

Exercise 5 Money Market

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

- three functions of money : ① a medium of exchange
② a store of value
③ a unit of account
- gold can only effectively serve in a store of value 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?

$$\cdot \text{narrow money} \stackrel{M_1}{=} 1000\$ + 1000\$$$

$$= 2000\$$$

$$\cdot \text{broad money} \stackrel{M_2}{=} 1000\$ + 1000\$ + 1000\$$$

$$= 3000\$$$

• use M_1 to measure money supply, so money supply is 2000\$.

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

- Fractional Reserve System is the bank system used by goldsmiths and banks.
- Only a fraction of deposits are backed by actual cash on hand and are available for withdrawal.

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.

- What does the reserve ratio of 20% means?
- WITHOUT the fractional reserve system (FRS), how much is the money supply?
- Calculate the money multiplier.
- WITH the FRS, how much is the TOTAL DEPOSIT within the economy?
- How much deposit is created from the FRS?
- WITH the FRS, how much is the money supply?

a) reserve ratio of 20% means bank must keep 20% of the total deposit as reserves at the Central Bank.

b) 100\$ in cash, 200\$ in deposit

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

$$= \frac{1}{0.2} = 5$$

d) • initial deposit of Mr. Bean = 200\$

$$\begin{aligned} \cdot \text{total deposit} &= 200 + 160 + 128 + 108.4 + \dots \\ &= 200 (1 + 0.8 + 0.8^2 + 0.8^3 + \dots) \\ &= 200 \times \frac{1}{0.2} = 1000 \end{aligned}$$

e) 800\$

f) with FRS, MS is 1100\$

5. Explain three roles of central banks.

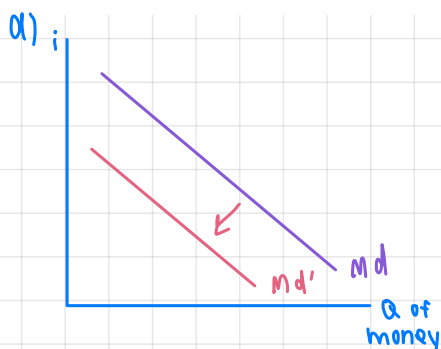
- ① open market operations : The purchase and sale by the CB of government securities in the open market
- ② discount rate : The interest rate that commercial banks pay to the CB to borrow reserve from it.
- ③ reserve ratio : CB lower RR \rightarrow less deposits being kept as reserves \rightarrow More currency in economy \rightarrow Higher MS
: CB raises RR \rightarrow More deposits being kept as reserves \rightarrow Less currency in economy \rightarrow Lower MS

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?

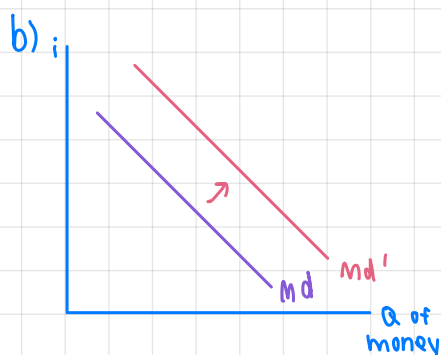
- Liquidity refers how easily assets can be converted into a mean of change.
- The most liquid asset is Money, especially cash.
- It's easy to use
- Speculative Demand

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.

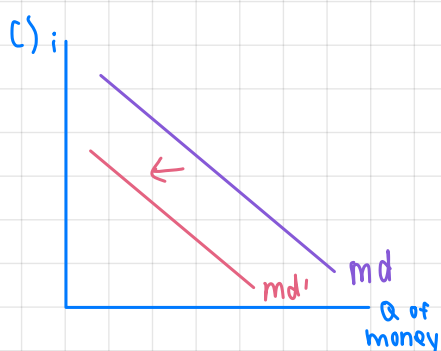
- a) People become poorer.
- b) Goods become more expensive.
- c) People prefer to hold less cash due to debit/credit cards
- d) The central bank decreases interest rate.



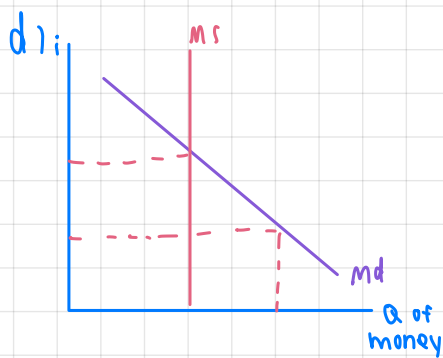
- ppl become poorer due to income factor making individuals to buy less goods & services.
- ppl will holding less money b/c Md shift left



- ppl don't have enough money on their hands like before. they'll demand more cash to spend goods & services



- money demand curve shift leftward from Md to Md' b/c the "preference" that make ppl. holding less cash from their personal factors.



• ppl want more md b/c when i decreasing ppl will hold less bond due to the 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.

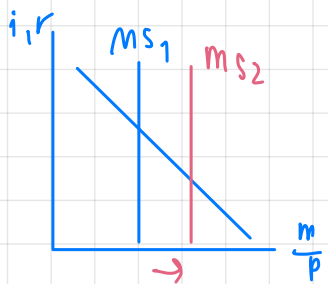
- People deposit more money.
- The central bank increases reserve ratio.
- The central bank decreases discount rate.
- The central bank decreases interest rate.

• because money supply is determined by the central bank and it does not depend on interest rate.

- there will be excess money demand, MS is in equilibrium.
- more deposits being kept as reserves the MS will be lower.
- Commercial Banks borrows more reserves from CB, higher MS.
- CB takes Money from the public, MS decrease.

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.

• To boost the economy bank has to increase money supply and reduce interest rate
 • The CB by securities, the central bank pay to the public



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 convert cash into interest-bearing assets / buy bonds
- too much money offered to bond issuers. They cannot give high interest rate to many savers.
- bond issues need to reduce i
- i falls to i^*

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

- $MV = PY$
- Monetary policy is ineffective in the long run & only leads to inflation
- 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^*)

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

$$\begin{aligned} \text{a) } M_D &= M_S \\ 200 - (1000)i &= 100 \\ -1000i &= -100 \\ i &= \frac{1}{10} \\ i^* &= 0.1 \end{aligned}$$

b) transaction and precautionary demand is increase