Tutorial Questions 2

October 14, 2010

1. If the nominal interest rate on a two year bond is 6%, and the current short-run interest rate is 2%, what are expectations of the short-run rate for next year? [Assume no risk premium in long-run rates.] Would this result hold if two year bonds were more liquid?

2. Suppose the central bank raises the rate of money growth *permanently* from 0% to 2%. The current short-run nominal interest rate is 4%. Assume prices are fully flexible. What would happen to the yield curve?

3. If the natural real interest rate is 4%, what is the natural *nominal* interest rate? Assume money growth is 2% percent, and output growth is 3%.

4. Many European banks hold sovereign bonds on their balance sheets. What happens to banks' capital as default risk on those bonds rise? Why is the ECB currently purchasing sovereign bonds? What would happen to banks' capital if the ECB increased the rate of money growth permanently?

5. Paul Krugman has argued that that natural rate of interest is currently *negative.* If the nominal rate is zero, how could this be attained?

6. Write down the *Euler equation* between periods 1 and 2. Write the Euler equation for periods 2 and 3. Use the *expectations theory of the term structure* to write the Euler equation between periods 1 and 3, in terms of the interest rate on a 2-year bond. Assume no risk premium.

7. Suppose there is an *endowment economy* (i.e., with no production) with a representative agent, and endowments are the same every year. Find the natural rate of interest in such an economy.

8. What are the implications of each of the following developments for the yield curve:

    - The central bank is permanently made independent of the government today.

- News that the government will start running large budget deficits in ten years time, as a result of baby-boomers retiring and the attendant strain on social welfare systems. (Assume the economy is closed.)
- A new policy that starts in 5 years time that raises savings.
- A permanent fall in money growth today.

9. If the yield curve is flat, what do investors expect about short-run interest rates in the future?

10. Explain the argument Paul Krugman is making below:

> "*There's no ambiguity in either case: both Fama and Cochrane are asserting that desired savings are automatically converted into investment spending, and that any government borrowing must come at the expense of investment. What's so mind-boggling about this is that it commits one of the most basic fallacies in economics: interpreting an accounting identity as a behavioral relationship. Yes, savings have to equal investment, but that's not something that mystically takes place, it's because any discrepancy between desired savings and desired investment causes something to happen that brings the two in line."*

11. Using the expectations theory of the term structure, explain the following:

> "*Reports that the fiscal stimulus package could total 600 billion over 10 years, much larger than expected by bond investors contributed to a further sell-off yesterday among concerns about rising future issuance of government bonds. Yesterday, five-year and 10-year yields ended at* 3.04% *and* 4.06%*, respectively, up from* 2.98% *and* 4.03% *on Friday.*"

12. One of Clinton's economic advisors, James Carville, famously said:

> *"I used to think that if there was reincarnation, I wanted to come back as the president or the pope or as a baseball hitter. But now I would like to come back as the bond market. You can intimidate everybody."*

What was he referring to?