CHAPTER - I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

Business information is communicated to the different groups of persons such as shareholders, lenders, governments, employees, financial institutions and the like having vested interest in a business enterprise through the medium of accounting in older days. Accounting was described as “An art of recording, classifying and summarizing in a significant manner and in terms of money transactions and events, which are, in part at least, of a financial character and interpreting the results there of.”  

Subsequently, Accounting has been defined as a process of indentifying, measuring, recording and communicating economic information to permit informed judgments and economic decisions. The primary purpose of accounting is to help persons make economic decisions.

In our society, resources must be allocated among and within all kinds of entities. Accounting information provides the basis for making decisions about resource allocation. To be useful, data must be identified, measured, recorded, classified, summarized and communicated to potential users. All economic entities (e.g. business, government agencies, families, charitable entities) need such information, because it is used for making economic decisions about those

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entities. An economic event of an entity is referred to as a transaction.\(^3\)

Accounting is both valued and criticized as a human activity and history provides a framework for evaluating accounting’s impacts on individuals, organizations and society not just in part but also today.\(^4\)

**1.2 NEED FOR ACCOUNTING**

Accounting is now regarded as a service activity, a descriptive discipline and an information system. The primary role of accounting is to provide an effective measurement and reporting system for decision making to the business entity. The survival stability and growth of each entity within the society largely depend on the wealth created by it through the collective efforts of all the stakeholders – shareholders, providers of loan, capital, employees and the government. All these stakeholders are the parties to whom the result of operations of business is communicated. To satisfy the information needs of these users, the conventional financial accounting system generates data relating to financial performance through profit and loss statement or income statement giving emphasis on the interest of shareholders (i.e. Owners) only.\(^5\)

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The traditional accounting system shown in the corporate reporting has failed to ramify information which the decision makers require to know the extent to which the wealth aspect of the business enterprise is being increased or decreased during a given period. Here, there is a need to modify the existing accounting and financial reporting system so that a business unit is able to give information to judge its performance by indicating the wealth of value created by it.

1.3 NEED FOR SOCIAL ACCOUNTING

The need for improved corporate reporting has emerged because of awareness towards social responsibilities of business and accountability of directors to stakeholders. This social accounting models would be needed to capture dimensions of corporate performance that are not well understood by conventional financial metrics. \(^5\) This view is no longer restricted to academic accountants is to pioneering forms, as CSR reporting has now become an accepted subject of interest among practitioners and financial analysts.\(^6\)

This emerging point of view takes for granted that traditional financial information is not suitable for stakeholders (other than shareholders) and that only the new models would serve them. As a consequence, there might be an excessive emphasis on developing new measurement methodologies, perhaps overlooking the potential of existing accounting systems to give relevant

\(^6\) CFA institute, (2008), “Environmental social and Governance factors at listed companies.” A manual for Investors, CFA Institute, Charlottesville, VA. pp.56-60.
information to stakeholders.\textsuperscript{7} While stakeholders may earn profit from these new models, conventional accounting can still offer some insights concerning CSR performance. The conventional and new accounting models are not exclusive but rather are complementary tools for CSR measurement.\textsuperscript{8}

\textbf{1.4 NEED FOR SOCIAL REPORTING}

To this direction inclusion of the Value Added Statement (VAS) model, a type of social reporting model based over conventional accounting is a newly developed technique, which is regarded as a part of social responsibility accounting and reporting. VAS is focused on how companies create value and how that value is distributed among each category of stakeholders. Both issues are highly relevant for an emerging country: wealth has to be first created in order to close the gap with the developed world and then that wealth has to be distributed so as to ameliorate income distribution, which is usually unequal.\textsuperscript{9} Value added reporting is an easy concept as it relies on the same data and measurements techniques used and advocated by generally accepted accounting principles. It takes a commitment to the “social” impact of accounting

\begin{itemize}
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to justify the measurement and disclosure of value added information in a value added report.\textsuperscript{10}

Value added is a measure of wealth contributed to the process of generating value in a given enterprise. Value added acts as socio-parameter in terms of socio-economic efficiency. Value added is the key to the success of a business enterprise. VAS mirrors the corporate report advocacy and extends this by emphasizing the value of the disclosure of VA distribution to individual stakeholders and its worth as a corporate size indicator, a national income measure and a foundation for productivity based incentive schemes.

1.5 STATEMENT OF THE PROBLEM

The purpose of the Value Added Statement as part of corporate social reporting is to disclose the distribution of income in the present period, among employees including the management, the providers of risk capital, providers of loan capital, government and the firm itself and thus indicate at least the trend for future ranges of distribution. So there is a basic need for these groups to be kept informed by means of this kind of statement. Consequently, the statement of creation Value Added must take account of this aspect of distribution among the ‘Value Adding Team’. Moreover the statement of creation of Value Added shows the economic and financial position of the company in relation to its environment, especially customers and suppliers. The final result of the Value

Added Statement should therefore be an enlarged figure which, in terms of the company’s total income distributed among the above groups, basically includes all the expenses and revenues of the profit and loss account. The VAS needs to be prepared raises the following issues:

1. How much wealth in terms of net value added is created by the Cement Industries under study?

2. How is wealth distributed among contributors? and

3. Does the wrong distribution of wealth faces problems to cement industries?

To answer the above issues, an attempt has been made to apply the value added concept to measure the performance of Cement Industry in Tamil Nadu.

