CHAPTER - I

INTRODUCTION

Technological revolutions sometimes bring unexpected opportunities for certain countries. India, a relative laggard among developing countries in terms of economic growth, seems to have found such an opportunity in the information technology revolution as an increasingly favoured location for customized software development. India’s success at software has led to speculation about whether other developing countries can emulate its example, as well as whether this constitutes a competitive challenge to software industries in the developed world.

The application areas of information technology are extending from scientific computing to business data processing, knowledge processing and intelligence processing to the Internet. Programming computers have set their presence with extraordinary performance in almost all walks of life ranging from the intensive space research to the leisurely entertainment. Computers have entered the office to do multiple jobs with improved efficiency in terms of speed, accuracy and neatness. The computerized e-mail, video conferencing, desktop publishing and multimedia have completely changed the way of doing business. These have led to socio-cultural shift and globalization of market place, which have created sharp economic swings, new competitive pressures and continued reshaping of companies worldwide.

The impact of information technology on business is unimaginable. The computer applications to business and commerce date from the middle of 1950’s, a decade of vigorous recovery from World War II, which led to economic expansion and rapid technological development throughout the industrial world. Today, most of the companies are using computers for numerous administrative functions and computerized machines for production.
Software is a relatively low-investment, environmentally friendly, high-growth global industry – a good target growth industry for many countries. Software industry is a “Knowledge Power House” of India. It has reached its height almost in all industrial fields. Software differs from most other industries in fundamental ways. For one thing, the basis for competitiveness is different. In older industries such as automobiles and steel — and even in many newer high-technology industries such as electronics — manufacturing productivity and quality are important, as are cost factors such as plant and equipment, materials and transportation. In software, however, competitiveness revolves principally around design. Software can be thought of as an “industry of the mind”—where knowledge, intelligence and human creativity are the crucial inputs and people are the crucial asset. Thus software appears to be a field in which “creativity matters more than credentials.”\footnote{1}

India prides itself in having one of the largest technical manpower in the world. The students from India’s top science and technology educational institutions are highly sought after by research universities in the US and Europe. India possesses the world’s second largest pool of scientific manpower, which is also English speaking. Coupled with the fact that the quality of Indian software is good and manpower cost is relatively low, it provides India a very good opportunity in the world market.

India’s comparative advantage in the software industry, generated from its relative abundance of qualified software Engineers, coupled with the Government’s timely national action plan for rapidly improving communications infrastructure has played a key role in creating confidence among buyers of Indian software products and related services. It is evidenced by the rapid growth in their demand. Indian software engineers have carved out a name in the world market for providing an unbeatable combination of quality software and low cost. Indian software developers offer a cost advantage of 40% to 60% over their American counterparts. In addition, worldwide
interest in business process reengineering, the economic imperatives in developed
countries of outsourcing, cost-efficient maintenance of existing mainframe systems and
continuous development of new software for personal computers (PCs) have played
significant roles.2

The information technology, software and services industry over the 1990s
represents one of the most spectacular achievements for the Indian economy.
The industry is highly export-oriented, has established India as an exporter of knowledge
intensive services in the world, and has brought in a number of other spillover benefits
such as creating employment and new pool of entrepreneurship. The evolution of India as
an exporter of these knowledge intensive services has also created much interest in the
development community worldwide. Encouraged by the Indian success, a number of
other developing countries are trying to emulate the country in entering the industry.3
The companies across the world are rushing to India to outsource their software
requirements, to set up software development centers to take advantage of the pool of
talent available, and also to recruit experienced software personnel. The Governments in
different developed and developing countries are opening their borders to invite Indian
software engineers. The industry’s contribution to India’s total exports has been rising.
Realizing the potential of the industry, the captains of the industry speak very highly
about the software firms. Many professionals and policy makers have called India the
software super power of the world.

