Chapter – 5

Conceptual Framework of Financial Performance Appraisal

5.0 INTRODUCTION

The historical background, growth and development of Cement Corporation of India Limited (CCI Ltd.) have been discussed in the previous chapter. The present chapter discusses the concept of financial performance and its evaluation with the description of the available accounting ratios, financial statements, and other financial performance tools which are used to measure the financial performance of a company.

The basic purpose of a business firm is to earn adequate return on the capital invested in it. To enhance the return and optimize the financial position, an assessment of liquidity, solvency, and profitability and business operations is necessary.

The financial performance indicates the extent to which the management is able to achieve its goals. The evaluation of financial performance is a complex process as it deals with the effectiveness of capital employed, profitability, and efficiency of operations, value and safety of the various claims against the business. It is the final step of an accounting cycle that begins with recording, classification, summarization, presentation and analysis of data which makes possible the interpretation of financial statements. Financial statements analysis unveils the meaning and significance of the items composed in Profit and Loss Account and Balance Sheet so as to assist the management in formation of sound operating financial policies (Kennedy & McMullen, 1999).

Business is mainly concerned with the financial activities to ascertain the financial status of the business. Every enterprise prepares certain statements, known as financial statements. Financial statements are mainly prepared for decision making purposes. But the information, as is provided in the financial statements, is not adequately helpful in drawing a meaningful conclusion. Thus, an effective analysis and interpretation of financial statements is required. Financial statements present the summary of operating, financing and investment activities of a business. They provide useful information to the investors, creditors and other stakeholders in making credit, investment and other business decisions. Investors, creditors and other stakeholders
can use these statements to predict, compare and evaluate the amount, timing, and uncertainty of potential cash flows. Financial statements provide the information needed to assess a company's future earnings and therefore the cash flows expected to result from those earnings. The four basic financial statements are balance sheet, income statement, statement of cash flows and statement of shareholders' equity (Peterson & Fabozzi, 1999). The analysis of financial statements is a process of evaluating the relationship between component parts of financial statements to obtain a better understanding of the firm’s position and performance. Financial appraisal is the process of scientifically making a proper, critical and comparative evaluation of the performance i.e. the profitability and financial health of any business enterprise through the application of the techniques of financial statement analysis. Financial appraisal is a process of evaluating the summarized financial and business data to obtain a better understanding of a firm’s position and performance (Metcalf and Titard, 1976).

The main objective of appraisal of financial statements is to determine the measure of efficiency of operations or the profitability from its income statements and to assess financial strength as compared with similarly situated concern. Financial appraisal gives an accurate picture of the financial condition of a business firm in a summarized form. Financial appraisal is generally directed towards evaluating the liquidity, efficiency and profitability of a concern. The financial appraisal of a concern involves the steps namely, collection of financial data, classification and tabulation of financial data and application of appropriate techniques. Financial performance analysis is the process of identifying the financial strengths and weaknesses of a firm by properly establishing the relationship between the items of the balance sheet and the profit and loss account of the firm (Pandey 1979).

5.1 MEANING OF FINANCIAL STATEMENTS
A financial statement is a formal record of the financial activities and position of a business, person or other entity. Relevant financial information is presented in a structured manner and in a form easy to understand. They typically include basic financial statements, accompanied by a management discussion and analysis (“Financial”, n.d.).
They are prepared in accordance with Generally Accepted Accounting Principal and accounting standards. In the words of Hampton (as quoted in Maheswari, 2000), “A financial statement is an organized collection at data organized according to logical and insistent accounting procedure”. Therefore, all the statements and accounting reports, which the accountants prepare at the end of accounting period for a business enterprise, may be taken as financial statements. The principal financial statements are ‘balance sheet’ and profit and loss account. The financial statements are used for various objectives, for example, determining profit for the purpose of managerial remuneration, for making provision for income tax, for determining taxable profit, etc.

5.2 MEANING OF FINANCIAL STATEMENT ANALYSIS
The term ‘financial analysis’, also known as analysis and interpretation of financial statements, refers to the process of determining financial strengths and weaknesses of a firm by establishing strategic relationship between the items of the balance sheet, profit and loss account and other operative data. Financial analysis is a scientific tool which has assumed an increasingly important role in terms of appraising the real worth of an enterprise, its performance during a period of time and its pitfalls. In the words of Myers (quoted by Gupta and Sharma, 2005), “financial statement analysis is largely a study of relationship among the various financial factors in a business as disclosed by a single set of statements and a study of the trend of these factors as shown in a series of statements”. The purpose of financial analysis is to diagnose the information contained in financial statements so as to judge the profitability and financial soundness of the firm. Just like a doctor examine his patient by recording his body temperature, a blood pressure, etc. before making his conclusion regarding the illness and before giving his treatment, a financial analyst analyze the financial statements with various tools of analysis before commenting upon the financial heath or weaknesses of an enterprise (Gupta and Sharma, 2005).

The financial statement analysis, therefore, helps to answer queries regarding profitability, credit worthiness and safety of investment. It serves as a means of self evaluation of its financial soundness, managerial skills and competencies for the management. It describes credit rating to the creditors and measures the social responsibility of a corporation. The performance of a company can be measured
through its financial results given in its financial statements consisting of Income
Statement and Balance Sheet. These statements present the financial information for a
period of time. Size of earning risks and profitability are the two major factors which
jointly determine the value of a company.

The technique of financial analysis is typically devoted to evaluate the past,
present and projected performance of a business firm in future. The ability of an
organization to analyze its financial position is essential for improving its competitive
position in the marketplace (Bhunia, 2010). Financial analysis is the examination and
evaluation of a firm’s financial positions and operations which involves comparison
and interpretation of accounting data (Kulkarni, 1994).

It is a process to evaluate the relationship between component parts of
financial statements to obtain a better understanding about the position and
performance of a firm (Metcalf & Titard, 1976). Financial analysis is defined as the
process of discovering economic facts about an enterprise or a project on the basis of
an analysis of the available financial data (Desai, 1999).

Risk and profitability are the two essential components of a business.
Financial decisions involving more risk, decrease the value of a firm and the decisions
which increase the profitability, increase the value of the firm. Financial performance
of a company is therefore, normally judged by a series of ratios or other accounting
parameters. However, it is to be noted that fundamentally, the balance sheet indicates
the financial position of the company as on that point of time (Pandey, 2009).

