

CHAPTER 6

Solved Problems

P.6.17 The following are the ratios relating to the activities of National Traders Ltd:

Debtors velocity (months)	3
Stock velocity (months)	8
Creditors velocity (months)	2
Gross profit ratio (%)	25

Gross profit for the current year ended December 31 amounts to Rs 4,00,000. Closing stock of the year is Rs 10,000 above the opening stock. Bills receivable amount to Rs 25,000 and bills payable to Rs 10,000. Find out: (a) Sales, (b) Sundry debtors, (c) Closing stock, and (d) Sundry creditors.

Solution

(a) Determination of sales:

(b) Determination of sundry debtors: Debtors velocity is 3 months. In other words, debtors' collection period is 3 months, or debtors' turnover ratio is 4. Assuming all sales to be credit sales and debtors turnover ratio being calculated on the basis of year-end figures,

Debtors turnover ratio

or

Closing debtors + Bills receivable = Rs 4,00,000

Closing debtors = Rs 4,00,000 – Rs 25,000 = Rs 3,75,000

(c) Determination of closing stock: Stock velocity of 8 months signifies that the inventory holding period is 8 months, stock turnover ratio is $1.5 = (12 \text{ months} \div 8)$.

Stock turnover

1.5

Average stock = = Rs 8,00,000

Closing stock – Opening stock = Rs 10,000 (1)

Closing stock + Opening stock $\div 2 =$ Rs 8,00,000 (2)

Closing stock + Opening stock = Rs 16,00,000 (3)

Subtracting (1) from (3) we have, 2 Opening stock = Rs 15,90,000

Opening stock = Rs 7,95,000

Therefore,

Closing stock = Rs 8,05,000

(d) Determination of sundry creditors: Creditors velocity of 2 months signifies that the credit payment period is 2 months. In other words, creditors' turnover ratio is $6(12 \text{ months} \div 2)$. Assuming all purchases to be credit purchases and creditors turnover is based on year-end figures,

Creditors turnover ratio =

6 =

Creditors + Rs 10,000 = Rs 2,01,667

Creditors = Rs 2,01,667 – Rs 10,000 = Rs 1,91,667

Credit purchases are calculated as follows:

Cost of goods sold = Opening stock + Purchases – Closing stock

Rs 12,00,000 = Rs 7,95,000 + Purchases – Rs 8,05,000

Rs 12,00,000 + Rs 10,000 = Purchases

Rs 12,10,000 = Purchases (credit).

P.6.18 While working in a financial institution, you have come across the following statements. Give your views and comments on these statements with the necessary arguments.

- (a) 'The sales of company A have been growing at a faster rate than those of company B. The profitability of company A must, therefore, be greater than that of company B.'
- (b) 'From the viewpoint of equity shareholders, debt in the capital structure affects both the risk and the profitability of the firm.'
- (c) 'Firm X and firm Y have the same expected sales volume for next year and they are identical in every respect except that the firm X has a greater proportion of fixed costs. If sales are expected to increase (decrease), firm X will have greater (lower) profit from operations than firm Y.'
- (d) 'Assume Calico has a profit margin of 20 per cent and Mafatlal has a profit margin of 25 per cent. It is,

therefore, obvious that Mafatlal is a better investment than Calico.'

(e) 'Firm A is aggressively making capital expenditure and firm B is not. Firm A is clearly more efficient and profitable than firm B.'

Solution (a) The profitability of a company is a product of two factors: (i) margin of profit on sales, and (ii) assets turnover. Symbolically, it is equal to $\text{Margin of net profit} \times \text{Assets turnover}$

Accordingly, the profitability of company A need not necessarily be greater than that of company B. The answer hinges on the margin of profit of company A. If the margin of profit on sales of both the companies is equal, the profitability of company A would certainly be greater than that of B; because of higher sales company A would cause a higher assets turnover *vis-a-vis* company B (assuming the size of total assets of companies A and B is equal). If the margin of profit of company B is greater than that of A, profitability of company B may be even greater than that of company A. For instance, the margin of profit on sales of company A is 2 per cent and that of company B is 4 per cent. Let us assume further the assets turnover of company A is 8 while that of company B is 5. Due to increased sales, the total rate of return would be 16 per cent of company A, while that of Company B would be 20 per cent.

(b) Debt in the capital structure certainly affects both the risk and profitability from the point of view of equity-holders. If the company's earnings rate is greater than the interest rate paid on debt, the company is said to have favourable leverage as it enhances the rate of return available to equityholders. Conversely, if the rate of interest paid on debt exceeds the company's earning rate, the company is said to have unfavourable leverage as it will depress the rate of return available to equity holders. Let us take a simple example to make the point clear:

Total assets	Rs 20,000
Equity capital	10,000
10% Debt	10,000
Net income before interest and taxes	5,000
Tax rate (%)	35

Profit and loss statement

Net income before interest and taxes	Rs 5,000
Less: Interest on debt	1,000
Net income	4,000
Less: Taxes (0.35)	1,400
Net income available to equityholders	2,600
Rate of return on equity capital (per cent)	26

The company is increasing the profitability of equity holders by employing debt in the capital structure. In the absence of debt, the rate of return would have been 16.25 per cent [(Rs 5,000 – Rs 1,750 taxes) ÷ Rs 20,000].

