

Money and Banking

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Lecture 10 Tools of Monetary Policy

- The Market for Reserves and the Federal Funds Rate
- Conventional Monetary Policy Tools
- Nonconventional Monetary Policy Tools
- Monetary Policy Tools for the ECB

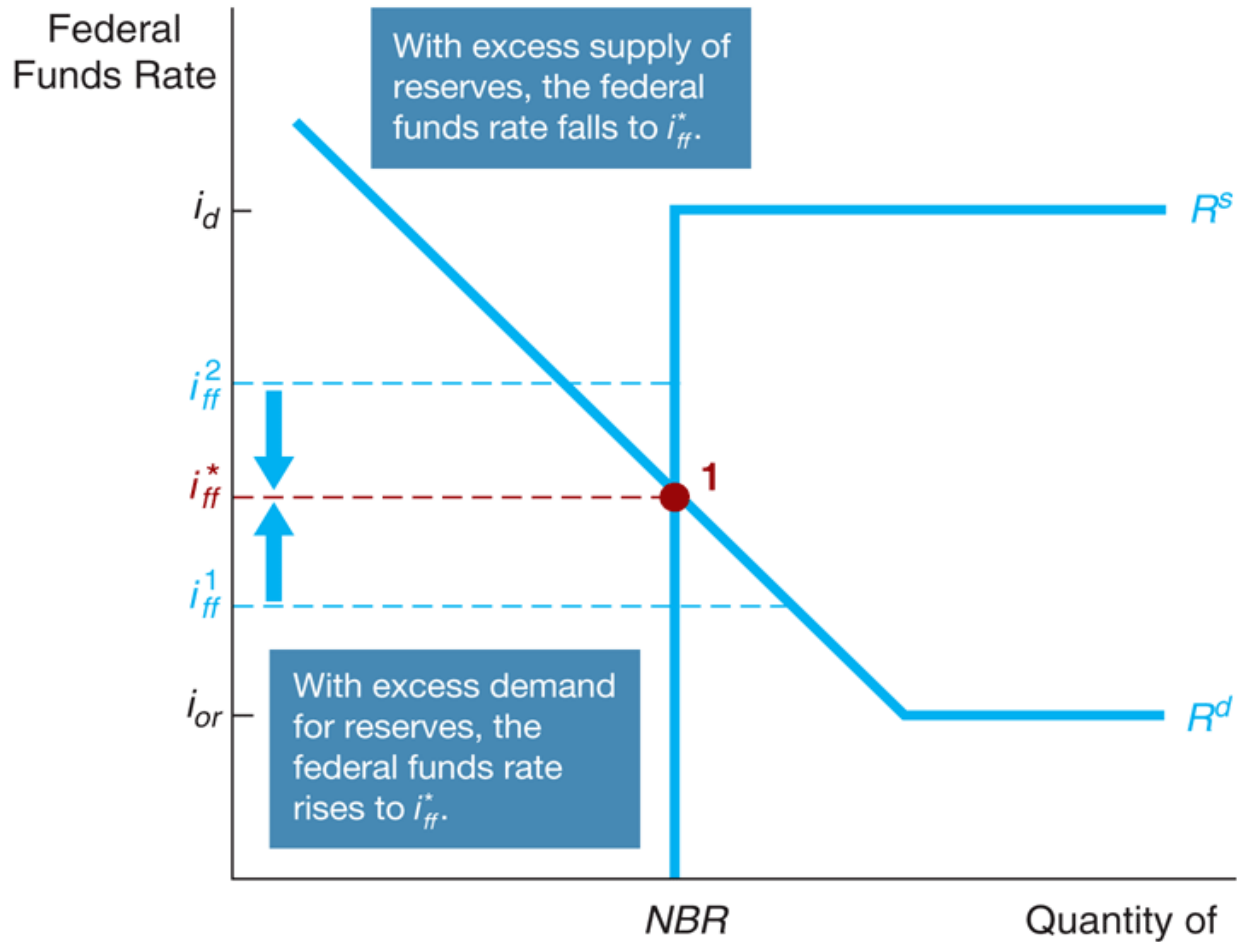
Demand in the Market for Reserves

- **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}
- 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**.
- As the federal funds rate (i_{ff}) decreases, the opportunity cost of holding excess reserves falls and the quantity of reserves demanded rises: **downward sloping demand curve**
- However, when the federal funds rate i_{ff} is below i_{or} , demand curve becomes flat (infinitely elastic) at i_{or}

