



Did the Fed save us from another Great Depression?

When banks stopped lending, the Fed flooded them with reserves.

Did that action avoid a financial meltdown and depression?

Monetary Policy

When you have completed your study of this chapter, you will be able to

- 1** Describe the objectives of U.S. monetary policy, the framework for achieving them, and the Fed's monetary policy actions.
- 2** Explain the transmission channels through which the Fed influences real GDP and the inflation rate.
- 3** Explain and compare alternative monetary policy strategies.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Monetary Policy Objectives

The objectives of monetary policy are ultimately political.

The objectives are set out by the Board of Governors of the Federal Reserve System in as defined by the Federal Reserve Act of 1913 and its subsequent amendments.

The objectives have two distinct parts: a statement of goals and a prescription of the means by which to pursue them.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Federal Reserve Act

Federal Reserve Act passed by Congress in 2000 states that:

The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy's long-run potential to increase production,

so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Goals of Monetary Policy

The goal of “maximum employment” means attaining the maximum sustainable growth rate of potential GDP, keeping real GDP close to potential GDP and the unemployment rate close to the natural unemployment rate.

The goal of “stable prices” means keeping the inflation rate low.

The goal of “moderate long-term interest rates” means keeping long-term *nominal* interest rates close to the long-term *real* interest rate.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Means for Achieving the Goals

The 2000 law instructs the Fed to pursue its goals.

The “economy’s long-run potential to increase production” is the growth rate of potential GDP.

The “monetary and credit aggregates” are the quantities of money and loans.

By keeping the growth rate of the quantity of money in line with the growth rate of potential GDP, the Fed is expected to be able to maintain full employment and keep the price level stable.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Prerequisites for Achieving the Goals

The financial crisis brought the problem of financial instability to the top of the Fed's agenda.

The focus of policy became the single-minded pursuit of **financial stability**—of enabling financial markets and institutions to resume their normal functions of allocating capital resources and risk.

Financial stability is a prerequisite for attaining the goals.

Financial instability has the potential to undermine the attainment of the mandated goals.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Operational “Maximum Employment” Goal

The Fed pays close attention to the business cycle and tries to steer a steady course between recession and inflation.

The Fed tries to minimize the output gap—the percentage deviation of real GDP from potential GDP.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Operational “Stable Prices” Goal

The Fed’s measure of inflation is the **core inflation rate**, which is the annual percentage change in the Personal Consumption Expenditure deflator (PCE deflator) *excluding* the prices of food and fuel.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Operational “Stable Prices” Goal

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17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Responsibility for Monetary Policy

The Federal Reserve Act makes the Board of Governors of the Federal Reserve System and the Federal Open Market Committee (FOMC) responsible for the conduct of monetary policy.

The FOMC makes a monetary policy decision at eight scheduled meetings a year and publishes the minutes three weeks after each meeting.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Congress plays no role in making monetary policy decisions but the Federal Reserve Act requires the Board of Governors to report on monetary policy to Congress.

The Fed makes two reports to Congress each year.

The formal role of the President of the United States is limited to appointing the members and the Chairman of the Board of Governors.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Choosing a Policy Instrument

To conduct its monetary policy, the Fed must select a monetary policy instrument.

A **monetary policy instrument** is a variable that the Fed can directly control or closely target and that influences the economy in desirable ways.

As the sole issuer of *monetary base*, the Fed has a monopoly and can fix either the quantity or the price of monetary base.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

The *price* of monetary base is the federal funds rate.

Federal funds rate is the interest rate at which banks can borrow and lend reserves in the federal funds market.

The Fed can target the quantity of monetary base or the federal funds rate, but not both.

If the Fed wants to decrease the monetary base, the federal funds rate must rise.

If the Fed wants to raise the federal funds rate, the monetary base must decrease.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ The Federal Funds Rate

The Fed's choice of monetary policy instrument is the federal funds rate.

