

Final Exam

July 21, 2009

- This exam is 60 minutes long, and is worth 100 points.
- Define clearly all the letters you use, like 'let " i " denote the interest rate.'
- The numbers in brackets after the questions represent the points allocated.

PART 1: Very short answer for each question

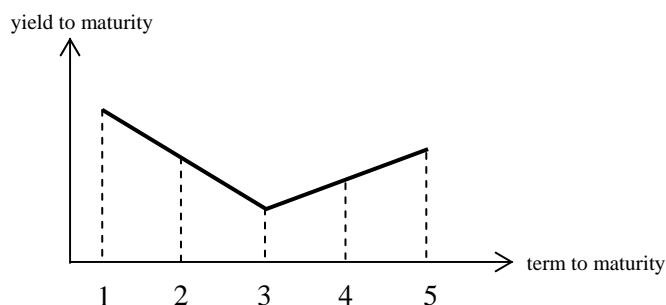
1. What are the three major functions of money? [3]
2. Does M2 now include the deposits at Japan Post Bank? [3]
3. Suppose that a country's GDP grows at an annual rate of 10%. How long does it take to be doubled? [3]
4. Which asset usually accounts for the largest part of M1? [3]
5. Which is a more liquid asset, one-year bond or ten-year bond? [3]

PART 2: Answer in four to six lines for each question

1. Explain the TERM STRUCTURE OF INTEREST RATES and the empirical facts about the patterns of yield curves. [10]
2. Explain RISK-NEUTRALITY with an example. [10]
3. Explain REQUIRED RESERVE RATIO. [10]

PART 3:

1. Answer the following questions based on the expectations theory of the term structure.
 - (1) (Simple calculation) Calculate the interest rates for maturities of one to five years, and plot the resulting yield curves for the following series of one-year interest rates over the next five years:
 - a. 3%, 5%, 7%, 5%, 5% [5]
 - b. 3%, 5%, 7%, 3%, 2% [5]
 - (2) If a yield curve looks like the one shown below, what is the market's prediction about the movement of future short-term interest rates? [10]



2. Suppose that the Bank of Japan buys ¥10 billion of government bonds from MG Bank, a commercial bank.
- (1) Draw the T-accounts for the BOJ and MG Bank. Be careful that the BOJ pays for the bonds through the MG Bank's reserve. [5]
 - (2) Does this operation increase or decrease MG Bank's reserve? [5]
 - (3) What does MG Bank do next? [5]
Hint: Does it now hold reserve in excess? If it does, what will it do to earn income?
 - (4) Finally, how does this operation by the BOJ affect the amount of deposits at commercial banks in Japan, and thereby the supply of money? [5]
 - (5) How does this operation affect the interest rate based on our model of interest rate determination? Explain the process in detail where the market reaches a new equilibrium. Be careful about the relationship between the price of a bond and its interest rate. You can draw a graph, if it helps. [15]