**Semester VI (UG)**

**Subject: Financial Management**

**Name of the Teacher: Prof. MD SHAHJAHAN**

**Lecture Note 2**

**TOPIC : LEVERAGES**

**MEANING**

Leverage results from the use of fixed costs assets or funds to magnify returns to the firm’s owners. Generally, increases in leverage results in increased returns and risk; and decreases in leverage results in decrease in returns and risk. The amount of leverage in the firm’s capital structure (the mix of long-term debt and equity) can significantly affect its value by affecting returns and risks.

The term ‘leverage’ in general refers to a relationship between two inter-related variables. In financial analysis, it represents the influence of one financial variable over some other related financial variable.

**TYPES OF LEVERAGE**

The three basic types of leverage can be defined with reference to firm’s income statement as follows:

1. Operating leverage is concerned with the relationship between the firm’s sales revenue and its earnings before interest and taxes, or EBIT (EBIT is descriptive label for operating profits).

2. Financial leverage is concerned with the relationship between the firm’s EBIT and its common share earnings per share (EPS earnings per share). It is defined as the firm’s ability to use fixed financial charges to magnify the effects of charge in EBIT/operating profit on firm’s earnings per share.

3. Total/Combined leverage is concerned with the relationship between the firm’s sales revenue and EPS.

**OPERATING LEVERAGE**

Operating leverage is defined as the firm’s ability to use fixed operating costs to magnify effects of changes in sales or its earnings before interest on tax. Operating leverage results from the existence of the fixed operating expenses in the firm’s income stream. The operating costs of a firm fall into three categories:

1. Fixed costs, which may be defined as those do not vary with sales volume, are a function of time and are typically contractual; they must be paid regardless of the amount of revenue available with sales volume.

2. Variable costs, which vary directly.

3. Semi-variable or semi-fixed costs are those, which are partly fixed and partly variable. They are fixed over a certain higher sales volume. Since the last category of cost can be broken down into fixed and variable components, the cost of a firm in operational terms can be divided into fixed and variables. The operating leverage occurs anytime a firm has fixed costs that must be met regardless of the volume. With fixed costs, the percentage change in profit accompanying a change in volume is greater than the percentage change in volume.

**Example**: A firm sells its product at Rs 100, as variable operating cost of 50% and fixed operating cost of Rs 50,000 per year. Show the various levels of EBIT that would result from sale.

1. 1000 units (2) 2000 units (3) 3000 units

Solution:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Case 2 –50% | Base Data | Case 1 +50% |
| Sales in units | 1000 | 2000 | 3000 |
| Sales revenue | 100000 | 200000 | 300000 |
| Less : Variable Operating Costs | 50000 | 100000 | 150000 |
| Contribution | 50000 | 100000 | 150000 |
| Less :Fixed Operating Costs | 50000 | 50000 | 50000 |
| EBIT | ZERO | 50000 | 100000 |
|  | -100% |  | +100% |

From the above results, certain generalization can be made.

Case I: A 50% increase in sales (from 2000 to 3000 units) results in a 100% increase in EBIT (from 50,000 to 100,000).

Case II: A 50% decrease in sales (from 2000 to 1000 units) results in a 100% decrease in EBIT (from 50,000 to zero).

Operating leverage = Percentage change in EBIT

Percentage change in sales

= + 100% /+ 50% = 2 (case I),

= – 100% /– 50% = 2 (case II)

**Fixed Cost and Operating Leverage**

Changes in fixed operating costs affect operating leverage. Significantly, the higher the fixed operating costs, higher are the firms, operating leverage and its operating risks. High operating leverage is good when revenues are rising and bad when they are falling.

Operating risk is the risk of the firm not being able to cover is fixed operating costs. The larger is their magnitude, the larger is the volume of sales required to cost all fixed costs.

**Financial Leverage**

Financial leverage is defined as the ability of a firm to use fixed financial charges to magnify the effects in EBIT/operating profits, on the firm’s earning per share, the two fixed financial cost that may be found in the firm’s income statement are:

1. Interest on debt and

2. Dividends on preference shares.

These charges must be paid regardless of the amount of EBIT available to pay them.