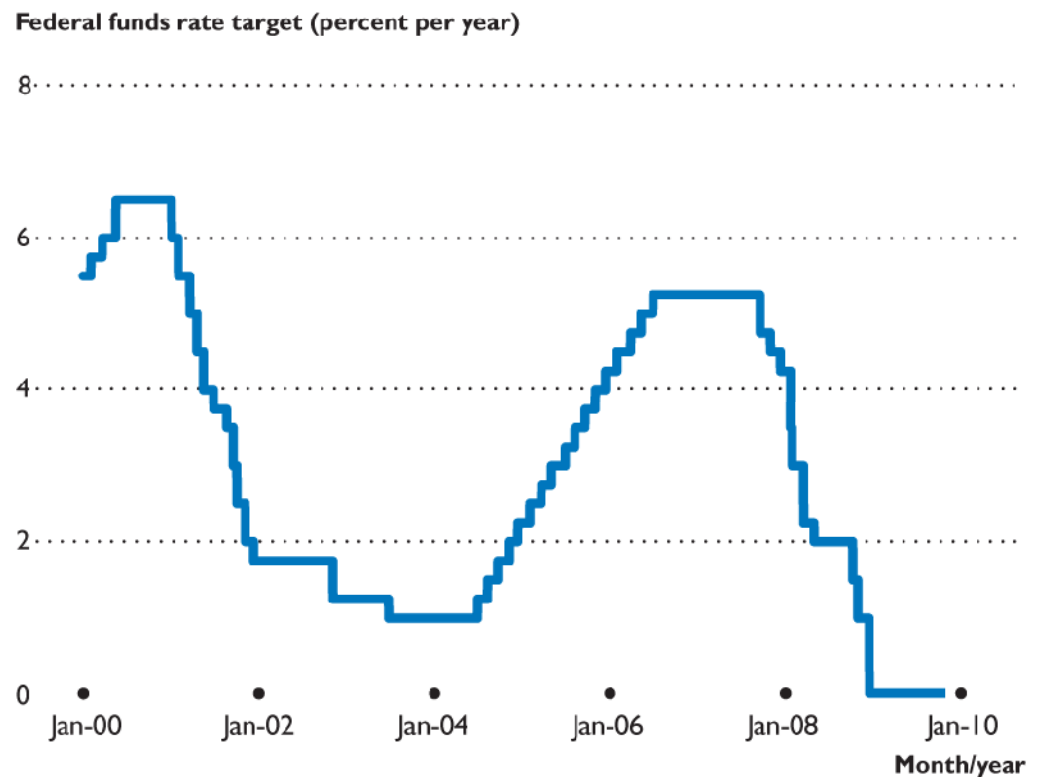
Given this choice, the Fed permits the monetary base and the quantity of money to find their own equilibrium values and has no preset targets for them.

17.1 HOW THE FED CONDUCTS MONETARY POLICY



Figure 17.1 shows the federal funds rate since 2000.

