## INDEX

<table>
<thead>
<tr>
<th>SR.NO.</th>
<th>TITLE</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>INTRODUCTION</td>
<td>93</td>
</tr>
<tr>
<td>4.2</td>
<td>MEANING OF ACCOUNTING PROFIT</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>2.1 GROSS PROFIT AND NET PROFIT</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>2.2 NORMAL PROFIT, SUPERNORMAL PROFIT</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>2.3 ACCOUNTING PROFIT V/S ECONOMIC PROFIT</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>2.4 RELATIONSHIP BETWEEN COST TO PROFIT</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>2.5 PROFIT AND PROFITABILITY</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>2.6 SOCIAL PROFITABILITY</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>2.7 VALUE ADDED PROFITABILITY</td>
<td>96</td>
</tr>
<tr>
<td>4.3</td>
<td>TOOLS FOR FINANCIAL ANALYSIS</td>
<td>96</td>
</tr>
<tr>
<td>4.4</td>
<td>MEANING OF RATIOS</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>4.1 DU PONT ANALYSIS</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>4.2 USERS OF RATIO</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>4.3 OBJECTIVES OF RATIO</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>4.4 ADVANTAGES OF RATIO</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>4.5 LIMITATIONS OF RATIO</td>
<td>104</td>
</tr>
<tr>
<td>5</td>
<td>ANALYSIS OF PROFITABILITY</td>
<td>107</td>
</tr>
<tr>
<td>6</td>
<td>CONCLUSION</td>
<td>127</td>
</tr>
<tr>
<td>7</td>
<td>BIBLIOGRAPHY</td>
<td>128</td>
</tr>
</tbody>
</table>
“Profitability comes from loyalty, productivity, and having a character base from which to work.”

Zig Ziglar (an American author)

1 Introduction

The prime motive of any business is to earn profit. Profit can be used as a yardstick to measure the performance of business. In layman’s language it is an excess of income over expenditure. Higher amount of profit can be considered as an achievement for a business. According to Lord Keynes, “profit is the engine that drives the business enterprise.”

2 Meaning of accounting profit

In accordance to accounting, profit is an excess of total revenue over total cost. There is also difference in profit due to methods of accounting. Cash profit differs from mercantile profit. Saving is also a different term from profit. Non accounting person sometime consider saving as a profit, but as far as accounting profit is considered it is a very complex in nature and also differed from stakeholders to shareholders as well as managers to employees and from government to general public. For all share holders profit is EBIT or Earnings before interest and Tax or operating profit, but specifically for equity share holders it is EBIT less preference share dividend. So according to need of users term profit is manipulated as well as interpreted.

In general terms, to study profit one should consider two parameters i.e. cost and revenue. Increase in profit is due to either increase in revenue or decrease in cost. In today’s highly competitive and price sensitive market one can not increase revenue by increasing price of the product or service, so it is better to reduce cost and for that one should clearly understand the relationship between cost and profit.

2.1 Gross profit and Net profit

People generally believe that profit is a residual to all income – an income left after payment to all the hired factors have been made. Actually, this is a gross profit. Gross profit also contains interest on the owner’s own capital, rent due to his own land used in business, the wages of his non entrepreneurial labour work. The earnings of these self used factors and services which he thus loses, (i.e., implicit cost) must also be added to his paid out or explicit cost to arrive at the total cost. Gross profit = Total Receipts – Total explicit cost, Net profit = Gross profit – Implicit cost.

2.2 Normal profit and Supernormal profit

When an entrepreneur enters in a particular field of productions, he expects some minimum return for his function as an entrepreneur. So long as he gets that minimum
expected return, he stays in business, else he quits. *The minimum return that is necessary to keep the produced in present field of production is called his normal profit. If his earnings exceed the normal profit, then these earnings which are in addition to normal profit are known as supernormal profit.* Actual profit = Normal profit – Supernormal profit.

### 2.3 Accounting profit and Economic profit

Profit, in the accounting sense, is the excess of revenue receipts over the cost incurred in producing this revenue. But this concept of profit differs form that used by the economist, precisely because for the accountant, the cost of business is only the paid out of cost while for an economist; the costs are opportunity cost also. Thus the *economist’s profit equals to accountant’s profit minus imputed costs.*

### 2.4 Relationship of cost to profit

Cost can be broadly classified into two types, fixed cost and variable cost. Semi variable cost includes characteristics of both types of cost. Variable cost is directly related to output, it increases as output increases and vice versa. Fixed cost is fixed up to level of production capacity. It does not change with the increase or decrease in production units. It doesn’t vary or change according to level of output, therefore by producing more in quantity one can reduce fixed cost per unit up to some extent and take advantage of economies of large scale of production.

### 2.5 Profit and Profitability

Profit and Profitability are different terms together, most of times used interchangeably. The term profit as we have already discussed earlier is an absolute term, whereas profitability is a relative term. We can understand the term better by comparing it with production and productivity, as the production is related to total quantity produced, while productivity means quantity produced per unit of factor of production, by increasing input one can raise production if productivity is good, where as production concept does not signify this. So productivity is an appropriate concept than production. In same manner profit is raw figure doesn’t justify the earning capacity of an enterprise one has to study profitability to get better idea about enterprise’s earning capacity. Profitability is made up of two terms i.e. profit and ability, ability means power to earn profit for enterprise.

*According to Howard and Miller. “profitability means ability of given instrument to earn profit.*

According to Weston and Brigham. “ It is a net surplus of a large number of policies and decisions.
Profit and profitability are not substitute terms, but they are complimentary or interdependent to each other. Profit is a residual part of income, remained after deducting all types of expenses, whereas profitability is a firm’s ability to earn profit, therefore a wise businessmen should always look for a better profitability then profit as a sole purpose, because in short run company may not earn good amount of profit due to societal or customer oriented policy, but as the company is maintaining its prestige and doing what is good only may positively lead towards greater profitability.

According to Goodman. “The accounting concept of profit measures what have been accumulated, the analytical concept of profitability is concerned with future accumulation of wealth.

Therefore, profit is a residual, dead or past data, where as profitability is a futuristic and relative terms.

According to Hermanson, Edward and Salmanson , “ profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets employed.

The firm is said to be successful if its profitability exceeds the weighted average cost of capital to the firm. The profitability acts as a yardstick to measure the operating efficiency of the enterprise. The greater the profitability the more will be the efficiency and vice-versa. It also indicates public acceptance of the goods produced or service rendered by the enterprise and shows the combined effect of liquidity, assets management and debt management on operating results. It reflects the ultimate impact of various policy decisions adopted by the enterprises on its business operations. The profitable investment of excess cash, minimization of inventories, speedy collection of receivables and avoidance of unnecessary and costly short-term financing all contribute to the maximization of profitability. Thus profitability is the basic measure of overall success of the firm. It is the necessary condition for the growth and survival stability of the enterprise. The profitability of the enterprise is popularly measured with the help of financial ratios conveying quantitative relationship between two variables considered for the purpose.

2.6 Social Profitability

Profit should not be prime motive for business. There must be some societal objectives. As we need society to do business, we need business for welfare and development of society. There are various social objectives that a business can fulfil under corporate social responsibility, besides providing good quality of goods and services, it should also create better working environment. It should also provide better hygiene and healthy environment to work. As per Earnest Dale, “it appears to urge the executive to assume an infinitely broad
gauge burden of responsibilities to all various public with whom he deals.” Besides social responsibility a business should also consider environmental responsibility while doing business. Social responsibility accounting and Environmental accounting are other developing concept in modern accountancy. Profit should be altogether with sustainable development does not necessarily earn through unfair means which in return damage the environment in long run. Profit should be reasonable and justifiable to maintain environment and also developing the same. C.Mean Cardiner has rightly said, “The darkness of avarice has been dispelled by the light of new kind of social responsibility”.

