

# Financial Management

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MGM424

**Lecture 8**



# Financial Management

## Lecture 8

MGM424 Capital Structure and Leverage

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Chapter

08

## Capital Structure and Leverage





Chapter

08

## Capital Structure and Leverage

- **Defining Capital Structure (Book vs. Market vs. Target Weights)**
- **Optimal Capital Structure & Changes Over Time**
- **Business vs. Financial Risk & Operating Leverage**

## *What Is Capital Structure?*

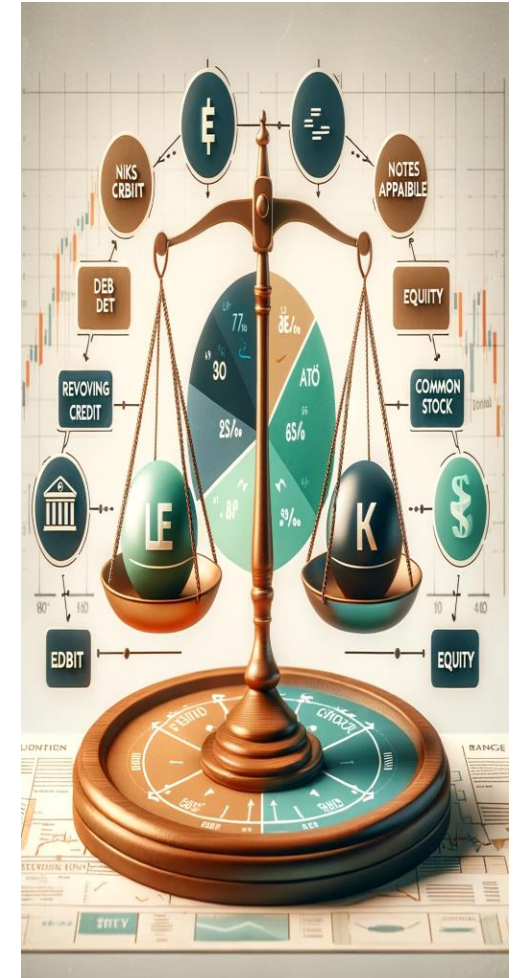
### Definition of Capital Structure

- **Capital structure** refers to the way a firm finances its overall operations and growth by using different sources of funds. The most common sources are **debt** and **equity**.
- This blend of debt and equity is **long term** in nature—meaning the firm expects to rely on these funds over many years rather than only for short-term needs.
- By choosing a particular capital structure, the firm decides how much of its financing comes from creditors (through loans and bonds) versus how much comes from owners (through issuing common or preferred stock).



## Elements of Capital Structure

- Although **long-term debt** (like bonds and notes payable) and **equity** (common and preferred stock) form the core of a company's capital structure, the line can blur for short-term obligations. Sometimes, firms treat certain **short-term debt** as part of their long-term financing strategy—for example, a revolving credit facility that continually renews.
- **Preferred stock** is often seen as a hybrid financing instrument. It has characteristics of both debt (it pays a fixed dividend) and equity (it typically does not confer voting rights).
- **Common equity** represents ownership in the firm. Shareholders who hold common stock have voting rights and share in the company's profits (via dividends or capital gains).



## Capital Structure – Core Concepts

### Significance for the Firm

- 1. Risk Profile:** Different mixes of debt and equity carry different levels of risk. A firm with high debt levels must make regular interest (and principal) payments, increasing the risk of **financial distress** if earnings fluctuate.
- 2. Cost of Capital:** A firm's **weighted average cost of capital (WACC)** depends on the proportion of debt versus equity. The “right” blend of debt and equity can lower the firm's WACC and **maximize its value**.
- 3. Shareholder Returns:** If the firm funds more with debt, **earnings per share (EPS)** may rise in good times because fewer shares are outstanding, and the cost of debt might be lower than the implied cost of issuing new equity.



## Book vs. Market vs. Target Weights

### Capital Structure Weights

#### Target Weights

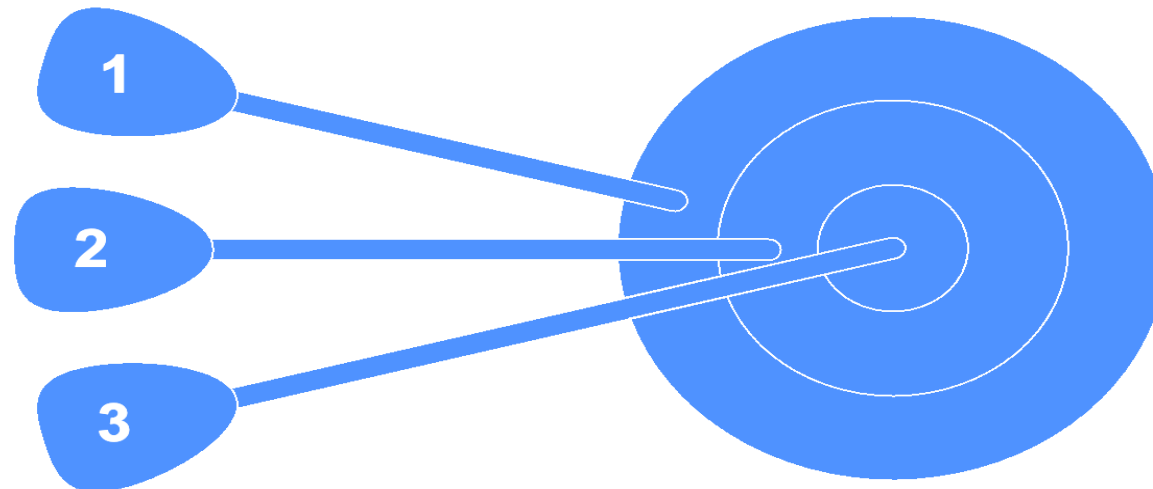
Desired debt-to-equity mix

#### Market Weights

Current market value perspective

#### Book Weights

Historical accounting values



## Book vs. Market vs. Target Weights

### *Measuring Capital Structure Components*

#### **1. Book Weights**

- **Definition:** Book values are taken straight from the accounting statements “Shareholders’ Equity,” and obligations shown in the liabilities section.
- **Usage:** Book weights can offer an historical or accounting-focused snapshot of the firm’s capital structure. They are simple to calculate since they come from standard financial statements.
- **Limitations:** Book values may not capture a company’s current economic reality because they are based on original costs minus depreciation or reflect past financing decisions.

## Book vs. Market vs. Target Weights

### *Measuring Capital Structure Components*

#### 2. Market Weights

- **Definition:** Market weights look at the current **market price** for both the firm's debt (what investors would pay for the bonds or loans if traded) and its equity (stock price multiplied by the total number of shares outstanding).
- **Rationale:** Because these values reflect **real-time investor sentiment** and prevailing market conditions, market weights often provide a more accurate picture of how the firm's financing is actually viewed by the market.
- **Importance:** Many financial decisions (such as estimating the **cost of capital**) rely on these market values. Investors and analysts typically use **market-based** calculations to gauge the firm's present capital structure.

