

**Macroeconomics: Principles & Applications**

CHAPTER 13

*Money, Banks, and the Federal Reserve*

Robert E. Hall & Mark Lieberman

PowerPoint slides prepared by:  
Andreea Chiritescu  
Eastern Illinois University

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**Money**

- **Money**
  - An asset widely accepted as a means of payment
- **Means of payment**
  - Anything acceptable as payment for goods and services
- **Money supply**
  - The total amount of money held by the public

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**Money**

- **Money supply, M1**
  - Cash in the hands of the public
  - Checking account deposits
  - Travelers checks
- **Cash in the hands of the public**
  - Currency and coins held by the nonbank public

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### Money

- **Checkable deposits**
  - Accounts held by households and business firms at commercial banks
  - Demand deposits
  - Automatic transfers from savings accounts
- **Travelers checks**
  - Specially printed checks that you can buy from banks or other private companies

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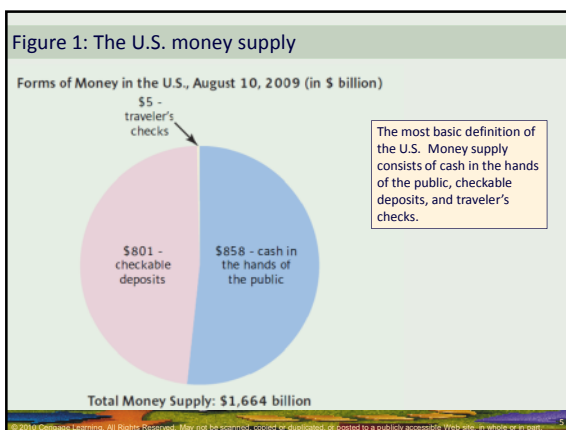
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### Money

- **Money supply, M2**
  - M1
  - Savings deposits
  - Money market deposits
  - Money market funds
  - Certificates of deposit under \$100,000

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**Money**

- **Functions of money**
  - Means of payment
  - Store of value
  - Unit of account
- **Store of value**
  - A form in which wealth can held
- **Unit of account**
  - A common unit for measuring how much something is worth

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**Brief History of the Dollar**

- **Prior to 1790**
  - Each colony had its own currency, the “pound”
  - Different purchasing power
- **1790, soon after the Constitution went into effect**
  - Congress created a new currency, the dollar
  - Merchants and businesses switched immediately to the new dollar
  - The dollar rapidly became the standard unit of account

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**Brief History of the Dollar**

- **Primary means of payment**
  - Until the Civil War
  - Paper currency issued by private banks
- **During the Civil War**
  - Government issued the first federal paper currency, the greenback
  - Until 1879
- **1913, Federal Reserve System**
  - National monetary authority in the United States

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**Money**

- **Federal Reserve System**
  - Monetary authority of the United States
  - Creating & regulating nation's supply of money
- **Commodity money**
  - Precious metals & other valuable commodities
  - Important uses other than means of payment
  - The non-money use is what gave commodity money its ultimate value

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**Money**

- **Paper currency**
  - Initially - a certificate representing a certain amount of gold or silver held by a bank
  - People were willing to accept paper money:
    - Currency could be exchanged for a valuable commodity such as gold or silver
    - The issuer—either a government or a bank—could print new money only when it acquired additional gold or silver
  - Today - paper currency is no longer backed by gold or any other physical commodity

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**Money**

- **Commodity money**
  - Eventually gave way to paper currency
- **Fiat money**
  - Something that serves as a means of payment by government declaration

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### The Banking System

- **Financial intermediary**
  - A business firm that specializes in brokering between savers and borrowers
- **Depository institutions**
  - Financial intermediaries
  - Accept deposits from the general public
  - Lend the deposits to borrowers

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### The Banking System

- **Commercial banks**
  - Largest group of depository institutions
  - Obtain funds mainly by accepting checkable deposits, savings deposits, and time deposits
  - Use the funds to make business, mortgage, and consumer loans
- **Balance sheet**
  - Financial statement showing assets, liabilities, and shareholders' equity at a point in time

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**Table 1: The Balance Sheet of Mid-Size National Bank**

Assets		Liabilities and Shareholders' Equity	
Property and buildings	\$ 40 million	Checking Account Deposits	\$ 600 million
Government and Corporate Bonds	\$ 100 million	Other Deposits	\$ 200 million
Loans	\$ 800 million	Bank Borrowing	\$ 75 million
Cash in Vault and ATMs	\$ 10 million	Shareholders' Equity	\$ 125 million
In Accounts with Federal Reserve	\$ 50 million		
<b>Total Assets</b>	<b>\$1,000 million</b>	<b>Total Liabilities and Shareholders' Equity</b>	<b>\$1,000 million</b>

