

## Exercise 5

### Money Market

1. What are the three functions of money? Evaluate whether “gold” can effectively serve these three 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?
3. What is Fractional Reserve System (FRS)? Explain how money can be created through this system.
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?
  - b) WITHOUT the fractional reserve system (FRS), how much is the money supply?
  - c) Calculate the money multiplier.
  - d) WITH the FRS, how much is the TOTAL DEPOSIT within the economy?
  - e) How much deposit is created from the FRS?
  - f) WITH the FRS, how much is the money supply?
5. Explain three roles of central banks.
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?

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.
- People become poorer.
  - Goods become more expensive.
  - People prefer to hold less cash due to debit/credit cards
  - The central bank decreases interest rate.
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.
- People deposit more money.
  - The central bank increases reserve ratio.
  - The central bank decreases discount rate.
  - The central bank decreases interest rate.
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.
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.
11. Write down the equation for the Quantity Theory of Money. Explain how this equation can be used to explain inflation.
12. Let the money demand function be  $M_D = 200 - (1000)i$  and the money supply function be  $M_S = 100$ .
- Calculate the equilibrium interest rate,  $i^*$ . (Hint: set  $M_D = M_S$  and solve for  $i^*$ )
  - Suppose that new money demand function becomes  $M_D = 400 - (1000)i$ . What can be inferred about the transaction and precautionary demand?

1. - Medium of exchange  
- store of value  
- unit of account

2. Money supply = current in circulation + demand deposits + saving  
= 1000 + 1000 + 1000  
= 3000

3. Fractional Reserve System (FRS) is a fraction of deposits are backed by actual cash on hand and available for withdrawal.

$$\text{The maximum FRS can create money} = \text{initial deposit} \times \frac{1}{\text{reserve ratio}}$$

4. a) RR: proportion of the total deposit that commercial bank must keep as a reserve at central bank

- b) without FRS, total deposit = cash + deposit  
= 100 + 200  
= 300 \$

- c) money multiplier =  $\frac{1}{RR} = \frac{1}{0.2} = 5$

- d) with FRS, total deposit = primary deposit  $\times \frac{1}{RR}$   
=  $200 \times \frac{1}{0.2} = 1,000$  \$

- e) deposit that was created from FRS =  $1,000 - 200 = 800$  \$

- f) with FRS, money supply = cash + deposit (FRS)  
= 100 + 1,000  
= 1,100 \$

5.
  - control the money supply
  - Lender of last resort
  - Managing exchange rates

6. Liquidity is how easily assets can be converted into a mean of exchange.

The most liquid asset is cash.

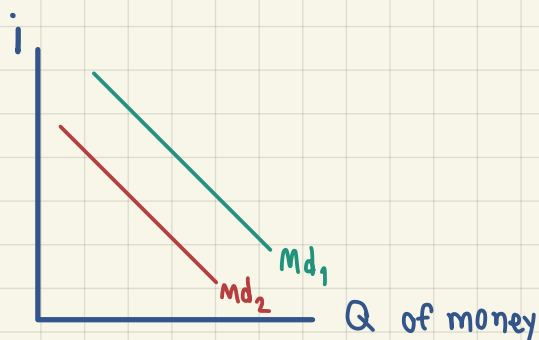
The 3 reasons people prefer liquidity are transaction demand, precautionary demand and speculative demand which creates the money demand curve to be downward-sloping.

7.

