Introduction and Design of the Study
CHAPTER I
INTRODUCTION AND DESIGN OF THE STUDY

1.1. INTRODUCTION

Industrialisation as a process accelerates economic growth, effects structural changes in the economy, particularly in respect of resources utilization, production function, income generation, occupational pattern, population distribution and foreign trade and includes social change. Industrialisation plays a stellar and stimulating role in the economic development of developing countries like India. Statistical evidence goes to prove that in the developed countries, manufacturing industries make a larger contribution to the Gross National Product. In such countries the per capita income is high compared to under developed countries.

Though the significance of the primary sector cannot be ignored, industry has its special place in the context of development. In countries like India and Japan, with a high ratio of population to natural resources and in particular to land, manufacturing industry represents virtually the only hope of greatly increasing labour productivity and raising the standard of living, however much is done to improve agriculture. Paper industry is one of the major industries from point of view of consumption of raw materials as well as disposal of waste products. The paper industry is one of the India"s oldest and core industrial sectors. The socio-economic importance of paper has its own value to the country"s development as it is directly related to the industrial and economic growth of the country. Paper industry is a diverse industry which produces a wide range of pulp, paper and paperboard products to meet specific end users requirements.

The ever increasing importance and role of paper industry in the economic growth of a country, particularly, in the developing country like India, have attracted several academicians, professional institutions, researchers and
administrators to conduct diversified studies in this area. There is the need to study the paper industry’s internal efficiency which shall ultimately determine the overall industrial development in future. The present study is a small endeavour to update our knowledge in this aspect.

1.2. PAPER INDUSTRY IN INDIA

Paper is an eco-friendly product. India is the fifteenth largest paper producer in the world. The Indian Paper Industry accounts for about 1.6 per cent of the world production of paper and paperboard. The estimated turnover of the industry is Rs 25,000 crores and it contributes thirty billion rupees to the government of India. The industry provides employment to nearly three lakh people directly and ten lakh people indirectly. The paper industry is a priority sector for foreign collaboration and foreign equity participation upto hundred per cent receives automatic approval by the Reserve Bank of India. After globalization, the government has completely delicensed the paper industry to enhance productivity. The paper mills use a variety of raw materials viz. wood, bamboo, recycled fibre, bagasse, wheat straw, rice husk and so on. Approximately 38 per cent is based on chemical pulp, 36 per cent on agricultural residues and 26 per cent on recycled fibre.

The paper industry in India is one of the thirty fifth high priority economic sectors of the country. The Indian paper industry is a booming industry and is expected to grow in the years to come. The usage of paper cannot be ignored and this awareness is bound to bring about changes in the paper industry for the better. Use of paper in India is very low as compared to other countries like China and developed countries. In India, per capita consumption of paper is only 9.18 Kg, while in China 42 Kg and 350 Kg in developed countries. So the Government has to undertake proactive measures to promote paper consumption in India by kick starting campaigns “use paper, save nature”. The world demand for paper is expected to rise by 25 per cent by the year 2020.
India is the fastest growing market for paper globally and it presents an exciting scenario, paper consumption is poised for a big leap forward in sync with the industry growth is forecast at 8.4 per cent annually, touching 11.5 million tonnes in 2011-12 and 15 million tonnes by 2015.6

The futuristic view is that growth in paper consumption would be in multiples of GDP and hence an increase in consumption by one kg per capita would lead to an increase in demand of one million tons. As per industry estimates, paper production is likely to grow at a CAGR of 8.4 per cent while paper consumption would grow at a CAGR of 9 per cent till 2012-13 on account of growing demand for tissue paper, tea bags, filter paper, lightweight online coated paper and medical grade coated paper. The import of pulp and paper products is likely facing a growing trend.7

There are about thousands of paper mills in India but most of them are small capacities. In India a paper mill of fifty thousand tonnes per annum or higher capacity called a large mill.8 There are only twenty companies in India which have the capacity of more than fifty thousand tonnes per annum. The large mills account for only thirty five per cent of the total production of paper. The setting up of large paper mills in India is not feasible as they find it difficult to procure the main raw material in required quantities.

