Monetary Theory and Policy

Chapter 1: Why Study Money, Banking, and Financial Markets?

Preview

- To examine how financial markets such as bond, stock and foreign exchange markets work
- To examine how financial institutions such as banks, investment and insurance companies work
- To examine the role of money in the economy

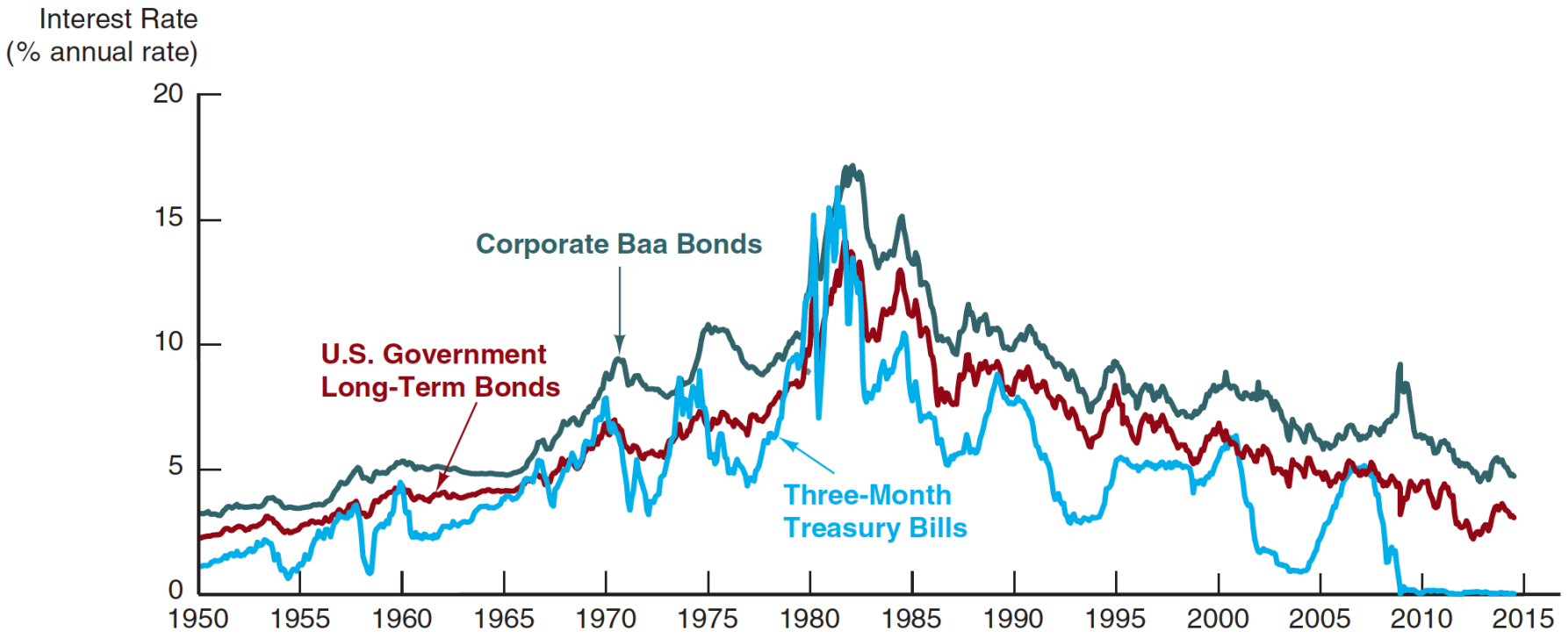
Financial Markets

- Markets in which funds are transferred from people who have an excess of available funds to people who have a shortage of funds

The Bond Market and Interest Rates

- A security (financial instrument) is a claim on the issuer's future income or assets
- A bond is a debt security that promises to make payments periodically for a specified period of time
- An interest rate is the cost of borrowing or the price paid for the rental of funds

FIGURE 1 Interest Rates on Selected Bonds, 1950–2014



Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

The Stock Market

- Common stock represents a share of ownership in a corporation
- A share of stock is a claim on the earnings and assets of the corporation