5.2.1 Types of financial statements analysis

A brief explanation of types of financial statement is discussed below (Gupta and
Sharma, 2011).
Chart 5.1: Types of financial analysis

Source: Sharma Gupta 2011

A. On the basis of material used

According to material used, financial analysis can be of two types: External analysis, and internal analysis. They are discussed as follows:

- **External Analysis**
  
  This analysis is done by outsiders who do not have access to the detail internal accounting records of the business firm. The Term external analysts include investors, credit agencies, government agencies and other creditors and everybody for whom to get the internal accounting records of the company is not accessible. The published financial statements are generally being used for the analysis by these external analysts.

- **Internal Analysis**

  This analysis is conducted by insiders who have access to the internal accounting records of a business firm. It includes executives, employees, government officials etc. The usefulness of analysis depends upon the objectives that have to be achieved through it.

B. On the basis of modus operandi

According to the method of operation followed in the analysis, financial analysis can also be of two types, Horizontal Analysis and Vertical Analysis. They are discussed as follows:
• **Horizontal Analysis**
A horizontal analysis is a procedure in fundamental analysis in which analyst compares ratios or line items in a company's financial statements over a certain period of time. It compares financial information over time, typically from past quarters or years. Horizontal analysis is performed by comparing financial data from a past statement, such as the income statement. The current year’s figures are compared with the standard or base year and changes are shown usually in the form of percentage. This analysis helps the management to have an insight into levels and areas of strength and weaknesses. It is also known as ‘Dynamic Analysis’. Comparative analysis and Trend analysis are the form of horizontal analysis.

According to John N. Myer (quoted by Srivastava, 1979), “The horizontal analysis consists of a study of the behavior of each item of the entities in the statements”.

• **Vertical analysis**
In vertical analysis, the figures from financial statement of a year are compared with a base selected from the same year’s statement. Since this sort of analysis examines relationships between different components for a given point of time and does not shed light on changing behavior of the above relationships, it is also regarded as ‘Static Analysis’. Common-size statements and Ratio analysis are the form of vertical analysis.

### 5.2.2 Procedure of Financial Performance Appraisal

The following preliminaries are required to be completed for making an analysis and interpretation of financial statements. Appraisal of financial statements is the interest of lenders, investors, security analysts, managers and other stakeholders. The analytical procedure is outlined below (Sharma & Gupta, 2011).

- Selection of sample units and the objectives of the study.
- Collection of financial data from annual reports or from different sources/databases of the concern under study.
- The financial data should be re-arranged and re-organized in a meaningful manner. It may involve the grouping of similar data under same heads, breaking down of individual components of statements according to nature of data.
- With the help of tools and technique of analysis such as ratios analysis, trends analysis, common size analysis, etc. a relationship is established.
5.2.3 Importance of Financial Analysis

- **Judging the Operational Efficiency of the business:** For the smooth functioning of the company, it is necessary that company must realize the significance of the operational efficiency of its management. In order to judge the operational efficiency of the business, financial statements are analyzed by the analyst. They also match the amount of manufacturing, selling, distribution and financial expenses of the current year with the corresponding expenses of the previous year and measure the management efficiency of the business.

- ** Helps in Evaluating Return on Investment:** Financial analysis is beneficial in evaluating the return on investment and also provides one with an edge over the competition in a down market.

- **Indicating the trend of achievements:** One can contrast the financial statements of the previous years and can also ascertain the trend regarding various expenses, purchases, sales, gross profit and net profit. Future possibility of the business can be specified and cost of goods sold, values of assets and liabilities can be equated.

- **Assessing the growth potential of the business:** trend and dynamic analysis of the business provides sufficient information. This represents the growth potential of the business. If the trends suspects gloomy picture, then certain effective measures can be applied as remedial measures.

- **Measuring the profitability:** Financial analysis is helpful in improving profitability and also allows us to set benchmarks. They aided in optimizing productivity.

- **Intra firm and inter firm comparison of the performance:** Financial statements can be analyzed with the help of comparison with the previous year’s performance of the same firm and with other firms. Intra firm analysis acts as a tool for self appraisal, while inter firm analysis provides the operational efficiency of the firm as compared to other firms. By making comparisons, one can identify the weaknesses and can also apply the corrective measures accordingly.
• **Forecasting, budgeting and deciding future line of action**: By analyzing financial statements, one can forecast the growth potential of the company. Shortcomings can be identified by comparing the actual performance of the company with the desire performance. By doing this analysis, one can get sufficient information regarding profitability, performance and financial soundness of the business. These analyses are also beneficial for the analyst as they can make effective forecasting, budgeting and planning.

• **Simplified, systematic and intelligible presentation of facts**: Financial statements analysis works as an effective tool for simplification, systematization or summarizing the monotonous figures. An average person can identify conclusion from these ratios. By graphs and diagrams, the facts can be made more simplified and attractive so that it could be easily understood.

• **Pinpoints strengths and weakness**: In order to get more bangs out of bucks, financial analysis can be used. It acts as an effective tool for pinpointing the strength and weaknesses. It is also helpful for the adjustment of the planning strategy.

5.2.4 Limitations of Financial Analysis

Financial analysis is a powerful and effective mechanism as it helps in determining the weaknesses and strengths of the firm. But financial analysis has certain limitations as it is based on the information available in the financial statements.

• **Suffering from the limitations of financial statements**: Financial statements have lots of weaknesses. Balance sheet is prepared on the basis of historical record of the value of the assets. Financial statements can only be prepared according to certain conventions at a point of time, while the investor also concerned in the present and future of the business.

• **Absence of standard universally accepted terminology**: Due to certain ambiguities, accounting is not considered factual science. The profit revealed by the profit and loss account and the financial status represented by the balance sheet could never be actual. It does not have any such standardized or universally accepted terminology. There are so lots of meaning for a single item. There are different methodologies for calculating depreciation. Due to this, financial statements suffer a lot as there is a possibility of manipulation.
• **Price level changes are ignored:** Results displayed by the financial statements are also sometimes misleading, if the fluctuation in the prices has not been accounted for.

• **Qualitative aspects are not taken into account:** Financial analysis does not assess the qualitative aspect of the business. It does not deal with qualitative attributes like the skill, technical know-how and the efficiency of its employees and managers.

• **Financial statements are affected by window dressing:** The management displays impressive picture of the company with the help of financial statements. Sometimes material information is not shown. In order to display mind-blowing profit, sales may be exaggerated, stock may be overvalued and certain purchases are not represented. In such condition, financial statements are also not correct.

• **Personal ability and bias of analyst:** Sometimes the figures of the financial statements are affected by the biasedness of the analyst. Since these figures cannot speak themselves, so the analyst while analyzing and interpreting the information, depict their own views depending on their own analysis.

