



# RAMA UNIVERSITY

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## **FACULTY OF COMMERCE & MANAGEMENT**

**COURSE: B.COM 3<sup>rd</sup> SEMESTER**

**SUBJECT: MANAGEMENT ACCOUNTING**

**SUBJECT CODE: BCH 302**

**LECTURE: 4**

**NAME OF FACULTY: DR. R. S. BISARIYA**

# Lecture-4



**Ratio Analysis**

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## Objectives

Notes

After studying this Chapter, you will be able to:

- Illustrate the key ratios like liquidity, solvency, profitability and turnover
- Describe DUPONT analysis
- Explain the relevance of ratio analysis

## Introduction

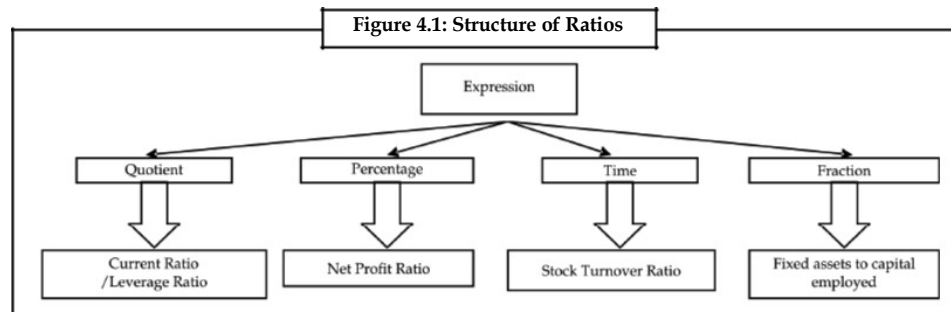
The ratio analysis is one of the important tools of financial statement analysis to study the financial stature of the business fleeces, corporate houses and so on.

According to J. Batty, "The term accounting ratio is used to describe significant relationships which exist between figures shown in a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization".

Financial statements contain substantial information (figures) relating to profit or loss and financial position of the business. If these items in financial statements are considered independently it may or may not be of much use. To make a meaningful reading of financial statements, these items found in financial statements have to be compared with one another. Ratio analysis, as a technique or analysis of financial statement uses this method of comparing the various items found in financial statements.

## 4.1 Definition

According to J. Betty, "The term accounting is used to describe relationships significantly which exist in between figures shown in a balance sheet, Profit & Loss A/c, Trading A/c, Budgetary control system or in any part of the accounting organization."



According to Myers "Study of relationship among the various financial factors of the enterprise".



*Did u know? What is meant by the accounting ratio?*

The accounting ratios are computed on the basis available accounting information extracted from the financial statements which are not in a position to reveal the status of the enterprise.

The accounting ratios are applied to study the relationship in between the quantitative information available and to take decision on the financial performance of the firm.

Notes

To understand the methodology of expressing the ratios, various expressions of ratios are highlighted in the Figure 4.1.



Notes Purposes of the Ratio Analysis:

- To study the short-term solvency of the firm – liquidity of the firm
- To study the long-term solvency of the firm – leverage position of the firm
- To interpret the profitability of the firm – Profit earning capacity of the firm
- To identify the operating efficiency of the firm – turnover of the ratios

## 4.2 Classification of Ratios

The accounting ratios are classified into various categories, viz.:

- On the basis of financial statements
- On the basis of functions

### 4.2.1 On the basis of Financial Statements

**Income Statement Ratios:** These ratios are computed from the statements of Trading, Profit & Loss account of the enterprise. Some of the major ratios are as following GP ratio, NP ratio, Expenses Ratio and so on.

**Balance Sheet or Positional Statement Ratios:** These types of ratios are calculated from the balance sheet of the enterprise which normally reveals the financial status of the position i.e. short-term, long-term financial position, share of the owners on the total assets of the enterprise and so on.

**Inter Statement or Composite Mixture of Ratios:** These ratios are calculated by extracting the accounting information from the both financial statements, in order to identify stock turnover ratio, debtor turnover ratio, return on capital employed and so on.

### 4.2.2 On the basis of Functions

**On the basis of solvency position of the firms:** Short-term and long-term solvency position of the firms.

**On the basis of profitability of the firms:** The profitability of the firms are studied on the basis of the total capital employed, total asset employed and so on.

**On the basis of effectiveness of the firms:** The effectiveness is studied through the turnover ratios – Stock turnover ratio, Debtor turnover ratio and so on.

**Capital structure ratios:** The capital structure position are analysed through leverage ratios as well as coverage ratios.

**Self Assessment****Notes**

Fill in the blanks:

Ratio analysis, as a technique or analysis of ..... uses this method of comparing the various items found in financial statements.

The accounting ratios are applied to study the relationship in between the ..... information available and to take decision on the financial performance of the firm.

The ..... position are analysed through leverage ratios as well as coverage ratios.

The ..... of the firms are studied on the basis of the total capital employed, total asset employed and so on.

**4.3 Liquidity Ratios**

To study the short-term solvency or liquidity of the firm, the following are various ratios:

Current Assets Ratio

Acid Test Ratio or Quick Assets Ratio

Super Quick Assets Ratio

**4.3.1 Current Assets Ratio**

It is one of the important accounting ratios to find out the ability of the business fleeces to meet out the short financial commitment. This is the ratio establishes the relationship in between the current assets and current liabilities.



*Did u know? What is meant by current assets and current liabilities?*

Current assets are nothing but available in the form of cash, equivalent to cash or easily convertible in to cash.

Current liabilities are nothing but short-term financial resources or payable in short span of time within a year.

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



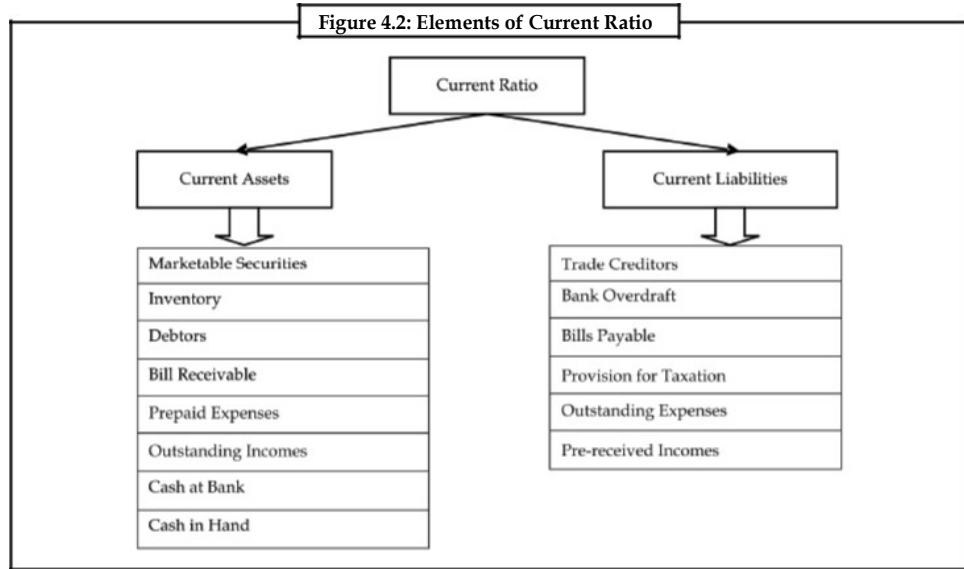
*Example:* Company XYZ has current assets worth of ` 5 lac, while the liabilities amount to ` 3 lac. What is the current ratio of the firm?

**Solution:**

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

$$\text{Current Ratio} = 5/3 = 1.666 \text{ (approx)}$$

Notes



**Caution** Standard norm of the current ratio:

The ideal norm is 2:1; which means that every one rupee of current liability is appropriately covered by two rupees of current assets.

High ratio leads to greater the volume of current assets more than the specified norm denotes that the firm possesses excessive current assets than the requirement portrays idle funds invested in the current assets.

A big limitation of current ratio is that under this ratio, the current assets are equally weighed against each other to match the current liabilities. One rupee of cash is equally weighed at par with the one rupee of closing stock, but the closing stock and prepaid expenses cannot be immediately realized like cash and marketable securities.