If the net income before interest and taxes is Rs 1,500 only, the use of debt would work against the interest of equityholders, as shown by the following calculations:

Net income before interest and taxes	Rs 1,500
Less: Interest on debt	1,000
Net income	500
Less: Taxes	175
Net income available to equityholders	325
Rate of return on equity capital (per cent)	3.25

In the absence of debt, the rate of return on equity capital would have been 4.9 per cent [Rs 1,500 – Rs 525] ÷ Rs 20,000.

The use of debt in the company's capital structure increases the financial risk of equityholders, as the use of debt increases the variability of the shareholders' returns and probability of insolvency if the firm fails to make the payment of interest and repayment of the principal in time.

(c) The profit of firm X need not necessarily be higher than that of Y. The answer hinges on the margin of safety and amount of fixed costs of firms X and Y. Let us take an example.

Particulars	Firms	
	X	Y
Sales	Rs 1,00,000	Rs 1,00,000
P/V ratio (%)	50	50
Fixed cost	40,000	20,000

Net profit	10,000	30,000
Net profit X, (Sales, Rs 1,00,000 – Variable cost, Rs 50,000 – Fixed cost, Rs 40,000) = Rs 10,000. Net profit, Y (Sales, Rs 1,00,000 – Variable cost, Rs 50,000 – Fixed cost, Rs 20,000) = Rs 30,000. If sales increase by 20 per cent,		

Particulars	X	Y
Sales	Rs 1,20,000	Rs 1,20,000
Less: Variable cost (1 – P/V ratio)	60,000	60,000
Contribution	60,000	60,000
Less: Fixed costs	40,000	40,000
	20,000	20,000

(d) Mafatlal need not necessarily be a better investment than Calico for the following reasons:

- Profitability is also affected by turnover of total assets and not by margin of profit only. The assets turnover of Calico may be greater than Mafatlal's.
- The degree of financial risk in Mafatlal due to the use of debt may be more than that in Calico. Therefore, the required rate of return on equity capital of Mafatlal would be more than that of Calico affecting the market value of their shares.
- Calico may be pursuing a stable dividend policy as against an unstable dividend policy by Mafatlal.
- The future prospects of the two companies may be different.

The above factors taken together determine the quality of investments.

(e) The answer rests on the existing position of firm B and the rate of return earned by company A on capital expenditures. If company A is investing in such proposals which will add to the net present value of the shareholders' wealth, they will certainly add to the efficiency and profitability of firm A. But if the firm B has already made such investments in the past, the company A need not necessarily be more efficient and profitable than firm B.

P.6.19 From the following particulars, prepare the balance sheet of Shri Mohan Ram and Co. Ltd as at March 31, current year.

Current ratio, 2	Stock velocity, 2 months
Working capital, Rs 4,00,000	Creditors velocity, 2 months
Capital block to current asset, 3:2	Debtors velocity, 2 months
Fixed asset to turnover, 1:3	Gross profit ratio, 25 per cent (to sales)
Sales cash/credit, 1:2	Capital block:
Debentures/share capital, 1:2	Net profit, 10 per cent of turnover
	Reserve, 2.5 per cent of turnover

Solution

Balance sheet as at March 31

Liabilities	Amount	Assets	Amount
Share capital	Rs 6,00,000	Fixed assets (net)	Rs 8,00,000
Reserves	60,000	Current assets:	
Profit and loss A/c	2,40,000	Stock	3,00,000
Debentures	3,00,000	Debtors	2,66,667
Creditors	3,50,000	Other current assets	2,33,333
Other current liabilities	50,000		
	16,00,000		16,00,000

Working Notes

- Current ratio of 2 implies that $CA_s = \text{twice } CL$, i.e., $CA - 2CL = 0$
Further, $CA - CL = \text{Rs } 4,00,000$ or, $CL = \text{Rs } 4,00,000$ and $CA = \text{Rs } 8,00,000$.
- Capital block to current assets ratio of 3:2 implies that long-term capital funds (equity funds + debentures) are 1.5 times current assets, i.e., $\text{Rs } 8,00,000 \times 1.5 = \text{Rs } 12,00,000$.
- Total assets = Total liabilities = Rs 16,00,000 (Rs 12,00,000 long-term funds + Rs 4,00,000 CL).
- Fixed assets = Rs 16,00,000, Total assets – Rs 8,00,000, CA = Rs 8,00,000.
- FA/Turnover (sales) = 1/3 or Sales = Rs 8,00,000 \times 3 = Rs 24,00,000.
- Proportion of cash sales to credit sales is 1:2 or cash sales are one-third of total sales, i.e. $1/3 \times \text{Rs } 24,00,000 = \text{Rs } 8,00,000$; credit sales = Rs 16,00,000.

