Weighted Average Cost of Capital (WACC)

Cost of capital/ Required rate of return
- Projects have to earn at least a benchmark rate of return
  - Benchmark return for riskier projects > safer ones

WACC formula

$$WACC = k' = k_d\left(1 - t_e\right)\left(\frac{D}{V}\right) + k_e\left(\frac{E}{V}\right)$$

where k_d- cost of debt, k_e- cost of equity, t_e- effective company tax rate, $D, E-$ debt & equity market values, firm value $V = D + E$

- If a project earns more than WACC, it will be able to satisfy both debt and equity holders
- Unlikely to be able to determine the actual WACC – reduce errors by using market value

Each component of WACC

Cost of debt - k_d	- Market interest rate that the firm has to pay on its long term borrowing today = risk free rate + default spread - Risk free rate = basic cost of money set by central bank - Default spread = chance borrower will fail to meet obligations to pay interest and principle as promised
Effective tax rate – t_e	$(1 - t_e)k_d$ = tax savings associated with debt - Under the imputation tax system - The effective corporate rate can be lower than the statutory corporate tax rate $t_e = t_c (1 - \lambda)$ - Where λ is the proportion of corporate tax claimed by shareholders $\lambda = 0 \rightarrow$ classical tax system $\lambda = 1 \rightarrow$ pure imputation tax system
Cost of equity - k_e	2 methods to calculate k_e - Capital asset pricing model (CAPM) $$k_e = R_f + \beta_e[E(R_M) - R_f]$$ - Stocks with higher risk (higher beta) require a high expected rate of return for investor <ol start="2"> - DCF approach (Gordon Growth model) $$P_0 = \frac{D_1}{k_e - g} \Rightarrow k_e = \frac{D_0(1 + g)}{P_0} + g$$ D_0 = current period dividend per share g = growth rate - Growing perpetuity formula $\rightarrow$ assume that firm's exist forever (Going concern)
Weights	Calculated using market values