UNIT 10 FINANCIAL STATEMENTS: ANALYSIS AND INTERPRETATION (Accounting Ratios)
UNIT 10  FINANCIAL STATEMENTS:  
ANALYSIS AND 
INTERPRETATION  
(Accounting Ratios)

Structure
10.0 Introduction
10.1 Unit Objectives
10.2 Relationship between Analysis and Interpretation
10.3 Steps Involved in the Financial Statements Analysis
10.4 Ratio Analysis
10.5 Classification of Ratios
10.6 Profitability Ratios
10.7 Turnover Ratios
10.8 Financial Ratios
10.9 Advantages of Ratio Analysis
10.10 Limitations of Accounting Ratios
10.11 Summary
10.12 Key Terms
10.13 Answers to ‘Check Your Progress’
10.14 Questions and Exercises
10.15 Practical Problems
10.16 Further Reading

10.0 INTRODUCTION

Financial statements are prepared with the objective of knowing the profitability and financial soundness of the business. This requires proper analysis and interpretation of financial statements. This aspect has been discussed in detail in this unit.

10.1 UNIT OBJECTIVES

- Concept of financial statement analysis
- Difference between analysis and interpretation of financial statements
- Steps involved in financial analysis
- Utility of ratio analysis as a tool for financial analysis
- Classification of accounting ratios into different categories
- Understanding and computation of different accounting ratios
- Critical analysis of financial statements on the basis of accounting ratios
10.2 RELATIONSHIP BETWEEN ANALYSIS AND INTERPRETATION

Financial statements, as stated earlier, are indicators of the two significant factors:

1. Profitability
2. Financial soundness

Analysis and interpretation of financial statements, therefore, refers to the treatment of the information contained in the income statement and the balance sheet so as to afford full diagnosis of the profitability and the financial soundness of the business.

A distinction here can be made between the two terms—‘analysis’ and ‘interpretation’. The term ‘analysis’ means the methodical classification of the data given in the financial statements. The figures given in the financial statements will not help one unless they are put in a simplified form. For example, all items relating to ‘Current Assets’ are put at one place, while all items relating to ‘Current Liabilities’ are put at another place. The term ‘interpretation’ means ‘explaining the meaning and significance of the data so simplified’.

However, both ‘analysis’ and ‘interpretation’ are complementary to each other. Interpretation requires analysis, while analysis is useless without interpretation. Most of the authors have used the term ‘analysis’ to cover the meanings of both analysis and interpretation, since analysis involves interpretation. According to Myers, ‘financial statement analysis is largely a study of the 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.’ For the sake of convenience, we have also used the term ‘financial statements analysis’ throughout the unit to cover both analysis and interpretation.

10.3 STEPS INVOLVED IN THE FINANCIAL STATEMENTS ANALYSIS

The analysis of the financial statements requires:

(1) Methodical classification of the data given in the financial statements.
(2) Comparison of the various interconnected figures with each other which is popularly termed as ‘ratio analysis’.

Each of the above steps has been explained in the following pages:

(1) Methodical Classification. In order to have a meaningful analysis it is necessary that figures should be arranged properly. Usually, instead of the two-column (T form) statements, the statements are prepared in single (vertical) column form ‘which should throw up significant figures by adding or subtracting.’ This also facilitates showing the figures of a number of firms or number of years side by side for comparison purposes.

<table>
<thead>
<tr>
<th>OPERATING (INCOME) STATEMENT for the year ending</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Particulars</strong></td>
</tr>
<tr>
<td>Gross Sales</td>
</tr>
<tr>
<td>Less: Sales Returns</td>
</tr>
<tr>
<td>Sales Tax/Excise</td>
</tr>
<tr>
<td>Net Sales (or sales) for the year</td>
</tr>
</tbody>
</table>

(Contd.)
Financial Statements:
Analysis and Interpretation
(Accounting Ratios)

NOTES

Self-Instructional Material 207

Less: Cost of Sales: (2)
  Raw Materials consumed ....
  Direct Wages ....
  Manufacturing Expenses ....

Add: Opening Stock of Finished Goods

Less: Closing Stock of Finished Goods
  Gross Profit (1) – (2) = (3)

Less: Operating Expenses:
  Administration Expenses ....
  Selling and Distribution Expenses ....
  Net Operating Profit (OPBIT) (3) – (4) = (5)

Add: Non-trading Income
  (such as dividends, interest received, etc.)

Less: Non-trading Expenses (such as discount on
issue of shares written off)
  Income or Earning before Interest and Tax (EBIT) (6)

Less: Interest on Debentures (7)

Net Income or Earning before Tax (EBT) (8)

Less: Tax (9)

Income or Profit After Tax (PAT) (10)

BALANCE SHEET
as on........

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash in Hand</td>
<td>....</td>
</tr>
<tr>
<td>Cash at Bank</td>
<td>....</td>
</tr>
<tr>
<td>Bills Receivable</td>
<td>....</td>
</tr>
<tr>
<td>Book Debts (less provision for bad debts)</td>
<td>....</td>
</tr>
<tr>
<td>Marketable Trade Investments</td>
<td>....</td>
</tr>
<tr>
<td>Liquid Assets (1)</td>
<td>....</td>
</tr>
<tr>
<td>Inventories (stock of raw materials, finished goods, etc.)</td>
<td>....</td>
</tr>
<tr>
<td>Prepaid Expenses</td>
<td>....</td>
</tr>
<tr>
<td>Current Assets (2)</td>
<td>....</td>
</tr>
<tr>
<td>Bills Payable</td>
<td>....</td>
</tr>
<tr>
<td>Trade Creditors</td>
<td>....</td>
</tr>
<tr>
<td>Outstanding Expenses</td>
<td>....</td>
</tr>
<tr>
<td>Bank Overdraft</td>
<td>....</td>
</tr>
<tr>
<td>Other Liabilities Payable within a year</td>
<td>....</td>
</tr>
<tr>
<td>Current Liabilities (3)</td>
<td>....</td>
</tr>
<tr>
<td>Provision for Tax</td>
<td>....</td>
</tr>
<tr>
<td>Proposed Dividends</td>
<td>....</td>
</tr>
<tr>
<td>Other Provisions</td>
<td>....</td>
</tr>
<tr>
<td>Provisions (4)</td>
<td>....</td>
</tr>
<tr>
<td>Current Liabilities and Provisions (3) + (4) = (5)</td>
<td>....</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>....</td>
</tr>
<tr>
<td>[Current Assets–Current Liabilities and Provisions (2) – (5)] (6)</td>
<td>....</td>
</tr>
<tr>
<td>Goodwill at cost*</td>
<td>....</td>
</tr>
<tr>
<td>Land and Building</td>
<td>....</td>
</tr>
<tr>
<td>Plant and Machinery</td>
<td>....</td>
</tr>
<tr>
<td>Loose Tools</td>
<td>....</td>
</tr>
<tr>
<td>Furniture and Fixtures</td>
<td>....</td>
</tr>
<tr>
<td>Investments in Subsidiaries</td>
<td>....</td>
</tr>
<tr>
<td>Patents, Copyright, etc.**</td>
<td>....</td>
</tr>
<tr>
<td>Fixed Assets (7)</td>
<td>....</td>
</tr>
<tr>
<td>Capital Employed (6) + (7) = (8)</td>
<td>....</td>
</tr>
<tr>
<td>Other Assets: (9)</td>
<td>....</td>
</tr>
<tr>
<td>Investment in Government Securities, Unquoted Investments, etc.</td>
<td>....</td>
</tr>
<tr>
<td>Other Investments (non-trading)</td>
<td>....</td>
</tr>
<tr>
<td>Advances to Directors</td>
<td>....</td>
</tr>
<tr>
<td>Company’s Net Assets (8) + (9) = (10)</td>
<td>....</td>
</tr>
<tr>
<td>Debentures</td>
<td>....</td>
</tr>
<tr>
<td>Other Long-term Loans (payable after a year)</td>
<td>....</td>
</tr>
<tr>
<td>Long-term Loans (11)</td>
<td>....</td>
</tr>
</tbody>
</table>

(Contd.)

