29

The Monetary System

PowerPoint Slides prepared by:
Andreea CHIRITESCU
Eastern Illinois University

The Meaning of Money, Part 1

- Money
  - Set of assets in an economy
  - That people regularly use
  - To buy goods and services from other people
- The functions of money
  - Medium of exchange
  - Unit of account
  - Store of value

The Meaning of Money, Part 2

- Medium of exchange
  - Item that buyers give to sellers when they want to purchase goods and services
- Unit of account
  - Yardstick people use to post prices and record debts

The Meaning of Money, Part 3

- Store of value
  - Item that people can use to transfer purchasing power
    - From the present to the future
- Liquidity
  - Ease with which an asset can be converted into the economy’s medium of exchange

The Kinds of Money, Part 1

- Commodity money
  - Money that takes the form of a commodity with intrinsic value
    - Gold, cigarettes
- Intrinsic value
  - Item would have value even if it were not used as money
- Gold standard - Gold as money
    - Or paper money that is convertible into gold on demand

The Kinds of Money, Part 2

- Fiat money
  - Money without intrinsic value
  - Used as money because of government decree
  - “This note is legal tender for all debts, public and private”
- Fiat
  - Order or decree

Money in the U.S. Economy, Part 1

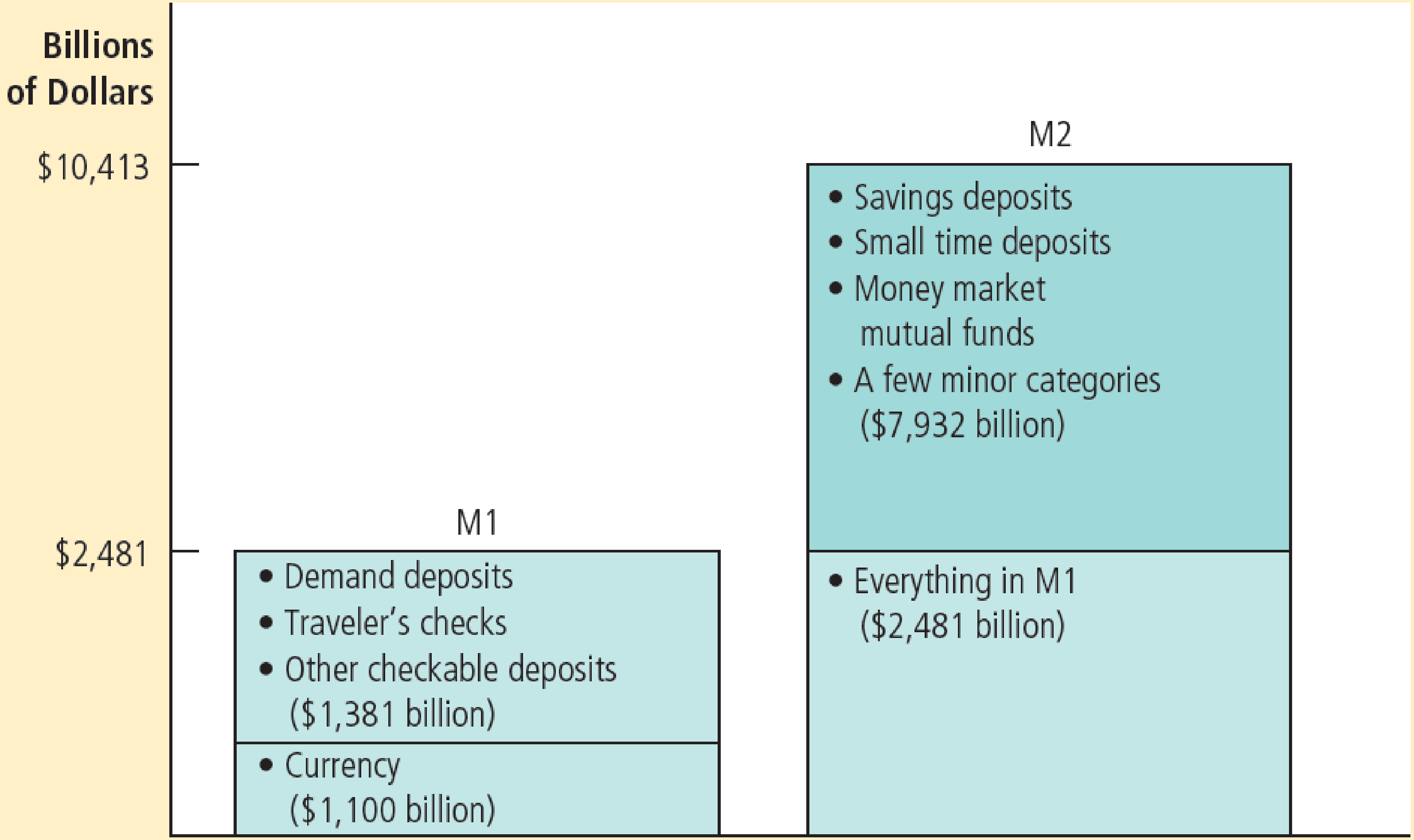
- Money stock
  - Quantity of money circulating in the economy
- Currency
  - Paper bills and coins in the hands of the public
- Demand deposits
  - Balances in bank accounts; depositors can access on demand by writing a check

