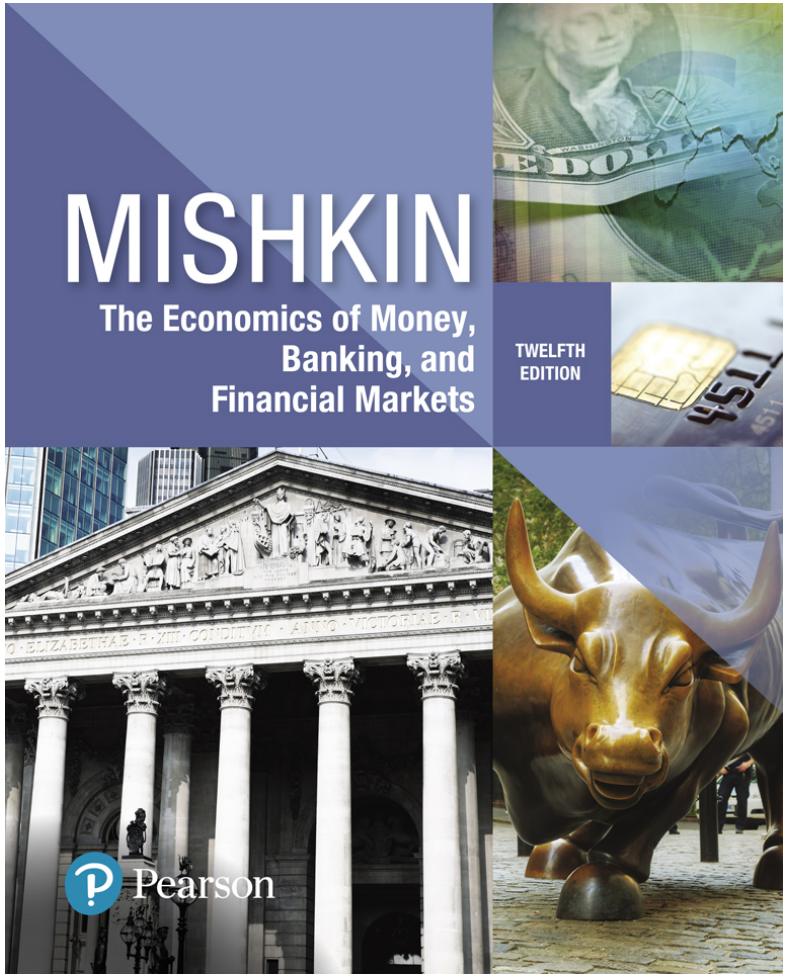
The Economics of Money, Banking, and Financial Markets

Twelfth Edition



Chapter 15

Tools of Monetary Policy

Preview

- This chapter examines the tools used by the Federal Reserve System to control the money supply and interest rates

Learning Objectives

- Illustrate the market for reserves and demonstrate how changes in monetary policy can affect the federal funds rate.
- Summarize how conventional monetary policy tools are implemented and the advantages and limitations of each tool.
- Explain the key monetary policy tools that are used when conventional policy is no longer effective.
- Identify the distinctions and similarities between the monetary policy tools of the Federal Reserve and those of the European Central Bank.

The Market for Reserves and the Federal Funds Rate

- Demand and Supply in the Market for Reserves
- What happens to the quantity of reserves demanded by banks, holding everything else constant, as the federal funds rate changes?
- Excess reserves are insurance against deposit outflows
  - The cost of holding these is the interest rate that could have been earned minus the interest rate that is paid on these reserves, i_{or}