**Solved Problems for Practice**

From the following, calculate the current ratio:

|                             |          |
|-----------------------------|----------|
| <b>Current Assets:</b>      |          |
| Cash in hand                | 4,00,000 |
| Sundry Debtors              | 1,60,000 |
| Stock                       | 2,40,000 |
| <b>Current Liabilities:</b> |          |
| Sundry creditors            | 3,00,000 |
| Bills Payable               | 1,00,000 |

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{8,00,000}{4,00,000} = 2$$

The firm satisfies the standard norm of the current asset ratio

2.

Notes

**M/s Shanmuga & Co**  
**Balance sheet as on dated 31st Mar, 2005**

| Particulars      | ₹             | Particulars      | ₹             |
|------------------|---------------|------------------|---------------|
| Share capital    | 42,000        | Fixed Assets Net | 34,000        |
| Reserve          | 3,000         | Stock            | 12,400        |
| Annual Profit    | 5,000         | Debtors          | 6,400         |
| Bank overdraft   | 4,000         | Cash             | 13,200        |
| Sundry creditors | 12,000        |                  |               |
| <b>Total</b>     | <b>66,000</b> | <b>Total</b>     | <b>66,000</b> |

From the above, determine current assets ratios

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

$$\frac{₹32,000}{₹16,000}$$

$$2$$

It satisfies the standard norm of the current asset ratio.

### 4.3.2 Acid Test Ratio

It is a ratio expresses the relationship in between the quick assets and current liabilities. This ratio is to replace the bottleneck associated with the current ratio. It considers only the liquid assets which can be easily translated into cash to meet out the financial commitments.

$$\text{Acid Test Ratio (Quick Assets Ratio)} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$\text{Liquid Asset} = \text{Current Assets} - (\text{Closing Stock} + \text{Prepaid Expenses})$$



*Example:* A company has a closing stock of ₹ 30,000 while its prepaid expenses are ₹ 5000. What will be its quick assets ratio if the current assets are worth ₹ 50000 while current liabilities are worth ₹ 15000?

**Solution:**

$$\text{Liquid Asset} = \text{Current Assets} - (\text{Closing Stock} + \text{Prepaid Expenses})$$

$$50000 - (30000 + 5000)$$

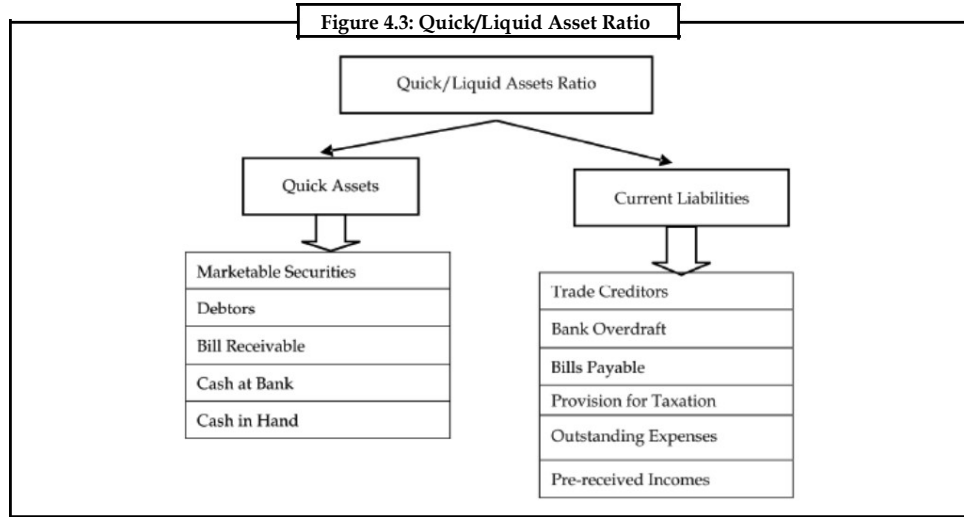
$$15000$$

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

$$= 15000/15000 = 1:1$$



Notes



**Caution** Standard norm of the ratio:

The ideal norm is 1:1 which means that one rupee of current liabilities is matched with one rupee of quick assets.

### 4.3.3 Super Quick Assets Ratio

It is the ratio which establishes the relationship in between the super quick assets and quick liabilities of the firm.

The super quick assets are nothing but the current assets which can be more easily converted into cash to meet out the quick liabilities.

The super quick liabilities are the current liabilities should have to be met out at faster pace within shorter span in duration.

$$\text{Super Quick Assets} = \text{Cash} + \text{Marketable Securities}$$

$$\text{Super Quick Liabilities} = \text{Current Liabilities} - \text{Bank Overdraft}$$

$$\text{Super Quick Assets Ratio} = \frac{\text{Super Quick Assets}}{\text{Super Quick Liabilities}}$$



**Caution** Standard norm of the ratio:

Higher the ratio, better is the position of the firm.



*Example:* From the following calculate current ratio:

|                        |          |
|------------------------|----------|
|                        |          |
| <b>Current Assets:</b> |          |
| Cash in Hand           | 4,00,000 |
| Sundry Debtors         | 1,60,000 |

Contd...

|                             |          |       |
|-----------------------------|----------|-------|
| Stock                       | 2,40,000 | Notes |
| <b>Current Liabilities:</b> |          |       |
| Sundry Creditors            | 3,00,000 |       |
| Bills Payable               | 1,00,000 |       |

**Solution:**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹8,00,000}{₹4,00,000} = 2$$

**Solved Problems for Practice**

Liquid Assets ₹65,000; Stock ₹20,000; Prepaid expenses ₹5,000; Working capital ₹60,000.

Calculate the current assets ratio and liquid assets ratio.

For the computation of current assets ratio, the current assets volume must be known. It is not available in our problem; instead the liquid assets and prepaid expenses are given together which will help to find the total volume of current assets.

$$\begin{aligned} \text{Current Assets} &= \text{Liquid Asset} + \text{Prepaid expenses} + \text{Closing stock} \\ &= ₹65,000 + ₹5,000 + ₹20,000 \\ &= ₹90,000 \end{aligned}$$

The next step is to find out the current liabilities. The volume of current liabilities could be found out through the available information of working capital.

$$\text{Net working capital} = \text{Current Assets} - \text{Current Liabilities}$$

$$₹60,000 = ₹90,000 - \text{Current liabilities}$$

$$\text{Current liabilities} = ₹90,000 - ₹60,000 = ₹30,000$$

From the above, the current ratio could be found out.

$$\text{Current Ratio} = \frac{₹90,000}{₹30,000} = 3 > 2$$

The firm satisfies more than the norm of the current ratio. It means that the firm keeps excessive current assets more than that of requirement.

$$\text{Quick Assets Ratio} = \frac{₹65,000}{₹30,000} = 2.17$$

The firm keeps more liquid assets than that of the specified norm, meaning that excessive liquid assets are held by the firm than the requirement in the form of idle assets not productive in utility.

The current ratio of Bicon Ltd. is 4:5:1 and liquidity ratio is 3:1; stock is ₹6,00,000. Find out the current liabilities.

To find out the volume of current liabilities, initially the share of closing stock should be found out in the total of current assets.

$$\text{Share of stock} = \text{Current Assets Ratio} - \text{Liquid Assets Ratio}$$

$$4.5 - 3.0 = 1.5$$

$$\text{Share of the stock} = 1.5$$

If the share of the stock is 1.5, which amounted to ₹6,00,000.

**Notes**

What is the volume of current liabilities for the ratio of 1?

$$\text{Current liabilities} = \frac{6,00,000}{1.5} = ₹4,00,000$$

**Self Assessment**

Fill in the blanks:

Current assets ratio establishes the relationship in between the ..... and current liabilities.

Liquid Asset = Current Assets - (..... + Prepaid Expenses)

The ..... are nothing but the current assets which can be more easily converted into cash to meet out the quick liabilities.

