Chapter wise Test (2002)
Leverage

Instructions

- All questions are compulsory.
- Test Duration will be 45 Minutes, starting from 11:00 AM to 11:45 AM
- 5 minutes reading time will be provided before 11, i.e. question paper will be shared by 10:55 AM.
- Share your scanned answer sheets by 11:50 on below link https://forms.gle/wLRZWiTvMELNpCeC6

1. [5 Marks] Company P and Q are having same earnings before tax. However, the margin of safety of Company P is 0.20 and, for Company Q, is 1.25 times than that of Company P. The interest expense of Company P is Rs. 1,50,000 and, for Company Q, is 1/3rd less than that of Company P. Further, the financial leverage of Company P is 4 and, for Company Q, is 75% of Company P.
Other information is given as below:

Particulars	Company P	Company Q
Profit volume ratio	25%	33.33%
Tax rate	45%	45%

- You are required to PREPARE Income Statement for both the companies.

Solution

Income Statement

Particulars	Company P (₹)	Company Q (₹)
Sales	40,00,000	18,00,000
Less: Variable Cost	30,00,000	12,00,000
Contribution	10,00,000	6,00,000
Less: Fixed Cost	8,00,000	4,50,000
EBIT	2,00,000	1,50,000
Less: Interest	1,50,000	1,00,000
EBT	50,000	50,000
Tax (45%)	22,500	22,500
EAT	27,500	27,500

Workings:

(i) Margin of Safety

For Company P = 0.20

For Company Q = 0.20 x 1.25 = 0.25

(ii) Interest Expenses

For Company P = ₹ 1,50,000

For Company Q = ₹ 1,50,000 (1-1/3) = ₹ 1,00,000

(iii) Financial Leverage

For Company P = 4

For Company Q = 4 x 75% = 3

(iv) EBIT

For Company A

Financial Leverage	= EBIT/(EBIT- Interest)
4	= EBIT/(EBIT- ₹ 1,50,000)
4EBIT – ₹ 6,00,000	= EBIT
3EBIT	= ₹ 6,00,000
EBIT	= ₹ 2,00,000

For Company B

Financial Leverage	= EBIT/(EBIT - Interest)
3	= EBIT/(EBIT – ₹ 1,00,000)
3EBIT – ₹ 3,00,000	= EBIT
2EBIT	= ₹ 3,00,000
EBIT	= ₹ 1,50,000

(v) Contribution

For Company A

Operating Leverage	= 1/Margin of Safety
	= 1/0.20 = 5
Operating Leverage	= Contribution/EBIT
5	= Contribution/₹ 2,00,000
Contribution	= ₹ 10,00,000

For Company B

Operating Leverage	= 1/Margin of Safety
	= 1/0.25 = 4
Operating Leverage	= Contribution/EBIT
4	= Contribution/₹ 1,50,000
Contribution	= ₹ 6,00,000

(vi) Sales

For Company A

Profit Volume Ratio	= 25%
Profit Volume Ratio	= Contribution/Sales × 100
25%	= ₹ 10,00,000/Sales
Sales	= ₹ 10,00,000/25%
Sales	= ₹ 40,00,000

For Company B

Profit Volume Ratio	= 33.33%
Therefore, Sales	= ₹ 6,00,000/33.33%
Sales	= ₹ 18,00,000

2. [10 Marks] The following details of PQR Limited for the year ended 31st March, 2021 are given below:

Operating Leverage	1.4
Combined Leverage	2.8
Fixed Cost (Excluding Interest)	2.10 Lakhs
Sales	40 Lakhs
10% Debentures of Rs. 100 each	25 Lakhs
Equity Share Capital of Rs. 10 each	20 Lakhs
Income Tax rate	30%

REQUIRED:

(i) Calculate Financial leverage

(ii) Calculate P/V ratio and Earning per Share (EPS)

(iii) If the company belongs to an industry, whose assets turnover is 1.6, does it have a high or low assets turnover?

(iv) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero?