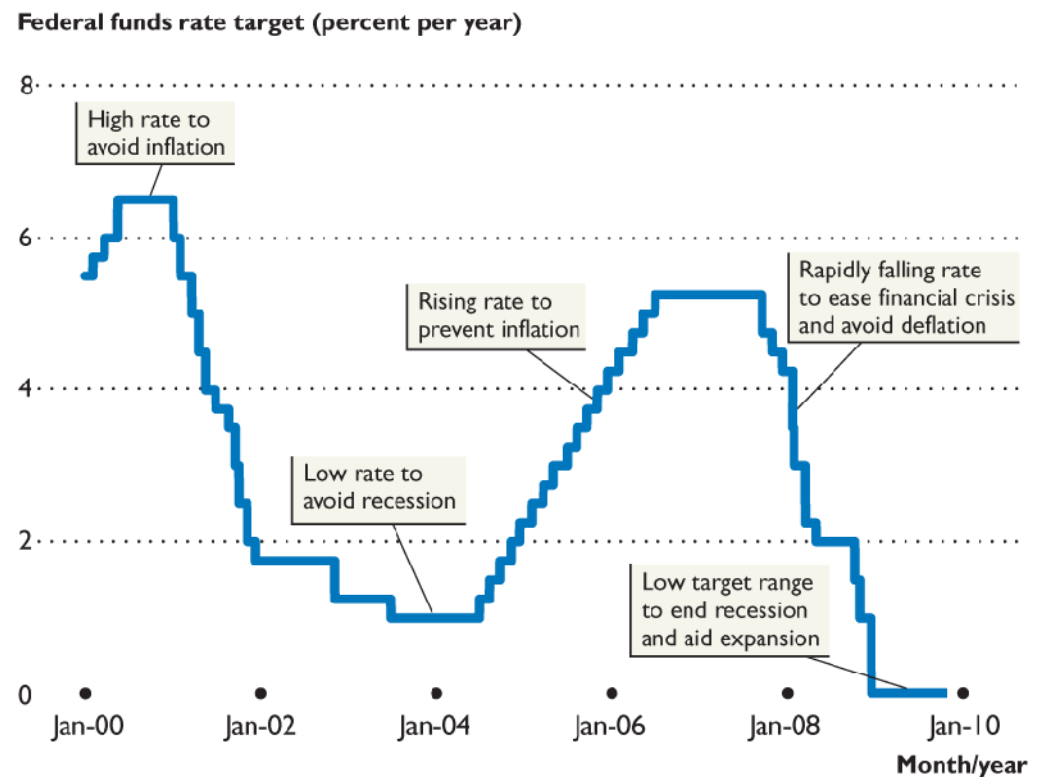
The Fed sets a target for the federal funds rate and then takes actions to keep the rate close to target.



17.1 HOW THE FED CONDUCTS MONETARY POLICY

When the Fed wants to slow inflation, it raises the federal funds rate target.

When the inflation rate is below target and the Fed wants to avoid recession, it lowers the federal funds rate.



17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ The Fed's Decision-Making Strategy

Two alternative decision-making strategies might be used.

They are summarized by the terms:

- Instrument rule
- Targeting rule

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Instrument Rule

An **instrument rule** is a decision rule for monetary policy that sets the policy instrument by a formula based on the current state of the economy.

The best-known instrument rule for the federal funds rate is the *Taylor Rule*.

The **Taylor rule** sets the federal funds rate by a formula that links it to the current inflation rate and current estimate of the output gap.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

Targeting Rule

A **targeting rule** is a decision rule for monetary policy that sets the policy instrument at a level that makes the central bank's forecast of the ultimate policy goals equal to their targets.

If the ultimate policy goal is a 2 percent inflation rate and the instrument is the federal funds rate,

then the targeting rule sets the federal funds rate at a level that makes the *forecast* of the inflation rate equal to 2 percent a year.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Hitting the Federal Funds Rate Target

The federal funds rate is the interest rate that banks earn (or pay) when they lend (or borrow) reserves.

The federal funds rate is also the opportunity cost of holding reserves.

Holding a larger quantity of reserves is the alternative to lending reserves to another bank.

Holding a smaller quantity of reserves is the alternative to borrowing reserves from another bank.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

So the quantity of reserves that banks are willing to hold varies with the federal funds rate:

The higher the federal funds rate, the smaller is the quantity of reserves that the banks plan to hold.

The Fed controls the quantity of reserves supplied.

The Fed can change this quantity of reserves supplied by conducting an open market operation.

To hit the federal funds rate target, the Fed conducts open market operations until the supply of reserves is at just the right quantity to hit the target federal funds rate.