## Book vs. Market vs. Target Weights

### *Measuring Capital Structure Components*

#### 3. Target Weights

- **Definition:** A firm's **desired or optimal** debt-to-equity mix. Management sets this based on strategic considerations: the firm's risk tolerance, industry norms, credit rating goals, and long-term growth objectives.
- **Function:** Serves as a **guiding benchmark**. When a firm's actual structure drifts away from the target—due to market fluctuations or new financing—the firm might issue or retire debt or equity to realign with the goal.
- **Dynamic Nature:** Target weights can change over time in response to shifts in the firm's operating environment, interest rates, or broader economic factors.

### *Measuring Capital Structure Components*

- **Key Insight**

- **Why Focus on Market & Target Weights?**

- 1. **Market Weights:** Provide the most relevant, up-to-date valuation of each financing component, which is crucial for accurate calculations of the **weighted average cost of capital (WACC)**.

- 2. **Target Weights:** Reflect the **long-term strategic choice** about how much debt vs. equity the firm wants to hold. Achieving and maintaining this target generally helps **minimize WACC** and **maximize the firm's value** over the long run.

- 1. Managers watch **market-based** metrics but also make **deliberate decisions** to move toward **target** weights, ensuring that financing remains aligned with the firm's risk and return preferences.

# Book vs. Market vs. Target Weights

## Why This Matters

### Capital Structure Weights and Their Implications

#### Valuing firm using book value

Valuing firm using book value provides a stable financial perspective.



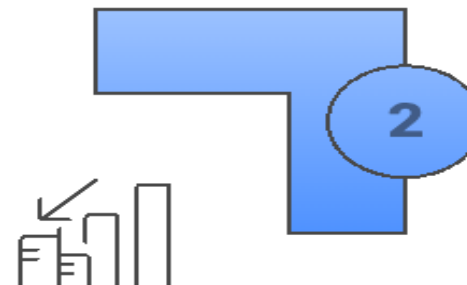
#### Internal management decisions

Internal management decisions focus on long-term strategic goals.



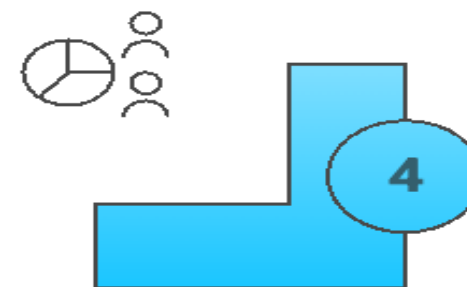
#### Adjusting target structure

Adjusting target structure helps manage cost of capital effectively.



#### Investor analysis

Investor analysis relies on current market conditions for insights.



## Why Capital Structure Matters

### *Capital Structure and Firm Value*

#### 1. Capital Structure's Impact on WACC

- The firm's **weighted average cost of capital (WACC)** is a blend of the cost of debt and the cost of equity, each weighted by how much of the firm's capital is financed by that source.
- **Debt** typically carries a lower cost than equity (especially after factoring in the **tax shield** from deductible interest). However, as debt levels grow, the cost of both debt and equity can rise due to higher perceived risk.
- Consequently, the **mix** of debt and equity can significantly affect the firm's overall WACC.

## Why Capital Structure Matters

### *Capital Structure and Firm Value*

#### **2. Lower WACC → Higher Firm Value**

- Assuming the firm's **operating income** (EBIT) stays the same, a **lower discount rate** (i.e., lower WACC) means the present value of future cash flows becomes higher.
- This is a key principle in corporate finance: at a given level of expected cash flows, **a lower cost of capital** generally results in a **higher valuation**.
- Thus, firms strive for an **optimal capital structure** that reduces WACC without taking on too much risk.

## Why Capital Structure Matters

### *Capital Structure and Firm Value*

#### 3. Balancing Benefits and Costs

- **Benefits** of debt include tax-deductible interest (reducing the firm's taxable income) and possibly a **discipline effect** on management (since fixed interest payments must be met).
- **Costs** of high leverage include the increased likelihood of **financial distress** and **bankruptcy risk**, which can lead to higher borrowing costs, weaker credit ratings, and more volatile stock prices.
- The **Trade-Off Theory** in capital structure underscores that a firm tries to balance these **marginal benefits** of additional debt (tax shield) against the **marginal costs** (increased default risk).

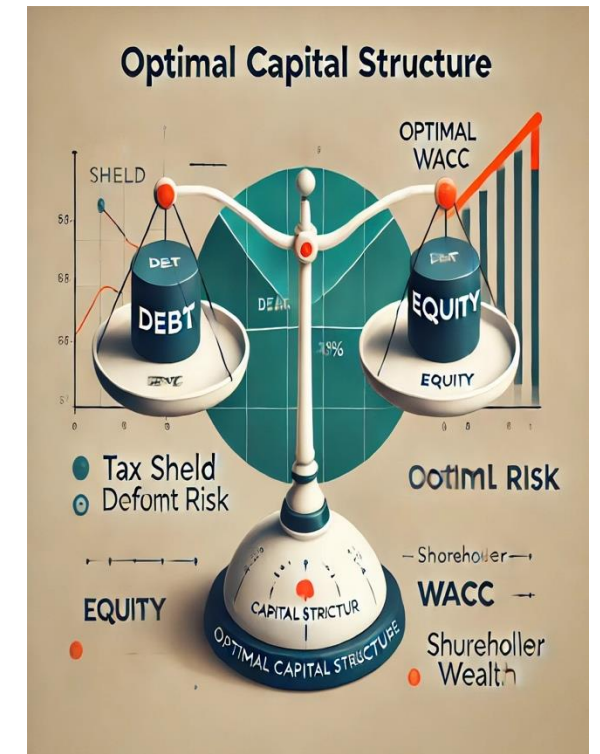
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# Optimal Capital Structure – Definition

*What Is “Optimal”?*

## 1. Optimal Capital Structure Concept

- **Definition:** The “optimal” combination of debt and equity is the one that **lowers the Weighted Average Cost of Capital (WACC)** to its minimum possible level.
- **Rationale:** By minimizing WACC, a firm maximizes the value of its future cash flows, which in turn **maximizes shareholder wealth**.
- **Trade-Off:** This ratio strikes a balance between the **benefits** of debt (e.g., interest tax shields) and the **costs** of too much borrowing (e.g., increased default risk).



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## Optimal Capital Structure – Definition

*What Is “Optimal”?*

## 2.Target Capital Structure

- **Long-Term Goal:** Companies often establish a **target range** for their debt-to-equity ratio. This range reflects a **strategic balance** between risk tolerance, industry norms, and investors' expectations.
- **Short-Term Fluctuations:** Actual capital structure can vary due to market changes (e.g., shifts in stock price or interest rates), internal factors (e.g., profit/loss variations), or specific financing transactions (e.g., issuing new debt to fund a major project).



