$$\underset{\alpha}{k} = \overset{\text{weight}}{x_1} D + \underset{\alpha}{x_2} V + \underset{\alpha}{x_3} B$$

$$Cov(k, D) = Cov(x_1 D + x_2 V + x_3 B, D)$$

$$= x_1 \overbrace{Cov(D, D)}^{\text{Var } D} + x_2 \, Cov(V, D) +$$

$$x_3 \, Cov(B, D)$$

$$\boxed{E(R_j) = r + \beta_j (E(R_k) - r)}$$

$$\Leftrightarrow \quad \boxed{\beta_j = \frac{\sigma_{jk}}{\sigma_k^2}}$$

$$\frac{E(R_j) - r}{\sigma_{jk}} = \boxed{\frac{E(R_k) - r}{\sigma_k^2}}$$

constant

one tangency portfolio!

$$\boxed{\sigma_{jk} = Cov(j, k)} = a \left[E(R_j) - r \right]$$

for D; V, B; system of 4 eq and 4 unknowns