• **Misleading results in the absence of absolute data:** Due to the absence of absolute data, results shown by the financial analysis can be misleading. Increase in sales from Rs 30000 to 60000 indicated that sales have doubled. In case of other firm increase of sales from Rs 2000000 to 4000000 also depicted that the sales have doubled but the size of the firms is not the same. Profitability ratio of two firms may be identical, but magnitude of their business may not be similar.

• **Financial analysis is only a tool, not the final remedy:** Financial analysis only acts as a tool for measuring the profitability, efficiency and financial soundness of the business. Here in this case, personal views of the analyst are more important. It is just a tool, not a remedy where one cannot rely on single ratio.

• **Financial analysis spotted the symptoms but does not arrive at diagnosis:** Financial analysis can depict the trend of the affairs of the business. It represents financial unsoundness and operational inefficiency but that is
unacceptable, as it doesn’t go for any diagnosis. A final decision in this regard will require further investigation and thorough diagnosis.

5.3 TOOLS AND TECHNIQUES OF FINANCIAL PERFORMANCE APPRAISAL

Financial Performance Evaluation is a study of relationship among the variables and their trends to comment over the financial position and results of operations of a concern. For this assessment a number of tools and techniques are available that enable the Researcher to draw useful and accurate conclusions.

Following are the significant accounting, financial tools and techniques that have been employed in the research for evaluating financial performance viz. Common Size Statement Analysis, Comparative Statement Analysis, DuPont Analysis, Ratio Analysis and Altman Z Score Model.

Chart 5.2: Tools & Techniques of financial performance analysis

Source: Gupta & Sharma, 2011

5.3.1 Common Size Financial Statements Analysis

Common Size Statement is a useful and convenient way of standardizing financial statements to express each item on the Income Statement as a percentage of sales and each item on the Balance Sheet as a percentage of total assets (Chandra, 2011). Common size statements prepared for one firm over the years would highlight the
relative changes in each group of expenses, assets and liabilities. Common Size Comparative Statements prepared for one firm over the years, which highlights the relative changes in each group of expenses, assets and liabilities. These statements can be equally useful for inter firm comparisons, given the fact that absolute figures of two firms of the same industry are not comparable. Common Size Statements convert financial statement by expressing absolute rupee amount into percentage (Patel, 2004).

5.3.1.1 Common Size Balance Sheet
A statement in which balance sheet items are expressed as the ratio of each asset to total assets and the ratio of each liability is expressed as a ratio of total liabilities is called Common-Size Balance Sheet. In Common-size balance sheet, the total assets and total liabilities are assumed to be 100% and other assets and liabilities are expressed as a percentage of this total. A company balance sheet that displays all items as percentages of a common base figure is known as Common Size Balance Sheet. This type of financial statement can be used to allow for easy analysis between companies or between time periods of a company. Thus, it helps in order to construct trend lines to ascertain changes over longer time periods. Format of common size balance sheet is as follows.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Absolute Amounts</th>
<th>Percentage of Total Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Previous Year</td>
<td>Current Year</td>
</tr>
<tr>
<td>Shareholders’ Fund</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Loan Funds</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investments</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Current Assets</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Expenditure &amp; Loss</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

5.3.1.2 Common Size Income Statement

In the common-size income statement, the net sales are assumed to be 100% and other items are expressed as a percentage of sales. The items in income statement can be shown as percentages of sales to show the relation of each item to sales. A significant relationship can be established between items of income statement and volume of sales. Relationship is established between sales and other items in income statement and this relationship is helpful in evaluating operational activities of the enterprise. This type of financial statement can be used to allow for easy analysis between companies or between time periods of a company. Format for preparing common size income statement is given as follows.

Table 5.2: Format of Common Size Income Statement

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Absolute Amounts</th>
<th>Percentage of Net Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Previous Year</td>
<td>Current Year</td>
</tr>
<tr>
<td>Net Sales</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Cost of Goods Sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Profit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Operating Exp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Tax</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


5.3.2 Comparative Financial Statements Analysis

A comparative statement is a statement which compares financial data from different periods of time. It is a form of horizontal analysis where Financial Statements of two or more years or of two or more different companies or of a company and its industry are compared, analyzed and interpreted. The Balance Sheet indicates the financial position and the Income Statement shows the operating and non-operating results. An investigation of comparative financial statements helps to highlight the significant facts and point out the items which need further analysis (Pandey, 2010). A comparative statement is a statement on which balance sheets, income statements, or
statements of changes in financial position are assembled side by side for review purposes. Changes that have occurred in individual categories from year to year and over the years are easily noted. Such statements not only show the absolute figures of various years but also provide for column to present the increase or decrease in these figures from one year to another. In addition, these statements may also show the changes from one year to another in percentage terms and provides information about two or more years' figures as well as any increase or decrease from previous year's figure and its percentage. This kind of analysis helps in identifying major improvements and weaknesses (Gupta & Sharma, 2007).

5.3.2.1 Comparative Income Statement

“Income statement is a summary of a firm’s revenues and expenses over a specified period, ending with net income or loss for the period”

A comparative income statement / profit and loss account shows the absolute change from one period to another. Since the figures are shown side by side, the user can quickly understand the operational performance of the firm in different periods and can draw conclusions. The comparative income statement gives an idea of the progress of a business over a period of time. The income statement discloses net profit or net loss on account of operations. The changes in absolute data in money values and percentage can be determined to analyze the profitability of the business.

**Table 5.3: Format of Comparative Income Statement**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Year Ending</th>
<th>Increase / Decrease (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Year</td>
<td>Previous Year</td>
</tr>
<tr>
<td>Net Sales</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Cost of Goods Sold</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Operating Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Administration Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Selling Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Operating Profit</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Interest Expenses</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Profit Before Tax</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Taxes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Profit After Tax</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

5.3.2.2 Comparative Balance Sheet

The comparative balance sheet analysis is the study of the trend of the same items, group of items and computed items, in two or more balance sheets of the same business enterprise on different dates. The changes can be observed by comparison of the balance sheet at the beginning and at the end of a period and these changes can help in forming an opinion about the progress of an enterprise. Such a balance sheet is very useful in studying the trends in an enterprise. Balance sheets as on two or more different dates are used for comparing the assets, liabilities and the net worth of the company. The comparative balance sheet is useful for studying the trends of an undertaking. Increase and decrease in various assets and liabilities as well as in proprietor’s equity or capital brought about by the conduct of a business, can be observed by comparison of balance sheets at the beginning and end of the period. The format of Common Size Income Statements and Balance Sheet are as follows:

Table 5.4: Format of Comparative Balance Sheet

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Year Ended</th>
<th>Increase / Decrease (Absolute)</th>
<th>Increase / Decrease (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Year</td>
<td></td>
<td>Previous Year</td>
</tr>
<tr>
<td>Liabilities and Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share Capital &amp; Reserve</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Long Term Liabilities</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Assets</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Assets</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Other Assets</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>( + / - )</td>
<td>( + / - ) %</td>
</tr>
</tbody>
</table>


5.3.3 Trend Analysis

Trend analysis technique is useful to analyse the firm financial position and to put the absolute figures of financial statement in more comprehensible form over a period of years. It is the procedure of comparing business data over time to identify any consistent results or trends. This method determines the direction upwards and
downwards and involves the computation of the percentage relationship that each statement item bears to the same item in base year. For this purpose, a base year is selected and the amount of the item relating to the base year is taken equal to a hundred and Index number are computed for other years based on the amount of item relating to the base years based on the amount of that item in those years. It shows the direction in which concern is going.