Money in the U.S. Economy, Part 2

- Measures of money stock
  - M1
    - Demand deposits, Traveler's checks
    - Other checkable deposits, Currency
  - M2
    - Everything in M1
    - Savings deposits, Small time deposits
    - Money market mutual funds
    - A few minor categories

Figure 1

Two Measures of the Money Stock for the U.S. Economy



The two most widely followed measures of the money stock are M1 and M2. This figure shows the size of each measure in January 2013.

Source: Federal Reserve.

Where is all the currency?

- January 2013: $1.1 trillion currency outstanding
  - Implies the average adult holds about $4,490 of currency
  - Much of the currency is held abroad
  - Much of the currency is held by drug dealers, tax evaders, and other criminals
- Currency is not a particularly good way to hold wealth
    - Can be lost or stolen; doesn’t earn interest

The Federal Reserve System

- The Federal Reserve (the Fed)
  - The central bank of the United States
- Central bank
  - Institution designed to
    - Oversee the banking system
    - Regulate the quantity of money in the economy

The Fed's Organization, Part 1

- The Federal Reserve
  - Created in 1913
  - After a series of bank failures in 1907
  - Purpose: to ensure the health of the nation's banking system

The Fed’s Organization, Part 2

- Board of governors
  - 7 members, 14-year terms
    - Appointed by the president and confirmed by the Senate
  - The chairman
    - Directs the Fed staff
    - Presides over board meetings
    - Testifies regularly about Fed policy in front of congressional committees.
    - Appointed by the president (4-year term)

The Fed’s Organization, Part 3

- The Federal Reserve System
  - Federal Reserve Board in Washington, D.C.
  - 12 regional Federal Reserve Banks
    - Major cities around the country
    - The presidents are chosen by each bank’s board of directors

The Fed's Organization, Part 4

- The Fed's jobs
  - Regulate banks and ensure the health of the banking system
    - Regional Federal Reserve Banks
    - Monitors each bank's financial condition
    - Facilitates bank transactions - clearing checks
    - Acts as a bank's bank
    - The Fed – lender of last resort

The Fed’s Organization, Part 5

- The Fed’s jobs
  - Control the money supply
    - Quantity of money available in the economy
    - Monetary policy
      - By Federal Open Market Committee (FOMC)
- Money supply
  - Quantity of money available in economy
- Monetary policy
  - Setting of the money supply

Federal Open Market Committee, Part 1

- FOMC
  - 7 members of the board of governors
  - 5 of the twelve regional bank presidents
    - All twelve regional presidents attend each FOMC meeting, but only five get to vote
  - Meets about every 6 weeks in Washington, D.C.
  - Discuss the condition of the economy
  - Consider changes in monetary policy

Federal Open Market Committee, Part 2

- Fed’s primary tool: open-market operation
  - Purchase & sale of U.S. government bonds
- FOMC - increase the money supply
  - The Fed: open-market purchase
- FOMC - decrease the money supply
  - The Fed: open-market sale

Banks and the Money Supply, Part 1

- Money
  - Currency + Demand deposits
- Behavior of banks
  - Can influence the quantity of demand deposits in the economy (and the money supply)

"I've heard a lot about money, and now I'd like to try some."