## Factors Influencing Optimal Capital Structure

**1**

### **Future Capital Needs**

Future capital needs limit current debt capacity.



**2**

### **Stable Sales**

Stable sales enable higher debt due to predictable cash flows.



**3**

### **Economic Conditions**

Economic conditions impact market conditions and investor sentiment.



**4**

### **Corporate Tax Rate**

High corporate tax rate enhances debt attractiveness.



### *What Is “Optimal”?*

- **Key Influencing Factors**

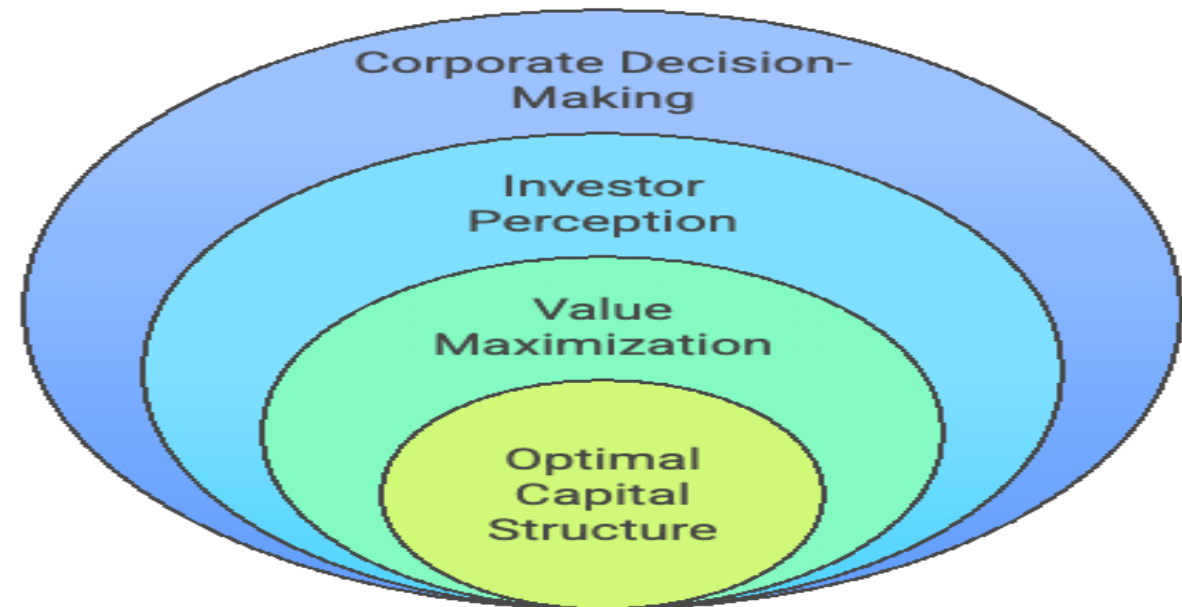
1. **Business Risk:** Firms with **stable sales and predictable cash flows** can usually handle more debt. Firms in volatile industries may need less leverage to avoid financial distress.
2. **Tax Environment:** Because interest is tax-deductible, a higher corporate tax rate generally increases the attractiveness of debt. However, changes in tax laws or considerations of personal taxes may complicate this benefit.
3. **Financial Flexibility:** Firms must consider their need to **raise capital** in the future. Having too much debt now can restrict the ability to borrow later or respond to unexpected opportunities.
4. **Market Conditions:** Economic conditions and investor sentiment affect interest rates and the cost of issuing equity.

## Optimal Capital Structure – Definition

### Why This Matters

#### Optimal Capital Structure

- Adjusts debt-equity mix strategically
- Influences creditor and shareholder confidence
- Enhances stability and reduces costs
- Core goal for financial stability



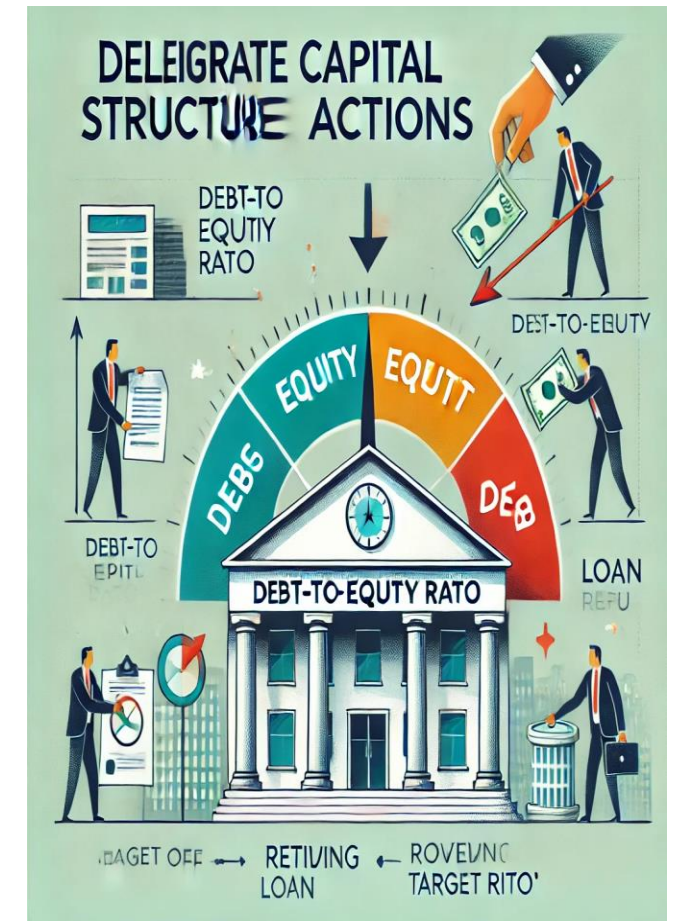
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# Changes in Capital Structure Over Time (I)

## Deliberate Actions

### 1. Deliberate Adjustments to Reach the Target Ratio

- Most companies maintain a specific **target capital structure**—a desired proportion of debt and equity.
- When the **actual** ratio drifts away from this target—due to market conditions, internal events, or strategic decisions—management can **actively intervene**.
- Common interventions include **issuing new equity** (to reduce leverage) or **retiring debt** (paying it off early or letting it mature without rolling it over), each moving the firm closer to its ideal mix.



*Deliberate Actions***2.If the Firm Is Below Its Target Debt Level**

- Sometimes a firm's current debt ratio is **too low** compared to the target. This can happen if the firm has paid down debt aggressively or if its equity value has risen significantly.
- **Possible Actions:**
  - **Borrow more:** The company might issue bonds or take on other forms of debt to finance expansions, acquisitions, or new projects.
  - **Share repurchases:** The firm can use borrowed funds to buy back outstanding shares, effectively **increasing** leverage by **reducing** equity.
- **Reasoning:** Being too far below the target might mean the firm is not taking advantage of the **tax shield** benefits of debt, or it may be missing out on a lower cost of capital.

