

## Exercise 5

### Money Market

1. What are the three functions of money? Evaluate whether “gold” can effectively serve these three functions.

#### Three functions of money

1. medium of exchange or means of payment - what people generally accept in their transactions
2. store of value - asset can be used to transport purchasing power from one time period to another
3. unit of account - standard unit that allows people to compare the value of things

Gold also can serve these 3 functions

2. Suppose that people hold 1000\$ as cash, 1000\$ as demand deposits, and 1000\$ as savings; calculate narrow money and broad money. How much is the “money supply” in the economy?

Money supply is M1

$M1 = \text{currency in circulation} + \text{demand deposit}$

$M1 = 1000 + 1000$

$M1 = 2000 \#$

Broad money is M2

$M2 = M1 + \text{saving and time deposit}$

$M2 = 2000 + 1000$

$M2 = 3000 \#$

3. What is Fractional Reserve System (FRS)? Explain how money can be created through this system.

Fractional Reserve System (FRS) is the banking system used by goldsmiths and bank. After people deposit at commercial bank, central bank impose the reserve requirement. Money can be created when people deposit at bank and bank lend money to other people. This will create money supply.

4. Suppose that the reserve ratio is 20% and that Mr.Bean has 100\$ CASH and 200\$ DEPOSIT. Assume that people deposits all their money, and that the banks lend all their deposits; answer the following questions.

a) What does the reserve ratio of 20% means?

central bank will keep 20% of Mr. Bean's deposit as a reserve

b) WITHOUT the fractional reserve system (FRS), how much is the money supply?

$$M_s = M_1 = 100 + 200 = 300 \text{ \#}$$

c) Calculate the money multiplier.

$$\text{Money multiplier} = \frac{1}{RR} = \frac{1}{0.2} = 5 \text{ \#}$$

d) WITH the FRS, how much is the TOTAL DEPOSIT within the economy?

$$200 \times \frac{1}{0.2} = 1000 \text{ \#}$$

e) How much deposit is created from the FRS?

$$1000 - 200 = 800 \text{ \#}$$

f) WITH the FRS, how much is the money supply?

$$1000 + 100 = 1100 \text{ \#}$$

5. Explain three roles of central banks.

1 Lender of last resort - provide funds to troubled banks that can't find any other sources of funds

2. Facilitates the transfer of funds among banks and responsible for many regulations governing banking practices and standard

3. Responsible for managing exchange rates and the nation's foreign exchange reserves

6. What is Liquidity? What is the most liquid asset? Explain the three reasons (according to Keynes) why people prefer to have liquidity. Which of these three reasons causes the money demand curve to be downward-sloping?

Liquidity refers to how easily the assets can be converted into a mean of exchange

The most liquidity asset is Money, especially "cash"

According to Keynes, demand for liquidity is determined by 3 motives

1. Transaction Demand
2. Precautionary Demand
3. Speculative Demand

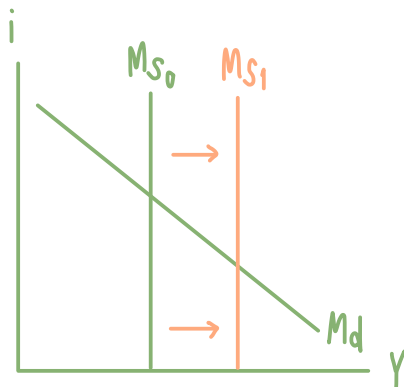
7. How does each of the followings affect the money demand curve? (That is, will it shift the curve, or is it movement along the curve?) Also, explain your reasoning.

- a) People become poorer. *Md shift to the left*
- b) Goods become more expensive *Md shift to the right*
- c) People prefer to hold less cash due to debit/credit cards *Md shift to the left*
- d) The central bank decreases interest rate. *Movement in Md curve*

8. Why is the money supply curve a vertical line? How does each of the followings affect the money supply curve? Also, explain your reasoning.

- a) People deposit more money. *Ms increase*
- b) The central bank increases reserve ratio. *Ms decrease*
- c) The central bank decreases discount rate. *Ms increase*
- d) The central bank decreases interest rate. *Ms doesn't change*

9. Suppose that the central bank wants to lower interest rate to boost the economy. Explain, together with the money market diagram, how the central bank can achieve this through an open market operation.



If central bank want to decrease interest rate  
Central bank have to increase money supply by  
buys securities from people

10. Suppose that the money market is NOT in equilibrium because the current interest rate is higher than the equilibrium rate,  $i > i^*$ . Explain how the money market adjusts to reach the equilibrium.

Bond price will increase so interest rate will drop to reach equilibrium

11. Write down the equation for the Quantity Theory of Money. Explain how this equation can be used to explain inflation.

$$MV = PY$$

$V$  and  $Y$  are constant

An increase in money supply leads to an increase in price level  
That is, printing money creates inflation

12. Let the money demand function be  $M_D = 200 - (1000)i$  and the money supply function be  $M_S = 100$ .

a) Calculate the equilibrium interest rate,  $i^*$ . (Hint: set  $M_D = M_S$  and solve for  $i^*$ )

$$\begin{aligned}M_D &= M_S \\200 - 1000i &= 100 \\100 &= 1000i \\i &= \frac{100}{1000} \\i &= 10\%\end{aligned}$$

b) Suppose that new money demand function becomes  $M_D = 400 - (1000)i$ . What can be inferred about the transaction and precautionary demand?

New  $i$

$$\begin{aligned}M_D &= M_S \\400 - 1000i &= 100 \\300 &= 1000i \\i &= \frac{300}{1000} \\i &= 30\%\end{aligned}$$