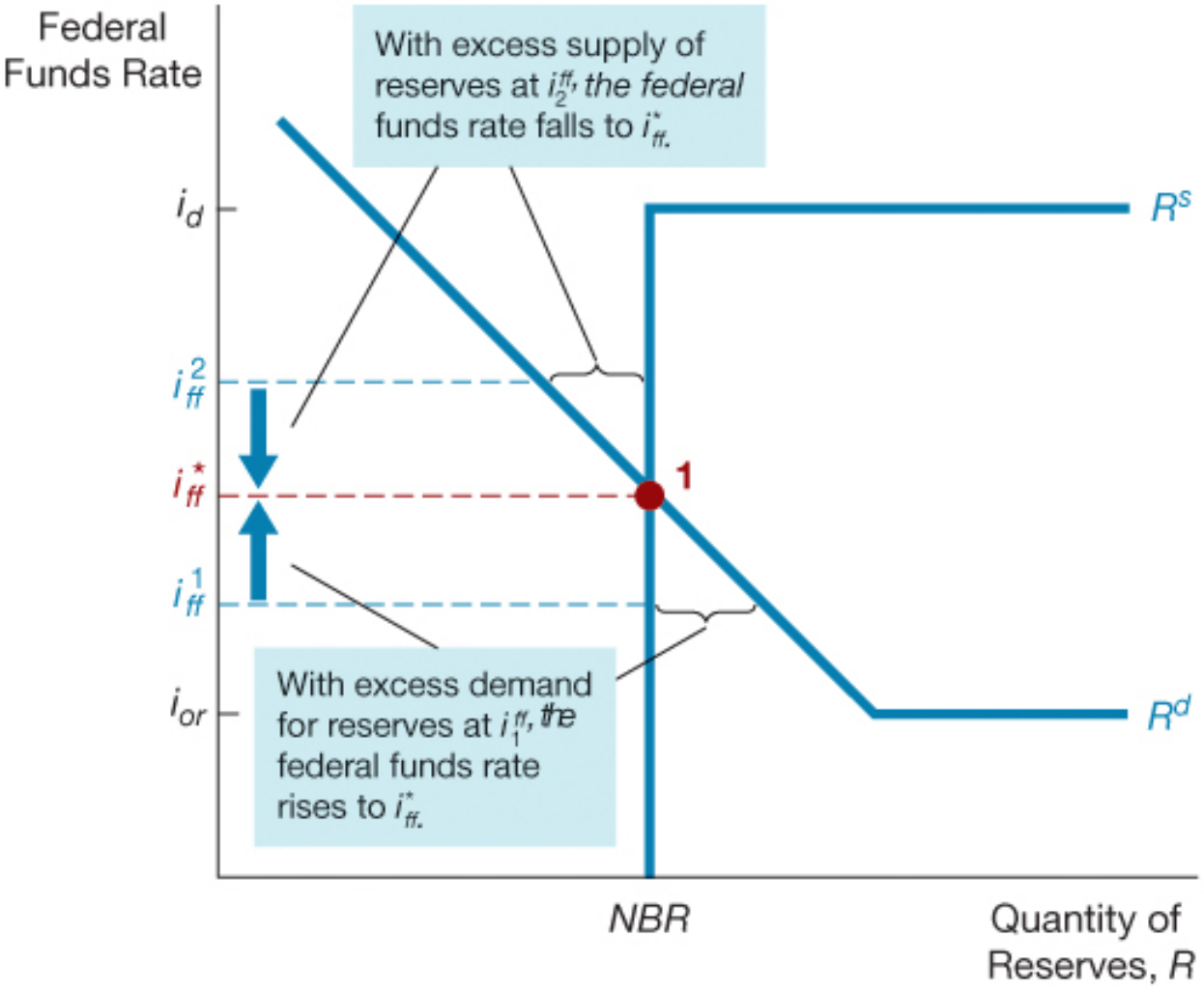
Demand in the Market for Reserves

- Since the fall of 2008, the Fed has paid interest on reserves at a level that is set at a fixed amount below the federal funds rate target.
- When the federal funds rate is above the rate paid on excess reserves, i_{or}, as the federal funds rate decreases, the opportunity cost of holding excess reserves falls, and the quantity of reserves demanded rises.
- Downward sloping demand curve that becomes flat (infinitely elastic) at i_{or}

Supply in the Market for Reserves

- Two components: nonborrowed and borrowed reserves
- Cost of borrowing from the Fed is the discount rate
- Borrowing from the Fed is a substitute for borrowing from other banks
- If $i_{ff} < i_d$, then banks will not borrow from the Fed and borrowed reserves are zero
- The supply curve will be vertical
- As i_{ff} rises above i_d, banks will borrow more and more at i_d, and relend at i_{ff}
- The supply curve is horizontal (perfectly elastic) at i_d

Figure 1 Equilibrium in the Market for Reserves



How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate (1 of 2)

- Effects of open an market operation depends on whether the supply curve initially intersects the demand curve in its downward sloped section versus its flat section.
- An open market purchase causes the federal funds rate to fall whereas an open market sale causes the federal funds rate to rise (when intersection occurs at the downward sloped section).
- Open market operations have no effect on the federal funds rate when intersection occurs at the flat section of the demand curve.

How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate (2 of 2)

- If the intersection of supply and demand occurs on the vertical section of the supply curve, a change in the discount rate will have no effect on the federal funds rate.
- If the intersection of supply and demand occurs on the horizontal section of the supply curve, a change in the discount rate shifts that portion of the supply curve and the federal funds rate may either rise or fall depending on the change in the discount rate.
- When the Fed raises reserve requirement, the federal funds rate rises and when the Fed decreases reserve requirement, the federal funds rate falls.