*Deliberate Actions***3.If the Firm Is Above Its Target Debt Level**

- In some cases, the firm's debt ratio may be **too high**, which raises concerns about financial risk and potential distress.
- **Possible Actions:**
  - **Issue equity:** Selling new shares increases total equity, reducing the debt-to-equity ratio.
  - **Natural repayment of debt:** The firm may allow current obligations to **mature** or be paid off with operating profits rather than rolling them over. This approach often avoids sudden disruptions to the firm's capital structure.
- **Goal:** To reduce leverage gradually without causing negative signals or excessive dilution to existing shareholders.

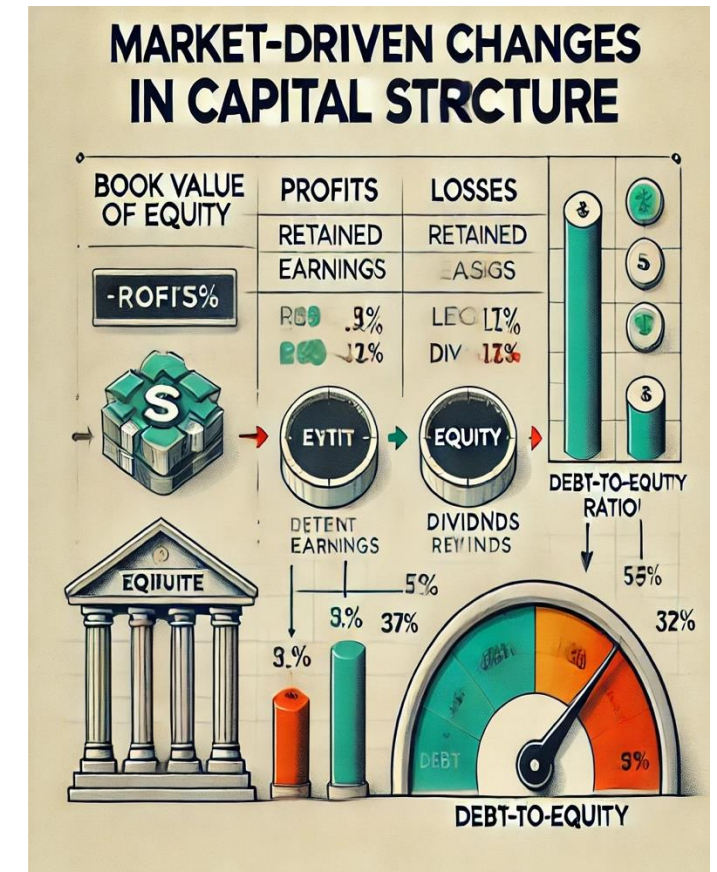
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## Changes in Capital Structure Over Time (II)

### Market-Driven Changes

#### 1. Profits or Losses Affect Book Value of Equity

- **Retained Earnings:** When a firm earns profits, those profits increase retained earnings, thereby **boosting** the **book value of equity**. Conversely, losses or dividend payouts reduce retained earnings, lowering book equity.
- Even if the firm takes **no active financing actions**, these natural fluctuations in retained earnings can **alter** the debt-to-equity ratio on the balance sheet.

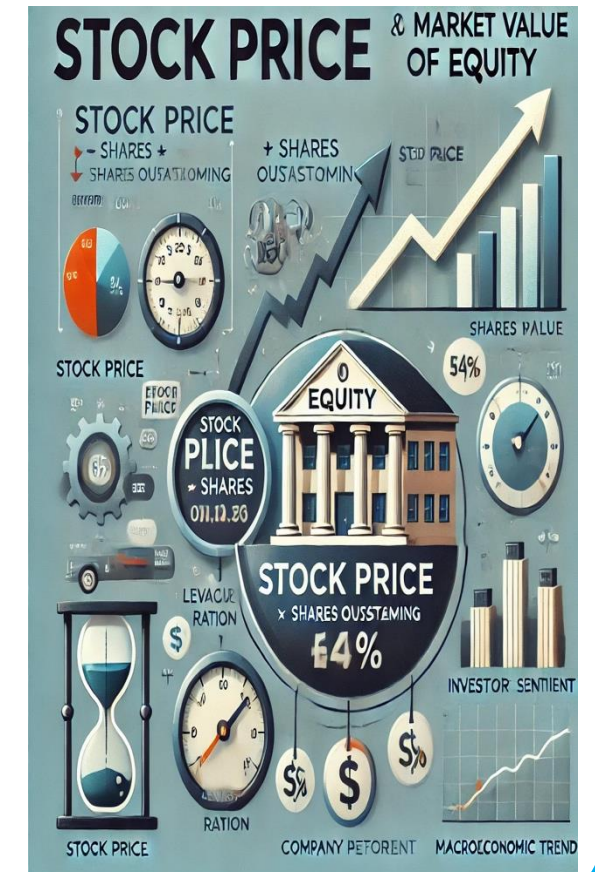


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## Changes in Capital Structure Over Time (II)

*Market-Driven Changes***2. Stock Price Fluctuations Change the Market Value of Equity**

- **Market-Based Ratios:** Investors value the company's equity based on stock price  $\times$  outstanding shares. This **market value** can change frequently in response to investor sentiment, company performance, macroeconomic factors, etc.
- If the stock price rises significantly, the **equity portion** of the capital structure **increases** in market terms, potentially **lowering** the overall leverage ratio (when measured by market values).



## Changes in Capital Structure Over Time (II)

### *Market-Driven Changes*

### 3.Changes in Interest Rates or Perceived Default Risk Can Alter the Market Value of Debt

- **Bond Prices vs. Yields:** As **interest rates** in the broader market go up or down, the **market price** of the firm's existing debt often **moves inversely**.
- **Default Risk Perception:** If investors perceive higher risk of default, they may demand a higher yield, which can cause **bond prices to fall**. Conversely, if the firm's perceived risk decreases, bond prices may rise.
- These changes can shift the **market-value proportion** of debt in the capital structure, even though the **book** value of debt remains relatively constant.

