

Introduction to Finance

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MGM 237

**Cost of Capital, Capital Structure,
and Dividend Policy**

Lecture 9



Chapter

9

Cost of Capital, Capital Structure, and Dividend Policy

Learning Outcomes

Students will be able to:

- Explain financing choices and capital structure.
- Estimate cost of debt, preferred stock, and common equity.
- Calculate WACC and connect it to investment decisions.
- Analyze growth, leverage, and dividend policy.

Course Roadmap Integration

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** This lecture connects valuation, risk, return, and capital budgeting.
- 02** A firm must finance projects at a cost that reflects investor required returns.
- 03** Good financing supports positive-NPV projects and firm value maximization.
- 04** Dividend policy determines how much profit is paid out versus retained for growth.

Invest
Capital budgeting



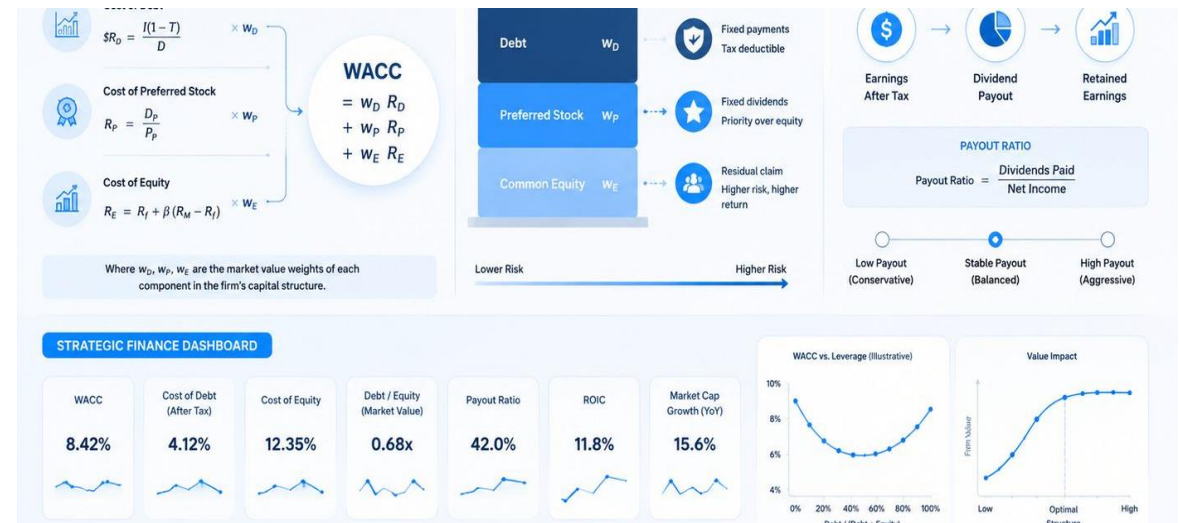
Finance
Capital structure



Distribute
Dividend policy

Manager's Insight

Lecture 9 shows how earlier finance topics work together before Lecture 10 on AI in finance.



Quick Example

A firm accepts a positive-NPV project only if its expected return exceeds the appropriate cost of capital.

Financing Decisions and Firm Value

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Financing decisions determine how assets are funded.
- 02** Sources of financing include debt, preferred stock, common equity, and retained earnings.
- 03** The financing mix affects risk, required returns, and WACC.
- 04** Lower WACC can increase firm value when investment risk is controlled.

Funding mix
Debt + equity

Risk and cost
Required returns

Firm value
Higher PV

Manager's Insight

A financing decision is good only if it supports value-creating investments.



Quick Example

If cheaper financing reduces WACC from 11% to 9%, more projects may have positive NPV.

What Is Capital Structure?

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Capital structure is the long-term financing mix used to finance the firm's assets: debt, preferred stock, and common equity.
- 02** It shows how the firm chooses to finance long-term assets.
- 03** Different firms use different mixes depending on risk, assets, growth, and market conditions.
- 04** There is no single perfect capital structure for all companies.

Capital Structure = Long-term Debt + Preferred Stock + Common Equity

Manager's Insight

Capital structure is a policy choice, not an accounting accident.



Quick Example

A utility may use more debt than a young technology firm because its cash flows are usually more stable.

Debt Financing

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Debt means borrowing money with a legal promise to pay interest and principal.
- 02** Interest payments are fixed contractual obligations.
- 03** Debt can be cheaper than equity because lenders take less risk than owners.
- 04** Too much debt increases financial risk and pressure on cash flows.

Borrow
Receive funds



Pay interest
Fixed cost



Repay principal
Maturity

Manager's Insight

Debt can improve returns, but it also increases the risk of financial distress.



Quick Example

A firm borrows \$5 million at 8%; it must pay interest even if profit declines.

Equity Financing

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Equity financing raises funds from owners or shareholders.
- 02** Common shareholders have residual claims after creditors are paid.
- 03** Equity does not require fixed interest payments.
- 04** Issuing new equity can dilute ownership and earnings per share.

Issue shares
Raise funds

Share ownership
Residual claim

No fixed payment
Flexible

Manager's Insight

Equity is safer for cash flow but usually more expensive for the firm.



Quick Example

A firm issues new shares to fund expansion; it avoids debt payments but existing owners now own a smaller percentage.

Preferred Stock Financing

Financing choices connect risk, return, growth, dividends, and firm value.

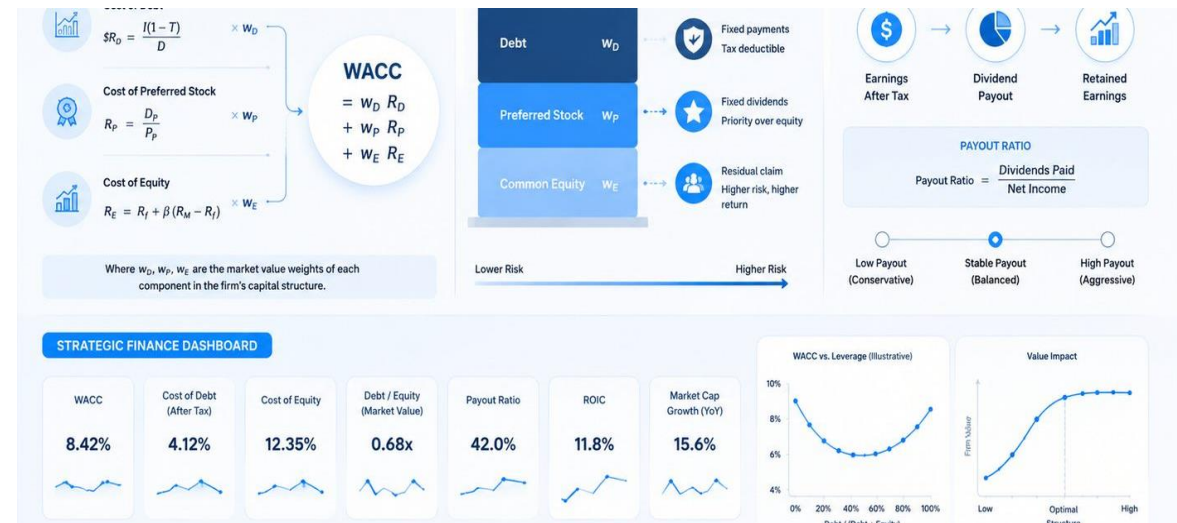
Core explanation

- 01** Preferred stock is a hybrid security between debt and common equity.
- 02** Preferred shareholders usually receive fixed dividends.
- 03** Preferred dividends are normally paid before common dividends.
- 04** Preferred stock may be useful when a firm wants financing without issuing more debt.

$$\text{Cost of Preferred Stock} = \frac{\text{Preferred Dividend}}{\text{Net Proceeds}} = \frac{D_p}{(P_p - F_p)}$$

Manager's Insight

Preferred stock can provide stable financing, but it still has a cost to investors.



Quick Example

A preferred share pays \$6 yearly and sells for \$60 with no flotation cost; cost = $6/60 = 10\%$.

Internal Financing through Retained Earnings

Financing choices connect risk, return, growth, dividends, and firm value.