Supply in the Market for Reserves

- Two components: **non-borrowed** and **borrowed reserves**
- Cost of borrowing from the Fed is the discount rate (i_d)
- 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 re-lend at i_{ff}
- The supply curve is **horizontal** (perfectly elastic) at i_d

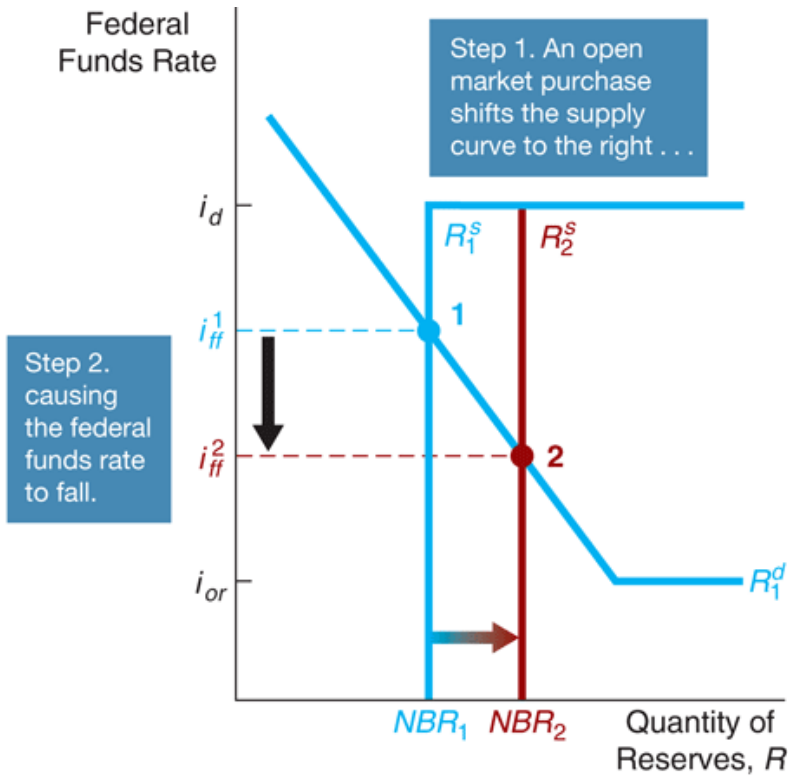
Equilibrium in the Market for Reserves



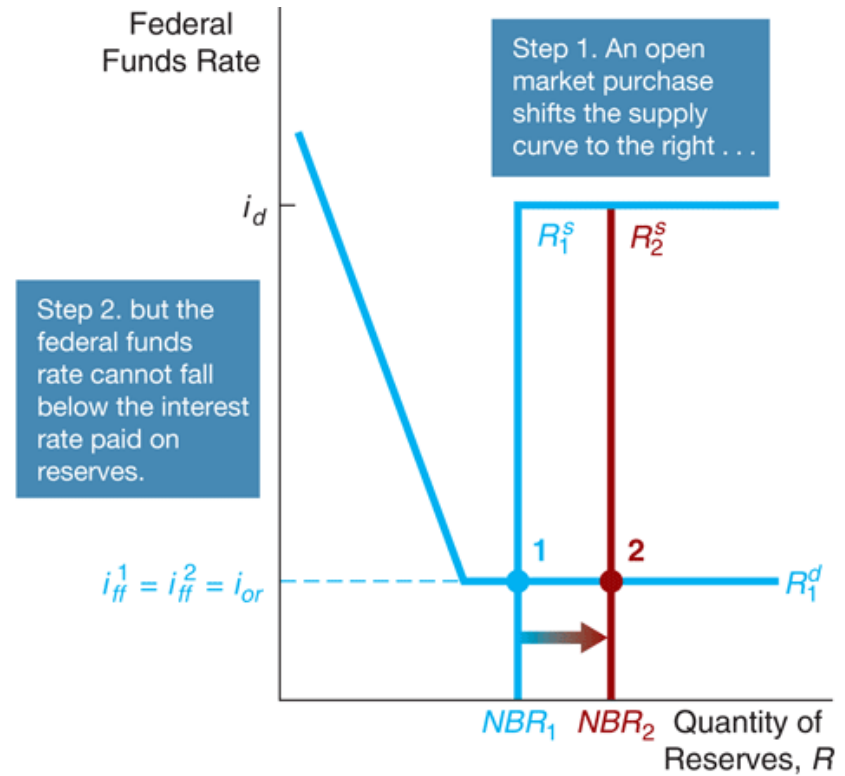
How Open Market Operation Affect the Federal Funds Rate