2.7 Value added profitability

Value added profitability is having broader acceptance than the term profit, in india it not compulsory to prepare value added statement. Value additions mean wealth generation. It was rightly said by D.C. Jain (C.A.), “ An enterprise may survive without making profit but would cease to do so without adding value, the enterprise not making profit, is bound to become sick but not adding value may cause its death over a period of time. In simple terms value addition is an edge on income or revenue over cost of goods sold or services rendered. The cost of production includes cost of material purchase, wages, carriage etc. Income or revenue should be considered after deducting any rebates or discounts, in short value addition is not profit but charge to be levied for significant improvement by the producer or provider (in case of service) for providing goods or rendering services.

3 Tools for financial Analysis:

Financial statements contain absolute figure of assets, liabilities, revenues, expenses and profit or loss of an enterprise. They do not reveal the earning capacity, liquidity and financial soundness of the enterprise. They are not readily understandable to their users. Hence they are analysed to present them in simple and understandable form. Various tools or devices employed for analysing the financial statements are as follows

1) Comparative Statements: When financial statements figures for two or more years are placed side by side to facilitate comparison, these are called ‘Comparative financial statements’, in such a statement figures of production, sales, expenses, profits etc. are put side by side to draw conclusions about the profitability and financial health of the business. It also indicates the trend of change as well as the strong points and weak points of the enterprise.

2) Common size statements: In these statements, various figures are converted into percentages to some common base, in profit and loss account, sales figure is taken at 100 and all other figures are expressed as percentage of sales. Similarly
in balance sheet total assets are taken at 100 and all assets are expressed as percentage of the total assets.

3) **Trend analysis:** It is one of the most useful form of horizontal analysis in making comparative study of the financial statements for a number of years. For calculating trend percentages any year is selected as the ‘base year’. Each item of the base year is assumed to be equal to 100 and on that basis the percentage of each item of each year is calculated. The trend percentage is helpful in revealing the trend increase or decrease in various items.

4) **Cash flow statement:** It shows the inflows and outflows of cash and cash equivalents during a particular period and analyses the reasons for changes in balance of cash between the two balance sheet dates. A firm may earn huge profits yet it may have paucity of cash or when it suffered a loss it may still have plenty of cash. The reasons for this deviation can be analysed and understood by preparing cash flow statements.

5) **Funds flow statement:** A fund flow statement is designed to show changes in assets, liabilities, capital of the firm between the dates of two balance sheets. It indicates the causes of changes in the working capital of an enterprise during the year. It also discloses the sources form which funds were obtained by the enterprise and the specific uses to which such funds were applied.

6) **Break Even analysis:** Break even point is the point where total costs are exactly equal to the total sales. At this point, there is neither any profit nor any loss. It can also be termed as ‘No profit – No loss’ point.

7) **Accounting ratios:** Absolute figures expressed in monetary terms in financial statements by themselves are meaningless. These figures often do not convey much meaning unless expressed in relation to other figures. For e.g. Mr. Ajay earns a profit of Rs.1,50,000, whereas another trader Mr. Anil earns a profit of Rs. 1,80,000. Which one of them is more efficient? Generally we can say that Anil is more efficient as he is earning more profits. But in order to given the correct answer, we must find out, how much the capital is employed by each of them. Suppose, Ajay has employed a capital of Rs.10,00,000 and Anil has employed Rs.15,00,000, we can now calculate the percentage of profit earned by each of them on capital employed.
The above example shows that figures assume significance only when expressed in relation to other figures. Just as in the example given above, the absolute figure of profit was meaningless but when the figure of profit was expressed in relation to capital, it gains importance.

### 4 Meaning of Ratio

Relationship between two figures, expressed in arithmetical terms is called a ‘ratio’. In the words of R.N.Anthony: “A ratio is simply one number expressed in terms of another. It is found by dividing one number into another.”

Ratios can be expressed in the following four ways:

1) ‘Proportion’ or Pure Ratio or Simple Ratio: It is expressed by the simple division of one number by another number. For example, if the current assets of a business are Rs.2,00,000 and its current liabilities are Rs.1,00,000, the ratio of ‘current assets to current liabilities’ will be 2:1.

2) ‘Rate’ or ‘So Many Times’: In this type, it is calculated how many times a figure is, in comparison to another figure. For example, if a firm’s credit sales during the year are Rs.2,00,000 and its debtors at the end of the year are Rs.40,000, its Debtors Turnover ratio is 5 times. It shows the credit sales are 5 times in comparison to debtors.

3) Percentage: In this type, the relation between two figures is expressed in hundredth. For example, if a firm’s capital is Rs.10,00,000 and its profit is Rs.2,00,000, the ratio of profit to capital in terms of percentage is 20%.

4) Fraction: For example net profit is $1/5$th of the capital.

While calculating a ratio, it should be understood that it is desirable to divide “more favorable figures” by the “less favorable figures.”

<table>
<thead>
<tr>
<th></th>
<th>Calculation</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ajay</td>
<td>$\frac{1,50,000}{10,00,000} \times 100$</td>
<td>15%</td>
</tr>
<tr>
<td>Anil</td>
<td>$\frac{1,80,000}{15,00,000} \times 100$</td>
<td>12%</td>
</tr>
</tbody>
</table>

This shows that Ajay has earned Rs.15 for every Rs.100 of capital, whereas Anil has earned Rs.12 for every Rs.100 of capital. As such, Ajay is using his capital more efficiently.
CROSS SECTIONAL AND TIME SERIES ANALYSIS

The ratio analysis involves comparison for a useful interpretation of financial statements. A single ratio in itself does not indicate favorable or unfavorable position. It should be compared with that of some other firm in the same industry or with that of past ratios of the same firm.

a) Cross Sectional Analysis

It involves the comparison of firm’s ratios with that of some selected firms in the same industry or industry average at the same point of time. Such a comparison is helpful in assessing the relative financial position and performance of the firm. Cross sectional ratio analysis is also used to provide conclusive evidence of the existence of a problem and which, in turn, will help to initiate corrective actions. However, care has to be taken in the selection of other firms. The other firms selected for comparison must have a common variable of similarity. The similarity may be raw material consumption, production process or end product. A can firm can easily resort to cross sectional analysis, as it is not difficult to get published financial statements of the similar firms.

b) Time Series Analysis

Another way of comparison is to compare a firm’s present ratios with its past ratios. When ratios of the same firm over a period of time are compared, it is known as the time series analysis. Such an analysis gives an indication of direction of change or developing trends and reflects whether the firm’s financial performance has improved, deteriorated or remained constant over a period time. However, in order to derive meaningful conclusion from time series analysis, we need similar data quality over period of time. Care must be taken regarding change in accounting policy, technological development and competition over the period of analysis. For example, a firm may have changed the method of providing depreciation from straight line to written down value. The effect of such a change has to be ironed out to make time series analysis meaningful.
c) **Pro forma Analysis**

Sometimes future ratios are used as the standard of comparison. Future ratios can be developed from the projected or pro forma, financial statements. The comparison of current or past ratios with future ratios shows the firm’s relative strengths and weaknesses in the past and the future. If the future ratios indicate weak position, corrective actions should be initiated.

d) **Industry Analysis**

To determine the financial condition and performance of a firm, its ratios may be compared with average a ratio of the industry of which firm is a member. This sort of analysis, known as industry analysis, helps to ascertain the financial standing and capability of the firm vis a vis other firms in the industry. Industry ratios are important standards in view of the fact that each industry has its characteristics which influence the financial and operating relationships.