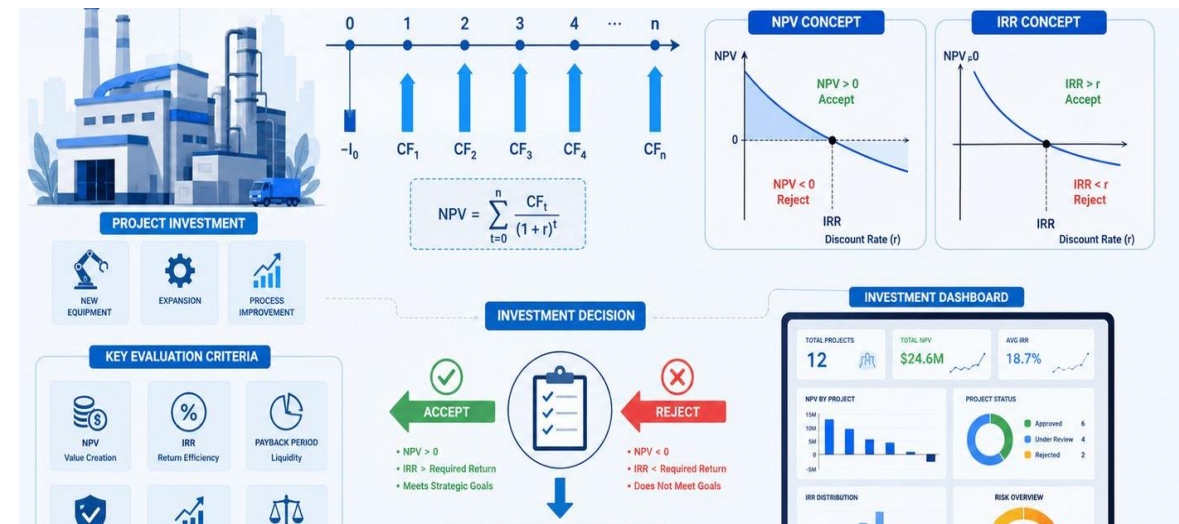
Core explanation

- 01** Retained earnings are profits kept inside the firm instead of paid as dividends.
- 02** They are a major internal source of equity financing.
- 03** Retained earnings still have a cost because shareholders could have received and invested them elsewhere.
- 04** High-growth firms often retain more earnings to fund future projects.

$$\text{Retention Rate} = 1 - \text{Dividend Payout Ratio}$$

Manager's Insight

Retained earnings are not free; they belong economically to shareholders.



Quick Example

If the payout ratio is 35%, the retention rate is 65%; the firm keeps 65% of earnings for reinvestment.

Financial Leverage

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Financial leverage means using fixed-cost financing, especially debt.
- 02** Leverage can magnify shareholder returns when operating income is strong.
- 03** Leverage also magnifies losses when operating income declines.
- 04** The more debt a firm uses, the more sensitive EPS becomes to EBIT changes.

Debt use
Fixed interest



EBIT changes
Higher sensitivity



EPS impact
Magnified

Manager's Insight

Leverage is powerful because it changes both expected return and financial risk.



Quick Example

If EBIT rises, fixed interest leaves more income for shareholders; if EBIT falls, interest still must be paid.

Business Risk versus Financial Risk

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Business risk comes from operations before financing decisions.
- 02** Financial risk comes from using debt or other fixed-cost financing.
- 03** A risky business usually should be careful about adding too much financial risk.
- 04** Total risk affects required returns and firm value.

Risk Type	Source	Managerial Meaning
Business risk	Sales/cost uncertainty	Operating stability matters
Financial risk	Debt and fixed payments	Capital structure matters

Manager's Insight

A firm should not ignore business risk when deciding how much debt to use.



Quick Example

A seasonal company with unstable sales may avoid heavy debt because interest must be paid even in weak months.

Advantages of Debt

Financing choices connect risk, return, growth, dividends, and firm value.

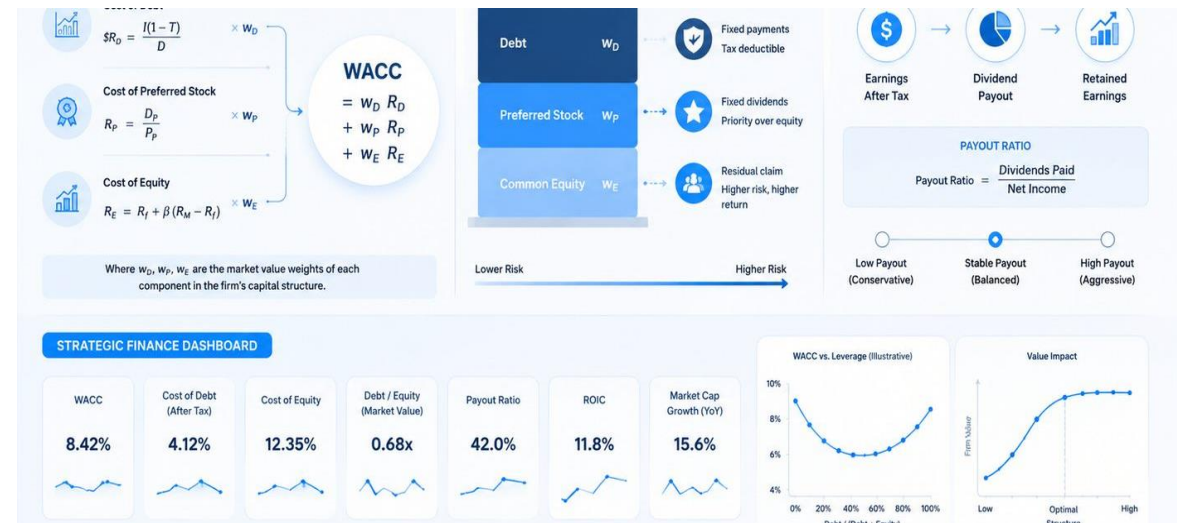
Core explanation

- 01** Debt may have a lower required return than equity.
- 02** Interest expense is usually tax-deductible.
- 03** Debt does not dilute current shareholders' ownership.
- 04** Moderate debt can discipline managers by requiring regular cash payments.

$$\text{Tax Shield Benefit} = \text{Interest Expense} \times \text{Tax Rate}$$

Manager's Insight

The tax benefit of debt is one reason debt can reduce WACC.



Quick Example

Interest of \$100,000 with a 30% tax rate creates a tax shield of \$30,000.

Disadvantages of Debt

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Debt creates fixed interest and principal obligations.
- 02** Too much debt increases the probability of financial distress.
- 03** Lenders may impose covenants that restrict managerial flexibility.
- 04** Higher leverage can increase the cost of both debt and equity.

More debt
Fixed payments



More risk
Distress
probability



Higher costs
Required returns

Manager's Insight

Debt becomes dangerous when cash flows are not strong enough to support fixed obligations.



Quick Example

A firm with high debt may have to reject a good project because lenders limit additional borrowing.

Advantages of Equity

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Equity does not require fixed interest payments.
- 02** It improves financial flexibility during difficult periods.
- 03** More equity can reduce the risk of bankruptcy.
- 04** Equity financing can support growth when cash flows are uncertain.

Raise equity
No fixed interest

→

Lower distress
More flexibility

→

Support growth
Risk capacity

Manager's Insight

Equity financing can be the safer source when projects are risky or cash flows are uncertain.



Quick Example

A start-up often uses equity because it may not have stable cash flows to service debt.

Disadvantages of Equity

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Common equity is often more expensive than debt.
- 02** Issuing new shares can dilute ownership and control.
- 03** Equity investors may demand high returns because they bear residual risk.
- 04** New equity issues can signal that management believes shares are overvalued.

Issue shares
Raise capital



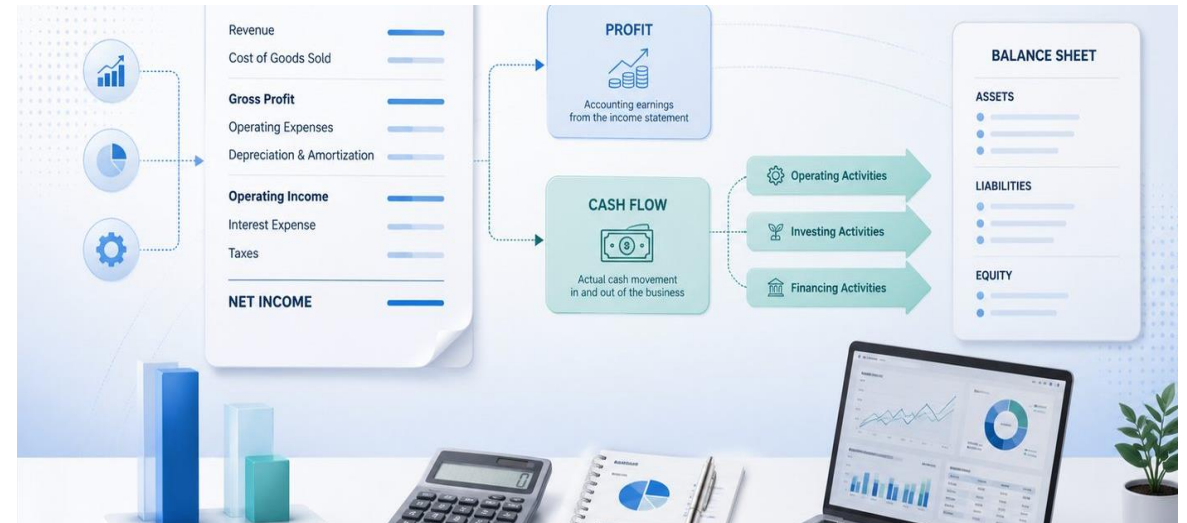
Dilution
Ownership falls



Higher cost
Residual risk

Manager's Insight

Equity reduces fixed-payment pressure but may increase the cost of capital.



Quick Example

If new shares are issued, EPS may decline unless the new project increases earnings enough.

