Homework 5:
The Monetary System and Inflation
Due February 23, 2007

1. Be sure to read your copy of the Wall Street Journal every weekday, looking especially for items related to the material in this course. Find an article in this week's Wall Street Journal or other news source that is relevant to the topic of this homework assignment. Turn it in, or a copy of it, with your assignment, and write a brief summary of it (half a page to a page). Your summary should outline the main points of the article **and** explain why it is relevant to the homework topic, in this case "The Monetary System and Inflation."

2. You are going to use the following hypothetical financial information to measure the money supply in the US in 2000.

    Traveler's checks held by the public: $38 billion

    Bills and coins in circulation: $615 billion

    Bills and coins in vaults of commercial banks: $37 billion

    Demand deposits: $905 billion

    Savings deposits: $4 trillion

    Government bonds held by the public: $218 billion

    Government bonds held by the Federal Reserve Bank: $251 billion

    Amounts owed on credit cards: $279 billion

    Credit limits on credit cards: $514 billion

    Small time deposits: $2,321 billion

    Money market mutual funds: $2,956 billion

    Using this information calculate M1 and M2. Some of the above information is not used to calculate the money supply. Explain why.

3. What are the options available to the Federal Reserve to increase the money supply? Explain how each works. How can the effectiveness of these policies be limited by the actions of banks and the public?

4. Suppose that First National Bank acquires $600,000 in new deposits and initially uses part of this to make new loans of $400,000. The T-account of First National Bank, showing changes in its assets and liabilities, is as follows:

Assets		Liabilities	
Change in Reserves	$200,000	Change in Deposits	$600,000
Change in Loans	$400,000		

   a) Suppose that the Fed requires banks to hold 10 percent of deposits as reserves, and that prior to the changes shown above the First National Bank was satisfying that requirement exactly. How much in excess reserves does First National now hold, as a result of the changes listed above?

   b) Assume that all other banks hold only the required amount of reserves and that the public holds no cash. If First National now decides to reduce its reserves to only the required amount, by how much will the economy's money supply increase?

5. Let us visit the Island of Yap on which our friend Pacificus has set up a commercial bank. Pacificus fears bank runs, and so he wishes to keep at least 10% of all deposits in his safe, just in case somebody wants his/her deposits returned to him/her.

Suppose that the original total value of stone wheels (used as money) on the island is 500 fei. The line for loans is endless. Once people have gotten their loan, they spend it immediately. Whomever they purchase goods and services from then shows up at the bank to deposit the money into their account.

   a) Colobos, one of the more adventurous islanders, discovers an unknown rock in a hidden place. If he can chisel 5 more stone wheels worth a total of 100 fei out of that rock, and he then deposits those wheels in the bank, by how much will the amount of loans, deposits, and money supply increase? Be sure to calculate what the original money supply was.

   b) The media got wind of the increase in money supply, but nobody knows for sure where the extra money had come from. As a result, some islanders have become more suspicious of the bank's operation. Just to play it safe, Pacificus decides to increase his reserve-deposit ratio to 15 percent. What is the amount of loans that Pacificus needs to recall? (Hint: a recalled loan requires somebody else to withdraw money.)

6. The table below gives data on money stock and real and nominal GDP for 1995, and the money stock for 1996 through 1999. Assume that the growth rate in real GDP is 3% a year, and is constant.

	M1	Real GDP	Nom. GDP
1995	1000	$9,000	$9,000
1996	1100		
1997	1540		
1998	1925		
1999	2025		

    (a) Calculate the velocity of money (V) for 1995.

    (b) If we assume that the velocity of money remains constant, find nominal GDP for years 1996 through 1999.

    (c) What is the rate of increase in prices between 1998 and 1999, measured by the GDP deflator? Compare this with the rate of increase in money supply, and the real GDP growth between 1998 and 1999. Do you observe the neutrality of money?

7. Use the diagram of Money Supply and Money Demand to illustrate the direction of the long-run effects of the following changes in the economy on the price level and the real interest rate, according to the quantity theory of money.

    (a) The Fed increases the minimum reserve ratio.

    (b) The Fed prints more money and uses it to buy government bonds from the public.

9. Suppose that the price level in the United States is expected to rise by 5% over the next year. What are the costs associated with this expected inflation? What other costs will the United States face if the inflation unexpectedly turns out to be 10%?

10. We have mentioned the possibility of a "run" on a bank: people trying to withdraw more from their deposits than the bank actually has, since it has loaned out the rest. In principle, such a run could happen not just to a single bank, but to the whole banking system.

    a) Use data that you find on the web (or in the Wall Street Journal, though with the new format I'm not sure where, or when) to determine what is the largest fraction of their deposits that the U.S. public could try to withdraw from U.S. commercial banks before the banks would run out. (Suggestions: Use the data from the web site of the Federal Reserve Board, Statistics: Assets and Liabilities of Commercial Banks in the U.S., table H.8.)

    b) What do you think would actually happen if more people than this were to try to empty their checking accounts?