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.
   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.

1.) three functions of money :

- a medium of exchange
- a store of value
- a unit of account

No, b/c gold can be only an asset but cannot be a medium of goods and unit of account.

2.) transaction money (M_1) = currency in curculation + demand deposits

= 1,000 + 1,000

= 2,000

∴ Money supply = 2,000

broad money (M_2) = M_1 + saving and times deposits

= 2,000 + 1,000

= 3,000

3.) Fractional Reserve System (FRS) is the banking system used by goldsmiths and banks. In this system, only a fraction of deposits are backed by actual cash on hand and are available for withdrawal.

How money can be created through this system is :

- people deposit money in bank
- Banks issue "evidence or receipts" that can always be exchanged for money
- Now, banks have a lot of deposits, so they lend these to people and charge interest.
- The expansion of money supply in the economy is increasing.

4.) a. RR 20% means the bank can lend the customer's deposit only 80% of their deposits. Other 20% has to be reserve at Central bank.

b. M_1 = currency + demand deposit = 100 + 200 = 300$

c. money multiplier = $\frac{1}{\text{Reserve Ratio}}$

$= \frac{1}{0.2}$

$= 5$

d. Total deposit = initial deposit x money multiplier

= 200 X 5

= 1,000

e. 1,000 - 200 = 800

f. Total deposit + cash = 1,000 + 100

= 1,100

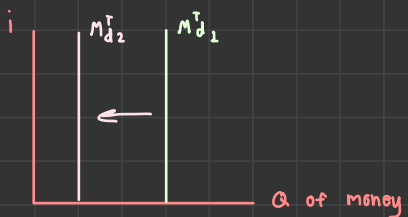
5.) - control money supply by using monetary policy

- lender of last resort e.g. provide funds to troubled banks.

- managing exchange rates and the nation's foreign exchange reserve

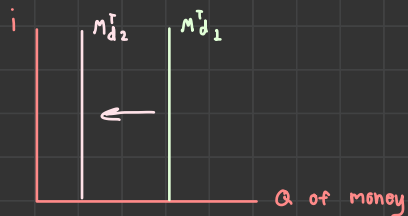
6.) Liquidity refers to how easily assets can be converted into a mean of exchange Money, especially "cash", is the most liquidity assets.
The 3 reasons why people hold liquid asset are :
- Transaction demand
- Precausionary demand
- Speculative demand → causes down-ward sloping

7.) a. when people get poorer, the money demand curve will decrease and shift to the left. It is because less money produce less consumption.

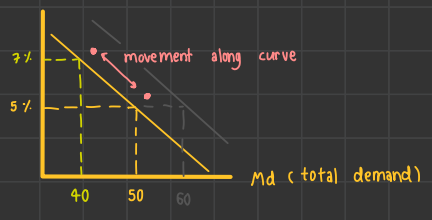


b. the money demand curve will decrease and shift to the left.

c. the curve will shift to the left because pp. prefer to hold less cash



d. the decrease in interest rate will cause the 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. remain the same

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 $M_S = 100$.

   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?

8.) B/c it doesn't depend on interest rate. So, money supply curve is vertical.

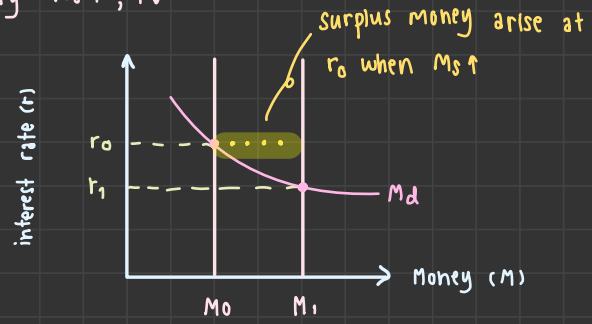
a. M_S curve will shift to the right b/c pp. hold more money.

b. M_S curve will shift to the left b/c there is less money that can be lent.

c. M_S curve will shift to the right b/c pp. will spend less and hold more money.

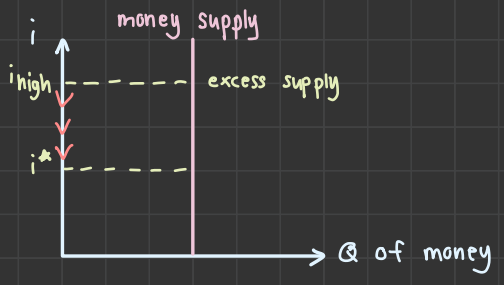
d. M_S curve will remain the same b/c interest rate doesn't affect M_S curve.

9.) Expansionary $M_S \uparrow$, $i \downarrow$



∴ Central bank buys gov.'s security and pays money to the public. This increases M_S and decreases interest rate.

10.) When $i > i^*$, there will be excess money supply (force i down). So, pp. convert cash into interest-bearing assets / buy bonds Then, too much money offered to bond issuers, who cannot gives high interest rate to money savers. So, bond issuer needs to reduce i. So, i falls to i^*.



11.) The equation for the Quantity Theory of Money :

$$MV = PY$$

QTM :

M = money supply
V = velosity
P = Price level
Y = Real output

Note that PY = Nominal Output (Nominal GDP)

∴ An increase of money supply leads to an increase in price level. That is printing money creates inflation.

12.) a. i^* : $M_d = M_S$

$$200 - 1000i = 100$$
$$1000i = 100$$
$$i^* = 0.1$$

b. new $M_d = 400 - 1000i$

∴ new i^* $\Rightarrow$ $400 - 1000i = 100$

$$1000i = 300$$
$$i^* = 0.3$$

So, Eqbm i increase from 0.1 to 0.3 . But, transaction and precautionary demand is more likely to depend on income. So, the change in Eqbm i doesnt affect to both transaction and precautionary demand but affect on speculative demand.