Optimal Capital Structure Concept

Financing choices connect risk, return, growth, dividends, and firm value.

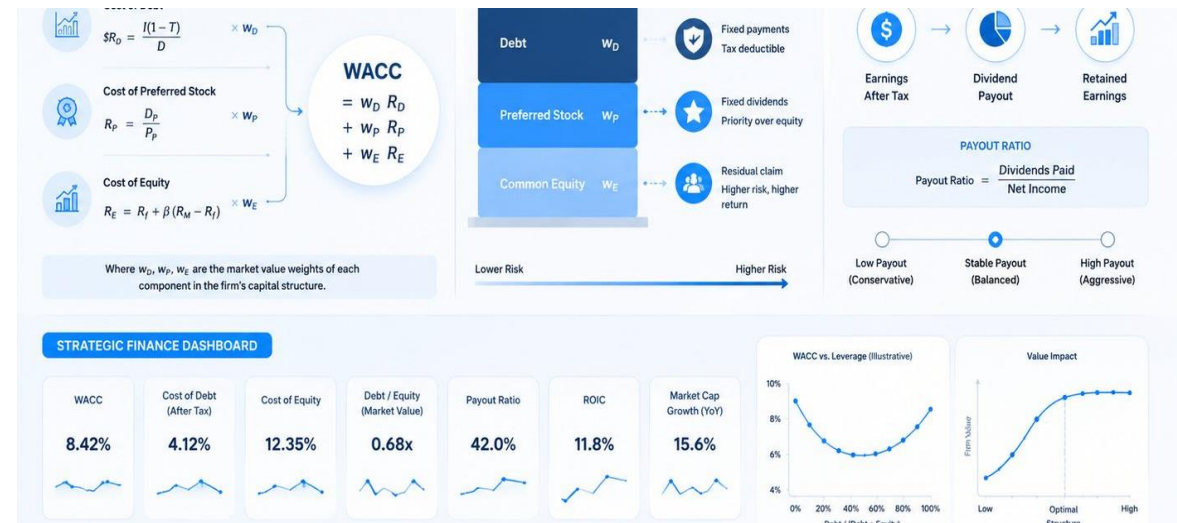
Core explanation

- 01** An optimal capital structure is the financing mix that maximizes firm value.
- 02** It balances the benefits of debt with the costs of financial distress.
- 03** The practical goal is often a target range, not a single exact percentage.
- 04** Managers consider risk, taxes, flexibility, growth, and industry norms.

Optimal mix: Benefits of debt $\approx$ Costs of financial distress

Manager's Insight

The optimal structure changes as the firm's strategy and market conditions change.



Quick Example

A stable mature firm may target more debt; a high-growth volatile firm may target more equity.

Cost of Capital Definition

Financing choices connect risk, return, growth, dividends, and firm value.

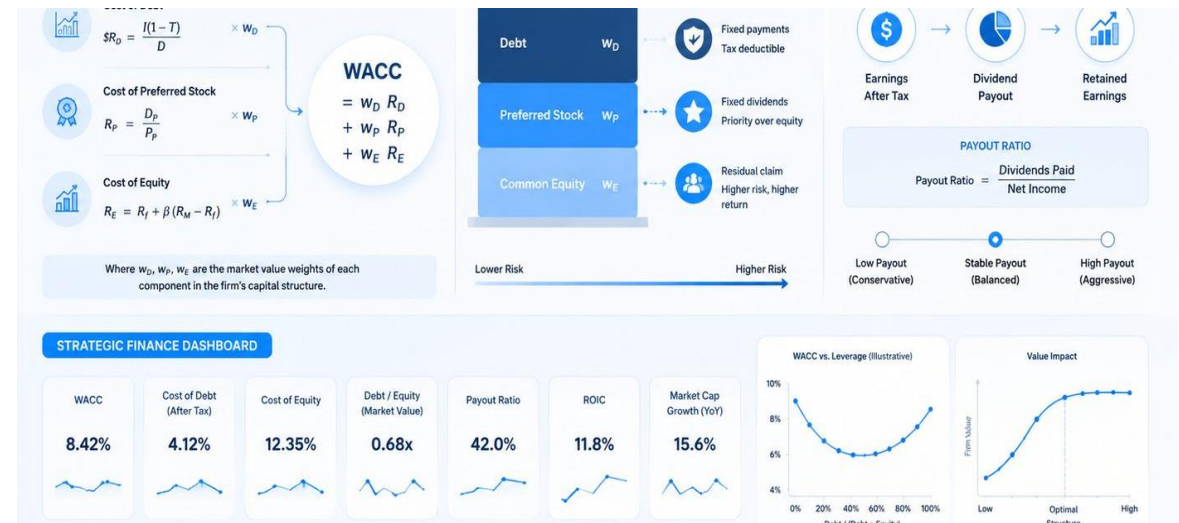
Core explanation

- 01** Cost of capital is the return investors require for providing funds to the firm.
- 02** It is also the firm's opportunity cost of using capital.
- 03** For capital budgeting, it becomes the discount rate for average-risk projects.
- 04** It connects financing decisions with investment decisions.

Cost of Capital = Required Return = Discount Rate

Manager's Insight

A project creates value only when its expected return exceeds its appropriate cost of capital.



Quick Example

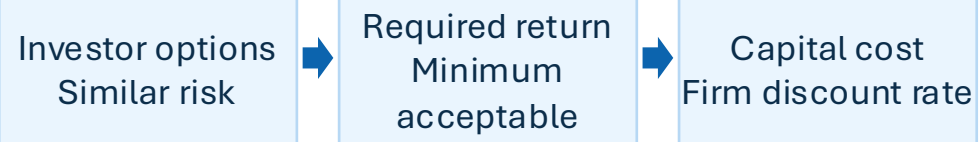
If a project earns 13% and the cost of capital is 10%, it may add value before other risks are considered.

Required Return and Opportunity Cost

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 Investors compare the firm's securities with other investments of similar risk.
- 02 The required return compensates investors for time and risk.
- 03 If the firm cannot offer an adequate expected return, investors will invest elsewhere.
- 04 Opportunity cost is the return lost by choosing one investment over another.



Manager's Insight

Cost of capital is determined by investor expectations, not by management preference.



Quick Example

If investors can earn 12% on similar-risk investments, they will not accept 8% from this firm.

Cost of Debt

Financing choices connect risk, return, growth, dividends, and firm value.

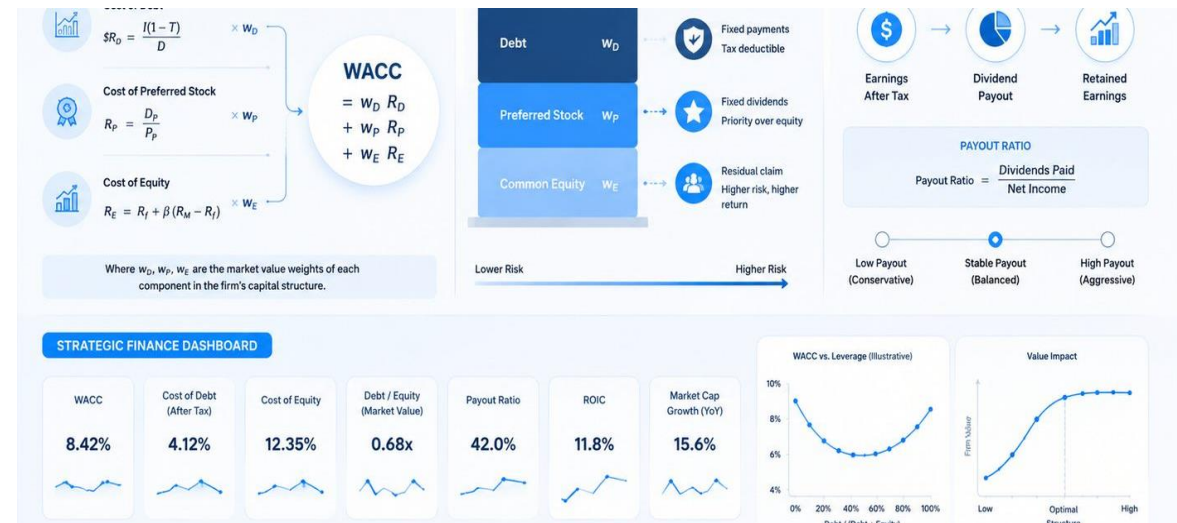
Core explanation

- 01** Cost of debt is the return lenders require on the firm's borrowing.
- 02** It should be estimated from the current market yield on new or comparable debt, not from historical coupon rates.
- 03** Riskier firms pay higher borrowing costs.
- 04** For WACC, debt cost is usually used after tax.

Before-tax Cost of Debt = Market Yield on Debt

Manager's Insight

The relevant cost is the current market cost, not only the coupon rate on old debt.



Quick Example

If a company can issue new bonds at 9%, the before-tax cost of debt is about 9%.

After-Tax Cost of Debt

Financing choices connect risk, return, growth, dividends, and firm value.

