial crisis.
- **Chapter 9**: Recapitulates the findings of the study and offers suggestions.