

Final Exam

July 19, 2010

15:10 – 16:10

- Define clearly all the letters you use, like “let P represent the price of a bond.”
- Write in clear letters so that you can appropriately be evaluated.
- Your grade is open after a week. Visit my website for further information:
<http://www1.meijigakuin.ac.jp/~iwamura/>

Part 1 True or False

1. Money has a permanent impact on employment. [4]
2. Here are two investment plans. One yields 7 % with a probability of 0.4 and 12 % with 0.6, and the other yields 0% with 0.5 and 20 % with 0.5. A risk-neutral person prefers the former to the latter. [4]
3. An “inverted yield curve” slopes downward. [4]
4. When the market for money is in equilibrium, so is the market for bonds. [4]
5. When prices are constantly rising with the income constant, the interest rate is falling. [4]

Part 2 Answer briefly

1. Write down the equation that gives the yield to maturity of a four-year coupon bond with a face value of 100,000 yen and a coupon rate of 7%, selling for 98,000 yen today. [5]
(*You don't need to solve the equation.)
2. Suppose that Meiji Gakuin University (MGU) buys a car from Alpha Motors (AM) at 3 million yen.
 - a) If both MGU and AM have their accounts at the same commercial bank, First Bank, how is the payment made without the help of the central bank? [5]
 - b) Suppose MGU and AM have their accounts at different banks, First Bank and Second Bank, but First Bank has its account at Second Bank, and so does Second Bank. How is the payment made without the help of the central bank? [5]
3. Financial markets expand our choices of when to spend and how much, thus improving our welfare. Give an example. [5]
4. Suppose that the one-year rate today is 2 % and the two-year rate is 3 %. According to the expectations theory, should we buy two-year bonds? Why? [5]
5. Suppose that interest rates for one-year bonds are expected to follow this pattern: 3% today, 5% one year from now, 7% two years from now, 3% three years from now, and 2% four years from now. What are the current interest rates on two-year, three-year, four-year, and five-year bonds, according to the expectations theory? [10]

Part 3 Detailed explanation

1. Suppose that short-term interest rates fall during recessions and rise during expansions. How does the expectations theory predicts the yield curve would be when (a) the economy is at a peak and a recession is beginning; (b) the economy is midway between a peak and a trough; (c) the economy is in a trough, and an expansion is beginning; and (d) the economy is midway between a trough and a peak? [15]

2. George Benson has been promised to be paid 100,000 yen per year by the local government, for allowing a road to pass through his land. The government has also promised to make this payment to the owner of this land forever, even if the land changes its owner. Now he wants to sell this land. How much are you willing to pay for this land, if another investment plan that yields 8% is available? [15]
(*Hint: Let “P” and “i” represent the land price and “interest rate” of the investment on this land, and specify the equation that gives the interest rate of this land. Then, apply, to the right hand side, the formula for the sum of an infinite geometric series, and simplify the equation.)
3. Suppose that the required reserve ratio is 0.1, and commercial banks do not hold excess reserves. Now First Bank has 100 million yens of deposits at its liabilities, and 10 million yens of reserves and 90 million yens of loans at its assets.
 - a) When the central bank sells one million yens of bonds to First Bank, it decreases the First Bank's account by the same amount. First Bank collects one million yens of loans which it has made to Alpha Motors and compensates for the decrease in reserves, and Alpha Motors repays by withdrawing from Second Bank, where AM has deposited. Suppose Second Bank has made loans to Beta Steel, which has its account at Third bank. Explain the process of multiple deposit “reduction.” [10]
*You don't have to calculate the total decrease in deposits. Just show the first few steps of the whole process.
*You can give me another example to explain the process, instead of the example here.
 - b) Explain how this operation by the central bank affects the market interest rate, from the Keynesian viewpoint. [10]