Leverage

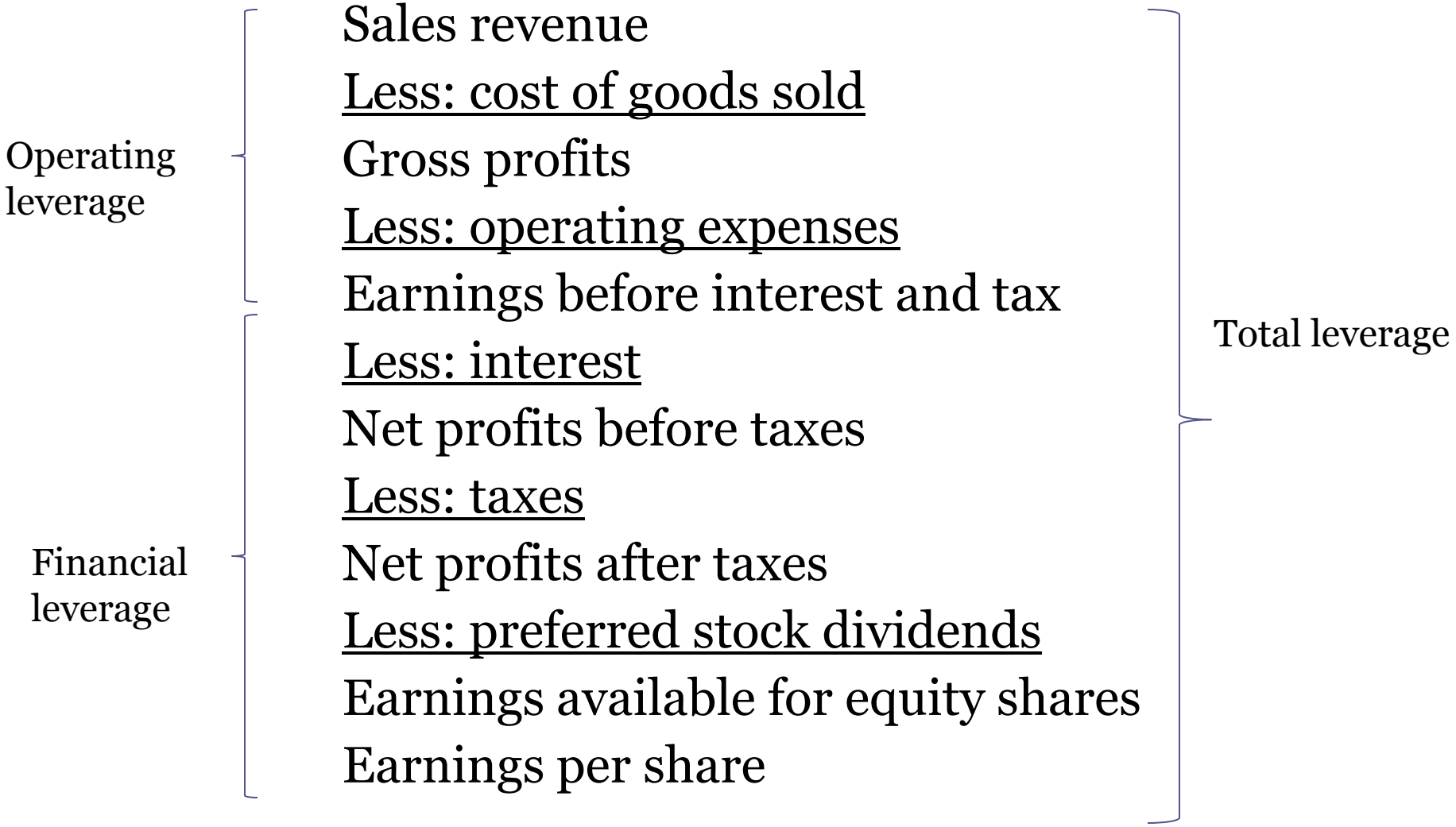
In finance, **leverage** (sometimes referred to as **gearing** in the United Kingdom and Australia) is any technique to multiply gains and losses. Most often it involves buying more of an asset by using borrowed funds, with the belief that the income from the asset or asset price appreciation will be more than the cost of borrowing.