- 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 Open Market Operation Affect the Federal Funds Rate



(a) Supply curve initially intersects demand curve in its downward-sloping section

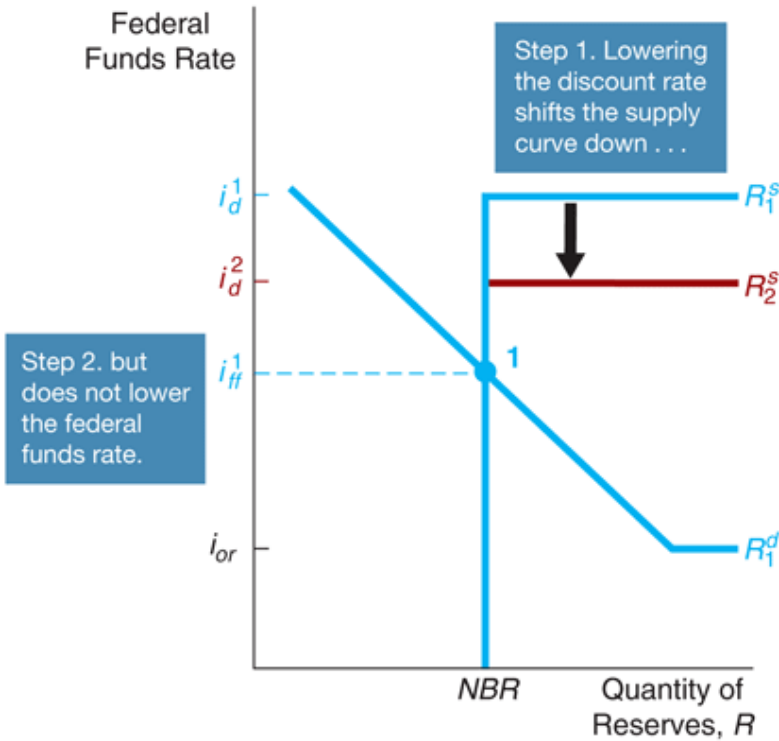


(b) Supply curve initially intersects demand curve in its flat section

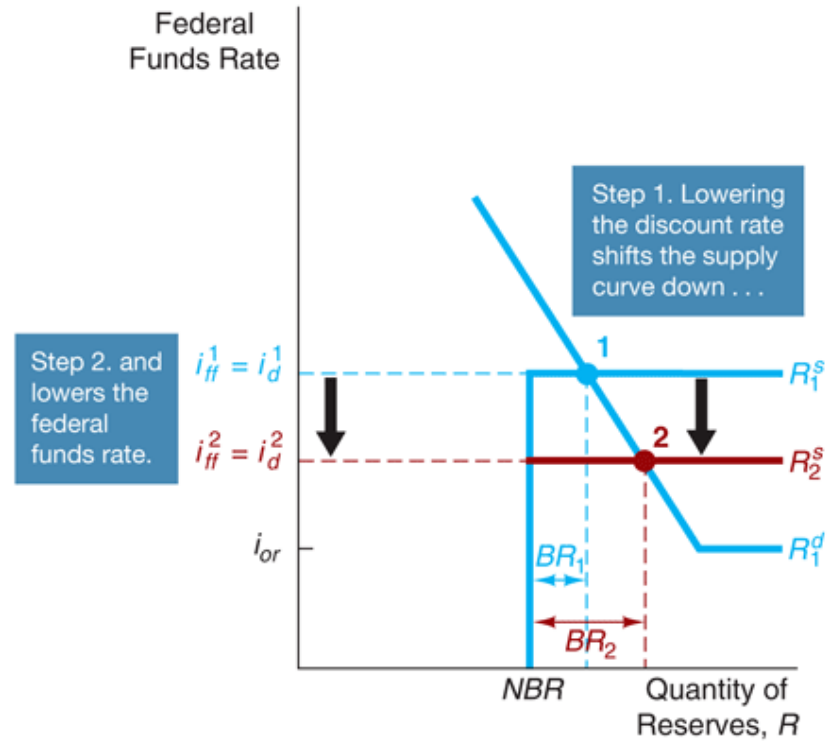
How Changing Discount Rate Affect the Federal Funds Rate