**4.4 Solvency Ratios**

Solvency ratios indicates company's ability to meet its long-term liabilities. Therefore, these ratios are also called long-term solvency ratios. The long-term liability of a company comprises of debentures, long-term loans, unpaid installment on hire-purchase, and long-term creditors. The long-term creditors take interest in those ratios which highlight the long-term financial position of the company so that they may ensure regarding the repayment of their principal amount on maturity as well as regular interest on their dues. For this purpose the following solvency ratio are calculated:

**4.4.1 Debt-equity Ratio**

It is the ratio expresses the relationship between the ownership funds and the outsiders' funds. It is more specifically highlighted that an expression of relationship in between the debt and shareholders' funds. The debt-equity ratio can be obviously understood into two different forms:

Long-term debt-equity ratio

Total debt-equity ratio

Let us understand each of them one by one.

**Long-term Debt-equity Ratio**

It is a ratio expressing the relationship in between the outsiders' contribution through debt financial resource and shareholders' contribution through equity share capital, preference share capital and past accumulated profits. It reveals the cover or cushion enjoyed by the firm due to the owners' contribution over the outsiders' contribution.

$$\text{Debt-equity Ratio} = \frac{\text{Debt (Long-term Debt = Debentures/Term Loans)}}{\text{Net Worth/Equity (Shareholders' Fund)}}$$



*Example:* The long-term debt of company ABC is ₹ 3 crores and the network of the company is ₹ 5 crores. What is the long-term debt-equity ratio of ABC?

**Solution:****Notes**

$$\text{Long-term debt-equity Ratio} = \frac{\text{Debt}}{\text{Net Worth}} = \frac{3}{5} = .6$$

Higher ratio indicates the riskier financial status of the firm which means that the firm has been financed by the greater outsiders' fund rather than that of the owners' fund contribution and vice versa.



**Caution** Standard norm of the Debt-Equity Ratio:

The ideal norm is 1:2 which means that every one rupee of debt finance is covered by two rupees of shareholders' fund.

The firm should have a minimum of 50% margin of safety in meeting the long-term financial commitments. If the ratio exceeds the specification, the interest of the firm will be ruined by the outsiders' during the moment at when they are unable to make the payment of interest in time as per the terms of agreement reached earlier. During the moment of liquidation, the greater ratio may facilitate the creditors to recover the amount due lesser holding held by the owners.

### Total Debt-equity Ratio

The ultimate purpose of the ratio is to express the relationship total volume of debt irrespective of nature and shareholders' funds. If the owners' contribution is lesser in volume in general irrespective of its nature leads to worse situation in recovering the amount of outsiders' contribution during the moment of liquidation.

$$\text{Total Debt-equity Ratio} = \frac{\text{Short-term Debt} + \text{Long-term Debt}}{\text{Equity (Shareholders' Fund)}}$$



**Example:** The long-term debt of company ABC is ` 3 crores and the network of the company is ` 5 crores. If the company has a short term debt of ` 1 crore, what is the total debt-equity ratio of ABC?

**Solution:**

$$\text{Total Debt-equity Ratio} = \frac{\text{Short-term Debt} + \text{Long-term Debt}}{\text{Equity(Shareholders' Fund)}} = \frac{1+3}{5} = 4:5$$

### 4.4.2 Proprietary Ratio

The ratio illustrates the relationship in between the owners' contribution and the total volume of assets. In simple words, how much funds are contributed by the owners in financing the assets of the firm. Greater the ratio means that greater contribution made by the owners' in financing the assets.

$$\text{Proprietary Ratio} = \frac{\text{Owners' Funds or Equity or Shareholders' Funds}}{\text{Total Assets}}$$



**Caution Standard Norm of the ratio:** Higher the ratio, better is the position

Higher ratio is better position for the firm as well as safety to the creditors.

Notes



*Example:* The net worth of company ABC is ` 30 crores and the total assets are worth 10 crores. What is the proprietary ratio of the firm?

**Solution:**

$$\text{Proprietary Ratio} = \frac{\text{Owners' Funds or Equity or Shareholders' Funds}}{\text{Total assets}} = \frac{30}{10} = 3:1$$

The ratio shows that the firm is in quite a good financial position.

### 4.4.3 Fixed Assets Ratio

The ratio establishes the relationship in between the fixed assets and long-term source of funds. Whatever the source of long-term funds raised should be used for the acquisition of long-term assets; it means that the total volume of fixed assets should be equivalent to the volume of long term funds, i.e. the ratio should be equal to 1.

$$\text{Fixed Assets Ratio} = \frac{\text{Shareholders' Funds} + \text{Outsiders' Funds}}{\text{Net Fixed Assets}}$$

If the ratio is lesser than one means that the firm made use of the short-term fund for the acquisition of long-term assets. If the ratio is greater than one means that the acquired fixed assets are lesser in quantum than that of the long-term funds raised for the purpose. In other words, the firm makes use of the excessive funds for the built of current assets.



**Caution Standard norm of the ratio:** The ideal norm of the ratio is 1:1, which means that the long-term funds raised are utilised for the acquisition of long-term assets of the enterprise.

It facilitates to understand obviously about the over capitalization or under capitalization of the assets of the enterprise.



*Example:* The network of company ABC is ` 30 crores and the net fixed assets are worth 100 crores. If the outsider's funds are worth ` 70 crores, what is the fixed assets ratio of the firm?

**Solution:**

$$\text{Fixed Assets Ratio} = \frac{\text{Shareholders' Funds} + \text{Outsiders' Funds}}{\text{Net Fixed Assets}} = \frac{30+70}{100} = \frac{100}{100} = 1:1$$

Since the ratio is 1:1, it shows that the firm raises the long term funds utilises them only for the acquisition of long term assets of the enterprise.

### 4.4.4 Coverage Ratios

These ratios are computed to know the solvency of the firm in making the periodical payment of interest and preference dividends. The interest and preference dividends are to be paid irrespective of the earnings available in the hands of the firm. In other words, these are known as fixed commitment charge of the firm.

**Interest Coverage Ratio**

Notes

The firms are expected to make the payment of interest on the amount of borrowings without fail. This ratio facilitates the prospective lender to study the strength of the enterprise in making the payment of interest regularly out of the total income. To study the capacity in making the payment of interest is known as interest coverage ratio or debt service coverage ratio.

The ability or capacity is analysed only on the basis of Earnings Before Interest and Taxes (EBIT) available in the hands of the firms.

Greater the ratio means that better the capacity of the firm in making the payment of interest as well as greater the safety and vice versa.

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes}}{\text{Interest}}$$

Lesser the times the ratio means that meager the cushion of the firm which may lead to affect the solvency position of the firm in making payment of interest regularly.



*Example:* Mr Ashmit Ahuja had an earning of ` 3,00,000 before he paid the interests and taxes. What will be the interest coverage ratio if he pays ` 30,000 as an interest? What will it mean?

**Solution:**

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes}}{\text{Interest}} = \frac{3,00,000}{30,000} = 10 : 1$$

Since the interest coverage ratio is substantially high, it means that Mr. Ahuja has quite a good capacity in making the payment of interest and has a high safety.

**Dividend Coverage Ratio**

It illustrates the firms' ability in making the payment of preference dividend out of the earnings available in the hands of the firm after the payment of taxation. Greater the size of the profits after taxation, greater is the cushion for the payment of preference dividend and vice versa.

The preference dividends are to be paid without fail irrespective of the profits available in the hands of the firm after the taxation.

$$\text{Dividend Coverage Ratio} = \frac{\text{Earnings after Taxation}}{\text{Preference Dividend}}$$



*Example:* Hindustan Manufacturers have to make a preference dividend of ` 60,000. The earnings after taxation is ` 3,00,000. What will be the Dividend coverage ratio? What does it mean?

**Solution:**

$$\text{Dividend Coverage Ratio} = \frac{\text{Earnings After Taxation}}{\text{Preference Dividend}} = \frac{3,00,000}{60,000} = 5:1$$

Since the value of the dividend coverage ratio is quite high, the company has a strong cushion for the payment of preference dividend.