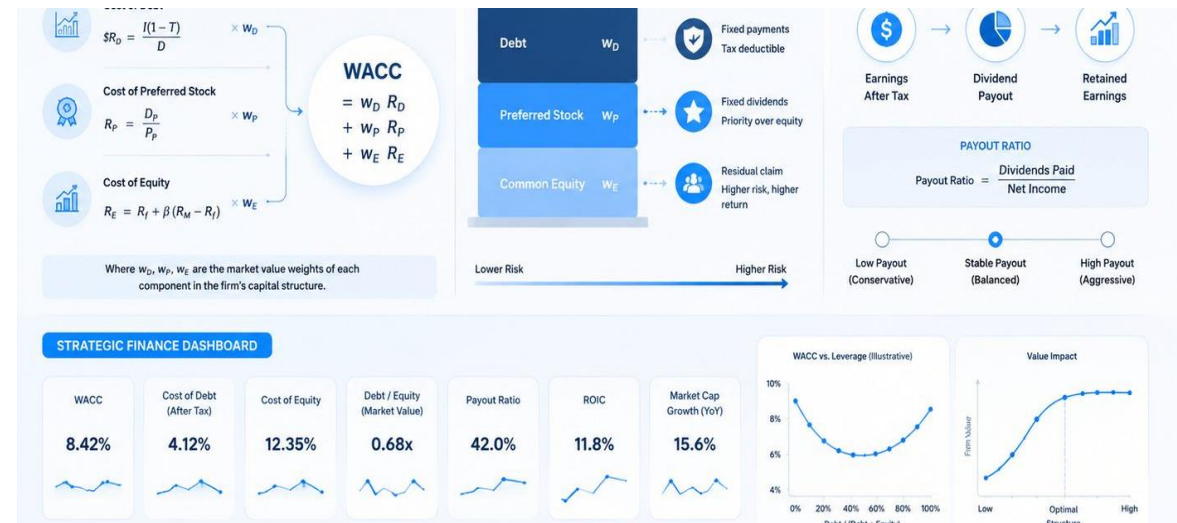
Core explanation

- 01** Interest expense is usually tax-deductible.
- 02** The tax deduction reduces the effective cost of debt to the firm.
- 03** WACC uses after-tax debt cost for consistency with after-tax cash flows.
- 04** A higher tax rate increases the value of the interest tax shield.

$$\text{After-tax Cost of Debt} = r_d \times (1 - \text{Tax Rate})$$

Manager's Insight

Debt is partly attractive because taxes reduce its effective cost.



Quick Example

If $r_d = 9\%$ and tax rate = 30%, after-tax debt cost = $9\% \times 0.70 = 6.3\%$.

Cost of Preferred Stock

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 Preferred stock usually pays a fixed dividend.
- 02 Because preferred stock often has no maturity, it is valued like a perpetuity.
- 03 Cost equals annual preferred dividend divided by net proceeds when flotation costs exist.
- 04 Flotation costs can be considered when issuing new preferred stock.

$$r_p = D_p / (P_p - F_p)$$

If no flotation cost: $r_p = D_p / P_p$

Manager's Insight

Preferred stock cost is simple because the payment is usually fixed.



Quick Example

If no flotation cost, dividend = \$5 and price = \$50; cost of preferred stock = 10%.

Cost of Retained Earnings

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 Retained earnings are internal common equity.
- 02 They still have an opportunity cost because shareholders could have received dividends.
- 03 The cost of retained earnings is the required return on common equity.
- 04 It can be estimated using CAPM or the dividend growth approach.

r_s = Cost of Retained Earnings = Required Return on Common Equity

Manager's Insight

Internal equity is easier to use, but it is not costless.



Quick Example

If shareholders require 11%, retained earnings should be charged at about 11% in capital budgeting.

Cost of New Common Stock

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 New common stock is external equity financing.
- 02 It may be more expensive than retained earnings because of flotation costs.
- 03 Issuing new stock may also create market signals and ownership dilution.
- 04 Use the net proceeds received by the firm when estimating cost.

$$r_{e(\text{new})} = D1 / (P0 - \text{Flotation Cost}) + g$$

Manager's Insight

New equity should be used carefully because it is often the most expensive source of capital.



Quick Example

If $D1 = \$2$, price = $\$40$, flotation cost = $\$2$, and $g = 4\%$, cost = $2/38 + 4\% = 9.26\%$.

CAPM Approach to Cost of Equity

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** CAPM estimates the required return on equity using systematic risk.
- 02** Beta measures how sensitive the stock is to market movements.
- 03** The market risk premium is the extra return investors require over the risk-free rate.
- 04** Higher beta leads to higher required return.

$$r_e = r_f + \beta \times (r_m - r_f)$$

Manager's Insight

CAPM connects Lecture 7 risk concepts directly to the cost of equity.



Quick Example

If $r_f=4\%$, $\beta=1.2$, and market premium= 6% , $r_e = 4\% + 1.2 \times 6\% = 11.2\%$.

Dividend Growth Approach to Cost of Equity

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 This approach uses expected dividends, current stock price, and growth.
- 02 It works best for stable dividend-paying firms.
- 03 D1 is the dividend expected next year.
- 04 g is the expected constant dividend growth rate.

$$r_e = D1 / P_0 + g$$

Manager's Insight

The model is simple, but very sensitive to the growth assumption.



Quick Example

If $D1 = \$2.50$, $P_0 = \$40$, and $g = 4\%$, $r_e = 2.50/40 + 4\% = 10.25\%$.

Weighted Average Cost of Capital

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

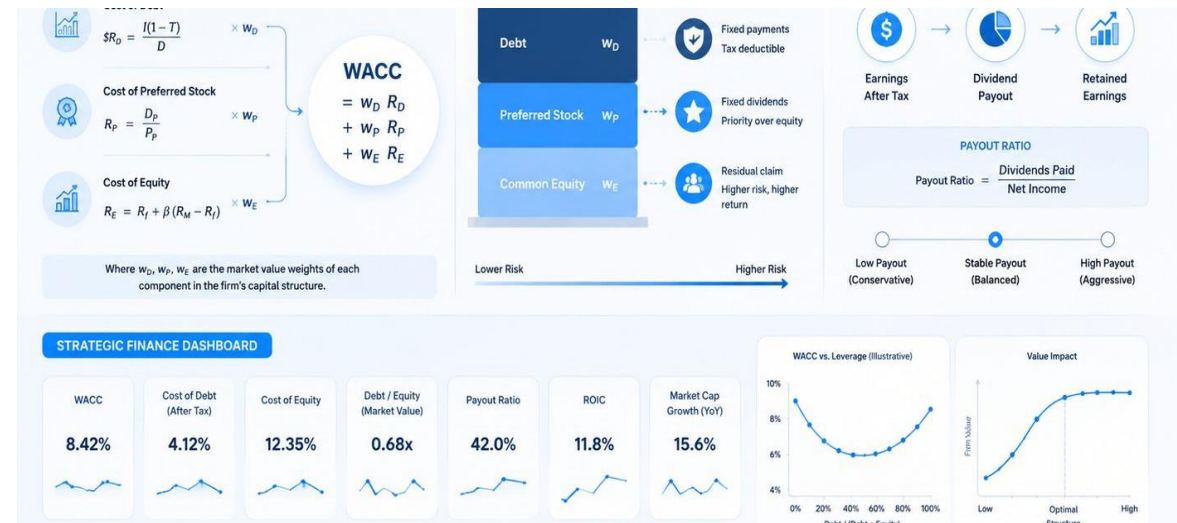
- 01** WACC combines the cost of each financing source.
- 02** Each cost is weighted by its target capital-structure proportion, preferably based on market-value weights.
- 03** WACC is used as the discount rate for average-risk projects.
- 04** A lower WACC increases the present value of expected cash flows.

$$WACC = w_D k_D + w_P r_P + w_E r_E$$

where $k_D = r_D(1-T)$

Manager's Insight

WACC is the bridge between financing policy and project evaluation.



Quick Example

If $w_D=40\%$, $k_D=6\%$, $w_P=10\%$, $r_P=9\%$, $w_E=50\%$, $r_E=12\%$, $WACC = 9.3\%$.

Capital Structure Weights

Financing choices connect risk, return, growth, dividends, and firm value.

