# FINANCIAL LEVERAGE

Leverage activities with financing activities is called financial leverage. Financial leverage represents the relationship between the company’s earnings before interest and taxes (EBIT) or operating profit and the earning available to equity shareholders.

Financial leverage is defined as “the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the earnings per share”. It involves the use of funds obtained at a fixed cost in the hope of increasing the return to the shareholders.  “The use of long-term fixed interest bearing debt and preference share capital along with share capital is called financial leverage or trading on equity”.

Financial leverage may be favourable or unfavourable depends upon the use of fixed cost funds.

Favourable financial leverage occurs when the company earns more on the assets purchased with the funds, then the fixed cost of their use. Hence, it is also called as positive financial leverage.

Unfavourable financial leverage occurs when the company does not earn as much as the funds cost. Hence, it is also called as negative financial leverage.

Financial leverage can be calculated with the help of the following formula:

FL = OP

PBT

Where,

FL = Financial leverage

OP = Operating profit (EBIT) PBT = Profit before tax.

## Degree of Financial Leverage

Degree of financial leverage may be defined as the percentage change in taxable profit as a result of percentage change in earning before interest and tax (EBIT). This can be calculated by the following formula.

DFL= Percentage change in taxable Income

 Percentage change in EBIT

## Alternative Definition of Financial Leverage

According to **Gitmar**, “financial leverage is the ability of a firm to use fixed financial changes to magnify the effects of change in EBIT and EPS”.

FL = EBIT

EPS

Where,

FL = Financial Leverage

EBIT = Earning Before Interest and Tax EPS = Earning Per share.

## Exercise 2

A Company has the following capital structure.

|  |  |
| --- | --- |
|  | Rs. |
| Equity share capital | 1,00,000 |
| 10% Prof. share capital | 1,00,000 |
| 8% Debentures | 1,25,000 |

The present EBIT is Rs. 50,000. Calculate the financial leverage assuring that the company is in 50% tax bracket.

## Solution

|  |  |
| --- | --- |
| **Statement of Profit** | Rs. |
| Earning Before Interest and Tax (EBIT) | 50,000 |
| (or) Operating Profit |  |
| . Interest on Debenture |  |
| 1,25,000 × 8 × 100 |  |
| Earning before Tax (EBT) | 10,000 |
|  | 40,000 |

Income Tax 20,000

Profit

Financial leverage =

20,000

Financial leverage = OP/PBT

 = 50,000/40,000 = 1.25

## Uses of Financial Leverage

Financial leverage helps to examine the relationship between EBIT and EPS.

Financial leverage measures the percentage of change in taxable income to the percentage change in EBIT.

Financial leverage locates the correct profitable financial decision regarding capital structure of the company.

Financial leverage is one of the important devices which is used to measure the fixed cost proportion with the total capital of the company.

If the firm acquires fixed cost funds at a higher cost, then the earnings from those assets, the earning per share and return on equity capital will decrease.

The impact of financial leverage can be understood with the help of the following exercise.

## Exercise 3

XYZ Ltd. decides to use two financial plans and they need Rs. 50,000 for total investment.

|  |  |  |
| --- | --- | --- |
| **Particulars** | **Plan A** | **Plan B** |
| Debenture (interest at 10%) Equity share (Rs. 10 each) Total investment neededNumber of equity shares | 40,00010,000 | 10,00040,000 |
| 50,0004,000 | 50,0001,000 |

The earnings before interest and tax are assumed at Rs. 5,000, and 12,500. The tax rate is 50%. Calculate the EPS.