- The amount of leverage in a firm's capital structure – the mix of long-term debt and equity maintained by the firm – can significantly affect its value by affecting return and risk
- Leverage helps both the investor and the firm to invest or operate. However, it comes with greater risk. Increase in leverage leads to increased return and risk.
- If an investor uses leverage to make an investment and the investment moves against the investor, his or her loss is much greater than it would've been if the investment had not been leveraged - leverage magnifies both gains *and* losses.
- In the business world, a company can use leverage to try to generate shareholder wealth, but if it fails to do so, the interest expense and credit risk of default destroys shareholder value.

Types of leverage

- **Operating leverage** is concerned with the relationship between the firm's revenue and its earnings before interest and taxes (EBIT).
- **Financial leverage** is concerned with the relationship between the firm's EBIT and its common stock earnings per share (EPS).
- **Total leverage** is concerned with the relationship between the firm's sales revenue and EPS

Income statement format



Operating vs. Financial Leverage

Operating Leverage

- Operating leverage is concerned with investment activities of the firm.
- It is determined by the cost structure of the firm.
- It is the firm's ability to use fixed operating costs to magnify the effects of changes in sales on its earnings before interest and taxes.
- The higher the proportion of fixed operating costs to the total operating costs in the cost structure of a firm, the higher is the degree of operating leverage.
- Degree of operating leverage enables us to measure the business risk associated with the firm.

Financial Leverage

- Financial leverage is concerned with financing activities of the firm.
- It is determined by the capital structure of the firm.
- It is the firm's ability to use fixed financial charges to magnify the effects of changes in EBIT on its earnings per share.
- The higher the proportion of fixe charges bearing capital to total financial changes in the capital structure of a firm, the higher is the degrees of financial leverage.
- Degree of financial leverage enables us to measure the degree of financial risk, associated with the firm.

