

$$NAV = \frac{\text{Market Value of Assets in Fund} - \text{Fund Liabilities}}{\text{Fund Shares Outstanding}}$$

$$HPR = \frac{P_{t+1} - P_t + Div}{P_t}$$

$$\text{Annualized Return} = (1 + r)^{\frac{\text{Periods in a Year}}{\text{Periods Held}}} - 1$$

$$R = (1 + r_1) \times (1 + r_2) \times \dots \times (1 + r_N) - 1$$

$$r_{\text{Geometric}} = \sqrt[N]{\prod_i^N (1 + r_i)} - 1 = ((1 + r_1) \times (1 + r_2) \times \dots \times (1 + r_N))^{\frac{1}{N}} - 1$$

$$CAGR = \left( \frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\frac{1}{\text{Years}}} - 1$$

$$E(r) = \sum_{s=1}^S p(s)r(s) = p(s_1)r(s_1) + p(s_2)r(s_2) \dots + p(s_S)r(s_S)$$

$$\text{Var}(r) = \sigma^2 = \sum_{s=1}^S p(s)[r(s) - E(r)]^2$$

$$SD(x) = \sigma = \sqrt{\text{Var}(x)} = \sqrt{\frac{\sum(x - \bar{x})^2}{N - 1}}$$

$$CV = \frac{\sigma}{\bar{x}}$$

$$S = \frac{E(r_p) - r_f}{\sigma_p}$$

$$E(r_c) = yE(r_p) + (1 - y)r_f$$

$$\sigma_c = y\sigma_p$$

$$\text{Cov}(r_1, r_2) = \sum_{i=1}^n p(i)[r_1(i) - E(r_1)][r_2(i) - E(r_2)]$$

$$E(r_p) = w_1E(r_1) + w_2E(r_2)$$

$$\rho_{1,2} = \frac{\text{Cov}(r_1, r_2)}{\sigma_1\sigma_2} \Rightarrow \text{Cov}(r_1, r_2) = \rho_{1,2}\sigma_1\sigma_2$$

$$\sigma_p = \sqrt{(w_1\sigma_1)^2 + (w_2\sigma_2)^2 + 2w_1w_2\text{Cov}(r_1, r_2)}$$

$$w_1 = \frac{[E(r_1) - r_f]\sigma_2^2 - [E(r_2) - r_f]\sigma_1\sigma_2\rho_{1,2}}{[E(r_1) - r_f]\sigma_2^2 + [E(r_2) - r_f]\sigma_1^2 - [E(r_1) - r_f + E(r_2) - r_f]\sigma_1\sigma_2\rho_{1,2}}$$

$$\& \quad w_2 = 1 - w_1$$