1.3. STATEMENT OF THE RESEARCH PROBLEM

Paper pervades all sectors of our activity from books to bullets and from morning newspaper to nuclear technology. From the time immemorial, paper has played a key role in the evolution of our civilization. The importance of paper and paper products in the modern life is so obvious that no other manufactured product possesses such diversity of use. It is a basic medium of communication and dissemination of information. It helps all the human beings for the growth of education, reading, writing, storing knowledge, quality of life, spreading of literacy, culture, dissemination of information and other sectors of economy.
The fortune of paper industry is closely linked to the buoyancy in the economic development of a country. Paper is thus, recognized almost as a touchstone of growth in the developing countries.

The Indian paper industry faced turbulent time during the post liberalization era of the economy. Paper industry is governed by international trends. As a result, trade barriers over the countries were reduced. The performance of the Indian paper industry is greatly influenced by the global economic factors. Under these circumstances, the paper industry was engulfed in great crisis due to a variety of reasons. So the Indian paper industry has a negative growth rate during the study period.

Paper Industry is a large capital intensive and yields poor return on investment. It is bewildering to observe that the per capita consumption of paper in India is very low as compared to other developed countries. Despite the „core" sector status accorded to the paper industry, it has deep operational and financial crisis. The industry is currently passing through periods of trials and tribulations. It is distressing to observe that about one sixth of the paper mills have been closed and a few are operating under sick condition.

The thin profitability coupled with a weak financial base has made things more difficult for these mills to tide over the current crisis. The crises are pronounced in „small and medium" and „large paper mills" in most states. Many of the mills are continuously incurring losses and in some of them, the losses have been continuing from their very inception. Unfortunately, in certain cases, the entire net worth has been completely wiped out due to continuous operating losses. Majority of the mills are in a perpetual financial crises and for them securing of additional fund is becoming almost impossible.

The financial health of paper mills is severely affected by a plethora of problems such as acute shortage of working capital, uncertainty in raw material availability, shortage of coal and power, obsolete technology, under utilization of capacity, inability
to meet interest commitments, non-repayment of loans, demand recession, absence of effective chemical recovery system, absence of sound infrastructure support as well as lack of skilled manpower, low prices of paper products, lack of research and development, high cost of production, poor profitability, poor utilization of assets, absence of financial planning and budgeting, inadequate inventory control, credit restraints and managerial incompetence. These factors ultimately have an adverse impact on profitability and liquidity position of the industry.

In order to understand such of these problems related to the paper industry, it is considered worthwhile to take up a study for financial performance analysis of selected Paper Industry in India.

1.4. SIGNIFICANCE OF THE STUDY

The paper has an important social role to play for the country. Use of paper is considered as an index of cultural growth. Key social objectives of the Government like eradicating illiteracy, making compulsory primary education are very much related to the paper industry. The paper industry is also contributing towards fulfilment of various requirements of the industry as a whole like information dissemination, publicity, which in turn stimulate industrial growth of the country. The study has an academic and practical significance. This study will be useful to the management to take investment decisions and strength of their intrinsic value. It would also enable shareholders, investors and investment analysts to identify the determinants of corporate performance. It also helps the academicians and researchers to develop new ideas for future study. So, a study on paper industry is quite inevitable.

1.5. OBJECTIVES OF THE STUDY

The following are the main objectives of the study

1. To analyse the trend and growth of selected paper companies in India.

2. To study the determinants of profitability of the selected paper companies in India.
3. To analyse the financial position and strength of the selected paper companies in India.

4. To assess the financial health of selected paper companies in India with the help of Altman „Z“ score model.

5. To present summary of the key findings of the study and to make suitable suggestions for the improvement of further successful survival of paper companies in the competitive world.