1.6 PURPOSE OF THE STUDY

The present study “A study of Value Added Trends in Cement Industry in Tamil Nadu”, is an attempt to analyze the value added trends of three selected cement companies namely, Madras Cements Limited, The India Cements Limited and Chettinad Cement Corporation Limited. The Value Added Trends of the above said industries are studied with the help of theoretical framework of the concept of Value Added and the Value Added Statement (VAS), and the usefulness of such VAS as a supplementary financial statement,

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in addition to traditional financial statement. An attempt has been made in this paper to study the value added trends of cement industry in Tamil Nadu.

The term value added refers to the creation of value added by a business enterprise towards the wealth of a nation. The sum of the total of the creation of value added by all business enterprise is results in national income.

The value added statement also reveals the contribution made to employees, lenders, governments and owners to the organization as traditional accounting failed to do so. The disclosure of value added statement is significant from social reporting point of view. So the creation of value added is the key to the success. Hence, in the present study an attempt has made to examine the VAS as a performance indicator for Cement Industry in Tamil Nadu.

1.7 REVIEW OF LITERATURE

The study of related literature implies locating reading and evaluating reports of researches as well as reports of casual observations & opinions that are related to the investigator’s planned research project. The review of literature is a task that continues throughout the duration of the thesis. It begins in a search for a suitable topic. Once a topic has been decided upon, it is essential to review all the relevant materials which have been bearing on the topic.

A review of previous investigations relevant to the present investigation is necessary to gain better perspective of the problem. The review of related studies
is necessary to show whether the evidence already available solves the problem adequately with investigation, to avoid the risk of duplication and to provide idea, explanations, hypothesis and variable in formulating the problem, to suggest methods of research appropriate to the problem, to get an idea about the current trend in the field and so on. Hence an attempt was made to review the studies conducted in India and in abroad related to Value Added Trends.

Solomons. D (1974) suggested that the value added presents the most suitable point for developing a measure of Corporate Social Performance.\(^{12}\)

Michael F. Morley (1979) stated that the preparation of VAS was made as a compulsory one in the British Government. The VAS had encouraged many industrialists to link VA Reports on wealth creation with remedial action to halt Britain’s relative industrial decline.\(^{13}\)

Cox (1979) suggested the various methods of computation of Gross Value Added were additive method, subtractive method, income distribution method and net output method.\(^{14}\)


Rutherford (1980) focused on the measurement of wealth according to generally accepted accounting principles is on income measurement. The rationale behind the focus stems from the belief that the purpose of accounting is to inform the shareholders of the wealth in income accruing to them as a result of the business activities of the firm.\textsuperscript{15}

Thomas Reichmann and Christophe Lange (1981) observed that VAS showed the economic and financial position of the company in relation to its environmental, customers & suppliers. VAS was considered as a part of corporate social reporting. VAS was considered as a means of supplementing the information given in company reports on the creation and distribution of the company’s total income.\textsuperscript{16}

Sinha (1983) submitted that the value added provides a useful measure to help in gauging performance and activity. The figure of value added can be a pointer to the net output of the firm and by relating other key figures (for example, capital employed and employee costs) significant indicators of performance may be obtained.\textsuperscript{17}

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Maunder (1984) assessed the two main purposes underlying employee demand for accounting information contained in the VAS were (i) the evaluation of employment security and (ii) the attainment of an acceptable level of remuneration.\footnote{Maunder, K.T. (1984), “Employment Reporting: An Investigation of User Needs, Measurement and Reporting Issues and Practice” (London: The Institute of Chartered Accountants in England and Wales), pp.265-277.}

Rappaport (1986) explained the shareholder value creation has been advocated as a standard for evaluating corporate strategies. It has also been used to justify the cost to other stakeholders, especially employees under restructuring and downsizing strategies.\footnote{Rappaport, A. (1986), “Creating Shareholder Value: The new standard for Business Performance”, The Free Press, New York, N7, pp.167.}

Mrs. Shukutalamani (1987) analysed trends in value added and distribution of value added were selected for the study. The study has concluded that all the fifteen textile mills under the study have improved their net value added.\footnote{Shankuntalamani, (1987). “Trends in value added”, M.Phil., Dissertation, Coimbatore, p.130.}

Shoul (1988) studied privatized utilities in the UK and concluded that gains to shareholders came at the expense of the other shareholders. VAS also provided the basis for the analysis of an Industrial sector.\footnote{Shoul.J. (1988), “Critical Financial Analysis and Accounting for Stakeholders”, Critical Perspectives on Accounting, No.9, pp.235-249.}
Meek and Grey (1988) viewed that an orientation towards shareholders needs to be balanced with consideration for stakeholders. The VAS helped the managers to better understand and manage the social impact of their companies by providing them with “bottom lines” which were coherent with financial information.\textsuperscript{22}

