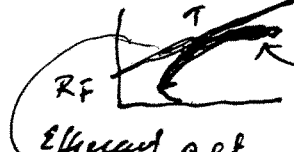


ADM 2350 Summer
ANSWERS TO QUIZ 2

- (1) For ^{any} correlation less than 1 risk is reduced. Hence for zero correlation, the risk is reduced. Hence the statement that it is NOT reduced is "False".
- (2) The portfolio standard deviation is not a weighted average as can be seen from the formula for σ_p that was given. Only if correlation is +1, it is a weighted average as was shown in class. Hence the statement is "TRUE"

- (3)  efficient set of risky securities with no risk-free asset
 Efficient set when risk-free asset is included.

It can be seen that the straight-line efficient set gives, equal or higher expected return for any given level of risk. Hence the statement given is "True"

- (4) ~~R~~ As was shown in class σ_p can be reduced to zero if we have perfect negative correlation ($= -1$) with appropriate weights. ~~W~~ $w = \frac{\sigma_B}{\sigma_A + \sigma_B}$, $(1-w) = \frac{\sigma_A}{\sigma_A + \sigma_B}$. Hence the answer is (d)

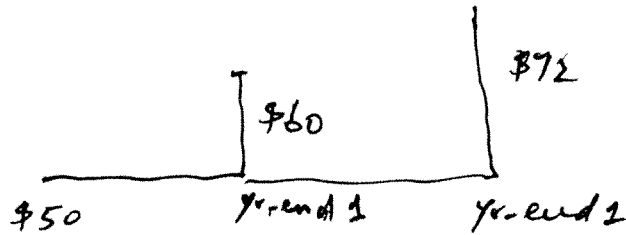
- (5) Using the formula $\sigma_p = w \sigma_T$, plugging in $\sigma_p = 14\%$, $\sigma_T = 10\%$, we get $14\% = w(10\%) \Rightarrow w = 1.4$. Thus $\frac{\$1400}{\text{Equity}} = 1.4 \Rightarrow \text{Equity} = \frac{\$1400}{1.4} = \$1000$. The answer is \$1000

- (6) This was explained in class, that an goal in setting up a portfolio is to obtain (a), (b) and to be on (c). Hence the answer is (d) which says all of the above that includes (a), (b) and (c)

- (7) $P_0 = \frac{D_1 + P_1}{1+r} = \frac{\$4 + 18.40}{1+r} = \frac{\$22.40}{1+r}$; $r = 6\% + 1.5(10\% - 6\%) = 12\%$.
 Hence $P_0 = \frac{\$22.40}{1+0.12} = \text{\$20}$

- (8) Here we use Gordon model: $P_0 = \frac{D_1}{r-g} = \frac{\$4}{.12 + .08} = \frac{\$4}{.20} = \text{\$20}$

(9)



$$r_1 = \frac{\$60 - \$50}{\$50}$$

$$= 20\%$$

$$r_2 = \frac{\$72 - \$60}{\$60}$$

$$= 20\%$$

$$AM = \frac{20\% + 20\%}{2} = 20\%$$

$$GM = \left[(1 + 20\%)(1 + 20\%) \right]^{\frac{1}{2}} - 1$$

$$= \left[(1.20)^2 \right]^{\frac{1}{2}} - 1$$

$$= .20 \text{ or } 20\%$$

Thus $AM = GM$ as in (c)

Because $GM = 20\%$, the compound rate of growth of your investment will be 20% . This can be checked: $\$50(1 + 20\%)(1.20) = \72 ~~at~~ ^{over the 2-year period.} _{yr. end 2}

(10)

As was shown in class with an example the difference between the AM and GM grows larger as the variance of the stock return increases. ~~In fact~~ It was also shown that AM ~~is~~ always exceeds GM except when all returns are the same.