## Solution

When EBIT is Rs. 5,000

|  |  |
| --- | --- |
| **Particulars** | **Plan A Plan B** |
| Earnings before interest and tax (EBIT) Less : Interest on debt (10%)Earnings before tax (EBT) Less : Tax at 50%Earnings available to equity shareholders. No. of equity sharesEarnings per share (EPS) Earnings/No. of equity shares | 5,000 5,0004,000 1,000 |
| 1,000 4,000500 2,000 |
| Rs.500 Rs.2,0001,000 4,000Rs. 0.50 Rs. 0.50 |

When EBIT is Rs. 12,500

|  |  |  |
| --- | --- | --- |
| **Particulars** | **Plan A** | **Plan B** |
| Earnings before interest and tax (EBIT). | 12,500 | 12,500 |
| Less: Interest on debt (10%) | 4,000 | 1,000 |
| Earning before tax (EBT) | 8,500 | 11,500 |
| Less : Tax at 50% | 4,250 | 5,750 |
| Earnings available to equity shareholders | 4,250 | 5,750 |
| No. of equity shares | 1,000 | 4,000 |
| Earning per share | 4.25 | 1.44 |

**DISTINGUISH BETWEEN OPERATING LEVERAGE AND FINANCIAL LEVERAGE**

***Operating Leverage/Financial Leverage***

|  |  |
| --- | --- |
| **Operating Leverage** | **Financial Leverage** |
| 1. Operating leverage is associated with investment activities of the company. | 1. Financial leverage is associated with financing activities of the company. |
| 2. Operating leverage consists of fixed operating expenses of the company. | 2. Financial leverage consists of operating profit of the company. |
| 3. It represents the ability to use fixed operating cost. | 3. It represents the relationship between EBIT and EPS. |
| 4. Operating leverage can be calculated by | 4. Financial leverage can be calculated by |
| COL = OP .5. A percentage change in the profits resulting from a percentage change in the sales is called as degree of operating leverage. | OPFL = PBT .5. A percentage change in taxable profit is the result of percentage change in EBIT. |
| 6. Trading on equity is not possible while the company is operating leverage. | 6. Trading on equity is possible only when the company uses financial leverage. |
| 7. Operating leverage depends upon fixed cost and variable cost. | 7. Financial leverage depends upon the operating profits. |
| 8. Tax rate and interest rate will not affect the operating leverage. | 8. Financial leverage will change due to tax rate and interest rate. |

##

## EBIT - EPS Break even chart for three different financing alternatives

X1

X

2

EPS

DR = 70%

DR = 30% X3

DR = 0%

C1 C2 C3

EBIT

Where,

DR= Debt Ratio

C1, C2, C3 = Indifference Point X1, X2, X3 = Financial BEP

## Financial BEP

It is the level of EBIT which covers all fixed financing costs of the company. It is the level of EBIT at which EPS is zero.

## Indifference Point

It is the point at which different sets of debt ratios (percentage of debt to total capital employed in the company) gives the same EPS.

# COMBINED LEVERAGE

When the company uses both financial and operating leverage to magnification of any change in sales into a larger relative changes in earning per share. Combined leverage is also called as composite leverage or total leverage.

Combined leverage express the relationship between the revenue in the account of sales and the taxable income.

Combined leverage can be calculated with the help of the following formulas:

CL = OL × FL

Where,

CL = C

OP

× OP

PBT

= C

PBT

CL = Combined Leverage OL = Operating Leverage FL = Financial Leverage

C = Contribution

OP = Operating Profit (EBIT) PBT = Profit Before Tax

## Degree of Combined Leverage

The percentage change in a firm’s earning per share (EPS) results from one percent change in sales. This is also equal to the firm’s degree of operating leverage (DOL) times its degree of financial leverage (DFL) at a particular level of sales.

Degree of contributed coverage = Percentage change in EPS

 Percentage change in sales

## Exercise 4

Kumar company has sales of Rs. 25,00,000. Variable cost of Rs. 12,50,000 and fixed cost of Rs. 50,000 and debt of Rs. 12,50,000 at 8% rate of interest. Calculate combined leverage.