The following is the balance sheet of a company as on 31-3-06

| Liabilities               |                    | Assets               |                    |
|---------------------------|--------------------|----------------------|--------------------|
| Equity Shares             | 40,00,000          | Land & building      | 40,00,000          |
| Reserves & Surplus        | 20,00,000          | Plant & machinery    | 40,00,000          |
| Debentures                | 30,00,000          | Investments          | 30,00,000          |
| Long term loans           | 50,00,000          | Stock                | 25,00,000          |
| Creditors                 | 8,00,000           | Debtors              | 15,00,000          |
| Other current liabilities | 12,00,000          | Other current assets | 10,00,000          |
|                           | <b>1,60,00,000</b> |                      | <b>1,60,00,000</b> |

Calculate:

- □ Current ratio
- □ Stock to working capital ratio
- □ Debt-Equity ratio
- □ Net-worth ratio/proprietor/ ratio
- □ Fixed assets to net worth ratio
- □ Current assets to net worth ratio
- □ Solvency ratio

**Solution:**

- (a)  $\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$   
 $\frac{50,00,000}{20,00,000} = 2.5$   
 $\text{Stock to working capital ratio} = \frac{\text{Stock}}{\text{Inventory}/\text{Working capital}} \times 100$   
 $\text{Working capital} = \text{Current Assets} - \text{Current Liabilities}$   
 $50,00,000 - 20,00,000 = 30,00,000$   
 $\frac{25,00,000}{30,00,000} \times 100 = 83.33\%$
- (c)  $\text{Debt-Equity ratio} = \frac{\text{Debt}}{\text{Equity}}$   
 $\text{Debt} = \text{Long-term loans } 30,00,000 + 50,00,000 = 80,00,000$   
 $\text{Equity} = \text{Share capital} + \text{Reserves} + \text{Surplus}$   
 $= 40,00,000 + 20,00,000 = 60,00,000$   
 $= \frac{80,00,000}{60,00,000} = 1.33$   
 $\text{Net worth or proprietary ratio} = \frac{\text{Net worth (equity)}}{\text{Total assets}}$   
 $(\text{Net worth}) = \text{Share capital} + \text{Reserves \& Surplus}$   
 $\frac{60,00,000}{1,60,00,000} = 0.375$   
 $\text{Fixed assets to net worth ratio} = \frac{\text{Net fixed assets}}{\text{Net worth}}$   
 $\frac{80,00,000}{60,00,000} = 1.33$   
 $\text{Current assets to net worth ratio} = \frac{\text{Current assets}}{\text{Net worth}}$   
 $\frac{50,00,000}{60,00,000} = 0.833$

- (g) Solvency ratio = Total assets/Total liabilities
- Total assets = Total of asset side of balance sheet.
- Total liabilities = Both long-term and current liabilities.
- $$1,60,00,000/1,00,00,000 = 1.6$$

Notes

Yahoo Ltd. has the following profit & loss account for the year ended 31st March, 2007 and the balance sheet as on that date.

**Profit & Loss Account for the year ended 31st March, 2007**

(` in Lakhs)

| Particulars             | `     | Particulars   | `     |
|-------------------------|-------|---------------|-------|
| Openings stock          | 1.75  | Sales: Credit | 12.00 |
| Add: Manufacturing cost | 10.75 | Cash          | 3.00  |
|                         | 12.50 |               |       |
| Less: Closing stock     | 1.50  |               |       |
| Cost of goods sold      | 11.00 |               |       |
| Gross Profit            | 4.00  |               |       |
|                         | 15.00 |               | 15.00 |
| Administrative expenses | 0.35  | Gross profit  | 4.00  |
| Selling expenses        | 0.25  | Other income  | 0.09  |
| Depreciation            | 0.50  |               |       |
| Interest                | 0.47  |               |       |
| Income-tax              | 1.26  |               |       |
| Net profit              | 1.26  |               |       |
|                         | 4.09  |               | 4.09  |

**Balance Sheet as on 31st March, 2007**

(` in Lakhs)

| Liabilities                | `     | Assets                | `     |
|----------------------------|-------|-----------------------|-------|
| Equity shares of ` 10 each | 3.50  | Plant & machinery     | 10.00 |
| 10% Preference shares      | 2.00  | Less: Depreciation    | 2.50  |
| Reserves and surplus       | 2.00  | Net plant & machinery | 7.50  |
| Long-term loan (12%)       | 1.00  | Goodwill              | 1.40  |
| Debentures (14%)           | 2.50  | Stock debtors         | 1.50  |
| Creditors                  | 0.60  | Pre-paid expenses     | 1.00  |
| Bills payable              | 0.20  |                       | 0.25  |
| Accrued expenses           | 0.20  | Marketable securities | 0.75  |
| Provision for tax          | 0.65  | Cash                  | 0.25  |
|                            | 12.65 |                       | 12.65 |

The market price of the share of Yahoo Ltd. on 31st March, 2007 is ` 45.

(` Lakhs)

|                            |       |
|----------------------------|-------|
| Reserves at the beginning  | 1.465 |
| Net profit during the year | 1.260 |
|                            | 2.725 |
| Preference dividends       | 0.200 |

Contd...



|       |                               |       |
|-------|-------------------------------|-------|
| Notes | Equity dividends              | 0.525 |
|       | Reserves at the close of year | 2.000 |

Calculate the following ratios - (a) Current ratio, (b) Quick ratio, (c) Debt-equity ratio, (d) Interest coverage, (e) Fixed charge coverage.

**Solution:**

(a) Current Ratio:

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{3,75,000}{1,65,000} = 2.27:1$$

(b) Quick Ratio:

$$\frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities} - \text{Bank overdraft}} = \frac{2,00,000}{1,65,000} = 1.21:1$$

(c) Debt-Equity Ratio:

$$\frac{\text{Long-term debt}}{\text{Shareholders funds}} = \frac{3,50,000}{7,50,000} = 0.467:1$$

(d) Interest Coverage:

$$\frac{\text{PBIDT}}{\text{Interest}} = \frac{1,26,000 + 47,000 + 1,26,000}{47,000} = 6.36 \text{ times}$$

(e) Fixed Charge Coverage:

$$\frac{\text{PBIDT}}{\text{Interest} + \text{Preference dividend}} = \frac{2,99,000}{47,000 + 20,000} = 4.46 \text{ times}$$

### Self Assessment

Choose the right answer

- Ā
Ā
Ā
Ā
- olvency position of the firm studied and interpreted through
- (a) Short-term solvency ratios (b) Long-term solvency ratios
- (c) Coverage ratios (d) (a), (b) & (c)
- Efficiency and effectiveness of the firm is studied through
- (a) Liquidity ratios (b) Leverage ratios
- (c) Turnover ratios (d) Profitability ratios
- Standard norm of the Debt to Capital
- (a) 1:2 (b) 1:1
- (c) 2:1 (d) 1:5

### 4.5 Profitability Ratios

These ratios are measurement of the profitability of the firms in various angles, viz.

- On sales
- On investments
- On capital employed and so on

While discussing the measure of profitability of the firm, the profits are normally classified into various categories:

Notes

1. Gross Profit
2. Net Profit
3. Operating Profit Ratio
4. Return on Assets Ratio
5. Return on Capital Employed

All profitability ratios are normally expressed only in terms of (%). The return is normally expressed only in terms of percentage which warrants the expression of this ratio to be also in percentage.

### 4.5.1 Gross Profit Ratio

The ratio elucidates the relationship in between the gross profit and sales volume.

It facilitates to study the profit earning capacity of the firm out of the manufacturing or trading operations.

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

≡

*Example:* Om enterprises has earned a gross profit of ₹ 6,00,000 in the first quarter. Calculate the gross profit ratio if the corresponding sales amounted to a value of ₹ 30,00,000. What does it imply?

**Solution:**

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{6,00,000}{30,00,000} \times 100 = 20 : 1$$

The ratio implies that the firm has earned good profits out of sales in the first quarter.



**Caution Standard norm of the ratio:** Higher the ratio means that the firm has greater cushion in meeting the needs of preference dividend payment against Earnings After Taxation (EAT) and vice versa.

### 4.5.2 Net Profit Ratio

The ratio expresses the relationship in between the net profit and sales volume. It facilitates to portray the overall operating efficiency of the firm. The net profit ratio is an indicator of over all earning capacity of the firm in terms of return out of sales volume.