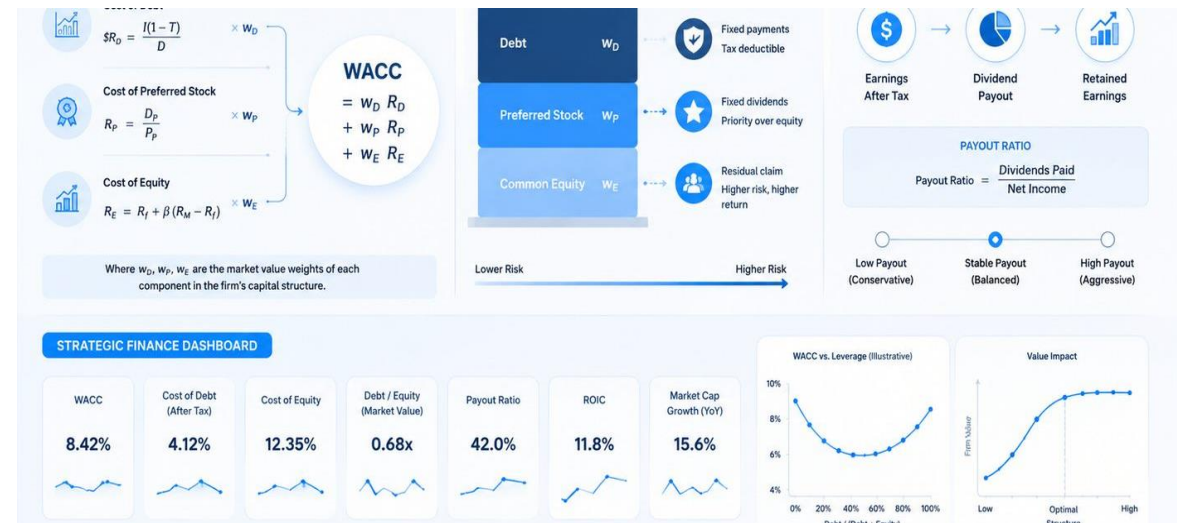
Core explanation

- 01** Weights represent the percentage of financing from each capital source.
- 02** Weights should sum to 100%.
- 03** For WACC, target weights are usually preferred over accidental current weights.
- 04** Weights must match the same sources included in WACC.

$$w_D + w_P + w_E = 100\%$$

Manager's Insight

Wrong weights can produce a misleading WACC even if the component costs are correct.



Quick Example

Debt 40%, preferred 10%, equity 50%; total = 100%, so weights are complete.

Book Value Weights versus Market Value Weights

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Book value weights come from accounting records.
- 02** Market value weights reflect current investor valuation.
- 03** Market-value weights are generally more relevant; target weights are preferred for estimating WACC when available.
- 04** Book values may be outdated when market prices change significantly.

Weight Type	Source	Use
Book value	Balance sheet	Accounting view
Market value	Current prices	Investor view

Manager's Insight

Capital markets price securities today, so market weights usually better reflect current financing costs.



Quick Example

A bond may have book value of \$1,000 but market value of \$920; WACC should consider current market value.

Target Capital Structure

Financing choices connect risk, return, growth, dividends, and firm value.

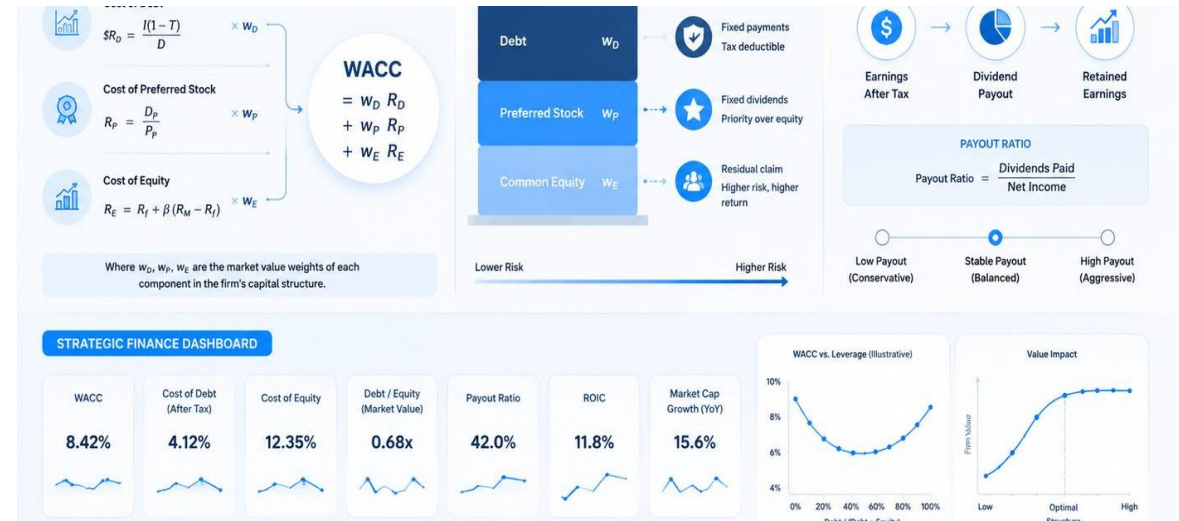
Core explanation

- 01** Target capital structure is the financing mix management aims to maintain over time.
- 02** It reflects strategy, risk tolerance, and access to capital markets.
- 03** Firms may temporarily deviate from target weights.
- 04** A target structure helps estimate WACC consistently.

Target Structure = Planned Long-term Financing Mix

Manager's Insight

Target weights convert capital structure from a historical outcome into a managerial policy.



Quick Example

Management may target 45% debt and 55% equity even if current market values temporarily differ.

WACC Decision Use

Financing choices connect risk, return, growth, dividends, and firm value.

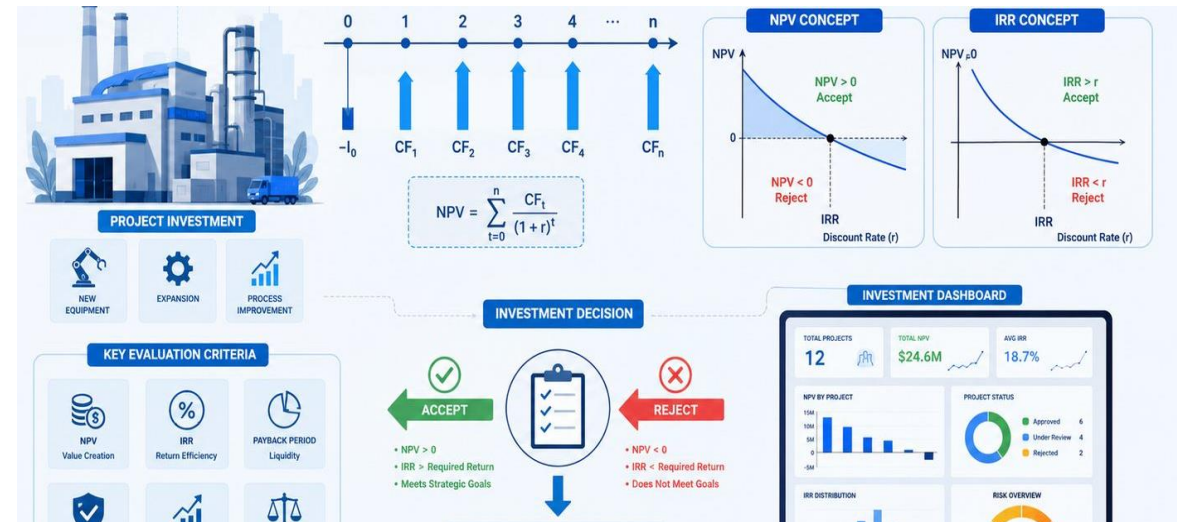
Core explanation

- 01** WACC is used to evaluate average-risk projects.
- 02** Accept projects with returns greater than the appropriate cost of capital.
- 03** Reject projects that earn less than the required return.
- 04** Adjust the discount rate when project risk differs from firm average risk.

Accept if Project Return > Risk-Adjusted Cost of Capital

Manager's Insight

WACC is not a universal rate for every project; risk matters.



Quick Example

A safe replacement project may use a lower rate than a risky expansion into a new market.

WACC and Capital Budgeting

Financing choices connect risk, return, growth, dividends, and firm value.

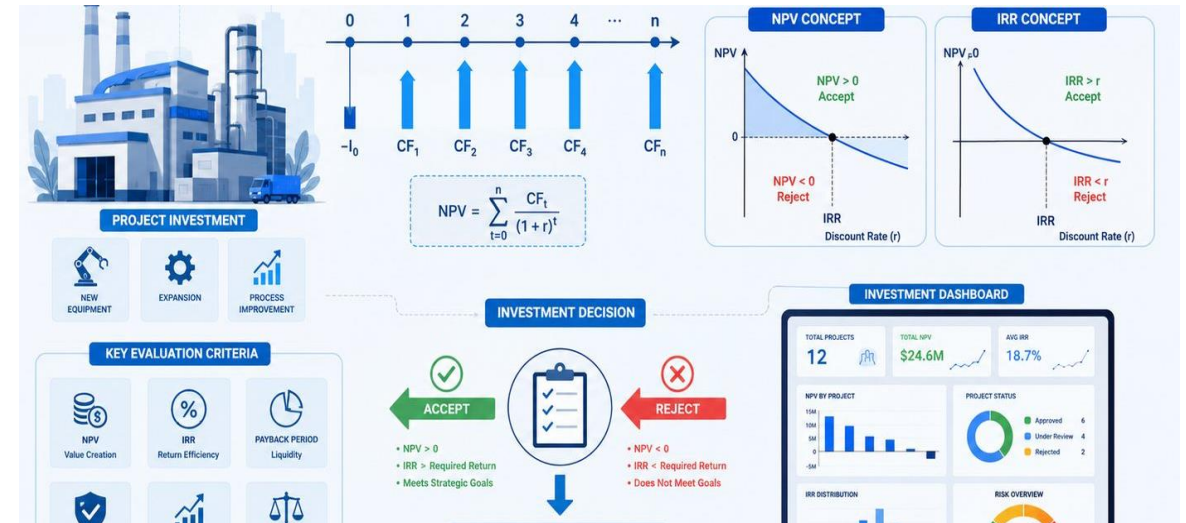
Core explanation

- 01 Capital budgeting estimates project cash flows.
- 02 WACC provides the discount rate for average-risk investment projects.
- 03 Using too low a WACC may lead to accepting bad projects.
- 04 Using too high a WACC may lead to rejecting good projects.

$$\text{NPV} = \text{PV of Future Cash Flows} - \text{Initial Investment}$$

Manager's Insight

The quality of NPV depends on both cash-flow estimates and the correct discount rate.



