

# Unit 5: Ratio Analysis

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**2075 QN 11b**

Solution,

$$a. \text{ Calculation sales amount} = \frac{\text{Gross profit in RS}}{\text{Gross profit in \%}} = \frac{60,000}{0.20} = \text{Rs } 300,000$$

b. Calculation amount of debtor:

$$\text{ACP} = \frac{\text{Days in a year} \times \text{Debtors}}{\text{Sales}}$$

$$\text{or, } 36 = \frac{360 \times \text{Debtors}}{300,000}$$

$$\text{or, Debtors} \times 360 = 300,000 \times 36$$

$$\text{or, Debtors} = \frac{36 \times 300,000}{360} = \text{Rs } 30,000$$

c. Here,

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross profit} = 300,000 - 60,000 = \text{Rs } 240,000$$

$$\text{Average inventory} = \text{Rs } 30,000$$

We have,

**Stock (inventory) turnover ratio (ITOR)**

$$\therefore \text{ITOR} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}} = \frac{240,000}{30,000} = 8 \text{ times}$$

$$d. \text{ Total assets turnover ratio (TATOR)} = \frac{\text{Sales}}{\text{Net Total Assets}} = \frac{300,000}{120,000 - 20,000} = 3 \text{ times}$$

$$e. \text{ Net profit margin} = \frac{\text{Net Profit}}{\text{Sales}} = \frac{\text{Gross profit} - \text{Office \& Selling exp}}{\text{Sales}} = \frac{60,000 - 10,000}{300,000} = 16.6\%$$

**2074 QN 12b**

Solution,

a. Calculation sales amount:

$$\text{ITOR} = \frac{\text{Sales}}{\text{Inventory}} \text{ or, } 2 = \frac{\text{Sales}}{100,000}$$

$$\text{or, Sales} = 100,000 \times 2 = \text{Rs } 200,000$$

b. Debtor's (account receivable) turnover ratio (DTR)

$$\therefore \text{DTR} = \frac{\text{Sales}}{\text{Debtors}} = \frac{200,000}{125,000} = 1.6 \text{ times}$$

c. Amount gross profit = 25% of sales = 25% of Rs 200,000 = Rs 50,000

d. Calculation current liabilities:

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

$$\text{or, } 2 = \frac{100,000 + 125,000}{\text{CL}}$$

$$\text{or, Current liabilities} = \frac{225,000}{2} = \text{Rs } 112,500$$

$$e. \text{ Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} = \frac{225,000 - 100,000}{112,500} = 1.11 : 1 \text{ or, } 1.11 \text{ times}$$

**2073 QN 12**

Solution,

a. Calculation current liabilities:

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

$$\text{or, } 1.75 = \frac{\text{WC} + \text{CL}}{\text{CL}}$$

$$\text{or, } 1.75\text{CL} = 150,000 + \text{CL}$$

$$\text{or, } 0.75\text{CL} = 150,000$$

$$\text{or, Current liabilities} = 150,000 / 0.75 = \text{Rs } 200,000$$

Where;

$$\text{Working capital} = \text{Current assets} - \text{Current liabilities}$$

$$\text{Current assets} = \text{WC} + \text{CL} \dots\dots\dots \text{Equation (i)}$$

b. Calculation closing stock:

$$\text{Quick ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

$$\text{or, } 1.25 = \frac{350,000 - \text{Stock}}{200,000}$$

$$\text{or, } 250,000 = 350,000 - \text{stock}$$

$$\text{or, closing stock} = 350,000 - 250,000 = \text{Rs } 100,000$$

where;

$$\text{CA} = \text{WC} + \text{CL} = 150,000 + 200,000 = \text{Rs } 350,000 \dots\dots\dots \text{from equation (i)}$$

c. Calculation amount of fixed assets:

$$\text{Long term debt} = \text{Total debt} - \text{CL} = 425,000 - 200,000 = \text{Rs } 225,000$$

Now,

$$\text{Debt/equity ratio} = \frac{\text{LTD}}{\text{SHE}}$$

$$\text{or, } 0.36 = \frac{225,000}{\text{SHE}}$$

$$\text{or, Shareholder equity} = \frac{225,000}{0.36} = 625,000$$

$$\text{Total Assets} = \text{Total liabilities} = \text{CL} + \text{LTD} + \text{SHE} = 200,000 + 225,000 + 625,000 = 1050,000$$