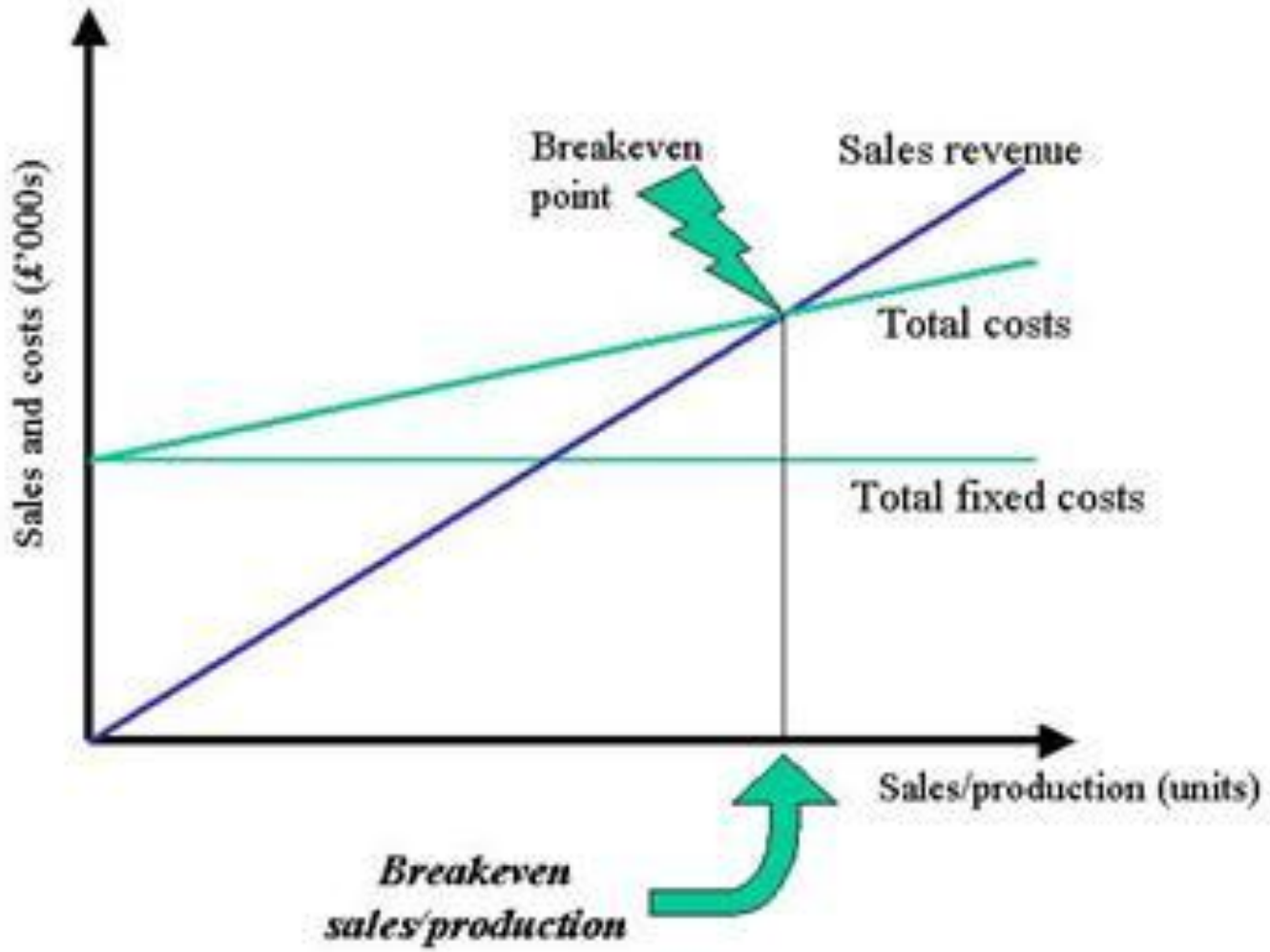
Breakeven analysis

- Also called cost-volume-profit analysis
- It is used
  - to determine the level of operations necessary to cover all costs
  - to evaluate the profitability associated with various levels of sales
- The firm's operating breakeven point is the level of sales necessary to cover all operating costs
- Cost of goods sold and operating expenses are divided into:
  - Fixed costs are a function of time, not sales volume and are typically contractual
  - Variable costs vary directly with sales and are a function of volume, not time

- Sales revenue — P x Q
- Less: fixed operating costs — FC
- Less: variable operating costs — VC x Q
- Earnings before interest and taxes — EBIT

- EBIT = (P x Q) – FC – (VC x Q)

- Break-even quantity = $\frac{FC}{P-VC}$


Breakeven point
Sales revenue
Total costs
Total fixed costs
Sales and costs (£'000s)
Sales/production (units)
Breakeven sales/production

Finolex Limited is currently selling a product at Rs 1000 per unit. It has VC of Rs. 500 per unit and FC of Rs. 200,000.

	300 units	400 units	500 units	600 units
Revenues	300,000	400,000	500,000	600,000
Variable operating costs	150,000	200,000	250,000	300,000
Fixed operating costs	200,000	200,000	200,000	200,000
Earnings before interest and taxes	(50,000)	0	50,000	100,000

How does the change in units sold compare with the change in EBIT?
The sensitivity of EBIT to changes in unit sales is referred to as the **degree of operating leverage**

Operating Leverage

- The potential to use fixed operating costs in the firm's income stream.
- A 25% increase in units sold (500 to 600 units) leads to a 100% increase in EBIT
- DOL is the numerical measure of the firm's operating leverage
- $$DOL = \frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$$

As long as DOI is greater than 1, there is operating leverage

The company has fixed expenses: $30,000, Tax rate: 50%, Outstanding shares: 10,000

Profit before interest and taxes	40,000	50,000	60,000
Interest expense	30,000	30,000	30,000
Profit before taxes	10,000	20,000	30,000
Tax	5,000	10,000	15,000
Profit after taxes	5,000	10,000	15,000
Earnings per share	0.50	1	1.50

How does a percentage change in PBIT lead to a percentage change in EPS? The sensitivity of profit before tax to changes in PBIT is referred to as the **degree of financial leverage**

Financial Leverage

- It results from the presence of fixed financial costs in the firm's income stream
- The two fixed financial costs that may be found on the firm's income statement:
  - Interest on debt
  - Preferred stock dividends
- A 20 percent change in PBIT leads to a 100 percent change in EPS.
- Degree of Financial Leverage is the numerical measure of a firm's financial leverage.
- DFL = $\frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$

When DFL is greater than 1, there is financial leverage.