CHAPTER-4 RESEARCH METHODOLOGY

4.1 Introduction
In the previous chapter, the underlying theoretical framework of this study has been presented. This chapter describes the methodology undertaken in relation to justification of the research paradigm, questionnaire design, sampling process and data collection and administration. In addition, this chapter introduces the intended Analysis strategy as to test the propositions of this study. Finally, the data collection and relevant to this research is discussed.

Research in common parlance refers to a search for knowledge one can also define research as a scientific and systematic research for pertinent information on a specific topic. In fact research is an art of scientific investigation. The present study is an attempt to a study on comparative analysis of profitability and liquidity of selected tea Companies in India

4.2 Research Design
The research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and Analysis of data. It is the arrangement of conditions for collection and Analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

The present study is based on secondary data in which an attempt has been made to know the profitability and liquidity. The data has been collected by Companies websites and articles.

4.2.1 Objectives of the Study
The research aims at enriching the knowledge and understanding of profitability and liquidity of selected tea Companies in India

Objective are as following:

- **Primary Objective:**

The objective of the study is to evaluate, analyze and interpret the comparative analysis of profitability and liquidity of selected tea Companies in India
• **Secondary Objectives:**
  - To evaluate the profitability of the selected Tea Companies in India.
  - To measure the liquidity situation of the selected Tea Companies in India.
  - To measure the financial growth of the selected Tea Companies in India.
  - To study the scope and prospects of tea industry in India.
  - To find the remedies to improve financial performance of selected Tea Companies in India.

4.2.2 **Hypotheses to Be Tested**

Any hypothesis testing procedure starts with the formulation of an interesting hypothesis concerning the distribution or parameter of a certain random variable in the population. As a result of the test, we obtain a decision rule, which allows us to either reject or accept the hypothesis with a certain probability of error, referred to as the level of significance of the test.

The hypothesis of the research has been formulated as under:

H₀: There is no significant difference between Profitability ratios of selected Tea Companies in India  
H₁: There is significant difference between Profitability Ratios of selected Tea Companies in India.

H₀: There is no significant difference between Solvency Ratios of selected Tea Companies in India.  
H₁: There is significant difference between Solvency Ratios of selected Tea Companies in India.

H₀: There is no significant difference between Liquidity Ratios of selected Tea Companies in India.  
H₁: There is significant difference between Liquidity Ratios of selected Tea Companies in India.

H₀: There is no significant difference between Efficiency Ratios of selected Tea Companies in India.  
H₁: There is significant difference between Efficiency Ratios of selected Tea Companies in India.
4.2.3 Data Collection

There are two types of data collection primary and secondary data. The present study is mainly based on secondary data

- **Primary Source:** Data which are collected for the first time to meet the objectives of the present research study only is known as primary data.

- **Secondary Source:** Secondary data in this research work were collected through the review of related literature; the relevant literatures were obtained from books journals, magazines, and newspapers, Internet website etc.

The secondary data sources consisted of the following:

- Annual reports of the selected tea companies.

- Annual bulletin of the selected tea companies.

- Annual reports of Tea Industries.

- Articles published in periodicals relating to the above subjects.

- Information contained in websites such as Tea Board website, websites of various Tea Industries, Unpublished studies pertaining to the above topics.

4.2.4 Design and Selection of Sample

Sampling is the process of selecting a sufficient number of elements from the population, so that the sample and an understanding of its properties of characteristics would make it possible for us to generalize such properties or characteristics to the population elements (Sekaran, 2003).

4.2.4.1 Target Population/ Sample Frame

Population refers to the entire group of people, events or things of interest that researcher wishes to investigate (Sekaran, 2003). The populations of this study consist selected tea companies in India.

The selection of tea companies of Indian tea industry is based on the segment of that companies which produce different types of tea. The selected tea companies in India are as follow:
1. Assam Company (India) Limited.
2. Bombay Burmah Trading Corp. Ltd
3. CCL Products (India) Ltd.
4. Harrisons Malayalam Ltd.
5. Jay Shree Tea & Industries Ltd.
6. Mcleod Russel India Ltd.
7. Rossell India Ltd.
8. Terai Tea Co. Ltd.
9. The United Nilgiri Tea Estates Company Limited
10. Warren Tea Ltd.

**4.2.4.2 Target Population/ Sample Frame**

Population refers to the entire group of people, events or things of interest that researcher wishes to investigate (Sekaran, 2003). The populations of this study consist of selected tea companies in India.

**4.2.4.3 Sample Size**

According to Malhotra (2004), sampling size refers to the numbers of elements to be included in the study. Determining the sample size is complex and involves several qualitative and quantitative considerations. Large sample give more reliable results than smaller samples.

Sample is a subset of the population (Sekaran, 2003). There are sixteen tea companies in India out of them ten tea companies are selected on the basis of equity capital of the companies which are included above.

**4.3 Time Dimension of the Study**

As a researcher wish to collect the information and necessary data about the research so collection of data and to analyze them for better conclusion, researcher was interested in proper period.

The time duration of the present research study of ten tea companies in India is from 2007-08 to 2016-17.
4.4 The Research Environment

The researcher has done the data analysis of the study, in which based for the analysis of financial statement of the selected tea companies balance sheet, profit & loss account, and other related statements, like working capital statement, cost of goods sold statement, have been used and presented in proper form. The researcher has applied the following techniques for the purpose of analysis of data:

4.4.1 Accounting Techniques

The ratio analyses is used as an accounting technique for analysis and interpret the data and in this study ratio analysis covers four areas like profitability, liquidity , Solvency, Efficiency analysis.