5.3.4 Cash Flow Analysis

A cash flow statement is a financial statement that shows us the exact sources of the business funds obtained during a period and the uses to which these funds are applied. A cash flow statement is, thus, an analytical tool for analyzing the inflow and outflows of funds in the business during a given accounting period. It explains the causes of net change in the cash balance, by comparing balance sheets falling on two consecutive periods. It analyses changes in cash and cash equivalents during a period. It is a statement that shows how changes in balance sheet and income statement affect cash and cash equivalents and breaks the analysis down to operating, investing and financing activities. Essentially, the cash flow statement is concerned with the flow of cash in and out of the business. The statement captures both, the current operating results and the accompanying changes in the balance sheet. As an analytical tool, the statement of cash flows is useful in determining the short-term viability of a company, particularly its ability to pay bills. According to AS-3, the cash flow statement should report cash flows during the period classified into three main categories:

1. Cash flows from operating activities.
2. Cash flows from investing activities.
3. Cash flows from financing activities.

The basic information required for the preparation of a cash flow statement is obtained from the following three sources:

1. Comparative balance sheets at two points of time.
2. Income statement of the current accounting period.
3. Some selected additional data to extract the hidden transactions.

5.3.5 Fund Flow Analysis

In the words of Foulke, R. A., (quoted by Gupta and Sharma, 2005), “A statement of source and application of fund is a technical device designs to analysis the changes in
the financial condition of business enterprises between two dates”. The term Fundflow refers to changes or movement of funds or changes in working capital in the normal course of business transactions. The changes in working capital may be in the form of inflow of working capital or outflow of working capital. In other words, any increase or decrease in working capital when the transactions take place is called as "Flow of Funds." If the components of working capital results in increase of the fund, it is known as Inflow of Fund or Sources of Fund. Similarly, if the components of working capital effects in decreasing the financial position it is treated as Outflow of Fund. This statement reveals resources from which funds were obtain by the firm hand the specific uses to which such funds were applied. The effectiveness of financial management in procuring funds from various sources and using them effectively for generating income without sacrificing the financial position of the firm is reflected in fund flow statement.

5.3.6 Ratio Analysis

A ratio expresses the results on the basis of comparison of two figures in numerical terms. A ratio is a statistical yardstick that provides a measure of relationship between two accounting figures. A financial ratio or accounting ratio is a relative magnitude of two selected numerical values taken from an enterprise's financial statements. Often used in accounting, there are many standard ratios used to evaluate the overall financial condition of a corporation or other organization. (“Financial Ratio”, n.d). Financial ratios are an excellent and scientific way to analyze firm’s financial position. They are important indicators and are widely used to summarize the information in a company's financial statements in assessing and evaluating its financial health. In financial analysis, ratios are used as yardstick for evaluating the financial position and performance of business firms. The relationship between two accounting figures, expressed mathematically, is known as a financial ratio (or simply as a ratio). The point to note is that a ratio indicates a quantitative relationship, which can be, in turn, used to make a qualitative judgement (Pandey, 1995). Generally liquidity ratio, solvency ratio, profitability ratio and efficiency ratio are highly useful in determining financial performance and financial health of business enterprises.

The ratio analysis is most widely used tool in appraisal of financial performance. It is a technique of analysis and interpretation of financial position of a company. It is used
as a device to analyze and interpret the financial health of enterprises (Sharma & Gupta, 2008). Ratio analysis describes whether the firm’s financial position is sound, the capital structure is in proper shape, the profitability is satisfactory, the credit policy in relation to sales and purchase is sound and the company is credit worthy or not. It highlights the liquidity, solvency, profitability and market position of a business concern (Sharma & Gupta, 1995). Ratio analysis is the process of determining and presenting in arithmetical terms the relationships figures and groups of figures drawn from these statements.

5.3.6.1 Meaning of Ratio Analysis

Ratio analysis is a technique of analysis, comparison and interpretation of financial statements. It is processes through which various ratios are calculated and on that basis conclusion are drawn which become the base of managerial decisions (Gupta, 2008). It involves four steps:

1. **Selection of relevant data:** First of all, relevant data are selected from financial statements depending upon the objective of the analysis.

2. **Calculation of ratios:** On the basis of data selected, appropriate ratios are calculated according to objective or need of the study.

3. **Comparison of ratios:** The calculated ratios are compared with the ratios of the same firm in past or the ratios of other firms or with the ideal standard of relevant ratios

4. **Interpretation of ratios:** In the end, conclusions are drawn on the basis of study and comparison of ratios.

5.3.6.2 Advantages of Ratio Analysis

Ratio analysis is an important technique of financial analysis. It is an accounting tool which presents complicated accounting variables in simple, concise and understandable form. It also provides useful indications related to financial health and operational efficiency of the business concern (Gupta, 2008).

1. **Useful in simplifying accounting figures:** Accounting ratios simplify, summarize and systematize the accounting figure so that they may be understood properly and conveniently.

2. **Useful in Financial Position Analysis:** Accounting ratios provide the knowledge of the financial position of the concern which, on the other hand, is useful in taking decision by the firm itself and on the other hand provides
necessary information to banks, financial institutions, investors and researchers for making investment decisions.

3. **Useful in assessing the Operational Efficiency**: Accounting ratios are useful in assessing the efficiency and performance of the firm.

4. **Measurement of the profitability**: Management is constantly concerned about the overall profitability of the enterprise. Profitability of the business can be measured by calculating gross profit, net profit, expenses, and other ratios. That is, they are concerned about the ability of the firm to meet its short-term as well as long-term obligations to its creditors, to ensure a reasonable return to its owners and secure optimum utilization of the assets of the firm (Khan & Jain, 1999).

5. **Aids in forecasting and budgeting**: Accounting ratios provide a reliable data, which can be compared, studied, and analyzed. These ratios provide sound footing for future forecasting. The ratios that are derived after analyzing and scrutinizing the past result, helps the management in setting up future financial plans and forecasting. They also help in determining future line of action.