Here, using cross sectional, time series and industry analysis have been taken to evaluate and justify the research purpose.

**Benchmarks**

As stated earlier, a single ratio in itself cannot be said to be good or bad. In order to comment on the quality of a ratio it has to be compared with some standard benchmark. These benchmark could be:

1) **Past ratio**: A ratio could be compared or benchmarked with the last year’s ratio. It is also known as time series analysis.

2) **Ratios of similar firms or industry average**: A ratio could be compared with the ratios of similar firms in the same industry or by industry average at the same point of time.

3) **Rule of thumb**: Certain ‘Rule of thumb’ based upon well proven conversations have evolved over period of time. For example, rule of thumb for current ratio is 2:1, meaning thereby the current assets should be at least twice the current liabilities.
4.1 DU PONT ANALYSIS

The DuPont model is a technique that can be used to analyze the profitability of a company using traditional management tools. To enable this, the DuPont model integrates elements of the Income Statement with those of the balance sheet.

**DU PONT CHART**

The DuPont model of financial analysis was made by F. Donaldson Brown, an electrical engineer who joined the DuPont (a giant chemical company) in 1914, after few years, DuPont purchased 23% stake in General Motors Corp. and Brown was provided task to clean up the company’s complex finances matters. Brown recognized a mathematical relationship that existed between two commonly computed ratios, viz. net profit margin and total assets turnover ratio. It was the relationship between efficiency ratio and profitability ratio. These two are the basic parameters to analyze company’s financial assets. The product of the net profit margin and total asset turnover equals to Return on Assets (ROA). At this point of time maximizing return on assets was a common corporate goal. Return on Assets was impacted by both profitability and efficiency led to the development of a system of planning and control for all operating decisions within a firm, and this has become the dominant form of financial analysis until 1970s. In 1970s the generally accepted goal of
financial management became ‘maximizing wealth of firms’ owners’ and focus was shifted from ROA to ROE (return on Equity). This led to the first major modification of the original DuPont model. In addition to profitability and efficiency the way in a firm financed its activities i.e. its use of ‘leverage’ became a third area of attention for financial managers. The new ratio of interest was called the equity multiplier (total assets / equity). Thus ratio analysis as a tool provides a wealth of information that is useful in this regard and one type of analysis in particular, the DuPont technique can be used to enhance decisions making with an eye on improving return. It is a also good tool to control as in the words of Dun & Bradstreet, “A poor financial practices is second only to economic conditions as a cause of business failures.”

4.2 Users of Ratio analysis

a) Trade creditors are interested in firm’s ability to meet their claims over a very short period of time. Their analysis will, therefore, confine or restricted to the evaluation of the firm’s liquidity position

b) Suppliers of long term debt on the other hand, are concerned with the firm’s long term solvency and survival. They analyze the firm’s profitability over time, its ability to generate cash to be able to pay interest and repay principal and the relationship between various sources of funds.

c) Investors who have invested their money in the firm’s shares, are most concerned about firm’s earnings, they restore more confidence in those firms that show steady growth in earnings.

d) Management of the firm would be interested in every aspect of the financial analysis, it is their overall responsibility to see that the resources of the firm are used most efficiently and effectively.

e) Government on behalf of the society as a whole looks for environmental policy, corporate social responsibility, transparency in accounting policies, human resources etc. for the development and well being of the society.

4.3 Objectives of Ratio Analysis

1) To locate the weak spots of business which need more attention.

2) To provide deeper analysis of the liquidity, solvency, activity and profitability of the business.
3) To provide information for making cross – sectional analysis, i.e. for making comparison with that of some selected firms in the same industry.

4) To provide information for making time series analysis, i.e. for making comparison of a firm’s present ratios with past ratios.

5) To provide information useful for making estimates and preparing plans for the future.

4.4 Advantages of ratio analysis

Financial statements, i.e., Profit and Loss account and Balance sheet prepared at the end of the year do not always convey to the reader the real profitability and financial health of business. They contain various facts and figures and it is for the reader to conclude, whether these facts indicate a good or bad managerial performance. Ratio analysis is the most important tool of analyzing these financial statements. *It helps the reader in giving tongue to the mute heaps of figures* given in financial statements. The figures can speak of liquidity, solvency, profitability etc. of the business enterprise. Some important advantages derived by a firm by the use of accounting ratios are :-

1) Helpful in analysis of financial statements

2) Simplification of accounting data

3) Helpful in comparative study

4) Helpful in locating the weak spots of the business

5) Helpful in forecasting

6) Estimate about the trend of business

7) Fixation of ideal standards

8) Effective control

9) Study of financial soundness
4.5 Limitations of Accounting ratios

1) False accounting data gives false ratios

2) Comparison is not possible if different firms adopt different accounting policies.

3) Ratio analysis becomes less effective due to price level changes

4) Ratios may be misleading in the absence of absolute data

5) Limited use of single ratio

6) Window dressing

7) Lack of proper standards

8) Ratios alone are not adequate for proper conclusions

9) Effect of personal ability and bias of the analyst.

4.6 Classification of Ratios

Ratios may be classified into the four categories as follows:

a) **Liquidity ratios**: “liquidity” refers to the ability of the firm to meet its current liabilities. The liquidity ratios, therefore, are also called ‘short term solvency ratios’. These ratios are used to assess the short term financial position of the enterprise.

   According to Saloman J. Flink, “Liquidity is the ability of the firm to meet its current obligations as they fall due.”

   In the words of Herbert B. Mayo, “Liquidity is the ease with which assets can be converted into cash without loss.”

   Short term creditors of the firm are primarily interested in the liquidity ratios of the firm as they want to know how promptly or readily the firm can meet its current liabilities. It has been discussed broadly in next chapter.

b) **Solvency ratios**: This ratio is calculated to assess the ability of the firm to meet its long term liabilities as and when they become due. These ratios reveal as to how much amount has been raised from outside sources.
Solvency ratios disclose the firms’ ability to meet the interest cost regularly and long term indebtedness at maturity. Some important solvency ratios are:

a. Debt equity ratio
b. Total assets to debt ratio
c. Proprietary ratio

c) Activity or turnover ratios: These ratios are calculated on the basis of ‘cost of sales’ or ‘sales’, therefore, these ratios are also known as ‘Turnover ratios’. Turnover indicates the speed or number of times the capital employed has been rotated in the process of doing business. In other words, these ratios indicate how efficiently the working capital and stock is being used to obtain sales. Higher turnover ratios indicate the better use of capital or resources and in turn led to higher profitability. Some important turnover ratios are

a. Stock turnover or inventory turnover ratio
b. Debtors turnover or receivable turnover ratio
c. Creditors or payable turnover ratio
d. Working capital turnover ratio
e. Fixed assets turnover ratio

d) Profitability ratios or income ratios: one of the most important and the main object of all the business concerns is to earn profit. Profit is the measurement of the efficiency of the business. Profitability ratios measure the various aspects of the profitability of a company, such as 1) what is the rate of profit on sales? 2) Whether the profit are increasing or decreasing, and if decreasing, then the cause of their decrease. Some important profitability ratios are:

a. Gross profit ratio
b. Operating ratio
Gross profit margin ratio

This ratio indicates the relationship between gross profit and sales. It reflects how well cost of goods sold, a major expense item, is being controlled. It shows the profit made on sales before taking account of overheads. Thus the gross profit margin highlights the production efficiency of a concern. It is always preferred to express this ratio in terms of percentage. The gross profit margin is computed by deducting cost of goods sold from the amount of sales as shown under;

\[
\text{Gross profit margin ratio} = \frac{\text{sales} - \text{cost of goods sold}}{\text{sales}} \times 100
\]

\[
= \frac{\text{gross profit}}{\text{sales}} \times 100
\]