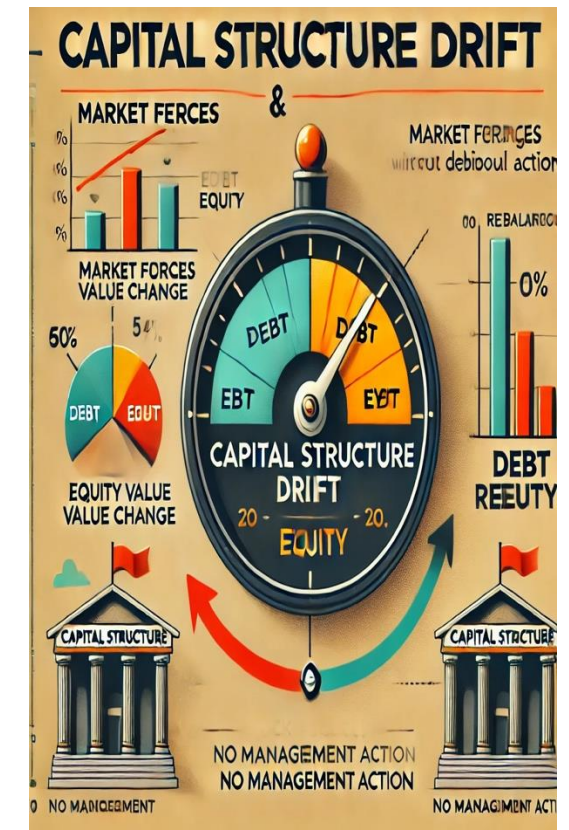
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## Changes in Capital Structure Over Time (II)

### Market-Driven Changes

#### 4.Result: Drift from Target, Even With No Action

- Because **market forces** and **operational results** can independently alter both equity and debt valuations, a firm's **actual** capital structure can **drift away** from its desired or **target** mix without any deliberate moves by management.
- This underscores why firms periodically **rebalance** their capital structure: to correct for these natural fluctuations and realign with strategic objectives.



## Changes in Capital Structure Over Time (II)

### *Market-Driven Changes*

#### **Why This Matters**

- **Passive vs. Active Changes:** Understanding how day-to-day market forces, interest rate shifts, and internal financial results can **unintentionally** move a firm's leverage is key to proactive management.
- **Ongoing Monitoring:** Firms often monitor their **capital structure** regularly, so they can decide if and when to take **corrective action** (issuing equity, repurchasing shares, retiring debt, etc.).
- **Market Sensitivity:** Awareness of these external factors helps managers anticipate changes in the **cost of capital** and adjust financing strategies to maintain financial stability and shareholder value.

## 1. Business Risk

- **Definition:** The inherent variability or uncertainty in a firm's **operating income** (EBIT) before considering any interest expenses.
- **Sources:**
  - **Sales volatility:** Changes in demand, competition, and economic conditions affect revenue.
  - **Cost structure:** Fluctuations in input prices (raw materials, labor) and how much of the firm's costs are fixed vs. variable.
  - **Industry dynamics:** Some industries (e.g., cyclical manufacturing) experience greater ups and downs than stable sectors (e.g., utilities).
- **Impact:** A company with significant business risk must be cautious about taking on additional obligations because variability in operating income could make it harder to cover fixed costs.

## 2. Financial Risk

- **Definition:** The extra **volatility of returns** to common shareholders when a firm employs **debt** financing.
- **Mechanism:** Debt introduces **fixed interest payments** that must be paid regardless of how much the firm earns.
- **Amplification:** When the firm's operating income is high, returns to equity holders can be boosted; however, if operating income falls, equity holders bear a disproportionate share of losses.
- **Consequences:** Higher debt raises the possibility of **financial distress** or **bankruptcy** if cash flows are insufficient to cover interest and principal repayments.

## Business Risk vs. Financial Risk

- **Interaction Between Business and Financial Risk**

1. **Total Risk:** A firm's overall risk profile combines both the inherent volatility of its operations (**business risk**) and the additional burden of debt payments (**financial risk**).
2. **Practical Implication:** Companies with **high business risk** often **limit** their use of debt to avoid magnifying that risk further. Conversely, firms with **stable** sales and profits (lower business risk) may feel more comfortable using **higher leverage**.
3. **Risk Management:** Balancing these two types of risk is crucial for long-term sustainability. A firm must ensure that it can withstand downturns in operating performance without risking default.

## Business Risk vs. Financial Risk

### Why This Matters

- **Capital Structure Decisions:** Understanding both forms of risk helps managers decide how much debt is prudent.
- **Investor Perspective:** Equity holders and creditors analyze the firm's operating environment (business risk) and capital structure (financial risk) to assess the firm's **overall stability**.
- **Strategic Flexibility:** Firms that properly manage and balance these risks can remain resilient through economic cycles and changing market conditions.



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## Factors Affecting Business Risk

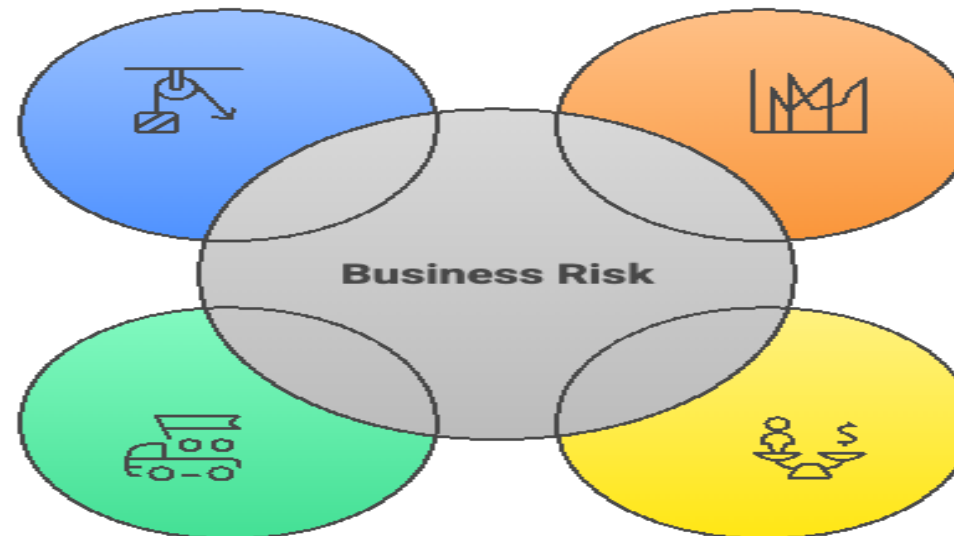
### Navigating Key Factors Influencing Business Risk Dynamics

#### Operating Leverage

The degree to which fixed costs are used affects sensitivity to sales changes.

#### Competition and Product Differentiation

The level of market competition and uniqueness of offerings influence risk.



#### Demand and Sales Price Variability

Fluctuations in consumer demand and pricing affect revenue predictability.

#### Input Cost Variability

Changes in the cost of raw materials impact profit margins.