Figure 2 Response to an Open Market Operation

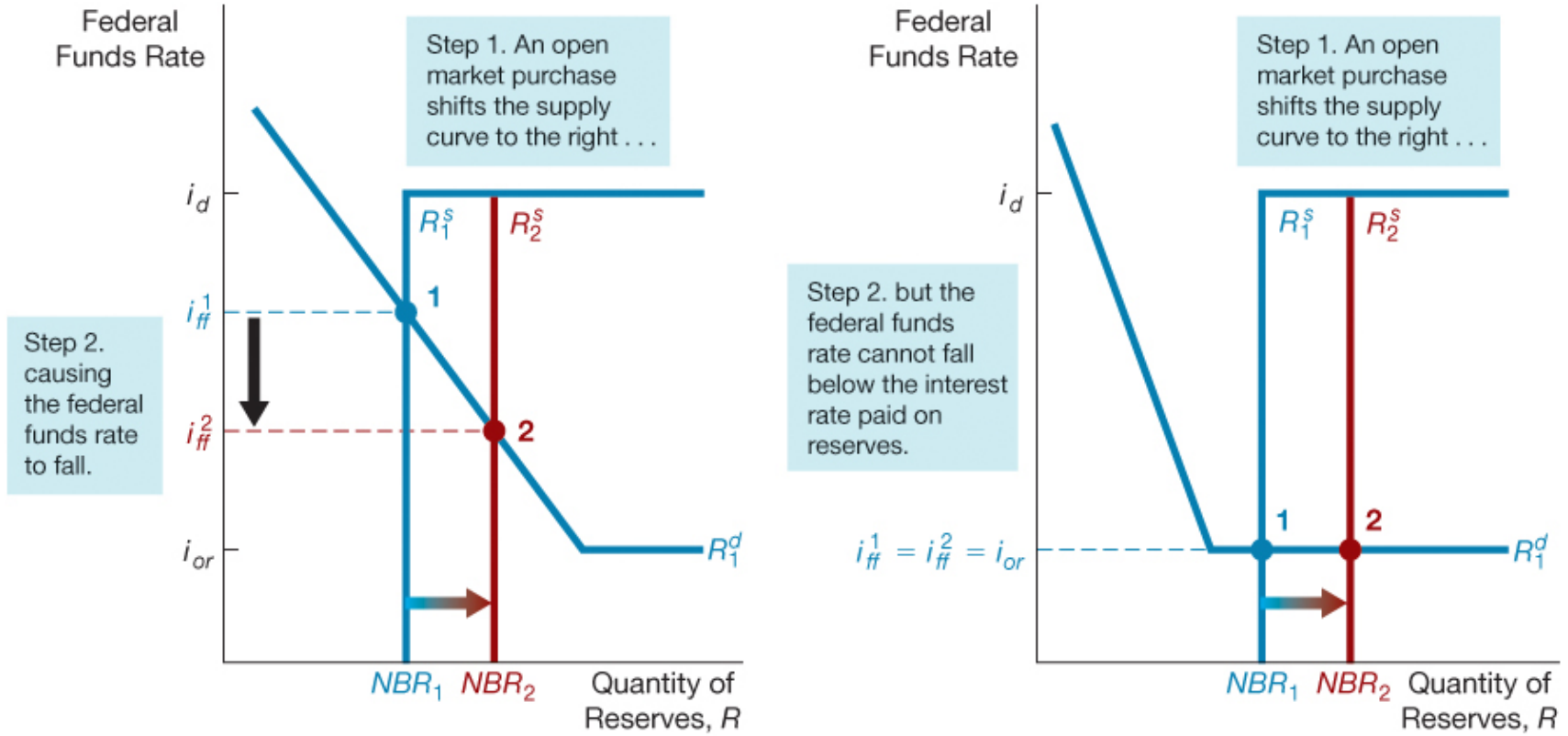


Figure 3 Response