Self-Instructional Material 207
Shareholders' Net Worth \((10) - (11) = (12)\) 
(or total tangible net worth) 

Preference Share Capital \((13)\) 

Equity Shareholders' Net Worth \((12) - (13) = (14)\) 

Equity Shareholders' Net Worth is represented by: 
- Equity Share Capital 
- Forfeited Shares 
- Reserves 
- Surplus 
- Equity Shareholders’ Claims 

Less: Accumulated Losses 

Miscellaneous Expenditure 
(such as preliminary expenses, discount on issue of shares or debentures not written off) 

Equity Shareholders’ Net Worth 

* Goodwill to be included only when it has been paid for and has the value. 

** Patents, Copyrights, etc., should be shown only when they have the value. In case these assets are valueless, they should not be included here but should be written off against shareholders' claims with other losses.

The process of methodical classification of the data will be clear with the help of the following illustration:

**Illustration 10.1:** Below is, given the Balance Sheet of Prospective Ltd as on 31 March, 1996, together with the Profit and Loss Account.

**BALANCE SHEET**

**as on 31 March, 1996**

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>Rs</th>
<th>Assets</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity Share Capital</td>
<td>500</td>
<td>Trade Investments</td>
<td>200</td>
</tr>
<tr>
<td>Dividend Equilisation Reserve</td>
<td>70</td>
<td>Patents</td>
<td>30</td>
</tr>
<tr>
<td>General Reserve</td>
<td>110</td>
<td>Land and Building (at cost)</td>
<td>320</td>
</tr>
<tr>
<td>Profit and Loss A/c</td>
<td>190</td>
<td>Plant and Machinery (at cost)</td>
<td>650</td>
</tr>
<tr>
<td>6 per cent Debentures</td>
<td>250</td>
<td>Cash at Bank</td>
<td>88</td>
</tr>
<tr>
<td>Bank Overdraft</td>
<td>150</td>
<td>Stock:</td>
<td></td>
</tr>
<tr>
<td>Staff Provident Fund</td>
<td>80</td>
<td>Materials</td>
<td>90</td>
</tr>
<tr>
<td>Creditors</td>
<td>210</td>
<td>Finished goods</td>
<td>160</td>
</tr>
<tr>
<td>Unpaid Dividend</td>
<td>10</td>
<td>Work-in-progress</td>
<td>60</td>
</tr>
<tr>
<td>Proposed Dividend</td>
<td>60</td>
<td>Sundry Debtors</td>
<td>230</td>
</tr>
<tr>
<td>Provision for Taxation</td>
<td>170</td>
<td>Less: Provision for</td>
<td></td>
</tr>
<tr>
<td>Provision for Depreciation</td>
<td>250</td>
<td>doubtful debts</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bills Receivable</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff provident fund investment</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deposits with Customs Authorities</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advance for Purchase of Machinery</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preliminary Expenses</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,050</td>
<td></td>
<td>2,050</td>
</tr>
</tbody>
</table>

**PROFIT AND LOSS ACCOUNT**

**for the year ended 31 March, 1996**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs</th>
<th>Particulars</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Stock:</td>
<td></td>
<td>By Sales</td>
<td>2,000</td>
</tr>
<tr>
<td>Materials</td>
<td>90</td>
<td>By Stock:</td>
<td></td>
</tr>
<tr>
<td>Finished goods</td>
<td>120</td>
<td>Materials</td>
<td>90</td>
</tr>
<tr>
<td>Work-in-progress</td>
<td>40</td>
<td>250</td>
<td>160</td>
</tr>
<tr>
<td>To Purchase of Materials</td>
<td>850</td>
<td>Work-in-progress</td>
<td>60</td>
</tr>
<tr>
<td>To Wages</td>
<td>280</td>
<td>By Dividend on Investment</td>
<td>30</td>
</tr>
<tr>
<td>To Power</td>
<td>40</td>
<td>By Sales of Scrap</td>
<td>8</td>
</tr>
</tbody>
</table>

(Contd.)
You are required to present the information suitably summarized in single-column statements (vertical form) showing distinctly the following:

(i) Total capital employed  
(ii) Shareholders' funds  
(iii) Gross profit  
(iv) Net operating profit  
(v) Cost of goods sold

**Solution:**

<table>
<thead>
<tr>
<th>Prospective Limited</th>
<th>BALANCE SHEET</th>
<th>as on 31 March 1996</th>
<th>(Rs in thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash at Bank</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book Debts (net)</td>
<td>222</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bills Receivable</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets</td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposit with Customs</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finished goods</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work-in-progress</td>
<td>60</td>
<td></td>
<td>310</td>
</tr>
<tr>
<td>Current Assets</td>
<td>680</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Overdraft</td>
<td></td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Creditors</td>
<td></td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>Unpaid Dividend</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td></td>
<td>370</td>
<td></td>
</tr>
<tr>
<td>Proposed Dividend</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Provision for Taxation</td>
<td></td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Current Liabilities and Provisions</td>
<td></td>
<td>(4) 600</td>
<td></td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>(2) – (4) = (5)</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Land and Building (at cost)</td>
<td>320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and Machinery (at cost)</td>
<td>650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patents</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Provision for Depreciation</td>
<td>(6) 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Fixed Assets</td>
<td>750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance against Machinery</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Investments</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fixed Investment</td>
<td>(7) 1,010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Provident Funds Investments</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Staff Provident Funds</td>
<td>80</td>
<td></td>
<td>Nil</td>
</tr>
<tr>
<td>Total Capital employed</td>
<td>(8) 1,090</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: 6 per cent Debentures</td>
<td>(9) 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shareholders' Funds</td>
<td>(10) 840</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Contd.)
NOTES

PROFIT AND LOSS ACCOUNT
for the year ended 31 March 1996
(Rs in thousand)

Sales 2,000
Less: Cost of goods sold 1,284
Gross Profit 716
Less: Operating Expenses:
  Salaries 80
  Miscellaneous Expenses 90
  Selling and Distribution Expenses 120
  Advertisements 80
  Net Operating Profit 370
Add: Non-operating Income (Dividends on Investments) 30
Less: Non-operating Expenses (interest on debentures) 15
Less: Preliminary Expenses written off 5
Profit before Tax 361
Less: Income Tax payable 170
Profit after Tax 186
Less: Proposed Dividend 60
Profit retained in the business 126

STATEMENT OF COST OF GOODS SOLD
for the year ended 31 March 1996
(Rs in thousand)

Cost of goods manufactured:
Work-in-progress on 1 April, 1995 40
Materials consumed:
  Opening stock 90
  Purchases 850
  940
Less: Closing Stock 90 850
Wages 280
Power 40
Miscellaneous Factory Expenses 110
Depreciation 72
  1,392
Less: Sale of Scrap 8
  Work-in-progress on 31 March, 1996 60 68
Cost of goods manufactured 1,324
Add: Opening stock of Finished Goods 120
  1,444
Less: Closing Stock of Finished Goods 160
Cost of goods sold 1,284

10.4 RATIO ANALYSIS

Accounting ratios are relationships expressed in mathematical terms between figures which are connected with each other in some manner. Obviously, no purpose will be served by comparing two sets of figures which are not at all connected with each other. Moreover, absolute figures are also unfit for comparison.
10.5 CLASSIFICATION OF RATIOS

Ratios can be classified into different categories depending upon the basis of classification.

