

Problem set 2 M DUE IN CLASS Monday OCTOBER 27

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.

For the following problems, assume that the risk and return on two hedge funds (Semper and Apex) are given by:

Asset	E_r (<i>not</i> $ER=Er-r_f$)	σ
Semper Fund	8%	20%
Apex Fund	12%	18%

The correlation between Semper and Apex is $\rho = -0.2$.

1. Brianne and Arkady are both risk-averse, but Arkady is more risk-averse. If we restrict both of them to choosing between putting 100% of their wealth in Semper or 100% of their wealth in Apex, can we determine which choices they will make?

We now allow them to hold portfolio combinations of Semper and Apex.

2. If Arkady wants an expected return of $E_{r_p} = 9\%$, what are his portfolio weights in Semper and Apex? What is the risk (σ_p) of the portfolio?
3. If Brianne wants an expected return of $E_{r_p} = 11\%$, what are her portfolio weights in Semper and Apex? What is the risk (σ_p) of the portfolio?

We now allow them to hold portfolio combinations involving Semper, Apex and a T-Bill (a risk free security) paying $r_f = 5\%$.

4. What are the weights of the optimal (tangency) portfolio? (For this question, you will need the equations in section 7.3, or you can use the "+Riskfree" worksheet in the spreadsheet Two_security_portfolio.xlsx posted to the web site.)
5. Arkady still wants an expected return for his combined portfolio of $E_{r_c} = 9\%$. What is the risk of this portfolio (σ_c)? If he has \$100,000 to invest, how much goes into T-bills, Apex and Semper?