The Indian success story has been a combination of active encouragement from a
normally intrusive Government and good timing. The increase in global demand that
makes software exports a growth industry is driven by the continued use of software by
other countries and business enterprises. Indian software industry provides a wide range
of software services and is probably the only globally competitive industry in the
organized sector in India. The software industry being the main component of the
information technology industry in India has also helped the information technology sector in India to grow at a good pace. The future of the Indian Software Industry looks promising. The Indian Software Industry has brought about a tremendous success for the emerging economy. India’s software and services industry has and will continue to remain in the driver’s seat of the country’s information technology sector. India’s success in the software field is attributed to the software industry’s knowledge and expertise in cutting edge technologies and skilled manpower base. Both these strengths are likely to contribute towards the industry’s future growth. The coming years will only repeat this trend.

1.1 STATEMENT OF THE PROBLEM

The economic development of a country depends upon the availability of ingredients like finance, labour, technology, entrepreneurship and management skills. Among this, availability of finance is considered to be the most vital, because availability of adequate finance at the disposal of a firm will enable it to acquire other ingredients. From the management point of view effective utilization of finance is also as important as its availability. The finance manager, in order to maximize the wealth of the firm, faces the real challenge of obtaining the required funds from the right source and ensuring their right use. The financing decision is an intricate and high complex process and it requires choice of sources of finance to be made with great care. Financial analysis is used to judge the present and future earning capacity or profitability of the companies and also useful to judge the short-term and long-term solvency of the companies. Financial evaluation is necessary to forecast the future financial performance. Financial aspect also assumes a significant role in determining the growth of industries. Hence finance is the most important critical factor, the so-called lifeblood of a business enterprise.

The need for capital is continuous and also boundless. The corporate sector of an economy is the major contributor to the process of economic development. As the corporate sector grows over time due to expansion, diversification and modernization, the
demand for fund also increases. These are the days when corporates have really to fight it out for their survival. In the race for survival the prime factor to be monitored is capital structure. Capital structure of a firm consists of long-term sources of funds i.e. equity capital, preference share capital, debentures, long-term loans etc. While raising funds, the companies have to make a choice between debt and equity capital. The capital structure will be effective when the firm earns satisfactory revenues by using owner’s funds and outsider’s funds. Appropriate capital structure decisions improve the value as well as solvency position of the company.

A number of theories have been developed in recent years to explain various factors, which have a bearing on the design of corporate capital structure. Firms select debt or equity depending upon the characteristics that determine the various costs and benefits associated with debt and equity financing. The capital structure puzzle is yet to be solved. Researchers in the area of finance are still endeavouring to develop a universally acceptable model that would help firms in designing their ideal capital structure. Neither theory nor research has been able to provide satisfactory factors that affect the capital structure decision.

The cost of capital is a critical parameter for determining the capital structure of a company. The parameter is not only affected by the environmental factors but also by the organizational factors such as capacity to earn and capacity to pay. The cost of capital may not be applied in day-to-day operations but it provides a signal to the management for procuring the funds from different sources.

Software industry is a sunrise industry of India. It provides major income to our country. Generally corporate performance may mean many things, starting from physical utilization of capacities to financial efficiency of operations. Efficiency in every activity would ultimately be reflected in financial performance. Therefore the present study is undertaken to make the performance appraisal of selected software companies. Motivated
by its present growth trends and estimated future potential, the researcher attempted to provide an analytical framework to evaluate the financial performance, capital structure, cost of capital, and growth of the selected software companies in India.

1.2 OBJECTIVES OF THE STUDY

The following are the objectives of the study

- to analyze the financial performance of the selected software companies in India.
- to analyze the components of capital structure of selected software companies.
- to compute and make a comparative analysis of the weighted average cost of capital of the selected sample companies and
- to analyze the growth of the selected software companies.

