



ECON 202 - MACROECONOMIC PRINCIPLES

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Disclaimer

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Chapter 13 - Money and the Banking System

Money and the Banking System - Topics

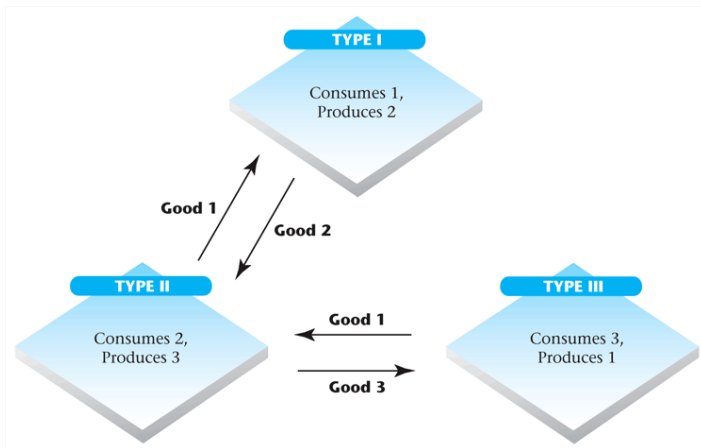
- 1 What is money?
- 2 Identify the components of money in the U.S. economy
- 3 Explain the process of multiple expansion and contraction of deposits
- 4 Describe the structure of the Federal Reserve
- 5 Discuss examples of how the Federal Reserve acts during financial crises

What is Money?

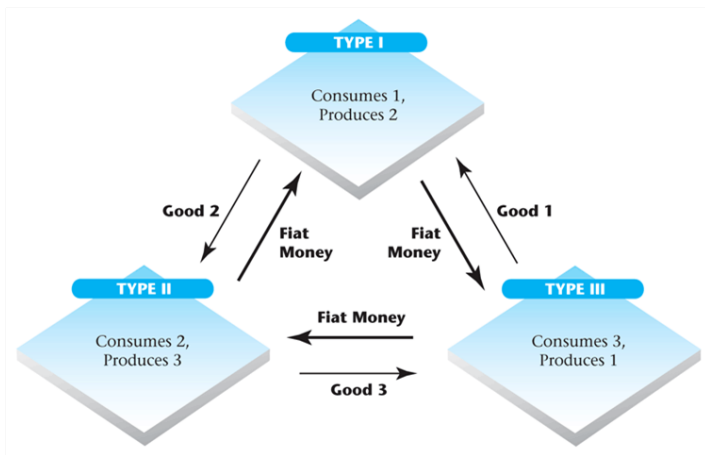
Three properties of money

- 1 Medium of exchange
- 2 Unit of account
- 3 Store of value (as long as inflation is low)

Commodity Money in the Absence-of-Double-Coincidence Economy



Fiat Money in the Absence-of-Double-Coincidence Economy



Different Types of Monetary Systems

- Commodity money
- Gold standard
- Fiat money

Yap Stone



Paying the Bill with a Yap Stone



What is Money

Measuring Money in the U.S. Economy: M1

TABLE 13.1 Components of M1, March 2012

Currency held by the public	\$ 1,028 billion
Demand deposits	763 billion
Other checkable deposits	424 billion
Traveler's checks	4 billion
Total of M1	2,220 billion

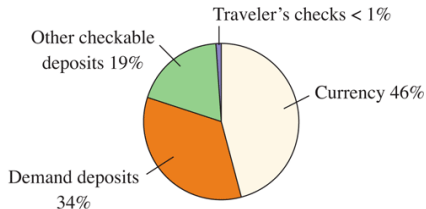
SOURCE: Board of Governors of the Federal Reserve.

M1 is the sum of

- 1 currency in the hands of the public,
- 2 demand deposits (checking accounts),
- 3 other checkable deposits, and
- 4 traveler's checks

■ In 2015 \rightarrow M1 = 3,102 billion \rightarrow 16% of GDP

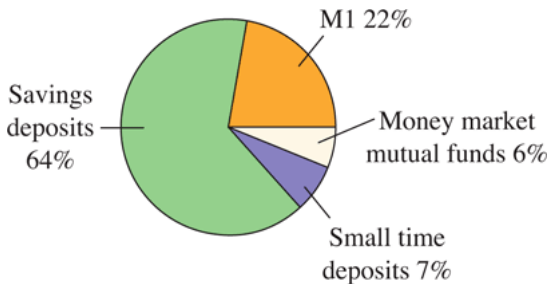
Measuring Money in the U.S. Economy: M1 (cont.)