**Traditional Classification.** This classification has been on the basis of the financial statements to which the determinants of a ratio belong. On this basis, the ratios could be classified as:

1. Profit and Loss Account Ratios, i.e., ratios calculated on the basis of the items of the profit and loss account only, e.g., gross profit ratio, stock turnover ratio, etc.
2. Balance Sheet Ratios, i.e., ratios calculated on the basis of the figures of balance sheet only, e.g., current ratio, debt-equity ratio, etc.
3. Composite Ratios or Inter-statement Ratios, i.e., ratios based on figures of profit and loss account as well as the balance sheet, e.g., fixed assets turnover ratio, overall profitability ratio, etc.

**Functional Classification.** The traditional classification has been found to be too crude and unsuitable because analysis of balance sheet and income statement cannot be done in isolation. They have to be studied together in order to determine the profitability and solvency of the business. In order that ratios serve as a tool for financial analysis, they are classified according to their functions as follows:

1. Profitability Ratios
2. Turnover Ratios
3. Financial Ratios

In the following pages we will explain the ratios covered by each of the above categories in detail.

10.6 PROFITABILITY RATIOS

Profitability is an indication of the efficiency with which the operations of the business are carried on. Poor operational performance may indicate poor sales and hence poor profits. A lower profitability may arise due to the lack of control over the expenses. Bankers, financial institutions and other creditors look at the profitability ratios as an indicator of whether or not the firm earns substantially more than it pays interest for the use of borrowed funds, and whether the ultimate repayment of their debt appears reasonably certain. Owners are interested to know the profitability as it indicates the return which they can get on their investments. The following are the important profitability ratios.

1. **Overall Profitability Ratio.** It is also called as ‘Return on Investment’ (ROI). It indicates the percentage of return on the total capital employed in the business. It is calculated on the basis of the following formula:

\[
\text{Operating Profit} \over \text{Capital Employed} \times 100
\]

The term capital employed has been given different meanings by different accountants. Some of the popular meanings are as follows:

(i) Sum-total of all assets, whether fixed or current
(ii) Sum-total of fixed assets

Check Your Progress

1. What does ‘analysis and interpretation of financial statements’ mean?
2. What does the term ‘analysis’ mean?
3. What is the basis for traditional classification?
(iii) Sum-total of long-term funds employed in the business, i.e.:
\[
\text{Share Capital} + \text{Reserves and Surplus} + \text{Long-term Loans} + \left[ \text{Non-business Assets} + \text{Fictitious Assets} \right]
\]

In management accounting, the term ‘capital employed’ is generally used in the meanings given in the point (iii) above.

The term ‘operating profit’ means ‘profit before interest and tax’. The term ‘interest’ means ‘interest on long-term borrowings’. Interest on short-term borrowings will be deducted for computing operating profit. Non-trading incomes such as interest on government securities or non-trading losses or expenses such as loss on account of fire, etc., will also be excluded.

**Significance of ROI.** The return on capital invested is a concept that measures the profit which a firm earns on investing a unit of capital. ‘Yield on capital’ is another term employed to express the idea. It is desirable to ascertain this periodically. The profit being the net result of all operations, the return on capital expresses all efficiencies or inefficiencies of a business collectively and, thus, is a dependable measure for judging its overall efficiency or inefficiency. On this basis, there can be comparisons of the efficiency of one department with that of another, of one plant with that of another, one company with that of another and one industry with that of another. For this purpose, the amount of profits considered is that before making deductions on account of interest, income tax and dividends and capital is the aggregate of all the capital at the disposal of the company, viz., equity capital, preference capital, reserves, debentures, etc.

Return on capital, as explained, may also be calculated on equity shareholders’ capital. In that case, the profit after deductions for interest, income tax and preference dividend will have to be compared with the equity shareholders’ funds. It would not indicate operational efficiency or inefficiency, but merely the maximum rate of dividend that might be declared.

A business can survive only when the return on capital employed is more than the cost of capital employed in the business.

2. **Earning Per Share (EPS).** In order to avoid confusion on account of the varied meanings of the term ‘capital employed’, the overall profitability can also be judged by calculating ‘earning per share’ with the help of the following formula:

\[
\text{Earning per equity share} = \frac{\text{Net profit after tax and preference dividend}}{\text{Number of equity shares}}
\]

**Illustration 10.2:** Calculate the earning per share from the following data:

- Net profit before tax Rs 1,00,000
- Taxation at 50 per cent of net profit
- 10 per cent preference share capital (Rs 10 each) Rs 1,00,000
- Equity Share Capital (Rs 10 shares) Rs 1,00,000

**Solution:**

\[
\text{Earning per share} = \frac{\text{Net profit after tax and pref. dividend}}{\text{Number of equity shares}}
\]

---

1 Profit available for equity shareholders.
Rs 40,000
10,000 = Rs 4 per share

**Significance.** Earning per share helps in determining the market price of the equity share of the company. A comparison of earning per share of the company with another will also help in deciding whether the equity share capital is being effectively used or not. It also helps in estimating the company’s capacity to pay dividend to its equity shareholders.

**Illustration 10.3:** From the following details, compute the basic earnings per share:

- Net profit for the year ending 31 December 2002 after tax and preference dividend: Rs 21,000
- Equity as on 1 January 2002: 1,800
- Issued equity shares for cash on 31 May 2002: 600
- Bought-back equity shares on 1 November 2002: 300

**Solution:**

- Weighted average number of equity shares outstanding = 
  
  \[(1,800 \times 12/12 + 600 \times 7/12 - 300 \times 2/12) = 2,100 \text{ shares}\]

- Basic earnings per share = 
  
  \[
  \frac{\text{Net profit for the period attributable to equity shareholders}}{\text{Weighted average no. of equity shares outstanding during the year}} = \frac{21,000}{2,100} = \text{Rs 10 per share}
  \]

3. **Price Earning Ratio (PER).** This ratio indicates the number of times the earning per share is covered by its market price. This is calculated according to the following formula:

\[
\frac{\text{Market price per equity share}}{\text{Earning per share}}
\]

For example, the market price of a share is Rs 30 and earning per share is Rs 5, the price earning ratio would be 6 (i.e., 30 ÷ 5). It means the market value of every one rupee of earning is six times or Rs 6. The ratio is useful in financial forecasting. It also help in knowing whether the shares of a company are under or overvalued. For example, if the earning per share of AB Limited is Rs 20, its market price Rs 140 and earning ratio of similar companies is 8, it means that the market value of a share of AB Limited should be Rs 160 (i.e., 8 × 20). The share of AB Limited is, therefore, undervalued in the market by Rs 20. In case the price earning ratio of similar companies is only 6, the value of share of AB Limited should have been Rs 120 (6 × 20), thus the share is overvalued by Rs 20.
Significance. Price-earning ratio helps the investor in deciding whether not to buy the shares of a company at a particular market price.

4. Gross Profit Ratio. This ratio expresses the relationship between gross profit and net-sales. Its formula is:

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

Illustration 10.4: Calculate the gross profit ratio from the following figures:

<table>
<thead>
<tr>
<th>Sales</th>
<th>Rs 1,00,000</th>
<th>Purchases</th>
<th>Rs 60,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales returns</td>
<td>10,000</td>
<td>Purchases returns</td>
<td>15,000</td>
</tr>
<tr>
<td>Opening stock</td>
<td>20,000</td>
<td>Closing stock</td>
<td>5,000</td>
</tr>
</tbody>
</table>

Solution:

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

\[
\begin{align*}
\text{Gross Profit} &= \text{Sales} - \text{Cost of goods sold} \\
                                 &= Rs 90,000 - Rs 60,000 \\
\text{Net Sales} &= Rs 90,000 \\
\text{Gross Profit Ratio} &= \frac{Rs 30,000}{Rs 90,000} \times 100 \\
                      &= 33\frac{1}{3} \text{ per cent}
\end{align*}
\]

Significance. This ratio indicates the degree to which the selling price of goods per unit may decline without resulting in losses from operations to the firm. It also helps in ascertaining whether the average percentage of mark up on the goods is maintained.