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$



*Example:* Om enterprises has earned a net profit of ₹ 3,00,000 in the first quarter. Calculate the net profit ratio if the corresponding sales amounted to a value of ₹ 30,00,000. What does it imply?

Notes

**Solution:**

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100 = \frac{30,000}{30,00,000} \times 100 = 1:1$$

The ratio shows that the company is running on a no profit - no loss state.



**Caution Standard Norm of the Ratio:** Higher the ratio, the better the position of the firm is, which means that the firm earns greater profits out of the sales and vice versa.

### 4.5.3 Operating Profit Ratio

The operating ratio is establishing the relationship in between the cost of goods sold and operating expenses with the total sales volume.

$$\text{Operating Ratio} = \frac{\text{Cost of Goods Sold} + \text{Operating Expenses} \times 100}{\text{Net Sales}}$$



**Example:** The cost of goods sold by Mangamal operators is ` 2,000. What will be the operating ratio of the firm if the operating expenses are ` 50,000 and net sales is that of ` 5,00,000?

What does it mean?

**Solution:**

$$\text{Operating Ratio} = \frac{\text{Cost of goods sold} + \text{Operating expenses}}{\text{Net sales}} \times 100 = \frac{2,000 + 50,000}{5,00,000} = 1:2$$

Since the ratio is quite low, this means that the firm is in quite favourable position and thus has a high margin of operating profit.



**Caution Standard norm of the ratio:** Lower the ratio, the more favourable and better the firm's position is, which highlights the percentage of absorption, cost of goods sold and operating expenses out of sales and vice versa. The lower ratio leads to a higher margin of operating profit.

### 4.5.4 Return on Assets Ratio

This ratio portrays the relationship in between the earnings and total assets employed in the business enterprise. It highlights the effective utilization of the assets of the firm through the determination of return on total assets employed.

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes}}{\text{Average Total Assets}} \times 100$$



**Example:** If one company has an income of ` 1 crore and total assets of ` 10,00,000, what will be the return on assets if net profit after taxes is ` 500000?

**Solution:**

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes}}{\text{Average Total Assets}} \times 100 = \frac{5,00,000}{1,00,000} \times 100 = 50\%$$



**Caution Standard norm of the ratio:** Higher the ratio illustrates that the firm has greater effectiveness in the utilization of assets, means greater profits reaped by the total assets and vice versa.

#### 4.5.5 Return on Capital Employed

The ratio illustrates that how much return is earned in the form of Net profit after taxes out of the total capital employed. The capital employed is nothing but the combination of both non current liabilities and owners' equity. The ratio expresses the relationship in between the total earnings after taxation and the total volume of capital employed.

$$\text{Return on Total Capital Employed} = \frac{\text{Net Profit After Taxes}}{\text{Total Capital Employed}} \times 100$$



**Caution Standard norm of the ratio:** Higher the ratio is better the utilization of the long term funds raised under the capital structure means that greater profits are earned out of the total capital employed.



*Example:* In the previous example, if the total capital employed is worth ` 25,00,000, what is the return on total capital employed?

**Solution:**

$$\text{Return on Total Capital Employed} = \frac{\text{Net Profit After Taxes}}{\text{Total Capital Employed}} \times 100 = \frac{5,00,000}{25,00,000} \times 100 = 20\%$$

#### Solved Problems for Practice

The following figure relates to Poornima Traders Ltd. for the year ended 31st March, 2005.

**Trading and Profit & Loss Account  
for the year ended 31st March, 2005  
Poornima Traders Ltd.**

|                           | Dr     |           |                            | Cr        |           |
|---------------------------|--------|-----------|----------------------------|-----------|-----------|
| Particulars               |        |           | Particulars                |           |           |
| To Opening stock          |        | 1,50,000  | By Sales                   | 10,40,000 |           |
| To Purchases              |        | 6,50,000  | Less: Returns              | 40,000    |           |
| To Gross profit c/d       |        | 4,00,000  |                            |           | 10,00,000 |
|                           |        |           | By Closing stock           |           | 2,00,000  |
|                           |        | 12,00,000 |                            |           | 12,00,000 |
| To Administration         | 80,000 |           | By Gross profit b/d        |           | 4,00,000  |
| To Selling & Distribution | 50,000 |           | By Dividend income         | 18,000    |           |
|                           |        | 1,30,000  | By Profit on sale of share | 22,000    |           |
| To Loss on sale of assets |        | 10,000    |                            |           | 40,000    |
| To Net profit c/d         |        | 3,00,000  |                            |           |           |
|                           |        | 4,40,000  |                            |           | 4,40,000  |

Notes

Balance Sheet on 31st March, 2005 of Poornima Traders Ltd.

| Liabilities                      |           | Assets              |           |
|----------------------------------|-----------|---------------------|-----------|
| Issued capital                   |           |                     |           |
| 4000 Equity shares of ` 100 each | 4,00,000  | Land and Building   | 3,00,000  |
| Reserves                         | 1,80,000  | Plant and Machinery | 1,60,000  |
| Current liabilities              | 3,00,000  | Stock               | 3,20,000  |
| Profit & Loss A/c                | 1,20,000  | Debtors             | 1,60,000  |
|                                  |           | Cash at Bank        | 60,000    |
|                                  | 10,00,000 |                     | 10,00,000 |

Calculate the following ratios:

- (i) Gross profit ratio (ii) Operating ratio (iii) Operating profit ratio (iv) Net profit ratio

Gross profit ratio =

$$\text{Gross profit ratio} = \frac{\text{Gross profit} \times 100}{\text{Sales}}$$

While calculating the gross profit ratio, which sales should be taken into consideration?

The net sales alone has to be taken into consideration for the computation of calculating the gross profit ratio. What is meant by net sales ?

$$\text{Net Sales} = \text{Gross sales} - \text{Sales Return}$$

The firm has not earned any profit on the sales return made by its customers/ consumers. When the firm has not earned any profit out of the sales return, that should be deducted from the gross sales. The chance of earning profit usually prevails only at the moment of payment by the customers, but the customers who returned the goods need not pay in this regard, which does not carry any opportunity for the firm to earn profit.

$$\text{GP Ratio} = \frac{4,00,000}{10,00,000} \times 100 = 40\%$$

Operating ratio =

$$\frac{\text{Cost of goods sold} + \text{Administration expenses} + \text{Selling \& Distribution expenses}}{\text{Net sales}} \times 100$$

The information pertaining to cost of goods sold is not available directly.

The cost of goods sold could be found out in two different ways:

$$\text{Cost of goods sold} = \text{opening stock} + \text{Purchases} - \text{Closing stock}$$

Substitute the values in the above equation

$$\begin{aligned} &= `1,50,000 + `6,50,000 - `2,00,000 \\ &= `6,00,000 \end{aligned}$$

Alternately, the cost of goods sold could be found out as follows:

$$\begin{aligned} \text{Cost of goods sold} &= \text{Sales} - \text{Gross profit} \\ &= `10,00,000 - `4,00,000 \\ &= `6,00,000 \end{aligned}$$

## Notes

$$\text{Operating ratio} = \frac{₹6,00,000 + ₹1,30,000}{10,00,000} \times 100 = 73\%$$

$$\text{Operating profit ratio} = \frac{\text{Operating profit}}{\times 100 \text{ Net sales}}$$

To find out the operating profit from the profit & loss account, the following methodology will help to determine as effectively as possible.

## Pro forma for finding out the operating profit

| Particulars                     |      |
|---------------------------------|------|
| Net Profit                      | XXXX |
| Add: Non operating expense/loss | XXXX |
| Less: Non operating income      | XXXX |
| Operating income                | XXXX |

$$\text{Operating profit} = ₹3,00,000 - ₹40,000 + ₹10,000 = ₹2,70,000$$

$$\text{Operating profit ratio} = \frac{₹2,70,000}{₹10,00,000} \times 100 = 27\%$$

$$\begin{aligned} \text{(iv) Net profit expenses ratio} &= \frac{\text{Net profit}}{\text{Net sales}} \times 100 \\ &= \frac{₹3,00,000}{₹10,00,000} \times 100 = 30\% \end{aligned}$$

**Self Assessment**

Fill in the blanks:

The net profit ratio is an indicator of overall ..... of the firm in terms of return out of sales volume.