While interpreting the gross profit margin ratio, it is important to observe any trend, but in making comparisons between companies it is vital to appreciate that gross profit margin vary considerably from industry to industry. However, gross profit margin must be sufficient to meet administrative and distribution expenses, dividend and accumulation of reserves. The ratio is compared with earlier year’s ratio and important conclusions are drawn from such comparisons to the previous year, it may be concluded that:-

a) Price of material purchased, freight, wages and other direct charges may have gone up but selling price may not have gone up in proportion to the increase in cost.

b) The selling prices may have fallen but the prices of materials, freight, wages and other direct charges may not have fallen relatively.

c) There may be misappropriation, theft or pilferage of stocks during the year.

d) There is fall in the sale of more profitable varieties of goods.

e) There is fall in the prices of unsold goods, thereby reducing the value of closing stock.
TABLE NO. 4.1 GROSS PROFIT RATIO OF THE SELECTED REFINERY INDUSTRY UNDER THE STUDY FOR THE PERIOD OF (2007-08 TO 2012-13)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-10</th>
<th>2009-09</th>
<th>2008-08</th>
<th>2007-08</th>
<th>AVG</th>
<th>SD</th>
<th>COV(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>1.74</td>
<td>0.93</td>
<td>1.24</td>
<td>1.86</td>
<td>2.58</td>
<td>1.86</td>
<td>1.70</td>
<td>0.57</td>
<td>30.71</td>
</tr>
<tr>
<td>HPCL</td>
<td>1.1</td>
<td>1.3</td>
<td>1.43</td>
<td>2</td>
<td>1.84</td>
<td>0.95</td>
<td>1.44</td>
<td>0.41</td>
<td>43.37</td>
</tr>
<tr>
<td>IOCL</td>
<td>1.9</td>
<td>3.09</td>
<td>2.43</td>
<td>4.4</td>
<td>3.46</td>
<td>3.47</td>
<td>3.13</td>
<td>0.88</td>
<td>25.26</td>
</tr>
<tr>
<td>MRPL</td>
<td>-0.46</td>
<td>2.19</td>
<td>4.12</td>
<td>4.39</td>
<td>6.21</td>
<td>5.14</td>
<td>3.60</td>
<td>2.39</td>
<td>46.49</td>
</tr>
<tr>
<td>ONGC</td>
<td>30.34</td>
<td>50.22</td>
<td>47.58</td>
<td>53.87</td>
<td>43.58</td>
<td>42.99</td>
<td>44.76</td>
<td>8.16</td>
<td>18.99</td>
</tr>
<tr>
<td>AVG</td>
<td>6.76</td>
<td>10.76</td>
<td>11.09</td>
<td>12.78</td>
<td>11.84</td>
<td>11.26</td>
<td>10.75</td>
<td>16.06</td>
<td>142.65</td>
</tr>
</tbody>
</table>

Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai

![Gross Profit Ratio of Refinery Industry Graph](chart.png)
The above table no. 4.1 shows gross profit ratio of refinery industries taken under sample. During study period BPCL has maintained average gross profit margin of 1.70%, which was very low compared to industry average of 10.75%, the margin was ranged between 2.58% in 2008-09 to 0.93% in 2011-12, the standard deviation was 0.57 as compared to industry average of 16.06 which means there was a less fluctuation in gross profit margin during period of research. Overall the company has shown satisfactory gross profit margin.

Gross profit margin of HPCL varied between 2% in 2009-10 to 1.1% in 2012-13. Average gross profit margin was 1.44% which was also the lowest among the average of other companies’ as well as industry average of 16.06%. Overall it was clear that company has maintained very poor gross profit margin on sales due to high cost of production and direct expenses.

During period of study gross profit margin of IOCL was showing mix trend, ranged between 3.47% in 2007-08 to 1.9% in 2012-13. The company has maintained average gross profit margin of 3.13% which was less than the industry average of 16.06%. Overall the company has maintained satisfactory gross profit margin.

MRPL was the only exception showing negative return of gross profit on sales. Although company has maintained average return of 3.60%, during last year it was negative. Highest return was in 2008-09 which was 6.21%. Due to heavy cost of production company couldn’t maintain positive return on sales.

ONGC has shown very sound profitability position. It has shown average of 44.76% which was more than the industry average of 10.75%. Gross profit margin was ranged between 53.87% in 2009-10 to 30.34% in 2012-13. Standard deviation of 8.16% compared to industry average of 16.06% which means there was a less fluctuations in gross profit margin during period of research.

RIL has shown downtrend in gross profit during research period, ranged between 13.35% in 2008-09 to 5.91% in 2011-12, during last four years of study, there was a continuous decrease in gross profit margin, which shows negative future profitability position. The company has managed average 9.85% return on gross profit which was also less than the industry average.

ANOVA TEST ON GROSS PROFIT RATIO

Null Hypothesis: - There is no significant difference in gross profit ratio of selected refinery Industries during study period
Alternative Hypothesis: There is significant difference in gross profit ratio of selected refinery Industries during the study period.

Level of significance: 5% Level

**TABLE NO. 4.2 ANOVA TABLE ON GROSS PROFIT RATIO:-**

<table>
<thead>
<tr>
<th>ANOVA</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of Variation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS between companies</td>
<td>8613.7</td>
<td>5</td>
<td>1722.74</td>
<td>150.39</td>
<td>2.60</td>
</tr>
<tr>
<td>SS between years</td>
<td>129.7</td>
<td>5</td>
<td>25.94</td>
<td>2.26</td>
<td>2.60</td>
</tr>
<tr>
<td>Error</td>
<td>286.4</td>
<td>25</td>
<td>11.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9029.8</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculated F value: 150.39

Table F value: 2.6

Result: Significant

The analysis showed the significant result. It can be seen from the table, that the calculated value of F was found as 150.39, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being more than the table value of F, the alternate Hypothesis stood accepted and the null hypothesis got rejected at 5% level of significance. So it proves that the differences among the average of this group were much significant and the average profitability of the groups of the refinery Industries differ much.

**Net profit margin ratio**

It monitors the net profit made in relation to sales. This ratio, also known as net operating margin, is calculated by dividing the net profit after tax by the amount of sales. While interpreting the net profit margin ratio it is important to bear in mind that such ratios vary considerably from firm to firm. Firms engaged in retailing are likely to have quite rapid turnover and to operate on low margins allied to high volume, while those firms engaged in selling a few large items must make a high profit in relation to the sales value of each one. The net profit margin ratio provides a relatively clear picture of how efficiently the firm maintains control over its total expenses. In addition, the analyst may wish to calculate the relationship between each expense item and sales to determine the extent to which specific
expenses are under control or are tending to move out of control. For this purpose, expense ratio is also used. According to Hingorani, Ramanathan and Grewal. “Net profit margin indicates the net margin earned on sales of rs.100.” According to Van Home. “It tells us the relative efficiency of the firm after taking into account all expenses and income – taxes, but not extraordinary charges. It also describes managerial efficiency in the form of administrative, financing and selling. Again the difference between gross profit and net profit shows the proportion of these expenses into total cost.