6. **Helpful in communication and coordination**: The financial strength and weaknesses of a firm can easily be communicated by the use of ratios to those whom it meant. Such communication does help in better coordination between various departments of a firm (Gupta & Sharma, 2005).

7. **Useful in comparative study**: Accounting ratios provides the base for comparative study of financial efficiency. Such comparison may be made between different years of a firm or between different firms of a particular industry or with the average ratio of the same industry (Gupta, 2008).

8. **Useful in control**: Ratio analysis also helps in making effective control of the business. After calculation of accounting ratios variances, if any, can be found by comparing them with standard or ideal level of these ratios and necessary corrective actions may be taken for resolving these variances.

### 5.3.6.3 Limitations of Ratio Analysis

The ratio analysis is one of the important tools of financial management. The ratios though indicate profitability, efficiency and financial soundness, but they are not the solution of all problems and the analyst must take into account these limiting factors...
while using the ratio analysis. Accounting ratios suffer from the following limitations (Gupta, 2008).

1. **False Results:** Ratios are calculated from the figures appearing in the financial statements. In case, if original figures are not true and fair, ratios calculated will also be false and defective.

2. **Window dressing:** Window dressing means manipulation of records in a way so as to conceals vital facts and presents the financial statements in such a way to show better position than what it actually is. Window dress restricts the utility of ratio analysis. Financial statements can easily be window dressed to present a better picture of its financial and profitability position to outsiders. Hence, one has to be very careful in making a decision.

3. **Misleading result in the absence of absolute Data:** Sometimes, in the absence of absolute data the ratios give a misleading image of a firm. If gross profit ratio of two firms is 25%, it may be just possible that the gross profit of one is Rs. 2500 and sales Rs 10000, whereas the gross profit of the other firm is Rs 500000 and sales is Rs. 2000000. Profitability of the two firms is the same but the magnitude of their business is quite different.

4. **Personal bias:** Ratios are only means of financial analysis and not an end in itself. An important aspect of ratio analysis is proper interpretation of ratios but different analysts may interpret the same ratio in different ways.

5. **Not as substitute of financial statements:** Ratio analysis is only a tool of studying financial statements and it cannot become substitute of these statements. In other words, “Ratios are meaningless if detached from the details from which are derived.”

6. **Ignores qualitative factors:** Accounting ratios are, as a matter of fact, tools of quantitative analysis but only on account of it sometimes qualitative elements may be ignored.

In the present study, different accounting ratios under categories such as liquidity, solvency, activity and profitability have been used to analysis the financial performance of CCI Ltd. Furthermore Altman Z-model and Du-Pont Analysis have been applied to assess the financial health of the company under study.
5.4 FUNCTIONAL CLASSIFICATION OF ACCOUNTING RATIOS

A detailed account of functional classification of accounting ratio and techniques used in the present study has been discussed as follows.

1. Liquidity Ratios
2. Long Term Solvency and Leverage Ratios
3. Activity Ratios
4. Profitability Ratios

5.4.1 Liquidity Ratios

Liquidity Ratios are used to measure the short-term solvency of a business firm. They show the ability of the company to quickly convert its assets into cash to pay its short-term debts. The short term obligations are met by releasing amounts from current, floating or circulating assets. The sufficiency or insufficiency of current assets should be assessed by comparing them with short term liabilities. Liquidity refers to the ability of a concern to meet its current obligations as and when these become due (Gupta & Sharma, 2014). Liquidity means an ability of an asset to be converted to cash quickly at low cost. It measures a firm’s ability to pay its current debts on time. Assets that may be converted into cash in a short period of time are referred to as liquid assets. They are listed in financial statements as current assets. To measure the liquidity of a firm, the following ratios can be calculated.

a. Current Ratio

This ratio indicates the short term financial soundness of the company. It judges whether current assets are sufficient to meet the current liabilities. A ratio of less than one is often a cause for concern, particularly if it persists for any length of time. A ratio equal or near to the rule of thumb of 2:1 is considered to be satisfactory (Gupta & Sharma, 2014). The formula of current ratio is:

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

b. Liquid Ratio

This ratio is also known as acid test ratio or quick assets ratio. It measures the ability of a company to pay its current liabilities when they come due with only quick assets. Quick assets are current assets that can be converted to cash within 90 days or in the short-term. Cash, cash equivalents, short-term investments or marketable securities,
and current accounts receivable are considered as quick assets. It is very useful to check the liquidity position of a firm. The formula of liquid ratio:

$$\text{Quick, Liquid or Acid test Ratio} = \frac{\text{Quick or Liquid Assets}}{\text{Current Liabilities}}$$

Sometimes bank overdraft is not included in current liabilities, in such cases,

$$\text{Quick, Liquid or Acid test Ratio} = \frac{\text{Quick or Liquid Assets}}{\text{Quick or Liquid Liabilities}}$$

As a rule of thumb, Liquidity ratio of 1:1 is generally considered satisfactory, as the liquid assets will be considered sufficient to meet the current liabilities.

c. **Absolute Liquid Ratio or Cash Ratio**

The cash ratio is the ratio of a company's total cash and cash equivalents to its current liabilities. It can therefore determine if, and how quickly, the company can repay its debt. The cash ratio is generally a more conservative look at a company's ability to cover its liabilities than many other liquidity ratios. A company’s most liquid assets are its holdings of cash and marketable securities. That is why researcher also looks at the cash ratio.

$$\text{Absolute Liquid Ratio} = \frac{\text{Absolute Liquid Assets}}{\text{Current Liabilities}}$$

OR

$$\text{Absolute Liquid Ratio} = \frac{\text{Cash & bank + short term securities}}{\text{Current Liabilities}}$$

The acceptable norm of this ratio is 1:2 or 0.50:1

**5.4.2 Profitability Ratios**

Business accounting defines profit as “the excess of total revenue over total costs” over a period of time. Profitability Ratios measure the overall earnings performance of a company and its efficiency in utilizing assets, liabilities and equity. Generally, profitability ratios are calculated either in relation to sales or investments. Profitability ratios related to sales include Gross Profit Ratio and Net Profit Ratio while in terms of investment, it consist of return on capital employed and return on net worth. In the words of Keynes, Lord (quoted by Gupta and Sharma: 2005) “profit is the engine that drives the business enterprise”

a. **Gross Profit Ratio**

Gross profit is a company's total revenue which is equivalent to total sales minus cost of goods sold. Gross profit is the profit a company makes after deducting the all costs
associated with manufacturing its products or providing a service. However, the gross profit would be satisfactory to cover operating expenses and to afford for fixed charges, dividends and building up of reserves.