The operating ratio is establishing the relationship in between the ..... and operating expenses with the total sales volume.

The ..... is nothing but the combination of both non current liabilities and owners' equity.

**4.6 Turnover Ratios**

It highlights the relationship in between the sales and various assets. The ratio indicates that the rate of speed which is taken by the firm for converting the assets into sales.

**4.6.1 Stock Turnover Ratio**

The ratio expresses the speed of converting the stock into sales. In other words, how fast the stock is being converted into sales in a year. The greater the ratio of conversion leads to lesser the number of days/weeks/months required to convert the stock into sales.

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Stock}} \text{ or } \frac{\text{Sales}}{\text{Closing Stock}}$$

Notes



**Caution Standard norm of the ratio:** Higher the ratio is better the firm in converting the stock into sales and vice versa.

The next step is to find out the number of days or weeks or months taken or consumed by the firm to convert the stock into sales volume.

$$\text{Stock Velocity} = \frac{365 \text{ days}/52 \text{ weeks}/12 \text{ months}}{\text{Stock Turnover Ratio}}$$



**Caution Standard norm of the ratio:** Lower the duration is better the position of the firm in converting the stock into sales and vice versa.



*Example:* The cost of goods sold is ` 500,000. The opening stock is ` 40,000 and the closing stock is ` 60,000 (at cost). Calculate inventory turnover ratio.

**Solution:**

$$\begin{aligned} \text{Average Stock} &= \frac{\text{Opening Stock} + \text{Closing Stock}}{2} = \frac{40,000 + 60,000}{2} = 50,000 \\ \text{Stock Turnover Ratio} &= \frac{\text{Cost of Goods Sold}}{\text{Average stock}} = \frac{5,00,000}{50,000} = 10:1 \end{aligned}$$

### 4.6.2 Debtors Turnover Ratio

This ratio exhibits the speed of the collection process of the firm in collecting the overdue amount from the debtors and against Bills receivables. The speediness is being computed through debtors velocity from the ratio of Debtors Turnover Ratio.

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}} \text{ or } \frac{\text{Net Credit Sales}}{\text{Debtor} + \text{Bills Receivable}}$$



**Caution Standard norm of the ratio:** Higher the ratio is better the position of the firm in collecting the overdue means the effectiveness of the collection department and vice versa.

**Debtors velocity:** This is an extension of the earlier ratio to denote the effectiveness of the collection department in terms of duration.

$$\text{Debtors Velocity} = \frac{365 \text{ days}/52 \text{ weeks}/12 \text{ months}}{\text{Debtor Turnover Ratio}}$$



**Caution Standard norm of the ratio:** Lesser the duration shows greater the effectiveness in collecting the dues which means that the collection department takes only minimum period for collection and vice versa.



*Example:* Sundaram & Co. Sells goods on cash as well as credit basis. The following particulars are extracted from the books of accounts for the calendar 2005:

| Particulars                    |          |
|--------------------------------|----------|
| Total Gross sales              | 2,00,000 |
| Cash Sales (included in above) | 40,000   |
| Sales Returns                  | 14,000   |
| Total Debtors                  | 18,000   |
| Bills Receivable               | 4,000    |
| Provision for Doubtful Debts   | 2,000    |
| Total Creditors                | 20,000   |

Notes

Calculate average collection period.

**Solution:**

To find out the average collection period, first debtors turnover ratio has to be computed

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Bills Receivable} + \text{Debtors}}$$

$$\begin{aligned} \text{Net Credit Sales} &= \text{Gross Sales} - \text{Cash Sales} - \text{Sales Return} \\ &= 2,00,000 - 40,000 - 14,000 = 1,46,000 \end{aligned}$$

$$\text{Debtor Turnover Ratio} = \frac{1,46,000}{4,000 + 18,000} = 6.64 \text{ times}$$

$$\text{Debtors Velocity} = \frac{365 \text{ days}}{\text{Debtors Turnover Ratio}} = \frac{365 \text{ days}}{6.64 \text{ times}} = 55 \text{ days}$$

### 4.6.3 Creditors Turnover Ratio

It shows effectiveness of the firm in making use of credit period allowed by the creditors during the moment of credit purchase.

$$\text{Creditors Turnover Ratio} = \frac{\text{Credit Purchase}}{\text{Average Creditors}} \text{ or } \frac{\text{Credit Purchase}}{\text{Bills Payable} + \text{Sundry Creditors}}$$



**Caution Standard norm of the ratio:** Lesser the ratio is better the position of the firm in liquidity management means enjoying the more credit period from the creditors and vice versa.

$$\text{Creditors Velocity} = \frac{365 \text{ days} / 52 \text{ weeks} / 12 \text{ months}}{\text{Creditors Turnover Ratio}}$$



**Caution Standard norm of the ratio:** Greater the duration is better the liquidity management of the firm in availing the credit period of the creditors and vice versa.



**Example:** Find out the value of creditors from the following:

|                            |                       |
|----------------------------|-----------------------|
| Sales ₹1,00,000            | Opening stock ₹10,000 |
| Gross profit on sales 10%  | Closing stock ₹20,000 |
| Creditors velocity 73 days | Bills payable ₹16,000 |

Note: All purchases are credit purchases



**Notes**

**Solution:**

To find out the volume of purchases, the formula of cost of goods sold should be taken into consideration.

$$\begin{aligned} \text{Cost of goods sold} &= \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ &= 10,000 + \text{Purchases} - 20,000 \end{aligned}$$

$$\begin{aligned} \text{Cost of goods sold} &= \text{Sales} - \text{Gross Profit} \\ &= 1,00,000 - 10\% \text{ on } 1,00,000 = 90,000 \end{aligned}$$

The next step is to apply the found value in the early equation

$$\text{Purchases} = 90,000 - 10,000 + 20,000 = 1,00,000$$

To find out the value creditors, the creditor velocity and creditors turnover ratio

$$\text{Creditors Velocity} = \frac{365 \text{ days}}{\text{Creditors Turnover Ratio}}$$

$$\begin{aligned} \text{Creditors Turnover Ratio} &= \frac{\text{Credit Purchases}}{\text{Bills Payable} + \text{Sundry Creditors}} \\ &= \frac{1,00,000}{16,000 + \text{Sundry Creditors}} \end{aligned}$$

The next step is to find out the sundry creditors, the reversal process to be adopted

$$73 \text{ days} = \frac{365 \text{ days}}{\text{Creditors Turnover Ratio}}$$

$$\text{Creditors Turnover Ratio} = \frac{365 \text{ days}}{73 \text{ days}} = 5 \text{ times}$$

The next step is to substitute the found value in the equation of creditors turnover ratio

$$16,000 + \text{Sundry creditors} = \frac{1,00,000}{5}$$

$$\text{Sundry Creditors} = 20,000 - 16,000 = 4,000$$

**Solved Problems for Practice**

Sundaram & Co. sells goods on cash as well as credit basis. The following particulars are extracted from the books of accounts for the calendar year 2005:

| Particulars                    |          |
|--------------------------------|----------|
| Total Gross sales              | 2,00,000 |
| Cash sales (included in above) | 40,000   |
| Sales returns                  | 14,000   |
| Total Debtors                  | 18,000   |
| Bills receivable               | 4,000    |
| Provision for doubtful debts   | 2,000    |
| Total creditors                | 20,000   |

Calculate the average collection period.

To find out the average collection period, first the debtors' turnover ratio has to be computed

Notes

$$\text{Debtor's turnover ratio} = \frac{\text{Net credit sales}}{\text{Bills receivable} + \text{Debtors}}$$

$$\begin{aligned} \text{Net credit sales} &= \text{Gross sales} - \text{cash sales} - \text{sales return} \\ &= ₹2,00,000 - ₹40,000 - ₹14,000 = ₹1,46,000 \end{aligned}$$

$$\text{Debtor turnover ratio} = \frac{₹1,46,000}{₹4,000 + ₹18,000}$$

$$= 6.64 \text{ times}$$

$$\text{Debtor's velocity} = \frac{365 \text{ days}}{\text{Debtors turnover ratio}} = \frac{365 \text{ days}}{6.64 \text{ times}}$$

$$55 \text{ days}$$

Determine the value of the closing stock from the following

details: Sales ₹8,00,000

Gross profit 10% on sales

Stock velocity 4 times

Closing stock was ₹10,000 in excess of opening stock.