Dr. Rageshwara Rao and Mr. Ramesh Kumar (1989) made an attempt to evaluate the performance of public enterprises by applying the value added approach. This study has covered all the Production Enterprises in the Public Sector in India. The main finding of the study is that the contribution in terms of value added by public enterprises is massive and social surplus generated is more in the case of petroleum industry.\textsuperscript{23}

Dr. Subash Chander (1989) made an attempt to know the practices adopted by the public and private sector enterprises in India regarding the disclosure of value added statements in their annual reports. This study has covered hundred companies i.e., fifty from public sector and fifty from private sector for the years 1985-86 and 1986-87. This study has revealed that only seventeen companies, nine from public sector and eight from private sector, disclosed the value added statement in their annual reports. This study has established that value added


concept is definitely an improvement over the traditional profit and loss account in the sense that it puts the efforts of the different interested group in an organization into a proper perspective.  

Rahman (1990) stated the VAS can be prepared for the measurements of Economic Development. The inclusion of a local value added statement in the host country annual reports of multinationals would provide information to analyze the contributions of these firms to the process of national economic development.

Guthric and Parker’s (1990) study provided a useful comparative analysis of key aspects of corporate social disclosure types and practices in three English–Speaking Countries. (i.e. the United Kingdom, United States of America and Australia). The study made use of fifteen content categories divided into four main classificatory groupings which aim to analyze the material contained in corporate annual reports in terms of theme, evidence / method, amount and location of disclosure.


The American Accounting Association Committee on Accounting and Auditing Measurement (1991) has recommended that Value Added can be considered for mandatory disclosure and increased research in the US context.\textsuperscript{27}

Dr. S. K. Bhattacharya (1991) made an attempt to evaluate the leading issues and controversies in respect of value added concept. This study has concluded that the contributors of capital have released a part of retained earnings out of value added for developing industrial estates and for extending real benefits to their labour forces as it confirms Karl Marx’s contention ‘Surplus Value’.\textsuperscript{28}

Dr. Ganesan, K.P (1994) has made an attempt to measure Value Added by eleven Spinning mills in Tamil Nadu in order to assess the performance of eleven mills. This study has revealed that added value is a better indicator of the performance of mill than the net profit. This study has concluded that it has laid foundation for full-fledged development of concept of value added and for effective corporate reporting.\textsuperscript{29}

\textsuperscript{27} American Accounting Association, Committee on Accounting and Auditing Measurement, 1989-90, “Accounting Horizons” (September 1991), pp.81-105.


Riahi – Belkaoui (1996) states that the measurement of wealth and the resulting empirical research on its usefulness favour the use of net value added over gross value added to avoid the arbitrary and incorrigible effects of depreciation allocation.  

Riahi – Belkaoui (1996) explains that the value added reporting differed from wealth measurement and value added distribution as wealth distribution. Value added reporting was an easy concept as it relied on the same data and measurements techniques used and advocated by GAAP. GAAP took a commitment to the social impact of accounting to justify the measurement and disclosure of value added information in a value added report.  

Ahmed Riahi – Belkaoui (1999) viewed that, Earnings were determined as a response to wealth, measured by net value added and as an adjustment to the previous year level of earning. The earnings process includes determination, management and smoothing. Earnings determination was modeled as a response to the net wealth generated by the firm or net value added and as an adjustment to the previous level of earning. 

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Riahi – Belkaoui (1999) stated that value added reporting takes a different view from generally accepted accounting principles by arguing that (i) it is the value added, rather than profit, it is the real wealth of the firm, and (ii) it is the whole production team, rather than just a shareholder, that is the beneficiary of such wealth.\(^{33}\)

KPMG (1999) observed that the duty to account for ethical, social and environmental impacts was increasingly considered and captured by legislators around the world. Australia, Denmark, The Netherlands, Norway, Sweden and the US have mandatory requirements that companies report to the public on their environmental performance.\(^{34}\)

World Bank (1999) suggested that the corporate governance frame work should encourage active co-operation between corporations and stakeholders in creating wealth, jobs and financially sound enterprises.\(^{35}\)

Carroll (1999) viewed, CSR as an evolving concept by which firms integrate social, environmental and economic concerns into their strategy and decision – making.\(^{36}\)

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Rao (2000) explained that the value added report was deemed to be a good vehicle for information disclosure and a basis for determining wages and rewards for the labour movement.\(^{37}\)

Brown and Rao (2000) opined that the Value Added Statement shows the total wealth created and how it was distributed, taking into account the amounts retained and reinvested in the group for the replacement of assets and development of operations. The Value Added Statement showed the total wealth created, how it was distributed to meet certain obligations and reward those responsible for its creation and the portion retained for the continued operation and expansion.\(^{38}\)

The Commission of the European Communities (2001) explained that the moral arguments for greater corporate accountability arose from the increases in size, power and global spread of multinational companies and increased awareness of the impacts of companies on the environment and local communities. The increase in awareness has been brought about by the media, the Internet and the action of non-government organizations.\(^{39}\)


Macleod (2001) stated that one of the most important sources of information on corporate activities, corporate annual reports include corporations self-reported CSR performance and provide a means of determining the quality of a corporations commitment to CSR.\textsuperscript{40}

Buhr (2001) stated the varying levels of accountability found in different elements of environmental disclosure in the firm selects the elements on which it reports and what it reports about them.\textsuperscript{41}

Waddock (2001) stated that the stakeholders can be identified, categorized and distinguishes between Primary stakeholders that constitute the business (owners, employees, customers and suppliers) and critical business depends for infrastructure (communities and Governments).\textsuperscript{42}

Deegan (2002)\textsuperscript{43} argued that corporate social and environmental disclosure was a strategic management attempted to legitimize corporate


activities as to reassure the public that the organization was conforming with societal norms and expectations.