M2

$$M2 = M1 +$$

- 1 savings accounts
- 2 retail money market mutual fund balances
- 3 small denomination time deposits
- 4 overnight repurchase agreements (REPO) below \$100,000.



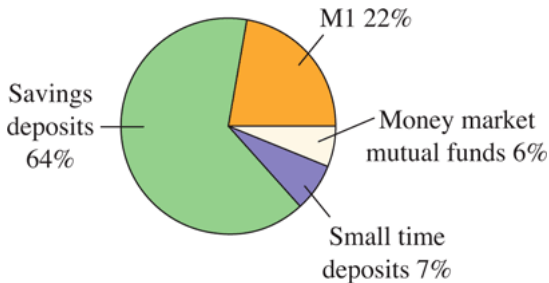
M2 (cont.)

- In 2015 $\rightarrow M2 = 12,472$ billion $\rightarrow 68\%$ of GDP

M3

$M3 = M2 +$

- 1 time deposits and repurchase agreements over \$100,000
- 2 money market deposits owned by firms
- 3 Eurodollars (\$ held abroad → started with dollars in Europe because of Marshall Plan)



Credit Cards

- Credit cards are not part of money supply

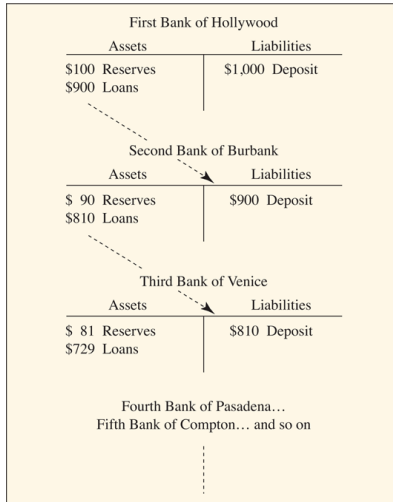
Balance Sheet for a Commercial Bank

Assets	Liabilities
\$ 200 Reserves	\$2,000 Deposits
\$2,000 Loans	\$ 200 Owners' equity
Total: \$2,200	Total: \$2,200

Reserves

- Banks are required by law to hold a certain amount of assets as reserves
- They cannot lend these funds out
- Banks hold reserves in cash in their vaults or as deposits with the Federal Reserve
- **Reserves do not earn interest**

Money Creation



The Money Multiplier

- The original \$1,000 cash deposit has created checking account balances equal to:
- $\$1,000 + \$900 + \$810 + \$729 + \$656.10 + \dots = \$10,000$

The general formula for deposit creation is:

$$\text{increase in checking account balance} = \frac{1}{\text{reserve ratio}} \times \text{initial deposit}$$

- The increase in the money supply, M1, resulting from the increase in the \$1,000 deposit equals $\$10,000 - \$1,000 = \$9,000$
- This term in the formula is called the **money multiplier**

Derivation of the Money Multiplier

- Say the reserve requirement is: 10 and the initial money is \$1000
- $\$1000 + \$900 + \$810 + \$729 + \dots$
 - ▶ $= \$1000 \times (1 + 0.9 + 0.9^2 + 0.9^3 + \dots)$
 - ▶ $= \$1000 \times \frac{1}{(1-0.9)}$
 - ▶ $= \$1000 \times 10$
 - ▶ $= \$10,000$
- Money multiplier = 10

Multiplier Revisited

- rr is reserve ratio
- $\text{cash} \times [(1 + (1 - rr) + (1 - rr)^2 + (1 - rr)^3 + \dots)]$
- $= \text{cash} \times \frac{1}{(1 - (1 - rr))}$
- $= \text{cash} \times \frac{1}{rr}$
- $\text{Multiplier} = 1/\text{reserve ratio}$

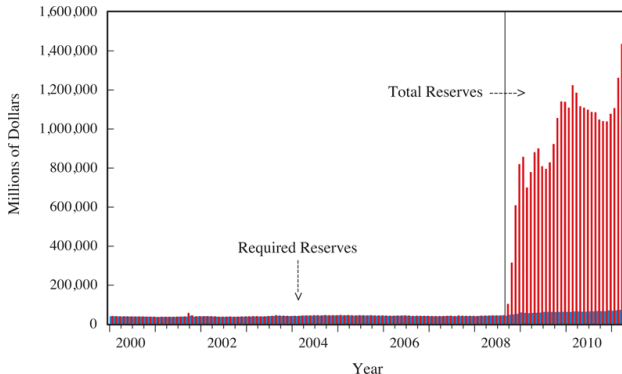
Federal Reserve and Open Market Operations