To find out the closing stock, stock turnover ratio is to be taken for consideration.

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

$$\begin{aligned} \text{Cost of goods sold} &= \text{Sales} - \text{Gross profit} \\ &= ₹8,00,000 - 10\% \text{ on } ₹8,00,000 \\ &= ₹8,00,000 - ₹80,000 = ₹7,20,000 \end{aligned}$$

$$4 \text{ times} = \frac{₹7,20,000}{\text{Average stock}}$$

$$\text{Average stock} = ₹1,80,000$$

$$\frac{\text{Opening stock} + \text{Closing stock}}{2} = ₹1,80,000 \quad \dots(1)$$

Now, the closing stock value only is to be computed which is excess of ₹10,000 over opening stock.

$$\text{Closing stock} = \text{Opening stock} + ₹10,000 \quad \dots(2)$$

Substitute the found value of closing stock (2) in the equation (1)

$$\text{Opening stock} + \text{Opening stock} + ₹10,000 = ₹3,60,000$$

$$2 \text{ Opening stock} = ₹3,50,000$$

$$\text{Opening stock} = \frac{₹3,50,000}{2} = ₹1,75,000$$

$$\text{Closing stock} = ₹1,75,000 + ₹10,000 = ₹1,85,000$$

**Notes**

3. Find out the value of creditors from the following:

|                            |                       |
|----------------------------|-----------------------|
| Sales `1,00,000            | Opening stock `10,000 |
| Gross profit on Sales 10%  | Closing stock `20,000 |
| Creditors velocity 73 days | Bills payable `16,000 |

*Note:* All purchases are credit purchases.

**Solution:**

To find out the volume of purchases, the formula of cost of goods sold should be taken into consideration.

$$\text{Cost of goods sold} = \text{Opening stock} + \text{Purchases} - \text{Closing stock}$$

$$X = `10,000 + Y - `20,000$$

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross profit}$$

$$= `1,00,000 - 10\% \text{ on } `1,00,000$$

$$= `90,000$$

The next step is to apply the found value in the early equation.

$$\text{Purchases} = `90,000 - `10,000 + `20,000$$

$$= `1,00,000$$

To find out the value of creditors, the creditor velocity and creditors turnover ratio-

$$\text{Creditors velocity} = \frac{365 \text{ days}}{\text{Creditors turnover ratio}}$$

$$\text{Creditors turnover ratio} = \frac{\text{Credit purchases}}{\text{Bills payable} + \text{Sundry creditors}}$$

$$= \frac{`1,00,000}{`16,000 + \text{Sundry creditors}}$$

The next step is to find out the sundry creditors; the reversal process is to be adopted.

$$73 \text{ days} = \frac{365 \text{ days}}{\text{Creditors turnover ratio}}$$

$$\text{Creditors turnover ratio} = \frac{365 \text{ days}}{73 \text{ days}} = 5 \text{ times}$$

The next step is to substitute the found value in the equation of creditors turnover ratio.

$$`16,000 + \text{Sundry creditors} = \frac{1,00,000}{5}$$

$$\text{Sundry creditors} = `20,000 - `16,000 = `4,000$$



*Task* From the following particulars, prepare Trading, Profit & Loss account and a balance sheet.

Current ratio -3

Liquid ratio -1.8

Bank overdraft - ₹20,000

Working capital - ₹2,40,000

Debtors velocity -1 month; Gross profit ratio -20%

Proprietary ratio (Fixed assets/shareholders' fund) -.9

Reserves and surpluses -.25 of share capital

Opening stock - ₹1,20,000; 8% Debentures - ₹3,60,000

Long term investments - ₹2,00,000

Stock turnover ratio -10 times

Creditors velocity -1/2 month

Net profit to share capital -20%

### Self Assessment

State whether the following statements are true or false:

The stock turnover ratio expresses the speed of converting the stock into cash.

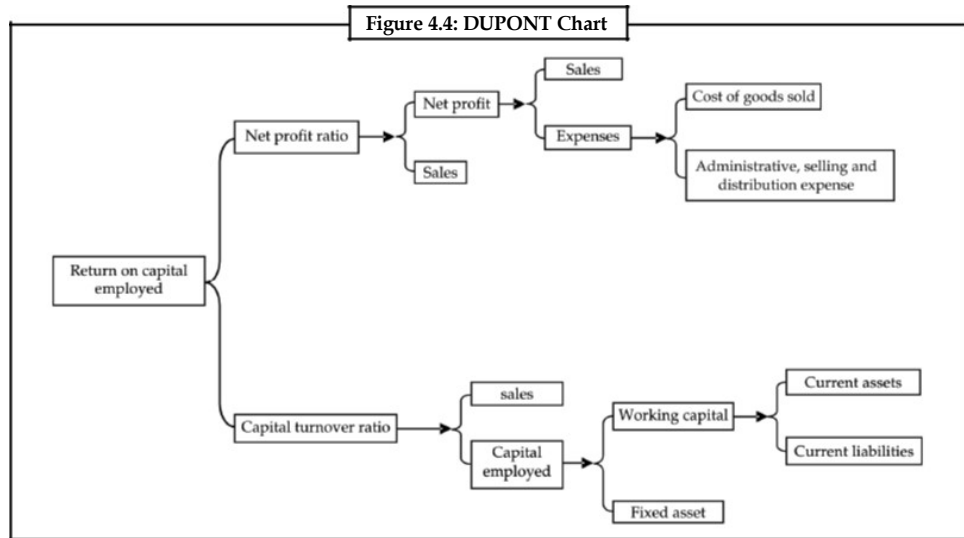
Higher the duration shows greater the effectiveness in collecting the dues.

Greater the duration is better the liquidity management of the firm in availing the credit period of the creditors and vice versa.

### 4.7 DUPONT Analysis

This was an analysis established by the DUPONT INC., USA to study the return on investment. It was the first company developed the chart which depicted the influences of Return on Investment. The company underwent for the consideration two important ratios, Net profit ratio and Capital turnover ratio, for the return on investment. A change in any one of the two ratios reflects immediately on the Return on investment. The various associated factors are considered to study the impact of the profitability of the firm. This type of analysis to correct the problems not only to identify with the specific cause which drastically affects the profitability but also to find the possible ways and means to improve the profitability. Having developed the chart for analysis was called as DUPONT Chart.

Notes



### 4.8 Relevance of Ratio Analysis

Ratio analysis has a lot of utility which may be understood by the following discussion:

**Easy to understand the financial position of the firm:** The ratio analysis facilitates the parties to read the changes taken place in the financial performance of the firm from one time period to another.

**Measure of expressing the financial performance and position:** It acts as a measure of financial position through Liquidity ratios and Leverage ratios and also a measure of financial performance through Profitability ratios and Turnover Ratios.

**Intra-firm analysis on the financial information over many number of years:** The financial performance and position of the firm can be analysed and interpreted with in the firm in between the available financial information of many number of years; which portrays either increase or decrease in the financial performance.

**Inter-firm analysis on the financial information within the industry:** The financial performance of the firm is studied and interpreted along with the similar firms in the industry to identify the presence and status of the respective firm among others.

**Possibility for financial planning and control:** It not only guides the firm to earn in accordance with the financial forecasting but also facilitates the firm to identify the major source of expense which drastically has greater influence on the earnings.

#### Self Assessment

Fill in the blanks:

The ratio analysis facilitates the parties to read the changes taken place in the ..... of the firm from one time period to another.

Ratio analysis acts as a measure of financial position through Liquidity ratios and .....

## 4.9 Summary

Notes

Ratio analysis is one of the important tools of financial statement analysis to study the financial structure of the business fleeces.

Financial ratio analysis is the calculation and comparison of ratios which are derived from the information in a company's financial statements.

The level and historical trends of these ratios can be used to make inferences about a company's financial condition, its operations and attractiveness as an investment.