- 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

How Changing Discount Rate Affect the Federal Funds Rate

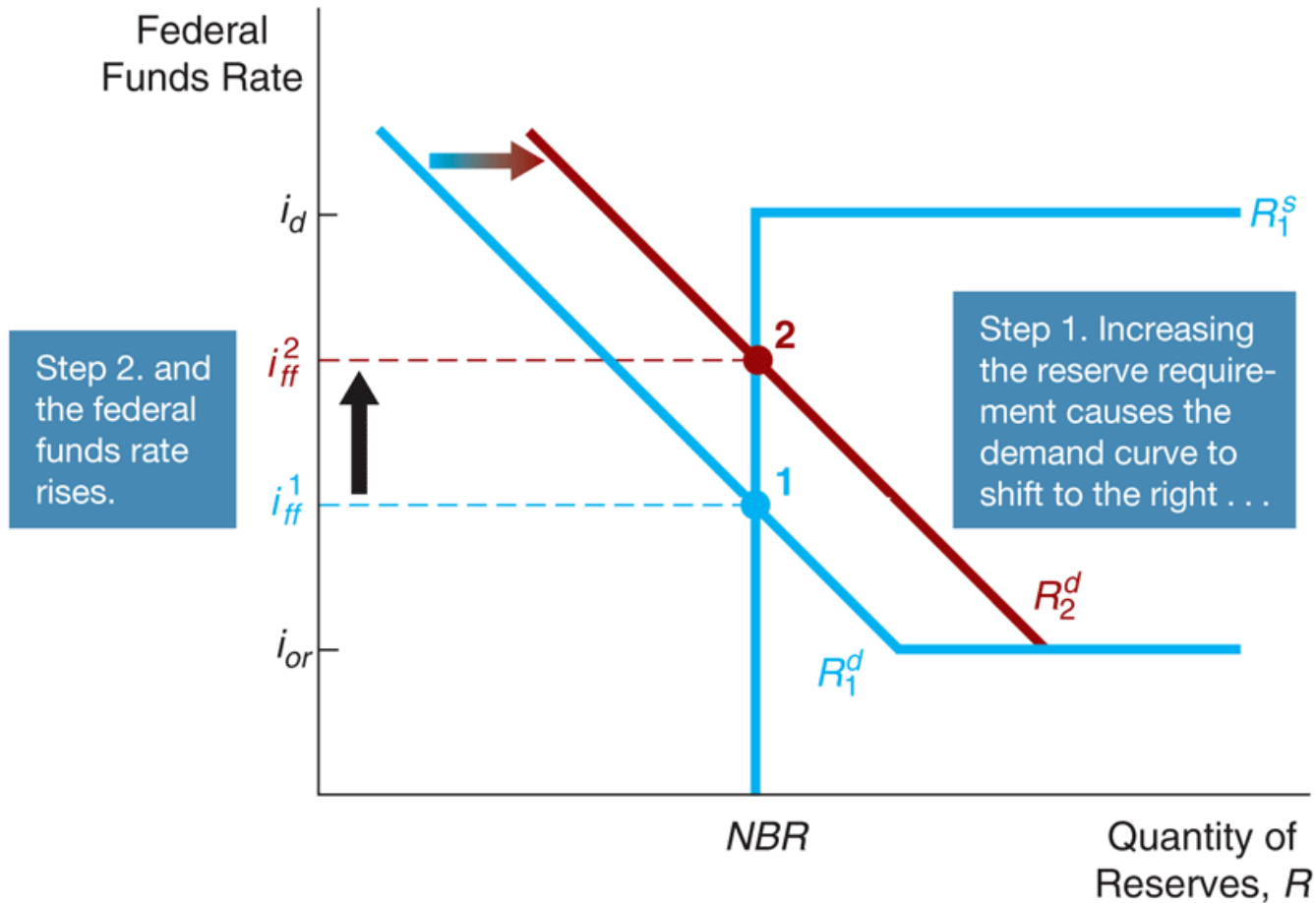


(a) No discount lending ($BR = 0$)

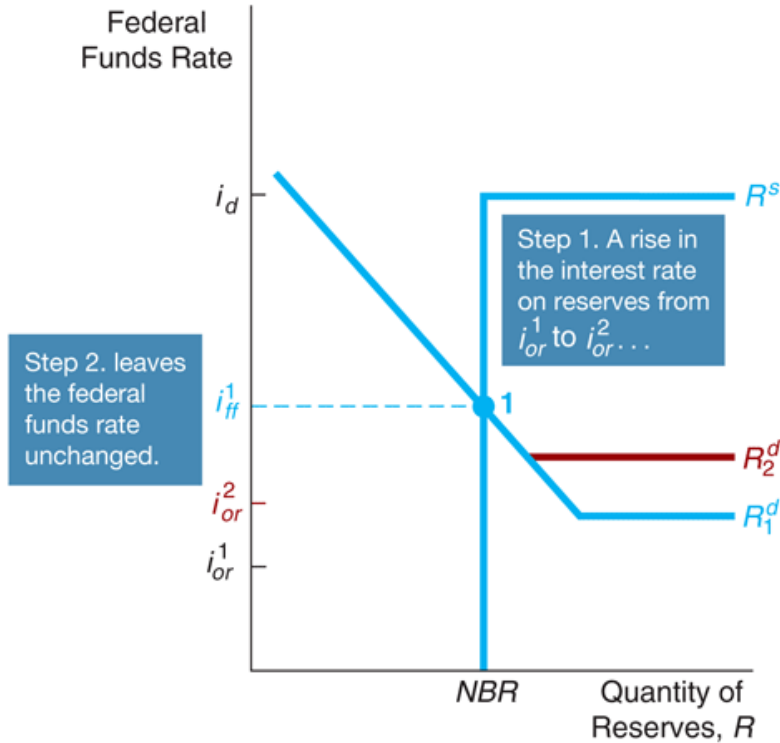


(b) Some discount lending ($BR > 0$)

