

MM props Q's: online already, quickly go over.

Make Final, /Answers on same folder

Example Problems + "Final Review"

Final Review:

1. SAIR 10% → 5% semi-annually:

$$\text{Price} = \frac{\$1000}{(1.05)^6} + \$55 \cdot A_{0.05}^6 = 746.22 + \$55 \left[\frac{1}{.05} - \frac{1}{0.05(1.05)^6} \right] = 1025.38$$

> \$1000 since...

2. Increasing Annuity:

$$\frac{\text{Value}}{\text{NOS}} = \text{Price of share}$$

$$\frac{\$1,000,000}{.10 - .08} = \frac{100M}{0.02} = 50,000,000 \quad /100,000 = \$500$$

3. In each state Retn: $I = \$100$ $w = 87, 112 \text{ or } 132$

$$R_R = -18\% \cdot 30$$

$$R_E = +12\% \cdot 40$$

$$R_B = +32\% \cdot 30$$

$$\bar{R} = 8.6\%$$

SD:

$$= .3(-18-8.6)^2 + .4(12-8.6)^2 + .3(32-8.6)^2 = 381.16$$

$$SD = \sqrt{\quad}, = \boxed{19.52\%}$$

4. a). $NPV_A > NPV_B$ $PI > 1$ \Rightarrow Yes; Remember algebra $PI > 1 \Rightarrow NPV > 0$
Why PI?

$$NPV a). -100 + \frac{150}{1.1} = 36.36$$

$$b). -20 + \frac{40}{1.1} = 16.36$$

$$PI \neq \neq A: \left(\frac{100}{150} \right)^{-1} = 1.36$$

$$b): \frac{40/1.1}{20} = 1.81$$

PR: a). $0 = -100 + \frac{130}{1+r} \Rightarrow 100 + 100r = 130$
 $100r = 30 \Rightarrow r = .3$

b). $r = 1.$

Q5): a). $\frac{1}{3}P, \frac{2}{3}G: \quad \frac{1}{3}(1.5) + \frac{2}{3}(.6) = .9$

b). $R_D = 6\% + .25(14\%) = 8\%$

Assume the Asset \rightarrow Equity β that $\beta_D = 0 \dots$

$$\beta_A = \frac{E}{D+E} \beta_E + \frac{D}{D+E} \beta_D$$

$$.9 = \frac{2}{3} \beta_E \quad \beta_E = 1.35 \quad R_E = 6\% + 1.35(8\%) = 16.8\%$$

$$R_{wacc} = R_E \frac{E}{D+E} + R_D \frac{D}{D+E} (1 - T_c)$$

$$(16.8)(\frac{2}{3}) + (8)(\frac{1}{3}) = 13.8\%$$

d). $1.5 = \frac{8}{10} \beta_E \Rightarrow \beta_E = 1.875 \quad R_E = 6\% + (8\%)(1.875) = 21\%$

$$R_{wacc} = (8)(.21) + (1.2)(6) = 18.4\%$$

Q6): a). $V_F = B + S \quad S = 2277500 - 1400000$

$$P_S = S / \# \text{ shares} = \$25$$

MM II

$$R_E = R_D + \frac{B}{S} (1 - T_c)(R_D - R_B)$$

$$= 16\% + \frac{1400000}{2277500 - 1400000} (1 - .35)(16\% - 6\%) = 26.37\%$$

b). $V_L = V_u + T_c B \quad V_u = V_L - T_c B = 2277500 - .35(1400000) = \1717500
 (less than before)

c). EBIT: Formula

$$V_L = \frac{EBIT \cdot (1 - T_c)}{r_0} + T_c B$$

440,000