Monetary Policy Tools

Economics 301: Money and Banking

Goals and Learning Outcomes

- Goals:
  - Describe the goals for monetary policy
  - Describe traditional and new methods the Fed uses for changing the monetary base and interest rates.
  - Describe monetary policy initiatives taken during the 2008-2009 financial crisis.
  - Describe how monetary policy reacts to macroeconomic shocks.
- Learning Outcomes:
  - LO7: Explain the structure of the Federal Reserve System and the mechanisms in which it controls the money supply.
  - LO8: Explain possible causes for recent financial crises, describe potential consequences for the macroeconomy, and prescribe potential monetary policies to counteract or prevent financial crises.

Reading and Exercises

- Goals of monetary policy: Chapter 15, pp. 503-510
- Monetary policy tools: Chapter 15, pp. 511-520
- Modern policy tools: Chapter 15, pp. 521-531
- **Canvas quiz on financial and monetary markets due Wed 11:59 PM**.
  Quizzes are multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
- **Homework/Exercise due Fri 11:59 PM**. We will work together in class on Thursday

Price Stability

- Fed targets low, steady level of inflation. Currently, explicit target of 2% average.
- Higher inflation is problematic:
  - Price growth is not constant, symmetric all goods and services, nor symmetric across all geographic areas
  - Inflation numbers are not instantaneous
  - Difficult to establish market prices, values for goods, services, capital, and financial assets
- Deflation distributes *real* income away from borrowers toward lenders
- Monetary policy affects **demand-side** of the economy through interest rates

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High Employment

- **Frictional unemployment:** Small, short-lived unemployment caused by normal delays in job search, job candidate search
- **Structural unemployment:** Caused by permanent changes in demand for certain types of labor, usually due to changes in technology or international trade patterns
  - Little *monetary policy* can do. Changing money supply and interest rates cannot target demand for specific industries.
- **Cyclical unemployment:** Widespread unemployment caused by business cycle contractions.
  - *Monetary policy* can address this. Changing interest rates can have widespread impact on demand for goods and services.
- Monetary policy affects **demand side** of the economy through interest rates:
  - Interest rate influence on consumption and investment demand

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Economic Growth Goals

- Engage in policies that lead to maximum employment in long-run (decades-long outlook)
- Focus on stability in financial markets
- Monetary policy affects long-run flow of funds from savers to businesses with productive opportunities
- Focus on **supply side**:
  - Stability for long-term business planning
  - Stability to facilitate businesses getting access to loanable funds

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Stability of Financial Markets

Consequences of Financial Market Instability

- Banks and individuals are hesitant to make loans, buy bonds, take risks on potentially productive endeavors
- Borrowing cost is higher, risk premiums are higher
- Businesses make less investment in capital, less investment in design and development of new goods and services
- Investment in capital is a significant driver of long-run economic growth

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Interest Rate Stability

- Fed gradually adjusts interest rates to achieve its objectives
- Interest rates and bond prices are inversely related. Interest rate stability $\rightarrow$ Bond price stability in secondary markets
- Bond price stability leads to more liquidity, greater demand for bonds, greater ability for business to get loanable funds
- Bond price stability leads to greater investment in long-term capital projects

Exchange Rate Stability

- Important for long-term contracts with international suppliers
- Exchange rate stability $\rightarrow$ revenue stability for exporting firms

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Traditional Monetary Policy Tools

- Open market operations of federal government bonds on secondary financial markets
  - Open market sales reduce monetary base and money supply
  - Open market purchases increase monetary base and money supply
- Discount lending (Fed lends to banks at the discount rate)
  - Provides liquidity to banks when they need it
  - Lending funds has the effect of increasing the money supply
- Reserve requirements: Percentage of deposits that banks are required to keep on reserves
  - Higher reserve requirement $\rightarrow$ decreases money multiplier $\rightarrow$ decreases money supply
  - Since March 2020, Fed has no minimum reserve requirement

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Open Market Operations

- Conducted at the Open Market Trading Desk at the New York Fed
- **TRAPS: Trading Room Automated Preprocessing System:** Electronic System for conducting open market operations
- Trade with large private security firms. There are 25 financial institutions as of Oct 2022. Current group: `https://www.newyorkfed.org/markets/primarydealers`
- **Dynamic open market operations:** conducted when there is a change in monetary policy by the Federal Open Market Committee (usually a big change)
- **Defensive open market operations:** conducted daily *to maintain* existing FOMC policy, used to counteract any changes in money supply resulting from private activities (eg: more excess reserves)