Stock Prices Measured by the Shanghai Stock Exchange Composite Indexes

Stock Prices as Measured by Dow Jones Industrial Average

Financial Institutions and Banking

- Financial Intermediaries: institutions that borrow funds from people who have saved and make loans to other people:
  - Banks: accept deposits and make loans
  - Other Financial Institutions: insurance companies, finance companies, pension funds, mutual funds and investment banks
- Financial Innovation: in particular, the advent of the information age and e-finance

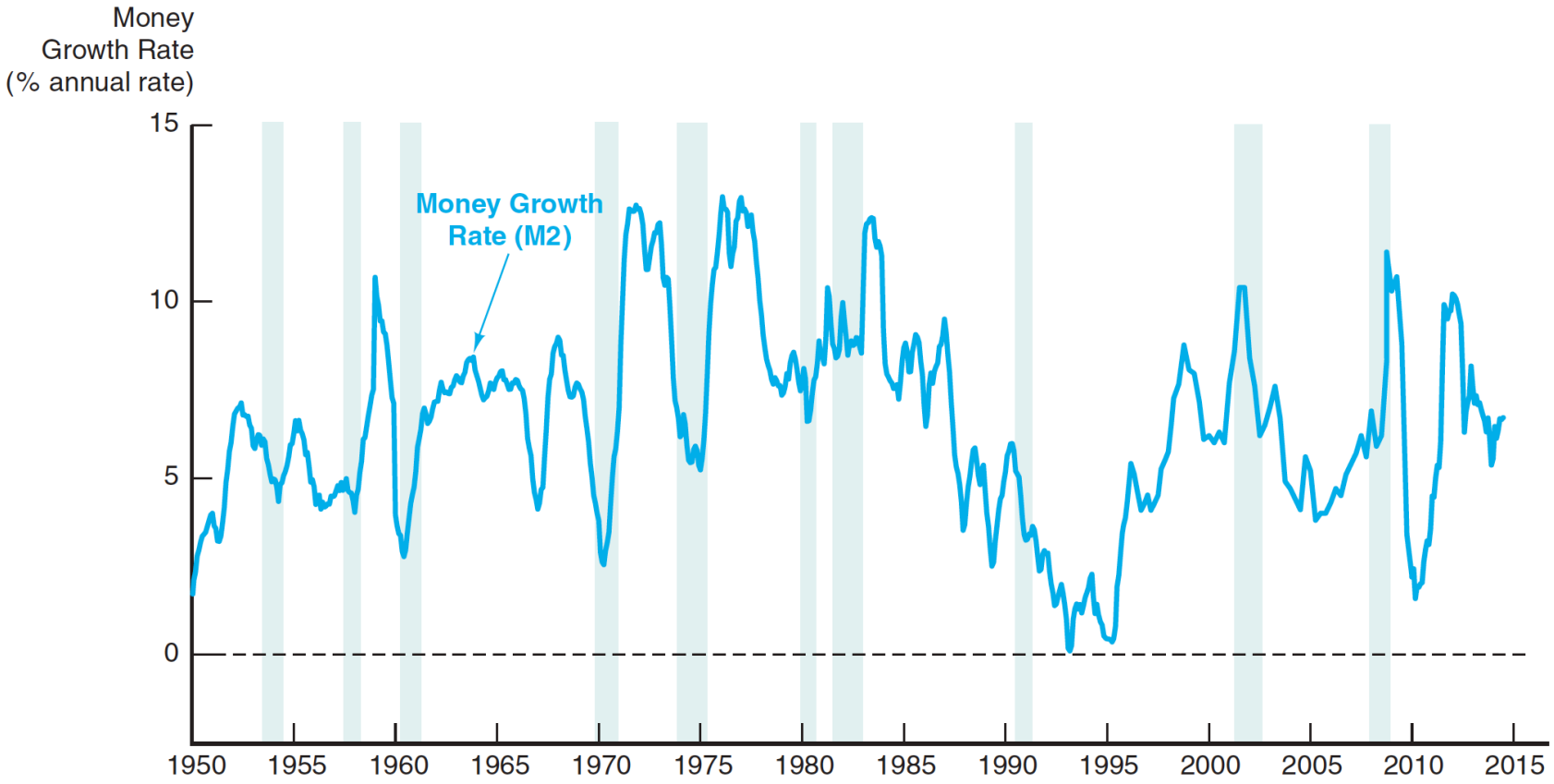
Financial Crises

- Financial crises are major disruptions in financial markets that are characterized by sharp declines in asset prices and the failures of many financial and nonfinancial firms.