to a Change in the Discount Rate

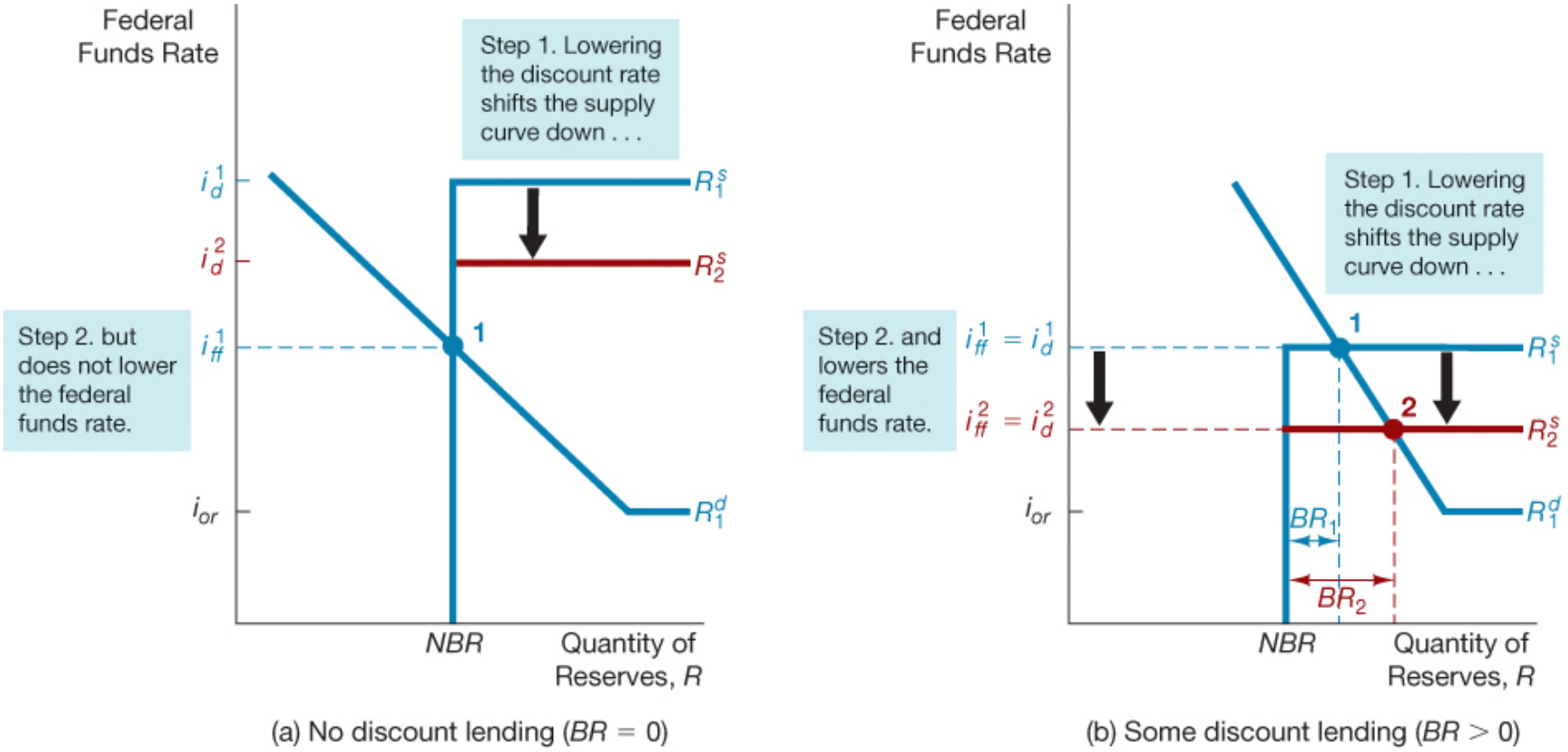


Figure 4 Response to a Change