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Discount Window Lending

- Available to all depository institutions
- **Primary credit discount loans**
  - Loans to healthy banks with adequate capital and supervisory ratings
  - Very short term: Usually overnight, possibly as much as several weeks
  - Discount rate *usually higher* than federal funds rate
  - Convenient backup for overnight loans to meet depositors needs
  - Discount rate *usually higher* than federal funds rate
  - Do the math: Overnight loan of \$1 million, Federal funds rate: 3.1%, Discount rate 3.25%.
- **Secondary credit discount loans**
  - Loans to banks not eligible for primary credit discount loans
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  - Fed monitors use of funds carefully
  - Interest rate is higher than the discount rate.

Discount Window Lending

- Available to all depository institutions
- **Primary credit discount loans**
  - Loans to healthy banks with adequate capital and supervisory ratings
  - Very short term: Usually overnight, possibly as much as several weeks
  - Discount rate *usually higher* than federal funds rate
  - Convenient backup for overnight loans to meet depositors needs
  - Discount rate *usually higher* than federal funds rate
  - Do the math: Overnight loan of $1 million, Federal funds rate: 3.1%, Discount rate 3.25%.
- **Secondary credit discount loans**
  - Loans to banks not eligible for primary credit discount loans
  - Usually banks with medium-to-long-term liquidity problems
  - Fed monitors use of funds carefully
  - Interest rate is higher than the discount rate.

Interest Rate on Reserves Balances

- Since October 2008, Fed pays interest on excess reserves (all reserves after March 2020)
- Raising the interest rate on reserves can raise market interest rates, as banks should demand higher rates for loans
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Overnight Reverse Repurchase Agreements

- **Repurchase Agreement:** A short-term loan backed by collateral.
  - It's like borrowing money from a pawn shop, except you pawn treasury bills
  - Financial firm that is borrowing sells security to the Fed
  - With an agreement that it can buy back the security, usually the next day, with an interest payment
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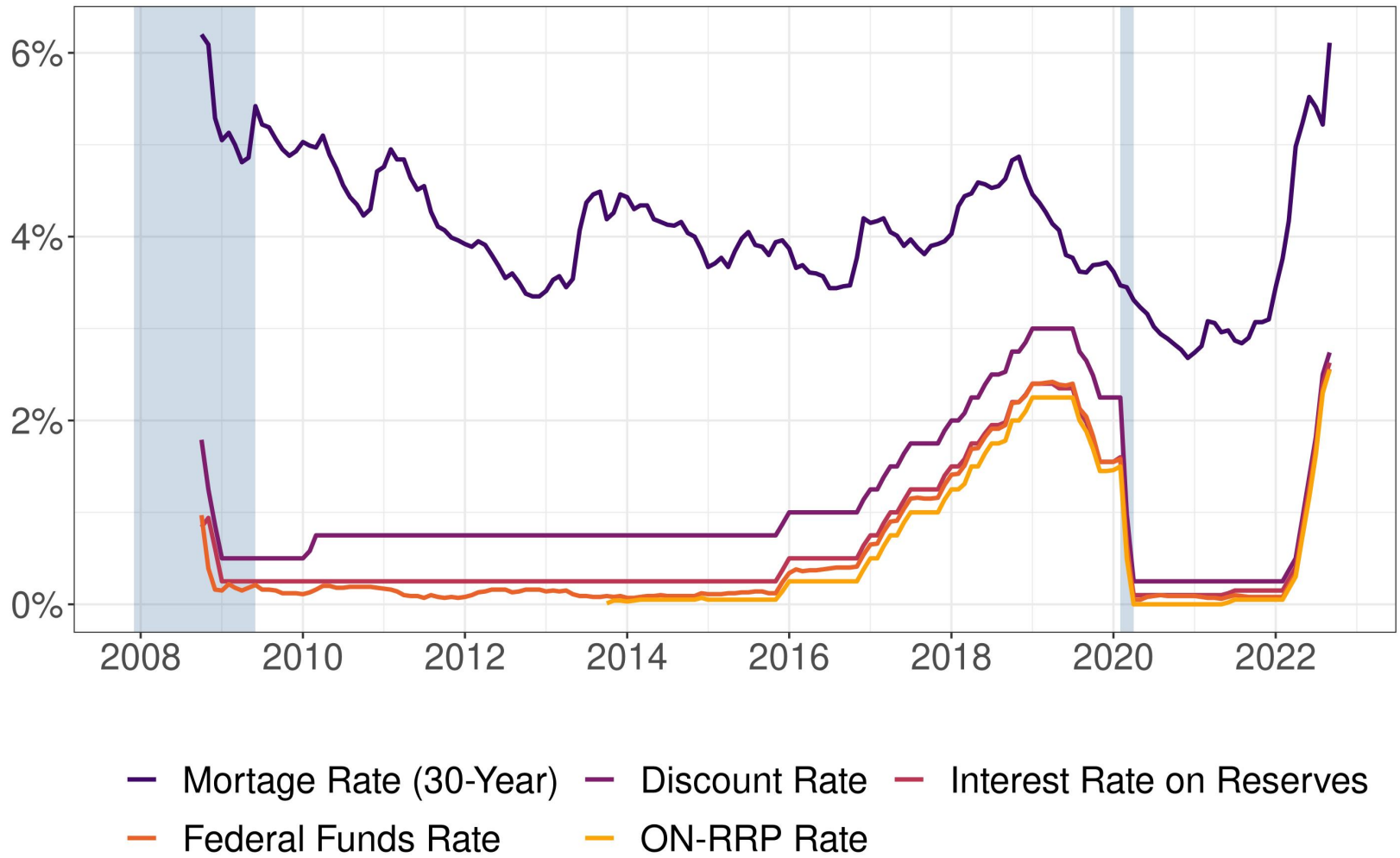
Monetary Policy Interest Rates



