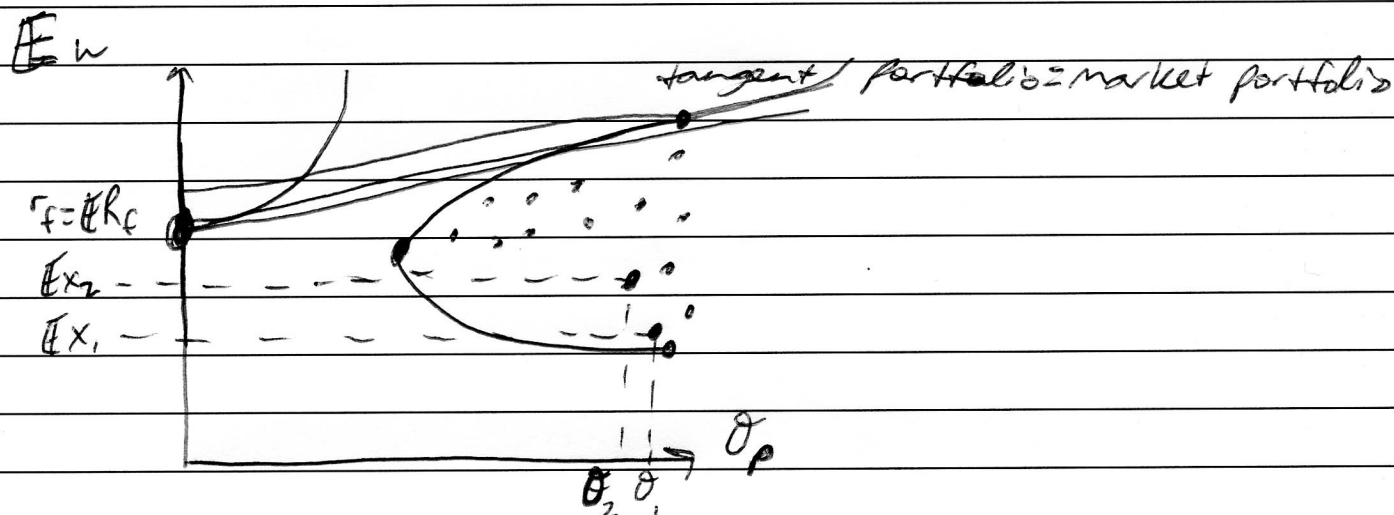


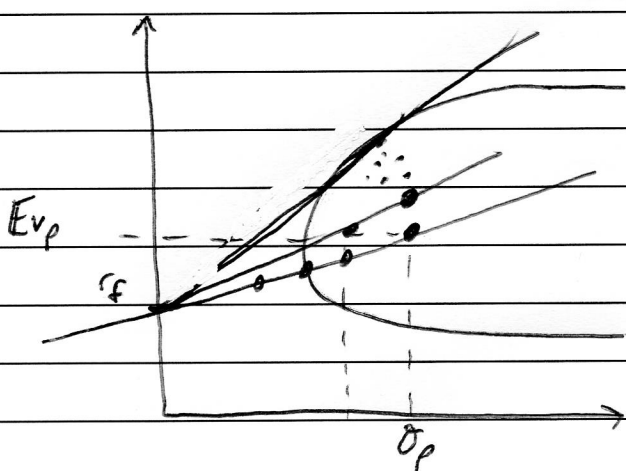


Stock i

MarketCap $_i$ = Price per stock $_i$ x # shares of stock

$$\sum_{i=1}^n \text{MarketCap}_i = MV$$

$$\alpha_i = \frac{\text{MarketCap}_i}{MV}$$



① Stock S , uncorrelated w/ P
 $E_{vp'} = E_{vp} - r_f + \alpha (E_S - r_f)$

$$\text{Var}(V_{p'}) = \text{var}(P) + \text{var}(\alpha S) + 2 \text{Cov}(P, \alpha S)$$

$$2\alpha \text{Cov}(P, S)$$

$$= \sigma_P^2 + \alpha^2 \sigma_S^2$$

Asset 1 = $\sigma_1^2 = 40$; $\beta_1 = 0.1$

Asset 2 = $\sigma_2^2 = 15$; $\beta_2 = 0.5$