Net profit ratio (NP ratio) = net profit after tax/net sales x 100

Net profit after tax (profit after tax) = net profit before tax – provision for tax

Net sales = total sales – sales return

Normally, this ratio is expressed in percentage.

This ratio indicates the total profitability of an enterprise. By means of NP ratio, the amount and rate of total profit earned by an enterprise from its all activities including trading activity can be known. The higher ratio exhibits the better profitability.

According to M.Y.Khan and P.K.Jain. “A high net profit margin would ensure adequate return to the owners as well as enable to a firm to withstand adverse economic conditions when the price is declining, cost production is rising and demand for the product is falling.”
TABLE NO. 4.3 NET PROFIT RATIO OF THE SELECTED REFINERY INDUSTRY UNDER THE STUDY FOR THE PERIOD OF (2007-08 TO 2012-13)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>AVG</th>
<th>SD</th>
<th>COV(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>1.09</td>
<td>0.61</td>
<td>1.26</td>
<td>0.54</td>
<td>1.42</td>
<td>0.99</td>
<td>0.35</td>
<td>24.69</td>
</tr>
<tr>
<td>HPCL</td>
<td>0.43</td>
<td>0.5</td>
<td>1.14</td>
<td>1.2</td>
<td>0.45</td>
<td>1.08</td>
<td>0.80</td>
<td>34.73</td>
</tr>
<tr>
<td>IOCL</td>
<td>1.11</td>
<td>0.98</td>
<td>2.22</td>
<td>3.74</td>
<td>0.95</td>
<td>2.78</td>
<td>1.96</td>
<td>41.36</td>
</tr>
<tr>
<td>MRPL</td>
<td>-1.15</td>
<td>1.67</td>
<td>3</td>
<td>3.45</td>
<td>3.1</td>
<td>3.89</td>
<td>2.33</td>
<td>47.78</td>
</tr>
<tr>
<td>RIL</td>
<td>5.7</td>
<td>5.99</td>
<td>8.08</td>
<td>8.35</td>
<td>10.65</td>
<td>14.45</td>
<td>8.87</td>
<td>22.65</td>
</tr>
</tbody>
</table>

Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai
The above table no. 4.2 shows net profit ratio of refinery industries taken under sample. Above table shows net profit margin of BPCL. The company has maintained average 0.99% net profit margin which was less than industry average of 6.85%. The margin was ranged between 1.26% in 2009-10 to 0.54% in 2008-09. It was fluctuating during research period. Standard deviation was 0.35% which was less than the industry average of 9.36%. Overall it shows very low net profit margin as compared to other industry players of research sample.

HPCL had the lowest average of net profit margin among other companies, i.e. 0.80% whereas average industry net profit margin was 6.85%, the margin was ranged between 1.2% in 2009-10 to 0.43% in 2012-13. During research period, the net profit margin has shown mixed trend. In short the company had maintained poor net profit margin during research period.

During study period, net profit margin of IOCL was ranged between 3.74% in 2009-10 to 0.95% in 2008-09. Average net profit margin was 1.96% which was below industry average of 6.85%. Overall it shows satisfactory net profit margin.

MRPL had shown good net profit margin during the first three years of research, ranged between 3.89% in 2007-08 to 3% in 2010-11, but during last two years of study there was a downtrend in net profit margin, moreover it was negative 1.15% in 2012-13. Due to high cost of production company couldn’t maintain net profit margin.

ONGC has shown better net profit margin during research period. The company was having the highest average of net profit margin i.e. 26.14% far better than the industry average of just 6.85%, margin was ranged between 31.02% in 2011-12 to 23.5% in 2008-09. The company is having very strong profitability prospectus.

RIL had maintained average 8.67% net profit margin slightly more than industry average of 6.85%, the margin was ranged between 14.45% in 2007-08 to 5.7% in 2012-13. The company was having very sound profitability position, except the constraint that negative trend of net profit margin will lead to adverse profitability condition in future.

**ANOVA TEST ON NET PROFIT RATIO**

Null Hypothesis: - There is no significant difference in net profit ratio of selected refinery Industries during study period

Alternative Hypothesis: - There is significant difference in net profit ratio of selected refinery Industries during the study period.

Level of significance: 5% Level
TABLE NO. 4.4 ANOVA TABLE ON NET PROFIT RATIO

<table>
<thead>
<tr>
<th>ANOVA</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of Variation</td>
<td>SS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS between companies</td>
<td>2948.650</td>
<td>5</td>
<td>589.73</td>
<td>175.71</td>
<td>2.60</td>
</tr>
<tr>
<td>SS between years</td>
<td>31.920</td>
<td>5</td>
<td>6.38</td>
<td>1.90</td>
<td>2.60</td>
</tr>
<tr>
<td>Error</td>
<td>83.910</td>
<td>25</td>
<td>3.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3064.470</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculated F value: 175.71

Table F value: 2.6

Result: Significant

The analysis showed the significant result. It can be seen from the table, that the calculated value of F was found as 175.71, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being more than the table value of F, the alternate Hypothesis stood accepted and the null hypothesis got rejected at 5% level of significance. So it proves that the differences among the average of this group were much significant and the average profitability of the groups of the refinery Industries differ much.

**Return on capital employed**

One of the most widely used ratios is the return on assets. Since assets are used to generate income, the higher the income, the more productive assets were during the period. In computing the return on assets, the analyst must bear in mind that both borrowed as well as owned funds are used by the business for the acquisition of assets, therefore, the return on assets should be computed before accounting for the interest on borrowed funds/ capital. At the same time, income tax too is not considered while calculating this ratio because taxes are calculated on income after interest deductions. Consequently, earnings before interest and tax (EBIT) is usually used to measure return on capital employed.

The term assets is also somewhat complex to understand, in simple terms the funds used net current assets are considered as capital employed, where net current assets is a
difference between current assets and current liabilities. While there are some debatable points which require clarification.

Valuation of fixed assets: there are mainly three methods for the valuation of fixed assets i.e gross value, book value and replacement value or market value. Gross value is the historical cost of an assets, whereas book value is a value of assets after deducting depreciation. Replacement value can be found out with the help of index numbers or market price.

Intangible assets: Intangible assets like goodwill, copyright, patent, franchise etc. should be considered at their realizable value unless they should be written off as soon as possible.

Non performing Assets: Non performing assets are also known as idle assets. As return on capital employed is a test of efficiency, one should not consider the assets which doesn’t generate any income or do not contribute towards profitability of an enterprise.

Fictitious assets: Preliminary expenses, Underwriting commission, advertisement suspense, misc. expenditure not written off etc. are not assets at all. Fictitious assets are those items of balance sheet which pretended to be assets, but actually they are expenses not written off and therefore shouldn’t be considered while calculating capital employed.

Return on capital employed (ROCE) = EBIT/ capital employed x 100

It is normally expressed as a percentage

It indicates the rate of return earned by an enterprise form its total capital employed in the business. It is also an indicator of the profit earning capacity of an enterprise. A higher return reveals a better profitability on the total capital employed in the business.

Earning Before Interest and Tax = net profit ascertained after comparing all the revenue incomes with all the revenue expenses except interest on loan and provision for income tax.