Quick Example

If a project's NPV is positive at 10% WACC but negative at 14%, discount-rate choice matters.

WACC and Firm Valuation

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 Firm value can be estimated by discounting expected free cash flows.
- 02 WACC is often used as the discount rate for free cash flow to the firm.
- 03 Lower WACC increases firm value when cash flows are unchanged.
- 04 Risk, growth, and capital structure influence WACC and valuation.

Firm Value = PV of Expected Free Cash Flows discounted at WACC

Manager's Insight

A financing policy creates value when it supports cash flows and lowers risk-adjusted capital cost.



Quick Example

If expected FCF is stable, reducing WACC from 11% to 9% increases the present value of those cash flows.

Limits of WACC

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** WACC is an estimate, not a perfectly exact number.
- 02** It changes as market rates, risk, and capital structure change.
- 03** It is best for projects with risk similar to the firm's existing operations.
- 04** Different divisions or projects may require different discount rates.

Average risk
Use WACC



Higher risk
Raise rate



Lower risk
Lower rate

Manager's Insight

A single company-wide WACC can be misleading for very different projects.



Quick Example

A restaurant chain should not evaluate a risky technology investment using the same rate as a store renovation.

EBIT/EPS Analysis

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** EBIT/EPS analysis compares financing plans using earnings before interest and taxes.
- 02** It shows how EPS changes under different capital structures.
- 03** More debt increases EPS sensitivity to EBIT.
- 04** This tool helps managers evaluate leverage choices.

$$\text{EPS} = [(\text{EBIT} - \text{Interest}) \times (1 - T)] / \text{Shares Outstanding}$$

Manager's Insight

EBIT/EPS analysis shows potential return and financial risk together.



Quick Example

A debt plan may produce higher EPS when EBIT is high, but lower EPS when EBIT is weak.

Indifference Point

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

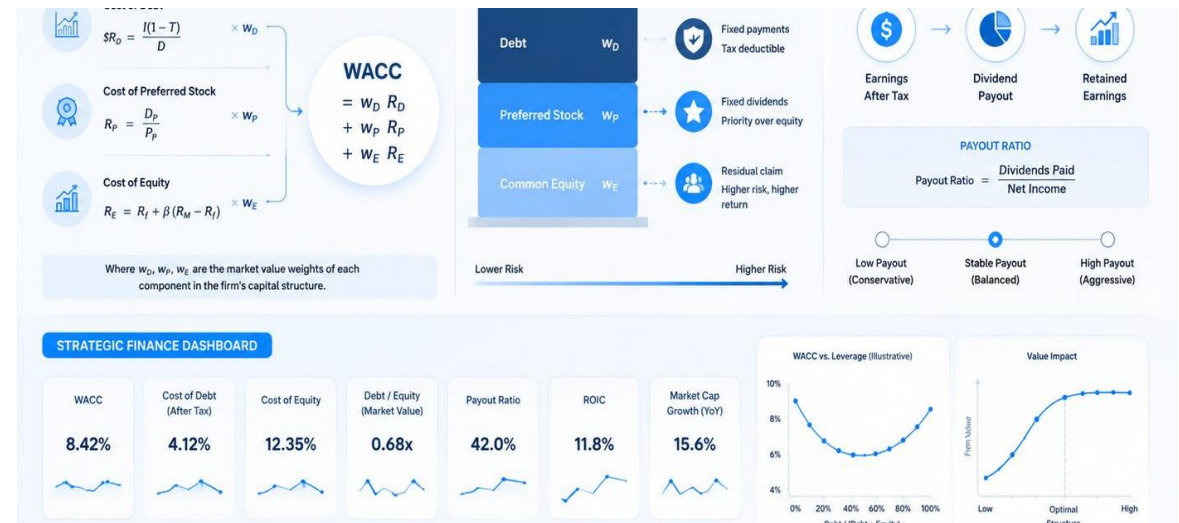
- 01** The indifference point is the EBIT level where two financing plans give the same EPS.
- 02** Below that EBIT level, one plan may be better.
- 03** Above that EBIT level, the more leveraged plan may produce higher EPS.
- 04** The result depends on interest cost, tax rate, and number of shares.

$$\text{EPS Plan A} = \text{EPS Plan B}$$

$$[(\text{EBIT} - I)(1-T)]/\text{Shares} = \text{same under both plans}$$

Manager's Insight

The indifference point is a decision reference, not a guarantee of safety.



Quick Example

If expected EBIT is well above the indifference point, debt financing may improve EPS; if uncertain, equity may be safer.

Leverage and Shareholder Returns

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Leverage can increase return on equity when the firm earns more than the cost of debt.
- 02** It can reduce shareholder returns when operating income is weak.
- 03** Shareholders require higher returns when leverage increases risk.
- 04** Managers must balance EPS growth with financial stability.

Strong EBIT
Debt helps EPS



Weak EBIT
Debt hurts EPS



Higher risk
Return required

Manager's Insight

Higher expected EPS is not enough; the risk of EPS must also be considered.



Quick Example

A leveraged plan may look attractive in a best-case scenario but dangerous in a recession.

Growth Planning

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01 Growth usually requires more assets and more financing.
- 02 Retained earnings can finance part of growth internally.
- 03 If growth is faster than internal funds allow, the firm needs external financing.
- 04 Dividend policy, profitability, and capital structure all affect growth capacity.

Growth
More assets



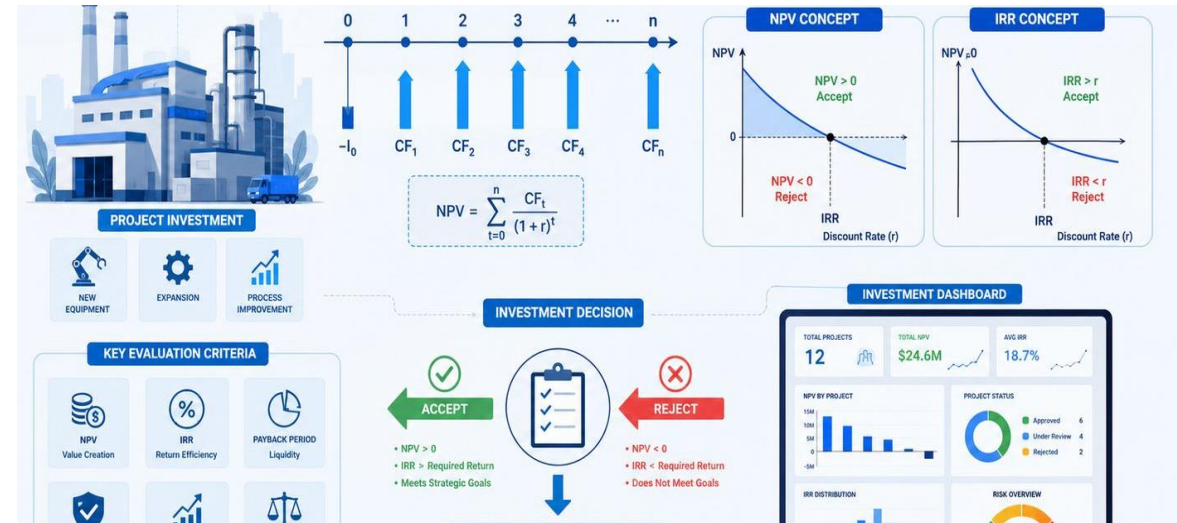
Funding need
More capital



Policy choice
Debt, equity,
retained earnings

Manager's Insight

Growth is valuable only when it can be financed without destroying value.



Quick Example

A fast-growing firm may reduce dividends to retain more earnings for expansion.

Internal Growth Rate

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Internal growth rate estimates growth supported only by retained earnings.
- 02** It assumes the firm does not raise new external financing.
- 03** The retention rate measures the share of earnings kept in the business.
- 04** Higher ROA and higher retention increase internal growth capacity.

$$\text{Internal Growth Rate} = (\text{RR} \times \text{ROA}) / [1 - (\text{RR} \times \text{ROA})]$$

Manager's Insight

Internal growth shows how much the firm can grow without going to capital markets.



Quick Example

If RR=60% and ROA=12%, internal growth = $0.072 / 0.928 = 7.76\%$.