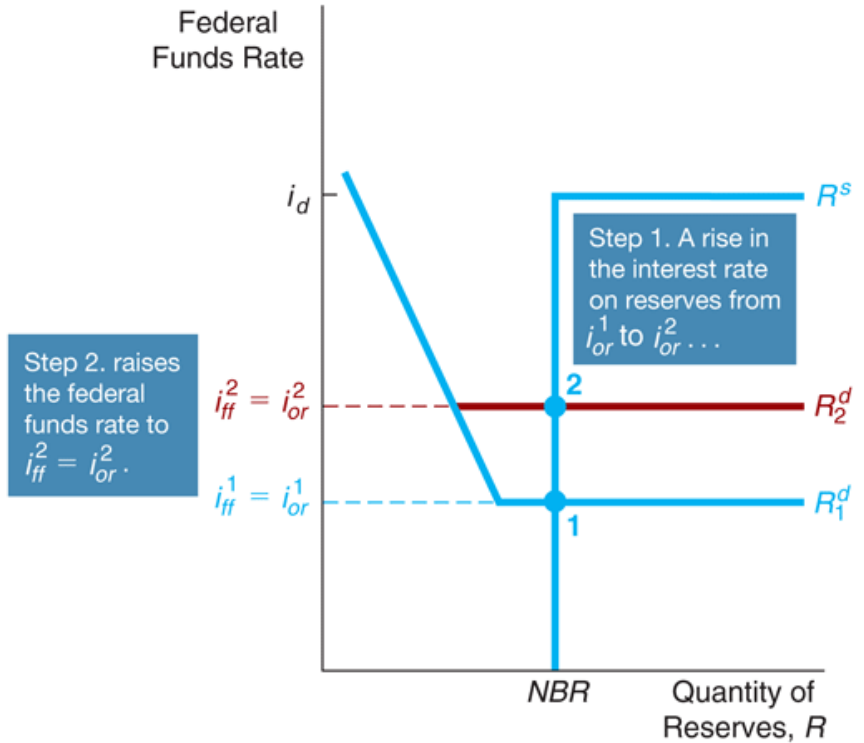
How Changing Required Reserve Affect the Federal Funds Rate