Now,

$$\text{Fixed assets} = \text{Total assets} - \text{Current assets} = 1050,000 - 350,000 = \text{Rs } 700,000$$

$$\text{d. TATOR} = \frac{\text{Sales}}{\text{Total assets}}$$

$$\text{or, } 2 = \frac{\text{Sales}}{1050,000}$$

$$\text{or, Sales} = 1050,000 \times 2 = \text{Rs } 21,00,000$$

now,

$$\text{FATOR} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{21,00,000}{700,000} = 3 \text{ times}$$

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**2071 QN 11 (b)**

Solution,

$$\text{a. Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{\text{CA} - \text{Inventory}}{\text{Short-term liabilities}} = \frac{500,000 - 250,000}{200,000} = 1.25 \text{ times.}$$

$$\text{b. Inventory Turnover Ratio} = \frac{\text{Sales}}{\text{Inventory}} = \frac{16,00,000}{250,000} = 6.4 \text{ times.}$$

$$\text{c. Debt-Equity Ratio} = \frac{\text{Long-term debt}}{\text{Shareholder's Equity}} \times 100 = \frac{400,000}{(10,00,000+5,00,000)} \times 100 = 26.67\%$$

$$\text{d. Net profit ratio} = \frac{\text{Net Income}}{\text{Total Sales}} \times 100 = \frac{200,000}{16,00,000} \times 100 = 12.5\%$$

$$\text{e. Return on Investment (ROA)} = \frac{\text{EBIT}}{\text{Total Assets}} \times 100 = \frac{200,000 + 32,000}{21,00,000} \times 100 = 11.04\%$$

**2072 (ii) QN 11 (b)**

Solution,

$$\text{a. Stock Turnover Ratio} = \frac{\text{Cost of Goods sold}}{\text{Average Stock}}$$

$$\text{Or, } 8.4 = \frac{210,000}{\text{Average Stock}}$$

$$\text{Or, Average stock} = \frac{210,000}{8.4} = \text{Rs } 25,000$$

Again,

Closing stock = Rs. x (Let)

Opening stock = x - 10,000 ..... equation (i)

Now,

$$\text{Average stock} = \frac{\text{Opening} + \text{Closing}}{2}$$

$$\text{Or, } 25,000 = \frac{(x - 10,000) + x}{2}$$

$$\text{Or, } 50,000 = 2x - 10,000$$

$$\text{Or, } 60,000 = 2x$$

$$\therefore x = 30,000$$

Since, closing stock = Rs 30,000.

Again,

$$\text{Opening stock} = x - 10,000 = 30,000 - 10,000 = \text{Rs } 20,000$$

$$\text{b. Debtors Turnover Ratio} = \frac{\text{Sales}}{\text{Closing Debtors}} = \frac{300,000}{50,000} = 6 \text{ times.}$$

Where;

$$\text{Sales (100\%)} = \frac{\text{Cost of goods sold (Rs)}}{\text{COGS (\%)}} \times 100 = \frac{210,000}{70} \times 100 = \text{Rs } 300,000$$

$$\text{c. Operating Ratio} = \frac{\text{Operating Expenses}}{\text{Sales}} \times 100$$

$$= \frac{210,000 + 60,000}{300,000} \times 100 = 90\%$$

$$\text{d. Return on Capital Employed Ratio} = \frac{\text{Net income} + \text{Interest}}{\text{Capital Employed}} \times 100 = \frac{18,000 + 0}{100,000} \times 100 = 18\%$$

Where;

Income Statement:

Sales	300,000
Less: COGS	(210,000)
Gross Profit	90,000
Less: Operating expenses	(60,000)
Net income before tax	30,000
Less: Tax (30,000 @ 40%)	(12,000)
Net income	18,000

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2066 QN 9

Solution,

a. Calculation current assets:

$$\text{Total Liabilities} = \text{Capital employed (SHE + LTD)} + \text{CL} = 15,00,000 + 300,000 = 18,00,000$$

$$\text{Current Assets} = \text{Total Assets} - \text{Fixed Assets} = 18,00,000 - 650,000 = 11,50,000$$