There is no norm for judging the gross profit ratio, therefore, the evaluation of the business on its basis is a matter of judgment. However, the gross profits should be adequate to cover the operating expenses and to provide for fixed charges, dividends and building up of reserves.

5. Net Profit Ratio. This ratio indicates the net margin earned on a sale of Rs 100. It is calculated as follows:

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

Net operating profit is arrived at by deducting operating expenses from the gross profit.

Illustration 10.5: Calculate the net profit ratio from the following data:

<table>
<thead>
<tr>
<th>Sales less returns</th>
<th>Rs 1,00,000</th>
<th>Selling Expenses</th>
<th>Rs 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross profit</td>
<td>40,000</td>
<td>Income from Investments</td>
<td>5,000</td>
</tr>
<tr>
<td>Administration expenses</td>
<td>10,000</td>
<td>Loss on account of fire</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Solution:

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

Financial Statements:
Analysis and Interpretation
(Accounting Ratios)

Significance. 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. The ratio is thus an effective measure to check the profitability of a business.

An investor has to judge the adequacy or otherwise of this ratio by taking into account the cost of capital, the return in the industry as a whole and market conditions such as boom or depression period. No norms can be laid down. However, constant increase in the above ratio year after year, is a definite indication of improving conditions of the business.

6. Operating Ratio. This ratio is a complementary of net profit ratio. In case the net profit ratio is 20 per cent, it means that the operating ratio is 80 per cent. It is calculated as follows:

\[
\frac{\text{Operating costs}}{\text{Net sales}} \times 100
\]

Operating costs include the cost of direct materials, direct labour and other overheads, viz., factory, office or selling. Financial charges such as interest, provision for taxation, etc., are generally excluded from operating costs.

Significance. This ratio is the test of the operational efficiency with which the business is being carried. The operating ratio should be low enough to leave a portion of sales to give a fair return to the investors.

A comparison of the operating ratio will indicate whether the cost component is high or low in the figure of sales. In case the comparison shows that there is an increase in this ratio, the reason for such increase should be found out and the management advised to check the increase.

7. Fixed Charges Cover. This ratio is very important from the lender’s point of view. It indicates whether the business would earn sufficient profits to pay the interest charges periodically. The higher the number, the more secure the lender is in respect of his periodical interest income. It is calculated as follows:

\[
\frac{\text{Income before interest and tax}}{\text{Interest charges}}
\]

This ratio is also known as ‘Debt Service Ratio’.

The standard for this ratio for an industrial company is that interest charges should be covered six to seven times.

Illustration 10.6: The operating profit of A Ltd after charging interest on debentures and tax is a sum of Rs 10,000. The amount of interest charged is Rs 2,000 and the provision for tax has been made of Rs 4,000.

Calculate the interest charges cover ratio.

Solution:

\[
\text{Interest Charges Cover} = \frac{\text{Net profit before interest and tax}}{\text{Interest charges}}
\]
In case it is desired to compute the ‘fixed dividend cover’, it can be computed on the following basis:

\[
\text{Fixed dividend cover} = \frac{\text{Net profit after interest and tax}}{\text{Preference dividend}}
\]

In the above illustration if the amount of preference dividend payable is a sum of Rs 1,000, the fixed dividend cover will be computed as follows:

\[
= \frac{\text{Rs 10,000}}{\text{Rs 1,000}} = 10 \text{ times}
\]

8. Payout Ratio. This ratio indicates what proportion of earning per share has been used for paying dividends. The ratio can be calculated as follows:

\[
\frac{\text{Dividend per equity share}}{\text{Earning per equity share}}
\]

A complementary of this ratio is retained earning ratio. It is calculated as follows:

\[
= \frac{\text{Retained earning per equity share}}{\text{Earning per equity share}}
\]

or

\[
= \frac{\text{Retained earnings}}{\text{Total earning}} \times 100
\]

Illustration 10.7: Compute the Payout Ratio and the Retained Earning Ratio from the following data:

<table>
<thead>
<tr>
<th></th>
<th>Net Profit</th>
<th>No. of Equity Shares</th>
<th>Dividend per Equity Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs 10,000</td>
<td>3,000</td>
<td>Re 0.40</td>
</tr>
<tr>
<td>Provision for Tax</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference Dividend</td>
<td>2,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solution:

Payout Ratio = \[
\frac{\text{Dividend per equity share}}{\text{Earning per equity share}} \times 100
\]

= \[
\frac{\text{Re 0.40}}{\text{Re 1}} \times 100 = 40 \text{ per cent}
\]

Retained earning ratio = \[
\frac{\text{Retained earnings}}{\text{Total earning}} \times 100
\]

= \[
\frac{\text{Rs 1,8000}}{\text{Rs 3,000}} \times 100 = 60 \text{ per cent}
\]

Significance. The payout ratio and the retained earnings ratio are indicators of the amount of earnings that have been ploughed back into the business. The
lower the payout ratio, the higher will be the amount of earnings ploughed back into the business and vice versa. Similarly, the lower the retained earnings ratio, the lower will be the amount of earnings ploughed back into the business and vice versa. A lower payout ratio or a higher retained earnings ratio means a stronger financial position of the company.

9. **Dividend Yield Ratio.** This ratio is particularly useful for those investors who are interested only in dividend incomes. The ratio is calculated by comparing the rate of dividend per share with the market value. Its formula can be put as follows:

\[
\text{Dividend Yield Ratio} = \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100
\]

For example, if a company declares dividend at 20 per cent on its shares, each having a paid-up value of Rs 8 and market price of Rs 25, the dividend yield ratio will be calculated as follows:

\[
\text{Dividend per share} = \frac{20}{100} \times 8 = \text{Rs}\ 1.60
\]

\[
\text{Dividend Yield Ratio} = \frac{1.6}{25} \times 100 = 6.4 \text{ per cent}
\]

**Significance.** The ratio helps an intending investor in knowing the effective return he will get on the proposed investment. For example, in the above case though the company is paying a dividend of 20 per cent on its shares, a person who purchases the shares of the company from the market will get only an effective return of 6.4 per cent. Therefore, he can decide whether or not he should opt for this investment.

---

### 10.7 TURNOVER RATIOS

Turnover ratios or activity ratios indicate the efficiency with which the capital employed is rotated in the business. The overall profitability of the business depends on two factors: (i) the rate of return of capital employed; and (ii) the turnover, i.e., the speed at which the capital employed in the business rotates. Higher the rate of rotation, the greater will be the profitability.

**Overall Turnover Ratio.** This ratio is calculated as follows:

\[
\text{Overall Turnover Ratio} = \frac{\text{Sales}}{\text{Capital employed}}
\]

Turnover ratio indicates the number of times the capital has been rotated in the process of doing business.

In order to find out which part of capital is efficiently employed and which part is not, different turnover ratios are calculated. These ratios are as follows:

**Fixed assets turnover ratio.** This ratio indicates the extent to which the investments in fixed assets contributed towards sales. If compared with a previous period, it indicates whether the investment in fixed assets has been judicious or not. The ratio is calculated as follows:
Illustration 10.8: The following details have been given to you for Messrs Reckless Ltd for two years. You are required to find out the fixed assets turnover ratio and comment on it.

