Econ 353 Money, Banking, and Financial Institutions
Spring 2006

Midterm Exam 2 Name____________________________________

- The duration of the exam is 1 hour 20 minutes.
- The exam consists of 10 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:

An investor with the short position in the bond futures market is hoping for lower interest rates in the future.

Option writer always exercises a call option which is in the money.

A put option is said to be in the money if the price of the asset is lower than the strike price.

Most of the options sold in the US are of the so-called European type.

The intrinsic value of an at-the-money call option is zero.

If the Efficient Market Hypothesis is true, it is not possible for anyone to beat the market average.

Indirect finance plays a more significant role in the modern financial system than direct finance.

2. (5 points) Compute the profits of an investor who bought for a \$300 premium a *call* option on 100 shares with a strike price of \$1000 per share, if at the expiration date the market price of this share is \$1200.

3. (5 points) Suppose that a corn futures contract specifies the delivery of 1000 bushels of corn in 5 months at the price of \$5 per bushel. Suppose that the price rises from \$5 to \$6 per bushel of corn. Carefully describe the transactions on the margin accounts of a seller and a buyer of one such corn futures contract.

4. (10 points) Explain what the moral hazard of debt contracts is and name at least two ways of dealing with this problem?

5. (5 points) Suppose that company A expects to pay a $2 dividend on each of its stocks next year. The price of each share of stock is $200. Assume that the growth rate of dividends is 4% a year. The risk-free interest rate is 3%. What is the implied risk premium?

6. (5 points) What is the difference between price-weighted and value-weighted stock market indices? Give at least one example of each?

7. (10 points) Show on a T-account the following transactions:
   a. A customer repays a $1000 loan to the bank.

   b. Bank borrows $100,000 on the federal funds market to meet the required reserve norms.

   c. Bank issues and sells $100,000 worth of new shares.

8. (10 points) Explain the relationship between return on assets and return on equity. What incentives does this relationship give a bank manager? Is this the desired outcome preferred by regulators? Why?

9. (15 points) Suppose that a bank has $350 million in assets the interest rate on which is equal to the current rate on 1-year Treasury Bills plus 3%. The interest rate on the remaining $800 million in assets is fixed and is equal to 7%. The bank pays the interest rate equal to the rate on 1-year T-Bill rate plus 1% on $900 million of its liabilities. It pays a fixed rate of 4% on the remaining $250 million of its liabilities. The current T-Bill interest rate is 4%.
   a. Carefully describe the nature of the risk this bank faces because of the mismatch of the interest rate sensitive assets and liabilities?

   b. Define and calculate the gap?

c. Suppose that the T-Bill interest rate rises to 5%, what is the change in profits of this bank?

10. (15 points) Show graphically and explain the profits and losses of selling futures relative to buying put options.