Banks and the Money Supply, Part 2

- Reserves
  - Deposits that banks have received but have not loaned out
- The simple case of 100% reserve banking
  - All deposits are held as reserves
    - Banks do not influence the supply of money

First National Bank

Assets		Liabilities	
Reserves	$100.00	Deposits	$100.00

Fractional-Reserve Banking, Part 1

- Fractional-reserve banking
  - Banks hold only a fraction of deposits as reserves
- Reserve ratio
  - Fraction of deposits that banks hold as reserves
- Reserve requirement
  - Minimum amount of reserves that banks must hold; set by the Fed

Fractional-Reserve Banking, Part 2

- Excess reserve
  - Banks may hold reserves above the legal minimum
- Example: First National Bank
  - Reserve ratio 10%

First National Bank

Assets		Liabilities	
Reserves	$10.00	Deposits	$100.00
Loans	90.00		

Fractional-Reserve Banking, Part 3

- Banks hold only a fraction of deposits in reserve
  - Banks create money
    - Assets
    - Liabilities
  - Increase in money supply
  - Does not create wealth

The Money Multiplier, Part 1

Second National Bank

Assets		Liabilities	
Reserves	$ 9.00	Deposits	$90.00
Loans	81.00		

Third National Bank

Assets		Liabilities	
Reserves	$ 8.10	Deposits	$81.00
Loans	72.90		

The Money Multiplier, Part 2

- The money multiplier
  - Original deposit = $100.00
  - First National lending = $ 90.00 [= .9 × $100.00]
  - Second National lending = $ 81.00 [= .9 × $90.00]
  - Third National lending = $ 72.90 [= .9 × $81.00]
  - …
  - Total money supply = $1,000.00

The Money Multiplier, Part 3

- The money multiplier
  - Amount of money the banking system generates with each dollar of reserves
  - Reciprocal of the reserve ratio = 1/R
- The higher the reserve ratio
  - The smaller the money multiplier

Financial Crisis of 2008–2009, Part 1

- Bank capital
  - Resources a bank's owners have put into the institution
  - Used to generate profit

More Realistic National Bank

Assets		Liabilities and Owners' Equity	
Reserves	$200	Deposits	$800
Loans	700	Debt	150
Securities	100	Capital (owners' equity)	50

Financial Crisis of 2008–2009, Part 2

- Leverage
  - Use of borrowed money to supplement existing funds for purposes of investment
- Leverage ratio
  - Ratio of assets to bank capital
- Capital requirement
  - Government regulation specifying a minimum amount of bank capital

Financial Crisis of 2008–2009, Part 3

- If bank’s assets rise in value by 5%
  - Because some of the securities the bank was holding rose in price
  - $1,000 of assets would now be worth $1,050
  - Bank capital rises from $50 to $100
  - So, for a leverage rate of 20
    - A 5% increase in the value of assets
    - Increases the owners’ equity by 100%

Financial Crisis of 2008–2009, Part 4

- If bank's assets are reduced in value by 5%
  - Because some people who borrowed from the bank default on their loans
  - $1,000 of assets would be worth $950
  - Value of the owners' equity falls to zero
  - So, for a leverage ratio of 20
    - A 5% fall in the value of the bank assets
    - Leads to a 100% fall in bank capital

Financial Crisis of 2008–2009, Part 5

- If bank's assets are reduced in value by more than 5%
  - Because some people who borrowed from the bank default on their loans
  - For a leverage ratio of 20
    - The bank's assets would fall below its liabilities
    - The bank would be insolvent
      - Unable to pay off its debt holders and depositors in full

Financial Crisis of 2008–2009, Part 6

- Many banks in 2008 and 2009
  - Incurred sizable losses on some of their assets
    - Mortgage loans and securities backed by mortgage loans
  - Shortage of capital induced the banks to reduce lending
    - Credit crunch
    - Contributed to a severe downturn in economic activity

Financial Crisis of 2008–2009, Part 7

- U.S. Treasury and the Fed
  - Put many billions of dollars of public funds into the banking system
    - To increase the amount of bank capital
  - Temporarily made the U.S. taxpayer a part owner of many banks
  - Goal: to recapitalize the banking system
    - So that bank lending could return to a more normal level - occurred by late 2009

