

FinQuiz Formula Sheet CFA Program Level III

VOLUME 1

Learning Module: 1 Capital Market Expectations, Part 1: Framework and Macro Considerations

$$1. \quad i^* = r_{\text{neutral}} + \pi_e + 0.5 \times (\hat{Y}_e - \hat{Y}_{\text{trend}}) + 0.5 \times (\pi_e - \pi_{\text{target}})$$

where,

i^* = target nominal policy rate

r_{neutral} = real policy rate that would be targeted if GDP growth were on trend & inflation on target

$\pi_e, \pi_{\text{target}}$ = respectively the expected and target inflation rates

$\hat{Y}_e, \hat{Y}_{\text{trend}}$ = respectively the expected and trend real GDP growth rates

By readjusting the above equation:

Real inflation adjusted target rate =

$$i^* - \pi_e = r_{\text{neutral}} + 0.5 \times (\hat{Y}_e - \hat{Y}_{\text{trend}}) + 0.5 \times (\pi_e - \pi_{\text{target}})$$

2. **Net exports** = Net Private Savings + Government Surplus
(X-M) = (S-I) + (T-G)

3. Government Surplus = Taxes – Government spending

Learning Module: 2 Capital Market Expectations, Part 2: Forecasting Asset Class Returns

$$1. \quad E(R_e) \approx \frac{D}{P} + (\% \Delta E - \% \Delta S) + \Delta P/E$$

Where,

○ $E(R_e)$ = Expected rate of return on equity

○ D/P = Expected dividend yield

○ $\% \Delta S$ = Expected % change in number of shares outstanding

2. Under Basic CAPM model:

$$\circ \quad RP_i = \beta_{i,M} RP_M$$

$$\circ \quad \beta_{i,M} = \text{Cov}(R_i, R_M) / \sigma_M^2 = \rho_{i,M} \left(\frac{\sigma_i}{\sigma_M} \right)$$

Where,

$RP_i = [ER_i - R_F]$ risk premium on i th asset

$RP_M = [ER_M - R_F]$ risk premium on market portfolio

$\beta_{i,M}$ = i th asset sensitivity to market

$$\text{portfolio} = \frac{\text{Cov}(R_i, R_M)}{\sigma_M^2} = \rho_{i,M} \left(\frac{\sigma_i}{\sigma_M} \right)$$

σ is standard deviation and ρ is correlation

Expected Return using Singer-Terhaar Model

Model's 1st component (full integration assumption):

$$3. \quad RP_i^G = \beta_{i,GM} RP_{GM} = \rho_{i,GM} \sigma_i \left(\frac{RP_{GM}}{\sigma_{GM}} \right)$$

Model's 2nd component (completely segmented market assumption):

$$4. \quad RP_i^S = 1 \times RP_{GM} = 1 \times \sigma_i \left(\frac{RP_{GM}}{\sigma_i} \right)$$

$$5. \quad RP_i = \phi RP_i^G + (1 - \phi) RP_i^S$$

6. Cap rate = $\frac{\text{Current year's NOI}}{\text{Property value}}$, where NOI = net operating income