in Required Reserves

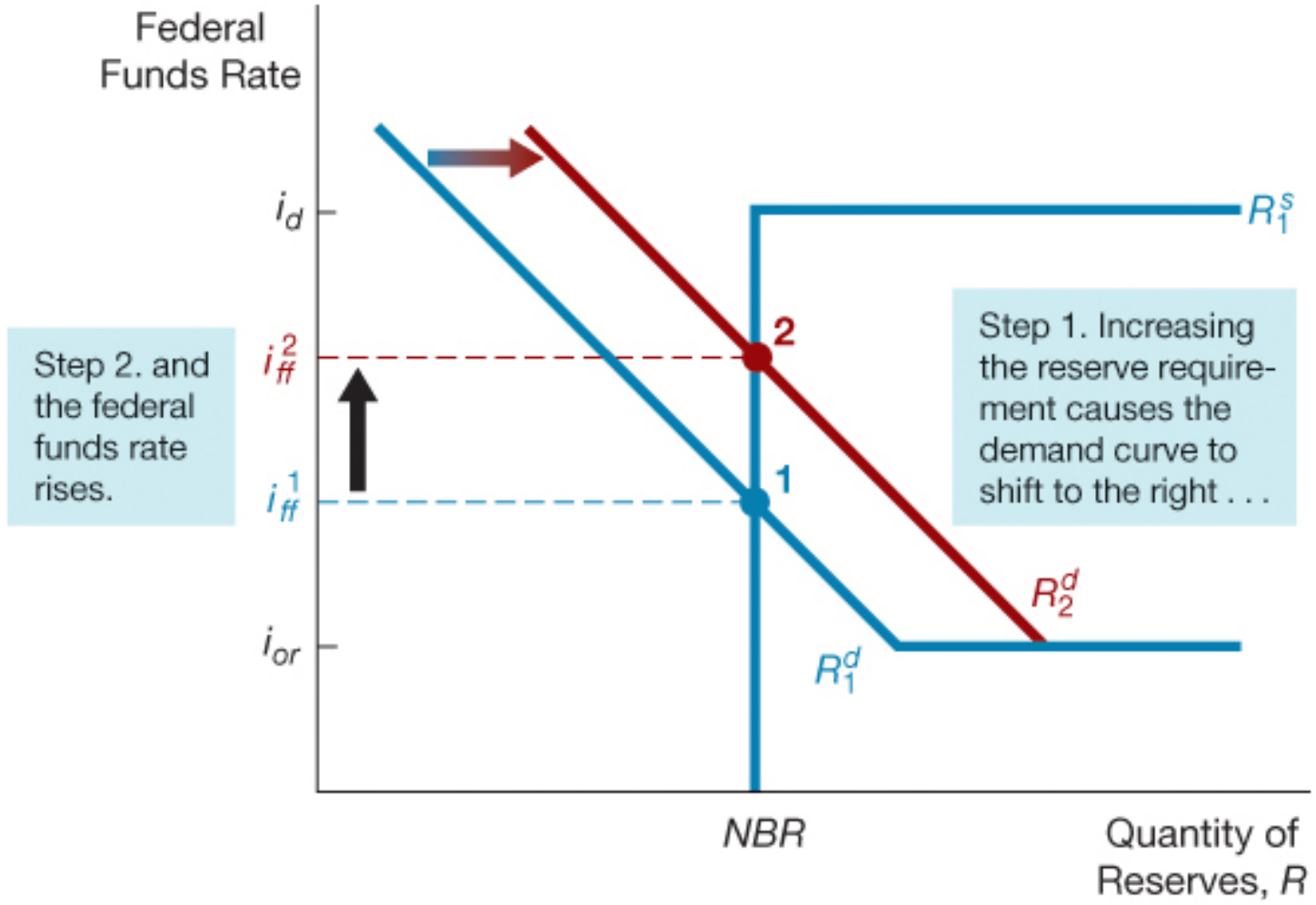
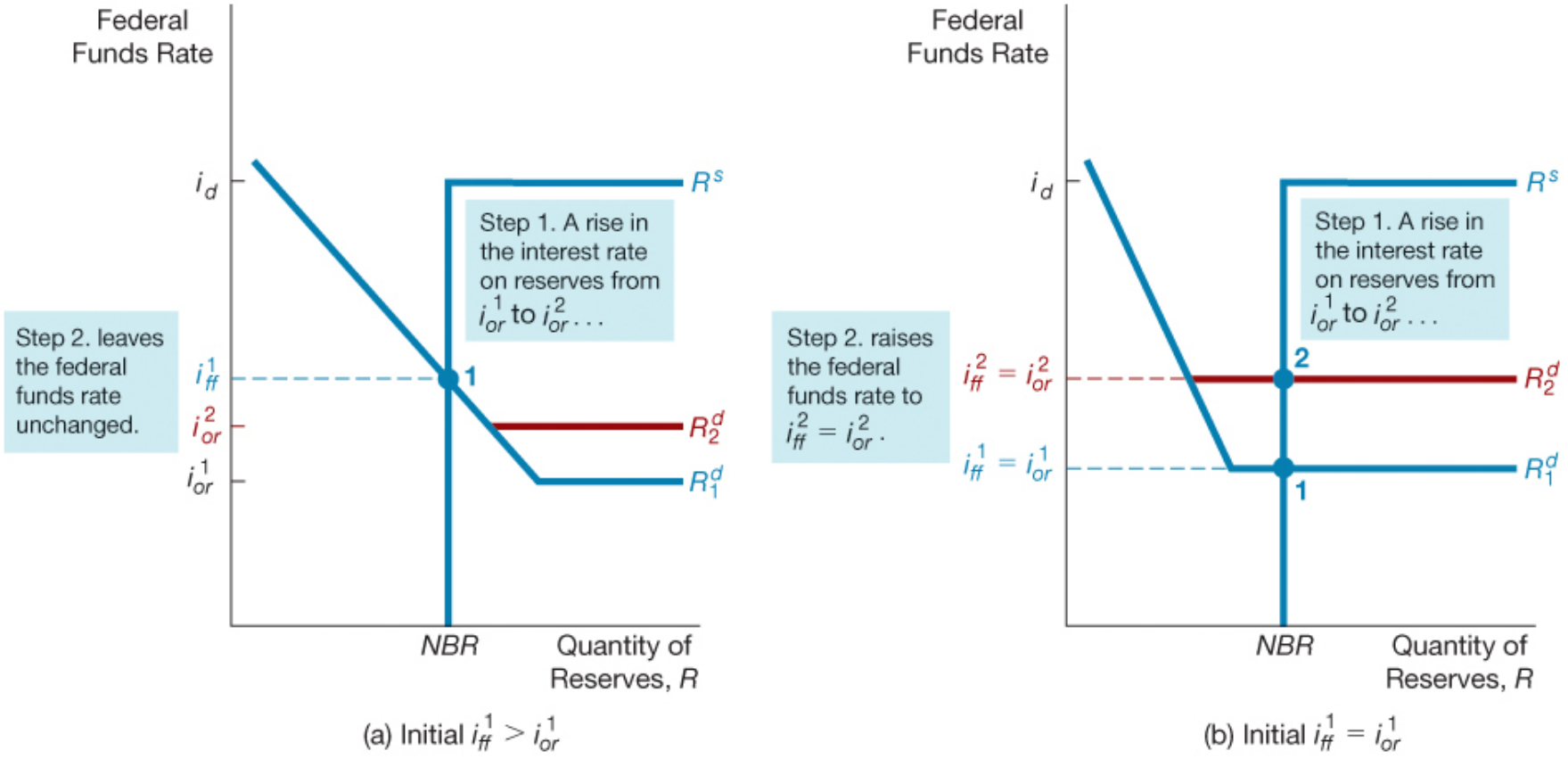