Jose, L.Gallizo (2002) explained the need for referring Social Accounting, a discipline interested in the measure of Value Added and its distribution.44

Porter and Kramer (2002) viewed that in both research and practice, CSR communication was a very diverse field, with a large number of studies and a wide set of instruments. Studies have shown that CSR has a positive influence on a firm’s financial performance, can build brand equity foster competitive advantages, customer loyalty and other positive post-purchase outcomes.45

Mook (2003) analyzed the Social Accounting theories of organizational legitimacy and political cost were found to be best suited to explain why the value added statement was published. The predictive and explanatory power of value added information could indicate decision usefulness with regards to the stakeholders information need.46


Laurie Mook, Betty Jene Richmond and Jack Quarter (2003) mentioned that value added was a measure of health that an organisation by “Adding Value” through the use of labour and capital to externally purchased raw materials, products, and services.  

Chris Pong and Falconer Mitchell (2005) analysed that VAS mirrors the Corporate Report Advocacy and extends this by emphasizing the value of its worth as a corporate indicator, a national income measure and a foundation for productivity.

Pong and Mitchell (2005) focused that the impact of the information contained in the VAS on corporate employee stakeholders who control its voluntary disclose. The company employees were intended to be the prime beneficiary of the VAS. The VAS would support the economic interests of employees.

Brain Moyer (2006) presented an elegant analysis of the real value added aggregation problem as a multi stage optimization problem. He explained


that the industry production function can be written as a weakly separable function of aggregate real intermediate and aggregate real value added, than the fisher ideal index was close to a true superlative index of real value added.

Morsing (2006) explained CSR communication was designed and distributed by the company itself about its CSR efforts.\(^ {51} \)

Simo S. Gao and Jane.J. Zhang (2006) indentified the applicability of social auditing as an approach of engaging stakeholders in assessing and reporting on corporate sustainability and its Performance.\(^ {52} \)

CFA (2008) viewed that the “Corporate Social Responsibility Reporting” has now become an accepted subject of interest among practitioners and financial analysts. They suggested VAS model is a type of social reporting model based on conventional accounting which was focused on how companies create value and how that value is distributed among each category of stakeholders.\(^ {53} \)

N.B.Shugal and E.B.Ershov (2008) explained that the elements of Gross Value Added (GVA) represent the major items of economic agent’s primary

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incomes, while the elements of end value added product – the items of expenditures on end consumption and savings. The Modeling has developed to study the relationship between the elements of GVA and end produce. The model would serve as the most important tool for analyzing the coordination of the economic agents’ primary incomes and expenditures on and consumption and capital formation.\textsuperscript{54}

Branco and Rodrigues (2008) explained that main factors that motivated companies to publish CSR reports were good relations with stakeholders and conforming to stakeholders norms on operations.\textsuperscript{55}

Niranjan Mandal and Suvarun Goswami (2008) stated that the VAS could supplement additional financial information to satisfy all the stakeholders of the enterprise. The VAS provided financial information in a better way and it was very much useful to judge the performance and productivity of an enterprise for managerial decision-making.\textsuperscript{56}

N.B.Shuyal and E.B.Ershov focuses (2008) primary income while the elements of end value added product – the items of expenditures on end


consumption and saving. The transformation of incomes into expenditures was mediated by a fairly complicated process of financial resources reallocation across institutional sectors, which was to be taken into account.\textsuperscript{57}

Tomas Petraricius & Rima Tamosiuniemain (2008) stated that Managers of the company have turned their attention to the ways increasing the value of their companies. A number of competing measures have been developed and marketed by investment and consulting firms. The article considers the ways in which value can be created or destroyed in a firm and look at how to calculate the cost of capital used to measure the opportunity cost of investing funds in one particular business instead of others with equivalent risk. The traditional accounting measures such as return on investment, earning per share and operating profit have been augmented by ‘new’ measures and ratios such as Market Value Added, Economic Value Added, Cash Value Added, Cash Flow and Return on Investment etc.\textsuperscript{58}

Aruwa (2009) stated that VAS Reports were starting to flourish in many regions with different cultural, ideological and even religious back grounds in Nigeria.\textsuperscript{59}


Aras and Crowther (2009) stated that the CSR Communication was analysed with the examination of non-financial documents like sustainability, Social or CSR reports, web sites or social media, and corporate annual reports.\[60\]

Mousssa (2010) worth noted that VAS Reports were starting to flourish in many regions with different cultural, ideological and even religious backgrounds in West African Countries.\[61\]

Zeghal and Maaloul (2010) pointed out that the notion of VAS should not be confused with the value added scoreboard, a research report which compares a set of companies in terms of their value creation.\[62\]