The degree of financial leverage is the measure of the firms’ financial leverage and is calculated as:

Financial leverage = Percentage change in EPS

Percentage change in EBIT

Example: C Company Ltd. a small food company expects EBIT of 10,000 in the current year. It has 20,000 bonds with 10% (annual) coupon rate of interest and 600 shares of 4 (annual dividend on share) preferred stock outstanding. It has also 1000 equity shares outstanding. The firm is in the 40% tax bracket. Two situations are shown:

Case 1: A 40% increase in EBIT from 10,000 – 14,000

Case 2: A 40% decrease in EBIT from 10,000 – 6,000

The corresponding change in EPS is shown below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Case 2 – 40% | Base data | Case 1 + 40% |
| EBIT | 6000 | 10000 | 14000 |
| Less interest | 2000 | 2000 | 2000 |
| Net profit before tax | 4000 | 8000 | 12000 |
| Less tax @ 40% | 1600 | 3200 | 4800 |
| Net profit after tax | 2400 | 4800 | 7200 |
| Less preferred stock dividend | 2400 | 2400 | 2400 |
| Earnings available to equity shares | 0 | 2400 | 4800 |
| No. of shares | 1000 | 1000 | 1000 |
| Earnings per share (EPS) | 0 | 2.40 | 4.80 |
|  | -100% |  | +100% |

It is seen that in:

Case No. I – A 40% increase in EBIT has resulted in a 100% increase in earnings per share (from 2.40 to 4.80).

Case No. II – A 40% decrease in EBIT has results in a 100% decrease in earnings per share (from 2.40 to 0).

i.e., financial leverage is: 100%/ 40% = 2.5

The effect of financial leverage is such that an increase in the firm’s EBIT results in a more than proportional increase in the firm’s earnings per share, whereas a decrease in the firm’s EBIT results in a more than proportional decrease in EPS.

The financial leverage is favourable when the firm earns more on the investments/ assets financed by the sources having fixed charges. It is obvious that shareholders gain in a situation where a company earns a higher rate of return and pays a low rate to the supplier of long-term funds. Financial leverage in such cases is also called “trading in equity.”

**Significance of Financial Leverage**

Financial leverage is a double-edged sword. On the one hand, it increases earnings per share, and on the other hand it increases financial risk. A high financial leverage means high fixed financial cost and high financial risks, i.e., as the debt component in capital structure increases, the financial leverage increased and at the time of the financial risk also increases. i.e., risk of insolvency increases.

The finance manager is required to trade–off i.e., there has to be a balance between risk and return for determining the appropriate amount of debt in the capital structure of a firm.

**Combined Leverage**

Combined leverage or total leverage can be defined as potential use of fixed costs, both operating and financial, to magnify the effect of changes in sales on the firms, earnings per share. Total leverage or combined leverage can therefore be viewed as the total impact of the fixed cost in the firms operating and financial structure.

Combined leverage = operating leverage × financial leverage

= % change in EBIT X % change in EPS

% change in sales % change in EBIT

= % Change in EPS

% Change in Sales

**Significance of Combined Leverage**

A high operating leverage and a high financial leverage combination is very risky. If the company is producing and selling at a high level it will make extremely high profit for its shareholders. But, even a small fall in the level of operations would result in tremendous fall in earnings per share. A company must, therefore, maintain a proper balance between these two leverages.

A combination of high operating level and a low financial leverage indicates that the management is careful since the higher amount of risk involved in high operating leverage has been sought to be balanced by low financial leverage. However, a more preferable option would be to have a low operating leverage and a high financial leverage. A low operating leverage implies that the company reaches its breakeven point at a low level of sales. Therefore, risk is diminished. A highly cautious and conservative manager will keep both its operating and financial leverage at a very low level, but the approach may, however, mean that the company is losing profitable opportunities.