1.6. SCOPE OF THE STUDY

The study aims to measure the financial position, trend and growth of Indian Paper Industry and identify the drawbacks, which are the indicators of the low performance of the industry. The result of the study may help the management of the industry in taking suitable decisions for better performance in future. The optimum utilization of resources, efficient management activities, control on the costs and expenses, and enhancement of financial performance are essential for the survival of the organization. Based on the analysis, this study will provide valuable suggestions which will enable the companies to overcome their weaknesses and enhance their financial performance.

1.7. HYPOTHESES OF THE STUDY

Hypothesis means the researcher must select from the industry of observed events such as considerable and pertinent facts that would most effectively elucidate the problem under study. It gives us an idea about indispensable associations, which exist between the different fundamentals within the complexity. Therefore, the following are the hypotheses of present study:

1. There is no significant difference between actual values and trend values of selected variables among different years of the selected paper companies in India.
2. There is no significant relationship between return on total assets and selected variables related with profitability position of the selected paper companies in India.

3. There is no significant difference in short term financial ratios and long term financial ratios between the years and between the companies of the selected paper companies in India.

1.8. RESEARCH METHODOLOGY

1.8.1. RESEARCH DESIGN

A research design is a definite plan for obtaining a sample from a given population. Research design means a sketch or a drawing of a research project structure. It comprises a series of prior pronouncements that, taken together, provide a roadmap for carrying out a research. The research design of the present study is outlined hereunder.

It is not possible in practice for an individual research worker to approach all the bits and pieces in the universe. Researcher selects only a small amount of bits and pieces from the universe for the purpose of the study on the basis of stratified sampling. The sample so selected constitutes the sample design for the purpose.

1.8.2. SELECTION OF SAMPLE FOR THE STUDY

Paper mills with an installed capacity of more than 50,000 tonnes per annum were considered to be large scale sector. At the end of study period 2011-12, there were only twenty companies which had the installed capacity more than 50,000 tonnes per annum.

The following criteria were used to select the sample size among the twenty companies.

1. Its annual installed capacity is more than 50,000 tonnes and the total assets of the companies are more than Rs. 100 crores.
2. Companies’ total sales turnover is more than Rs. 200 crores.
3. Companies which are listed in Bombay Stock Exchange and
4. In those companies there is an availability of data and which are continuously functioning during the study period.

Out of the twenty companies only ten companies fulfilled the above criteria and these companies have been selected for this study. The selected large scale paper companies are shown in Table 1.1.

Table 1.1

Selected Paper Companies for the Study

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Company Name</th>
<th>Production in tonnes (per annum)</th>
<th>Total Assets Rs. in crores (per annum)</th>
<th>Sales Turnover Rs. in crores (per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh Paper Mills Limited (APPML)</td>
<td>1,60,667</td>
<td>862.19</td>
<td>843.29</td>
</tr>
<tr>
<td>2</td>
<td>JK Paper Limited (JKPL)</td>
<td>2,83,038</td>
<td>1827.65</td>
<td>1562.36</td>
</tr>
<tr>
<td>3</td>
<td>West Coast Paper Mills Limited (WCPML)</td>
<td>3,08,230</td>
<td>1620.20</td>
<td>1370.55</td>
</tr>
<tr>
<td>4</td>
<td>Seshasayee Paper and Boards Limited (SPBL)</td>
<td>1,18,282</td>
<td>477.80</td>
<td>639.12</td>
</tr>
<tr>
<td>5</td>
<td>Emami Paper Mills Limited (EPML)</td>
<td>1,44,712</td>
<td>579.42</td>
<td>494.30</td>
</tr>
<tr>
<td>6</td>
<td>Sirpur Paper Mills Limited (SRPML)</td>
<td>99,543</td>
<td>451.43</td>
<td>410.61</td>
</tr>
<tr>
<td>7</td>
<td>Star Paper Mills Limited (SPML)</td>
<td>56,147</td>
<td>104.34</td>
<td>240.71</td>
</tr>
<tr>
<td>8</td>
<td>Mysore Paper Mills Limited (MPML)</td>
<td>84,282</td>
<td>166.08</td>
<td>373.40</td>
</tr>
<tr>
<td>9</td>
<td>Tamil Nadu Newsprint and Papers Limited (TNPL)</td>
<td>3,43,306</td>
<td>2404.93</td>
<td>1574.85</td>
</tr>
<tr>
<td>10</td>
<td>Ballarpur Industries Limited (BILT)</td>
<td>8,40,429</td>
<td>2378.97</td>
<td>5022.79</td>
</tr>
</tbody>
</table>