Kuruppu and Milne (2010) stated that the Predominant aim of CSR communication was to positively influence the stakeholder’s perception of companies, their reputation and there by foster competitive advantages.\[63\]

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Selvi Y. Wagner E. and Tunel A. (2010) explained that CSR was an effective management tool which offers confidence to stakeholders as the company was perceived as responsible and trustworthy. The disclosure of CSR extend the traditional financial information provided to shareholders to a wider range of stakeholders. So the companies had to redefine its objectives in response to social expectations.64

Viehover et al (2010) explained that CSR reports was a best way to improve reporting systems and interval information, generating greater transparency as regards to the business objectives. CSR reports should be considered more reliable because of having been assured by an independent professional.65

Lindgreen and Swaen (2010) analysed that the corporate social responsibility has received a large amount of attention in research and in practice. As a response to the growing awareness of the concern about social and environmental issues, an increasing number of companies were proactively publishing their CSR related principles and activities.66


D.S.Meade (2010) analyzed that, Real Value Added was the most commonly used measure of output for productivity & determination of Industries’ Contribution to GDP growth. Real Value Added has been recommended by the System of National Account (SNA) as the best way to measure Industry Productivity and for obtaining constant price input – output tables.  

Chris Van Staden (2010) stated VAS was published voluntarily by about Two Hundred out of the Four Hundred companies listed in the Industrial sector on the Johannesburg Stock Exchange. This was the highest incidence of publication of such statements reported anywhere in the world to date which demonstrates the importance of the VAS in South Africa at the present time.  

Jose L.Gallizo (2010) stated that VAS helped to understand the internal stresses that developed inside a firm. The value added statement shows the total wealth created how it was distributed to meet certain obligations and rewards those responsibilities for its creation and the portion retained for the continued operation and expansion of businesses.

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Baker (2011) discussed that the important aspect of the new accounting history was to provide the sense of innovation and challenge to accounting researchers out of sympathy with the increasing dominance of econometric accounting research. The new accounting historians saw themselves as theoretically based, whereas, “traditional” accounting historians were “Partial, uncritical, a theoretical and intellectually isolated” to use the epithets applied, not altogether.  

Association Intera Americana de contabilided (2011) observed that initiatives on VAS were not limited to the country level, as some regional or international developments appear. In the xxix Inter – American Accountants Conference held in August, 2011 in Puerto Rico, a conclusion has been passed in order to propose a definition, and the standardization and adoption of a VAS document as a basic statement forming part of the annual set of publicity available information on firms in the region.

Peter Becker (2012) stated that the European Council Called for all the European’s finance related measures not only to comply with the general principles of subsidiary, proportionality and solidarity but also to produce added value. The European Parliament underlined that European Spending should

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concentrate on policies with a clean European added value, fully in line with the principles of subsidiary, proportionality and solidarity. Added value is another key test to justify spending at the EU level whether spending at EU level means a better deal for citizens than spending at national level.\textsuperscript{72}

Perego and Kolk (2012) stated that Assurance of Corporate Social Responsibility (CSRA) reports play an important role in increasing quality of CSR reports, it could be explained by the companies’ willingness to enhance credibility and reliability of the CSR reports.\textsuperscript{73}

Luis Perera Aldama (2012) analyzed that Value Added Statements provide relevant information about CSR accountability.\textsuperscript{74}

1.8 RESEARCH GAP

From the above extensive review of literature, it is understood that VAS is a social accountability model used to measure wealth of an organisation and determine resource distribution decisions. There is no exclusive study on the adoption of VAS in the cement industry in Tamil Nadu. Hence, the present study has made an attempt to fill up that research gap.


1.9 OBJECTIVES OF THE STUDY

The following are the objectives of the present study.

1. To study the concepts, need and format of Value Added Statement.

2. To analyze the financial performance of Cement Industry through the Value Added Ratio Analysis in the study units.

3. To compute Value Added Trends for measuring parameters such as Capital Employed, Net Sales, Net Worth, Total Assets and for Net Value Added. It is measured in terms of absolute terms and compound growth rate for the study units.

4. To determine the variation in the pattern of distribution of Net Value Added for the Study units.

5. To identify the internal factors (capital employed, Net sales, net worth and Total assets) influencing the level of Net Value Added by study units.

6. To offer suggestions to improve the performance of the study units in terms of Net Value Added.

1.10 METHODOLOGY

The methodology indicates the way of systematically solving the research problems. It is a science of studying how the research is conducted. Under this, the researcher acquaints with the various steps involved in the research process. In general, the research methodology includes the research design, computing value added figures, interpreting the value added figures. In the present study, the above said measures have been strictly followed.
1.11 RESEARCH DESIGN OF THE STUDY

Research design constitutes the blueprint for the collection, measurement and analysis of data for the fulfillment of research objectives. It is a conceptual structure within which the research has been conducted. In the present study, the predetermined objectives have been focused. The methodology to collect the data is of secondary nature. The financial statements are collected from the annual reports of the company and value added statements are prepared in a systematic manner. Hence the applied research design is exploratory in nature.