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

There is no standard norm for judging the gross profit ratio

b. Operating Ratio

The operating ratio is a financial term defined as a company’s operating expenses as a percentage of revenue. It establishes the relationship between cost of goods sold and other operating expenses on the one hand and the sales on the other hand. It measures the cost of operations per rupee of sales (Gupta & Sharma, 2014). The operating ratio can be used to determine the efficiency of a company’s management by comparing operating expenses to net sales. It describes the relationship between total operating expenses and sales of the company. This ratio is used to measure the operational efficiency of the management. A low operating ratio indicates high profit margins i.e., more operating profit. Lower operating ratio shows the higher profit vice versa (“Operating ratio”, n.d.). The formula of Operating ratio is as follows:

\[ \text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Net Sales}} \times 100 \]

OR

\[ \text{Operating Ratio} = \frac{\text{Cost of goods sold} + \text{Operating Expenses}}{\text{Net Sales}} \times 100 \]

Where,

\[ \text{Operating Cost} = \text{Cost of Goods Sold} + \text{Operating Expenses} \] (Gupta & Sharma, 2014).

c. Net Profit Ratio

This ratio represents the relation of net profit to net sales. Net profit is calculated by deducting total expenses from total revenue of the business concern. The net profit ratio is the overall extent of a firm’s ability to turn each rupee of sales into profit. This ratio helps in determining the efficiency with which affairs of the business are being managed. An increase in the ratio over the previous period indicates improvement in the operational efficiency of the business provided the gross profit ratio is constant and is calculated as:
Net Profit Ratio = \( \frac{\text{Net profit after Tax}}{\text{Net Sales}} \times 100 \)

Higher the ratio the better is the profitability, but the performance of the profit must also be seen in relation to investments of the firm while interpreting the ratio.

d. **Return on Capital Employed**

Return on capital employed measures the relationship between the profit and the capital employed. The term ‘capital employed’ refers to the total of investments made by a business firm and it can be computed in two ways. First, it is equal to non-current liabilities (long term liabilities) plus owners’ equity. Alternatively, it is equivalent to net working capital plus fixed assets. Second, it is equal to long term funds minus investments made outside the firm. Thus, the capital employed basis provides a test of profitability related to the sources of long term funds (Mumtaz, 2012). A comparison of this ratio with similar firms, with the industry average and overtime would provide sufficient insight into how efficiently the long term funds of owners and lenders are being used.

\[
\text{Return on Shareholders' Investment} = \frac{\text{Net Profit (after interest & tax)}}{\text{Shareholders' Fund}}
\]

The higher the ratio the more efficient is the use of capital employed (Khan & Jain 2011).

*Where,*

\[
\text{Capital Employed} = \text{Fixed Assets} + \text{Current Assets} - \text{Current Liabilities}
\]

e. **Return on Assets**

This ratio is also known as ROA. It is the relationship between net profit (after taxes) and assets employed to earn that profit. It is calculated as:

\[
\text{Return on Assets} = \frac{\text{Net profit after tax}}{\text{Average Total assets}}
\]

or,

\[
\text{Return on Assets} = \frac{\text{Net profit after tax}}{\text{Average Tangible assets}}
\]

or,

\[
\text{Return on Assets} = \frac{\text{Net profit after tax}}{\text{Average fixed assets}}
\]
f. **Return on Net Worth**

Return on Shareholders’ Investment, also known as Return on Shareholder/Proprietors Funds or ROI, is the relationship between net profits after interest and tax and the proprietor’s funds. It determines the earning capacity related to owners capital or investment. It measures how much return the company can generate for its equity shareholder’s.

\[
\text{Return on Shareholders’ Investment} = \frac{\text{Net Profit (after interest & tax)}}{\text{Shareholders’ Fund}}
\]

As the primary objective of business is to maximize its earning, this ratio indicates the extent to which this primary objective of business is being achieved. As this ratio reveals how well the resources of a firm are being used, higher the ratio, better are the results.

**5.4.3 Solvency Ratios**

Solvency ratios present the ability of a concern to meet its long term obligations. These ratios help in assessing the risk arising from the use of debt capital. Two types of ratios are commonly used to analysis financial leverage i.e. structural ratios and coverage ratios. The structural ratios are based on the proportions debt and equity like Debt to Equity ratio and Debt to Assets ratio while the coverage ratios show the relationship between debt servicing commitments and the sources for meeting these burdens (Chandra, 2011).

a. **Debt-equity ratio**

The D/E ratio is an important tool of financial analysisto appraise the financial structure of a firm. It is an important implication from the view point of the creditors, owners and the firm itself. The debt to equity ratio shows how the firm finances its operations with debt relative to the book value of its shareholders equity (Khan & Jain 2011).

\[
\text{Debt Equity Ratio} = \frac{\text{Outsiders’ Funds}}{\text{Shareholders’ Funds}}
\]

A ratio of 1:1 may be usually considered to be a satisfactory ratio although there cannot be any ‘rule of thumb’ or standard norm for all types of businesses. In some business a high ratio 2:1 or even more may be considered satisfactory.
b. Interest Coverage Ratio
The interest coverage ratio measures the ability of a company to pay the interest on its outstanding debt. This measurement is used by creditors, lenders, and investors to determine the risk of lending funds to a company. A high ratio indicates that a company can pay for its interest expense several times over, while a low ratio is a strong indicator that a company may default on its loan payments (‘Interest Coverage’, n.d.).

\[
\text{Interest Coverage Ratio} = \frac{\text{Net Profit (before interest and taxes)}}{\text{Fixed Interest Charges}}
\]

c. Proprietary Ratio
Proprietary Ratio establishes a relationship between shareholder’s funds and the total assets of the firm. It is an important ratio for determining long term solvency of the firm (Pillai and Bagavathi, 2008).

\[
\text{Proprietary Ratio or Equity Ratio} = \frac{\text{Shareholders’ funds}}{\text{Total Assets}}
\]

Higher the ratio better is the long term solvency position of the firm.