Source: CMIE
1.8.3. SOURCE OF DATA

The study is mainly based on secondary data. The major source of data analyzed and interpreted in this study are related to all those companies selected is collected from "PROWESS" database, which is the most reliable on the empowered corporate database of Centre for Monitoring Indian Economy (CMIE). It contains a highly normalized database built on a sound understanding of disclosure in India on around twelve thousand companies, which include public and private sector companies. The database provides financial statements, ratio analysis, funds flow, cash flow, product profiles, returns and risk on the stock market and so on. Besides prowess database, relevant secondary data have also been collected from Capitaline, Bombay Stock Exchange Official Directory, CMIE Publications, IPPTA Journal, Annual Survey of Indian Industry, Business newspapers, Reports on Currency and Finance, Libraries of various Research Institutions, through Internet and so on.

1.8.4. PERIOD OF STUDY

The period from 2001-02 to 2011-12 is selected for this study of Indian Paper industry. This period of eleven years is chosen in order to have a fairly long, cyclically well balanced period, for which reasonably homogeneous, reliable and upto-date financial data are available.

1.9. MEASURING THE EXTENT OF FACTORS INFLUENCING FINANCIAL PERFORMANCE AND PROFITABILITY ANALYSIS OF PAPER INDUSTRY

1.9.1. Financial Performance and Profitability Analysis

Apart from computing the financial performance of Paper Industry, the study also attempts to analyse the various variables, which are expected to have influenced over the profitability of Paper Industry. For this purpose, a multivariate approach viz., Correlation Analysis, Multiple Regression Analysis, Factor
Analysis and Path Analysis have been adopted. The data of selected variable have been pooled for the period of eleven years of i.e., 2001-02 to 2011-12.

1.9.2. Assessing the Financial Performance through Ratios

The following factors are identified by the researcher to assess the financial performance through profitability of the Paper Industry in India. Nevertheless, these factors are also responsible for the profitability of the Paper Industry. Accounting and financial analysis literature is replete with suggestion to use the information contained in a large number of financial ratios, to derive empirically smaller number of dimensions necessary to evaluate the performance of organizations. Seven financial dimensions which emerged consistently for the eleven year period are as follows:

1. **Financial Profitability**: This factor is composed of three ratios which are return on capital employed, return on net worth and return on total assets. These ratios suggest whether a particular company is profitable or not. All these ratios together indicate how the sector is meeting the expectation of its shareholders.

2. **Financial structure**: This factor is composed of different ratios namely, debt-equity ratio, debt to capital employed, debt to net fixed assets and interest coverage ratio. All these ratios show the importance of debt in the capital structure of paper industry which in turn indicates whether companies within paper sector use debt in their capital structure.

3. **Operating efficiency**: This factor is composed of different ratios namely, capital employed turnover, net fixed assets turnover, total assets turnover, stock turnover ratio, total income to total assets, operating profit to sales, raw material consumed to sales, debtors turnover ratio and net profit ratio. Higher efficiency implies higher financial performance as return on capital employed is product of profit before interest and tax margin and efficiency.
4. **Profit Appropriation:** After fixed interest payments are met, profit is available for distribution. In this factor, two ratios, namely, dividend payout and dividend per share show the how profit is distributed by sectors after meeting all obligations.