1.12 FRAMEWORK OF ANALYSIS

In the present study, the following statistical tools have been used to fulfill the objectives of the study. Depending upon the scale of data and the objective of the study the statistical tool have been chosen. The selected statistical analysis and its usage in the present study is discussed below:

1.12.1 Preparation of Value Added Statement

A proforma has been designed on the basis of the format prescribed by “The Institute of Chartered Accountants of India” for the purpose of computing value added figure and preparing Value Added Statement.

1.12.2 Growth Trend Analysis

The time series data have been prepared in respect of net value added of the study units for a period of ten years from 2003-2004 to 2012-2013 and the
growth trends, growth rate and compound growth rates are computed to analyze the value added trends of the study units. The study are undertaken to analyze the trends in net value added by study units taken for the study by applying two indicators viz., Absolute Efficiency Indicator and Relative Efficiency Indicator. The analysis in absolute terms are made for each Industry by using trend percentage taking Index number 100 as the basis for the year 2003-2004 and compound growth rate is analyzed.

Forecasting technique relies primarily on historical time series data to predict the future. The analysis involves searching for a right trend equation that will suitably describe trend of the data series. The trend may be linear, or it may not. A linear trend can be obtained by using a least squares method. The line has the equation \( y = a + bt \) where \( t = 1, 2, 3 \ldots, b \) = slope of the line, and \( a = \text{value of } y \) when \( t = 0 \). The coefficients of the equation, \( a \) and \( b \), can be determined using these equations:

\[
\begin{align*}
    b &= \frac{n \sum ty - (\sum t) (\sum y)}{n \sum t^2 - (\sum t)^2} \\
    a &= \frac{\sum y}{n} - b \frac{\sum t}{n}
\end{align*}
\]

1.12.3 ANOVA Analysis

The one way analysis of variance is applied in the present study when the variables are in interval scale and if samples has more than two groups. In order
to find out the significant difference among the samples regarding the particular variable, the F statistics is calculated through the ANOVA.

\[
F \text{ ratio } = \frac{\text{Variance between groups}}{\text{Variance within groups}}
\]

ANOVA technique is applied to test the significant difference of the firms with respect to the relative indicators and Net Value Added to the relative indicators. ANOVA is applied for the following relative indicators:

i) Capital employed  
ii) Net sales  
iii) Net worth  
iv) Total assets  
v) Net value added to capital employed  
vi) Net value added to net sales  
vii) Net value added to net worth  
viii) Net value added to total assets

1.12.4 Simple Regression Analysis

The simple Regression Analysis is applied to study the trends in net value added to the relative indicators. The following relative efficiency indicators are studied through Regression Analysis.

1. Ratio of Net Value Added to Capital employed.  
2. Ratio of Net Value added to Net sales.  
3. Ratio of Net Value added to Net worth and  
4. Ratio of Net value added to total assets.

The Simple Regression Model is  
\[ Y = a + bX + e \]

\( Y \) = the value of the Dependent variable (Y), what is being predicted
\[ a = \text{a constant; equals the value of Y when the value of } X=0 \]
\[ b = \text{the coefficient of } X; \text{ the slope of the regression line; how much Y changes for each one-unit change in } X. \]
\[ X = \text{is the value of the Independent variable (X), what is predicting or explaining the value of Y} \]
\[ e = \text{is the error term; the error in predicting the value of Y, given the value of } X \text{ (it is not displayed in most regression equations).} \]

1.12.5 Ratio Analysis

The ratio analysis is used to find out the relationship between the financial facts in the period of the study. In the present study, in order to analyze the financial performance of the units, the value added management, profitability management and capital management are analyzed through ratio analysis.

The following ratios are computed in the value added management.

**a) Gross Value Added to Net Worth Ratio**

It is calculated for the purpose of identifying the amount of wealth created per rupee of Net Worth in the units. It is calculated by

\[
\text{Gross Value Added to Net Worth Ratio} = \frac{\text{Gross Value Added}}{\text{Net Worth}}
\]

**b) Net Value Added to Net Worth Ratio**

The relationship between the Net Value Added to Net Worth Ratio is calculated by
Net Value Added to Net Worth Ratio = \frac{\text{Net Value Added}}{\text{Net Worth}}

c) Gross Value Added to Capital Employed Ratio

The main purpose of computing this ratio is to find out how much gross value is added per unit of capital investment in the units. It is calculated by

\text{Gross Value Added to Capital Employed} = \frac{\text{Gross Value Added}}{\text{Capital Employed}}

d) Net Value Added to Capital Employed Ratio

It exhibits the relationship between the Net Value Added to Capital employed of the units. It is computed by

\text{Net Value Added to Capital Employed} = \frac{\text{Net Value Added}}{\text{Capital Employed}}

e) Gross Value Added to Sales Ratio

Gross Value Added to Sales Ratio reveals the contribution of company’s sales revenue towards the value addition in the units. It is calculated by

\text{Gross Value Added to Sales} = \frac{\text{Gross Value Added}}{\text{Sales}}

f) Net Value Added to Sales Ratio

Net Value Added to Sales Ratio is computed by

\text{Net Value Added to Sales Ratio} = \frac{\text{Net Value Added}}{\text{Sales}}
g) **Net profit to Gross Value Added Ratio**

