BUSS207
Fall, 2016

Assignment 2
(Due by Oct. 19, 2016)

Please solve the following questions. If you prefer to work in a group in completing this assignment, you may do so. Groups are limited to a maximum size of 3 students. If you work in a group, the group will turn in one solution to the assignment and everyone in the group will receive the same grade on the assignment. If you work in a group, please make sure that you write down the names of all of your group members. If more than one group works together and turns in, substantially, the same work, this violates the rules of the course and the rules on academic integrity, and penalties will be assessed. The assignment is due at the beginning of class on the due date. Please show all the intermediate steps and calculations when solving the problems and state your assumptions (if any). Please type your answers.

1. For the following questions, assume the following. The real rate of interest is 2.5%, the maturity risk premium = (t-1)0.1% (where t is time to maturity in years), the liquidity risk premium is 1.4%, and inflation is expected to be 3% each year for the foreseeable future.

   a. What would be the yield today on a 10-year U.S. Treasury note that has 5 years to remain until the maturity?
   b. You find yields for two 5-year corporate bonds, Dell and Gateway. Dell's yield is 7.5%, and Gateway's yield is 8.2%. Why are the yields on these 5-year corporate bonds different? Why do the yields on these two corporate bonds differ from the yield on your Treasury bond from the previous question?
   c. What is the default risk premium for each bond in question b?

2. Use the following information to answer the questions below.

Time to Maturity	U.S. Treasury Yield
6 month	3.0%
1 year	4.1%
2 years	4.3%
3 years	5.0%
5 years	5.7%
10 years	6.2%
30 years	7.0%

   a. Construct a yield curve graph (chart) using a spreadsheet program based on the above information. Make sure you label your axes. Hint: In Excel, an XY scatter chart looks best.

b. Classify the shape of your yield curve, i.e. flat, downward (inverted), or upward (normal) sloping. Define what each shape means regarding the term structure of interest rates.
c. What does the shape of your yield curve mean about future interest rates according to the pure expectations theory and the market segmentation theory? Can liquidity preference theory explain the shape of your yield curve?
d. What is the expected one-year Treasury yield one year from today (the expected one-year rate for year 2) according to the expectations theory? What is the expected year 2 inflation rate if the real rate of interest (k^*) is 2% according to this same theory?
e. What is the expected one-year Treasury yield two years from today (the expected one-year rate for year 3) according to the expectations theory? What is the expected year 3 inflation rate if the real rate of interest (k^*) is 2% according to this same theory?
f. What is the expected two-year Treasury yield one year from today (the expected two year rate for year 2 and 3) according to the expectation theory?
g. What is the expected two-year Treasury yield three years from today (the expected two-year rate for year 4 and 5) according to the expectations theory?
h. Now, let's say you believe in the liquidity preference theory, and the maturity risk premium is given by the formula $(t-1)0.1\%$ where t is years to maturity. What is the expected average annual rate of inflation over the next 10 years if the real rate of interest (k^*) is 1%?

3. Use the following probability distribution of possible stock returns for two stocks to answer the remaining questions.

State of Economy	Probability of State	ABC Inc.	XYZ Co.
Recession	0.15	-10%	30%
Normal	0.55	20%	25%
Boom	0.20	25%	2%
Bubble	0.10	40%	-40%

a. What is the expected return, standard deviation, and coefficient of variation for each stock?
b. What is the expected return and standard deviation of a portfolio where 30% of your money is invested in ABC Inc. stock and the rest in XYZ Co.?
c. Why does the standard deviation of your portfolio in question b vary from the weighted average of the standard deviations of the individual stocks?