4.4.2 Statistical Techniques

- **Data Analysis**
  
The data collected are then processed using the Statistical Package of Social Science (SPSS) 17.0 computer software and excel. The research tools that the researcher intends to apply in this thesis are, Descriptive Statistics Analysis:, Chi-square Test, Graphical Presentation, One Way ANOVA test between selected tea companies and its selected years to analyzed the financial performance of the data collected. Hence, we have used different descriptive statistics as well as inferential statistics i.e. Frequency Distribution, Cross Tabulation, Testing of hypothesis.

- **Descriptive Statistics**
  
  Descriptive statistics are brief descriptive coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of it. Descriptive statistics are broken down into measures of central tendency and measures of variability, or spread. Measures of central tendency include the mean, median and mode, while measures of variability include the standard deviation or variance, Co-efficient of Variation, the minimum and maximum value of variables.
  
  - **Min**
    
The min shows the minimum value of particular ratio for the study period.
- **Max**
  The Max shows maximum value of particular ratio for the study period.

- **Range**
  The Range shows the difference between maximum value and minimum value of particular ratio for the study period.

- **Mean**
  The mean used to know average or estimated value of particular ratio. The mean is denoted by $\bar{x}$ or $E(x)$. Its formula is as under:
  \[ \bar{x} = \frac{\sum x}{n} \]
  Where, $\sum x = $ Sum of all values of particular ratio and 
  $n = $ Number of Values

  As above, the mean value is calculated by sum of all value of particular ratio divided by total number of that value. Mean is standard measure of central tendency.

- **Standard Error (SE)**
  The standard error is used to know accuracy of data related to particular ratio for comparison of accuracy. The Standard Error is calculated is as follows:
  \[ SE = \frac{SD}{\sqrt{n - 1}} \]
  Where, $SD = $ Standard Deviation
  $n = $ Number of Value

- **Median**
  The median indicate the central value of ratio of particular time which arrange in ascending order or descending order. This value calculated as follow:
  \[ \text{Median} = M = \text{Value of} \ \frac{n + 1}{2} \ \text{th in data set} \]
  Where, $n = $ Number of Value
- **Standard Deviation (SD)**

The Standard Deviation is standard measure of dispersion. This statistical measure shows the how far data set falling from its mean. The measure denoted by “s: and its formula is as follows:

\[ SD = s = \sqrt{\frac{(x - \bar{x})^2}{n - 1}} \]

Where, \( x = \) Value of particular ratio
\( \bar{x} = \) mean of particular ratio
\( n = \) Number of Value

- **Variance**

Variance is a statistical measure which shows the spread between numbers in a data set. This measure is denoted by \( V(x) \) or \( s^2 \). It is square of the Standard Deviation.

- **F test**

F test is used to check the variance of two samples is equal or not. In this study, this test is used to decide t-test for equal variance or t-test for unequal variance used for comparison of mean of particular ratio in two fertilizer companies.

- **ANOVA**

Generally, the ANOVA is used to compare more than 2 samples. In this study, ANOVA is used to compare the mean ration of all four selected fertilizer companies.

- **Inferential Statistics**

With inferential statistics, we try to reach to conclusions that extend beyond the immediate data alone. This includes different techniques of estimation and testing of hypotheses.
4.5 Scope of the study

The scope of the present study is limited to the analysis of liquidity, profitability, Solvency, Efficiency of the selected tea companies from the year 2007-08 to 2016-17 by applying ratio analysis. This study can be beneficial to the government decision making authority, aspiring entrepreneurs, students and researchers etc.

4.6 Limitation of the study

- The study is limited to ten companies of the tea industry.
- The Study is mainly based on secondary data from Annual reports of the companies; the reliability of the results will be based on authenticity of the data collected. Secondary data is mainly accessed due to lack of access to primary data related to financials of the company.
- The present study is foundation of financial indicators of tea companies which have own limitation that also applied to this study.
- There are many statistical tools applied for the study which have own their limitations.
- The study covers only those tea companies, which are in working in India. It does not cover those tea companies, which are working in India but registered elsewhere.
- Small Tea companies in the unorganised sector do not have all types of information maintained if they are included results may change.

4.7 Organization of the thesis

The outcome of the research has been presented in this thesis as per following chapterisation scheme.

**Chapter-1:** Overview of Tea Industry

An overview of history of tea and tea industry has been provided in this chapter

**Chapter-2:** Profile of The Selected Tea Companies

This chapter includes introduction Tea companies in India, companies overview, meaning and definition of tea, Tea Plantation, manufacturing process of tea, Tea Estate of the company, Corporate Social Responsibility of Tea companies, additional initiatives taken up by the tea company.
**Chapter -3:** Review of Literature

A detailed review of literature pertaining to tea, profitability and liquidity has been provided in this chapter. The review of relevant literature has finally provided a research gap for undertaking the present study.

**Chapter -4:** Research Methodology

This chapter explains in detail the research methodology adopted for the present study. It justifies the selection of method for research, explains why survey was conducted and from whom information was collected. This chapter explains all process during research from data collection to data Analysis:

**Chapter-5:** Ratio analysis and Interpretation

This chapter is dedicated to the presentation of the research findings and Analysis:. Based on the Analysis of the data collected from annual reports of the companies.

Appropriate statistical tools have been used for Analysis: of data. Some of tools used for data Analysis: include Chi-square, ratio analysis: in addition to the basic statistical tools.

**Chapter-6:** Findings, Conclusion and Recommendation

This chapter provides a detailed discussion on data Analysis: and presents concluding remarks based on the research findings.