Net Profit to Gross Value Added Ratio expresses the owner share in the pool. Higher the ratio, higher will be the concentration of income in few hand and vice-versa. It is calculated by

\[
\text{Net Profit to Gross Value Added Ratio} = \frac{\text{Net Profit}}{\text{Gross Value Added}}
\]

h) **Net profit to Net Value Added Ratio**

Net Profit to Net Value Added Ratio is computed by

\[
\text{Net Profit to Net Value Added} = \frac{\text{Net Profit}}{\text{Net Value Added}}
\]

i) **Gross Value Added to Share Capital Ratio**

Gross value Added to share capital points out the contribution by the units towards the society at large. It is computed by

\[
\text{Gross Value Added to Share Capital Ratio} = \frac{\text{Gross Value Added}}{\text{Share Capital Ratio}}
\]

j) **Net Value Added to Share Capital Ratio**

It is the relationship between the Net Value Added and the Share Capital of the firm. It is calculated by

\[
\text{Net Value Added to Share Capital Ratio} = \frac{\text{Net Value Added}}{\text{Share Capital}}
\]

k) **Gross Value Added to Fixed Cost Ratio**

Gross value Added to fixed Asset Ratio indicates the capital Productivity of the enterprise. It is computed by

\[
\text{Gross Value Added to Fixed Asset Ratio} = \frac{\text{Gross Value Added}}{\text{Fixed Asset}}
\]
I) Net Value Added to Fixed Cost Ratio

Net Value Added to Fixed Asset indicates the efficiency of the units in terms of Capital productivity. It is calculated by

\[
\text{Net Value Added to Fixed Asset Ratio} = \frac{\text{Net Value Added}}{\text{Fixed Asset}}
\]

m) Gross Value Added to Material Cost Ratio

Gross value added to Material Cost Ratio focuses the material productivity of the enterprise. It is calculated by

\[
\text{Gross Value Added to Material Cost Ratio} = \frac{\text{Gross Value Added}}{\text{Material Cost}}
\]

n) Net Value Added to Material Cost Ratio

Net value added to Material Cost Ratio indicates the efficiency of the enterprise in terms of utilization of material.

\[
\text{Net Value Added to Material Cost Ratio} = \frac{\text{Net Value Added}}{\text{Material Cost}}
\]

The following ratios are computed in the profitability management.

a) Return on Capital Employed Ratio

It is the relationship between the return of the firm and its capital employed. In the present study it is valued by

\[
\text{Return on Capital Employed Ratio} = \frac{\text{Net Profit}}{\text{Total capital employed}}
\]

b) Gross Profit Ratio

It indicates the relationship between gross profit of the firm and its net sales. It is calculated by
Gross Profit Ratio = \frac{\text{Gross Profit}}{\text{Net Sales}}

The following ratios are computed in the capital management.

**a) Capital to Reserve Fund Ratio**

It indicates the relationship between the capital and the reserves of the unit. This clearly shows the amount of resources, which the company possesses to meet future requirements. The higher ratio indicates more resources for future requirements. In the present study the ratio is computed by

\[
\text{Capital to Reserve Fund Ratio} = \frac{\text{Reserve Fund}}{\text{Total Capital}}
\]

**b) Capital Employed to Net Worth Ratio**

It shows the proportion of share capital in the total net worth of the unit. The higher ratio indicates the higher proportion of owned capital in the net worth of the units. It is calculated by

\[
\text{Capital Employed to Net Worth Ratio} = \frac{\text{Capital Employed}}{\text{Net Worth}}
\]

**c) Borrowed Funds to Working Capital Ratio**

The borrowed funds to working capital ratio explains the proportion of working capital which that is financed by the borrowed funds of the unit. The higher ratio reveals that higher proportion of working capital which is financed by borrowed funds. It is calculated by

\[
\text{Borrowed Funds to Working Capital Ratio} = \frac{\text{Borrowed funds}}{\text{Working capital}}
\]
d) **Debt-Equity Ratio**

It explains the relationship between debt and equity capital of the firm. Even though that firm may earn more, the risk of the firms is too high. It is calculated by

\[
\text{Debt- Equity Ratio} = \frac{\text{Total liabilities}}{\text{Net worth}}
\]

e) **Assets Composition Ratio**

The assets composition reveals the proportion of net fixed assets to total assets of firm. The higher ratio reveals the higher proportion of net fixed assets to the total assets of the firm. It is calculated by

\[
\text{Assets Composition Ratio} = \frac{\text{Net fixed assets}}{\text{Total assets}}
\]

### 1.12.6 Common-Size Statement Analysis and ANOVA Analysis

The pattern of distribution of value added to the four contributors’ viz. employees, lenders, governments and owners are studied by applying two techniques such as the common-size analysis and ANOVA analysis. The common-size value added statement analysis are used to find out how much share of value added to be paid to each contributor and to whom the highest proportion of value added to be distributed. One way ANOVA Analysis is used to understand the significant mean difference in the pattern of distribution of various contributors among three firms.
1.12.7 Multiple Linear Regression Analysis

The study attempts to identify the factors influencing the level of net-value added by the cement industries taken for the study. The dependent variable of the study is the level of net value added. The net value added depends on the following independent variables.