Sustainable Growth Rate

Financing choices connect risk, return, growth, dividends, and firm value.

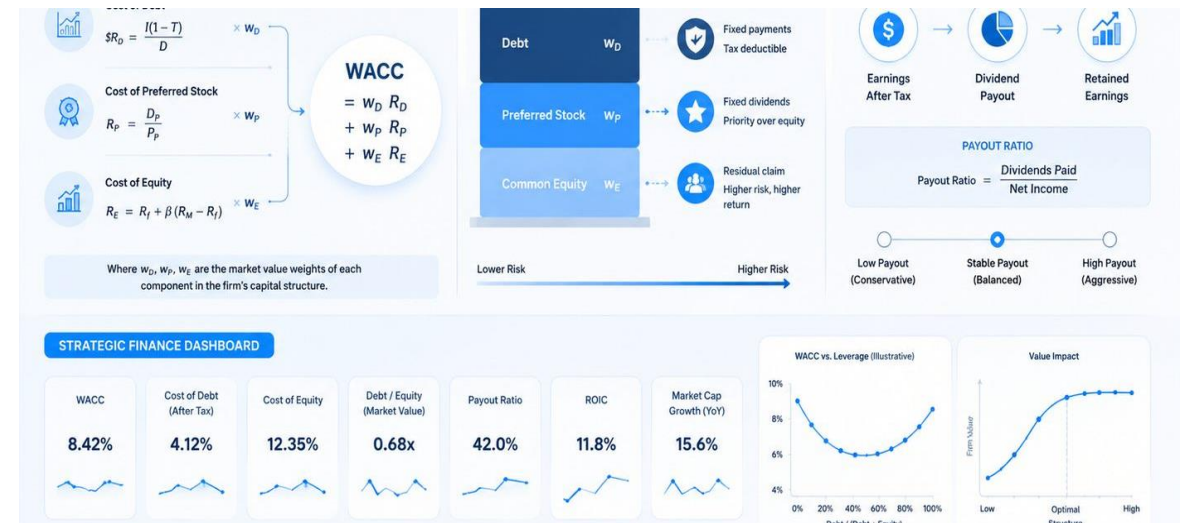
Core explanation

- 01** Sustainable growth rate allows the firm to use retained earnings and debt.
- 02** It assumes the firm maintains its target capital structure over time.
- 03** Higher ROE and higher retention increase sustainable growth.
- 04** Growth above this rate usually requires changing financing or dividend policy.

$$\text{Sustainable Growth Rate} = (RR \times ROE) / [1 - (RR \times ROE)]$$

Manager's Insight

Sustainable growth links profitability, retention, and capital structure.



Quick Example

If $RR=60\%$ and $ROE=18\%$, sustainable growth = $0.108 / 0.892 = 12.11\%$.

Dividend Policy Overview

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Dividend policy determines how much profit is paid to shareholders versus retained.
- 02** It affects investor cash income and internal financing.
- 03** High payout means less retained earnings for growth.
- 04** Low payout may support expansion but reduce current shareholder cash income.

$$\text{Net Income} = \text{Dividends} + \text{Addition to Retained Earnings}$$

Manager's Insight

Dividend policy is both an investor-relations decision and a financing decision.



Quick Example

A mature firm may pay higher dividends; a fast-growing firm may retain more earnings.

Cash Dividends

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Cash dividends are direct cash payments to shareholders.
- 02** They reduce cash available inside the firm.
- 03** They can signal confidence when sustainable.
- 04** Unsustainable dividends can weaken financial flexibility.

Profit
Earnings
generated



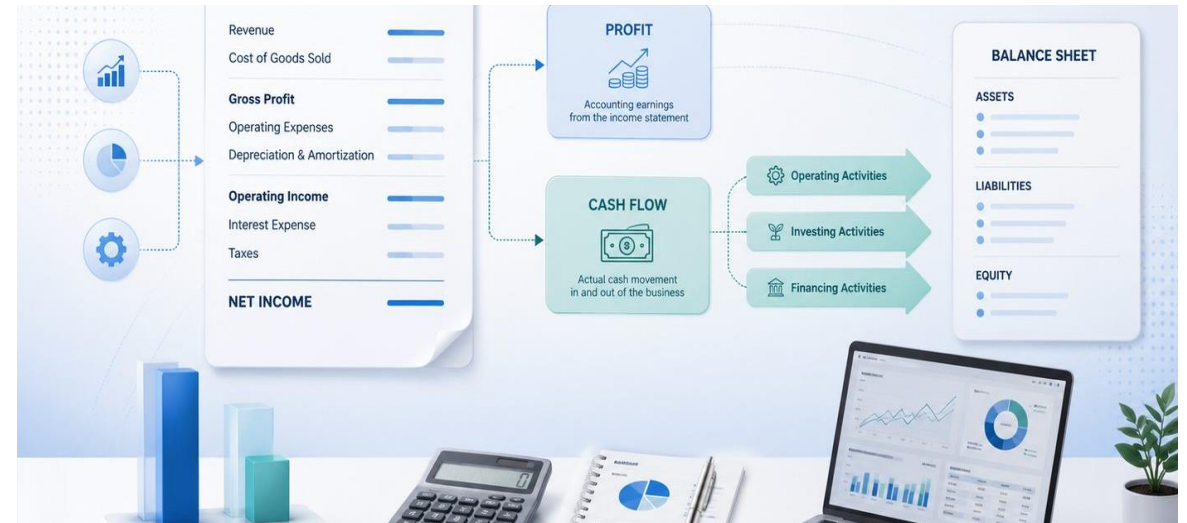
Dividend
Cash paid out



Retained earnings
Funds kept

Manager's Insight

A dividend is attractive only if the firm can afford it without harming good investments.



Quick Example

If a firm pays \$1 million in dividends, that cash is no longer available for internal project financing.

Stock Dividends and Stock Splits

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** A stock dividend gives shareholders additional shares instead of cash.
- 02** A stock split increases the number of shares and reduces price per share proportionally.
- 03** These actions do not directly create cash flow or change total firm value by themselves.
- 04** They can improve trading liquidity or make shares appear more affordable.

Action	Cash paid?	Main effect
Cash dividend	Yes	Cash leaves firm
Stock dividend	No	More shares
Stock split	No	Lower price per share

Manager's Insight

Stock dividends and splits change share counts, not the basic value of firm cash flows.



Quick Example

In a 2-for-1 split, one \$80 share becomes two \$40 shares before market reactions.

Dividend Payout Ratio

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Dividend payout ratio shows the percentage of earnings paid as dividends.
- 02** Retention ratio shows the percentage kept in the firm.
- 03** These two ratios add to 100%.
- 04** They affect growth capacity and external financing needs.

Dividend Payout Ratio = Dividends / Net Income;
Retention Ratio = 1 – Payout

Manager's Insight

A higher payout means lower retained earnings and potentially more need for outside financing.



Quick Example

If net income is \$500,000 and dividends are \$200,000, payout ratio = 40% and retention = 60%.

Dividend Policy and Retained Earnings

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** Retained earnings help finance investments without issuing new securities.
- 02** A firm with many positive-NPV projects may retain more earnings.
- 03** A firm with few growth opportunities may distribute more cash.
- 04** The best dividend policy supports long-term value creation.

Retain more
Fund growth



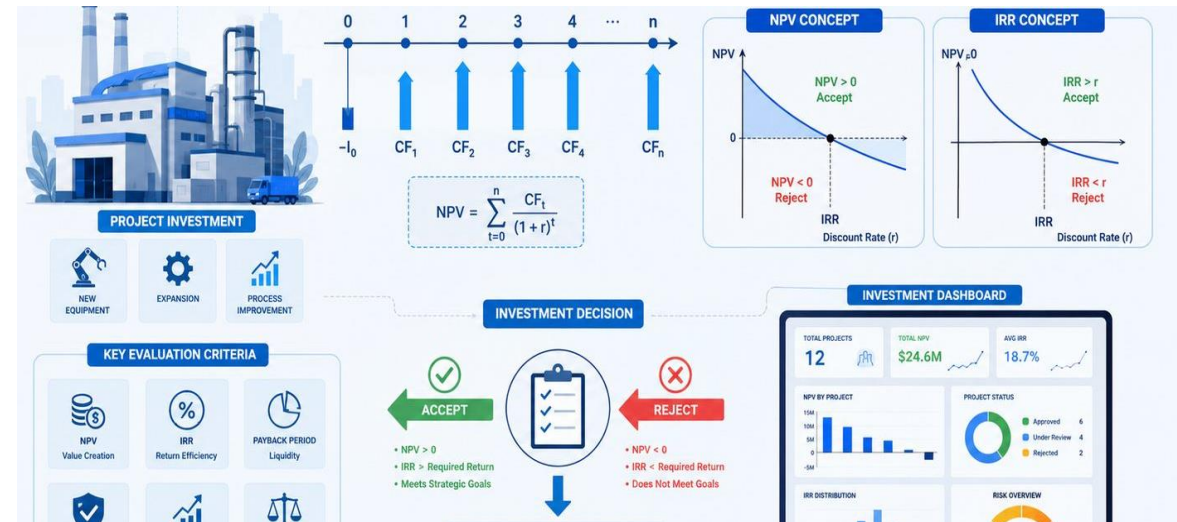
Pay more
Return cash



Balance
Value creation

Manager's Insight

Dividend policy should follow investment opportunities, not habit alone.