5.4.4 Turnover ratios
Turnover ratios also referred to as activity ratios or assets management ratios, measure how efficiently the assets are employed by the firm. These ratios are based on the relationship between the levels of activity, represented by the sales or cost of goods sold and the levels of various assets (Chandra, 2011). The main functions of these ratios are to judge the work performance of the enterprise and effectiveness of managerial decisions. In other words, these ratios help to evaluate how well facilities and services available at the disposal of the firm are being used or to measure the effectiveness with which a firm uses the resources and its disposal and implements its purchase, sales and other financial policies. These ratios are usually calculated on the basis of sales or cost of sales and are expressed in integers or times or rate of turning over a rotation. The greater ratio the more will be efficiency of asset usage. The lower ratio reflects the underutilization of the resources available at the disposal of the firm. It may also be mentioned that all these ratios indicate the briskness with which the business activities are being carried on. The following are the important turnover ratios.
a. **Inventory/Stock Turnover Ratio**

This ratio indicates the efficiency of the firm in selling its product. Inventory turnover ratio is also known as stock velocity or inventory ratio. This ratio established relationship between the cost of goods sold during a given period of time and the average amount of inventory carried during that period. Thus this ratio reveals the number of times finished stock has been turned over during a given accounting period. The inventory turnover reflects the efficiency of inventory management. The ratio is directly proportional to the efficiency of management of inventories. However, this may not always true (Chandra, 2011). The formula of STOR is as follows

\[
\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory at Cost}}
\]

A low inventory turnover ratio indicates an inefficient management of inventory. A low inventory turnover implies over investment in inventories. A too high turnover of inventory may not necessarily always imply a favourable situation.

b. **Debtors Turnover Ratio**

These ratios are computed to evaluate the quality of debtors. Debtors turnover ratio indicates the velocity of debt collection of firm.

\[
\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Annual Sales}}{\text{Average Trade Debtors}}
\]

Trade Debtors = Sundry Debtors + Bills Receivables and Accounts Receivables

Average Trade Debtors = Opening Trade Debtors + Closing Trade Debtors/2

There is no rule of thumb to interpret the ratio. Generally, higher ratio implies efficient management and low ratio implies inefficient management. The average collection period represents the average number of days for which a firm has to wait before its receivables are converted into cash. The ratio can be calculated as follows:

\[
\text{Average Collection Period} = \frac{\text{Average Trade Debtors}}{\text{Sales Per Day}}
\]

\[
\text{Average Collection Period} = \frac{\text{Number of Working Days}}{\text{Debtors Turnover Ratio}}
\]

Generally, the shorter the average collection period the better is the quality of debtors while a higher collection period implies as inefficient collection performance.
c. Working Capital Turnover Ratio
This ratio indicates whether or not working capital has been effectively utilized in making sales. In other words, it indicates the number of times the working capital is rotated in the course of a year. A higher ratio indicates efficient utilization of working capital and a low ratio indicates otherwise. But a very high working capital turnover ratio is not a good situation for any firm and hence care must be taken while interpreting the ratio (Gupta and Sharma: 2005). This ratio can be calculated as:

\[
\text{Working Capital Turnover Ratio} = \frac{\text{Cost of Sales}}{\text{Average Working Capital}}
\]

\[
\text{Average Working Capital} = \frac{\text{Opening Working Capital} + \text{Closing Working Capital}}{2}
\]

d. Total assets turnover ratios
The total asset turnover ratio measures the ability of a company to use its assets to efficiently generate the sales. This ratio considers all assets, current and fixed.

\[
\text{Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}
\]

5.5 DU-PONT ANALYSIS
Du Pont analysis is a common form of financial statement analysis, based on analysis of Return on Equity (ROE) & Return on Investment (ROI) (Sheela & Karthikeyan, 2012). Du-Pont analysis takes into account three indicators to measure firm profitability i.e. ROS, ROA and ROE (Soliman, 2008). Donaldson Brown developed a formula for monitoring business performance that combined earnings, working capital and investments in plants and property into a single measure which termed as return on investment. It later became known in academic and financial circles as the Du-Pont analysis (or Model). The DuPont model measures the financial performance of a business concern on the basis of accounting income concept. It is a useful system of analysis which considers important relationships based on information found in financial statements. The elegance of ROA being affected by a profitability measure and an efficiency measure led to the Du-Pont method becoming a widely-used tool of financial analysis (Liesz, 2002). The model advocates that Return on Investment (ROI) is the best in measuring overall financial performance. All activities of company contribute to the ROI. It has been adopted by many firms in some form or the other (Chandra, 2011). ROI represents the earning power of the company. DuPont
model provides a broader picture of return the company is earning on its equity (Pandey, 2005). The Du-Pont analysis provides a starting point for determining the strengths and weaknesses of a company. In Du-Pont analysis, return on equity disaggregates performance into three components i.e. Net Profit Margin, Total Asset Turnover and the Equity Multiplier (Sheela and Karthikeyan, 2012). The formula of Du-Pont Model is as follows:

\[ \text{Return on Equity} = \text{Net Profit Margin} \times \text{Assets Turnover} \times \text{Financial Leverage} \]

Where,

\[ \text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Total Sales}} \]

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

\[ \text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Shareholders' Fund}} \]

A firm can convert impressive RONA (Return on Net Assets) into an impressive ROE through financial efficiency. It is observed that ROE affected the financial leverage and combination of debt and equity. Therefore, ROE is a product of RONA and financial leverage ratios reflect the operating efficiency (Pandey, 2005).

Du-Pont analysis is an extended analysis of a company's return on equity. It concludes that a company can earn high return on equity, if it earns a high net profit margin, it uses its assets effectively to generate more sales and it has a high financial leverage. Du-Pont equation could be further extended by breaking up net profit margin into EBIT margin, tax burden and interest burden. With this method, assets are measured at their gross book value rather than at net book value in order to produce higher return on equity (ROE). Du-Pont analysis tells us that ROE is affected by three things:

- Operating efficiency, measured by Profit Margin
- Asset use efficiency, measured by Asset Turnover
- Financial leverage, measured by the Equity Multiplier

Du-Pont Analysis examines Return on Equity (ROE) by breaking it into three main components: Profit margin, Asset turnover and Equity multiplier.
The three-step DuPont model captures management’s effectiveness at generating profits (net profit margin), managing assets (asset turnover) and finding an optimal amount of leverage (equity multiplier). Ideally, one would like to see a company boosting its ROE by increasing its net margin or its asset turnover.