Capital employed = proprietors’fund+ long terms fund

Propertiors’ fund = share capital + reserve and surplus – fictitious assets
### TABLE NO. 4.5 RETURN ON CAPITAL EMPLOYED OF THE SELECTED REFINERY INDUSTRY UNDER THE STUDY FOR THE PERIOD OF (2007-08 TO 2012-13)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>AVG</th>
<th>SD</th>
<th>COV(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>14.57</td>
<td>10.18</td>
<td>11.5</td>
<td>11.11</td>
<td>14.88</td>
<td>11.37</td>
<td>12.27</td>
<td>1.96</td>
<td>0.16</td>
</tr>
<tr>
<td>HPCL</td>
<td>7.31</td>
<td>8.27</td>
<td>7.93</td>
<td>9.91</td>
<td>9.48</td>
<td>6.23</td>
<td>8.19</td>
<td>1.36</td>
<td>0.17</td>
</tr>
<tr>
<td>IOCL</td>
<td>8.64</td>
<td>13.08</td>
<td>10.32</td>
<td>15.83</td>
<td>14.64</td>
<td>14.06</td>
<td>12.76</td>
<td>2.75</td>
<td>0.22</td>
</tr>
<tr>
<td>MRPL</td>
<td>-1.43</td>
<td>11.76</td>
<td>21.86</td>
<td>23.07</td>
<td>38.15</td>
<td>29.91</td>
<td>20.55</td>
<td>13.90</td>
<td>0.68</td>
</tr>
<tr>
<td>ONGC</td>
<td>24.6</td>
<td>28.56</td>
<td>28.38</td>
<td>34.54</td>
<td>34.29</td>
<td>36.3</td>
<td>31.11</td>
<td>4.59</td>
<td>0.15</td>
</tr>
<tr>
<td>RIL</td>
<td>12.5</td>
<td>12.18</td>
<td>12.6</td>
<td>11.35</td>
<td>10.96</td>
<td>15.68</td>
<td>12.55</td>
<td>1.67</td>
<td>0.13</td>
</tr>
<tr>
<td>AVG</td>
<td>11.03</td>
<td>14.01</td>
<td>15.43</td>
<td>17.64</td>
<td>20.40</td>
<td>18.93</td>
<td>16.24</td>
<td>9.6</td>
<td>0.59</td>
</tr>
</tbody>
</table>

*Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai*
The above table no. 4.3 shows Return on Capital Employed of refinery industries taken under sample. The above table shows return on capital employed of BPCL average return was 12.27% which was less than industry average of 16.24%. Standard deviation of 1.96 means there was a less fluctuations during research period of study. The average was between 14.86% in 2008-09 to 10.18% in 2011-12.

Return on capital employed of HPCL was satisfactory at an average of 8.19% with industry average of 16.24% almost half of the industry average, which shows poor return on capital employed as compare to other companies, ratio was ranged between 9.91% in 2009-10 to 6.23% in 2007-08. Standard deviation of 1.36, less than the industry average means less fluctuation in return on capital employed during study period.

Ratio of return on capital employed of IOCL was ranged between 15.83% in 2009-10 to 8.64% in 2012-13. The ratio has shown mixed trend. The average return was 12.76% which was also less than industry average of 16.24%. Overall the company has maintained satisfactory return on capital employed.

MRPL was the only company which had given negative return to capital employed due to heavy loss after tax and high expenses to revenue. In 2012-13, it has shown negative return of 1.43%, however company could maintain average ratio of 20.55% which was unexpectedly higher than the industry average of 16.24%.

ONGC has given the highest average return on capital employed i.e. 31.11%, ranged between 36.3% in 2007-08 to 24.6% in 2012-13. Standard deviation was 4.59 which was also less than the industry average of 9.6 which means there was less uncertainty in return on capital employed during study period. Overall the company is having good prospects in return on capital employed.

RIL has maintained 12.55% average return on capital employed. The ratio was ranged between 15.68% in 2007-08 to 10.96% in 2008-09, however during last two years of research period, company has maintained upward trend in return on capital employed. Standard deviation was 1.67 compared to industry average of 9.6 means less deviation in return on capital employed.

ANOVA TEST ON RETURN ON CAPITAL EMPLOYED

Null Hypothesis: - There is no significant difference in return on capital employed of selected refinery Industries during study period
Alternative Hypothesis: There is significant difference in return on capital employed of selected refinery Industries during the study period.

Level of significance: 5% Level

**TABLE NO. 4.6 ANOVA TABLE ON RETURN ON CAPITAL EMPLOYED**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS between companies</td>
<td>2076.76</td>
<td>5</td>
<td>415.35</td>
<td>13.05</td>
<td>2.60</td>
</tr>
<tr>
<td>SS between years</td>
<td>355.42</td>
<td>5</td>
<td>71.08</td>
<td>2.23</td>
<td>2.60</td>
</tr>
<tr>
<td>Error</td>
<td>795.67</td>
<td>25</td>
<td>31.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3227.85</strong></td>
<td><strong>35</strong></td>
<td>**117</td>
<td><strong>Page</strong></td>
<td></td>
</tr>
</tbody>
</table>

**RETURN ON CAPITAL EMPLOYED:-**

Calculated F value: 13.05

Table F value: 2.6

Result: Significant

The analysis showed the significant result. It can be seen from the table, that the calculated value of F was found as 13.05, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being more than the table value of F, the alternate Hypothesis stood accepted and the null hypothesis got rejected at 5% level of significance. So it proves that the differences among the average of this group were much significant and the average profitability of the groups of the refinery Industries differs much.

**Return on share holders’ fund or net worth**

Return on net worth = net profit after interest and tax / net worth x 100
It is normally expressed in percentage

It indicates the rate of return earned by an enterprise on the capital invested by its owners. This is an indicator of the rate of return on the shareholders’ fund invested in the business. A high rate of return shows the efficiency of management in employment of owners’ funds in an effective way, whereas low rate of return shows misappropriate handling of owners’ fund. It also indicates low profitability or over investment in fixed assets.

According to Clifton. “the return on equity relates net to stockholders’ equity.”
## TABLE NO. 4.7 RETURN ON NET WORTH OF THE SELECTED REFINERY INDUSTRY UNDER THE STUDY FOR THE PERIOD OF (2007-08 TO 2012-13)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>AVG</th>
<th>SD</th>
<th>COV(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>15.88</td>
<td>8.79</td>
<td>11</td>
<td>11.74</td>
<td>6.06</td>
<td>13.53</td>
<td>11.17</td>
<td>3.46</td>
<td>30.99</td>
</tr>
<tr>
<td>HPCL</td>
<td>6.59</td>
<td>6.94</td>
<td>12.26</td>
<td>11.25</td>
<td>5.35</td>
<td>10.74</td>
<td>8.86</td>
<td>2.90</td>
<td>32.72</td>
</tr>
<tr>
<td>IOCL</td>
<td>8.18</td>
<td>6.83</td>
<td>13.45</td>
<td>20.22</td>
<td>6.71</td>
<td>16.99</td>
<td>12.06</td>
<td>5.72</td>
<td>47.45</td>
</tr>
<tr>
<td>MRPL</td>
<td>-11.7</td>
<td>12.57</td>
<td>18.04</td>
<td>19.9</td>
<td>25.26</td>
<td>33.71</td>
<td>16.30</td>
<td>15.47</td>
<td>94.95</td>
</tr>
<tr>
<td>RIL</td>
<td>11.66</td>
<td>12.29</td>
<td>13.88</td>
<td>12.64</td>
<td>13.36</td>
<td>24.66</td>
<td>14.75</td>
<td>4.92</td>
<td>33.35</td>
</tr>
<tr>
<td>AVG</td>
<td>7.90</td>
<td>11.61</td>
<td>14.67</td>
<td>15.86</td>
<td>12.90</td>
<td>20.58</td>
<td>13.92</td>
<td>7.79</td>
<td>55.96</td>
</tr>
</tbody>
</table>

*Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai*
The above table no. 4.4 shows Return on Net Worth of refinery industries taken under sample. The above table shows ratio of return on net worth of BPCL. The ratio showed mix trend during research period. The average was 11.17% which was little less than industry average of 13.92%. The ratio was ranged between 15.88% in 2012-13 to 6.06% in 2008-09. The standard deviation was 3.46 which also less than the industry average of 7.79 showing less fluctuation in return on net worth of company. In short the company has maintained good ratio of return on net worth.

