29 The Monetary System

PRINCIPLES OF
ECONOMICS
FOURTH EDITION

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Premium PowerPoint® Slides
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In this chapter, look for the answers to these questions:

- What assets are considered "money"? What are the functions of money? The types of money?
- What is the Federal Reserve?
- What role do banks play in the monetary system? How do banks "create money"?
- How does the Federal Reserve control the money supply?

What Money Is, and Why It's Important

- Without money, trade would require **barter**, the exchange of one good or service for another.
- Every transaction would require a **double coincidence of wants**
- Most people would have to spend time searching for others to trade with – a huge waste of resources.
- This searching is unnecessary with **money**,

The 3 Functions of Money

- **Medium of exchange**:
- **Unit of account**:
- **Store of value**:

The 2 Kinds of Money

Commodity money:

Fiat money:

The Money Supply

- The **money supply** (or **money stock**):
- What assets should be considered part of the money supply? Two candidates:
  - **Currency**: the paper bills and coins in the hands of the (non-bank) public
  - **Demand deposits**:

Measures of the U.S. Money Supply

- **M1**: currency, demand deposits, traveler's checks, and other checkable deposits.
  M1 = $1.4 trillion (February 2007)
- **M2**: everything in M1 plus savings deposits, small time deposits, money market mutual funds, and a few minor categories.
  M2 = $7.1 trillion (February 2007)

The distinction between M1 and M2 will usually not matter when we talk about "the money supply" in this course.

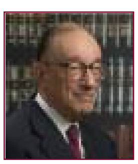
Central Banks & Monetary Policy

- **Central bank**:
- **Monetary policy**:
- **Federal Reserve (Fed)**:

The Structure of the Fed

The Federal Reserve System consists of:

- **Board of Governors** (7 members), located in Washington, DC
- **12 regional Fed banks**, located around the U.S.
- **Federal Open Market Committee (FOMC)**, includes the Bd of Govs and presidents of some of the regional Fed banks
  The FOMC decides monetary policy.



Alan Greenspan
Chair of FOMC,
Aug 1987 – Jan 2006

Bank Reserves

- In a **fractional reserve banking system**,
- The Fed establishes **reserve requirements**,
- Banks may hold more than this minimum amount if they choose.
- The **reserve ratio**, ***R***

Bank T-account

- **T-account**: a simplified accounting statement that shows a bank's assets & liabilities.
- Example:

FIRST NATIONAL BANK	
Assets	**Liabilities**

- Banks' liabilities include assets include
- In this example, notice

Banks and the Money Supply: An Example

Suppose $100 of currency is in circulation.

To determine banks' impact on money supply, we calculate the money supply in 3 different cases:

1. No banking system
2. 100% reserve banking system: banks hold 100% of deposits as reserves, make no loans
3. Fractional reserve banking system

Banks and the Money Supply: An Example

CASE 1: no banking system

Public holds the $100 as currency.

Money supply =

Banks and the Money Supply: An Example

CASE 2: 100% reserve banking system

Public deposits the $100 at First National Bank (FNB).

FNB holds 100% of deposit as reserves:

FIRST NATIONAL BANK	
Assets	**Liabilities**
Reserves	Deposits
Loans	

Money supply
= currency + deposits =

In a 100% reserve banking system,

Banks and the Money Supply: An Example

CASE 3: fractional reserve banking system

Suppose ***R*** = 10%. FNB loans all but 10% of the deposit:

FIRST NATIONAL BANK	
Assets	**Liabilities**
Reserves	Deposits
Loans	

Money supply =
depositors have
borrowers have

Banks and the Money Supply: An Example

CASE 3: fractional reserve banking system

How did the money supply suddenly grow?

When banks make loans,

The borrower gets

- $90 in currency (an asset counted in the money supply)
- $90 in new debt (a liability)

A fractional reserve banking system

Banks and the Money Supply: An Example

CASE 3: fractional reserve banking system

Suppose borrower deposits the $90 at Second National Bank (SNB).