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**The Banking System**

- **Bond**
  - A promise to pay back borrowed funds, issued by a corporation or government agency
- **Loan**
  - An agreement to pay back borrowed funds, signed by a household or non-corporate business
- **Reserves**
  - Vault cash plus balances held at the Fed

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**The Banking System**

- **Required reserves**
  - Minimum amount of reserves a bank must hold
  - Depends on the amount of its deposit liabilities
- **Required reserve ratio**
  - The minimum fraction of checking account balances that banks must hold as reserves

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**The Banking System**

- **Excess reserves**
  - Reserves in excess of required reserves
- **Shareholders' equity**
  - The difference between assets and liabilities
- **A balance sheet always balances**

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### The Federal Reserve System

- **Central bank**
  - A nation's principal monetary authority responsible for controlling the money supply
- **Federal Reserve System**
  - 12 Federal Reserve districts
  - It is not part of any branch of government
    - Was created by Congress
    - Could be eliminated by Congress if it so desired
  - President and Congress
    - Appoint key officials in the system

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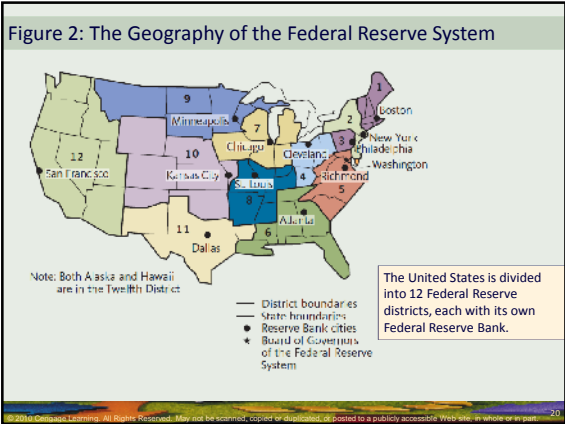
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### The Federal Reserve System

- **Board of Governors**
  - Seven members
    - Appointed by the president
      - Confirmed by the Senate
      - For a 14-year term
  - Chairman
    - One of the seven governors
      - Appointed by the president
      - Approved by the with Senate
      - 4-year term

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### The Federal Reserve System

- **12 Federal Reserve Banks**
  - Each - supervised by nine directors
    - Three - appointed by the Board of Governors
    - Six - elected by private commercial banks
  - Each – a president
    - Chosen by the directors

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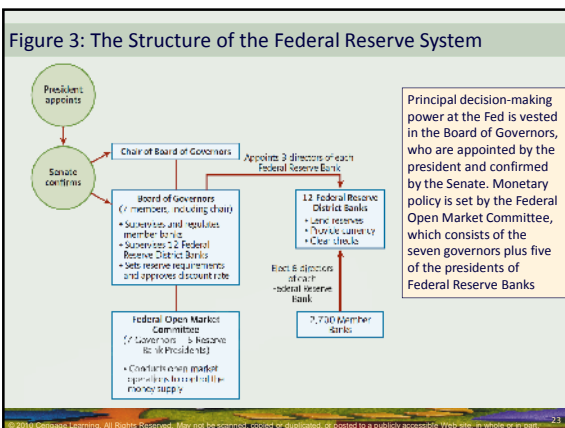
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### The Federal Reserve System

- **Federal Open Market Committee (FOMC)**
  - A committee of Federal Reserve officials that establishes U.S. monetary policy
  - All seven governors of the Fed
  - Five of the twelve bank presidents
- **Discount rate**
  - The interest rate the Fed charges on loans to banks

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### The Federal Reserve System

- **The functions of the Fed**
  - Supervising and regulating banks
  - Acting as a “bank for banks”
  - Issuing paper currency
  - Check clearing
  - Guiding the macroeconomy
  - Dealing with financial crises

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### The Fed and the Money Supply

- **Open market operations**
  - Purchases or sales of bonds by the Federal Reserve System
  - The primary way the Fed increases or decreases the money supply
- **Open market purchase**
  - Fed buys government bonds
  - Money supply increases

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**Table 2: A Check from the Fed Is Deposited at Mid-Size National Bank**

Assets		Liabilities and Shareholders' Equity	
Property and buildings	\$ 40 million	Checking Account Deposits	<del>\$ 600 million</del> \$ 605 million
Government and Corporate Bonds	\$ 100 million	Other Deposits	\$ 200 million
Loans	\$ 845 million	Bank Borrowing	\$ 75 million
Cash in vault and ATMs	\$ 10 million	Shareholders' Equity	\$ 125 million
In Accounts with Federal Reserve	<del>\$ 50 million</del> \$ 55 million		
<b>Total Assets</b>	<b>\$1,000 million</b> <b>\$1,005 million</b>	<b>Total Liabilities and Shareholders' Equity</b>	<b>\$1,000 million</b> <b>\$1,005 million</b>