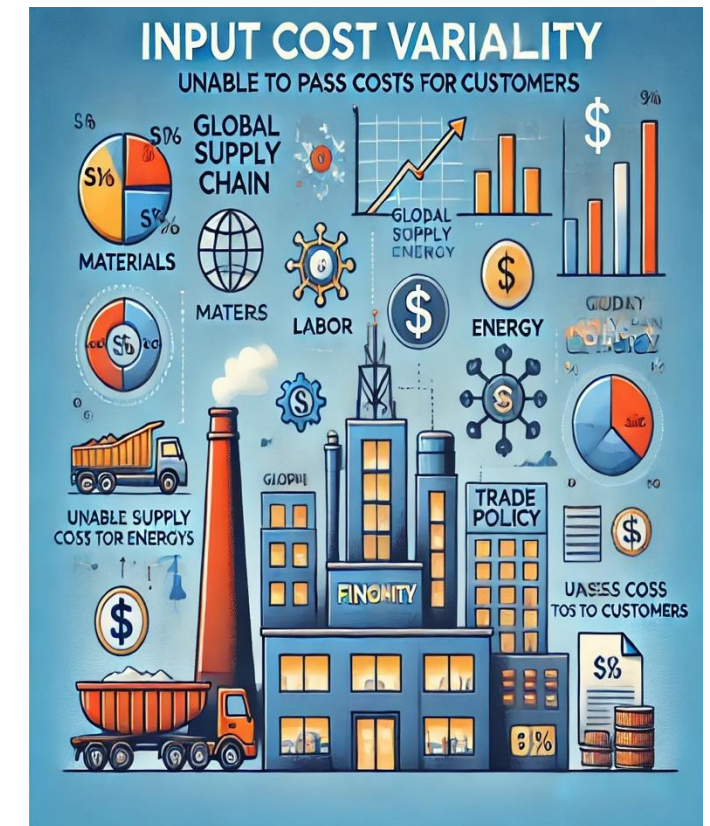
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## Factors Affecting Business Risk

### *Sources of Variability in Operating Income*

#### 2. Input Cost Variability

- **Definition:** Changes in the prices of essential inputs—materials, labor, energy—that affect production costs.
- **Causes:** Global supply chain disruptions, commodity price swings, wage inflation, or changes in trade policies.
- **Result:** If a firm cannot pass these cost increases on to customers through higher prices, **profit margins** may shrink, adding volatility to operating income.



## Sources of Variability in Operating Income

### 3.Competition and Product Differentiation

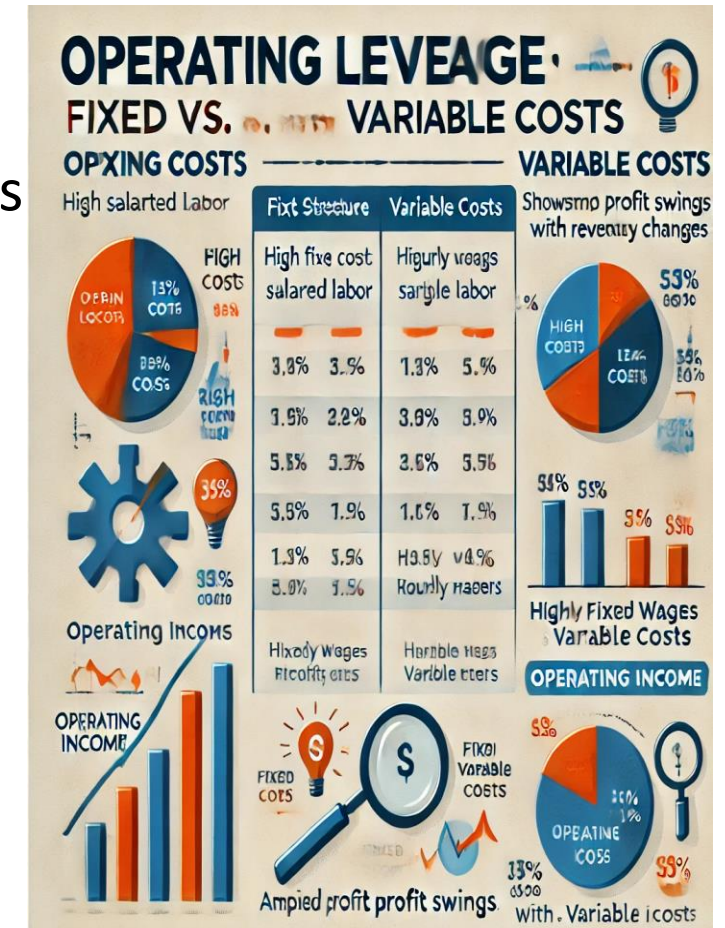
- **Competition Intensity:** Highly competitive markets force firms to keep prices low, reducing profitability margins and heightening volatility.
- **Product Differentiation:** If a firm has unique products (through innovation or brand strength), it may **reduce** competition's impact on its prices. Less differentiation can expose a firm to **price wars** and volatile market share.
- **Industry Structure:** Monopolistic or oligopolistic markets often have more stable income streams, whereas perfect competition can lead to intense price competition and unpredictable profits.



## 4. Operating Leverage (Fixed vs. Variable Costs Mix)

**Significance:** Firms with **high fixed costs** experience larger swings in operating income when sales fluctuate—because any revenue change is magnified once those fixed expenses are covered.

**Strategic Consideration:** Balancing fixed and variable costs can help stabilize earnings in the face of demand or price volatility.



### *Sources of Variability in Operating Income*

#### **Why This Matters**

- **Risk Management:** By understanding these sources of variability, firms can develop strategies (like hedging inputs or diversifying product lines) to mitigate swings in operating income.
- **Capital Structure:** A firm with **greater business risk** (from highly variable demand or costs) must be cautious about adding **financial risk** (debt), as the combined volatility can threaten solvency.
- **Competitive Strategy:** Identifying how competition and product positioning affect demand stability can guide decisions on pricing, investment, and growth.



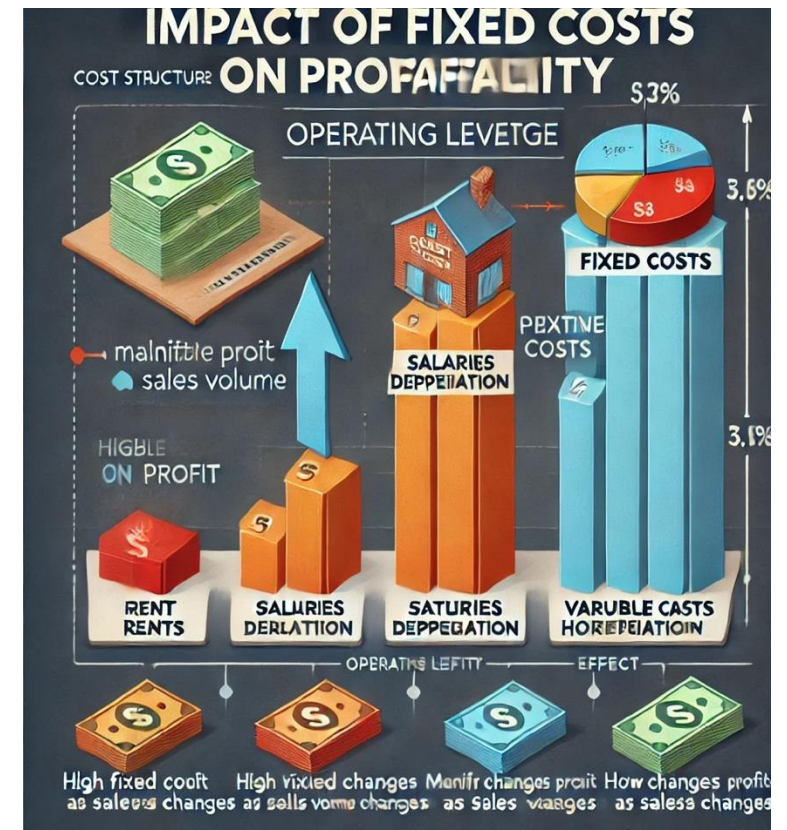
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# Operating Leverage

## Impact of Fixed Costs on Profitability

- Definition of Operating Leverage**

- Operating leverage** measures the extent to which a firm's **operating expenses** are **fixed** rather than variable.
- Fixed costs—like rent, machinery depreciation, insurance, salaried staff—**do not** change in the short term, even if output or sales volume changes.
- In contrast, variable costs—like materials or hourly wages—**rise** or **fall** with production volume.