Fed’s Tools of Monetary Control, Part 1

- Influences the quantity of reserves
  - Open-market operations
  - Fed lending to banks
- Influences the reserve ratio
  - Reserve requirements
  - Paying interest on reserves

Fed’s Tools of Monetary Control, Part 2

- Open-market operations
  - Purchase and sale of U.S. government bonds by the Fed
  - To increase the money supply
    - The Fed buys U.S. government bonds
  - To reduce the money supply
    - The Fed sells U.S. government bonds
  - Easy to conduct
  - Used more often

Fed's Tools of Monetary Control, Part 3

- Fed lending to banks
  - To increase the money supply
  - Discount window
    - At the discount rate
  - Term Auction Facility
    - To the highest bidder

Fed’s Tools of Monetary Control, Part 4

- The discount rate
  - Interest rate on the loans that the Fed makes to banks
  - Higher discount rate
    - Reduce the money supply
  - Smaller discount rate
    - Increase the money supply

Fed’s Tools of Monetary Control, Part 5

- Term Auction Facility
  - The Fed sets a quantity of funds it wants to lend to banks
  - Eligible banks bid to borrow those funds
  - Loans go to the highest eligible bidders
    - Acceptable collateral
    - Pay the highest interest rate

Fed's Tools of Monetary Control, Part 6

- Reserve requirements
  - Minimum amount of reserves that banks must hold against deposits
    - An increase in reserve requirement
      - Decrease the money supply
    - A decrease in reserve requirement
      - Increase the money supply
  - Used rarely – disrupt business of banking
  - Less effective in recent years
    - Many banks hold excess reserves

Fed’s Tools of Monetary Control, Part 7

- Paying interest on reserves
  - Since October 2008
  - The higher the interest rate on reserves
    - The more reserves banks will choose to hold
  - An increase in the interest rate on reserves
    - Increase the reserve ratio
    - Lower the money multiplier
    - Lower the money supply

Problems

- The Fed’s control of the money supply
  - Not precise
- The Fed does not control:
  - The amount of money that households choose to hold as deposits in banks
  - The amount that bankers choose to lend

Bank runs and the money supply, Part 1

- Bank runs
  - Depositors suspect that a bank may go bankrupt
    - "Run" to the bank to withdraw their deposits
  - Problem for banks under fractional-reserve banking
    - Cannot satisfy withdrawal requests from all depositors

Bank runs and the money supply, Part 2

- When a bank run occurs
  - The bank - is forced to close its doors
  - Until some bank loans are repaid
  - Or until some lender of last resort provides it with the currency it needs to satisfy depositors
  - Complicate the control of the money supply

case study

Bank runs and the money supply, Part 3

- Great Depression, early 1930s
  - Wave of bank runs and bank closings
  - Households and bankers - more cautious
  - Households
    - Withdrew their deposits from banks


RKO/THE KOBAL COLLECTION/ PICTURE DESK

A not-so-wonderful bank run

case study

Bank runs and the money supply, Part 4

- Great Depression, early 1930s
  - Bankers - responded to falling reserves
    - Reducing bank loans,
    - Increased their reserve ratios
    - Smaller money multiplier
    - Decrease in money supply

case study

Bank runs and the money supply, Part 5

- Bank runs today
  - Not a major problem for the U.S. banking system
- The federal government
  - Guarantees the safety of deposits at most banks
    - Federal Deposit Insurance Corporation (FDIC)

Bank runs and the money supply, Part 6

- No bank runs today
  - Depositors are confident
  - FDIC will make good on the deposits
- Government deposit insurance
  - Cost:
    - Bankers - little incentive to avoid bad risks
  - Benefit:
    - A more stable banking system

The Federal Funds Rate, Part 1

- The federal funds rate
  - Interest rate at which banks make overnight loans to one another
    - Lender – has excess reserves
    - Borrower – needs reserves
  - A change in federal funds rate
    - Changes other interest rates

The Federal Funds Rate, Part 2

- The Fed: target the federal funds rate
  - Open-market operations
    - The Fed buys bonds
      - Decrease in the federal funds rate
      - Increase in money supply
    - The Fed sells bonds
      - Increase in the federal funds rate
      - Decrease in money supply