Financial management

LEVERAGES

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Earnings at different level

Sales Revenue

- Variable cost

Contribution

- Fixed Cost

EBIT

- Interest

EBT

- Tax

Net Income

Leverage

- ‘Leverage’ is used to describe the ability of a firm to use fixed cost assets or funds to increase the return to its equity shareholders. In other words, leverage is the employment of fixed assets or funds for which a firm has to meet fixed costs or fixed rate of interest obligation—irrespective of the level of activities attained, or the level of operating profit earned.
- Leverage occurs in varying degrees. The higher the degree of leverage, the higher is the risk involved in meeting fixed payment obligations i.e., operating fixed costs and cost of debt capital. But, at the same time, higher risk profile increases the possibility of higher rate of return to the shareholders.

Types of Leverage

- Operating Leverages
- Financial Leverages
- Combined Leverages

Operating Leverage

- Operating leverage may be define as the firm's ability to use fixed operating cost to magnify effects of changes in sales on its earnings before interest and taxes.
- Operating leverage refers to the use of fixed operating costs such as depreciation, insurance of assets, repairs and maintenance, property taxes etc. in the operations of a firm. But it does not include interest on debt capital. Higher the proportion of fixed operating cost as compared to variable cost, higher is the operating leverage, and vice versa.

Formula for calculating operating leverage

$$\textbf{Operating Leverages} = \frac{\text{Contribution}}{\text{EBIT}}$$

- C**ontribution** = Sales – Variable cost
- **EBIT**= Sales – Variable Cost – Fixed cost

Degree of changes in operating leverages

- The earnings before interest and taxes (i.e., EBIT) changes with increase or decrease in the sales volume. Operating leverage is used to measure the effect of variation in sales volume on the level of EBIT. Thus we can calculate the degree of changes in operating leverage with the following formula-

Degree of changes in Operating leverages

$$\text{Degree of changes in Operating leverages} = \frac{\%\ \text{change in EBIT}}{\%\ \text{Change in Sales}}$$

- **% Changes in EBIT**= Increase in EBIT/ EBIT
- **%Change in sales=** Increase in sales/ sales

Example

- Calculate the degree of operating leverage from the following data:
- Sales: 1, 50,000 units at Rs 4 per unit.
- Variable cost per unit Rs 2.
- Fixed cost Rs 1, 50,000.
- Interest charges Rs 25,000.

Solution: We know

$$\text{Degree of operating leverage (DOL)} = \frac{\text{Contribution}}{\text{EBIT}}$$

Here,	Sales = 1,50,000 × Rs 4	= Rs 6,00,000
	Less: Variable Cost: 1,50,000 × Rs 2	= Rs 3,00,000
	Contribution	Rs 3,00,000
	Less: Fixed Cost	Rs 1,50,000
	EBIT	Rs 1,50,000

$$\therefore \quad \text{DOL} = \frac{\text{Rs } 3,00,000}{\text{Rs } 1,50,000} = 2$$

FINANCIAL LEVERAGE:

- Financial leverage is mainly related to the mix of debt and equity in the capital structure of a firm. It exists due to the existence of fixed financial charges that do not depend on the operating profits of the firm. Various sources from which funds are used in financing of a business can be categorized into funds having fixed financial charges and funds with no fixed financial charges. Debentures, bonds, long-term loans and preference shares are included in the first category and equity shares are included in the second category

The financial leverage can be calculated by the following formulas

$$\text{Financial leverages} = \frac{\text{EBIT}}{\text{EBT}}$$

EBIT=Earning Before Interest and Tax

EBT= Earning Before Tax

Degree of Financial Leverage

- The higher the proportion of fixed charge bearing fund in the capital structure of a firm, higher is the Degree of Financial Leverage (DFL) and vice-versa. Financial leverage is computed by the DFL. DEL expresses financial leverage in quantitative terms. The percentage change in the earning per share to a given percentage changes in earnings before interest and taxes is defined as Degree of Financial Leverage (DFL). Therefore-

$$DFL = \frac{\%\ \text{Change in EPS}}{\%\text{Change In EBIT}}$$

Example: *A company has the following capital structure*

Equity Capital of ₹ 10/- each	=	*₹ 5,00,000*
15% Debentures of ₹ 500 each	=	*₹ 5,00,000*
Total	=	*₹ 10,00,000*
EBIT of Operating Profit	=	*₹ 2,00,000*