The ratio of return on net worth of HPCL shows fluctuating trend. The company had given average return of 8.86% as compared to industry average of 13.92%, which was the lowest return compare to other companies included in research study. The ratio was ranged between 12.26% in 2010-11 to 5.35% in 2008-09. Overall the company has given satisfactory return on net worth during period of study.

The ratio of return on net worth of IOCL has also shown mix trend, ranged between 20.22% in 2009-10 to 6.71% in 2008-09. Overall the company has maintained average return of 12.06% which was little less than industry average of 13.92. overall the company could maintain satisfactory return on net worth during period of study.

The ratio of return on net worth of MRPL has shown exceptionally negative return in 2012-13 i.e. 11.7% due to negative profit after tax. However the company has managed average return of 16.30% on net worth which was more than the industry average of 13.92%, but as far as company is showing negative trend it was adverse for future profitability.

ONGC has given the highest return on net worth at an average of 20.39% compared to industry average of 13.92%, ratio was ranged between 22.24% in 2011-12 to 16.81% in 2012-13. Standard deviation was mere 2.47 which mean less fluctuation in return. Overall the company has performed well and given good returns to shareholders.

RIL has maintained return on net worth with an average of 14.75% which was better than industry average of 13.92%, although the ratio has shown decreasing trend during last three years of study period. The ratio was ranged between 24.66% in 2007-08 to 11.66% in 2012-13. Overall the company has given satisfactory return to their shareholders.

**ANOVA TEST ON RETURN ON NET WORTH**

Null Hypothesis: - There is no significant difference in return on net worth ratio of selected refinery Industries during study period
Alternative Hypothesis: - There is significant difference in return on net worth of selected refinery Industries during the study period.

Level of significance: 5% Level

The higher return reveals better profitability position to the shareholders of the company.

Net worth = Propertiors’ fund = share capital + reserve and surplus – fictitious assets

### TABLE NO. 4.8 ANOVA TABLE ON RETURN ON NET WORTH

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS between companies</td>
<td>509.530</td>
<td>5</td>
<td>101.91</td>
<td>2.39</td>
<td>2.60</td>
</tr>
<tr>
<td>SS between years</td>
<td>547.780</td>
<td>5</td>
<td>109.56</td>
<td>2.57</td>
<td>2.60</td>
</tr>
<tr>
<td>Error</td>
<td>1066.560</td>
<td>25</td>
<td>42.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2123.860</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculated F value: 2.39

Table F value: 2.6

Result: Insignificant

The analysis showed the insignificant result. It can be seen from the table, that the calculated value of F was found as 2.39, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being less than the table value of F, the alternate Hypothesis will be rejected and the null hypothesis stood accepted at 5% level of significance. So it proves that the differences among the average of this group were not much significant and the average profitability of the groups of the refinery Industries does not differ much.

### DIVIDEND PER SHARE

Dividend policy of the firm greatly determines the dividend payment and retained earning ratio of enterprise. Company may adopt conservative, liberal or stable dividend
policy. It should be selected carefully as it may affect the market value of a firm. According to Weston and Brigham, “when dividend of a firm is widely fluctuating, the shareholders can never say what they get in any particular year from their holding in such a company. Investment in the shares of such company becomes a sort of speculation which only a few can afford.” Dividend per share are the amount of dividend that public or listed company pays per share of common stock, over their reporting period, that they have issued. The remainder of company’s net income, which is not paid out as dividends, is retained by the company for growth and is known as retained earnings.

The proportion of earning used to pay out as dividend to investors by the company is called dividend payout ratio.

DPS = Dividend paid / number of equity shares outstanding (withheld with public)
<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>AVERAGE</th>
<th>STD DEV</th>
<th>COV(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>11</td>
<td>11</td>
<td>14</td>
<td>14</td>
<td>7</td>
<td>4</td>
<td>10.17</td>
<td>3.97</td>
<td>39.04</td>
</tr>
<tr>
<td>HPCL</td>
<td>8.5</td>
<td>8.5</td>
<td>14</td>
<td>12</td>
<td>5.25</td>
<td>3</td>
<td>8.54</td>
<td>4.08</td>
<td>47.8</td>
</tr>
<tr>
<td>IOCL</td>
<td>6.2</td>
<td>5</td>
<td>9.5</td>
<td>13</td>
<td>7.5</td>
<td>5.5</td>
<td>7.78</td>
<td>3.02</td>
<td>38.86</td>
</tr>
<tr>
<td>MRPL</td>
<td>0</td>
<td>1</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>0.97</td>
<td>0.48</td>
<td>49.51</td>
</tr>
<tr>
<td>ONGC</td>
<td>9.5</td>
<td>9.75</td>
<td>8.75</td>
<td>33</td>
<td>32</td>
<td>32</td>
<td>20.83</td>
<td>12.61</td>
<td>60.52</td>
</tr>
<tr>
<td>RIL</td>
<td>9</td>
<td>8.5</td>
<td>8</td>
<td>7</td>
<td>13</td>
<td>13</td>
<td>9.75</td>
<td>2.60</td>
<td>26.7</td>
</tr>
</tbody>
</table>

*Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai*
The above table no. 4.5 shows Dividend Per Share of refinery industries taken under sample. The Dividend Per Share of BPCL has shown increasing trend during first four years of study period, whereas during last two years company could maintain DPS of Rs.11 per share. Average DPS of BPCL was Rs.10.17 per share, which was little more than the industry average of Rs.9.67 per share. Overall it shows positive and satisfactory dividend per share.

HPCL, has maintained increasing trend of DPS during first four years, whereas during last two years, company had shown constant DPS of Rs.8.5 per share. The average DPS was Rs.8.54, which was less than the industry average of Rs.9.67 per share. Standard deviation of 4.08 shows less fluctuations in dividend per share of a company.

During study period, IOCL has maintained the average DPS of Rs.7.78 per share, ranged between Rs.13 in 2009-10 to Rs.5 per share in 2011-12. Standard deviation was 3.02 which is less than industry average of 8.05 which means less changes in dividend payment during research period.

MRPL has shown average DPS of 0.97 per share, which was far below than the industry average of Rs.9.67 per share. During first four years of research company had constant DPS of Rs.1.2, gradually it decreased to 1 re. per share and nil. Due to negative earnings after tax, company couldn’t maintain proper dividend policy.

ONGC has shown the highest average of Rs.20.83 per share, as compared to industry average of Rs.9.67 per share, it was ranged between Rs.33 per share in 2009-10 to Rs.8.75 per share in 2010-11. But dividend during last two years of study were near to industry average. Moreover the standard deviation is 12.61 which is also more than the industry average of 8.05, which means inconsistency in payment of dividend during study period.

During period of study, Dividend Per Share of RIL was ranged between Rs.13 per share in 2007-08 to Rs.8 per share in 2010-11. Company has maintained average DPS of 9.75, which was also more than the industry average of Rs.9.67 per share. Standard deviation was 2.60, less than the industry average of 8.05, which means less changes in dividend payment during study period. Overall the company has maintained satisfactory dividend payment policy.