How Changing i_{or} Affect the Federal Funds Rate

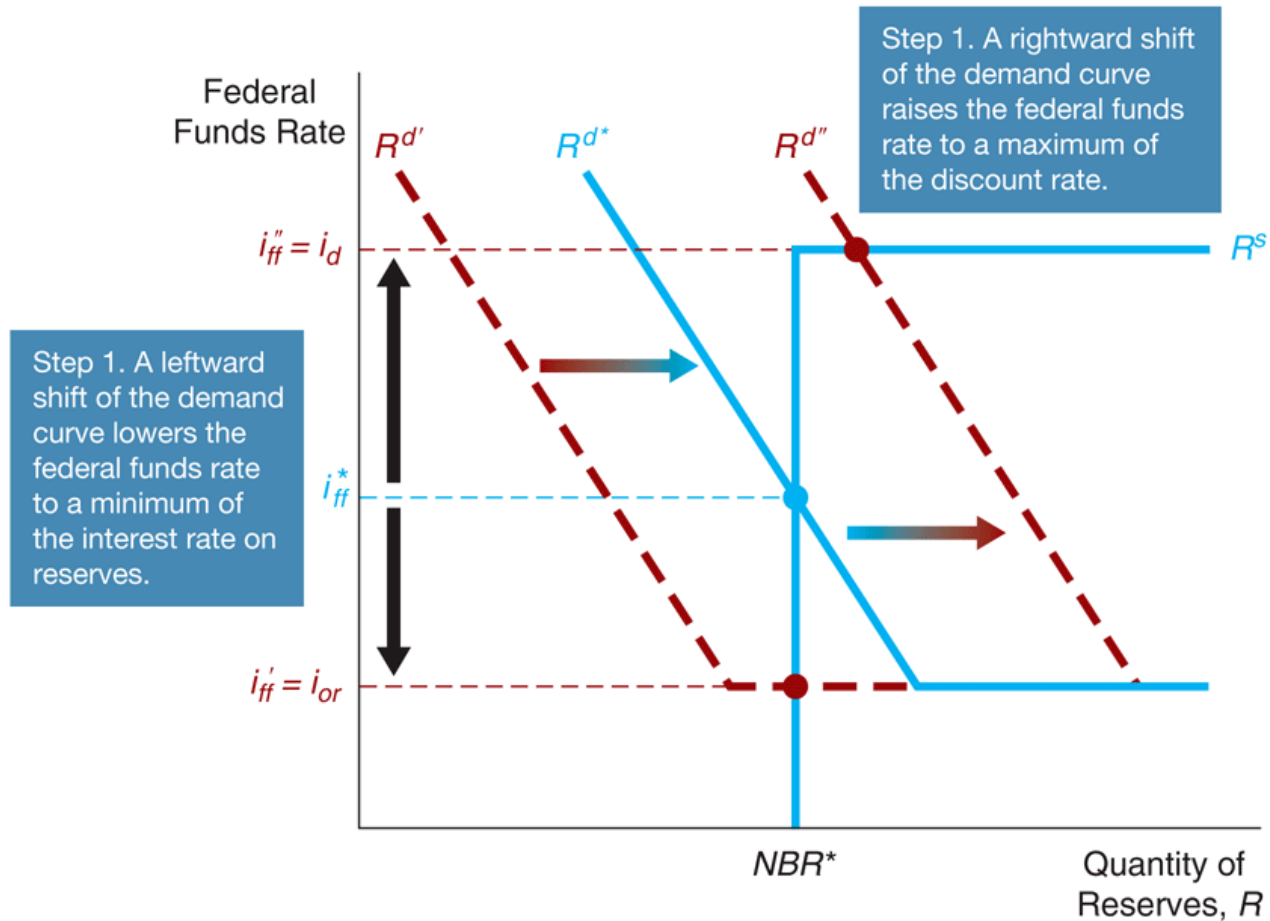


(a) Initial $i_{ff}^1 > i_{or}^1$



(b) Initial $i_{ff}^1 = i_{or}^1$

How is the Federal Funds Rate being Controlled



Conventional Monetary Policy Tools: Open Market Operation

- Two types of operation: **Dynamic open market operations** are intended to change the level of reserves and the monetary base, and **defensive open market operations** are intended to offset movements in other factors that affect reserves and the monetary base.
- Open market operations are conducted electronically with a specific set of dealers in government securities, known as **primary dealers**, by a computer system called **TRAPS** (Trading Room Automated Processing System)
- Two types of transaction: **repurchase agreement (repo)**: the Fed purchases securities with an agreement that the seller will repurchase them in a short period of time; **matched sale–purchase transaction (reverse repo)** : the Fed sells securities and the buyer agrees to sell them back to the Fed in the near future.

Conventional Monetary Policy Tools: Discount Facility

- Three types of loans:
 - **Primary** credit: **standing lending facility** for **healthy banks**
 - **Secondary** credit: for banks that are in financial trouble and are experiencing severe liquidity problems
 - **Seasonal** credit: for small banks in vacation and agricultural areas that have a seasonal pattern of deposits
- Lender of last resort to prevent financial panics
 - Creates moral hazard problem
- Cannot be controlled by the Fed; the decision maker is the bank
