Selecting an Investment Portfolio

sol:

Formula for Return, $R = \frac{D}{P_0} + g$

Where D = Dividend

P_0 = Price / Investment

g = growth rate.

Source : Financeformulas.net

Return on $S_1 \Rightarrow R_{S1} = \frac{2}{40} + 0.05 = 0.1$

$R_{S2} = 0.13$

$R_{S3} = 0.073$

$R_{H1} = 0.09$

$R_{H2} = 0.1145$

$R_{H3} = 0.167$

$R_{C_1} = 0.28$

$R_{C2} = 0.25$

OBJECTIVE FUNCTION:

$$\text{Maximum } Z = 0.1 X_{S_1} + 0.13 X_{S2} + 0.073 X_{S3} + 0.09 X_{H1} + 0.1145 X_{H2} + 0.167 X_{H3} + 0.28 X_{C_1} + 0.25 X_{C2}$$

CONSTRAINTS

$$X_{S1} + X_{S2} + X_{S3} + X_{H1} + X_{H2} + X_{H3} + X_{C1} + X_{C2} = 2500000$$

$$X_{S1} + X_{S2} + X_{S3} \leq 1000000$$

$$X_{H1} + X_{H2} + X_{H3} \leq 1000000$$

$$X_{C1} + X_{C2} \leq 1000000$$

$$X_{S1} \geq 100000;$$

$$X_{S2} \geq 100000;$$

$$X_{S3} \geq 100000;$$

$$X_{H1} \geq 100000$$

$$X_{H2} \geq 100000;$$

$$X_{H3} \geq 100000$$

$$X_{C1} \geq 100000$$

$$X_{C2} \geq 100000$$