Zero Lower Bound

- In 2008, the Federal Reserve Rate hit the zero lower bound
- Zero lower bound (ZLB): Additional increases in money supply will not lead to lower equilibrium interest rates (fed funds rate *very near zero*)
- Other rates still above zero: Longer-term government rates, consumer interest rates, corporate bond rates, sub-prime rates
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- Reduce uncertainty regarding changes in interest rates. Future decisions should be expected.
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Discount Lending During Crisis

Primary Dealer Credit Facility

- Primary dealers could borrow overnight using MBS as collateral.
- March 2008-Feb 2010

Term Securities Lending Facility

- Fed would loan up to $200 bn in Treasury securities to primary dealers in exchange for MBSs
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Discount Lending During Crisis

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Term Asset-Backed Securities Loan Facility (TALF)

- 3-5 year loans to help investors purchase asset-backed securities (ABS), securitized debt instruments based on consumer and business loans
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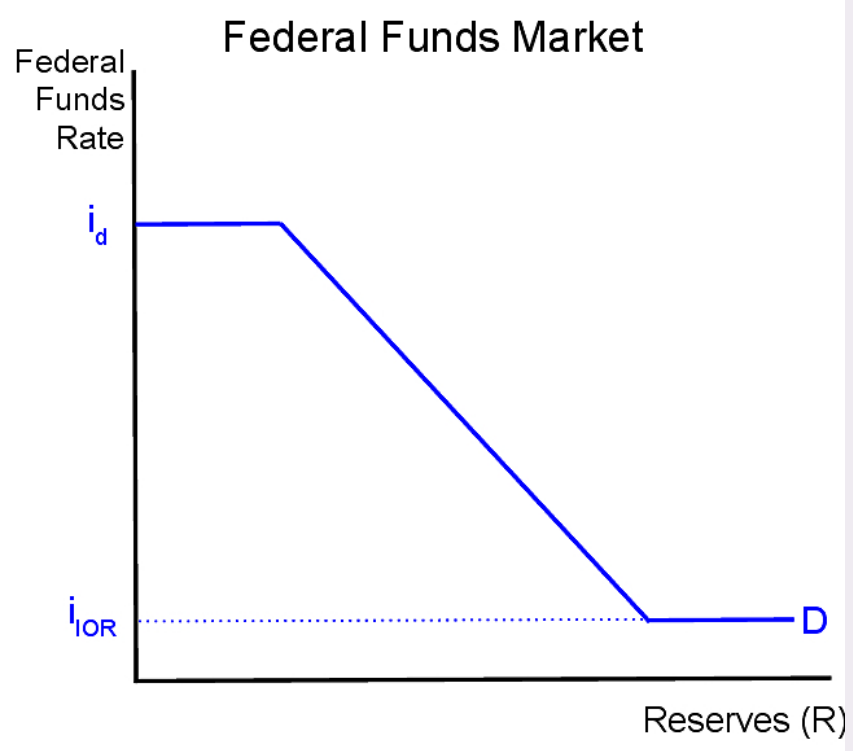
Demand for Federal Funds