Financial ratios are calculated from one or more pieces of information from a company's financial statements.

A ratio gains utility by comparison to other data and standards.

Ratios are classified as liquidity, leverage, profitability, activity, integrated and growth ratio.

Although financial ratio analysis is well-developed and the actual ratios are well-known, practicing financial analysts often develop their own measures for particular industries and even individual companies.

Analysts often differ drastically in their conclusions from the same ratio analysis.

## 4.10 Keywords

**Balance Sheet or Positional Statement Ratios:** These type of ratios are calculated from the balance sheet of the enterprise which normally reveals the financial status of the position i.e. short-term, long-term financial position, Share of the owners on the total assets of the enterprise and so on.

**Capital Structure Ratios:** The capital structure position are analysed through leverage ratios as well as coverage ratios.

**Current Assets:** Current assets are in the form of cash, equivalent to cash or easily convertible into cash.

**Current Liabilities:** Current liabilities are short-term financial resources or payable in short span of time within a year.

**Income Statement Ratios:** These ratios are computed from the statements of Trading, Profit & Loss account of the enterprise.

## 4.11 Review Questions

Is the firm satisfies the standard norm of the current asset ratio and liquid assets ratio?

**M/s Shanmuga & Co**  
Balance sheet as on dated 31st Mar, 2005

| Liabilities      | `             | Assets           | `             |
|------------------|---------------|------------------|---------------|
| Share capital    | 42,000        | Fixed Assets Net | 34,000        |
| Reserve          | 3,000         | Stock            | 12,400        |
| Annual Profit    | 5,000         | Debtors          | 6,400         |
| Bank overdraft   | 4,000         | Cash             | 13,200        |
| Sundry creditors | 12,000        |                  |               |
|                  | <b>66,000</b> |                  | <b>66,000</b> |

**Notes**

2. Liquid Assets ` 65,000; Stock ` 20,000; Pre-paid expenses ` 5,000; Working capital ` 60,000. Calculate current assets ratio and liquid assets ratio.
3. The current ratio of Bicon Ltd. is 4.5:1 and liquidity ratio is 3:1 stock is ` 6,00,000. Find out the current liabilities.
4. From the following information, prepare a balance sheet show the workings

|                                       |          |
|---------------------------------------|----------|
| (a) Working capital                   | 75,000   |
| (b) Reserves and surplus              | 1,00,000 |
| (c) Bank overdraft                    | 60,000   |
| (d) Current ratio                     | 1.75     |
| (e) Liquid Ratio                      | 1.15     |
| (f) Fixed assets to proprietors' fund | .75      |
| (g) Long term liabilities             | Nil      |

5. Debtors velocity 3 months
- Creditors velocity 2 months
- Stock velocity 8 times
- Capital turnover ratio 2.5 times
- Fixed assets turnover ratio 8 times
- Gross profit turnover ratio 25%

Gross profit in a year amounts to ` 1,60,000 .There is no long term loan or overdraft. Reserves and surplus amount to ` 56,000. Liquid assets are ` 1,94,666. Closing stock of the year is ` 4,000 more than the opening stock Bill receivable amount to ` 10,000 and bills payable to ` 4,000

Find out

- Sales
- Closing stock
- Sundry debtors
- Fixed assets
- Sundry creditors
- Proprietors' fund.

Draft the balance sheet with as many as details as possible.

You have been hired as an analyst for Mellon Bank and your team is working on an independent assessment of Daffy Duck Food In(c) (DDF In(c)) DDF In(c) is a firm that specializes in the production of freshly imported farm products from France. Your assistant has provided you with the following data for Flipper Inc. and their industry.

| Ratios             | 2009  | 2008  | 2007  | 2009-Industry Average |
|--------------------|-------|-------|-------|-----------------------|
| Long-term debt     | 0.45  | 0.40  | 0.35  | 0.35                  |
| Inventory Turnover | 62.65 | 42.42 | 32.25 | 53.25                 |

*Contd...*

|                            |       |       |       |        |
|----------------------------|-------|-------|-------|--------|
| Depreciation/Total Assets  | 0.25  | 0.014 | 0.018 | 0.015  |
| Days' sales in receivables | 113   | 98    | 94    | 130.25 |
| Debt to Equity             | 0.75  | 0.85  | 0.90  | 0.88   |
| Profit Margin              | 0.082 | 0.07  | 0.06  | 0.075  |
| Total Asset Turnover       | 0.54  | 0.65  | 0.70  | 0.40   |
| Quick Ratio                | 1.028 | 1.03  | 1.029 | 1.031  |
| Current Ratio              | 1.33  | 1.21  | 1.15  | 1.25   |
| Times Interest Earned      | 0.9   | 4.375 | 4.45  | 4.65   |
| Equity Multiplier          | 1.75  | 1.85  | 1.90  | 1.88   |

Notes

In the annual report to the shareholders, the CEO of Flipper Inc wrote, "2007 was a good year for the firm with respect to our ability to meet our short-term obligations. We had higher liquidity largely due to an increase in highly liquid current assets (cash, account receivables and short-term marketable securities)." Is the CEO correct? Explain and use only relevant information in your analysis.

In the above question, what will you say when you are asked to provide the shareholders with an assessment of the firm's solvency and leverage. Be as complete as possible given the above information, but do not use any irrelevant information.

Firm A has a Return on Equity (ROE) equal to 24%, while firm B has an ROE of 15% during the same year. Both firms have a total debt ratio (D/V) equal to 0.8. Firm A has an asset turnover ratio of 0.9, while firm B has an asset turnover ratio equal to 0.4. What can we analyse about the relationship between both the firms?

If a firm has ` 1,00,000 in inventories, a current ratio equal to 1.2, and a quick ratio equal to 1.1, what is the firm's Net Working Capital?

What can you say about the asset management of the firm discussed in question 6? Be as complete as possible given the above information, but do not use any irrelevant information.

The data summarised in the table below show the performance of two firms A and B, over five years.

|                              | Firm | Years |     |     |     |     |
|------------------------------|------|-------|-----|-----|-----|-----|
|                              |      | 1     | 2   | 3   | 4   | 5   |
| Gross profit margin %        | A    | 42    | 37  | 35  | 37  | 35  |
|                              | B    | 30    | 32  | 32  | 33  | 34  |
| Net profit margin %          | A    | 16    | 13  | 12  | 12  | 10  |
|                              | B    | 10    | 11  | 11  | 12  | 12  |
| Return on capital employed % | A    | 14    | 13  | 12  | 12  | 11  |
|                              | B    | 9     | 10  | 10  | 11  | 11  |
| Acid Test Ratio              | A    | 2.7   | 2.6 | 2.5 | 2.5 | 2.4 |
|                              | B    | 1.7   | 1.8 | 1.5 | 0.8 | 1.0 |

Using the information in the table explain the comparative attractiveness of the two firms to a potential investor.

Why is it important that potential investors should be aware of the ratio of ordinary share capital to other forms of long-term finance?

### Answers: Self Assessment

1. financial statement
2. quantitative
3. capital structure
4. profitability



|              |     |                       |     |                    |
|--------------|-----|-----------------------|-----|--------------------|
| <b>Notes</b> | 5.  | current assets        | 6.  | Closing Stock      |
|              | 7.  | super quick assets    | 8.  | (d)                |
|              | 9.  | (d)                   | 10. | (c)                |
|              | 11. | earning capacity      | 12. | cost of goods sold |
|              | 13. | capital employed      | 14. | False              |
|              | 15. | False                 | 16. | True               |
|              | 17. | financial performance | 18. | Leverage ratios    |

### **4.12 Further Readings**



*Books*

B.M. Lall Nigam and I.C. Jain, *Cost Accounting*, Prentice-Hall of India (P) Ltd.

Hilton, Maher and Selto, *Cost Management*, 2nd Edition, Tata McGraw-Hill Publishing Company Ltd.

M.N. Arora, *Cost and Management Accounting*, 8th Edition, Vikas Publishing House (P) Ltd.

M.P. Pandikumar, *Management Accounting*, Excel Books.



*Online links*

[www.authorstream.com](http://www.authorstream.com)

[www.allinterview.com](http://www.allinterview.com)