

MGT 890: Valuation and Investment
 Fall 2000
 Homework Set 4 **Answers**

1. A) $(0.6^2)*9 + (0.4^2)*20 + 2*0.6*0.4*6 = 9.32$
 B) $(0.25^2)*0 + (0.75^2)*9.32 + 2*0.25*0.75*0 = 5.2425$

2. 2.1) 1
 2.2) $(1/3)^2 * 1 + (1/3)^2 * 4 + (1/3)^2 * 9 = 1.5555$
 $Ba = (0.33 * 1) / 1.5555 = 0.214$
 $Bb = (0.33 * 4) / 1.5555 = 0.857$
 $Bc = (0.33 * 9) / 1.5555 = 1.929$

3. Not correct. CAPM deals with efficient portfolios and states the fact that stocks should not be evaluated in isolation but rather as a result of their contribution to portfolio risk. Beta measures the risk stocks contribute to the portfolio, it is the risk that cannot be diversified, it is not the individual risk levels. It is assumed that there is no reason for investors to incur the company specific risk, which they can diversify away which means they need not get compensated for it.

4. 4.1) return: $(0.6*0.16) + (0.4*0.22) = 0.184$
 var: $(0.6^2*0.19^2) + (0.4^2*0.24^2) + 2 (0.6*0.4*0.5*0.19*0.24) = 0.033156$
 S.D = $\sqrt{0.033156} = 0.1821$

4.2) $(1-B)*16 + (B)*22 = 30$
 $6B = 14$
 $B = 2.33 \quad A = -1.33$
 Not possible.
 No SD

4.3) var: $(Wa^2*0.19^2) + (Wb^2*0.24^2) + 2 (Wa*Wb*0.5*0.19*0.24) = (0.1^2)$
 $Wa+Wb = 1$
 Replace Wb with (1-Wa)
 $0.0361 (Wa^2) + 0.0576 + 0.0576(Wa^2) - 0.1152 Wa + 0.0456 Wa - 0.0456 (Wa^2) = 0.01$
 $0.0481(Wa^2) - 0.0696 Wa + 0.0576 = 0.01 \gggggg HAS NO SOLUTION$
 Not possible to construct such a portfolio.