Money and Business Cycles

- Evidence suggests that money plays an important role in generating business cycles
- Recessions (unemployment) and expansions affect all of us
- Monetary Theory ties changes in the money supply to changes in aggregate economic activity and the price level

FIGURE 3 Money Growth (M2 Annual Rate) and the Business Cycle in the United States, 1950–2014



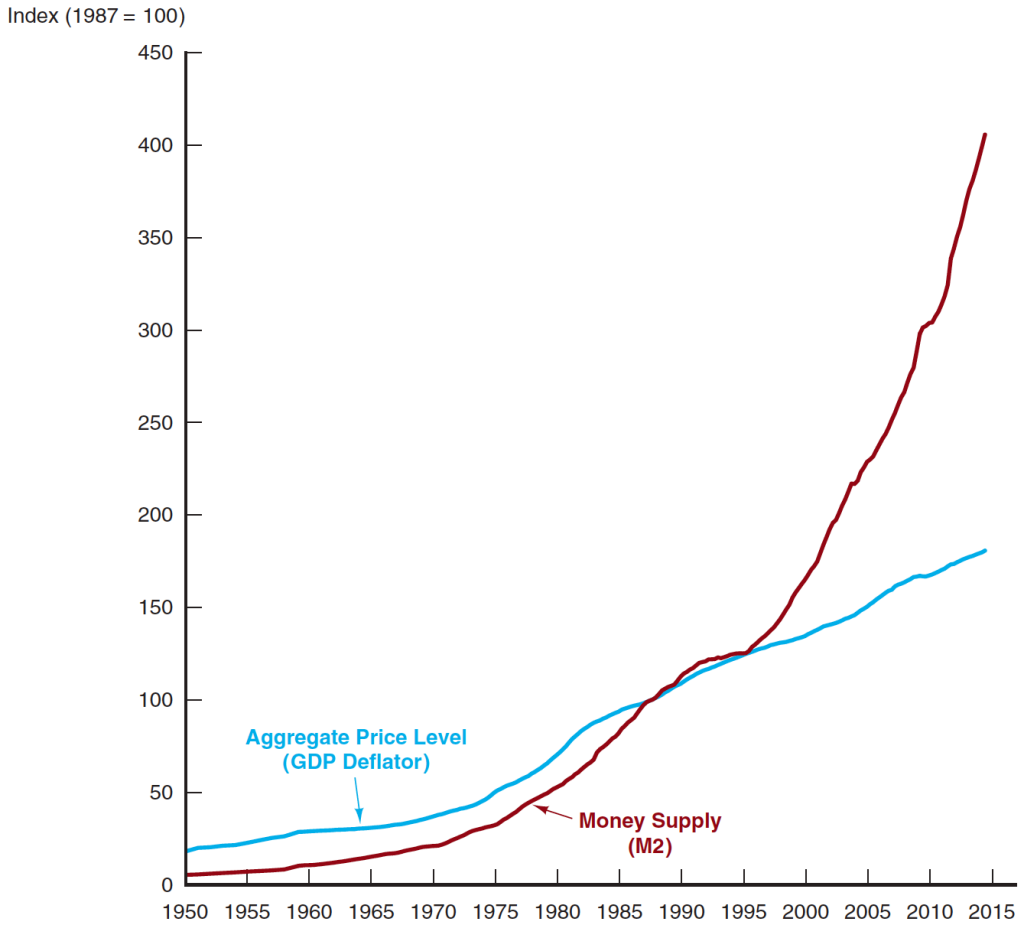
Note: Shaded areas represent recessions.

Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

Money and Inflation

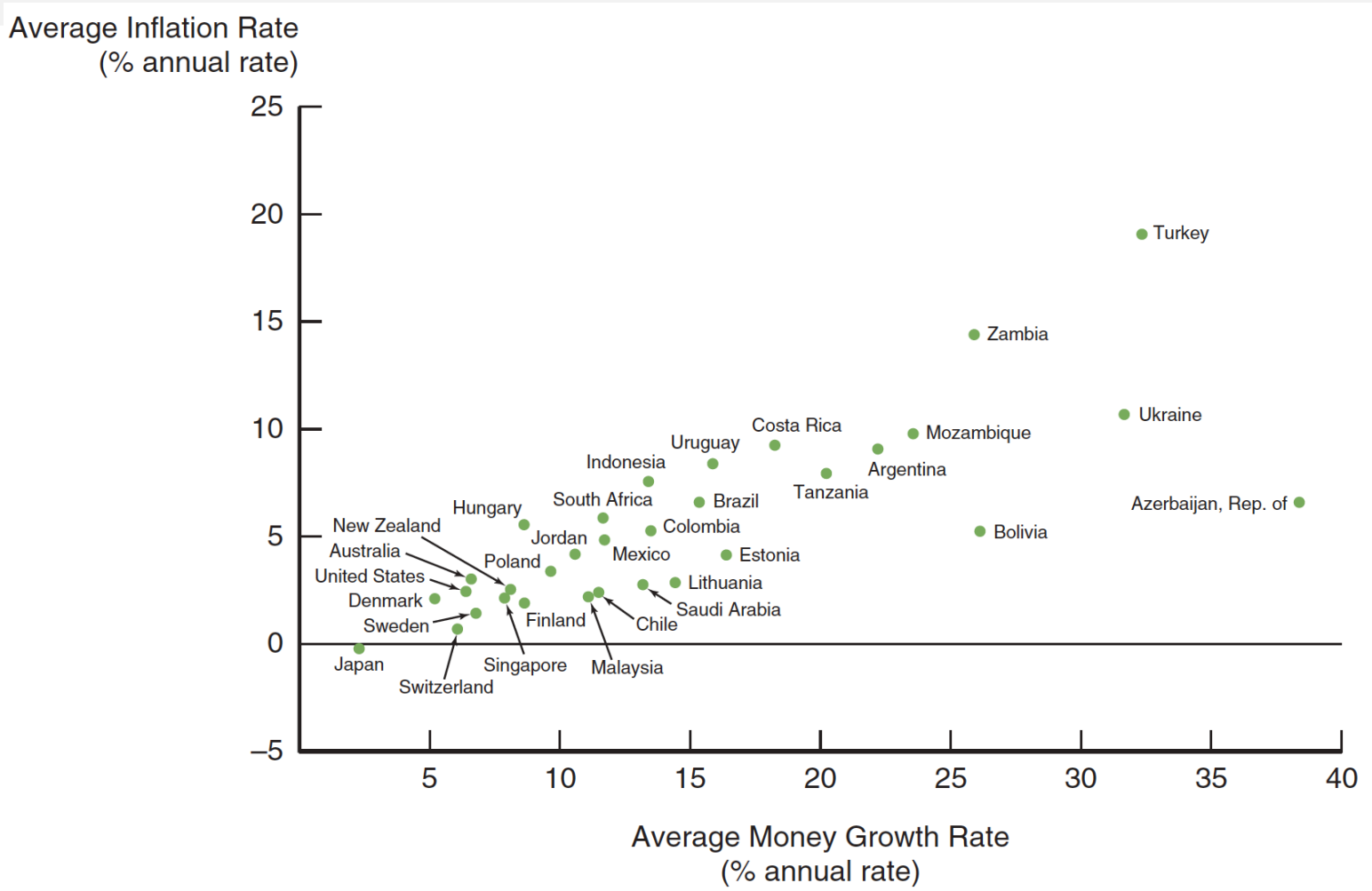
- The aggregate price level is the average price of goods and services in an economy
- A continual rise in the price level (inflation) affects all economic players
- Data shows a connection between the money supply and the price level

FIGURE 4 Aggregate Price Level and the Money Supply in the United States, 1950–2014



- Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

FIGURE 5 Average Inflation Rate Versus Average Rate of Money Growth for Selected Countries, 1997–2013

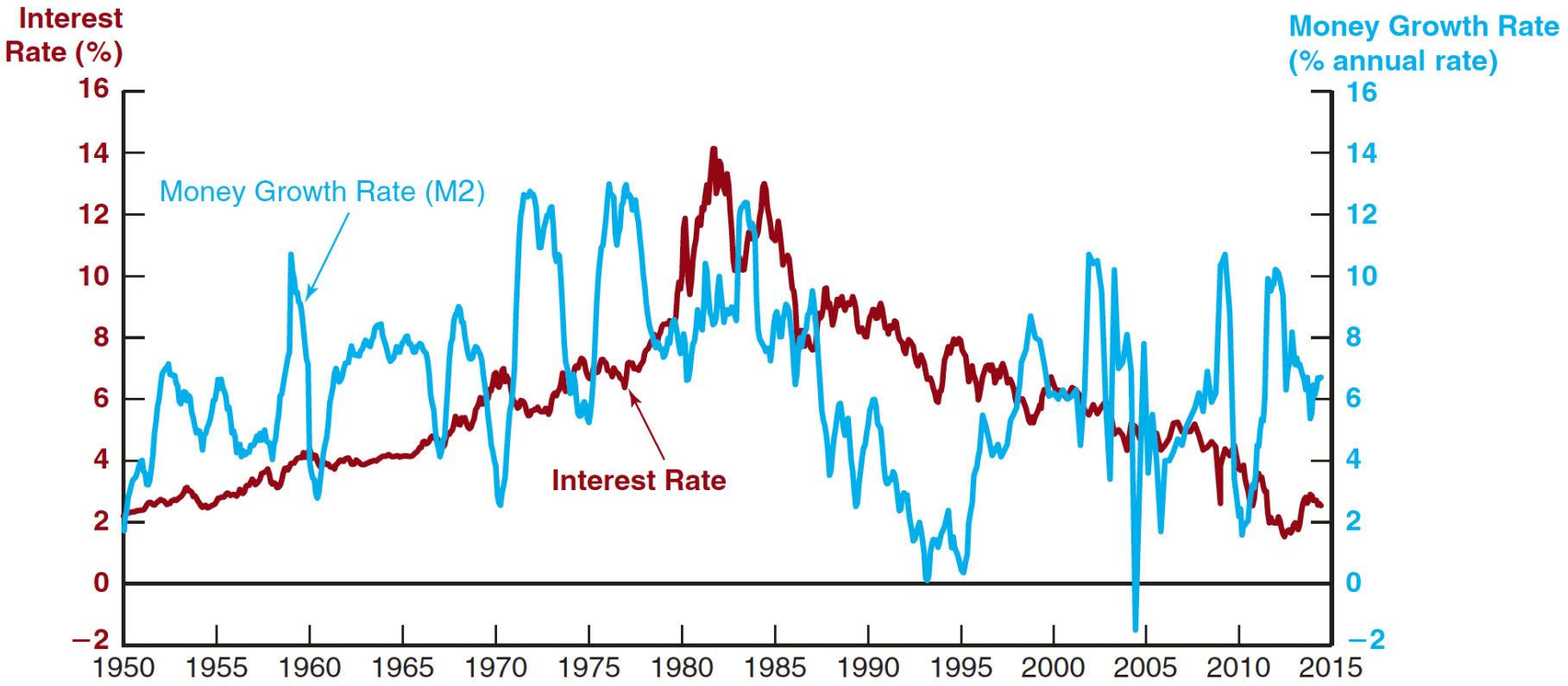


Source: International Financial Statistics. http://www.imf.org/external/data.htm

Money and Interest Rates

- Interest rates are the price of money
- Prior to 1980, the rate of money growth and the interest rate on long-term Treasury bonds were closely tied
- Since then, the relationship is less clear but the rate of money growth is still an important determinant of interest rates

FIGURE 6 Money Growth (M2 Annual Rate) and Interest Rates (Long-Term U.S. Treasury Bonds), 1950–2014