Quick Example

If a firm has valuable projects, retaining earnings may be better than paying a high dividend.

Integrative Case: Financing Policy

Financing choices connect risk, return, growth, dividends, and firm value.

Core explanation

- 01** A firm is considering a \$12 million expansion project.
- 02** Management must estimate WACC, evaluate NPV, choose financing, and decide dividends.
- 03** Debt lowers cost but increases financial risk.
- 04** Retaining earnings supports funding but reduces current dividends.

Decision	Key question
Investment	Is NPV positive?
Financing	What mix minimizes risk-adjusted cost?
Dividend	Pay cash or retain for growth?

Manager's Insight

The integrated decision must connect project value, financing risk, and shareholder expectations.



Quick Example

Ask students to recommend whether the firm should fund with debt, equity, retained earnings, or a combination.

Lecture 9 Review & Lecture 10 Link

Financing choices connect risk, return, growth, dividends, and firm value.

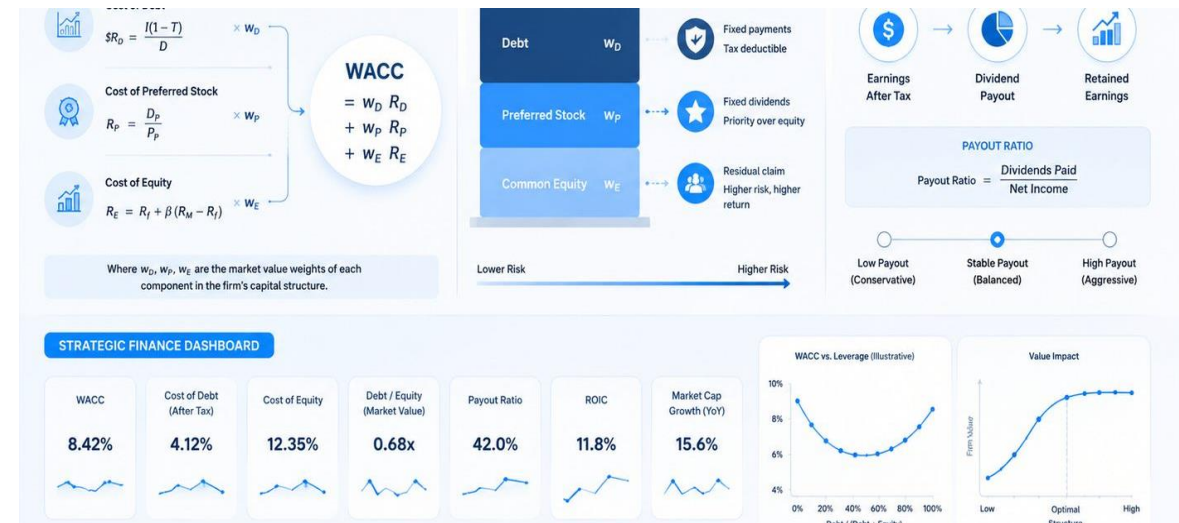
Core explanation

- 01** Cost of capital is the required return for providers of capital.
- 02** WACC combines the cost of debt, preferred stock, and equity using target weights.
- 03** Capital structure affects risk, EPS, WACC, and firm value.
- 04** Dividend policy affects retained earnings and growth capacity.

Lecture 9 review question	Focus
How is WACC calculated?	Formula and weights
When is debt helpful?	Tax shield and risk
Investment link?	NPV and WACC

Manager's Insight

Lecture 9 closes the financing-policy block and prepares students for AI applications in finance.



Quick Example

For Lecture 9 practice, calculate after-tax debt cost, cost of equity, WACC, and decide whether a project should be accepted.

Assessment Practice 1

Solved questions: concepts, calculations, and applications.

QUESTION 01/10

What does capital structure describe?

- A** The mix of debt, preferred stock, and equity financing
- B** The list of current assets
- C** The production schedule
- D** The tax return format

ANSWER

A

The mix of debt, preferred stock, and equity financing

EXPLANATION

Capital structure describes how a firm finances its assets using debt, preferred stock, and equity.

EXAM TECHNIQUE: Capital structure focuses on the right side of the balance sheet.

Assessment Practice 2

Solved questions: concepts, calculations, and applications.

QUESTION 02/10

A firm borrows at 8% before tax and its tax rate is 25%. What is the after-tax cost of debt?

A 2%**B** 6%**C** 8%**D** 10%**ANSWER****B** 6%**EXPLANATION**

After-tax cost of debt = $8\% \times (1 - 0.25) = 6\%$.

EXAM TECHNIQUE: Debt interest is tax-deductible, so use after-tax cost.

Assessment Practice 3

Solved questions: concepts, calculations, and applications.

QUESTION 03/10

Preferred dividend is \$5 and the preferred stock price is \$50. What is the cost of preferred stock?

A 5%**B** 10%**C** 15%**D** 20%**ANSWER****B** 10%**EXPLANATION**

Cost of preferred stock = Dividend ÷ Price = $5 \div 50 = 10\%$.

EXAM TECHNIQUE: Preferred stock cost is a dividend yield.

Assessment Practice 4

Solved questions: concepts, calculations, and applications.

QUESTION 04/10

Using CAPM, if risk-free rate is 4%, beta is 1.2, and market risk premium is 6%, what is cost of equity?

A 7.2%**B** 10.0%**C** 11.2%**D** 12.0%**ANSWER****C** 11.2%**EXPLANATION**

Cost of equity = $4\% + 1.2 \times 6\% = 11.2\%$.

EXAM TECHNIQUE: CAPM adds beta-adjusted market risk premium to the risk-free rate.

Assessment Practice 5

Solved questions: concepts, calculations, and applications.

QUESTION 05/10

A stock has $D1 = \$2.40$, price = \$40, and growth = 4%. What is the cost of equity using dividend growth?

A 6%**B** 8%**C** 10%**D** 12%**ANSWER****C** 10%**EXPLANATION**

Cost of equity = $D1/P0 + g = 2.40/40 + 4\% = 6\% + 4\% = 10\%$.

EXAM TECHNIQUE: Dividend growth model adds dividend yield and growth.

Assessment Practice 6

Solved questions: concepts, calculations, and applications.

QUESTION 06/10

A firm uses 40% debt at after-tax cost 6% and 60% equity at cost 12%. What is WACC?

A 7.2%**B** 8.4%**C** 9.6%**D** 12.0%**ANSWER****C** 9.6%**EXPLANATION**

$$\text{WACC} = 0.40(6\%) + 0.60(12\%) = 2.4\% + 7.2\% = 9.6\%.$$

EXAM TECHNIQUE: Multiply each capital cost by its weight, then add.

Assessment Practice 7

Solved questions: concepts, calculations, and applications.

QUESTION 07/10

Which weights are generally preferred when calculating WACC for decision making?

A Market value weights

B Historical book value weights only

C Random weights

D Equal weights always

ANSWER

A Market value weights

EXPLANATION

Market value weights better reflect current investor-required values and financing proportions.

EXAM TECHNIQUE: Use current market values when available.

Assessment Practice 8

Solved questions: concepts, calculations, and applications.

QUESTION 08/10

What is a key effect of financial leverage?

- A** It removes all business risk
- B** It increases fixed financial obligations
- C** It eliminates the cost of equity
- D** It guarantees higher firm value

ANSWER

- B** It increases fixed financial obligations

EXPLANATION

Debt financing creates fixed interest obligations and can magnify shareholder returns and risk.

EXAM TECHNIQUE: Leverage can help or hurt depending on operating performance.

Assessment Practice 9

Solved questions: concepts, calculations, and applications.

QUESTION 09/10

A firm pays dividends of \$30 million and has net income of \$100 million. What is the dividend payout ratio?

A 30%**B** 40%**C** 70%**D** 130%**ANSWER****A** 30%**EXPLANATION**

Dividend payout ratio = Dividends ÷ Net income = $30 \div 100 = 30\%$.

EXAM TECHNIQUE: Payout ratio shows the share of earnings paid out.

Assessment Practice 10

Solved questions: concepts, calculations, and applications.

QUESTION 10/10

Using the textbook formula, if ROE is 15% and retention ratio is 60%, what is the sustainable growth rate?

A 6%**B** 9.89%**C** 15%**D** 25%**ANSWER****B** 9.89%**EXPLANATION**

Sustainable growth rate = $(RR \times ROE) / [1 - (RR \times ROE)] = (0.60 \times 0.15) / [1 - (0.60 \times 0.15)] = 9.89\%$.

EXAM TECHNIQUE: Use the denominator form when the question asks for sustainable growth under constant capital structure.



Next: Lecture 10 – Artificial Intelligence in Finance

Thank You