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} \text{ or } \frac{\text{EBIT}}{\text{EBIT} - I} = \frac{2,00,000}{2,00,000 - 75,000}$$

$$I = \frac{15}{100} \times 5,00,000 \text{ (Deb)} = 75,000$$

$$\text{Financial Leverage} = \frac{2,00,000}{1,25,000} = 1.6 \text{ times.}$$

Why Financial Leverage Called Trading On Equity

- Use of Fixed Interest sources of funds in capital structure provides increased return on equity investment without additional requirement of funds from the share holders. Thus it is also called ‘Trading on Equity’.

Combined leverage

- Both operating and financial leverages are closely concerned with ascertaining the firm's ability to cover fixed costs or fixed rate of interest obligation, if we combine them, the result is total leverage and the risk associated with combined leverage is known as total risk. It measures the effect of a percentage change in sales on percentage change in EPS. Thus the combined leverage can be calculated by multiplying OL and FL, thus-

- **Combined Leverage = Operating Leverage * Financial Leverage**

$$= \frac{\text{Contribution}}{\text{EBIT}} * \frac{\text{EBIT}}{\text{EPS}}$$

$$= \frac{\text{Contribution}}{\text{EPS}}$$

In the same way the degree of combined leverage is also determined by multiplying the DOL with the DFL-

- **Degree of Combined Leverage= DOL*DFL**
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$$\frac{\%\text{ change in EBIT}}{\%\text{ change in Sales}} * \frac{\%\text{Change in EPS}}{\%\text{ Change in EBIT}}$$

$$\frac{\%\text{ Change in EPS}}{\%\text{Change in Sales}}$$

Combined Leverage

- The combined leverage may be favourable or unfavorable. It will be favourable if sales increase and unfavorable when sales decrease. This is because changes in sales will result in more than proportional returns in the form of EPS. As a general rule, a firm having a high degree of operating leverage should have low financial leverage by preferring equity financing, and vice versa by preferring debt financing.

Conclusion

If a firm has both the leverages at a high level, it will be very risky proposition. Therefore, if a firm has a high degree of operating leverage the financial leverage should be kept low as proper balancing between the two leverages is essential in order to keep the risk profile within a reasonable limit and maximum return to shareholders.

Example

- A company, has a sales of Rs.2 lakh. The variable costs are 40 per cent of the sales and fixed expenses are Rs.60,000. The interest on borrowed capital is assumed to be Rs.20, 000. Compute the combined leverage and show the impact on taxable income when sales increases by 10 per cent.

Solution-

		₹
Sales	=	2,00,000
Less: Variable Cost (40/100 × 2,00,000)	=	80,000
Contribution	=	1,20,000
Less: Fixed Cost	=	60,000
Operating Profit/EBIT	=	60,000
Less: Interest on Borrowings	=	20,000
Earnings before Tax	=	40,000

Combined Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{1,20,000}{40,000} = 3$ times

When sales increased by 10 per cent (i.e., ₹ 2,00,000 × 10/100 = 20,000)

= ₹ 2,20,000

		₹
Sales	=	2,20,000
Less: Variable Cost ($\frac{40}{100} \times 2,20,000$)	=	88,000
Contribution	=	1,32,000
Less: Fixed Cost	=	60,000
Operating Profit/EBIT	=	72,000
Less: Interest on/Borrowings	=	20,000
Earnings before Tax	=	52,000

Combined Leverage $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{1,32,000}{52,000} = 2.5$ times

This shows that there is an increase of ₹ 12,000 EBIT (₹ 52,000 – ₹ 40,000), for an increase of 10 per cent of sales. The taxable income increases by 30 per cent.

Increase in Taxable Income $= \frac{\text{Incremental profit}}{\text{Original profit}} \times 100$

$= \frac{12,000}{40,000} \times 100 = 30$ per cent

Thank you