$$\beta_i = \frac{COV(r_i, r_M)}{\sigma_M^2} = \frac{\rho_{i,M}\sigma_i\sigma_M}{\sigma_M^2} = \frac{\rho_{i,M}\sigma_i}{\sigma_M}$$

Fama French factors: the market, SMB, HML. Other factors: UMD, CMA, RMW

$$Expected\ HPR = E(r) = \frac{E(P_1) - P_0 + E(Div_1)}{P_0}$$

$$V_0 = \frac{E(P_1) + E(Div_1)}{1+k}$$

$$V_0 = \frac{D_1}{1+k} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_H + P_H}{(1+k)^H} \quad or \quad V_0 = \frac{D_1}{1+k} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_H + \frac{D_{H+1}}{k-g}}{(1+k)^H}$$

$$V_0 = \frac{D_0(1+g)}{(1+k)} + \frac{D_0(1+g)^2}{(1+k)^2} + \cdots = \frac{D_1}{k-g}$$

$$g = ROE \times b$$

$$V_0 = \frac{CF_t}{(1+r)^t} + \cdots + \frac{CF_N + Terminal\ Value_N}{(1+r)^N}$$

$$Terminal\ Value_N = \frac{CF_{N+1}}{r-g} \quad or \quad EBITDA_N \times \frac{EV}{EBITDA} Exit\ Multiple$$

$$\begin{aligned} FCFF = \\ &EBIT(1-t_C) \\ &+ Depreciation\ and\ Amort.\ Exp \\ &- Capital\ Expenditures \\ &- \Delta Net\ Working\ Capital \end{aligned}$$

$$\begin{aligned} FCFE = \\ &FCFF \\ &- Interest\ Expense(1-t_c) \\ &+ \Delta\ Net\ Debt \end{aligned}$$

$$WACC = \frac{E}{V}R_E + \frac{D}{V}R_D(1-t_C)$$

$$\beta_L^* = \frac{\beta}{1 + \left(\frac{D_{actual}}{E_{actual}}\right)(1-t_c)} \times \left[1 + \left(\frac{D_{Forecast}}{E_{Forecast}}\right)(1-t_c)\right]$$

$$EV = Market\ Cap + Net\ Debt + Preferred\ Equity + Noncontrolling\ Interest - Cash\ \&\ Equiv.$$

$$PEG = \frac{\frac{Price}{EPS}}{Expected\ Earnings\ Growth\ Rate \times 100}$$

$$Bond\ Value = \sum_{t=1}^{T} \frac{Coupon\ Payments}{(1+r)^t} + \frac{Par\ Value}{(1+r)^T}$$

$$Accrued\ Interest = \left[Per\ Period\ Coupon \times \frac{Days\ since\ last\ payment}{Days\ between\ payments}\right]$$

$$Invoice\ Price = Bond\ Value + Accrued\ Interest$$

$$HPR = \frac{Interest\ Income + Bond\ Price_{New} - Bond\ Price_{Old}}{Bond\ Price_{Old}}$$