1.3 HYPOTHESES

- There is no significant difference among the three categories of companies with regard to gross profit ratio.
- There is no significant difference among the three categories of companies with regard to net profit ratio.
- There is no significant difference among the three categories of companies with regard to return on investment.
- There is no significant difference among the three categories of companies with regard to return on net worth.
- There is no significant difference among the three categories of companies with regard to current ratio.
- There is no significant difference among the three categories of companies with regard to preference share capital.
There is no significant difference among the three categories of companies with regard to equity share capital.

There is no significant difference among the three categories of companies with regard to shareholders reserves.

There is no significant difference among the three categories of companies with regard to long-term debts.

There is no significant difference among the three categories of companies with regard to debt equity ratio.

There is no significant difference among the three categories of companies with regard to liability to asset ratio.

There is no significant difference among the three categories of companies with regard to interest coverage ratio.

There is no significant difference in cost of equity among three categories of companies.

There is no significant difference in cost of debt among the three categories of companies.

There is no significant difference in weighted average cost of capital among the three categories of companies.

There is no significant difference in sustainable growth rate among the three categories of companies.
1.4 IMPORTANCE OF THE STUDY

The central aspect of a firm’s financial policy is its choice of capital structure and the extent of its relative reliance on debt and equity. The excessive use of debt endangers the very survival of the firm. In contrast, the conservative policy may deprive it of its advantage in terms of magnifying the rate of return to its equity shareholders. The increasing techno-socio-economic changes in business (both from domestic & international market), scarcity of resources, the dynamic investment/ stock market scenario, government policies etc., add complexity to the choice of debt and equity. Hence, the importance of an appropriate capital structure is very obvious.

Further, the software industry was selected for close study because it is not only an important producer of innovative products but also a critical enabling technology for innovation in both products and processes in almost all sectors and the focus of policy interest by several government departments. It reaches into almost all industries as a core technology, and is crucial to those sectors’ continued development and capacity for innovation. One issue that arises in studying the software industry is that it is both a user and a provider of knowledge intensive services. The software industry is viewed by, many as an exciting sunrise industry that is key to future competitiveness for our economy. However, forecasts of the economic size of the industry have focused primarily on potential revenues of the software itself. The world is today looking towards Indian companies for outsourcing their software requirements. This leads to remarkable development in India’s domestic software and service industry. Understanding this should convince policy makers as well as business users of the importance of the software industry.
1.5 PERIOD OF STUDY

The present study covers the period of 11 years from 1996-1997 to 2006-2007.

1.6 METHODOLOGY

1.6.1 Selection of Sample

To carry out the study, a sample of 46 companies belonging to Indian software industry was taken up. The companies for which the data were not available for one and more than one year in between or in the beginning or at the end of the study period have been ignored. The data base of Center for Monitoring Indian Economy has made compilation for 365 of which only 46 companies were selected based on the availability of financial data for a continuous period of 11 years.

1.6.2 Classification of companies

The companies selected for study have been divided into three groups: small, medium and large based on the sales turnover. The basis for grouping is furnished below. The companies with mean turnover from Rs 9 to 40 crores have been classified as small companies. The companies with mean turnover above from Rs 40 to 120 crores have been classified as medium companies. Remaining companies with sales turnover above Rs 120 crores have been classified as large companies.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Company Classification</th>
<th>Average sales turnover during 1996-97 to 2006-07</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Small</td>
<td>Rs 9 to 40 crores</td>
<td>16</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>Rs 40 to 120 crores</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Large</td>
<td>Above Rs 120 crores</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>46</td>
</tr>
</tbody>
</table>
Table 1.2 displays the list of companies selected for the study.