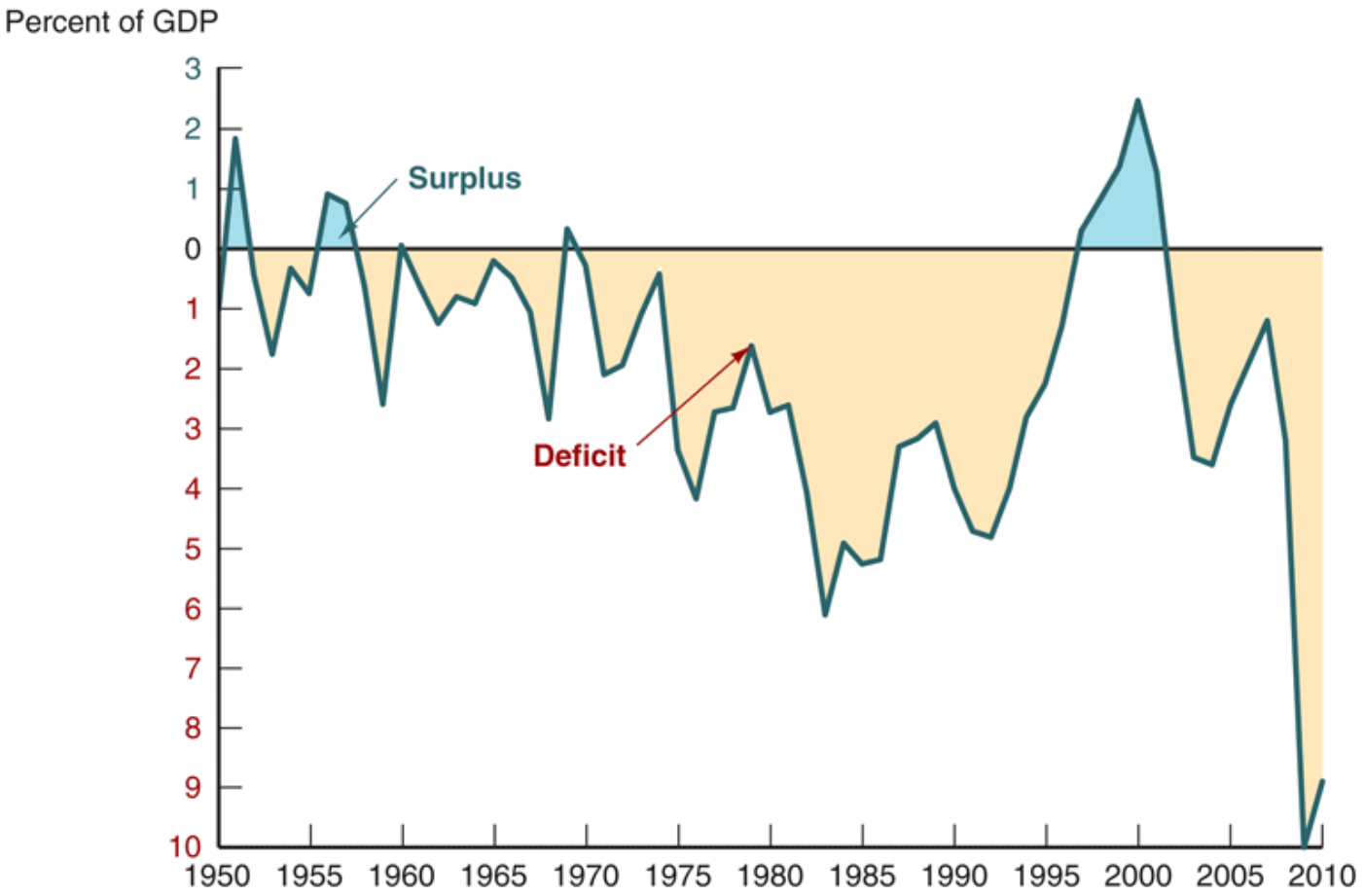


Source: Federal Reserve Bank of St. Louis, FRED database: http://research.stlouisfed.org/fred2