7. Gross profit = $0.25 \times \text{Rs } 24,00,000 = \text{Rs } 6,00,000$; cost of goods sold = Rs 18,00,000.
8. Debtors = $\text{Rs } 16,00,000/6$ (Debtors turnover ratio, $12 \div 2$) = Rs 2,66,667.
9. Stock = $\text{Rs } 18,00,000/6$ (Stock turnover ratio, $12 \div 2$) = Rs 3,00,000.
10. Other CAs = $\text{Rs } 8,00,000 - (\text{Rs } 2,66,667 + \text{Rs } 3,00,000) = \text{Rs } 2,33,333$.
11. Reserves = $0.025 \times \text{Rs } 24,00,000 = \text{Rs } 60,000$.
12. Credit purchases = Cost of goods sold + Closing stock = $\text{Rs } 18,00,000 + \text{Rs } 3,00,000 = \text{Rs } 21,00,000$.
13. Creditors = $\text{Rs } 21,00,000 \div 6$ (creditors turnover ratio, $12 \div 2$) = Rs 3,50,000.
14. Other CLs = Total CL – Creditors, i.e. $\text{Rs } 4,00,000 - \text{Rs } 3,50,000 = \text{Rs } 50,000$.
15. Debentures to share capital ratio of 1:2 implies that debentures in value are equal to one-half of share capital (2 Debentures = Share capital). Further, capital block (as per working note 3) is Rs 12,00,000.
 $\text{Rs } 12,00,000 = \text{Debentures} + \text{Share capital} + \text{Net profit} + \text{Reserves}$
 $\text{Rs } 12,00,000 = 3 \text{ Debentures} + \text{Rs } 2,40,000$ (10 per cent of sales) + Rs 60,000
 $\text{Rs } 3,00,000 = \text{Debentures}$; Share capital = Rs 6,00,000

Review Questions

6.20 You have been supplied data for Royal Plastic Ltd and its industry averages.

- (a) Determine the indicated ratios for the Royal Plastic Ltd.
- (b) Indicate the company's strengths and weaknesses in terms of liquidity, solvency and profitability, as revealed by your analysis.

Balance sheet, March 31, current year

<i>Liabilities</i>		<i>Assets</i>	
Equity share capital	Rs 1,00,000	Plant and equipment	Rs 1,51,000
10% Preference share capital	40,000	Cash	12,300
Retained earnings	27,400	Debtors	36,000
Long-term debt	34,000	Stock	60,800
Sundry creditors	31,500		
Outstanding expenses	1,200		
Other current liabilities	26,000		
	2,60,100		2,60,100

Statement of profit, year ended March 31, current year

Sales—net		Rs 2,25,000
Less: Cost of goods sold	Rs 1,52,500	
Selling expenses	29,500	
Administrative expenses	14,800	
Research and development expenses	6,500	
Interest	2,900	2,06,200
Earnings before taxes		18,800
Less: Income taxes (0.35)		6,580
Net income		12,220
Dividends paid to equity holders		5,000

Financial ratios of industry

1. Current ratio	2.2 : 1
2. Stock turnover (times)	2.8
3. Collection period (days)	56
4. Total debt/shareholders' equity (percentage)	45
5. Interest coverate ratio (times)	10
6. Turnover of assets (times)	1.35
7. Income before tax/sales (percentage)	11.9
8. Rate of return on shareholders' equity (percentage)	10.9

6.21 Below are selected ratios for two companies in the same industry, along with industry average:

<i>Ratios</i>	<i>A</i>	<i>B</i>	<i>Industry</i>
Current ratio	221	561	241
Acid-test ratio	121	301	131

Debt-asset ratio	36	5	35
Operating expenses ratio	18	17.5	20
Number of times interest earned	6	12	5
Stock turnover	8.5	6.5	7.0
Debtors turnover	11.0	15.0	11.4
Rate of return on total assets	17	10	13.5

Can we say on the basis of above ratios and information that company B is better than company A because its ratios are better in six out of eight areas (all except stock turnover and rate of return on total assets)? The company B is better than the industry average in the same six categories.

Answers

6.20 (a) (1) 1.86, (2) 2.51 times, (3) 58 days, (4) 55 per cent, (5) 7.48 times, (6) 0.58 times, (7) 8.36 per cent, (8) 5.45 per cent. (b) Company's position both in terms of profitability and solvency is weaker than that of industry.

6.21 Not necessarily.