### TABLE 1.2
**LIST OF SAMPLE COMPANIES**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Company Name / Sources of Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3I Infotech Ltd.</td>
</tr>
<tr>
<td>2</td>
<td>Aftek Ltd.</td>
</tr>
<tr>
<td>3</td>
<td>C M C Ltd.</td>
</tr>
<tr>
<td>4</td>
<td>California Software Co. Ltd.</td>
</tr>
<tr>
<td>5</td>
<td>Computech International Ltd.</td>
</tr>
<tr>
<td>6</td>
<td>Cranes Software Intl. Ltd.</td>
</tr>
<tr>
<td>7</td>
<td>G T L Ltd.</td>
</tr>
<tr>
<td>8</td>
<td>Genesys International Corpn. Ltd.</td>
</tr>
<tr>
<td>9</td>
<td>Geometric Ltd.</td>
</tr>
<tr>
<td>10</td>
<td>Goldstone Technologies Ltd.</td>
</tr>
<tr>
<td>11</td>
<td>Hexaware Technologies Ltd.</td>
</tr>
<tr>
<td>12</td>
<td>Hinduja Ventures Ltd.</td>
</tr>
<tr>
<td>13</td>
<td>I C S A (India) Ltd.</td>
</tr>
<tr>
<td>14</td>
<td>I-Flex Solutions Ltd.</td>
</tr>
<tr>
<td>15</td>
<td>Infosys Technologies Ltd.</td>
</tr>
<tr>
<td>16</td>
<td>Infotech Enterprises Ltd.</td>
</tr>
<tr>
<td>17</td>
<td>K L G Systel Ltd.</td>
</tr>
<tr>
<td>18</td>
<td>K P I T Cummins Infosystems Ltd.</td>
</tr>
<tr>
<td>19</td>
<td>Kale Consultants Ltd.</td>
</tr>
<tr>
<td>20</td>
<td>Karuturi Networks Ltd.</td>
</tr>
<tr>
<td>21</td>
<td>L C C Infotech Ltd.</td>
</tr>
<tr>
<td>22</td>
<td>Logix Microsystems Ltd.</td>
</tr>
<tr>
<td>23</td>
<td>Maars Software International Ltd.</td>
</tr>
<tr>
<td>24</td>
<td>Mastek Ltd.</td>
</tr>
<tr>
<td>25</td>
<td>Melstar Information Technologies Ltd.</td>
</tr>
<tr>
<td>26</td>
<td>Mphasis Ltd.</td>
</tr>
</tbody>
</table>

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10
<table>
<thead>
<tr>
<th>S.No</th>
<th>Company Name / Sources of Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>N I I T Ltd.</td>
</tr>
<tr>
<td>28</td>
<td>Nucleus Software Exports Ltd.</td>
</tr>
<tr>
<td>29</td>
<td>Onward Technologies Ltd.</td>
</tr>
<tr>
<td>30</td>
<td>Orient Information Technology Ltd.</td>
</tr>
<tr>
<td>31</td>
<td>Pan India Corpn. Ltd.</td>
</tr>
<tr>
<td>32</td>
<td>Panoramic Universal Ltd.</td>
</tr>
<tr>
<td>33</td>
<td>Pentasoft Technologies Ltd.</td>
</tr>
<tr>
<td>34</td>
<td>Polaris Software Lab Ltd.</td>
</tr>
<tr>
<td>35</td>
<td>R S Software (India) Ltd.</td>
</tr>
<tr>
<td>36</td>
<td>Rolta India Ltd.</td>
</tr>
<tr>
<td>37</td>
<td>S S I Ltd.</td>
</tr>
<tr>
<td>38</td>
<td>Satyam Computer Services Ltd.</td>
</tr>
<tr>
<td>39</td>
<td>Scintilla Software Technology Ltd.</td>
</tr>
<tr>
<td>40</td>
<td>Sonata Software Ltd.</td>
</tr>
<tr>
<td>41</td>
<td>Tata Elxsi Ltd.</td>
</tr>
<tr>
<td>42</td>
<td>Tech Mahindra Ltd.</td>
</tr>
<tr>
<td>43</td>
<td>Trigyn Technologies Ltd.</td>
</tr>
<tr>
<td>44</td>
<td>Vakrangee Softwares Ltd.</td>
</tr>
<tr>
<td>45</td>
<td>Wipro Ltd.</td>
</tr>
<tr>
<td>46</td>
<td>Zensar Technologies Ltd.</td>
</tr>
</tbody>
</table>

