

Assignment 5

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

- ① A medium of exchange
- ② A unit of account
- ③ A store of value

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?

$$\begin{aligned}\text{Money supply} &= \text{currency in circulation} + \text{demand deposits} + \text{savings} \\ &= 1000 + 1000 + 1000 \\ &= 3000 \$\end{aligned}$$

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

- Fractional Reserve System (FRS) is a system of fraction of deposits are backed by actual cash on hand and are available for withdrawal.
- The maximum that FRS can created money is

$$\text{initial deposit} \times \frac{1}{\text{reserve ratio}}$$

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?

a) Required reserve ratio ^(PR) is a percentage of its total deposits that Bank must keep as reserves at the Central Bank which is 20% of the deposits keep at CB.

b) Without FRS $\rightarrow$ total deposits = cash + deposits

$$= 100 + 200$$
$$= 300 \$$$

c) the money multiplier = $\frac{1}{PR} = \frac{1}{20\%} \rightarrow \frac{1}{0.2} = 5$

d) With FRS, $\rightarrow$ total deposits = primary deposit $\times \frac{1}{PR}$

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

e) deposit that created from the FRS = $1000 - 200$

$$= 800 \$$$

f) With FRS, $\rightarrow$ money supply = cash + deposit (FRS)

$$= 100 + 1000$$
$$= 1100 \$$$

5. Explain three roles of central banks.

- ① Controls the money supply
- ② Lender of last resort
- ③ Managing exchange rates.

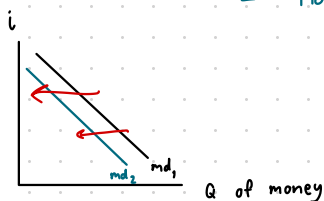
6. ① What is Liquidity? ② What is the most liquid asset? ③ Explain the three reasons (according to Keynes) why people prefer to have liquidity. ④ Which of these three reasons causes the money demand curve to be downward-sloping?

- ① Liquidity refers to how easily assets can be converted into a mean of exchange.
- ② The most liquidity asset is a cash.
- ③
 - Transaction demand → daily use
 - Precautionary demand → unexpected use
 - Speculative demand → future investment
- ④ The 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.

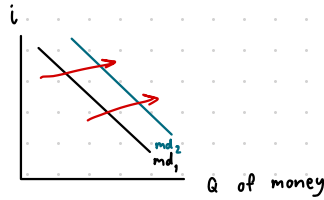
- a) People become poorer.
- b) Goods become more expensive.
- c) People prefer to hold less cash due to debit/credit cards
- d) The central bank decreases interest rate.

a) People become poorer = income ↓
= Money demand ←



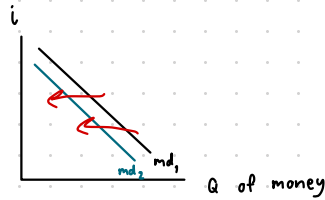
b) Goods become more expensive = people need money

= Money demand $\rightarrow$



c) People prefer to hold less cash due to debit/credit cards

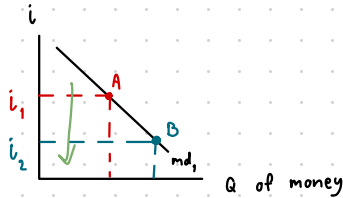
= Money demand $\leftarrow$



d) The central bank decrease interest rate = people hold more money

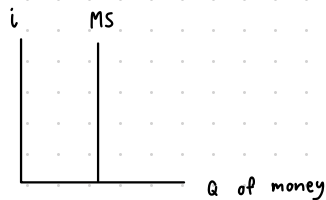
= Money demand $\uparrow$

'move along to 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.

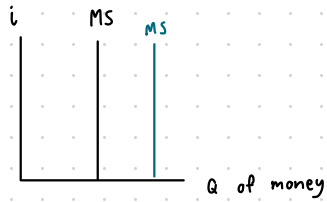
- a) People deposit more money.
- b) The central bank increases reserve ratio.
- c) The central bank decreases discount rate.
- d) The central bank decreases interest rate.



MS is a vertical line because it isn't depend on interest rate.

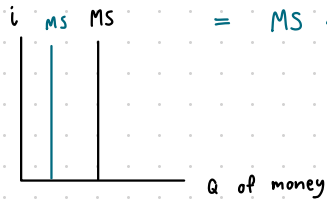
a) People deposit more money = Bank lend less

= $MS \rightarrow$



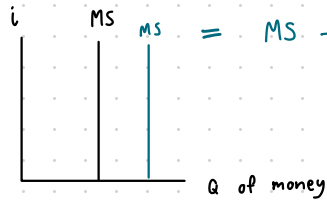
b) $CB \oplus PR$ = Bank lend more

= $MS \leftarrow$



c) $CB \ominus \text{rates}$ = Bank lend more

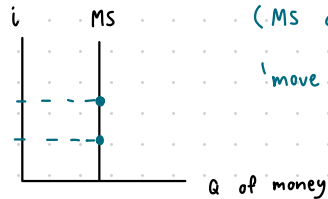
= $MS \rightarrow$



d) $CB \ominus i$ = doesn't effect MS

(MS doesn't depend on i)

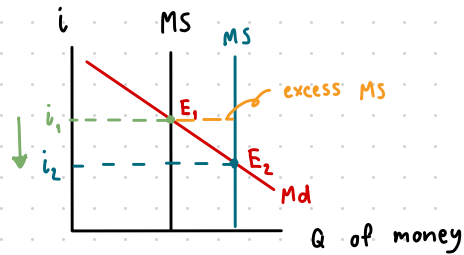
'move along the curve'



9. Suppose that the central bank wants to lower interest rate to boost the economy.

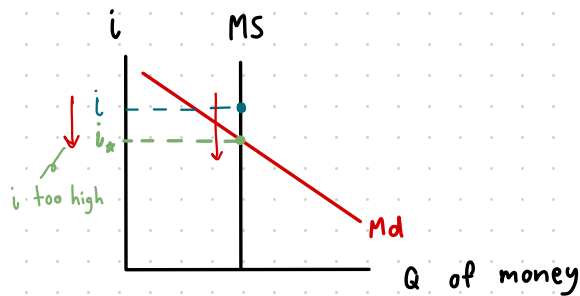
Explain, together with the money market diagram, how the central bank can achieve this through an open market operation.

CB should buy securities , $MS \rightarrow$, $MS \uparrow$, $E_{qbm} = E_2$, $i \downarrow$



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.



- people should convert cash $\rightarrow$ bond
demand bond $\uparrow$, $i \downarrow$, Md move along the curve
- people deposit all money , $i \downarrow$

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

The Quantity Theory of Money

$$MV = PY$$

M = money supply

V = velocity

P = price level

Y = real output

} nominal output

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

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

- 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?

a) the equilibrium interest rate (i^*)

$$M_d = M_s$$

$$200 - (1000)i = 100$$

$$100 = 1000i$$

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

b) new $M_d = 400 - 1000i$

400 refers to transaction and precautionary demand