Now,

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{11,50,000}{300,000} = 3.83 \text{ times}$$

b. Calculation sales amount:

$$\text{FATOR} = \frac{\text{Sales}}{\text{Fixed Assets}}$$

$$\text{Or, } 2.5 = \frac{\text{Sales}}{650,000}$$

$$\text{Or, Sales} = 650,000 \times 2.5 = \text{Rs } 16,25,000$$

Now,

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100 = \frac{100,000}{16,25,000} \times 100 = 6.15 \%$$

c. Calculation returns on capital employed:

$$\text{Return on Capital Employed} = \frac{\text{Net Income} + \text{Interest}}{\text{Capital Employed}} \times 100 = \frac{100,000 + 30,000}{15,00,000} \times 100 = 8.67 \%$$

d. Calculation returns on shareholder's equity:

$$\text{Return on Capital Employed} = \frac{\text{Net Income}}{\text{Shareholder's Equity}} \times 100 = \frac{100,000}{12,00,000} \times 100 = 8.33 \%$$

Where;

$$\text{Capital Employed} = \text{SHE} + \text{LTD}$$

$$15,00,000 = \text{SHE} + 300,000$$

$$\text{SHE} = 15,00,000 - 300,000 = \text{Rs } 12,000$$

2067 QN 9

Solution,

a. Calculation net credit sales:

In first,

$$\text{Stock Turnover Ratio} = \frac{\text{COGS}}{\text{Average Stock}}$$

$$\text{Or, } 2.4 = \frac{\text{COGS}}{175,000}$$

$$\text{Or, COGS} = 2.4 \times 175,000 = \text{Rs } 420,000$$



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Where;

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2} = \frac{250,000 + 100,000}{2} = \text{Rs } 175,000$$

In second,

$$\text{Total Sales} = \frac{\text{COGS in RS}}{\text{COGS in \%}} \times 100 = \frac{420,000}{75} \times 100 = \text{Rs } 560,000$$

Where;

$$\text{COGS (\%)} = \text{Sales (100\%)} - \text{GP (25\%)} = 75\%$$

In third,

$$\text{Net credit sales} = \text{Total sales} \times 40\% = 560,000 \times 40\% = \text{Rs } 224,000$$

Finally,

$$\text{Debtors' turnover ratio} = \frac{\text{Net credit sales}}{\text{Average receivable}} = \frac{224,000}{112,000} = 2 \text{ times.}$$

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$$\text{b. Day's sales outstanding} = \frac{\text{Days in a Year} \times \text{Average Debtors}}{\text{Net Credit Sales}} = \frac{364 \times 112,000}{224,000} = 182 \text{ days.}$$

c. Total Sales = Rs 560,000 (Already calculated in above calculation)

$$\text{d. Total assets turnover ratio (TATOR)} = \frac{\text{Total Sales}}{\text{Net Assets}} = \frac{560,000}{11,20,000} = 0.5 \text{ times.}$$

#### 2060 QN 13

Solution,

$$\text{a. Calculation Return on Assets} = \frac{\text{Net Income} + \text{Interest}}{\text{Total Assets}} \times 100 = \frac{45,000 + 12,000}{450,000} \times 100 = 12.67\%$$

$$\begin{aligned} \text{b. Calculation Return common shareholder's Equity} &= \frac{\text{Net Income} - \text{PD}}{\text{SHE} - \text{Preference Share}} \times 100 \\ &= \frac{45,000 - 10,000}{360,000 - 100,000} \times 100 = 13.46\% \end{aligned}$$

$$\text{c. Calculation Earning Per Share (EPS)} = \frac{\text{Net Income} - \text{PD}}{\text{No. of Share (Equity)}} = \frac{45,000 - 10,000}{2,000} = \text{Rs } 17.5 \text{ per share}$$

$$\text{d. Calculation Price Earnings Ratio (PER)} = \frac{\text{MPPS}}{\text{EPS}} \times 100 = \frac{12.75}{17.50} \times 100 = 72.86\%$$

#### 2058 QN 1

Solution,

$$\text{a. Average Inventory} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$\text{Or, } 125,000 = \frac{100,000 + \text{Closing Stock}}{2}$$

$$\text{Or, } 250,000 - 100,000 = \text{Closing stock}$$

i.e., Closing stock = Rs 150,000

$$\text{b. ITO} = \frac{\text{COGS}}{\text{Average Inventory}}$$

$$\text{Or, } 4 = \frac{\text{COGS}}{125,000}$$

i.e., Cost of goods sold = Rs 500,000 (80%)

