1.1 INTRODUCTION

The economic and social well being of any country mainly depends upon the available natural resources and efficient utilization of the same. The industrial development and manufacture of various products under the broad classification such as necessities, comforts and luxuries, is an important aspect of the economic development of any country. The country’s economic and financial status becomes dominant and comparable if proper planning is carried out so as to produce such of those items and commodities which have international market as well as greater export potentiality. It may be observed that there are many countries in the world which have much of natural resources but not properly utilized. But at the same time, there are many countries which enjoy greater financial and industrial achievement even though they have very poor availability of natural resources.

The prosperity of a country, the Gross Domestic Product, the standard of living and the per capita income of the people depend on performance of economy to a larger extent. Major portion of any country’s GDP is being contributed by the corporate sector.

All over the world, the manufacture and marketing of the products may be classified as
1. consumables
2. non-consumables

Consumable, are mainly targeted to support the living style and system of the individuals in any country. But there are many non-consumable items which contribute to the standard of living of the people of any country and cement is one such product. It may be observed that the industrial growth of any country has different branches and they are all diverted towards the manufacture of the products which help

a. in developing the infrastructure of the country such as developing building, roads and so on.

b. the industrial growth which aims at the manufacture of those items which help the process of manufacturing

The diversification of the production industry in any country also aims at the strengthening of its economy. It is in this respect the concept of exports is given due attention in many countries so as to strengthen its economic and financial background in the world market. The manufacture of various items such as chemicals, fertilisers, cement and so on, is given due importance so as to achieve greater export potential. There are many items which contribute to the export potential of any country. It includes food items such as sugar, pulses, wheat and so on electrical and electronic products, garments, light and commercial
vehicles for transportation, drugs for human and animal use and so on. It is very interesting to observe that apart from the various countries in the world, India plays a dominant role in the export scenario. There are many products which are exported from India to other countries and cement is one of the very vital products that is exported to other countries. There has been a sustained growth of Indian cement industry over the past five decades. It is really a matter of interest to observe that during the pre-independence as well as pre-world war II periods, cement has been imported from other countries and it was found to be a product of use by only those who are rich and privileged. With the passage of time, the growth of cement industry in India has been very much noted with the result that in India at present there are 132 number of large cement manufacturing plants and 365 number of mini cement plants as on 31\textsuperscript{st} March 2007.\textsuperscript{1} It is also interesting to note that the manufacture of different types of chemically sophisticated cement products is on the increase in India.

The viability of achieving a greater market share has been made possible by introducing different types of cement products which have special use and applications.

India is a country of above 1000 million people with 3.28 square million kilometers of land which is endowed with enormous amount of natural resources.

\textsuperscript{1}Cement Manufacturers Association, “High Lights of Indian Cement Industry”, as on 31\textsuperscript{st} March 2007.
The success of India depends on the exploitation of all these resources for its development. Corporate sectors provide the medium through which these resources could be very effectively exploited. The success of any country largely depends on the performance of its corporate. Endowing the resources to the able performers, India could prosper well. The Indian cement industry plays a dominant role in the national economy generating substantial revenue for state and central government through customs, excise and sales tax collections. To every development activity, from the construction of a small factory to the structuring of multi-purpose projects, cement is an important ingredient. In 1980s India emerged as a major cement producing country in the world.2

The Indian cement industry accounts for approximately 1.3 per cent of GDP and employs over 0.15 million people.

1.2 STATEMENT OF PROBLEM

India’s manufacturing sector used to account for only about 10 per cent of its GDP in the early 1950’s, but currently it accounts for about 19 per cent. This sector had been highly protected from both internal and external competitions over a long period of time and until the early 1990’s when the country embraced the new economic policy since 1991. The manufacturing sector in the country has undergone a wave of liberalisation, the major objective of it, is to reduce both

external and internal barriers to entry. Such a reduction, it was argued to enhance the competitiveness of the sector and thereby making it more efficient. Since 1992-93, the manufacturing sector has grown at the rate of 5 to 6.9 per cent per annum. Against this background, it is critical to examine the performance of manufacturing sectors with specific focus on cement industry.

