$$V_t(T) = S_t - F_0(T)$$

$$F_0(T) = S_0 (1 + r)^T$$

$$w_i^t = \frac{1}{N}$$

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Cheat Sheets

$$w_i^x = \frac{Q_i P_i}{\sum_{j=1}^{N} Q_j P_j}$$

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CAPITAL BUDGETING

Net present value (NPV)	$$NPV = \sum_{t=0}^{N} \frac{CF_t}{(1 + r)^t}$$	CF_t = Expected net cash flow at time t **N** = Investment's projected life **r** = Required rate of return for the investment
Internal Rate of Return (IRR)	$$\sum_{t=0}^{N} \frac{CF_t}{(1 + IRR)^t} = 0$$	CF_t = After-tax cash flow at time t **r** = Required rate of return for the investment
Average Accounting Rate of Return (AAR)	$$AAR = \frac{\text{Average net income}}{\text{Average book value}}$$	
Profitability Index (PI)	$$PI = \frac{\text{PV of future cash flows}}{\text{Initial Investment}} = 1 + \frac{NPV}{\text{Initial Investment}}$$	

COST OF CAPITAL

Weighted Average Cost of Capital (WACC)	$$WACC = w_d r_d (1 - t) + w_p r_p + w_e r_e$$	w_d = The desired or target proportion of debt in a company's capital structure when securing new funding r_d = The cost of debt before the application of taxes **t** = The company's marginal tax rate w_p = The targeted proportion of preferred stock in a company's capital structure when the firm raises new funds r_p = Marginal cost of preferred stock w_e = The target proportion of common stock in the capital structure when the company raises new capital r_e = The marginal cost of common stock
Tax shield	**Tax shield** = Deduction × Tax rate	
Cost of Preferred Stock	$$r_P = \frac{D_p}{P_p}$$	P_p = Current preferred stock price per share D_p = Preferred stock dividend per share r_P = Cost of preferred stock

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COST OF CAPITAL

Cost of Equity (Dividend discount model approach)	$r_e = \dfrac{D_1}{P_0} + g$	P_0 = The current stock price D_1 = The expected dividend at the end of Period 1 r_e = Required rate of return on the market g = The growth rate
Growth Rate	$g = \left(1 - \dfrac{D}{EPS}\right) \times ROE$	**ROE =** Return on Equity **D =** Dividends per share **EPS =** Earnings per share (EPS) **(D/EPS) =** Assumed stable dividend payout ratio
Cost of Equity (Bond yield plus risk premium)	$r_e = r_d + \text{Risk Premium}$	**Risk premium =** Additional yield on a company's stock relative to its bonds r_d = The cost of debt
Capital Asset Pricing Model (CAPM)	$E(R_i) = R_F + \beta_i[E(R_M) - R_F]$	β_i = Return sensitivity of stock i to changes in the market return $E(R_M)$ = Expected return on the market $E(R_M) - R_F$ = Expected market risk premium R_F = Risk-free rate of interest
Beta of a Stock	$\beta_i = \dfrac{\text{Cov}(R_i, R_M)}{\text{Var}(R_M)}$	**Rm =** Average expected rate of return on the market R_i = Expected return on an asset i **Cov(R_i, R_m)** = The covariance of the return of asset i with the return of the market **Var (R_m) =** The variance of the return of the market
Pure-play Method Project Beta (De-lever)	$\beta_{\text{Unlevered, Comparable}} = \dfrac{\beta_{\text{Levered, Comparable}}}{\left[1 + \left((1 - t_{\text{Comparable}})\dfrac{D_{\text{Comparable}}}{E_{\text{Comparable}}}\right)\right]}$	**t =** Tax rate **D =** Debt **E =** Equity
Pure-play Method for Subject Firm (Re-lever)	$\beta_{\text{Levered, Project}} = \beta_{\text{Unlevered, Comparable}}\left[1 + \left((1 - t_{\text{Project}})\dfrac{D_{\text{Project}}}{E_{\text{Project}}}\right)\right]$	