- Discount facility is used as a **backup facility** to prevent the federal funds rate from rising too far above the target

Conventional Monetary Policy Tools: Reserve Requirements

- Depository Institutions Deregulation and Monetary Control Act of 1980 sets the reserve requirement the same for all depository institutions
- 3% of the first \$48.3 million of checkable deposits; 10% of checkable deposits over \$48.3 million
- The Fed can vary the 10% requirement between 8% to 14%
- Disadvantages
 - No longer binding for most banks
 - Can cause liquidity problems
 - Increases uncertainty for banks

Advantage of Open Market Operation

1. Open market operations occur at the initiative of the Fed, which has **complete control** over their volume.
2. Open market operations are **flexible and precise**; they can be used to any extent.
3. Open market operations are **easily reversed**. If a mistake is made in conducting an open market operation, the Fed can immediately reverse it.
4. Open market operations can be **implemented quickly**; they involve no administrative delays.
5. **Does not work well** under two scenarios:
 - when the Fed wants to raise interest rates after banks have accumulated large amounts of excess reserves
 - When the Fed to perform its role of lender of last resort

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
- Asset Purchases: During the crisis the Fed started two new asset purchase programs to **lower interest rates for particular types of credit**:
 - Government Sponsored Entities Purchase Program;
 - QE2

Monetary Policy Tools of the ECB

- 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