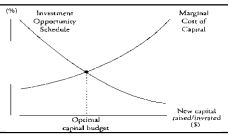
Concepts	Description
	Cost of Capital
Calculating a company's Weighted Cost of capital	$WACC = (w_d) \times [k_d \times (1-t)] + (w_{ps}) \times (k_{ps}) + (w_{ce}) \times (k_{ce})$ In which: $w_d = \%\ of\ debt\ in\ the\ capital\ structure$ $k_d = cost\ of\ issuing\ new\ debt$ $w_{ps} = \%\ of\ preferred\ shares\ in\ the\ capital\ structure$ $k_{ps} = cost\ of\ preferred\ shares$ $w_{ce} = \%\ of\ common\ equity\ in\ the\ capital\ structure$ $k_{ce} = cost\ of\ common\ equity$ $t = tax\ rate$ Firm's debt structure (% of debt, preferred shares and common equity) should be based on target capital structure If no target capital strucuture → use current capital structure / industry average capital structure
How Marginal cost of capital and investment opportunity schedule are used t determined optimal capital budget	↑ capital raised → ↑ cost of raising additional capital → upward sloping marginal cost of capital curve Downward sloping investment opprtunity schedule  Marginal cost of capital curve intersects investment opportunity schedule curve → optimal capital budget Firm should undertake all projects with IRR (Investment Opportunity schedule) > cost of fund (Marginal cost of capital)
Applying marginal COC indetermining project's NPV	Marginal COC (WACC for additional fund) should be used in determining project's NPV Project's risk level might be different from firm's risk level → Discount rate should be adjusted upward for higher-risk projects, and downward for lower-risk projects
Calculating cost of debt (Kd)	- Yield to marturity approach: assume before-tax cost of debt is the market interest rate (YTM) on new debt (not the coupon rate on exsiting debt) - Debt rating approach (if YTM is not available): based on market yield for debt with same rating and same maturity as the firm's exisiting debt
Calculate cost of preferred stock (Kps)	$k_{ps} = \frac{D_{ps}}{P}$ In which: $D_{ps} = preferred\ dividends$ $P = market\ price\ of\ preferred\ dividends$
Calculating cost of common equity (Kce)	**1. Capital asset pricing model approach** $k_{ce} = R_f + \beta \times (R_m - R_f)$ In which: $R_f = risk\ free\ rate$ $R_m = expected\ rate\ of\ return\ of\ the\ market$ $\beta = stock's\ beta\ (stock's\ risk\ measure)$ **2. Dividend discount model approach:** Dividends are expected to grow at constant ra $P_0 = \frac{D_1}{k_{ce} - g} \rightarrow k_{ce} = g + \frac{D_1}{P_0}$ In which: $D_1 = next\ year's\ dividend$ $g = growth\ rate$ Where: $g = retention\ rate \times ROE = (1 - payout\ ratio) \times ROE$ **3. Bond yield plus risk premium approach** $k_{ce} = bond\ yield + risk\ premium$
Calculating Beta of project	Step 1: estimate the beta for a comparable company (group of comparable companies) Step 2: Unlever the beta to asset beta $\beta_{ASSET} = \beta_{EQUITY} \times \frac{1}{1 + (1-t) \times \frac{D}{E}}$ Step 3: Relever the beta $\beta_{PROJECT} = \beta_{ASSET} \times [1 + (1-t) \times \frac{D}{E}]$
Country risk premium	Increased risk associated woth investing in a developing country $k_{ce} = R_f + \beta \times (R_m - R_f + CRP)$ In which: CRP = country risk premium $CRP = sovereign\ yield\ spread \times \frac{annualised\ standard\ deviation\ of\ equity\ index\ of\ developing\ country}{annualised\ standard\ deviation\ of\ sovereign\ bond\ market\ in\ terms\ of\ the\ developed\ market\ currency}$ Where: Sovereign yield spread - yields of Gov's bonds in developing - Treasury bonds of similar maturities
Marginal cost of capital	Definition: Cost of additional new capital raised ↑ capital raised → ↑ cost of financing, due to: - ↑ additional financial risk → higher cost of debt - ↑ Flotation cost (fees charged by bank when a company raised external equity capital). Flotation cost is added to the initial project cost Marginal cost of capital schedule: show WACC for different amounts of financing Break point: Any time when cost of one of the components of the company's WACC changes $break\ point = \frac{amount\ of\ capital\ which\ the\ component's\ cost\ of\ capital\ changes}{weight\ of\ the\ component\ in\ the\ capital\ structure}$