In terms of distribution of industries in manufacturing sector, the cement industry is one of the important and major contributing sector industry. It contributes close of Rs.4000 crores in the form of Central Excise duties and Rs.3500 crores towards Value Added Tax to various state governments. Octroi, Royalty and cess will account for an additional Rs.1800 crores.\(^3\) The industry accounts for a direct employment of over 2 lakhs and indirect of 12 lakhs people employed. The cement industry is selected for research due to several important factors. Cement is a basic core product, essential for building our nation and its growth intrinsically linked with the overall growth of the economy and more importantly with the growth of the infrastructure sector.\(^4\) The lack of adequate roads, ports, power and other infrastructural facilities could prove to be a major bottle neck to the rapid growth of the country. Financial performance is the operating efficiency of a company in terms of the financial parameter. The

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financial efficiency of a company can be measured in terms of solvency, stability, liquidity, capitalization, turnover ability, coverable ability, profitability, leverages and its operating cycle.

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 ultimate the business may slip in to liquidation stage. Moreover, future development programme of the company can be designed according to the fixed and variable expenses and investment level. Future budget and plan depends on the major cost management of the company. Therefore, the Financial Performance of the select cement companies in Tamil Nadu gets importance in the present day context.

1.3 OBJECTIVES OF THE STUDY

The following are the objectives of the present study.

1. To trace the origin and history of cement industry in India

2. To study the profile of all the major cement companies like Madras cements, Tamil Nadu Cements (TANCEM), India Cements, Chettinad Cements and Dalmia Cement in Tamil Nadu.

3. To study operational and cost efficiency of the cement industry in Tamil Nadu
4. To analyse working capital management of cement industry in Tamil Nadu

5. To analyse the funds flow of cement industry in Tamil Nadu

6. To have a comparative analysis of the private and public sector cement companies with regard to their financial performance in Tamil Nadu

7. To offer suggestions based on the findings

1.4 SIGNIFICANCE OF THE STUDY

Cement plays a vital role in the building modern India that is, challenging the other nations in the world arena. Infrastructure development in India is in its rapid phase and is to be curved properly so as to have India ahead of other countries.

In this situation the problems connected with the effective financial management will help the financial institutions, governmental agencies, other statutory regulators to take proper step in planning for the various infrastructure development projects in the Indian Economy.

Even though many studies in this direction have been conducted, the present one would be of greater significance to many. It would help to understand the pattern and structure of the financial variables of the selected companies. It would also enable the shareholders, investors and investment analysts to identify the determinants of the financial performance. Further it would provide insight to
banks, financial institutions and long term lenders to understand the financial capability and effectiveness of the cement companies. The study will help industry associations that can initiate some collective steps to strengthen the industry. The management will be benefitted by understanding the changes in economic policies and their competitor’s financial strengths.

1.5 SOURCES OF DATA

The data used for the present study is secondary data. The present data were collected from the published annual reports of the respective companies for the period 1995-96 to 2004-05. The annual returns provide various aspects including their corporate governance, financial statements, funds flow, products profile, returns and risks on the stock market. The RBI Bulletin, Union Bank’s Bulletin, CMIE (Centre for Monitoring Indian Economy) monthly and yearly reports on corporate sector and Economic Intelligence are used. The quarterly journal published by the Cement Manufacturers Association (CMA) are also used as a data source.

1.6 METHODOLOGY

In the present study, it is proposed to consider the study area as Tamil Nadu and there are many cement companies in Tamil Nadu. Among the cement companies in Tamil Nadu, only five companies are selected for the purpose of data collection and study. It is also decided to take four cement companies from the
private sector and the only one available public sector government owned company namely TANCEM. From the private sector companies four companies that have management control in Tamil Nadu have been selected by virtue of the fact that they possess the highest market share.

1.7 SAMPLING DESIGN

The sample companies have been chosen based on the size of the company. There are different parameters to measure the firm’s size. Some of them are net profit, total assets, gross profit, total share capital and net sales. Each variable cannot represent the exact firm’s size in isolation to other variables that is each variable has their own limitations.