Demand for Federal Funds

- As federal funds rate decreases, banks are more willing to hold reserves
- Federal funds rate moves with lending rates. Decrease in lending rates decreases opportunity cost of holding reserves.
- IOR: Interest on reserves rate
- i_d: Discount rate
- Federal funds rate should not go below IOR or above i_d

Demand for Federal Funds

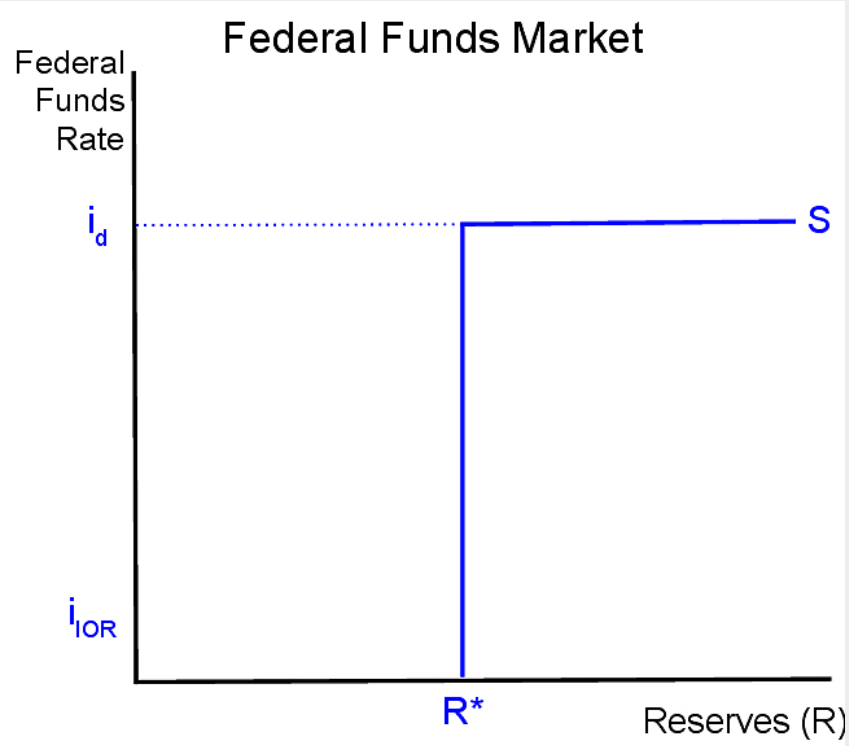


Supply for Federal Funds

Supply for Federal Funds

- Federal Reserve decides quantity of reserves supplied, R^*
- Can use open market operations to target R^*
- If federal funds rate exceeds discount rate, total reserves just depends on demand for discount loans.