ANOVA TEST ON DIVIDEND PER SHARE

Null Hypothesis: - There is no significant difference in dividend per share of selected refinery Industries during study period.
Alternative Hypothesis: - There is significant difference in dividend per share of selected refinery Industries during the study period.

Level of significance: 5% Level

**TABLE NO. 4.10 ANOVA TABLE ON DIVIDEND PER SHARE**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>F crit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS between companies</td>
<td>1232.72</td>
<td>5</td>
<td>246.54</td>
<td>7.01</td>
<td>2.60</td>
</tr>
<tr>
<td>SS between years</td>
<td>159.42</td>
<td>5</td>
<td>31.88</td>
<td>0.91</td>
<td>2.60</td>
</tr>
<tr>
<td>Error</td>
<td>878.16</td>
<td>25</td>
<td>35.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2270.30</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculated F value: 7.01

Table F value: 2.6

Result: Significant

The analysis showed the significant result. It can be seen from the table, that the calculated value of F was found as 7.01, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being more than the table value of F, the alternate Hypothesis stood accepted and the null hypothesis got rejected at 5% level of significance. So it proves that the differences among the average of this group were much significant and the average profitability of the groups of the refinery Industries differ much.

**Earnings per share (EPS)**

EPS = Net profit after tax & preference dividend /number of equity shares

The ratio is an indicator of the amount of revenue profit of the concern that goes to each share. It indicates the quantum of earning of the company that is received by each equity share. Along with return on investment, shareholders are also interested in knowing EPS. According to Herald and Alien, “The earning per share simply shows the profitability of the firm on per share basis, it does not reflect how much is paid as dividend and how much is retained by the business.”

Sometimes when denomination of shares is different, EPS is calculated on the basis of percentage instead of per share. It measures the profit to equity share holders on per share basis.
### TABLE NO. 4.11 EARNING PER SHARE OF THE SELECTED REFINERY INDUSTRY UNDER THE STUDY FOR THE PERIOD OF (2007-08 TO 2012-13)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2011-12</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>AVERAGE</th>
<th>STD DEV</th>
<th>COV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPCL</td>
<td>65.05</td>
<td>36.27</td>
<td>42.78</td>
<td>42.53</td>
<td>20.35</td>
<td>43.72</td>
<td>41.78</td>
<td>14.40</td>
<td>34.46</td>
</tr>
<tr>
<td>HPCL</td>
<td>26.72</td>
<td>26.92</td>
<td>45.45</td>
<td>38.43</td>
<td>16.98</td>
<td>33.51</td>
<td>31.34</td>
<td>10.01</td>
<td>31.95</td>
</tr>
<tr>
<td>IOCL</td>
<td>20.61</td>
<td>16.29</td>
<td>30.67</td>
<td>42.1</td>
<td>24.74</td>
<td>58.39</td>
<td>32.13</td>
<td>15.68</td>
<td>48.8</td>
</tr>
<tr>
<td>MRPL</td>
<td>-4.32</td>
<td>5.18</td>
<td>6.71</td>
<td>6.35</td>
<td>6.8</td>
<td>7.26</td>
<td>4.66</td>
<td>4.46</td>
<td>95.57</td>
</tr>
<tr>
<td>ONGC</td>
<td>24.46</td>
<td>29.36</td>
<td>22.12</td>
<td>78.39</td>
<td>75.4</td>
<td>78.09</td>
<td>51.30</td>
<td>28.59</td>
<td>55.72</td>
</tr>
<tr>
<td>RIL</td>
<td>65.05</td>
<td>61.26</td>
<td>61.97</td>
<td>49.64</td>
<td>97.28</td>
<td>133.86</td>
<td>78.18</td>
<td>31.63</td>
<td>40.45</td>
</tr>
<tr>
<td>AVG</td>
<td>32.93</td>
<td>29.21</td>
<td>34.95</td>
<td>42.91</td>
<td>40.26</td>
<td>59.14</td>
<td>39.90</td>
<td>29.18</td>
<td>73.13</td>
</tr>
</tbody>
</table>

Source: Compiled and computed from ‘Capitalline Corporate Database’ of Capital market Publishers (I) Ltd., Mumbai
The above table no. 4.6 shows Earning Per Share of refinery industries taken under sample. The above table shows fluctuating trend in EPS of BPCL with an average of Rs. 41.78 per share, which was more than the industry average of Rs. 39.90 per share. EPS was ranged between Rs. 65.05 per share in 2012-13 to 36.27 Rs. Per share in 2011-12, standard deviation is 14.40 which was also less than the industry average of 29.18. Overall EPS of company was satisfactory.

HPCL has shown average EPS of Rs. 31.34 per share, which was less than industry average of Rs.39.90 per share. The highest EPS was Rs.45.45 in 2010-11, whereas it was minimum in 2008-09 i.e. Rs.16.98. Standard deviation was 10.01, less than the industry average showing less changes in EPS.

IOCL has shown average EPS of 32.13, which was lower than the industry average of Rs.39.90 per share. EPS was ranged between 58.39 in 2007-08 to 16.29 in 2011-12. Standard deviation of 15.68, below the industry average shows consistency in EPS.

MRPL has shown negative EPS in the year 2012-13 i.e. -4.32 Rs. Per share. Moreover, the company has shown the lowest average of Rs.4.66 per share which was far below than the industry average of Rs.39.90. EPS was ranged between 7.26 per share in 2007-08 to -4.32 per share in 2012-13. Overall it was very dissatisfactory.

ONGC has maintained EPS of Rs.78 to Rs.75 during first three years then after it was ranged between Rs.22.12 per share to Rs.29.36 per share during last three years. The average was Rs.51.30 per share which was more than the industry average of Rs.39.90 per share. Standard deviation was 28.59 slightly less than the industry average of Rs.29.18 per share.

RIL, has performed well during research period showing average EPS of Rs.78.18 per share, which was almost double than the industry average of 39.90 per share. The EPS was ranged between 133.86 per share in 2007-08, which was also the highest among all companies to Rs.49.64 per share in 2009-10, overall the company has given good EPS.

ANOVA TEST ON EARNING PER SHARE

Null Hypothesis: - There is no significant difference in EPS of selected refinery Industries during study period

Alternative Hypothesis: - There is significant difference in EPS of selected refinery Industries during the study period.
Level of significance: 5% Level

TABLE NO. 4.12 ANOVA TABLE ON EARNING PER SHARE

<table>
<thead>
<tr>
<th>ANOVA</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of Variation</td>
<td>SS</td>
<td>df</td>
<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>SS between companies</td>
<td>17843.9</td>
<td>5</td>
<td>3568.79</td>
<td>10.43</td>
</tr>
<tr>
<td>SS between years</td>
<td>3399.6</td>
<td>5</td>
<td>679.91</td>
<td>1.99</td>
</tr>
<tr>
<td>Error</td>
<td>8553.3</td>
<td>25</td>
<td>342.13</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29796.8</td>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculated F value: 10.43

Table F value: 2.6

Result: Significant

The analysis showed the significant result. It can be seen from the table, that the calculated value of F was found as 10.43, while the table value of F was 2.6, AT 5% level of significance. The calculated value of F, being more than the table value of F, the alternate Hypothesis stood accepted and the null hypothesis got rejected at 5% level of significance. So it proves that the differences among the average of this group were much significant and the average profitability of the groups of the refinery Industries differs much.
BIBLIOGRAPHY