In our study we have chosen the total asset as the base for selecting the company. The great advantage of the total assets as a measure of the firm’s size is that this variable can represent the overall size of the firm compared to other variables. In addition, the availability of the figures for total assets based on the published data to choose this variable. Based on this, the size has been determined on the basis of the investment in total assets of a company during the end of the study period. Those companies, who have their controlling interest present in Tamil Nadu – either in form of having their major, long established plants in Tamil Nadu or having their registered office in Tamil Nadu – are chosen as
samples. To have the best comparison, we have chosen private sector and government owned cement companies.

Out of this, the companies which have invested more than Rs.15,000 crores in total assets during the last year of the study period, have been selected. In Tamil Nadu, there are only six cement companies that have invested more than Rs.15,000 crores in total assets in their facilities that are in Tamil Nadu. Of this, five companies have been selected and the rest is omitted due to non-availability of data consistently for the required study period.

Table 1.1 shows the list of cement companies that are selected for the present study based on its value of investment in Total Assets.

**TABLE 1.1**

**Sample Companies – Asset Base**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Company</th>
<th>Total Assets as on 31st March 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>India Cements Ltd (ICL)</td>
<td>363,058.87</td>
</tr>
<tr>
<td>2.</td>
<td>Madras Cements Ltd (MCL)</td>
<td>121,810.23</td>
</tr>
<tr>
<td>3.</td>
<td>Dalmia Cements (Bharat) Ltd (DCL)</td>
<td>91,757.29</td>
</tr>
<tr>
<td>4.</td>
<td>Chettinad Cements</td>
<td>53,018.00</td>
</tr>
<tr>
<td>5.</td>
<td>Tamil Nadu Cements Ltd (TANCEM)</td>
<td>16,793.00</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Cement Companies.
1.8 PERIOD OF STUDY

The present study covers a period of 10 years starting from 1995-96 to 2004-05 in order to evaluate the financial performance of selected cement companies in Tamil Nadu.

1.9 SCOPE OF THE STUDY

The study aims to make an analysis of financial performance of cement companies in Tamil Nadu. The study is pertaining to large cement companies in Tamil Nadu. In the study, we have used the financial facts of the selected companies from 1995-96 to 2004-05. The financial performance of the sample companies is evaluated in terms of profitability, liquidity, financial health and value creation for their shareholders. The scope of financial performance is very wide and the study is based on accounting information.

1.10 OPERATIONAL DEFINITION OF CONCEPTS

This section presents operational definition of various concepts used in this study.

1.10.1 Cement

In the most general sense of the word, cement is a binder, a substance that sets and hardens independently, and can bind other materials together. The word “cement” traces to the Romans, who used the term *opus caementicium* to describe
masonry resembling modern concrete that was made from crushed rock with burnt lime as binder. The volcanic ash and pulverized brick additives that were added to the burnt lime to obtain a hydraulic binder were later referred to as cementum, cimentum, cament and cement.

Cement used in construction is characterized as hydraulic or non-hydraulic cements (example: Portland cement) harden because of hydration chemical reactions that occur independently of the admixture’s water content; they can harden even underwater or when constantly exposed to wet weather. The chemical reaction that results when the anhydrous cement powder is mixed with water produces hydrates that are not water-soluble. Non-hydraulic cements (example: lime and gypsum plaster) must be kept dry in order to retain its strength.

The most important use of cement is the production of mortar and concrete – the bonding of natural or artificial aggregates to form a strong building material that is durable in the face of normal environmental effects.

**10.2 Cement Industry**

India, being the second largest cement producer in the world after China with a total capacity of 151.2 million tones (MT), has got a huge cement industry. With the government of India giving boost to various infrastructure projects, housing facilities and road networks, the cement industry in India is currently growing at an enviable pace. More growth in the Indian cement industry is
expected in the coming years. It is also predicted that the cement production in India would rise in 236.16 MT in FY11. It’s also expected to rise to 262.61 MT in FY12.