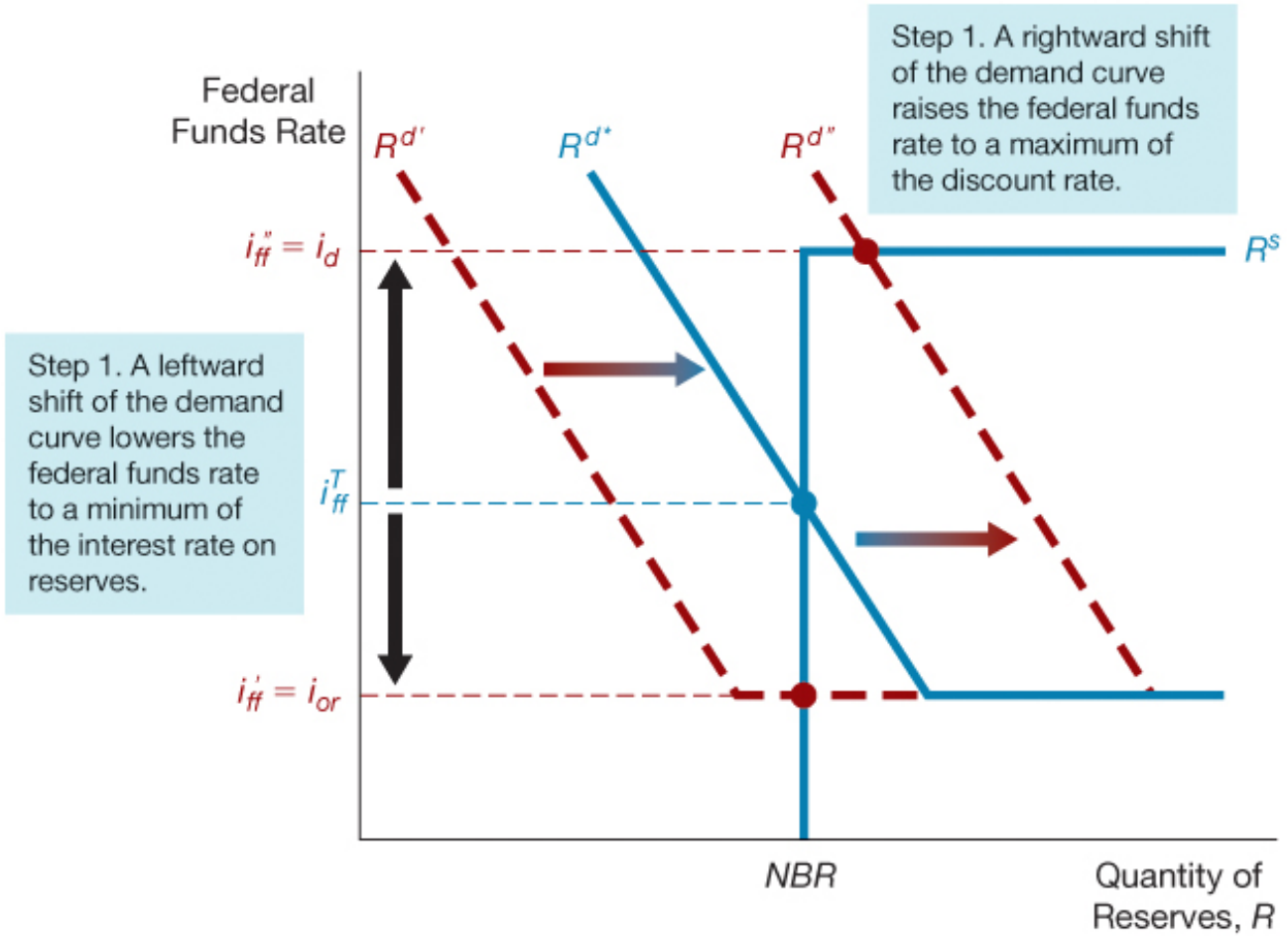
Figure 5 Response to a Change in the Interest Rate on Reserves



Application: How the Federal Reserve's Operating Procedures Limit Fluctuations in the Federal Funds Rate

- Supply and demand analysis of the market for reserves illustrates how an important advantage of the Fed's current procedures for operating the discount window and paying interest on reserves is that they limit fluctuations in the federal funds rate.