Monetary and Fiscal Policy

- Monetary policy is the management of the money supply and interest rates
  - Conducted in the U.S. by the Federal Reserve System (Fed)
- Fiscal policy deals with government spending and taxation
  - Budget deficit is the excess of expenditures over revenues for a particular year
  - Budget surplus is the excess of revenues over expenditures for a particular year
  - Any deficit must be financed by borrowing

FIGURE 7 Government Budget Surplus or Deficit as a Percentage of Gross Domestic Product, 1950–2013



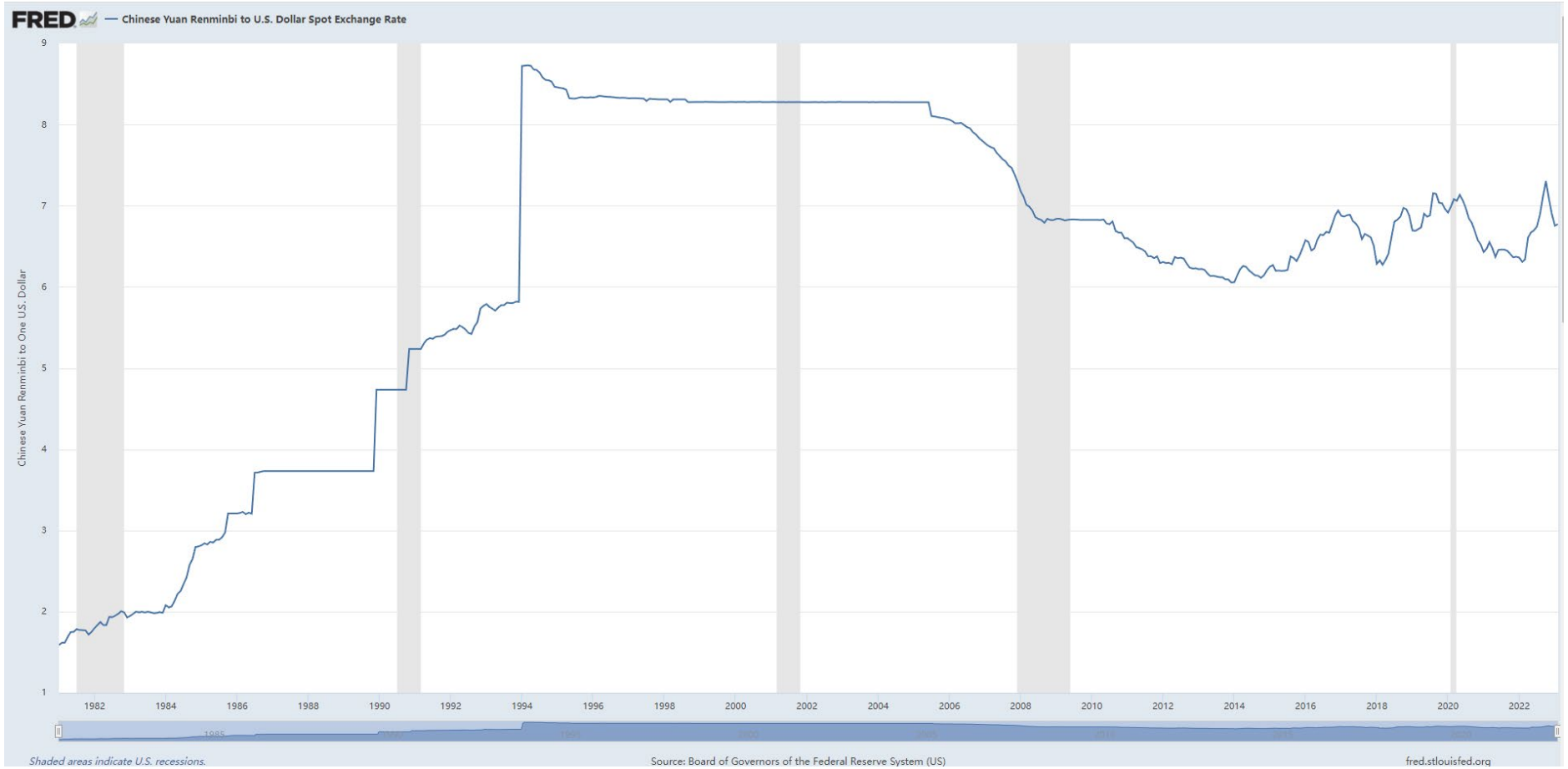
Source: www.gpoaccess.gov/usbudget/fy06/sheets/hist01z2.xls.