**10.3 Capacity Utilisation**

Is a concept in economics which refers to the extent to which an enterprise or a nation actually uses its installed productive capacity. Thus, it refers to the relationship between actual output that ‘is’ produced with the installed equipment and the potential output which ‘could’ be produced with it, if capacity was fully used. In economic statistics, capacity utilization is normally surveyed for goods-producing industries at plant level. The results are presented as an average percentage rate by industry and economy-wide, where 100 per cent denotes full capacity. This rate is also sometimes called the “operating rate is high, this is called “overcapacity”, while if the operating rate is low, a situation of “excess capacity” or “surplus capacity” exists. The observed rates are often turned into indexes.

There has been some debate among economists about the validity of statistical measures of capacity utilization, because much depends on the survey questions asked, and on the valuation principles used to measure output. Also, the efficiency of production may change over time, due to new technologies.
10.4 Trend Values

An aspect of technical analysis that tries to predict the future movement of a stock based on past data. Trend analysis is based on the idea that what has happened in the past, gives us an idea of what will happen in the future.

10.5 Miller – Orr Model

The Miller and Orr model of each management is one of the various cash management models in operation. It is an important cash management model as well. It helps the present day companies to manage their cash while taking into consideration the fluctuations in daily cash flow.

As per the Miller and Orr Model of cash management the companies let their cash balance move within two limits – the upper limit and the lower limit. The companies buy or sell the marketable securities only if the cash balance is equal to any one of these.

When the cash balances of a company touches the upper limit it purchase a certain number of salable securities that helps them to come back to the desired level. If the cash balance of the company reaches the lower level then the company trades its salable securities and gathers enough cash to fix the problem.
There are other cash management models also like Baumol Model and Orgler’s Model. Due to availability of data and convenience of the researcher, in our study, Miller – Orr model is used.

10.6 Cash Ratio

The ratio of a company’s total cash and cash equivalents to its current liabilities. The cash ratio is most commonly used as a measure of company liquidity. It can therefore determine if, and how quickly the company can repay its short-term debt. A strong cash ratio is useful to creditors when deciding how much debt, if any, they would be willing to extend to the asking party.

10.7 Economic Value Added (EVA)

In corporate finance, Economic Value Added or EVA is an estimate of a firm’s economic profit – being the value created in excess of the required return of the company’s shareholders – where EVA is the profit earned by the firm less the cost of financing the firm’s capital. The idea is that shareholders gain when the return from the capital employed is greater than the cost of that capital.

10.8 Market Value Added (MVA)

A calculation that shows the difference between the market value of company and the capital contributed by investors (both bondholders and
shareholders). In other words, it is the sum of all capital claims held against the company plus the market value of debt and equity.

The higher the MVA, the better. A high MVA indicates the company has created substantial wealth for the shareholders. A negative MVA means that the value of management’s actions and investments are less than the value of the capital contributed to the company by the capital market (or that wealth and value have been destroyed).

10.9 Z-Score

The Z-score formula for predicting bankruptcy was published in 1968 by Edward I. Altman, who was, at the time, an Assistant Professor of Finance at New York University. The formula may be used to predict the probability that a firm will go into bankruptcy within two years. Z-scores are used to predict corporate defaults and an easy-to-calculate control measure for the financial distress status of companies in academic studies. The Z-score uses multiple corporate income and balances sheet values to measure the financial health of a company.

10.10 Risk

Risk concerns the deviation of one or more results of one or more future events from their expected value. Technically, the value of those results may be positive or negative. However, general usage tends to focus only on potential
harm that may arise from a future event, which may accrue either from incurring acost or by failing to attain some benefit.

10.11 Cost of Equity

In finance, the cost of equity is the minimum rate of return a firm must offer shareholders to compensate for waiting for their returns, and for bearing some risk.

The cost of equity capital for a particular company is the rate of return on investment that is required by the company’s ordinary shareholders. The return consists both of dividend and capital gains, example: increases in the share price. The returns are expected future returns, not historical returns, and soothe returns on equity can be expressed as the anticipated dividends on the shares every year in perpetuity. The cost of equity is then the cost of capital which will equate the current market price of the share with the discounted value of all future dividends in perpetuity.

The cost of equity reflects the opportunity cost of investment for individual shareholders. It will vary from company to company because of the differences in the business risk and financial or gearing risk of different companies.