Supply for Federal Funds

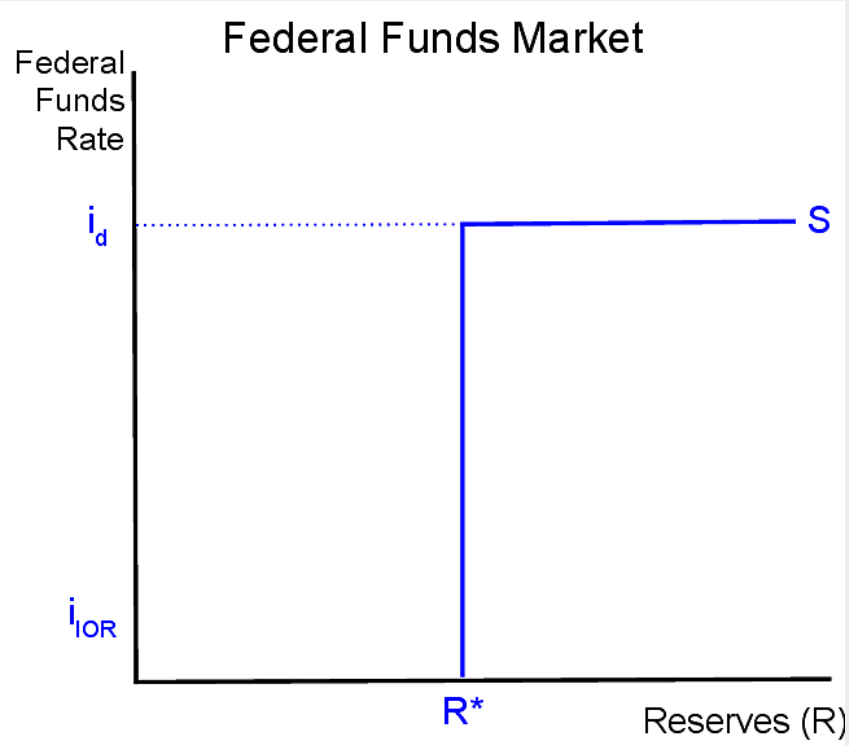


Equilibrium in Federal Funds Market

Equilibrium

- Federal funds rate determined where demand for reserves equals supply of reserves
- Fed typically targets i_{ff} rather than R^*. Uses *defensive open market operations* to maintain a given i_{ff}

Supply for Federal Funds

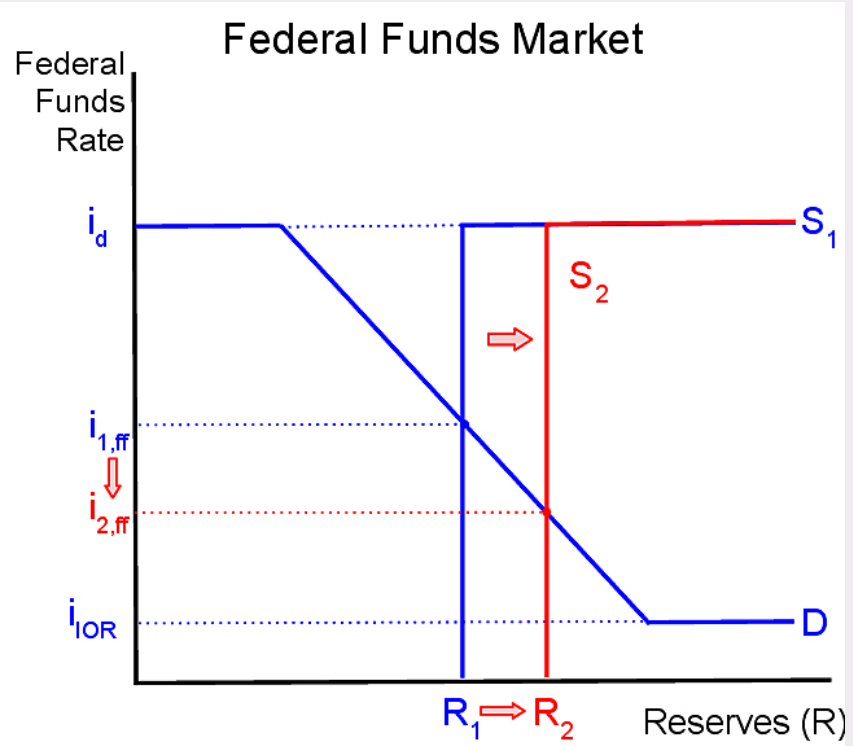


Open Market Purchase of Bonds

Open Market Purchase

- Open market purchase leads to an increase in supply of reserves
- i_{IOR} and i_d stay the same
- Decrease in equilibrium federal funds rate
- *Expansionary monetary policy*