5.5.1 Net Profit Margin
Net profit margin is used to assess the profitability of a concern. The net profit margin (or net margin) of a company reflects management’s pricing strategy by showing how much earnings they can generate from a single rupee of sales. Companies must be able to price their products and services in such a way as to drive volume. Net margins vary from company to company and historically, certain ranges can be expected across industries. Therefore, it is important to compare the ROEs and other financial ratios of companies in similar lines of business, as similar business constraints exist in each distinct industry (Thor, n.d.).

\[
\text{Net Profit Ratio} = \frac{\text{Net profit after Tax}}{\text{Net Sales}} \times 100
\]

5.5.2 Asset Turnover
Return on Assets reveals how much profit a company earns for every rupees of its assets. Assets include things like cash in the bank, accounts receivable, property, equipment, inventory and furniture (Herciu, Ogean & Belascu, 2011). The formula of asset turnover is as follows:

\[
\text{Asset Turnover} = \frac{\text{Total Sales}}{\text{Total Assets}}
\]
5.5.3 Equity Multiplier

The equity multiplier is the ratio of a company's total assets to its stockholders' equity. The ratio is intended to measure the extent to which equity is used to pay for all types of company assets. If the ratio is high, it implies that assets are being funded with a high proportion of debt. Conversely, if the ratio is low, it implies that management is either avoiding the use of debt or the company is unable to obtain debt from prospective lenders. The formula for the equity multiplier ratio is:

\[
\text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Shareholders' Equity}}
\]

5.6 ALTMAN Z SCORE MODEL

Altman's Z is one of the best known, statistically derived predictive models used to forecast a firm's impending bankruptcy. Edward Altman, a financial economist and professor at New York's Stern School of Business, developed Altman’s Z-Score model in 1968. The Z-Score gained acceptance by auditors, management accountants, and database systems beginning in the mid-1980s (Hayes, Hodge & Hughes, 2010). The model has proven to be a dependable instrument in forecasting failure in a diverse mix of business entities. The Z score model is the first multivariate credit scoring model. The model predicts the likelihood that a firm will go bankrupt by combining five financial ratios and market value measures to produce the Z-Score, which involves measuring how closely a firm resembles other firms that have filed for bankruptcy. This allows the user to classify firms as either distressed (high risk of bankruptcy) or non-distressed. It should be noted that the original Z-Score model was primarily for manufacturers (Aasen, 2011). Altman’s original Z-Score was based on a sample of 66 publicly held manufacturing companies. Half of the companies were distressed manufacturers that had filed for bankruptcy from 1946 through 1965, while the other half were randomly selected non-bankrupt companies from the same time period. The asset size of the companies ranged from $1 million to $25 million (Altman, 2000).

The final discriminate function estimated by Altman (1968) is as follows:

\[
Z = 0.012 \cdot X_1 + 0.014 \cdot X_2 + 0.033 \cdot X_3 + 0.006 \cdot X_4 + 0.999 \cdot X_5
\]
Where,

X1 = Working capital/Total assets
X2 = Retained Earnings/Total assets
X3 = Earnings before interest and taxes/Total assets
X4 = Market value of equity/Book value of total liabilities
X5 = Sales/Total assets

Z = Overall Index

The original Z-Score Model was based on the market value of the firm and was thus applicable only to publicly traded companies. In 1983 Altman emphasized that the Z-Score Model is a publicly traded firm model and ad hoc adjustments are not scientifically valid. Therefore, Altman in 1983 advocated a complete re-estimation of the model substituting the book value of equity for the market value in X4. Using the same data, Altman extracted the following revised Z’-Score Model. In the present study we used the book value rather than the market value of equity. This model is appropriate for a firm which is not publicly traded, CCI Ltd. is not a listed company, thus the researcher used the revised model of Z score (1983).

\[ Z' = 0.717 \cdot X1 + 0.847 \cdot X2 + 3.107 \cdot X3 + 0.420 \cdot X4 + 0.998 \cdot X5 \]

Where,

X1 = Working capital/Total assets
X2 = Retained Earnings/Total assets
X3 = Earnings before interest and taxes/Total assets
X4 = Book value of equity/Book value of total liabilities
X5 = Sales/Total assets

Z’ = Overall Index (Altman 2000).

5.6.1 Interpretation of Variables used in Altman Z Score

- **X1: Working Capital/Total Assets**: The working capital/total assets ratio is a measure of the net liquid assets of the firm relative to the total capitalization. Working capital is equal to the difference between current assets and current liabilities, while total assets include both current and fixed assets. In this ratio, liquidity and size characteristics are explicitly taken into account. A firm with consistent operating losses will often have shrinking current assets in relation to total assets.
• **X₂: Retained earnings/Total assets.** The second ratio advocated by Altman (1968) is a (cumulative) profitability ratio. Interestingly, this is a “new” ratio that was proposed by Altman himself. Retained earnings are the account which reports the total amount of reinvested earnings and/or losses of a firm over its entire life. The account is also referred to as earned surplus. A lower Retained earnings/Total assets ratio is expected for younger firms because they did not have time to grow and build up their cumulative profits. Hence one may correctly expect that younger firms will, ceteris paribus, more probably be classified as bankrupt relative to older firms. With this ratio one would expect a negative relation with bankruptcy or a positive relation with non-bankruptcy, as negative profits, which affect a firm negatively, decrease retained earnings relative to total assets.

• **X₃: Earnings Before Interest and Taxes/Total Assets:** This ratio illustrates the productivity of the company’s assets before tax or leverage factors are taken into consideration. Firms depend on operating efficiently through the earning power of its assets in order to have long-term viability. Return on total assets appears to be particularly appropriate for predicting bankruptcies, since it has the highest weighting in each of the Z-Score models.

• **X₄: Market Value of Equity/Book Value of Equity to Total Debt:** In private firms the stock is not being traded publicly that’s why the book value of equity has been calculated instead of calculating the market value.

• **X₅: Sales/Total Assets:** The capital-turnover ratio is a standard financial ratio illustrating the sales generating ability of the firm’s assets. It is one measure of management’s capability in dealing with competitive conditions. This final ratio is quite important because, as indicated below, it is the least significant ratio on an individual basis. In fact, based on the statistical significance measure, it would not have appeared at all. However, because of its unique relationship to other variables in the model, the Sales/Total assets ratio ranks second in its contribution to the overall discriminating ability of the model (Chouhan, Chandra & Goswami, 2014).
Table 5.5: Critical values of Altman’s Z Score Model

<table>
<thead>
<tr>
<th>SCORE</th>
<th>ZONE</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1.23</td>
<td>Bankrupt</td>
<td>There is a high probability that the business will face financial distress in near future and the business may need desperate measures to survive in the market</td>
</tr>
<tr>
<td>1.23 to 2.90</td>
<td>Grey</td>
<td>The firm falls in the gray area that means there is less probability that the firm will face financial distress in the near future.</td>
</tr>
<tr>
<td>&gt; 2.90</td>
<td>Healthy</td>
<td>The business is financially sound and there is least probability that the firm will face financial distress</td>
</tr>
</tbody>
</table>

A number of commonly used accounting tools and techniques of financial performance evaluation have been discussed in this chapter. The next chapter deals with analysis and interpretation of financial performance of the CCI Ltd. with the help of Comparative Statement analysis, Common size Statement analysis, Ratio Analysis, Du- Pont analysis and Alman’s Z Score Model.
REFERENCES


Chapter - 5

Conceptual Framework of Financial Performance Analysis