10.12 Cost of Debt

The effective rate that a company pays on its current debt. This can be measured in either before- or after-tax returns; however, because interest expense
is deductible, the after-tax cost is seen most often. This is one part of the company’s capital structure, which also includes the cost of equity.

**10.13 Liquidity**

In business, economics or investment, market liquidity is an asset’s ability to be sold without causing a significant movement in the price and with minimum loss of value. Money, or cash in hand, is the most liquid asset, and can be used immediately to perform economic actions like buying, selling, or paying debt, meeting immediate wants and needs.

**10.14 Profitability**

In accounting, profit is the difference between price and the costs of bringing to market whatever it is that is accounted as an enterprise (whether by harvest, extraction, manufacture, or purchase) in terms of the component costs of delivered goods and/or services and any operating or other expenses.

**10.15 Working Capital**

Working capital (abbreviated WC) is a financial metric which represents operating liquidity available to a business, organisation, or other entity, including governmental entity. Along with fixed assets such as plant and equipment, working capital is considered a part of operating capital. It is calculated as current assets minus current liabilities. If current assets are less than current liabilities, an entity has a working capital deficiency, also called a working capital deficit. Net
working capital is working capital minus cash (which is a current asset) and minus interest bearing liabilities (that is: short term debt). It is a derivation of working capital that is commonly used in valuation techniques such as DCFs (Discounted cash flows).

10.16 Current Ratio

The ratio is mainly used to give an idea of the company’s ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, inventory, receivables). The higher the current ratio, the more capable the company is of paying its obligations. A ratio under 1 suggests that company would be unable to pay off its obligations if they came due at that point. While this shows the company is not in good financial health, it does not necessarily mean that it will go bankrupt – as there are many ways to access financing – but it is definitely not a good sign.

10.17 Quick Ratio

An indicator of a company’s short-term liquidity. The quick ratio measures a company’s ability to meet its short-term obligations with its most liquid assets. The higher the quick ratio, the better the position of the company.

The quick ratio is more conservative than the current ratio, a more well-known liquidity measures, because it excludes inventory from current assets. Inventory is excluded because some companies have difficulty turning their
inventory into cash. In the event that short-term obligations need to be paid off immediately, there are situations in which the current ratio would overestimate a company’s short-term financial strength.

10.18 Funds Flow Analysis

The net of all cash inflows and outflows in and out of various financial assets. Fund flow is usually measured on a monthly or quarterly basis. The performance of an asset or fund is not taken into account, only share redemptions (outflows) and share purchases (inflows).

Net inflows create excess cash for managers to invest, which theoretically creates demand for securities such as stocks and bonds.

10.19 Ratio Analysis

A tool used by individuals to conduct a quantitative analysis of information in a company’s financial statements. Ratio are calculated from current year numbers and are then compared to previous years, other companies, the industry or even the economy to judge the performance of the company. Ratio analysis is predominately used by proponents of fundamental analysis.

10.20 Net Sales

Gross sales revenue less returns and discounts, the amount shown in an income statement under sales revenue is net sales.
1.11 HYPOTHESES OF THE STUDY

The aim and purpose of the present study is to have an idea of the financial stability as well as their performance during the period of study namely 1995-96 to 2004-05. In order to examine the nature of performance, comparative idea of performance, the data have been collected after the formation of the following hypotheses, which would provide information on the nature and extent of financial achievement of the cement industry in Tamil Nadu. The hypotheses formulated are:

1. There exists no significant difference between the average level of working capital over the years

2. There is no significant difference between the average working capital between companies

3. There is no significant difference between the average working capital of private sector cement companies and public sector cement company over the years

4. The average level of performance with respect to operational efficiency, profitability, return to equity shareholders do not differ significantly between successive years for all the companies

5. The average level of efficiency do not differ between companies
6. The pattern of growth in working capital as well as the other variables indicating performance efficiency do not report a creditable pattern

1.12 FRAME WORK OF ANALYSIS

To analyse the financial performance of selected cement companies in Tamil Nadu, the following tools and models have been applied.