1.6.3 Data and Sources of Data

The nature of the data collected for the thesis work is secondary one. Data pertaining to this study were collected from the Balance sheet and Profit and Loss account of the selected companies for a period of eleven years from 1996-97 to 2006-07. 46 companies were selected for analysis. All the 46 companies are listed in Bombay Stock Exchange and National Stock Exchange. The needed data belonging to these companies have been collected from CMIE database (Centre for Monitoring Indian Economy), Capital Line 2000 data base and www.moneycontrol.com.
(i) Adjustments made in the data

The data are collected for eleven years from 1996-97 to 2006-07. The following method was adopted to make the adjustments in the collected data.

(a) If the data is not available for the first year i.e. 1996-97, the next year data i.e. 1997-98 has been taken for the study.

(b) If the data is not available for the last year i.e. 2006-07, the previous year data i.e. 2005-06 has been taken for the study and

(c) If the data is not available in middle of the study period the average of the data for the previous year and next year has been taken for the study.

1.6.4 Definitions used in the study

In analyzing financial performance of selected companies, several ratios are used. They are defined below:

(i) Gross Profit Margin (GPM)

The gross profit ratio measures the relationship of gross profit to net sales. Thus it is calculated by dividing the gross profit by net sales.

\[
\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100
\]

The gross profit ratio indicates the extent to which selling prices of goods per unit may decline without resulting in losses on operations of a firm. It reflects the efficiency with which a firm produces its products.
(ii) **Net Profit Margin (NPM)**

Net profit margin establishes the relationship between net profit (after taxes) and net sales, and it indicates the efficiency of the management in manufacturing, selling, administrative and other activities of the firm. It is an overall measure of the firm's profitability. This ratio also indicates the firm's capacity to withstand adverse economic conditions. The net profit ratio is measured by dividing the net profit after tax by net sales.

\[
\text{Net Profit after tax} \\
\text{Net Profit Margin} = \frac{-\text{Net Profit after tax}}{\text{Net Sales}} \times 100
\]

(iii) **Return on Investment (ROI)**

Return on investment indicates the return earned on the total amount invested in the business. The term investment refers to the total assets.

\[
\text{Earnings before interest and tax} \\
\text{Return on Investments} = \frac{-\text{Earnings before interest and tax}}{\text{Total Assets}} \times 100
\]

The Earnings before interest and tax is the total income minus all expenses excluding interest and tax. Total assets mean the total of net block, inventories and other current assets.

(iv) **Return on Net worth (RON)**

Return on equity indicates how well the firm has used the resources of owners.

\[
\text{Profit after tax} \\
\text{Return on Equity} = \frac{-\text{Profit after tax}}{\text{Net worth}} \times 100
\]
Profit after tax is the net surplus of income over all manufacturing, administration and selling expenditures including tax. Net worth is the total of share capital and reserves and surplus.

(v) Current Ratio (CR)

The current ratio is a measure of firm’s short-term solvency. It indicates the availability of current assets in comparison with current liabilities.

\[
\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
\]

Current asset is the total of inventories, sundry debtors, cash and bank balances and loans and advances. Current liabilities include all short-term liabilities excluding provisions.