Figure 6 How the Federal Reserve's Operating Procedures Limit Fluctuations in the Federal Funds Rate



Conventional Monetary Policy Tools

- During normal times, the Federal Reserve uses three tools of monetary policy—open market operations, discount lending, and reserve requirements—to control the money supply and interest rates, and these are referred to as conventional monetary policy tools.

Open Market Operations

- Dynamic open market operations
- Defensive open market operations
- Primary dealers
- TRAPS (Trading Room Automated Processing System)
- Repurchase agreements
- Matched sale–purchase agreements

Inside the Fed: A Day at the Trading Desk

- The manager of domestic open market operations supervises the analysts and traders who execute the purchases and sales of securities in the drive to hit the federal funds rate target.

Discount Policy and the Lender of Last Resort

- Discount window
- Primary credit: standing lending facility
  - Lombard facility
- Secondary credit
- Seasonal credit
- Lender of last resort to prevent financial panics
  - Creates moral hazard problem

Reserve Requirements

- Depository Institutions Deregulation and Monetary Control Act of 1980 sets the reserve requirement the same for all depository institutions.
- Reserve requirements are equal to zero for the first $15.5 million of a bank's checkable deposits, 3% on checkable deposits from $15.5 to $115.1 million, and 10% on checkable deposits over $115.1 million. The Fed can vary the 10% requirement between 8% and 14%.

Interest on Excess Reserves

- The Fed started paying interest on excess reserves only in 2008
- The interest-on-excess-reserves tool came to the rescue during the crash as banks were accumulating huge quantities of excess because it can be used to raise the federal funds rate

Inside the Fed: Using Discount Policy to Prevent a Financial Panic

- To prevent the collapse of the financial sector, the Chairman of the Board of Governors announced before the market opened on Tuesday, October 20, the Federal Reserve System's "readiness to serve as a source of liquidity to support the economic and financial system." In addition to this extraordinary announcement, the Fed made it clear that it would provide discount loans to any bank that would make loans to the securities industry. The outcome of the Fed's timely action was that a financial panic was averted

Relative Advantages of the Different Monetary Policy Tools

- Open market operations are the dominant policy tool of the Fed since it has complete control over the volume of transactions, these operations are flexible and precise, easily reversed, and can be quickly implemented.
- The discount rate is less well used since it is no longer binding for most banks, can cause liquidity problems, and increases uncertainty for banks. The discount window remains of tremendous value given its ability to allow the Fed to act as a lender of last resort.