1.12.1 Statistical Tools Used

To bring out the relevant facts effectively, the data analysis requires, the use of statistical tools. In the present study, both descriptive statistics as well as inferential statistics have been adopted.

a. Descriptive Statistics

The descriptive statistics such as Mean, Standard Deviation have been computed to have a comparative idea of different cement companies with regard to their performance indices like working capital, profitability and so on.

b. Inferential Statistics

The fitting of polynomial trend equations for studying the nature of growth over the years for the different industries, if, a particular equation can be obtained as a good fit for the data, predictions for the future could be made using such an equation.
Descriptive Statistics

The Descriptive statistics includes the following:

i. **Arithmetic Mean (\( \bar{X} \))**

Mean is a central tendency measure representing the arithmetic average of a set of observations. It 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.

ii. **Standard Deviation (\( \sigma \))**

Standard deviation is the square root of variance; it is a measure of dispersion in the same units as a original data. Higher the S D, greater is the dispersion.

iii. **Co-efficient of Variation (C.V.)**

It is a relative measure of dispersion, comparable across distribution, which expresses the standard deviation as percentage of the mean. It is used in problems, which requires to compare 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 homogenous. It is calculated by the following formula: In ratio analysis of financial data less co-efficient of variation indicates relatively better control of the management on that ratio.
Inferential Statistics

Statistical inference is that branch of statistics which is concerned with using probability concept to deal with uncertainty in decision making. It refers to the process of selecting and using a sample statistic to draw inference about a population parameter based on a subset of it – the sample drawn from the population.

Use of analysis of variance: To examine whether significant differences exist on the average value of different indicators of performance, between years and between companies.

ii. Hotellings T\(^2\) test: The multivariate test of significance namely Hotellings T\(^2\) test to examine the equality of mean vectors indicating the different characteristics of performance are equal.

iii. Students t-test: To examine whether the mean values of the selected characteristics differ between private and public sector cement companies.

II. Ratio Analysis

Ratio Analysis is one of the techniques of financial analysis where ratios are used as a yard stick for evaluating the financial condition and performance of a firm. Analysis and interpretation of various accounting ratios gives a skilled and experienced analyst a better understanding of the financial condition and
performance of the firm that what we could have obtained only through a perusal of financial statements.\(^5\) 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 present study. Various ratios are computed in order to analyse the profitability, liquidity, short-term and long-term financial strength and its various components have been explained at the relevant places in different chapters. However, in this study the use of ratios has not been made in the course of analysis directly. To make the analysis and interpretations more precise and accurate, the values of mean, CV have been computed from the ratios.

**III. Model used**

To analyse the financial performance of selected cement companies, the following models are used.

**i. Economic Value Added (EVA)**

EVA is the difference between the firms’ Net Operating Profit After Tax (NOPAT) and the shareholder’s expectations, which is the capital charge for both debt and equity, that is Over all cost of capital, operation defined

\[
EVA = \text{Net Operating Profit After Tax (NOPAT)} - \text{Capital charges}
\]

Capital charges = Weighted Average Cost of Capital x capital employed

Weighted Average cost of capital = Weighted cost of equity (Ke) + Weighted cost of debt(Kd).

ii. Market Value Added (MVA)

The market Value Added is the excess of market value over the investors’ capital. It is calculated as follows:

\[ \text{MVA} = \text{Economic Market Value Added} - \text{Economic Book Value Added} \]

Annual average market value of equity share has been calculated by taking the monthly closing prices of share.

\[ \text{Economic book Value Added} = (\text{Face Value of Equity} + \text{Long-term Loans} + \text{Reserves and Surplus}) \]

iii. Altman’s Multiple Discriminant Analysis Model (Z Score Analysis)

Altman’s Multiple Discriminant Analysis Model has been attempted to identify the cause of deteriorating performance of the firms.