a) people become poorer

→ income ( $Y$ ) ↓

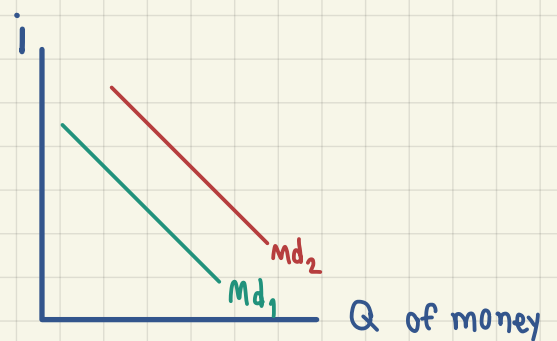
→  $M_d$  shift to the left



b) goods become more expensive

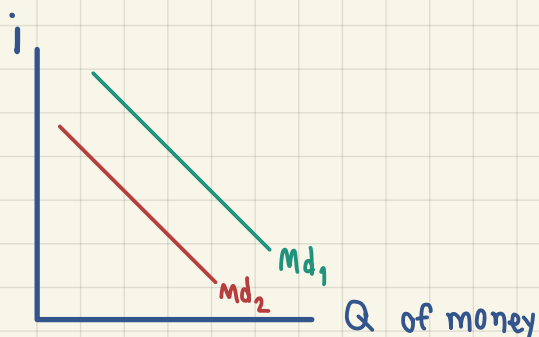
→ ppl. wants more money to consume

→  $M_d$  shift to the right



c) ppl prefers to hold less cash

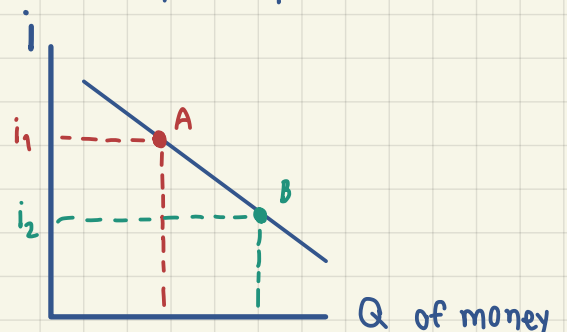
→  $M_d$  shift to the right



d) The CB decrease interest rate

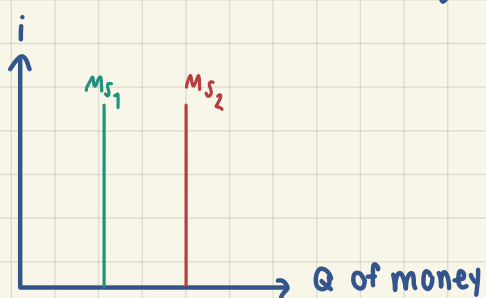
→ ppl hold more money

→ money  $M_d$  ↑

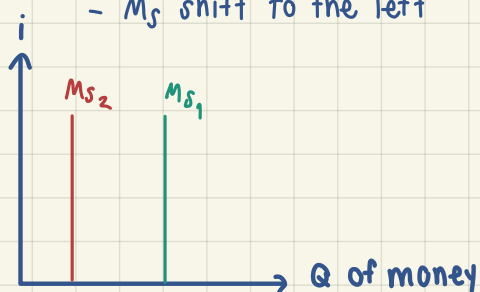


8.  $M_s$  is a vertical line since it doesn't depend on interest rate.

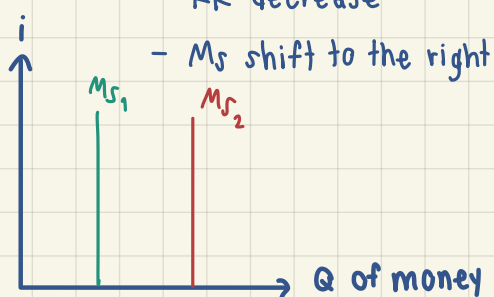
- a) people deposit more money
- money supply increase
  - $M_s$  shift to the right



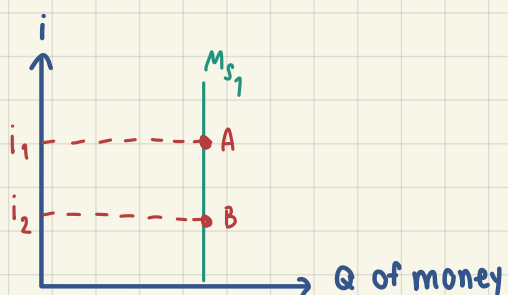
- b) The central bank increase reserve ratio
- RR increase
  - $M_s$  shift to the left



- c) The central bank decrease discount ratio
- RR decrease
  - $M_s$  shift to the right



- d) The central bank decrease interest rate
- doesn't effect to  $M_s$  because it doesn't depend on interest rate

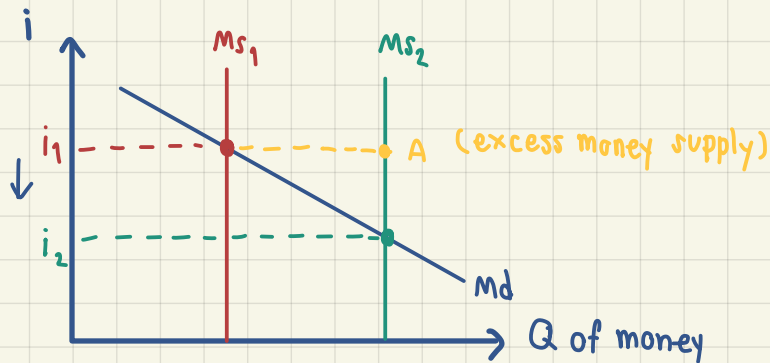


9.

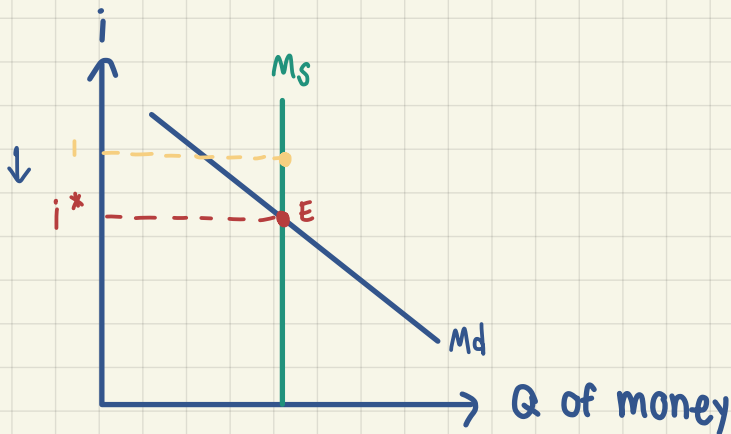
If central bank wants to lower interest rate

→ CB should buy securities

→  $M_s$  shift to the right



10.



$i > i^*$ ; interest rate is too high

• Deposit: people deposit all money → CB can't pay that high interest rate

↓

CB lower interest rate

• Bond: people will convert cash to bond → demand for bond increase

↓

bond issues will decrease interest rate

↓

$M_d$  move along the curve to point E

11. The quantity theory of money

$$MV = PY$$

An increase in money supply leads to an increase in price level.  
So printing money creates inflation

12. a) the equilibrium interest rate

$$M_d = M_s$$

$$200 - 1000i = 100$$

$$100 = 1000i$$

$$i = \frac{1}{10} = 0.1 \text{ \#}$$

b) new  $M_d = 400 - 1000i$

400 refers to transaction and precautionary demand.