Federal Funds Market

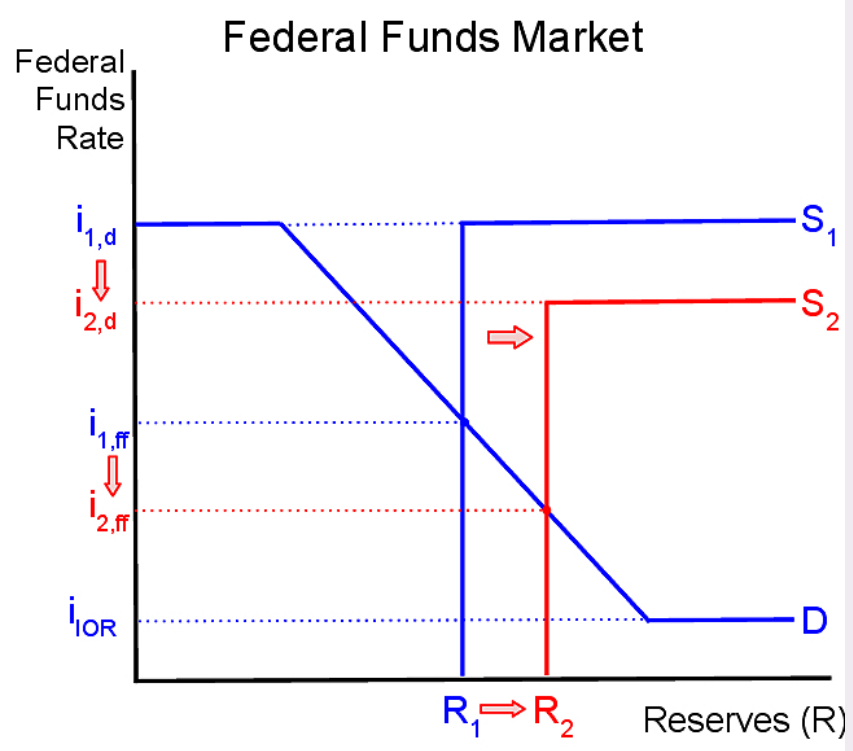


Open Market Purchase & Decreased Discount Rate

Open Market Purchase

- Open market purchases are usually accompanied with a decrease in the discount rate
- i_{IOR} stays the same
- Decrease in equilibrium federal funds rate
- Discount rate change has no independent effect on federal funds rate
- *Expansionary monetary policy*

Federal Funds Market

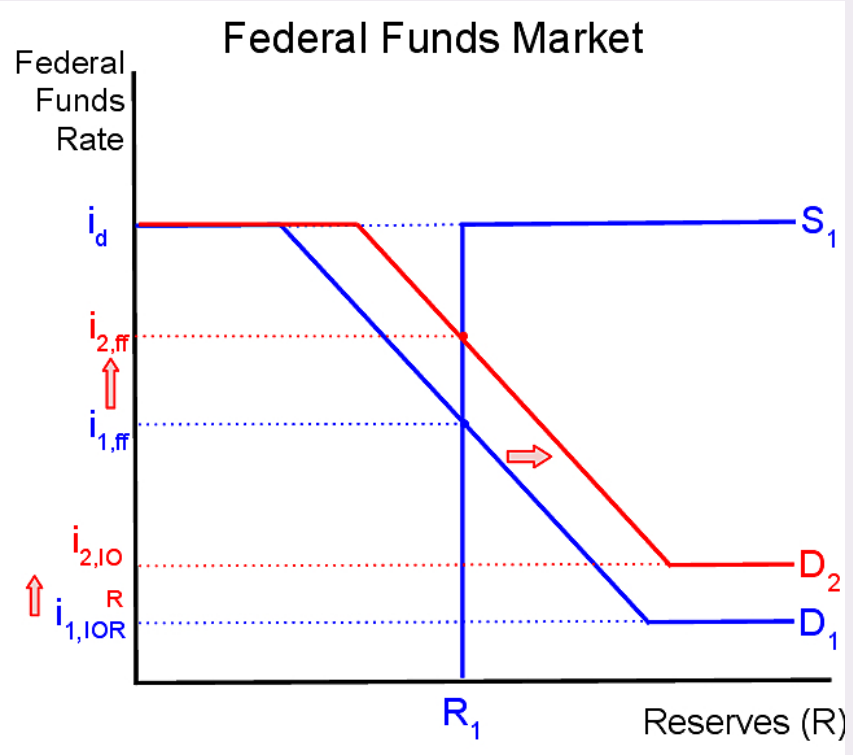


Increase in Interest on Reserves Rate

Increase in IOR

- Increase in IOR decreases the opportunity cost of holding reserves
- Demand for reserves shifts to the right
- i_{IOR} increases, i_d stays the same
- Equilibrium federal funds rate increases
- *Contractionary monetary policy*

Federal Funds Market



Additional Problems

Describe and illustrate the impact on the federal funds market for the following scenarios.

1. Suppose financial markets become more stable and lenders become more confident.
2. Suppose the Fed conducts an open market sale of bonds.

Reading and Exercises

- Goals of monetary policy: Chapter 15, pp. 503-510
- Monetary policy tools: Chapter 15, pp. 511-520
- Modern policy tools: Chapter 15, pp. 521-531
- **Canvas quiz on financial and monetary markets due Wed 11:59 PM**.
  Quizzes are multiple-choice, 10 questions, unlimited attempts allowed, only best score counts
- **Homework/Exercise due Fri 11:59 PM**. We will work together in class on Thursday