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed assets at written down value</td>
<td>Rs 1,50,000</td>
<td>Rs 3,00,000</td>
</tr>
<tr>
<td>Sales Less Returns</td>
<td>6,00,000</td>
<td>8,00,000</td>
</tr>
</tbody>
</table>

**Solution:**

Fixed assets turnover ratio = \( \frac{\text{Sales}}{\text{Fixed assets}} \)

\[
\begin{align*}
1997 & \quad 6,00,000 \quad \frac{6,00,000}{1,50,000} = 4 \text{ times} \\
1998 & \quad 8,00,000 \quad \frac{8,00,000}{3,00,000} = 2.67 \text{ times}
\end{align*}
\]

There has been a decline in the fixed assets turnover ratio though absolute figures of sales have gone up. It means increase in the investment in fixed assets has not brought about commensurate gain. However, the results for next two or three years must also be seen before commenting on the judiciousness or otherwise of increase in investment in the fixed assets.

**Working capital turnover ratio.** This is also known as working capital leverage ratio. This ratio indicates whether or not the working capital has been effectively utilized in making sales. In case a company can achieve higher volume of sales with relatively small amount of working capital, it is an indication of the operating efficiency of the company. This ratio is calculated as follows:

\[
\frac{\text{Net Sales}}{\text{Working Capital}}
\]

Working capital turnover ratio may take different forms for different purposes. Some of them are explained below:

(i) Debtor’s turnover ratio (debtor’s velocity). Debtors form an important constituent of current assets and therefore the quality of debtors to a great extent determines a firm’s liquidity. Two ratios are used by financial analysts to judge the liquidity of a firm. They are (i) Debtor’s turnover ratio, and (ii) Debt collection period ratio.

Debtor’s turnover ratio is calculated as under:

\[
\frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}
\]

The term Accounts Receivable include ‘trade debtors’ and ‘bills receivable’.
Illustration 10.9: Calculate the debtors turnover ratio from the following figures:

<table>
<thead>
<tr>
<th></th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sales for the year 1998</td>
<td>1,00,000</td>
</tr>
<tr>
<td>Cash Sales for the year 1998</td>
<td>20,000</td>
</tr>
<tr>
<td>Debtors as on 1 January 1998</td>
<td>10,000</td>
</tr>
<tr>
<td>Debtors as on 31 December 1998</td>
<td>15,000</td>
</tr>
<tr>
<td>Bills Receivable as on 1 January 1998</td>
<td>7,500</td>
</tr>
<tr>
<td>Bills Receivable as on 31 December 1998</td>
<td>12,500</td>
</tr>
</tbody>
</table>

\[
\frac{\text{Credit Sales}}{\text{Average Accounts Receivable}} = \frac{\text{Rs 80,000}}{\text{Rs 22,500}*} = 3.56\text{ times}
\]

*1/2 of (Rs 17,500 + Rs 27,500).

In case details regarding opening and closing receivables and credit sales are not available the ratio may be calculated as follows:

\[
\frac{\text{Total Sales}}{\text{Accounts Receivable}}
\]

**Significance.** Sales to accounts receivable ratio indicates the efficiency of the staff entrusted with the collection of book debts. The higher the ratio, the better it is, since it would indicate that debts are being collected more promptly. For measuring the efficiency, it is necessary to set up a standard figure; a ratio lower than the standard will indicate inefficiency.

The ratio helps in cash budgeting since the flow of cash from customers can be worked out on the basis of sales.

(ii) Debt collection period ratio. The ratio indicates the extent to which the debts have been collected in time. It gives the average debt collection period. The ratio is very helpful to the lenders because it explains to them whether their borrowers are collecting money within a reasonable time. An increase in the period will result in greater blockage of funds in debtors. The ratio may be calculated by any of the following methods:

\[(a)\quad \frac{\text{Months (or days) in a year}}{\text{Creditors’ turnover}}\]

\[(b)\quad \frac{\text{Average accounts receivable} \times \text{months (or days) in a year}}{\text{credit Sales for the year}}\]

\[(c)\quad \frac{\text{Accounts receivable}}{\text{Average monthly or daily credit sales}}.\]

**Illustration 10.10:** The following is the trading account of Skylarks Ltd. Calculate the stock turnover ratio:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs</th>
<th>Particulars</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Opening Stock</td>
<td>40,000</td>
<td>By Sales</td>
<td>2,00,000</td>
</tr>
<tr>
<td>To Purchases</td>
<td>1,00,000</td>
<td>By Closing Stock</td>
<td>20,000</td>
</tr>
<tr>
<td>To Carriage</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Gross Profit</td>
<td>70,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,20,000</td>
<td><strong>Total</strong></td>
<td>2,20,000</td>
</tr>
</tbody>
</table>
Solution:

\[ \text{Stock Turnover Ratio} = \frac{\text{Cost of Sales}}{\text{Average Stock}} = \frac{\text{Rs 1,30,000}}{\text{30,000}} = 4.33 \text{ times.} \]

**Significance of the ratio.** As already stated, the inventory turnover ratio signifies the liquidity of the inventory. A high inventory turnover ratio indicates brisk sales. The ratio is, therefore, a measure to discover the possible trouble in the form of overstocking or overvaluation.

(iii) **Creditors’ turnover ratio (creditors’ velocity).** It is similar to debtors’ turnover ratio. It indicates the speed with which the payments for credit purchases are made to creditors. The ratio can be computed as follows:

\[
\frac{\text{Credit Purchases}}{\text{Average Accounts Payable}}
\]

The term Accounts Payable include ‘trade creditors’ and ‘bills payable’.

In case the details regarding credit purchases, opening and closing accounts payable have not been given the ratio may be calculated as follows:

\[
\frac{\text{Total Purchases}}{\text{Accounts Payable}}
\]

(iv) **Debt payment period enjoyed ratio (average age of payable).** The ratio gives the average credit period enjoyed from the creditors. It can be computed by any one of the following methods:

(a) \( \frac{\text{Months (or days) in a year}}{\text{Creditors’ turnover}} \)

(b) \( \frac{\text{Average accounts payable} \times \text{Months (or days) in a year}}{\text{Credit purchases in the year}} \)

(c) \( \frac{\text{Average accounts payable}}{\text{Average monthly (or daily) credit purchases}} \)

**Illustration 10.11:** From the following figures calculate the creditors’ turnover ratio and the average age of accounts payable:

<table>
<thead>
<tr>
<th></th>
<th>Rs</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit purchases during 1998</td>
<td>1,00,000</td>
<td>Bills Payable on 1 January, 1998</td>
</tr>
<tr>
<td>Creditors on 1 January, 1998</td>
<td>20,000</td>
<td>Bills Payable on 31 December 1998</td>
</tr>
<tr>
<td>Creditors on 31, December, 1998</td>
<td>10,000</td>
<td></td>
</tr>
</tbody>
</table>

**Solution:**

Creditors’ turnover ratio = \( \frac{\text{Credit purchases}}{\text{Average accounts payable}} = \frac{\text{Rs 1,00,000}}{\text{Rs 20,000}} = 5 \text{ times} \)

Average age of accounts payable (or credit period enjoyed)

\[
= \frac{\text{Months in a year}}{\text{Creditors turnover}} = \frac{\text{12}}{5} = 2.4 \text{ months}
\]
Financial Statements: Analysis and Interpretation (Accounting Ratios)

NOTES

Self-Instructional Material 221

**Self-Instructional Material 221**

**Average accounts payable × Months in a year** = \[\frac{20,000 \times 12}{1,00,000}\] = 2.4 months

**Average accounts payable** = \[\frac{20,000}{8,333.33}\] = 2.4 months

**Significance.** Both the creditors’ turnover ratio and the debt payment period enjoyed ratio indicate about the promptness or otherwise in making payment of credit purchases. A higher ‘creditors turnover ratio’ or a ‘lower credit period enjoyed ratio’ signifies that the creditors are being paid promptly, thus enhancing the creditworthiness of the company. However, a very favourable ratio of this effect also shows that the business is not taking full advantage of credit facilities which can be allowed by the creditors.