In the question, assume that 10% Debentures and Share Capital consists of total liabilities.

Solution

(i) Financial leverage

Combined Leverage = Operating Leverage x Financial Leverage

So, financial leverage = Combined Leverage/Operating Leverage

= 2.8/1.4 = 2

(ii) P/V Ratio and EPS

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{Contribution - Fixed Cost}}$$

$$1.4 = \frac{\text{Contribution}}{\text{Contribution - 2,10,000}}$$

1.4 Contribution – 2,94,000 = Contribution

0.4 Contribution = 2,94,000

Contribution = 7,35,000

$$\text{Now, P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{7,35,000}{40,00,000} \times 100 = 18.375\%$$

$$\text{EPS} = \frac{\text{Profit after tax (PAT)}}{\text{No. of equity shares}}$$

Earning before tax (EBT) = Contribution – Fixed Cost – Interest

= 7,35,000 – 2,10,000 – 2,50,000

= 2,75,000

Profit after tax = EBT – Tax @ 30%

= 2,75,000 – 82,500

= 1,92,500

$$\text{EPS} = \frac{1,92,500}{2,00,000} = 0.9625$$

(iii) Asset Turnover

Total Assets = Equity Share Capital + Debentures = ₹ 20 lakhs + ₹ 25 lakhs = ₹ 45 lakhs

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{40,00,000}{45,00,000} = 0.89$$

0.89 < 1.6, means lower than industry turnover.

(iv) EBT zero means 100% reduction in EBT. Since combined leverage is 2.8, sales have to be dropped by 100/2.8 = 35.71%. Hence new sales will be

40,00,000 x (100% - 35.71%) = 25,71,600

3. [10 Marks] Following is the Balance Sheet of Soni Ltd. as on 31st March, 2018:

Liabilities	**Amount in Rs.**
Shareholder's Fund	
Equity Share Capital (Rs. 10 each)	25,00,000
Reserve and Surplus	5,00,000
Non-Current Liabilities (12 Debentures)	50,00,000
Current Liabilities	20,00,000

Total	1,00,00,000
Assets	**Amount in Rs.**
Non-Current Assets	60,00,000
Current Assets	40,00,000
Total	1,00,00,000

Additional Information:
(i) Variable Cost is 60% of Sales.
(ii) Fixed Cost p.a. excluding interest Rs. 20,00,000.
(iii) Total Asset Turnover Ratio is 5 times.
(iv) Income Tax Rate 25% You are required to:

(1) Prepare Income Statement
(2) Calculate the following and comment:
(a) Operating Leverage
(b) Financial Leverage
(c) Combined Leverage

Solution

Workings:-
Total Assets = ₹ 1 crore
Total Asset Turnover Ratio i.e. $\frac{Total\ Sales}{Total\ Assets}$ = 5
Hence, Total Sales = ₹ 1 Crore x 5 = ₹ 5 crore

(1) **Income Statement**

	(₹ in crore)
Sales	5
Less: Variable cost @ 60%	3
Contribution	2
Less: Fixed cost (other than Interest)	0 .2
EBIT (Earnings before interest and tax)	1.8
Less: Interest on debentures (12% x 50 lakhs)	0 .06
EBT (Earning before tax)	1.74
Less: Tax 25%	0.435
EAT (Earning after tax)	1.305

(2) **(a) Operating Leverage**

$$Operating\ Leverage = \frac{Contribution}{EBIT} = \frac{2}{1.8} = 1.11$$

It indicates fixed cost in cost structure. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(b) Financial Leverage

$$Financial\ Leverage = \frac{EBIT}{EBT} = \frac{1.8}{1.74} = 1.03$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

(c) Combined Leverage

$$Combined\ Leverage = \frac{Contribution}{EBIT}\ X\ \frac{EBIT}{EBT} = 1.11\ x\ 1.03 = 1.15$$

Or

$$\frac{Contribution}{EBT} = \frac{2}{1.74} = 1.15$$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

The leverages x operating, financial and combined are measures of risk.