

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

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

Gold can be served in both a store of value and a unit of account, but not in a medium of exchange because not many people accept it as a means of payment. However, it also depends on each country.

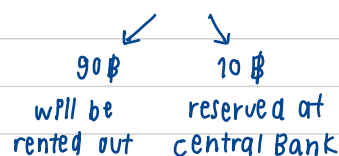
2. Suppose that people hold 1000\$ as cash, 1000\$ as demand deposits, and 1000\$ as savings; calculate narrow money and broad money. How much is the "money supply" in the economy?

$$M_1 = 3000\$$$
$$M_2 = 3000\$$$
$$\text{Money supply} = M_1 = 3000\$$$

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

FRS is a system where some parts of the deposit are required to be kept as reserve and the rest can be lent out.

Suppose that reserve ratio = 10 %
When A deposits 100 \$ → Bank



Then, the bank lends 90\$ to B and B is spending it to C
So C deposits 90\$ → Bank
And the process will continue on.

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?

Ⓐ Bank needs to reserve 20% at the central bank.

Ⓑ 100 \$

Ⓒ money multiplier = $\frac{1}{RR} = \frac{1}{0.2} = 5$

Ⓓ total deposit = $200 \times \frac{1}{0.2} = 200 \times 5 = 1000 \$$

Ⓔ $1000 \$ - 200 \$ = 800 \$$

Ⓕ $100 \$ + 1000 \$ = 1100 \$$

5. Explain three roles of central banks.

① control the money supply

② assisting banks that are in difficult financial positions

③ lender of last resort

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 is how easily we can convert the asset into cash.
- Cash is the most liquid asset.
- According to Keynes, people prefer to have liquidity because transaction demand (for daily use), precautionary demand (for unexpected use) and speculative demand (for future investment)
- 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.

Ⓐ poorer → transaction & precautionary demand ↓ ⇒ shift the curve

Ⓑ transaction demand ↓ ⇒ shift the curve

Ⓒ hold less cash
→ transaction & precautionary demand ↓ ⇒ shift the curve

Ⓓ interest rate ↓ → speculative demand ⇒ movement along the 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.

Because money supply depends on the central bank, not the interest rate.

- Ⓐ money deposit into bank \rightarrow total reserves \uparrow \rightarrow loan \uparrow \rightarrow increase the money supply
- Ⓑ $RR \downarrow \rightarrow$ money multiplier $\downarrow \rightarrow$ commercial bank can lend less money \rightarrow less loans in the economy \Rightarrow Money supply will be lower
- Ⓒ discount rate $\downarrow \rightarrow$ commercial banks can borrow more \rightarrow more loans to the public \Rightarrow Money supply will be higher
- Ⓓ No affect

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.

The central bank will increase the money supply to reduce the interest rate. By using an open market operation to reduce the interest rate, they would buy a security. This means that they pay money to the public which leads to an expansion of money supply in the economy.

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.

If the interest rate is higher than the equilibrium, it means that there is an excess supply of money. People have too much money and don't want to hold it so they buy a bond for interest. They convert cash into interest-bearing assets. Therefore, bond issuers need to reduce interest rate because there is too much money offered. As a result, interest rate falls to the equilibrium rate.

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

$$\bar{M}\bar{V} = \bar{P}\bar{Y}$$

if V and Y are constant.

$$M \uparrow \rightarrow P \uparrow$$

When the central bank prints money supply ($M \uparrow$) at full employment in the long run, the price level will go up ($P \uparrow$). Over a long period of time, it leads to inflation.

In conclusion, 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?

① $M_D = M_S$

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

$$100 = 1000i$$

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

② The transaction and precautionary demand are increased.