(vi) Debt Equity Ratio (DE)

This ratio is calculated to measure the extent to which debt financing has been used in the business. This ratio indicates the proportionate claims of owners and the outsiders against the firm’s assets. The purpose is to get an idea of the cushion available to outsiders on the liquidation of the firm. As a general rule, there should be an appropriate mix of owners’ funds and outsiders’ funds in financing the firm’s assets. The ratio calculated on the basis of outsiders’ funds excluding current liabilities may be termed as ratio of long-term debt to Share holders’ funds (Debt – Equity ratio) which is:

\[
\text{Debt Equity ratio} = \frac{\text{Long-term debt}}{\text{Share holders’ funds}}
\]

Long-term debt means the total of secured and unsecured loans. Current liability is not included in debt. Share holders’ funds are the total of share capital and Reserves and surplus.
(vii) Liability to Asset ratio (LA)

The ratio indicates the proportion of liabilities to total assets. The ratio is calculated as follows.

\[
\text{Liability to Asset ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}
\]

Total liabilities mean the total of all secured loans, unsecured loans and current liabilities. Total assets mean the total of net block, inventories and other current assets.

(viii) Interest Coverage (IC)

Net income to debt service ratio or simply debt service ratio is used to test the debt-servicing capacity of a firm. This ratio is also known as interest coverage ratio. This ratio indicates the number of times interest is covered by the profits available to pay the interest charges. This ratio is calculated as follows.

\[
\text{Interest coverage} = \frac{\text{Net Profit before interest and tax}}{\text{Interest charges}}
\]

(ix) Earnings per Share (EPS)

The profitability on the common shareholders investment can be measured by calculating the earnings per share.

\[
\text{Earnings per share} = \frac{\text{Profit after tax}}{\text{Number of equity shares outstanding}}
\]

Profit after tax is the total income minus all expenses including tax. Equity shares outstanding means the number of equity shares appearing in the paid up equity capital as on the date of the balance sheet.
(x) Market Price per Share (MPS)

The market price per share has been computed by taking into account the annual high and low values of the market price of share. The average value of this is taken as the market price per share. Thus,

\[
\text{MPS} = \frac{\text{High market price per share} + \text{Low market price per share}}{2}
\]

(xi) Computation of Cost of Capital

The cost of each source of finance is computed as per the following method.

(a) Cost of Equity

The cost of equity is the discount rate \( K_e \), which equates the market value of equity with the present value of expected benefits. The expected future benefits can be expressed in terms of dividend or earnings. The cost of equity is calculated on the basis of earnings model. According to the earnings model, the cost of equity is measured as a ratio of expected earnings to price. Hence the cost of equity is calculated as

\[
K_e = \frac{E}{P}
\]

Where

\( K_e \) - Cost of equity

\( E \) - Earnings per share

\( P \) - Market price per share
(b) Cost of debt

The cost of debt is the rate at which the lenders would be satisfied. Payment of interest enjoys tax shelter, so it is the after tax cost which is more relevant. Cost of debt is important for investment decisions. It is calculated as follows:

\[ K_d = \frac{I}{NP} \times (1 - T) \]

Where

\[ K_d - \text{Cost of debt after tax} \]

\[ I - \text{Interest} \]

\[ NP - \text{Net proceeds of long term debts} \]

\[ T - \text{Tax rate} \]

Here tax rate is assumed as 50%

(c) Weighted Average Cost of Capital (WACC)

The term cost of capital refers to the overall composite cost of various sources defined as the weighted average of the cost of each specific source of fund. The overall cost of capital is found by multiplying the specific cost of each form of financing by its proportion in the firm's capital structure and then summing the weighted values. The proportion refers to the weights of each source of funds in the capital structure. Weighted average cost of capital is calculated in the following manner.

\[ \text{WACC} = (\text{Proportion of Equity} \times \text{cost of equity}) + (\text{Proportion of Debt} \times \text{cost of debt}) \]

1.6.5 Analysis of data

The study is made with the help of the appropriate statistical tools. The following statistical tools are used to analyze the data collected.
Summary Statistics

Summary statistics is used in the study includes mean, standard deviation, coefficient of variation, skewness and kurtosis.

(i) Mean

It is the arithmetic average across the distribution of the data set. It is calculated by totaling of all the values in the particular variable and then dividing the total by the total number of observations in that variable field.

(ii) Standard Deviation

The standard deviation is one of the measures of dispersion which explains the extent of deviation from the mean value and the individual values of the group it represents.

