Homework 1
Monetary Theory and Policy: ECO 403
Due: Wednesday, February 8, 2012

Question 1.

Sometimes investment banks also enter into repurchase agreements with large countries/corporations. The difference is that the country/corporation does not typically get any check writing privledges in a repo at an investment bank. Should repos at investment banks count in M1, M2, or neither? Explain.

Question 2.

Currently, the reserve rate is 0.25% and the FED Funds Rate is 0.13%.

a. In general, would you expect the FED funds rate to be smaller, equal to, or larger than the reserve rate? Explain.

b. According to Bernanke, why is the reserve rate larger than the FED funds rate?

c. What reason was given in class for the reserve rate being larger than the FED funds rate?

Question 3.

a. For each of the FED actions below does the money supply rise, fall, or remain unchanged? Briefly explain.

b. Which of the actions below does the FED plan to take to reduce the money supply once the economy recovers?

c. Which of the actions below are prescise ways to change the money supply?

Actions:

- The FED increases the required reserve ratio.
- The FED increases the reserve rate.
- The FED conducts a TAF auction.
- The FED sells short term tbills and buys an equal dollar amount of long term treasury bonds ("Operation Twist").
- The FED buys foreign currency.

Question 4.

Here is some actual current US market data:

- The bank lending rate (30 year fixed mortgage) is 4%.
- The required reserve ratio is 0.1.
- The interest rate on 6 month CDs is 0.21%.
- The reserve rate is 0.25%.
- CPI inflation since 1 year ago 3.0%.
- FED funds rate is 0.13%.
- The discount rate is 0.75%

a. Calculate the average nominal and real interest rate banks earn when the source of funds is checking deposits (assume the cost of processing checks is neglible).

b. Calculate the average nominal and real net interest rate banks earn on loans when the source of funds is CD's.

c. Calculate the average nominal and real net interest rate banks earn on loans when the source of funds is borrowing from another bank.

d. Calculate the average nominal and real net interest rate banks earn on loans when the source of funds is borrowing from the FED.

e. Rank the sources of deposits from most to least attractive for the bank.

Question 5 (REQUIRES MONDAY'S NOTES)

Suppose:

- Currency to deposit ratio is $\frac{1}{3}$.
- The required reserve ratio is $\frac{1}{6}$.
- Banks hold excess reserves $e(R) = \frac{1}{3} - \frac{1}{12}(R - R_0)$, where R is the FED funds rate, in percentage terms (i.e. use 6% not .06).
- The reserve rate is 2%.
- The FED Funds rate is 4%.
- The Money supply is \$12 Trillion.

a. What is the money multiplier?

b. Calculate the quantity of high powered money in the economy.

c. How much currency is held by the public, how much currency is held by banks, and what are the total checking deposits?

d. What are total bank lending, total required reserves, and total excess reserves?

e. How many dollars worth of tbills would the FED have to buy/sell in order to decrease the money supply to \$8 Trillion? Would the FED buy or sell tbills?

f. Calculate total bank lending after the FED buys/sells tbills to reduce the money supply to \$8 trillion.

Suppose instead of buying/selling tbills, the FED raises the reserve rate to 4%.

g. Calculate the new reserve to deposit ratio, checking deposits, and total bank lending (use the value of H obtained in part b).

h. Calculate the new money supply.

i. Did bank lending increase or decline? Which has a bigger effect on lending in this case, buying/selling tbills or raising the reserve rate?

Question 6 (REQUIRES MONDAY'S NOTES)

Here is some actual current market data (all dollar figures are in billions):

- The high powered money is \$2,016.
- Total bank reseres are \$1,078.
- Required reservers are \$71.
- The required reserve ratio is 0.1.

a. Calculate total excess reserves, total checking deposits, and total currency in circulation.

b. Calculate the currency-to-deposit ratio and the excess reserve ratio.

c. Calculate the money supply.