**Stock Turnover Ratio.** This ratio indicates whether the investment in inventory is efficiently used or not. It, therefore, explains whether investment in inventories is within proper limits or not. The ratio is calculated as follows:

Cost of goods sold during the year

Average inventory

The average inventory is calculated on the basis of the average of inventory at the beginning and at the end of the accounting period.

Average Inventory = \[\frac{\text{Inventory at the beginning of the accounting period} + \text{Inventory at the end of the accounting period}}{2}\]

**Illustration 10.12:** Following is the Trading Account of Skylarks Ltd. Calculate the stock turnover ratio:

<table>
<thead>
<tr>
<th>Dr.</th>
<th>TRADING ACCOUNT</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Opening Stock</td>
<td>40,000</td>
<td>By Sales</td>
</tr>
<tr>
<td>To Purchase</td>
<td>1,00,000</td>
<td>By Closing Stock</td>
</tr>
<tr>
<td>To Carriage</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>To Gross Profit</td>
<td>70,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,20,000</td>
<td>2,20,000</td>
</tr>
</tbody>
</table>

**Solution:**

Stock Turnover Ratio = \[\frac{\text{Cost of Sales}}{\text{Average stock}}\] = \[\frac{1,30,000}{30,000}\] = 4.33 times

**Significance.** As already stated, the inventory ratio signifies the liquidity of the inventory. A high inventory turnover ratio indicates brisk sales. The ratio is, therefore, a measure to discover the possible trouble in the form of overstocking or overvaluation. The stock position is known as the graveyard of the balance sheet. If the sales are quick such a position would not arise unless the stocks consist of unsaleable items. A low inventory turnover ratio results in blocking of funds in inventory which may ultimately result in heavy losses due to inventory becoming obsolete or deteriorate in quality.

Check Your Progress

4. What is ‘profitability’?
5. What is ‘price earning ratio’?
6. What is ‘debt collection period ratio’?
10.8 FINANCIAL RATIOS

Financial ratios indicate the financial position of the company. A company is deemed to be financially sound if it is in a position to carry on its business smoothly and meet all its obligations—both long-term as well as short-term without strain. Thus, its financial position has to be judged from two angles—long-term as well as short-term. It is a sound principle of finance that long-term requirements of funds should be met out of long-term funds and short-term requirements should be met out of short-term funds. For example, if fixed assets are purchased out of funds provided by bank overdraft, the company will come to grief because such assets cannot be sold away when payment is demanded by the bank. We are giving below some of the important ratios which are calculated in order to judge the financial position of the company.

1. **Fixed Assets Ratio.** This ratio is expressed as follows:

\[
\frac{\text{Fixed Assets}}{\text{Long-term Funds}}
\]

The ratio should not be more than one. If it is less than one, it shows that a part of the working capital has been financed through long-term funds. This is desirable to some extent because a part of the working capital termed as ‘core working capital’ is more or less of a fixed nature. The ideal ratio is 0.67.

Fixed assets include ‘net fixed assets’ (i.e., original cost–depreciation to date) and trade investments including shares in subsidiaries. Long-term funds included share capital, reserves and long-term loans.

**Illustration 10.13:** From the following compute the fixed assets ratio:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs</th>
<th>Particulars</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share Capital</td>
<td>1,00,000</td>
<td>Furniture</td>
<td>25,000</td>
</tr>
<tr>
<td>Reserves</td>
<td>50,000</td>
<td>Trade Debtors</td>
<td>50,000</td>
</tr>
<tr>
<td>12 per cent Debentures</td>
<td>1,00,000</td>
<td>Cash Balance</td>
<td>30,000</td>
</tr>
<tr>
<td>Trade Creditors</td>
<td>50,000</td>
<td>Bills Payable</td>
<td>10,000</td>
</tr>
<tr>
<td>Plant and Machinery</td>
<td>1,00,000</td>
<td>Stock</td>
<td>40,000</td>
</tr>
<tr>
<td>Land and Buildings</td>
<td>1,00,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Solution:**

\[
\text{Fixed Assets Ratio} = \frac{\text{Fixed Assets}}{\text{Long-term Funds}} = \frac{2,25,000}{2,50,000} = 0.9
\]

2. **Current Ratio.** This ratio is an indicator of the firm’s commitment to meet its short-term liabilities. It is expressed as follows:

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

Current assets include cash and other assets convertible or meant to be converted into cash during the operating cycle of the business (which is of not more than a year). Current liabilities mean liabilities payable within a year’s time either out of the existing current assets or by the creation of new current liabilities. A list of items included in current assets and current liabilities has already been given in the proforma analysis balance sheet in the preceding pages.
Book debts outstanding for more than six months and loose tools should not be included in current assets. Prepaid expenses should be taken into current assets.

3. **Liquidity Ratio.** This ratio is also termed as ‘acid test ratio’ or ‘quick ratio’. This ratio is ascertained by comparing the liquid assets (i.e., assets which are immediately convertible into cash without much loss) to the current liabilities. Prepaid expenses and stock are not taken as liquid assets. The ratio may be expressed as under:

\[
\frac{\text{Liquid Assets}}{\text{Current Liabilities}}
\]

On the basis of figures given in the Illustration 1.15, the liquidity ratio will be computed as under:

\[
\frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{\text{Rs 90,000} - \text{Rs 40,000}}{\text{Rs 50,000}} = \frac{\text{Rs 50,000}}{\text{Rs 50,000}} = 1.
\]

Some accountants prefer the term ‘Liquid Liabilities’ for ‘Current Liabilities’ for the purpose of ascertaining this ratio. Liquid liabilities mean liabilities which are payable within a short period. The bank overdraft (if it becomes a permanent mode of financing) and cash credit facilities will be excluded from the current liabilities in such a case:

\[
\frac{\text{Liquid Assets}}{\text{Liquid Liabilities}}
\]

The ratio is also an indicator of short-term solvency of the company. A comparison of the current ratio to quick ratio shall indicate the inventory hold-ups. For example, if two units have the same current ratio but different liquidity ratios, it indicates overstocking by the concern having low liquidity ratio as compared to the concern which has a higher liquidity ratio.

4. **Debt-equity Ratio.** The debt-equity ratio is determined to ascertain the soundness of the long-term financial policies of the company. It is also known as ‘external-internal’ equity ratio. It may be calculated as follows:

\[
\text{Debt-equity Ratio} = \frac{\text{External equities}}{\text{Internal equities}}
\]

The term external equities refers to total outside liabilities and the term internal equities refers to shareholders’ funds or the tangible net worth (as used in the proforma balance sheet given in the preceding pages). In case the ratio is 1 (i.e., outsider’s funds are equal to shareholders’ funds), it is considered to be quite satisfactory.

(i) Debt-equity Ratio = \(\frac{\text{Total long-term debt}}{\text{Total long-term funds}}\)

(ii) Debt-equity Ratio = \(\frac{\text{Shareholder’s funds}}{\text{Total long-term funds}}\)

(iii) Debt-equity Ratio = \(\frac{\text{Total long-term debt}}{\text{Shareholder’s funds}}\)
Method (iii) is the most popular.

Ratios (i) and (ii) give the proportion of long-term debts/shareholders’ funds in total long-term funds (including borrowed as well as owned funds). While ratio (iii) indicates the proportion between shareholders’ funds (i.e., tangible net worth), and the total long-term borrowed funds.