5. **Fixed assets age:** This factor is composed of two ratios namely accumulated depreciation to gross fixed assets and gross fixed assets to net fixed assets. With the advent of new technologies, paper sector has become more capital intensive. The age of this machines and capacity utilization will determine the revenue generating ability of the sector.

6. **Current assets efficiency:** This is measured by computing three ratios. Current assets turnover, net current assets turn over and working capital to total sales. Effective utilization of current assets becomes very important since how the sector manages its resources for day to day operations depend on current assets.

7. **Liquidity position:** Liquidity is the ability of a company to meet its short term obligations. One can understand the liquidity position by analyzing the financial statements of a company, which is measured by two ratios namely, current ratio and liquid ratio where financial items like current assets and current liabilities are taken into account.

1.9.3. **Assessing the Trend and Growth Position of Paper Industry on the Selected Financial Variables**

The following variables are considered to assess the trend and growth position of the paper industry during the period of study, 2001-02 to 2011-12.

i. Annual production

ii. Annual Sales

iii. Net Working capital
iv. Inventory
v. Total assets
vi. Net Fixed assets
vii. Total Income
viii. Operating profit

1.10. FRAME WORK OF ANALYSIS

The present study is in relation to the financial performance analysis of the selected paper industry in India. The factors are identified by the researcher, by applying the multivariate techniques. The researcher has used twenty five ratios, the ratio of return on total assets is taken as dependent variable and the remaining twenty four variables are considered independent variables. The researcher strives to identify the prominent factors responsible for the profitability of selected Paper companies in India and to measure the extent of influence of the independent variables on the dependent variable. To analyse the financial performance of selected paper Industry in India the following tools and model have been applied.

1.10.1. Correlation Analysis

Correlation analysis attempts to study the relationship that exists between two variables. The correlation co-efficient of the selected independent variables with the Paper Industry profitability has been worked out in order to identify the most important variable, which have higher association with the dependent variable. The correlation co-efficient among the different variables has been also worked out so as to arrive at a correlation matrix, which incorporates correlation co-efficient of all the selected variables with the dependent variable, as well as correlation co-efficients among different independent variables. The test of significance has also been applied in order to identify the variables, which have significant correlation.
1.10.2. Multiple Regression Analysis

Regression analysis attempts to study the functional relationship between the variables and provides a mechanism for prediction. As profitability of Paper Industry is the result of several variables, the impact of each selected variable on Paper Industry profitability has been studied individually through multiple regression analysis.

1.10.3. Factor Analysis

One of the major problems associated with regression analysis is that of multi co-linearity. The consequences of multi co-linearity are imprecise and unstable estimates. Usually, the problem of multi co-linearity is solved by selecting one or more of the highly collinear variables. Hence, the technique of factor analysis is often applied to isolate the different factors.

The procedure of factor analysis attempts to estimate the value for the coefficients of regression when the variables are regressed upon the factors. These coefficients are referred to as „factor loading“. The matrix of factor loadings provides the basis for grouping the variables into common factors. Each variable is assigned to the factor, where it has the highest loading. The Varimax Rotation method is used in the factor analysis.

For example, there are k (l=1...k) variables, n (j=1...n) Paper companies and m factors.

The factor analysis model, in the matrix notation then, may be written as follows:

\[ X_{(k \times n)} = A_{(k \times m)} \times Z_{(m \times n)} \]

Where

\( X \) = the matrix of variables of order \((k \times n)\)

\( A \) = the matrix of factor loadings of order \((k \times m)\)

\( Z \) = the matrix of factors of order \((m \times n)\)
In the factor analysis, factors are formed in such a way that (i) those variables that are most clearly inter-correlated are combined within a single factor, (ii) the variables allocated to the given factor are those that are most nearly independent of the variables allocated to the other factors, (iii) the factors are derived in a manner that maximizes the percentage of the total variance attributable to each successive factor (given the inclusion of the preceding factors) and (iv) the factors are independent (uncorrelated with each other).