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Finally,

$$\text{Sales amount} = \frac{\text{COGS in Rs}}{\text{COGS in \%}} \times 100 = \frac{500,000}{80} \times 100 = \text{Rs } 625,000$$

c.  $\text{FATOR} = \frac{\text{Sales}}{\text{Fixed Assets}} = \frac{625,000}{1,56,250} = 4 \text{ times.}$

d.  $\text{ROE} = \frac{\text{Net Income}}{\text{SHE}} \times 100$

Or,  $15 = \frac{\text{Net Income}}{500,000} \times 100$

Or,  $0.15 \times 500,000 = \text{Net income}$

i.e., Net income = Rs 75,000

e.  $\text{Debt to Equity Ratio} = \frac{\text{Long-term Debt}}{\text{SHE}} \times 100$

Or,  $40 = \frac{\text{Long-term Debt}}{500,000} \times 100$

Or,  $0.4 \times 500,000 = \text{Long-term debt}$

i.e., Long-term debt = Rs 200,000

#### 2070 QN 9

Solution,

a.  $\text{ITOR} = \frac{\text{COGS}}{\text{Average Stock}} = \frac{150,000}{30,000} = 5 \text{ times.}$

Where;

$$\text{COGS} = \text{O/S} + \text{Dr side of trading} - \text{C/s} = 40,000 + 120,000 + 10,000 - 20,000 = 150,000$$

$$\text{Net sales} = 210,000 - 10,000 = 200,000$$

$$\text{Gross profit} = \text{Sales} - \text{COGS} = 200,000 - 150,000 = 50,000$$

$$\text{Average stock} = (40,000 + 20,000) / 2 = \text{Rs } 30,000$$

b.  $\text{GPM} = \frac{\text{GP}}{\text{Sales}} \times 100 = \frac{50,000}{200,000} \times 100 = 25\%$

c.  $\text{NPM} = \frac{\text{NP}}{\text{Sales}} = \frac{34,000}{200,000} \times 100 = 17\%$

Where;

$$\text{NP} = \text{Gross profit} - \text{office expenses} - \text{selling expenses} = 50,000 - 10,000 - 6,000 = 34,000$$

d.  $\text{NPM} = \frac{\text{NP}}{\text{Sales}} = \frac{34,000}{200,000} \times 100$

#### 2057 C QN 2

Solution,

a.  $\text{Gross Profit Margin} = \frac{\text{GP}}{\text{Sales}} \times 100$

Or,  $20 = \frac{\text{GP}}{400,000} \times 100$

Or,  $0.2 \times 400,000 = \text{GP}$

i.e., Gross profit = Rs 80,000

b.  $\text{ITOR} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$

Or,  $5 = \frac{400,000 - 80,000}{\text{Average Inventory}}$

Or, Average inventory =  $\frac{320,000}{5} = \text{Rs } 64,000$

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Again,

$$\text{Average inventory} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$\text{Or, } 64,000 = \frac{60,000 + \text{Closing Stock}}{2}$$

$$\text{Or, } 128,000 - 60,000 = \text{Closing stock}$$

i.e., Closing stock = Rs 68,000.

- c. If closing inventory (stock) = Rs 68,000; then calculate current ratio:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{\text{Quick Assets} + \text{Closing Stock}}{\text{Current Liabilities}} = \frac{132,000 + 68,000}{100,000} = \mathbf{2 \text{ times.}}$$

- d. **Debt - Equity Ratio** =  $\frac{\text{Long-term debt}}{\text{Shareholder's Equity}} \times 100 = \frac{170,000}{340,000} \times 100 = 50\%$

Where;

Shareholder's Equity = (Equity + Preference) share + Retained earning - Preliminary exp.

$$= 200,000 + 100,000 + 50,000 - 10,000 = 340,000$$

- e. **Debt - Capital Ratio** =  $\frac{\text{Long-term debt}}{\text{Capital Employed}} \times 100 = \frac{170,000}{510,000} \times 100 = 33.33\%$

Where;

$$\text{Capital Employed} = \text{Shareholder's Equity} + \text{Long-term debt} = 340,000 + 170,000 = 510,000$$



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