Federal Reserve and Open Market Operations

- Central Bank
- Open market purchases (of bonds)
 - ▶ increase money
- Open market sales (of bonds)
 - ▶ decrease money

Additional Tools of the Fed

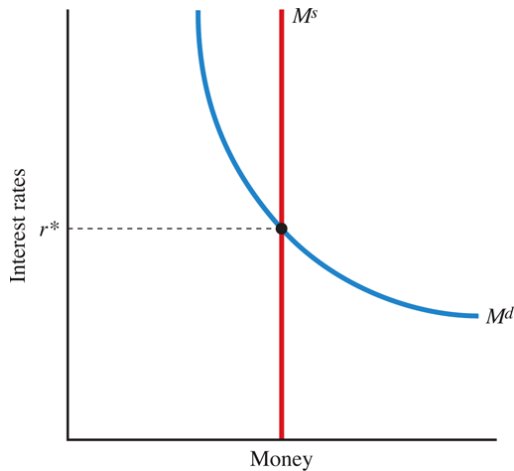
- Change reserve requirements (the % banks have to hold as reserves)
- Change the discount rate (interest rate)



Discount Rate and Federal Funds Rate

- The Fed typically announces a target for the Federal Funds Rate → then uses open market transactions to keep rate at these targets → by shifting M^s appropriately

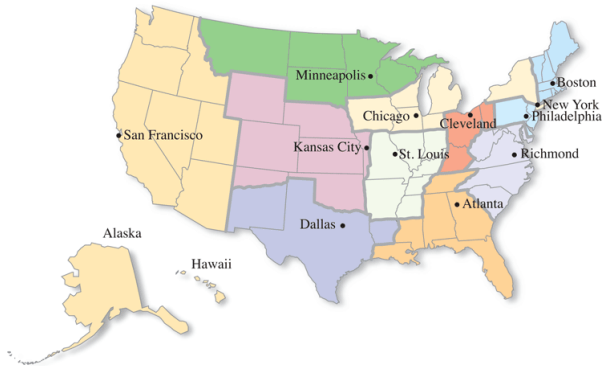
Discount Rate and Federal Funds Rate (cont.)



Structure of the Fed

- The Federal Reserve System was created in 1913 following a series of financial panics in the United States
- Congress created the Federal Reserve to be a central bank, serving as a banker's bank
- One of the Fed's primary jobs was to serve as a lender of last resort—lending funds to banks that suffered from panic runs
- Split into 3 sub-parts
 - 1 Federal Reserve Banks (12 districts)
 - 2 Board of Governors
 - 3 Federal Open Market Committee

Structure of the Fed (cont.)



1 The 12 Federal Banks

- ▶ Provide advice on monetary policy
- ▶ Take part in decision-making on monetary policy
- ▶ Provide a liaison between the Fed and the banks in their districts

Structure of the Fed (cont.)

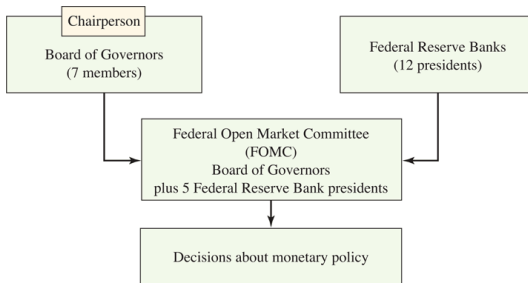
2 Board of Governors of the Federal Reserve

- ▶ The seven-person governing body of the Federal Reserve System in Washington, D.C.
- ▶ Appointed for 14 years by the President and confirmed by the Senate
- ▶ Chairperson of the Board serve a four-year term
- ▶ And everybody is carefully watching Janet Yellen

3 Federal Open Market Committee (FOMC)

- ▶ The group that decides on monetary policy:
- ▶ 12-person board
 - 7 members of the board of Governors
 - 1 president of Fed New York
 - 4 rotating members of the other regional Feds
- ▶ Chairperson of the Board of Gov. is also chairperson of the FOMC
- ▶ The chairperson has to report to congress on a regular basis

Structure of the Fed (cont.)



Policies and Power

- The Fed is independent of the Treasury Dept.
- The Fed has to do what the Congress tells it
- However, in practice the Fed acts “independently” and reports to the congress afterwards
- Should the Fed be independent?