Ratios (i) and (ii) may be taken as ideal if they are 0.5 each while ratio (iii) may be taken as ideal if it is 1. In other words, the investor may take debt-equity ratio as quite satisfactory if the shareholders’ funds are equal to the borrowed funds. However, a lower ratio, say 2/3rds, borrowed funds and 1/3rd owned funds may also be considered as satisfactory if the business needs heavy investment in fixed assets and has an assured return on its investment, e.g., in case of public utility concerns.

It is to be noted that preference shares redeemable within a period of twelve years from the date of their issue should be taken as a part of debt.

5. **Proprietary Ratio.** It is a variant of debt-equity ratio. It establishes the relationship between the proprietors’ or shareholders’ funds and the total tangible assets. It may be expressed as under:

\[
\text{Shareholders’ Funds} \div \text{Total Tangible Assets}
\]

**Illustration 10.14:** From the following calculate the proprietary ratio:

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>Rs</th>
<th>Assets</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference share capital</td>
<td>1,00,000</td>
<td>Fixed assets</td>
<td>2,00,000</td>
</tr>
<tr>
<td>Equity share capital</td>
<td>2,00,000</td>
<td>Current assets</td>
<td>1,00,000</td>
</tr>
<tr>
<td>Reserves and surplus</td>
<td>50,000</td>
<td>Goodwill</td>
<td>50,000</td>
</tr>
<tr>
<td>Debentures</td>
<td>1,00,000</td>
<td>Investments</td>
<td>1,50,000</td>
</tr>
<tr>
<td>Creditors</td>
<td>50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,00,000</strong></td>
<td><strong>Total</strong></td>
<td><strong>5,00,000</strong></td>
</tr>
</tbody>
</table>

**Solution:**

\[
\text{Proprietary ratio} = \frac{\text{Shareholders’ funds}}{\text{Total tangible assets}} = \frac{3,00,000}{4,50,000} = 0.67 \text{ or } 67\text{ per cent}
\]

**Significance.** This ratio focuses the attention on the general financial strength of the business enterprise. The ratio is of particular importance to the creditors who can find out the proportion of shareholders’ funds in the total assets employed in the business. A high proprietary ratio will indicate a relatively little danger to the creditors, etc., in the event of forced reorganization or winding up of the company. A low proprietary ratio indicates greater risk to the creditors, since in the event of losses a part of their money may be lost besides loss to the proprietors of the business. The higher the ratio, the better it is. A ratio below 50 per cent may be alarming for the creditors, since they may have to lose heavily in the event of company’s liquidation on account of heavy losses.

### 10.9 ADVANTAGES OF RATIO ANALYSIS

The following are some of the advantages of ratio analysis:

1. **Simplifies Financial Statements.** Ratio analysis simplifies the comprehension of financial statements. Ratios tell the whole story of changes in the financial condition of the business.
2. Facilitates Inter-firm Comparison. Ratio analysis provides data for inter-firm comparison. Ratios highlight the factors associated with successful and unsuccessful firms. They also reveal strong firms and weak firms, over-valued and under-valued firms.

3. Makes Intra-firm Comparison Possible. Ratio analysis also makes possible comparison of the performance of the different divisions of the firm. The ratios are helpful in deciding about their efficiency or otherwise in the past and likely performance in the future.

4. Helps in Planning. Ratio analysis helps in planning and forecasting. Over a period of time a firm or industry develops certain norms that may indicate future success or failure. If the relationship changes in the firm's data over different time periods, the ratios may provide clues on trends and future problems.

Thus, ratios can assist management in its basic functions of forecasting, planning, coordination, control and communication.

10.10 LIMITATIONS OF ACCOUNTING RATIOS

Accounting ratios are subject to certain limitations. They are given below:

1. Comparative Study Required. Ratios are useful in judging the efficiency of the business only when they are compared with the past results of the business or with the results of a similar business. However, such a comparison only provides a glimpse of the past performance and forecasts for the future may not prove correct since several other factors like market conditions, management policies, etc., may affect the future operations.

2. Based only on financial statements. Ratios are based only on the information which has been recorded in the financial statements. As indicated in the preceding pages, financial statements suffer from a number of limitations, the ratios derived therefrom, therefore, are also subject to those limitations. For example, non-financial charges though important for the business are not revealed by the financial statements. If the management of the company changes, it may have ultimately adverse effects on the future profitability of the company, but this cannot be judged by having a glance at the financial statements of the company.

Similarly, the management has a choice about the accounting policies. Different accounting policies may be adopted by the management of different companies regarding valuation of inventories, depreciation, research and development expenditure and treatment of deferred revenue expenditure, etc. The comparison of one firm with another on the basis of ratio analysis without taking into account the fact of companies having different accounting policies, will be misleading and meaningless. Moreover, the management of the firm itself may change its accounting policies from one period to another. It is, therefore, absolutely necessary that financial statements are themselves subjected to close scrutiny before an analysis is attempted on the basis of accounting ratios. The financial analyst must carefully examine the financial statements and make necessary adjustments in the financial statements on the basis of disclosure made regarding the accounting policies before undertaking financial analysis.

The growing realization among accountants all over the world, that the accounting policies should be standardized, has resulted in the establishment of International Accounting Standard Committee, which has issued a number of International Accounting Standards.
Standards. In our country, the Institute of Chartered Accountants of India has established Accounting Standards Board of formulation of requisite accounting standards. The Accounting Standards Board has already issued twenty-three accounting standards including AS 1: Disclosure of Accounting Policies. The standard has become mandatory in respect of accounts for periods commencing on or after 1 April 1991.

3. **Ratios Alone are not Adequate.** Ratios are only indicators, they cannot be taken as final regarding the good or bad financial position of the business. Other things have also to be seen. For example, a high current ratio does not necessarily mean that the concern has a good liquid position in case current assets mostly comprise outdated stocks. It has been correctly observed, ‘No ratio may be regarded as good or bad *inter se.*’ It may be an indication that a firm is weak or strong but it must never be taken as the proof of either one. Ratios may be linked to rail roads. They tell the analysist, ‘stop, look and listen.’

4. **Window Dressing.** The term window dressing means manipulation of accounts in a way so as to conceal vital facts and present the financial statements in a way to show a better position than what it actually is. On account of such a situation, the presence of a particular ratio may not be a definite indicator of good or bad management. For example, a high stock turnover ratio is generally considered to be an indication of operational efficiency of the business. But this might have been achieved by unwarranted price reductions or failure to maintain proper stock of goods.

Similarly, the current ratio may be improved just before the balance sheet date by postponing replenishment of inventory. For example, if a company has got current assets of Rs 4,000 while current liabilities of Rs 2,000, the current ratio is 2, which is quite satisfactory. In case the company purchases goods of Rs 2,000 on credit, the current assets would go up to Rs 6,000 and current liabilities to Rs 4,000, thus reducing the current ratio to 1.5. The company may, therefore, postpone the purchases for the early next year so that its current ratio continues to remain at 2 on the balance sheet date. Similarly, in order to improve the current ratio, the company may pay off certain pressing current liabilities before the balance sheet date. For example, if in the above case, the company pays current liabilities of Rs 1,000, the current liabilities would stand reduced to Rs 1,000, current assets would stand reduced to Rs 3,000 but the current ratio would go up to 3.

5. **Problem of Price Level Changes.** Financial analysis based on accounting ratios will give misleading results if the effects of changes in price level are not taken into account. For example, two companies set up in different years, having plant and machinery of different ages, cannot be compared on the basis of traditional accounting statements. This is because, the depreciation charged on plant and machinery in the case of the old company would be at a much lower figure as compared to the company which has been set up recently. The financial statements of the companies should, therefore, be adjusted keeping in view the price level changes if a meaningful comparison is to be made through accounting ratios. The techniques of current purchasing power and current cost accounting are quite helpful in this respect.