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**Table 3: Mid-Size Creates New Deposits by Lending Out \$45 million**

Assets		Liabilities and Shareholders' Equity	
Property and buildings	\$ 40 million	Checking Account Deposits	<del>\$ 605 million</del> \$ 650 million
Government and Corporate Bonds	\$ 100 million	Other Deposits	\$ 200 million
Loans	<del>\$ 800 million</del> \$ 845 million	Bank Borrowing	\$ 75 million
Cash in vault and ATMs	\$ 10 million		
In Accounts with Federal Reserve	\$ 55 million	Shareholders' Equity	\$ 125 million
<b>Total Assets</b>	<del>\$1,005 million</del> \$1,050 million	<b>Total Liabilities and Shareholders' Equity</b>	<del>\$1,005 million</del> \$1,050 million

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**Table 4: Effect of an Open Market Purchase on the Banking System**

Assets at All Banks		Liabilities and Shareholders' Equity at All Banks	
Property and buildings	\$ 400 million	Checking Account Deposits	<del>\$ 6,000 million</del> \$ 6,050 million
Government and Corporate Bonds	\$ 1,000 million	Other Deposits	\$ 2,000 million
Loans	<del>\$ 8,000 million</del> \$ 8,045 million	Bank Borrowing	\$ 750 million
Cash in vault and ATMs	\$ 100 million		
In Accounts with Federal Reserve	\$ 500 million \$ 505 million	Shareholders' Equity	\$ 1,250 million
<b>Total Assets</b>	<del>\$10,000 million</del> \$10,050 million	<b>Total Liabilities and Shareholders' Equity</b>	<del>\$10,000 million</del> \$10,050 million

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### The Fed and the Money Supply

- **Money multiplier**
  - The number by which we multiply the injection of reserves to get the total change in the money supply
  - =  $1/RRR$
- **RRR = required reserve ratio**
- **Δ Money Supply**
  - = Δ Checking Deposits
  - =  $[1/RRR] \times \Delta \text{Reserves}$

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**The Fed and the Money Supply**

- **Open market sale**
  - Fed sells government bonds
  - Money supply decreases
- **Provisos about the money multiplier**
  - Changes in the public's cash holdings
  - Increased reserve holdings

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**The Fed and the Money Supply**

- **Other Fed actions that change the money supply**
  - Changes in the required reserve ratio
    - Lower the required reserve ratio
      - Increase in money supply
  - Changes in the discount rate
    - Lower discount rate
      - Increase the money supply

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**Banking Panics**

- **Bank becomes insolvent**
  - When its total assets are less than its total liabilities
- **Bank failure**
  - When an insolvent bank goes out of business
- **Run on the bank**
  - An attempt by many of a bank's depositors to withdraw their funds

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**Banking Panics**

- **Bank regulation**
  - Continuous monitoring of their financial condition
  - Legal capital requirements:
    - Banks must hold a significant percentage of their assets as bank capital

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Using the Theory

**The financial crisis of 2008**

- **Financial crisis**
  - Major disruption of the financial system
  - Seriously affected lending and other financial services
- **As bank capital declined, banks had three choices:**
  - Acquire more capital by issuing and selling new shares
  - Reduce the risk of their assets
  - Wait and hope

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Using the Theory

**The financial crisis of 2008**

- **Banking system**
  - Commercial banks
  - Savings and loan associations (S&Ls)
  - Credit unions
  - Other similar institutions
- **Characteristics:**
  - Short-term liabilities
  - Long-term assets
  - Liabilities include government-insured deposits
  - Closely regulated by government

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Using the Theory

### The financial crisis of 2008

- A non-bank
  - Non-bank financial intermediary
  - Financial institution
    - Short-term liabilities
    - Long-term assets

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APPENDIX

### Capital and Leverage at Financial Institutions

- Simple leverage ratio
  - For an asset owner
  - = Value of asset / Equity in asset
- Financial institutions' simple leverage ratio
  - = Total assets / Shareholder's equity
- Leverage ratio
  - Acts as a "rate-of-return" multiplier

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APPENDIX

### Capital and Leverage at Financial Institutions

- The greater the leverage ratio
  - The more interest-earning assets the bank can acquire with each dollar of its capital (shareholders' equity)
  - The greater the return it can earn for its shareholders

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APPENDIX

**Capital and Leverage at Financial Institutions**

- **Deleveraging**
  - The process of reducing leverage
  - Reducing the risk to your capital from any further declines in asset prices
- **Lower leverage ratios**
  - Sell off assets rapidly
  - Increasing capital

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