DEBT SECURITIES, SEMESTER 1, 2012 – TUTORIAL 5

CHAPTER 6: YIELD MEASURES, SPOT RATES AND FORWARD RATES

Problem 4)
The following yields and prices were reported in the financial press. Are any of them incorrect assuming that the reported price and coupon rate are correct? If so, explain why? (No calculations are needed to answer this question.)

Bond	Price	Coupon rate	Current yield	Yield to maturity
A	100	6.0%	5.0%	6.0%
B	110	7.0%	6.4%	6.1%
C	114	7.5%	7.1%	7.7%
D	95	4.7%	5.2%	5.9%
E	75	5.6%	5.1%	4.1%

Problem 7)
a. Which of the following three bonds has the greatest dependence on reinvestment income to generate the computed yield? Assume that each bond is offering the same yield to maturity. (No calculations are needed to answer this question.)

Bond	Maturity	Coupon rate
X	25 years	0%
Y	20 years	7%
Z	20 years	8%

b. Which of the three bonds in part a. has the least dependence on reinvestment income to generate the computed yield? Assume that each bond is offering the same yield to maturity. (No calculations are needed to answer this question.)

Problem 18)
Suppose that the annual yield to maturity for the 6-month and 1-year Treasury bill is 4.6% and 5.0%, respectively. These yields represent the 6-month and 1-year spot rates. Also assume the following Treasury yield curve (i.e. the price for each issue is $100) has been estimated for 6-month periods out to a maturity of 3 years:

Years to maturity	Annual yield to maturity (BEY)
1.5	5.4%
2.0	5.8%
2.5	6.4%
3.0	7.0%

Compute the 1.5-year, 2-year, 2.5-year and 3-year spot rates.

Problem 19)
Given the spot rates computed in the previous question and the 6-month and 1-year spot rates, compute the arbitrage-free value of a 3-year Treasury security with a coupon rate of 8%.

Problem 25)
Assume the following Treasury spot rates:

Period	Years to maturity	Spot rate
1	0.5	5.0%
2	1.0	5.4%
3	1.5	5.8%
4	2.0	6.4%
5	2.5	7.0%
6	3.0	7.2%
7	3.5	7.4%
8	4.0	7.8%

Compute the following forward rates:
a. the 6-month forward rate six months from now.
b. the 6-month forward rate one year from now.
c. the 6-month forward rate three years from now.
d. the 2-year forward rate one year from now.
e. the 1-year forward rate two years from now.