6. **No Fixed Standards.** No fixed standards can be laid down for ideal ratios. For example, current ratio is generally considered to be ideal if current assets are
twice the current liabilities. However, in the case of those concerns which have adequate arrangements with their bankers for providing funds when they require, it may be perfectly ideal if current assets are equal to or slightly more than current liabilities.

It may, therefore, be concluded that ratio analysis, if done mechanically, is not only misleading but also dangerous. It is indeed a double-edged sword which requires a great deal of understanding and sensitivity of the management process rather than mechanical financial skill. It has rightly been observed, ‘The ratio analysis is an aid to management in taking correct decisions, but as a mechanical substitute for thinking and judgment, it is worse than useless. The ratios, if discriminatingly calculated and wisely interpreted, can be a useful tool of financial analysis.’

10.11 SUMMARY

- Accounting ratio is a mathematical relationship expressed between two interconnected accounting figures. It may be expressed in ‘times’ or ‘percentage’.
- Ratios are useful only when they are given in a comparative form. Moreover, ratios are only indicators. They cannot be taken as final regarding good or bad financial position of the business. Other things have also to be seen.
- No fixed standards can be laid down for ideal ratios. Moreover, a particular ratio may be calculated in more than one way without violating any basic principle of accounting. It is, therefore, advisable for a student to give the basis for computing a particular ratio.
- While making inter-firm (comparison of one firm with another) or intra-firm (comparison within the firm itself) comparison on the basis of accounting ratios, it must be seen that the different firms or departments, which are being compared, have the same accounting policies and adopt the same accounting procedures.

10.12 KEY TERMS

- **Accounting Ratio**: It is the relationship expressed in mathematical terms between two accounting figures related to each other.
- **Balance Sheet**: It is a statement of financial position of business at a specified moment of time.
- **Balance Sheet Ratios**: These are ratios calculated on the basis of the figures of balance sheet only.
- **Composite Ratios**: These are ratios based on figures of profit and loss account as well as the balance sheet. They are also known as Inter-statement Ratios.
- **Financial Analysis**: These are critical evaluation of data given in the financial statements.
- **Financial Ratios**: These are ratios disclosing the financial position or solvency of the firm. (They are also known as solvency ratios.)

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NOTES

- **Financial Statement**: This is an organized collection of data according to logical and consistent accounting procedures conveying an understanding of some financial aspects of a business firm.
- **Interpretation**: This is the act of explaining the meaning and significance of the financial data.
- **Profitability Ratios**: These are ratios which reflect the final results of business operations.
- **Turnover Ratios**: These are ratios measuring the efficiency with which the assets are employed by a firm. They are also known as activity or efficiency ratios.

### 10.13 ANSWERS TO ‘CHECK YOUR PROGRESS’

1. Analysis and interpretation of financial statements, therefore, refers to the treatment of the information contained in the income statement and the balance sheet so as to afford full diagnosis of the profitability and the financial soundness of the business.
2. The term ‘analysis’ means the methodical classification of the data given in the financial statements.
3. This classification has been on the basis of the financial statements to which the determinants of a ratio belong.
4. Profitability is an indication of the efficiency with which the operations of the business are carried on.
5. The ‘price earning ratio’ indicates the number of times the earning per share is covered by its market price.
6. The ‘debt collection period’ ratio indicates the extent to which the debts have been collected in time. It gives the average debt collection period.
7. A company is deemed to be financially sound if it is in a position to carry on its business smoothly and meet all its obligations—both long-term as well as short-term—without strain.
8. Liquid liabilities are liabilities which are payable within a short period.
9. Ratio analysis simplifies the comprehension of financial statements. Ratios tell the whole story of changes in the financial condition of the business.

### 10.14 QUESTIONS AND EXERCISES

**Short-Answer Questions**
1. Discuss the concepts regarding financial statements and limitations of financial statements.
2. Explain the role of ratio analysis in the interpretation of financial statements. Examine the limitations of ratio analysis.

**Long-Answer Questions**
1. How do you analyse and interpret financial statements of a company for reporting on the soundness of its capital structure and solvency?
2. ‘Ratios like statistics have a set of principles and finality about them which at times may be misleading.’ Discuss with illustrations.
3. ‘Accounting ratios are mere guides and complete reliance on them in decision-making is suicidal.’ Elucidate.

### 10.15 PRACTICAL PROBLEMS

**Computation of Ratios**

1. From the following statements of X Ltd. for the year ending 31 March 1997, you are required to rearrange the items for purposes of financial analysis and calculate the following ratios:


   **BALANCE SHEET**

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>Rs</th>
<th>Assets</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share Capital:</td>
<td></td>
<td>Land and Buildings</td>
<td>5,00,000</td>
</tr>
<tr>
<td>Issued and fully paid up</td>
<td>50,000</td>
<td>Plant and Machinery</td>
<td>2,00,000</td>
</tr>
<tr>
<td>Equity shares of Rs 10 each</td>
<td>5,00,000</td>
<td>Stock</td>
<td>1,50,000</td>
</tr>
<tr>
<td>General Reserve</td>
<td>4,00,000</td>
<td>Sundry Debtors</td>
<td>2,50,000</td>
</tr>
<tr>
<td>Profit and Loss A/c</td>
<td>1,50,000</td>
<td>Cash and Bank balances</td>
<td>1,50,000</td>
</tr>
<tr>
<td>Sundry Creditors</td>
<td>2,00,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12,50,000</td>
<td></td>
<td>12,50,000</td>
</tr>
</tbody>
</table>

   **PROFIT AND LOSS ACCOUNT**

   for the year ending 31 March 1997

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rs</th>
<th>Particulars</th>
<th>Rs</th>
</tr>
</thead>
<tbody>
<tr>
<td>To opening stock</td>
<td>2,50,000</td>
<td>By Sales</td>
<td>18,00,000</td>
</tr>
<tr>
<td>To purchases</td>
<td>10,50,000</td>
<td>By Closing Stock</td>
<td>1,50,000</td>
</tr>
<tr>
<td>To gross profit</td>
<td>6,50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19,50,000</td>
<td></td>
<td>19,50,000</td>
</tr>
<tr>
<td>To selling and distribution</td>
<td>1,00,000</td>
<td>By Gross Profit</td>
<td>6,50,000</td>
</tr>
<tr>
<td>expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To administration expenses</td>
<td>2,30,000</td>
<td>By Profit on sale of fixed</td>
<td></td>
</tr>
<tr>
<td>To finance expenses</td>
<td>20,000</td>
<td>assets</td>
<td>50,000</td>
</tr>
<tr>
<td>To net profit</td>
<td>3,50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7,00,000</td>
<td></td>
<td>7,00,000</td>
</tr>
</tbody>
</table>

   [Ans. (i) 2.75, (ii) 2, (iii) 0.82, (iv) 5.75, (v) 18/7 = 2.6 or 11.5/7, (vi) 7.2, i.e., 51 days, (vii) 30 per cent]

2. The following data has been abstracted from the annual accounts of a company:

   Share Capital $Rs in lakhs$
   20,000 Equity Shares of Rs 10 each 200.00
   General Reserve 156.00
   Investment Allowance Reserve 50.00
   Share Capital $Rs in lakhs$
   15% Long-term Loan 300.00
   Profit before Tax 140.00
   Provision for Tax 84.00
   Proposed Dividends 10.00

   Calculate from the above the following details:

   (i) Return on Capital Employed, and
   (ii) Return on Net Worth.

   [Ans. (i) 26.4 per cent, (ii) 14 per cent]
10.16 FURTHER READING