(iii) Coefficient of Variation

The coefficient of variation is one of the relative measures of dispersion. It is defined as the ratio of standard deviation to the mean expressed in percentage. Coefficient of variation indicates consistency or uniformity. This technique is used in this study to identify consistency of values of the variables.

(iv) Skewness

Skewness is the measure of asymmetry. The asymmetric distributions are also called skewed distribution. It is classified under two categories namely positively skewed and negatively skewed. This tool is used in the study to identify whether the probability distribution of the variable considered is normal. In the case of normal distribution the value of skewness is zero.
(v) Kurtosis

Kurtosis refers to the degree of flatness or peakedness in the region of a frequency curve. The degree of kurtosis of a distribution is measured related too the peakedness of normal curve. In other words, measures of kurtosis tell us the extent to which a distribution is more peaked or flat-topped than the normal curve. If a curve is more peaked than the normal curve, it is called ‘leptokurtic’. The normal curve is known as ‘mesokurtic’ and if a curve is more flat-topped than the normal curve.

(vi) Analysis of Variance

It is a technique of analyzing the variance explained by the dependent variable based on selected independent variables. The independent variables are termed as group variables or factors. The technique of analysis of variance is used to ascertain the existence of significant difference in the mean ratios and capital structure components of the three categories of the companies.

1.6.6 GROWTH RATE

(i) Annual Compound Growth Rate

Growth is studied with reference to annual growth rates computed based on the compound interest rate formula adopted by the World Bank using the least square methods.

The least squares growth rate ‘r’ is estimated by fitting a least squares linear regression trend line to the logarithmic annual values of the variable in the relevant period. More specifically, the regression equation takes the form.

\[ \log X_t = a + b_t + e_t \]

Where this is equivalent to the logarithmic transformation of the compound growth rate equation.

\[ X_t = X_o (1+r)^t \]
In these equations, ‘X’ is the variable, ‘t’ is time period and \( a = \log X_0 \) and \( b = \log (1+r) \) are the parameters to be estimated, ‘e’ is the error term. If \( b^* \) is the least squares estimates of ‘b’ then the average annual percentage growth rate ‘r’ is obtained as \((\text{antilog } b^*)-1\) and multiplied by 100 to express it as percentage.

(iii) Sustainable Growth Rate

The sustainable growth rate is the maximum rate at which the firm can grow by using internal sources (retained earnings) as well as additional external debt but without increasing its financial leverage. It can be calculated as

\[
SGR = \frac{P \times A \times A/E \times b}{1 - (P \times A \times A/E \times b)}
\]

Where

\[
P - \text{Profit margin} \\
\]

\[
b - \text{Retention ratio} \\
\]

\[
A - \text{Asset to equity ratio} \\
\]

\[
T - \text{Sales to Asset ratio} \\
\]

1.7 LIMITATIONS OF THE STUDY

The financial data required for the present study has been obtained from secondary sources. Due to time, cost and non-availability of usable data, the study is restricted to forty-six companies only over a period of eleven years. Most of the software companies were incorporated only in late nineties, which is a major limitation for the study.
1.8 CHAPTER SCHEME

The thesis is organized into seven chapters.

First chapter covers introduction, statement of the problem, objectives of the study, hypotheses, importance of the study, period of study, methodology used, analysis of data and limitations of the study.

Second Chapter contains theoretical perspectives of financial performance, capital structure, cost of capital, growth and Indian Software Industry. In addition, review of literature is also included.

Third chapter examines the category-wise analysis of financial performance of selected software companies in India.

Fourth chapter gives a detailed analysis of the different components of capital structure of Small, Medium and Large software companies in India.

Fifth chapter deals with the computation of category-wise analysis of cost of capital of selected software companies in India.

Sixth chapter examines the category-wise analysis of growth rate of selected software companies in India.

Seventh chapter forms summary of findings and conclusion.
References