17.1 HOW THE FED CONDUCTS MONETARY POLICY

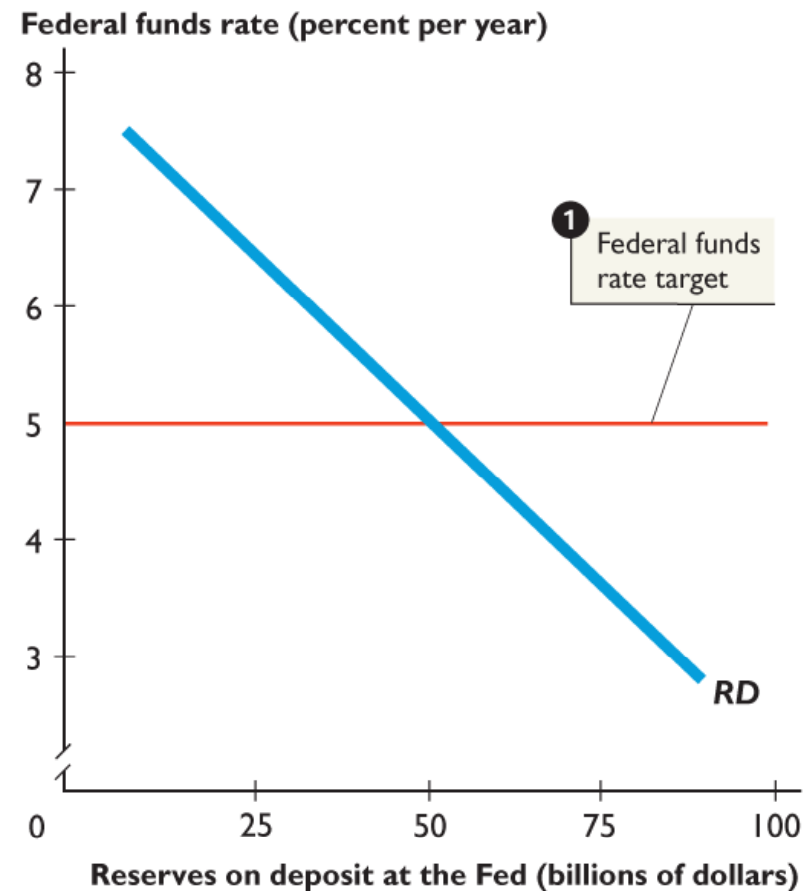


Figure 17.2 shows the market for bank reserves.

The higher the federal funds rate, the smaller is the quantity of reserves that banks want to hold.

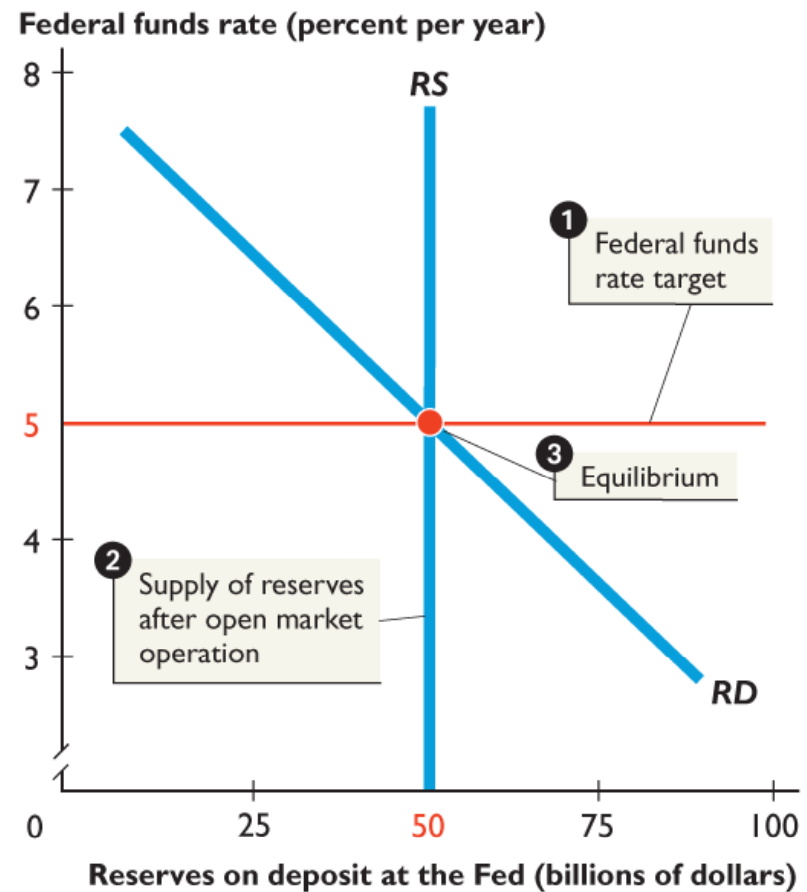
The demand for bank reserves is RD .

