Problem Set 2

Due in lecture on Wednesday, November 10th.

1. Consider Figure 1, a graph of the yield spread, in percentage points. Explain why we observe this pattern of spreads.

![Figure 1: Baa minus Aaa corporate yield. Source: Moody's via St. Louis Fed.](image)

2. Consider the corporate bonds associated with GM Motor Company. If the U.S. Government were to declare that it would ensure that GM would not go bankrupt, what would happen to yields on GM Motor Company bonds? Use diagrams to explain what happens.

3.1. Assume the expectations theory of the term structure is correct. Draw the yield curves (at 1, 3 and 5 years) for the following series of one year interest rates:

- a) .04, .05, .06, .05, .04
- b) .04, .01, .02, .03, .04

(Where the interest rates are expressed in decimal form, i.e., 15% = 0.15).

3.2. Suppose in case (b), $i_{3t}$ jumped by .02 (2 percentage point), while $i_t$ remained constant. Can you say when and by how much future expected short term interest rates changed? Why or why not?

3.3. Returning to the figures given to you in part 3.1., suppose $P_{1t} = 0$, $P_{3t} = .01$, and $P_{5t} = .02$. Recalculate the yield curves.
4. Consider the Figure 2, a graph of yield curves on November 2, 2010. What is your interpretation of the yield curve’s implications?

![Figure 2: US yield curve, 11/2/2010. Source: FT.](image)

5. Compute the price of a share of stock that pays a $1 per year dividend and that you expect to be able to sell in one year for $20, assuming you require a 15% return.

6. Calculate the price of a share of stock, assuming dividends are expected to be constant at $D_0 = 1$ and $k_e$ is also expected to be constant at 0.05. Show your algebraic work. Suppose that you revise your expectations regarding $k_e$ downward by 2 percentage points. What immediately happens to the price of the share of stock? Once again, show your work.