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COST OF CAPITAL

Adjusted CAPM (for country risk premium)	$E(R_i) = R_F + \beta_i [E(R_M) - R_F + \text{Country risk premium}]$
Country Risk Premium	$CRP = \text{Sovereign yield spread} \times \left(\dfrac{\sigma \text{ of equity index of the developing country}}{\sigma \text{ of sovereign bond market in terms of the developed market currency}} \right)$ σ = Standard deviation
Break Point	$\text{Break point} = \dfrac{\text{Amount of capital at which the source's cost of capital changes}}{\text{Proportion of new capital raised from the source}}$

MEASURES OF LEVERAGE

Degree of Operating Leverage	$\text{Degree of Operating Leverage} = \dfrac{\text{Percentage change in operating income}}{\text{Percentage change in units sold}}$	
Degree of Financial Leverage	$\text{Degree of Financial Leverage} = \dfrac{\text{Percentage change in Net Income}}{\text{Percentage change in EBIT}}$	
Degree of Total Leverage	$\text{Degree of Total Leverage} = \dfrac{\text{Percentage change in Net Income}}{\text{Percentage change in number of Units Sold}}$	
Return on Equity (ROE)	$\text{Return on Equity} = \dfrac{\text{Net Income}}{\text{Shareholders' Equity}}$	
The Breakeven Quantity of Sales	$Q_{\text{Breakeven}} = \dfrac{F + C}{P - V}$	**P =** Price per unit **V =** Variable cost per unit **F =** Fixed operating costs **C =** Fixed financial cost **Q =** Quantity of units produced and sold
Operating Breakeven Quantity of Sales	$Q_{\text{Operating Breakeven}} = \dfrac{F}{P - V}$	**P =** Price per unit **V =** Variable cost per unit **F =** Fixed operating costs

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WORKING CAPITAL MANAGEMENT

Current Ratio	$$\text{Current Ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$
Quick Ratio	$$\text{Quick Ratio} = \frac{\text{Cash + Receivables + Short-term marketable investments}}{\text{Current liabilities}}$$
Accounts Receivable Turnover	$$\text{Accounts Receivable Turnover} = \frac{\text{Credit sales}}{\text{Average receivables}}$$
Number of Days of Receivables	$$\text{Number of days of receivables} = \frac{365}{\text{Accounts receivable turnover}}$$
Inventory Turnover	$$\text{Inventory Turnover} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$
Number of Days of Inventory	$$\text{Number of Days of Inventory} = \frac{365}{\text{Inventory turnover}}$$
Payables Turnover	$$\text{Payables Turnover Ratio} = \frac{\text{Purchases}}{\text{Average accounts payables}}$$
Number of Days of Payables	$$\text{Number of Days of Payables} = \frac{365}{\text{Payables turnover ratio}}$$
Net Operating Cycle	Net operating cycle = Number of days of inventory + Number of days of receivables - Number of days of payables
Yield on a Bank Discount Basis (BDY)	$$r_{BD} = \frac{D}{F} \times \frac{360}{t}$$ **D =** Dollar discount, which is equal to the difference between the face value of the bill (F) and its purchase price (P_0) **F =** Face value of the T-bill **t =** Actual number of days remaining to maturity r_{BD} **=** Annualized yield on a bank discount basis
Effective Annual Yield (EAY)	$$\text{EAY} = (1 + \text{HPR})^{\frac{360}{t}} - 1$$
Holding Period Return	$$\text{HPR} = \frac{(\text{Cashflow ending value - Beginning value + Cashflow received})}{\text{Beginning value}}$$
Cost of Trade Credit	$$\text{Cost of trade credit} = \left(1 + \frac{\text{\%Discount}}{1 - \text{\%Discount}}\right)^{\frac{360}{\text{Number of days past discount}}} - 1$$
Cost of Borrowing	$$\text{Cost of borrowing} = \frac{\text{Interest + Dealer's commission + Other costs}}{\text{Loan amount - Interest}}$$

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$$F_o(T) = S_o(1 + r)^T$$

$$w_i^e = \frac{1}{N}$$

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$$w_i^e = \frac{QP_i}{\sum_{j=1}^{N} QP_j}$$

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