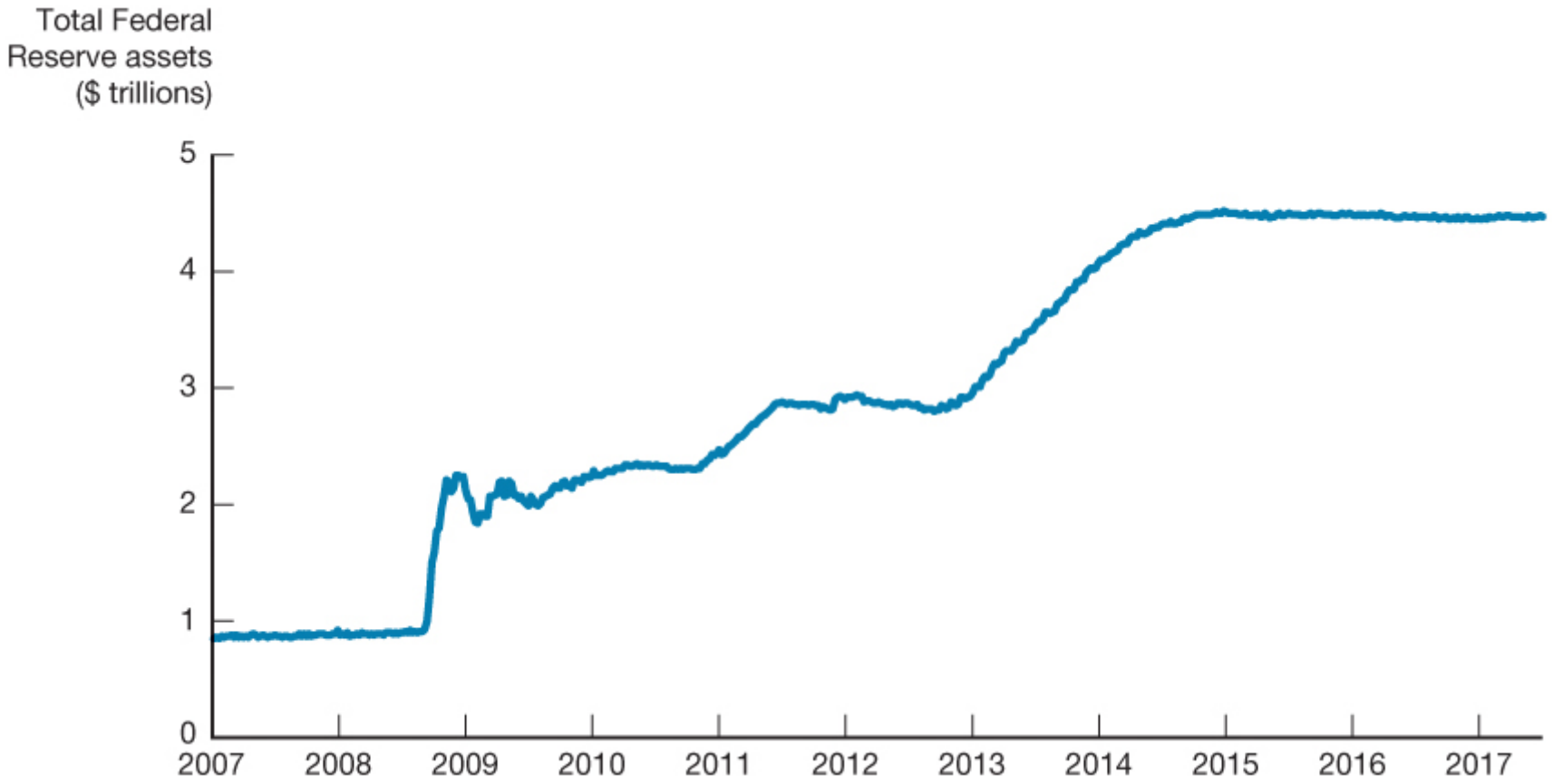
On the Failure of Conventional Monetary Policy Tools in a Financial Panic

- When the economy experiences a full-scale financial crisis, conventional monetary policy tools cannot do the job, for two reasons.
- First, the financial system seizes up to such an extent that it becomes unable to allocate capital to productive uses, and so investment spending and the economy collapse.
- Second, the negative shock to the economy can lead to the zero-lower-bound problem.

Nonconventional Monetary Policy Tools During the Global Financial Crisis

- Liquidity provision: The Federal Reserve implemented unprecedented increases in its lending facilities to provide liquidity to the financial markets
  - Discount Window Expansion
  - Term Auction Facility
  - New Lending Programs
- Large-scale asset purchases: During the crisis, the Fed started three new asset purchase programs to lower interest rates for particular types of credit:
  - Government Sponsored Entities Purchase Program
  - QE2
  - QE3

Figure 7 The Expansion of the Federal Balance Sheet, 2007–2014



Nonconventional Monetary Policy Tools During the Global Financial Crisis (1 of 2)

- Quantitative Easing Versus Credit Easing
  - During the global financial crisis, the Federal Reserve became very creative in assembling a host of new lending facilities to help restore liquidity to different parts of the financial system.
- Forward Guidance
  - By committing to the future policy action of keeping the federal funds rate at zero for an extended period, the Fed could lower the market's expectations of future short-term interest rates, thereby causing the long-term interest rate to fall.

Nonconventional Monetary Policy Tools During the Global Financial Crisis (2 of 2)

- Negative Interest Rates on Banks' Deposits
  - Setting negative interest rates on banks' deposits is supposed to work to stimulate the economy by encouraging banks to lend out the deposits they were keeping at the central bank, thereby encouraging households and businesses to spend more. However, there are doubts that negative interest rates on deposits will have the intended, expansionary effect.

Inside the Fed: Fed Lending Facilities During the Global Financial Crisis

- During the global financial crisis, the Federal Reserve became very creative in assembling a host of new lending facilities to help restore liquidity to different parts of the financial system.
  - Loans to AIG
  - Loans to JP Morgan
  - TAF, TALF, TSLF
  - PDCF, AMLF, CPFF, MMIFF

Monetary Policy Tools of the European Central Bank

- Open market operations
  - Main refinancing operations
    - Weekly reverse transactions
  - Longer-term refinancing operations
- Lending to banks
  - Marginal lending facility/marginal lending rate
  - Deposit facility
- Reserve requirements
  - 2% of the total amount of checking deposits and other short-term deposits
  - Pays interest on those deposits so cost of complying is low

Copyright