The Foreign Exchange Market

- The foreign exchange market is where funds are converted from one currency into another
- The foreign exchange rate is the price of one currency in terms of another currency
- The foreign exchange market determines the foreign exchange rate

Exchange Rate of the U.S. Dollar, 1970–2014

Exchange Rate of the RMB to U.S. Dollar



International Finance

- Financial markets have become increasingly integrated throughout the world.
- The international financial system has tremendous impact on domestic economies:
  - How a country's choice of exchange rate policy affect its monetary policy?
  - How capital controls impact domestic financial systems and therefore the performance of the economy?
  - Which should be the role of international financial institutions like the IMF?

Appendix: Measurement of GDP

- Gross domestic product (GDP)
  - Market value of all final goods and services
  - Produced within a country
  - In a given period of time
- "GDP is the market value…"
  - Market prices - reflect the value of the goods

Appendix: Measurement of GDP

- "… of all…"
  - All items produced in the economy
    - And sold legally in markets
  - Excludes most items
    - Produced and sold illicitly
    - Produced and consumed at home

Appendix: Measurement of GDP

- "… final…"
  - Value of intermediate goods is already included in the prices of the final goods
- "… goods and services…"
  - Tangible goods & intangible services
- "… produced…"
  - Goods and services currently produced
  - Old products (inventory)

Appendix: Measurement of GDP

- "… within a country…"
  - Goods and services produced domestically
    - Regardless of the nationality of the producer
- "… in a given period of time"
  - A year or a quarter

Appendix: Price Index and Inflation

- The GDP deflator
  - Ratio of nominal GDP to real GDP times 100
  - Equal to 100 in the base year
  - Measures the current level of prices relative to the level of prices in the base year
  - Can be used to take inflation out of nominal GDP

    ("deflate" nominal GDP)

Appendix: Price Index and Inflation

- Consumer price index (CPI)
  - Measure of the overall cost of goods and services
    - Bought by a typical consumer

1. Fix the basket
   - Which prices are most important to the typical consumer
   - Different weight
2. Find the prices at each point in time
3. Compute the basket's cost
   - Same basket of goods

Appendix: Price Index and Inflation

4. Choose a base year and compute the CPI

- Base year = benchmark
  - Price of basket of goods & services in current year
  - Divided by price of basket in base year
  - Times 100

Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 1: Survey Consumers to Determine a Fixed Basket of Goods

Basket = 4 hot dogs, 2 hamburgers

Step 2: Find the Price of Each Good in Each Year

Year	Price of Hot Dogs	Price of Hamburgers
2010	$1	$2
2011	2	3
2012	3	4

Step 3: Compute the Cost of the Basket of Goods in Each Year

2010	($1 per hot dog × 4 hot dogs) + ($2 per hamburger × 2 hamburgers) = $8 per basket
2011	($2 per hot dog × 4 hot dogs) + ($3 per hamburger × 2 hamburgers) = $14 per basket
2012	($3 per hot dog × 4 hot dogs) + ($4 per hamburger × 2 hamburgers) = $20 per basket

This table shows how to calculate the consumer price index and the inflation rate for a hypothetical economy in which consumers buy only hot dogs and hamburgers.

Calculating the Consumer Price Index and the Inflation Rate: An Example

Step 4: Choose One Year as a Base Year (2010) and Compute the Consumer Price Index in Each Year	
2010	($8 / $8) × 100 = 100
2011	($14 / $8) × 100 = 175
2012	($20 / $8) × 100 = 250

Step 5: Use the Consumer Price Index to Compute the Inflation Rate from Previous Year	
2011	(175 – 100) / 100 × 100 = 75%
2012	(250 – 175) / 175 × 100 = 43%

This table shows how to calculate the consumer price index and the inflation rate for a hypothetical economy in which consumers buy only hot dogs and hamburgers.