1.10.4. Path Analysis

The technique of path analysis is based on a series of multiple regression analyses with the added assumption of causal relationship between independent and dependent variables. The main principle of path analysis is that any correlation coefficient between two variables or a gross or overall measure of empirical relationship can be decomposed into a series of parts: separate paths of influence leading through chronologically intermediate variable to which both correlated variables have links. The direct and indirect effect of independent variables on the dependent variable is calculated for Paper Industry for 2001-02 to 2011-12.

1.10.5. Growth Analysis

The growth pattern of the Paper Industry has been analyzed by adopting the following techniques: Compound Annual Growth Rate Technique (CAGR), and Linear Trend Method.

1.10.6. Compound Annual Growth Rate Technique and Linear Trend Method

The general performance of the Paper Industry can be analyzed more meaningfully and objectively for a given period of time by comparing their growth patterns over the period rather than on a year-to-year basis. The best measure available for such an exercise is the compound annual growth rates or exponential growth rates.
Since the growth curves for many of the variables were non-linear, the compound growth rates were estimated using the following equation.

Let,

\[ Y_t = Y_0 \left(1 + \frac{r}{100}\right)^t \]

be the growth curve where \( Y_0 \) and \( Y_t \) are the initial and the \( t^{th} \) period value of \( Y \) respectively and \( r \) is the compound growth rate.

Taking logarithms on both sides,

\[ \log Y_t = \log Y_0 + t \log ( 1 + r/100 ) \]

i.e., \( \log Y_t = A + B_t \)

where \( B = \log [ 1 + (r/100) ] \) and \( A = \log Y_0 \). Using the value of \( B \), \( r \) can be obtained from the following formula:

\[ r = [\text{antilog} (B) - 1] \times 100 \]

If \( Y_t \) consist of random errors which follow the usual classical assumptions, \( B \) can be estimated by the least square method i.e., \( Yc = a + bx \).

1.10.7. Ratio Analysis

Ratio analysis is an effective tool for evaluating the financial position and performance of companies. Ratios help to summarize large quantities of financial data and to make quantitative judgment about the companies' financial performance.

1.10.8. Altman’s Multiple Discriminate Analysis Model (‘Z’ Score Analysis)

Altman's Multiple Discriminate Analysis Model has been attempted to identify the cause of deteriorating performance of the paper industry.
1.11. LIMITATIONS OF THE STUDY

There are some limitations of the study, which are generally inherent in all such studies conducted at human being level. The most important among them are:

(i) The study is based on secondary data and its findings depend upon on the accuracy of such data.

(ii) The financial performance of small scale and medium scale companies has not been considered in the present study.

(iii) The present study has analysed the financial performance of listed companies and hence the unlisted companies have been excluded from the purview of the present study.

(iv) Statistical test used in the study to interpret the analysed data to generalize the findings of the study for the entire population which has got their own limitations and result in the analysis is subjected to same constraints are applicable to statistical tools.

(v) The period of the study is confined to a period of eleven years and hence the changes during the period before and after the study period have not been taken into account.

1.12. CHAPTER SCHEME

In order to present this research work in a lucid way, it has been divided into six chapters. The layout of these chapters is delineated below:

**Chapter I** provides introduction, statement of the problem, significance of the study, objectives of the study, scope of the study, hypotheses, research methodology, research design, sources of data, selection of sample, framework of analysis, period of study, limitations of the study and chapter scheme.

**Chapter II** presents a review of literature on the Subject.
**Chapter III**  brings out analysis of trend, growth and profile of the selected paper companies in India.

**Chapter IV**  deals with the determinants of profitability

**Chapter V**  deals with the financial strength and health analysis

**Chapter VI**  gives a summary of the findings and some notable suggestions for the efficient and smooth functioning of paper industry in India and forms the conclusion of the study
References