The formula used to evaluate the ‘Z’ score analysis as established by Altman is:

\[ Z = 1.2X_1 + 1.4 X_2 + 3.33 X_3 + 0.64 X_4 + 1.0 X_5 \]

Where

\[ Z = \text{Discriminant Score} \]
\[ X_1 = \frac{\text{Net working capital}}{\text{Total assets}} \]

\[ X_2 = \frac{\text{Net operating profit}}{\text{net sales}} \]

\[ X_3 = \frac{\text{EBIT}}{\text{Total Assets}} \]

\[ X_4 = \frac{\text{Market value of equity}}{\text{Book value of Debt}} \]

\[ X_5 = \frac{\text{Sales}}{\text{Total Assets}} \]

It is also interesting to note that Operations Technique can be used for the various problems in Finance like working capital management, inventory management, cash management.\(^6\)

iv. Miller-Orr Cash Management Model

When the current ratio is good and cash ratio is alarming, Miller-Orr model on cash management is adopted and suggestions offered to the management on diverting excess cash in to short term investments and converting back in case the cash balance touching the lower limits.

1.13 LIMITATIONS OF THE STUDY

The study is subject to the following limitations:

1. The study period is restricted to the period of 10 year from 1995-96 to 2004-05

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6. “Application of OR Techniques to Finance” \textit{Management Review}, December 2000, p.87,
2. This study is based on secondary data taken from the annual reports of the respective companies as such its findings depend entirely on the accuracy of such data.

3. The present study is largely based on funds flow & ratio analysis which has its own limitations

4. There are different methods to measure the financial performance of an industry. In this connection views of experts differ from one another.

5. TANCEN is not a listed company and to arrive at the market price, ‘Enterprise Valuation’ method is adopted.

6. This study has focused on only select large scale cement companies in Tamil Nadu. So, it implies that the conclusion drawn from present study could not be generalized to other plants either mini cement plants or major plants or in Tamil Nadu or in India.

1.14 ORGANISATION OF THE THESIS

The present study is organized into nine chapters:

The first chapter namely, “Introduction and Design of the Study” is intended to provide a preliminary idea of the contents of the thesis. It includes introduction, statement of problem, objectives and significance of the study, sources of data, methodology, sampling design, period of study, scope of study,
hypothesis of the study, frame work of analysis, limitations of the study and chapterisation.

The second chapter describes in detail “Review of Literature” focusing on cost analysis, liquidity and profitability studies done and reviews on work done on working capital analysis. Based on the detailed review, Research Gap could be established.

The third chapter concentrates on “Growth and Progress of Indian Cement Industry”. The chapter traces back as to what is cement, cement industry at the national level, sharpening the focus in to Tamil Nadu and on the select cement companies. Special features of cement industry, the problems faced by the industry and the future outlook is also traced.

The fourth chapter focuses on the technical aspect of “Cost Structure Analysis”. It deals with various vital aspects of costing relating it to the revenue. The various costing parameters include raw materials, power and fuel, salaries and wages, manufacturing cost, selling and distribution expenses and depreciation.

The fifth chapter deals with “Liquidity and Profitability Analysis” explaining the essence of liquidity and profitability analysis, dealing on risk-reward parameters, associating liquidity and profitability.
The sixth chapter on “Analysis of Working Capital” dwells on various working capital ratios, changes in working capital and funds flow operations.

The seventh chapter explains on “Analysis of Financials of Private Sector Companies with Government owned Company”. It deals with comparison of various vital ratios as private sector companies bundled together with the government company and analyzing every parameter of each private company individually with government company.

The eighth chapter is devoted to “Z-Score Analysis, Economic Value Addition and Market Value Addition”. This chapter analyses whether the select cement companies are in the healthy zone or not and whether every company’s shareholders’ wealth have got enriched or eroded.

The ninth chapter, “Summary of Findings, Suggestions and Conclusions”, is devoted to consolidate the information and observations found in the earlier chapters. A few suggestions are also made for the better performance of the cement companies in future.
CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

1.1 Introduction
1.2 Statement of the Problem
1.3 Objectives of the Study
1.4 Significance of the Study
1.5 Sources of Data
1.6 Methodology
1.7 Sampling Design
1.8 Period of Study
1.9 Scope of the Study
1.10 Operational Definition of Concepts
1.11 Hypotheses of the Study
1.12 Framework of Analysis
1.13 Limitations of the Study
1.14 Organisation of the Thesis