MONEY CREATION

THE MONEY SUPPLY PROCESS

The four main players in the money creation process are the Central Bank, Depository Institutions, Depositors, and The Borrowers from the Banks.

We first want to look at the concept of fractional reserve banking and show how changes in the money supply occur.

The Goldsmiths Principle

When early traders began to use gold in making transactions, they soon realized that it was both unsafe and inconvenient to carry gold and to have it weighed and assayed (judged for purity) every time they negotiated a transaction. So by the sixteenth century they had begun to deposit their gold with goldsmiths, who would store it in vaults for a fee. On receiving a gold deposit, the goldsmith would issue a receipt to the depositor. Soon people were paying for goods with goldsmiths' receipts, which served as one of the first types of paper

- Stored gold and gave a receipt
- Receipts used as money by public
- Made loans by issuing receipts

Let's first look at the concept of Total Reserves, Required Reserves and Excess Reserves.

1. **Required reserves or RR** - reserves that the CB requires banks to hold. The fraction of deposits that banks must hold is called the **required reserve ratio**. We will call the required reserve ratio RR

2. **Excess Reserves or ER** - additional reserves that the bank chooses to hold.

Total Reserves = Required + Excess Reserves

MULTIPLE DEPOSIT CREATION - A SIMPLE MODEL

Example 1: Deposit Creation at a Single Bank

1. Assume reserves increase at Bank A because of an increase in deposits of 10000.

BANK A

Assets	Liabilities
Reserves + 10000	Deposits + 10000

2. If the required reserve ratio or RR = 20%, then the bank must hold 2000 in required reserves and the bank now has 8000 in excess reserves.

BANK A

Assets	Liabilities
RReserves + 2000	Deposits + 10000
EReserves + 8000	

3. These excess reserves can then be loaned out.

BANK A

Assets	Liabilities
RReserves + 2000	Deposits + 10000
Loans + 8000	

Example 2: Multiple Deposit Creation

Repeat Steps 1 to 3 above

4. If we assume that the loan is deposited in another bank it can be seen that the amount of deposits in the banking system has increased by 8000. Deposits at Bank B have increased by 8000, thus reserves have increased at Bank B.

BANK B

Assets	Liabilities
Reserves + 8000	Deposits + 8000

5. If the required reserve ratio is 20%, then the bank must hold 1600 in required reserves so the bank now has 6400 in excess reserves.

BANK B

Assets	Liabilities
RReserves + 1600	Deposits + 8000
EReserves + 6400	

6. These excess reserves can then be loaned out.

BANK B

Assets	Liabilities
RReserves + 1600	Deposits + 8000
Loans + 6400	

7. If we assume that the loan is deposited in another bank it can be seen that the amount of deposits in the banking system has now increased by 6400.

BANK C

Assets	Liabilities
Reserves + 6400	Deposits + 6400

Looking at the total effect based on the initial increase in deposits of 10000, it can be seen that the total change in money including the initial change in deposits is:

$\Delta M = 10000 + 8000 + 6400$

If we continue the same process for an infinite number of banks and assume all loans are deposited in the banking system, the total change in deposits is:

Total $\Delta M = \Delta D + \Delta D\ (1 - RR) + \Delta D\ (1 - RR)(1 - RR) + \ldots + \Delta D\ (1 - RR)^{\infty}$

It can be shown that this can be solved to yield

$$\Delta M = \Delta D x \frac{1}{RR}$$

If Rr = .20 and $\Delta D = 10000$ then and we

$$Total\ \Delta Deposits(MS) = \Delta D\ x \frac{1}{RR}$$

$$= 10000x\frac{1}{.20} = 10000x5 = 50000$$

THUS, THE AMOUNT OF DEPOSITS IN THE BANKING SYSTEM HAS EXPANDED BY THE CHANGE IN RESERVES TIMES THE RECIPROCAL OF THE REQUIRED RESERVE RATIO.

The Reciprocal of the required reserve ratio is known as the Simple Deposit Multiplier.

$$SimpleMoneyMultiplier = \frac{1}{RR}$$