## Operating Leverage

### *Impact of Fixed Costs on Profitability*

- **Higher Operating Leverage**

1. Firms with **high operating leverage** (i.e., a larger share of fixed costs) experience a **greater proportionate change** in operating income (EBIT) for a **given percentage change** in sales.
2. **Upside Impact:** If sales increase above the level needed to cover fixed costs, profits can grow very quickly because each additional sale contributes more to EBIT after covering fixed expenses.
3. **Downside Impact:** Conversely, if sales drop, a firm still must pay its high fixed costs, causing a more **rapid decline** in EBIT (and potentially leading to losses faster).

## Operating Leverage

### *Impact of Fixed Costs on Profitability*

- **Real-World Example**

1. Consider a **manufacturing firm** that invests heavily in automation and machinery (fixed costs). If the firm's **sales volume** rises (e.g., due to higher demand), a large chunk of revenue above the break-even point goes directly to profit because fixed costs have already been paid.
2. Conversely, if demand falls, the same high fixed costs erode profits quickly, amplifying the negative impact on EBIT.



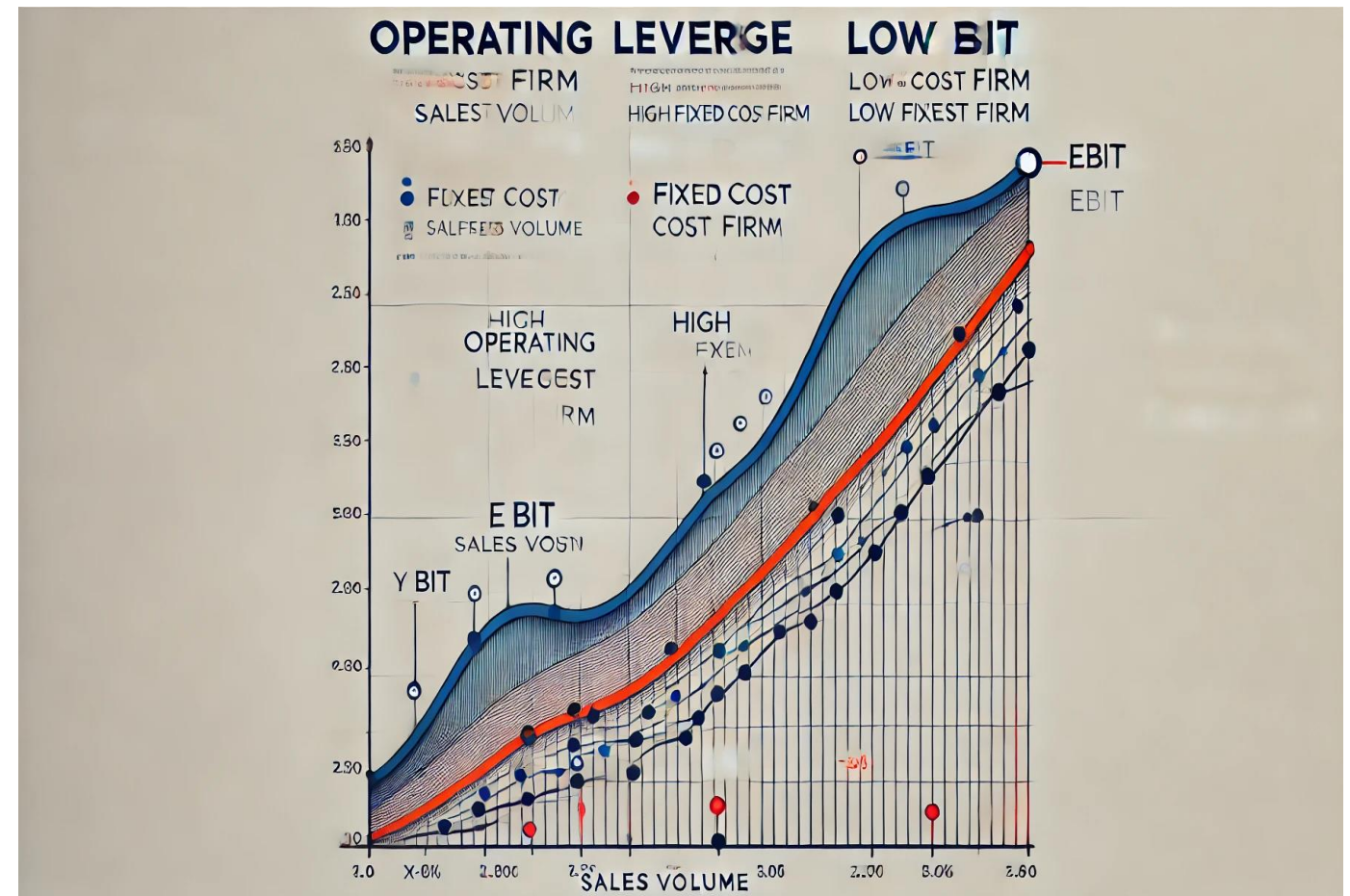
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# Operating Leverage

comparing a **high fixed cost** firm vs. a **low fixed cost** firm:

1. Show the **EBIT** on the y-axis, and **Sales Volume** on the x-axis.
2. The slope of the **high fixed cost** line becomes steeper after passing the break-even point, illustrating how a **small change** in sales volume leads to a **larger change** in EBIT.



## Operating Leverage

### Why This Matters

- **Risk and Return:** High operating leverage can significantly **boost profits** in economic upswings but also **magnify losses** during downturns.
- **Capital Structure Considerations:** Firms with **high operating leverage** often prefer **lower financial leverage** (less debt), as combining both forms of leverage can dangerously increase total risk.
- **Strategic Planning:** Understanding operating leverage helps managers **forecast profit volatility**, set **pricing strategies**, and decide on **outsourcing** or **expanding** production capacity.

