Econ 353 Money, Banking, and Financial Institutions  
Spring 2006

Midterm Exam 1  
Name______________________________

- The duration of the exam is 1 hour 20 minutes.
- The exam consists of 11 problems and it is worth 100 points.
- Please write in the space provided. If necessary, write on the back of the page.
- Please ask me if you have any questions.
- To receive full credit you have to carefully explain all your answers and show all your work.

General advice: If you get stuck in the early parts of a problem, do not stop there. You can receive substantial partial credit by explaining how you would solve the rest of problem if you had the necessary answers from its previous parts.

1. (20 points) Determine whether each of the statements below is True or False:

   Money is defined as anything that is generally accepted in payment for goods and services or in the repayment of debt.

   U.S. Treasury is responsible for the conduct of monetary policy in the United States.

   The monetary aggregate M3 includes fewer types of assets than the monetary aggregate M1.

   Of money’s three functions, the one that distinguishes money from other assets is its function as a store of value.

   The conversion of a barter economy to one that uses money increases efficiency by reducing the cost of exchange.

   People find money a convenient store of value because its value remains fixed to the price level; that is, if prices double so does the value of money.
Currency is a part of M1, but not M2 and M3.

According to the liquidity premium theory, if the upward sloping yield curve signals that the interest rates are expected to rise.

2. (5 points) The Chicago Tribune ran a story on February 9, 2006 saying that the Chicago Mercantile Exchange will introduce financial instruments based on the amount of snow that falls in New York's Central Park and Boston's Logan International Airport. Although the details have yet to be released, it is possible that one of the contracts will specify that “the seller of the contract agrees to pay the buyer of the contract $100 for every inch of snowfall above the first 3 inches in a month of January”. Who could benefit from buying and selling such a contract?

3. (10 points) You purchase a consol with annual coupon payments of $50, the interest rate is 6%. One year later the interest rate has changed to 5% and you decide to sell the consol. What is your one-year holding period return?

4. (5 points) What are the three main risks associated with holding bonds? Which of them affect bond ratings?
5. (20 points) Suppose that the following yield curve is observed today:

a. Name at least two regularities observed in the data on term structure of interest rates.

b. Assuming that the expectations hypothesis is true, determine the current yield on 1-year bonds, 2-year bonds, 3-year bonds, and 4-year bonds?
c. Assuming that the expectations hypothesis is true, determine the yield on 1-year bonds one year from today, two years from today, and three years from today? Would you be able answer this question without assuming that the expectations hypothesis is true?

d. What is the main drawback of the expectations hypothesis? Which theory addresses this drawback? Briefly outline the main idea of this theory?

6. (5 points) If $1102.50 is the amount payable in two years for a $1000 simple loan made today, what is the internal rate of return of this loan?
7. (5 points) Suppose you are holding a 5 percent coupon bond maturing in one year with a yield to maturity of 15 percent. If the interest rate on one-year bonds rises from 15 percent to 20 percent over the course of the year, what is the one-year holding period return on this bond?

8. (5 points) Name at least two reasons why bonds with the same maturity would have different returns?

9. (10 points) Explain the difference between direct and indirect finance. What role do financial intermediaries and financial markets play in this process? Explain whether direct or indirect finance is a more important source of funds and why this is the case.
10. (5 points) Which of the following 1-year, $1,000 face-value securities has highest yield to maturity?
   i. A 5 percent coupon bond selling for $1,000
   ii. A 10 percent coupon bond selling for $1,000
   iii. A 12 percent coupon bond selling for $1,000
   iv. A 12 percent coupon bond selling for $1,100

11. (10 points) Using the supply-demand graph explain what will happen to the long-term bond prices and interest rates if interest rates are expected to rise in the future.
The formulas you may or may not need:

\[ PV = \frac{C}{i} \times \left[ 1 - \frac{1}{(1+i)^n} \right], \]

\[ PV = \frac{FV}{(1+i)^n}, \]

Expected value = \text{value} \times \text{prob(value)} + \text{value} \times \text{prob(value)} + \ldots

Variance = (\text{value} - \text{expected value})^2 \times \text{prob(value)} + (\text{value} - \text{expected value})^2 \times \text{prob(value)} + \ldots

\[ i_{nt} = \frac{i_{t} + i_{t+1} + i_{t+2} + \ldots + i_{t+n-1}}{n}. \]