

Question #1. T- Accounts and the Money Multiplier

All Banks are required to hold \$1 in reserves for every \$10 of deposits in this economy. Assume that all accounts were previously equal to 0 (or that we are only looking at changes), and that there are an infinite number of banks in this economy.

a) At first Susan has \$3000 cash in hand. Suppose that she deposits all of these in Bank #1. Fill the following table for Bank #1 immediately after Susan has made her deposit. Be sure to label all entries.

Bank #1's Balance Sheet	
<u>Assets</u> Reserve: \$3000	<u>Liabilities</u> DD \$3000

b) Because Susan deposits \$3000 in cash in Bank #1, Bank #1 has

- i. Total Reserves = **\$3000**
- ii. Required Reserves = **\$300**
- iii. Excess Reserves = **\$2700**

c) Now suppose that Bank #1 lends out any excess reserves to Bill. Bill uses the entire loan to buy a TV from Best Buy, who deposits his payment in Bank #2. Fill in the following table for Bank #1 and #2 immediately after Best Buy has deposited his payment (Bill's loan) in Bank #2. Be sure to label all entries.

Bank #1's Balance Sheet	
<u>Assets</u> RR: \$300 Loan: \$2700	<u>Liabilities</u> DD \$3000

Bank #2's Balance Sheet	
<u>Assets</u> Reserve: \$2700	<u>Liabilities</u> DD \$2700

d) Suppose that Bank #2 lends out all of its excess reserves to Fred, and Fred's loan ends up being deposited in Bank #3. Fill in the following tables for bank #2 and bank #3

Bank #2's Balance Sheet	
<u>Assets</u> RR: \$270 Loan: \$2430	<u>Liabilities</u> DD \$2700

Bank #3's Balance Sheet	
<u>Assets</u> Reserve: \$2430	<u>Liabilities</u> DD \$2430

e) Suppose this lending cycle continues many times (infinity). Fill in the following table for All Banks Combined. (Assuming there are no currency drains.)

Combined Bank Balance Sheet

<u>Assets</u>	<u>Liabilities</u>
RR: \$3000 Loan: \$27000	DD: \$30000

f) Compared the scenario above to one in which Susan hold the entire \$3000 as cash. How much will the above cycle (started with Susan depositing all of the money into a bank) increase the money supply in our economy? (Assuming there are no currency drains.) What is the money multiplier?

When Susan holds the entire \$3000 as cash, the money supply = S+ \$3000. Where S stands for the initial money supply unaffected by the question.

When Susan deposit the entire \$3000 in the bank and the bank has a 10% reserve ratio, the money supply =S+ \$30000.

The money supply increases by \$30000-\$3000=\$27000 due to Susan’s action of putting it in the bank.

The money multiplier is 10 = 1/RR = 1 / 0.1

g) Use the Combined Bank Balance Sheet we get from e), if Michael withdraws \$100 to put in his wallet. (maybe just to avoid the situation that some armed robbery happens to him but he doesn’t have enough money to give to the guy, and then the guy shall be very angry at him, or maybe aliens...use your imagination) What will happen to the money supply in our economy? (Assuming there are no currency drains.)

Combined Bank Balance Sheet

<u>Assets</u>	<u>Liabilities</u>
RR: \$2900 Loan: \$26100	DD: \$29000

The money supply decreases \$30000-\$29000+\$100=\$900. (c.f. Michael being robbed by aliens)

Question #2. Open Market Operations

Suppose the Federal Reserve bank buys back 1 million worth of government bonds in the market through an open market operation.

a) Assume that the required reserve rate for deposit is 10%. What is the effect on the money supply by this open market operation?

1* (1/(10%))=10 million

b) Assume that the required reserve rate for deposit is 20%. What is the effect on the money supply by this open market operation

1* (1/(20%))=5 million

c) Assume that the required reserve rate for deposit is 20%. But instead of buying bonds, the Fed decides to sell 1 million worth of government bonds. What is the effect on the money supply by this open market operation

-1* (1/(20%))=-5 million

In order to buy bonds from Fed, someone has to withdraw 1 million cash from bank. Then the Fed just keep this 1 million cash out of market. Very similar to what Michael did in part g) in #1.

Question #3.

Suppose that the Federal Reserve forecasts a recession in 2008 for our economy (i.e. the aggregate demand will be too low).

(a) To boost up our economy, should the Fed try to lift up the interest rate or should it try to lower it?

Lower the interest rate

(b) To achieve this goal, what open market operation should the Fed do? Should they purchase bonds or should they sell bonds in the market?

Should buy bonds.