Initially, SNB's T-account looks like this:

SECOND NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$ 90	Deposits	$ 90
Loans	$ 0		

If ***R*** = 10% for SNB, it will loan all but 10% of the deposit.

Banks and the Money Supply: An Example

CASE 3: fractional reserve banking system

The borrower deposits the $81 at Third National Bank (TNB).

Initially, TNB's T-account looks like this:

THIRD NATIONAL BANK			
Assets		**Liabilities**	
Reserves	$ 81	Deposits	$ 81
Loans	$ 0		

If ***R*** = 10% for TNB, it will loan all but 10% of the deposit.

Banks and the Money Supply: An Example

CASE 3: fractional reserve banking system

The process continues, and money is created with each new loan.

Original deposit	=	$ 100.00
FNB lending	=	$ 90.00
SNB lending	=	$ 81.00
TNB lending	=	$ 72.90
⋮		⋮
Total money supply	=	$1000.00

In this example,

The Money Multiplier

- **Money multiplier**:
- The money multiplier equals
- In our example,

  R = 10%

  money multiplier =

  $100 of reserves creates

ACTIVE LEARNING 1: Exercise

While cleaning your apartment, you look under the sofa cushion find a $50 bill (and a half-eaten taco). You deposit the bill in your checking account.

The Fed's reserve requirement is 20% of deposits.

A. What is the maximum amount that the money supply could increase?

B. What is the minimum amount that the money supply could increase?

ACTIVE LEARNING 1:
Answers

The Fed's 3 Tools of Monetary Control

1. Open-Market Operations (OMOs):

- To increase money supply,
- To reduce money supply,

The Fed's 3 Tools of Monetary Control

- OMOs are easy to conduct,

The Fed's 3 Tools of Monetary Control

2. Reserve Requirements (RR).

§ To increase money supply,

§ To reduce money supply,

The Fed's 3 Tools of Monetary Control

3. **The Discount Rate**:

§ When banks are running low on reserves, they may borrow reserves from the Fed.

§ To increase money supply,

§ To reduce money supply,

The Fed's 3 Tools of Monetary Control

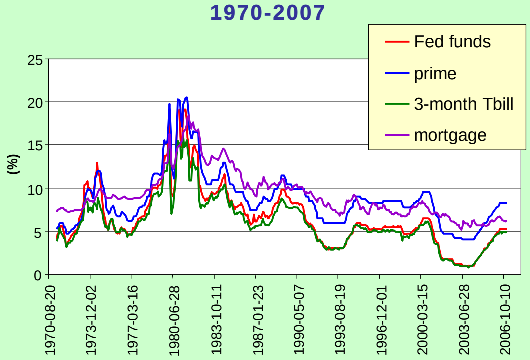
§ The Fed uses discount lending to provide extra liquidity when financial institutions are in trouble, *e.g.* after the Oct. 1987 stock market crash.

§ If no crisis,

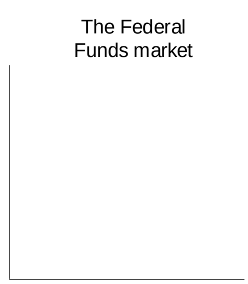
The Federal Funds Rate

- On any given day, banks with insufficient reserves can borrow from banks with excess reserves.
- The **federal funds rate:**
- Many interest rates are highly correlated, so changes in the fed funds rate cause changes in other rates and have a big impact in the economy.

The Fed Funds Rate and Other Rates, 1970-2007



Monetary Policy and the Fed Funds Rate



Problems Controlling the Money Supply

- households
- banks
- Yet, Fed can compensate for household & bank behavior to retain fairly precise control over the money supply.

Bank Runs and the Money Supply

- A **run on banks**:
- Under fractional-reserve banking, banks don't have enough reserves to pay off ALL depositors, hence banks may have to close.
- Also, banks may make fewer loans & hold more reserves to satisfy depositors.

Bank Runs and the Money Supply

- During 1929-1933, a wave of bank runs and bank closings caused money supply to fall 28%.
- Many economists believe this contributed to the severity of the Great Depression.
- Bank runs not a problem today due to