

Measuring Money

The background of the slide features a light gray gradient. In the lower right quadrant, there are several overlapping, wavy, light gray lines that create a sense of movement and depth, resembling stylized waves or a modern architectural design.

1. Money aggregates
 2. Deposit expansion multiplier
 3. Monetary base
- 
- Decorative wavy lines in the bottom right corner of the slide.

Money aggregates(Fed's methodology)

Money aggregate

M1 = Currency

+ Travelers' Checks

+ Demand Deposits (Checking Accts No Interest)

+ Other Checkable Deposits (With Interest)

M2 = M1

+ Small-Denomination Time Deposits

+ Savings Deposits and money market

+ Retail Money Market Mutual Funds

M3 = M2

+ Large-Denomination Time Deposits

+ Institutional Money-Market Mutual Fund

+ Repurchase Aggrements

+ Eurodollars

- **A mutual fund** is a professionally-managed type of collective investment scheme that pools money from many investors to buy securities (stocks, bonds, short-term money market instruments, and/or other securities).
- **Eurodollars** are time deposits denominated in U.S. dollars at banks outside the United States
- **Eurocurrency** is the term used to describe deposits residing in banks that are located outside the borders of the country that issues the currency the deposit is denominated in.

Грошові агрегати (звітність НБУ)

Грошовий агрегат M0 включає готівкові кошти в обігу поза депозитними корпораціями.

Грошовий агрегат M1 – грошовий агрегат M0 та переказні депозити в національній валюті.

Грошовий агрегат M2 – грошовий агрегат M1 та переказні депозити в іноземній валюті й інші депозити.

Грошовий агрегат M3 (грошова маса) – грошовий агрегат M2 та цінні папери, крім акцій.

До переказних депозитів віднесено кошти, які за першою вимогою можуть бути обміняні на готівкові кошти за номіналом та безпосередньо використані для здійснення платежу.

До інших депозитів віднесено не переказні депозити, що в короткий термін можуть бути обміняні на готівкові кошти чи переказні кошти, а саме кошти на вимогу, які безпосередньо не використовуються для здійснення платежу, строкові кошти й ощадні депозити

Депозитні корпорації

- всі резидентні фінансові корпорації та квазікорпорації (+ Національний банк), основною діяльністю яких є фінансове посередництво і які мають зобов'язання у вигляді депозитів або подібних до них фінансових документів.

Здебільшого це банки та установи типу банків.

The main difference between these
aggregates
is their degree of liquidity
with M0 being the most liquid
and M3 the least

Deposit Creation

1. The Fed buys \$100,000 worth of securities from a bank called First Bank. The purchase leaves the bank's total assets unchanged, but it shifts \$100,000 out of securities and \$100,000 into reserves.

Thus, if it does nothing the revenue stream for the bank will fall. With liabilities of the bank unaffected, the required reserves are also unchanged. So, the additional \$100,000 is all excess reserves.

2. Bank can lend out these excess reserves.

Assume that First Bank receives a loan application for \$100,000. With these excess reserves, the bank can approve the loan and credit the companies checking account \$100,000.

3. Now this new loan is not going to stay at First Bank. The company who needed the loan is going to withdraw the money to pay bills. So, in the end First Bank's balance sheet is simply changed with an additional \$100,000 in Loans and a \$100,000 reduction in securities.

4. This \$100,000 was used to pay for steel at Steel Co.
5. Steel Co will then take this money and deposit it in their bank called Second Bank. So Second Bank has an additional \$100,000 in reserves and liabilities.

Let's assume that the Reserve Requirement is 10 %

Reserve Requirement is a fraction of bank's liabilities, which is to be held according to Central Bank's demand to maintain the stability of banking system.

The required reserves of a bank can be expressed as a fraction of deposits.

Required Reserves = Reserve Requirement \times Deposits

$$RR = rd \times D$$

Any changes in deposits creates a corresponding change in reserves,

$$\Delta RR = rd \times \Delta D$$

6. Given a reserve requirement of 10%, we know that for an additional \$100,000 in liabilities, Second Bank only needs an additional \$10,000 in reserve. So they have \$90,000 in excess reserves.
7. Second Bank will issue an additional \$90,000 in loans.
8. This new loan is deposited in another bank, Third Bank. The change in Third Bank is similar to that of Second Bank, only the additional liabilities are \$90,000 instead of \$100,000.
Required reserves of the Third Bank = \$9,000

So the \$100,000 open market operation has created

$$\$100,000 + \$90,000 = \$190,000$$

in new checking deposits and

$$\$100,000 + \$90,000 + \$81,000 = \$271,000$$

in new loans at the three banks.

This process continues to work its way through the system with each bank seeing a similar change in their balance sheet.

Monetary Base

$$MB = \text{Cash} + \text{Bank Reserves}$$

Let's define the quantity of money as M , the monetary base as MB , and the money multiplier as m .

$$M = m \times MB$$

$$M = \text{Currency} + \text{Deposits}$$

$$MB = \text{Currency} + \text{Reserves}$$

$$C - \text{Currency}$$

$$R - \text{Reserves}$$

$$R = RR + ER$$

$$RR - \text{Required Reserves}$$

$$ER - \text{Excess Reserves}$$

$$\begin{aligned}\text{Required Reserves} &= \text{Reserve Requirement} * \text{Deposits} \\ RR &= r_D * D\end{aligned}$$

Any changes in deposits creates a corresponding change in reserves,

$$\Delta RR = r_D * \Delta D$$