

Problem set 2 W DUE IN CLASS WEDNESDAY OCTOBER 22

Although you may discuss these problems with others, you should calculate everything yourself (just to make sure that you can get your calculator to give the same answers that everyone else is getting). Your solutions must be written up by yourself: you must turn in the original. If you won't be in class on the day the problem set is due, you can fax me a pdf, and turn in the original at the next meeting.

1. For the following problems, assume that:

Asset	Er (not $ER=Er-r_f$)	σ
Stock Fund	12%	20%
Gold	5%	25%
T-Bills (r_f)	4%	

The correlation between the stock fund and gold is $\rho = -0.2$. Midas advisors' recommended portfolio ("P") is 50% in stock and 50% gold. What are the expected return and standard deviation of P?

2. Beth forms a portfolio ("C") consisting of 25% in r_f and 75% in "P" (as defined above). What are the risk and return of her portfolio?
3. Andrei has determined that the maximum risk he can accept in his combined portfolio ("C") is $\sigma_c = 10\%$. What is the expected return on this portfolio?
4. With the given parameters, Midas' recommendation is not the optimal tangency portfolio. What are the weights (proportions of gold and stock) for the optimal tangency portfolio? What are the expected return and standard deviation of this portfolio? (For this question, you will need the equations in section 7.3, or you can use the spreadsheet `Two_security_portfolio.xlsx` posted to the web site.)
5. Now suppose that Andrei uses the optimal portfolio to construct his combined portfolio. If the maximum risk that he can tolerate is still 10%, what is the expected return on his combined portfolio?