## Solution

**Statement of Profit**

|  |  |  |
| --- | --- | --- |
| Sales |  | 25,00,000 |
| Less: | Variable cost | 15,00,000 |
|  | Contribution | 10,00,000 |
| Less: | Fixed cost | 5,00,000 |
|  | Operating Profit | 5,00,000 |

Combined leverage =Operating leverage×Financial leverage

## Calculation of financial leverage

 Contribution  10,00,000  2

Operating Profit 5,00,000

## Calculation of financial leverage

|  |  |
| --- | --- |
| Earning before Interest and Tax (EBIT) | 5,00,000 |
| Less: Interest on Debenture ( 8% of 12,50,000) | 1,00,000 |
| Earnings before Tax |  4,00,000 |

Operating leverage =

 Operating Profit 

 EBT5,00,000

4,00,000

=1.25

Combined leverage = 2 × 1.25 = 2.5

## Exercise 5

Calculate the operating, financial and combined leverage under

## Solution

Annual production and sales 60% of 5,000 = 3000 Unit

Contribution per Unit Rs.

Selling Price 25 Per Unit

Variable Price 15 Per Unit

10 Per Unit

Total contribution is 3000 Units×Rs. 10=Rs. 30,000 Computation of leverage.

## Financial plan

|  |  |  |
| --- | --- | --- |
|  | **PLAN-X** | **PLAN-Y** |
|  | **Situation 1** | **Situation 2** | **Situation 1** | **Situation 2** |
| Contribution | 30000 | 30000 | 30000 | 30000 |
| Fixed cost operating |  |  |  |  |
| profit (or) EBIT | 10000 | 12000 | 10000 | 12000 |
|  | 20000 | 18000 | 20000 | 18000 |
| Interest on Debts |  |  |  |  |
| 10% of 50,000 | 5000 | 5000 | 2500 | 2500 |
| 10% of 25,000 |  |  |  |  |
| 15000 | 13000 | 17500 | 15500 |
| Earnings before Tax |
| (i) Operating Leverage |
|  |  |  |  |
| Contribution | 30000 | 30000 | 30000 | 30000 |
|  | 20000 | 18000 | 20000 | 18000 |
|  | = 1.5 | 1.67 | 1.5 | 1.67 |
| (ii) Financial Leverage |  |  |  |  |
| 20000 | 18000 | 20000 | 18000 |
| Operating Profit (op) |
| Profit Before Tax (PBI) | 15000 | 13000 | 17500 | 15500 |
| (iii) Combined leverage |  |  |  |  |
| OL × FL = | 1.5 × 1.33 | 1.67 × 1.38 | 1.5 × 1.14 | 1.67 × 1.16 |
|  | 1.995 | 2.30 | 1.71 | 1.94 |

Highest and least value of combined leverage.

Highest Value = 2.30 under situation 2 plan X.

Least Value = 1.71 under situation 1 plan Y.

# WORKING CAPITAL LEVERAGE

One of the new models of leverage is working capital leverage which is used to locate the investment in working capital or current assets in the company.

Working capital leverage measures the sensitivity of return in investment of charges in the level of current assets.

WCL = Percentage Change in ROI Percentage Change is WC

If the earnings are not affected by the changes in current assets, the working capital leverage can be calculated with the help of the following formula.

WCL = CA

Where,

CA = Current Assets TA = Total Assets

TA 

DCA

DCA = Changes in the level of Current Assets

## Exercise 7

The following information is available for two companies.

|  |  |  |
| --- | --- | --- |
|  | **X Ltd.** | **Y Ltd.** |
| Fixed Assets | Rs. 4,00,000 | 1,00,000 |
| Current Assets | Rs. 10,00,000 | 4,00,000 |
| Total Assets | Rs. 14,00,000 | 14,00,000 |
| Earning before interest and taxes | Rs. 1,50,000 | 1,50,000 |

You are required to compare the sensitivity earnings of the two companies for 30% charge in the level of their current assets.

**Solution**

Working capital leverage = Current Assets

Total Assets  DCA

X Ltd. = 1,00,000

14,00,000 – 3,00,000

= 10,00,000

11,00,000

= 0 .90

Y Ltd. = 4,00,000

14,00,000 – 1,20,000

= 4,00,000

12,80,000

= 0.3125