## Operating Breakeven

### *Finding the Breakeven Point*

- **Formula:**

$$Q_{BE} = \frac{\text{Fixed Costs}}{\text{Price per Unit} - \text{Variable Cost per Unit}}$$

- **Interpretation:** Sales level at which **EBIT = 0**.
- **Importance:** Highlights the volume needed to cover **fixed expenses**.
- **Example:** If a company's **fixed costs** are \$100,000, **price** = \$20/unit, **variable cost** = \$10/unit,

then  $Q_{BE} = 10,000$  units.

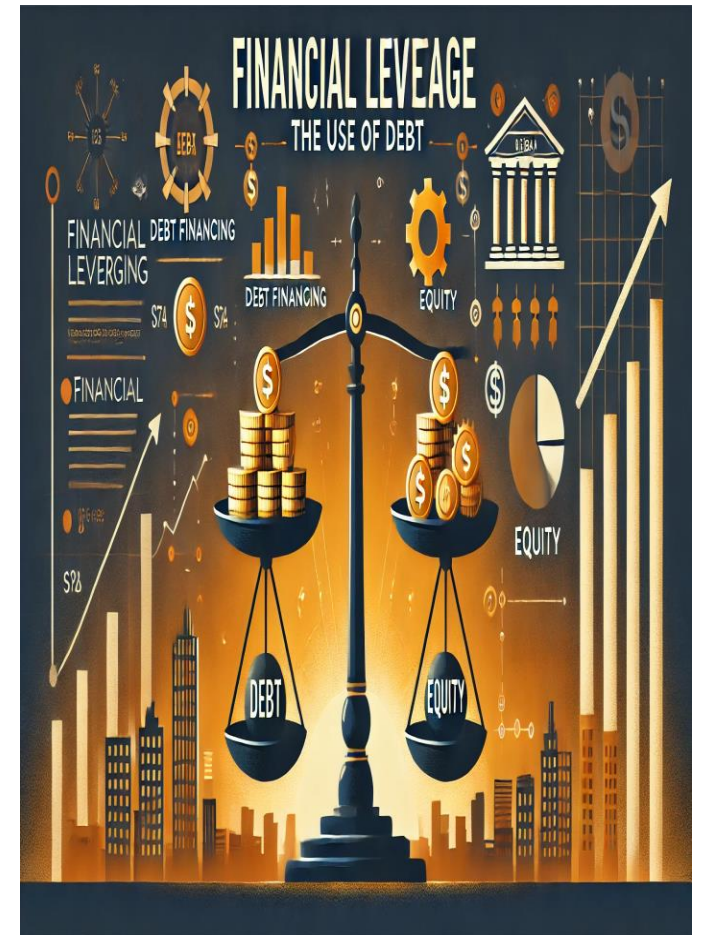
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## Financial Risk and Leverage

*Financial Leverage Defined*

- **Financial Leverage: The Use of Debt**

1. **Definition:** Financial leverage refers to how much **debt financing** (or other fixed-payment obligations, such as leases or preferred stock) a firm employs relative to its equity.
2. **Purpose:** A company might take on debt to **finance growth**, invest in new projects, or repurchase equity. Since debt typically has a lower cost than equity (especially after-tax benefits), using leverage can lower the overall cost of capital if managed properly.



### *Financial Leverage Defined*

- **Magnification of Returns and Losses**

1. **Positive Side:** In periods of high operating income, interest payments on debt are fixed, so the additional earnings **accrue** predominantly to shareholders, leading to higher **return on equity (ROE)**.
2. **Negative Side:** In an economic downturn, **fixed interest** obligations remain, and a drop in operating income can quickly erode or eliminate profits available to shareholders. This can lead to heightened **financial distress** and potential **bankruptcy** if debt obligations can't be met.



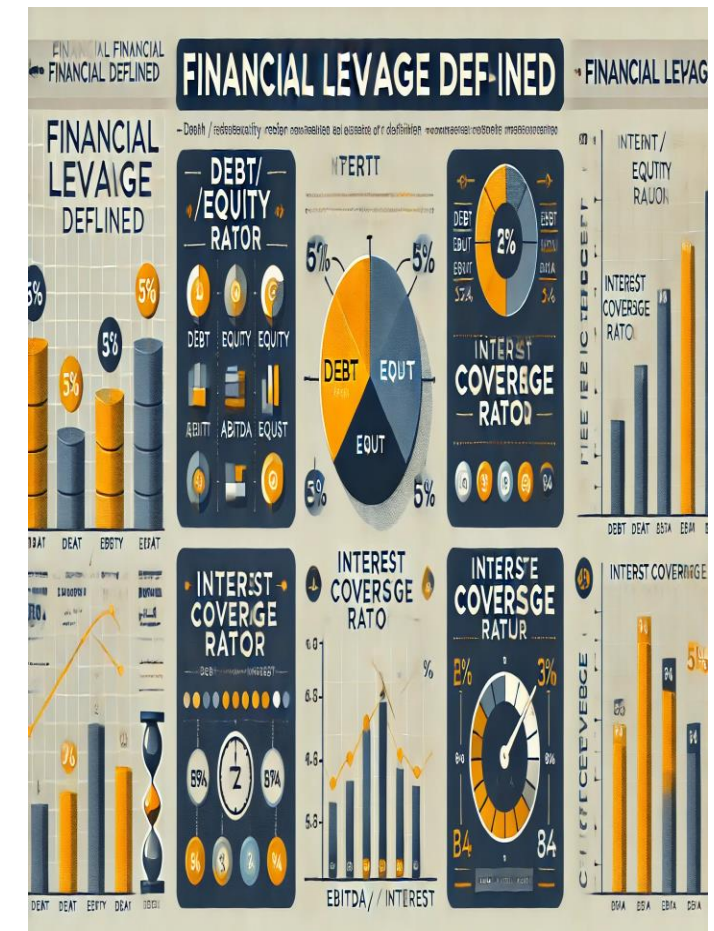
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# Financial Risk and Leverage

## Financial Leverage Defined

- Metrics to Gauge Financial Leverage**

- 1. Debt/Equity Ratio:** Compares total debt to the total equity on the balance sheet, indicating how “levered” a firm is.
- 2. Interest Coverage Ratio (EBIT ÷ Interest Expense):** Shows how comfortably a firm can cover its interest payments with operating income. A low coverage ratio suggests higher risk.
- 3. Other Measures:** Debt/Assets, EBITDA/Interest Coverage, and credit ratings can also signal the level of financial risk.



## Financial Risk and Leverage

### Why This Matters

- **Risk-Return Trade-Off:** While leveraging can enhance returns when business conditions are favorable, it also **exacerbates losses** in tougher markets.
- **Capital Structure Decisions:** Choosing the right degree of leverage is a **strategic decision** that balances potential gains against the risk of financial distress.
- **Investor and Creditor Confidence:** Lenders and investors closely track leverage ratios, as high debt levels may imply **higher interest costs** and **volatility** in earnings, affecting the firm's creditworthiness and perceived stability.





Thank You