1. Investment on modernization.
2. Value of imported raw materials consumed.
3. Size of the industry.
4. Value throughputs.
5. Financial compensation to employees.

The influence of the independent variables on the dependent variable are analysed with the help of multiple regression model, since the multiple regression indicates the effect and magnitude of the efforts of more than one independent variable on one dependent variable. The cause and effect relationship between dependent and independent variables are carried out by the analysis. It takes the general form of

\[ Y = a + b_1 x_1 + b_2 x_2 + \ldots + b_n x_n + e \]

Where as

\( Y \) – Dependent Variable,
\( X_1, X_2 \ldots X_n \) – Independent Variable
\( b_1, b_2 \ldots b_n \) – Regression co-efficient of independent variables
\( a \) – intercept and \( e \) - error term
1.13 SOURCE OF DATA

The present study is mainly based on secondary data. The following are the data sources used in this study.

6. CRISIL Sector Review, Executive Summary of CRISIL, Bombay.

In this study, the particulars regarding sales, materials consumed, capital, fixed assets, bought in materials and services, and all other financial variable are obtained from the annual reports of the respective companies. After gathering the secondary data, Value Added Statement are prepared and are taken directly for analysis and interpretation.

Selection of Cement Industries for the Present Study

In Tamil Nadu, there are Eight Cement Companies namely

1. India Cements Limited (ICL)
2. Madras Cements Limited (MCL)
3. Tamil Nadu Cements Corporation Limited (TANCEM)
4. Chettinad Cement Corporation Limited (CCCL)
5. Associated Cement Company Limited (ACC)
6. Dalmia Bharat Enterprises
7. Ultra Tech Cement Limited
8. Zuari Cement Limited (Grinding Unit)
Of the Eight companies listed above, only the first four companies have their registered and corporate offices in Tamil Nadu. The remaining four companies whose registered and corporate offices are located in other states are excluded from the present study. Further of the first four companies, whose registered and corporate offices are located in Tamil Nadu. TANCEM is not a listed company in the Mumbai Stock Exchange.

Thus only three companies namely, Madras Cements Limited, India Cement Limited, Chettinad Cement Corporation Limited which are listed companies in the Mumbai Stock Exchange has selected for analyzing and evaluating the value added trends and the financial performance. All the three companies are private sector companies.

1.13 PERIOD OF STUDY

The study covers a period of ten years starting from 2003-2004 to 2012-2013. Data relating to these ten years are collected from the annual reports of the Cement Industries taken for the proposed study.

1.14 DATA PROCESSING

The accounting data collected from the study units are produced with the help of the proforma designed by the researcher. The proforma are used to prepare the VAS for each cement industry taken for the study.
1.15 LIMITATIONS OF THE STUDY

The following will be the limitations of the study.

1. It is observed that the Cement Industry proposed to take for the study would have followed different methods of depreciation. Due to the lack of uniform depreciation policy the computation of net value added will affect to some extent.

2. The level of the NVA will be influenced by monetary & non-monetary variables. In the proposed study, five monetary variables influencing the level of net value added will be selected. However, the study does not cover non-monetary variables such as managerial effectiveness, job satisfaction and the like.

3. The Cement Industry would have followed different methods with regard to the valuation of closing stock. Due to the lack of uniform inventory valuation policy, the calculation of net value added will be affected to some extent.

1.16 CHAPTERISATION

The report of the study will be presented in seven chapters.

The first chapter deals with the design of the study. It will cover introduction, a precise statement of the problem, scope, review of literature and objectives of the study. Besides it will include hypothesis, methodology, research design and tool, framework of analysis, source of data, selection of cement Industries for the study, period of study, data processing, limitations of the study and scheme of reports.
The second chapter deals with the concept of VA and VAS. The need for value added statement, computation of VAS, assumptions of VAS, objectives of VAS, format of VAS, terms used in the VAS will be used in the study. And also VAS in national level regarding value added concept is also presented in the chapter.

The third chapter “The Cement Industry – An overview” – describes the history and origin of cement, the manufacturing process and technology, major varieties of cement industry in the world, cement industry in India and cement industry in Tamil Nadu in detail.

The fourth chapter shows the financial performance of the units with the help of important financial ratios through Value Added Management, Profitability Management and capital Management.

The fifth chapter covers Value Added Trends analysis and interpretation regarding the relative indicators and for Net Value Added through annual and compound growth rate. ANOVA analysis is applied to analyze the mean difference for the Net Value Added and for four relative indicators ie., Capital employed, net sales, net worth and total assets. Regression model is framed to analysis the trends in the relative indicators.

The sixth chapter presents the analysis of the pattern of distribution of value added to four contributors such as employees, lenders, government and
owners. The variation in the pattern of distribution of value added will be also studied through ANOVA technique. It also analyzes the factors influencing the level of net value added. Five internal factors will be identified and analyzed by applying multiple regression model.

The final chapter presents the summary of findings, conclusion, suggestions for improving the performance of the study units and direction for future study.