1. The FOMC sets the federal funds target at 5 percent a year.



17.1 HOW THE FED CONDUCTS MONETARY POLICY

- The New York Fed conducts an open market operation to make the quantity of reserves supplied equal to \$50 billion and the supply of reserves is RS .
- Equilibrium in the market for bank reserves occurs at the target federal funds rate.



17.1 HOW THE FED CONDUCTS MONETARY POLICY

■ Restoring Financial Stability in a Financial Crisis

During the global financial crisis, the Fed took extraordinary steps to restore financial stability.

The Fed used quantitative easing and credit easing.

An enormous surge in bank reserves and the monetary base occurred during 2008.

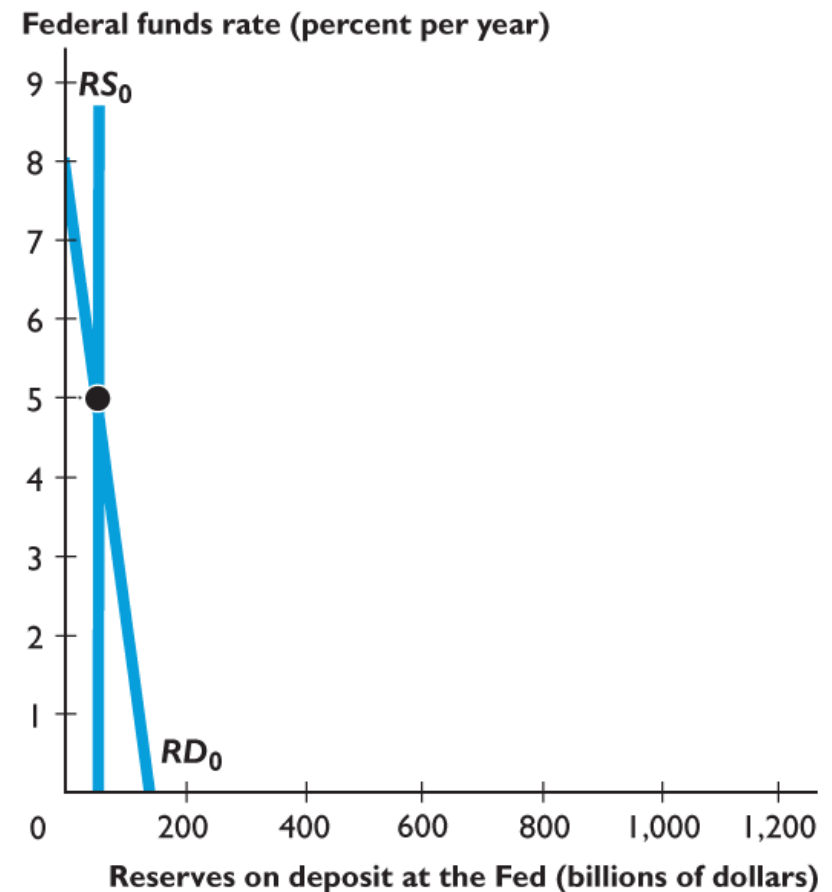
Figure 17.3 illustrates the Fed's crisis policies in the market for bank reserves.

17.1 HOW THE FED CONDUCTS MONETARY POLICY



In normal times, the demand for reserves is RD_0 and the supply of reserves is RS_0 .

The federal funds rate is 5 percent a year and bank reserves are \$50 billion.



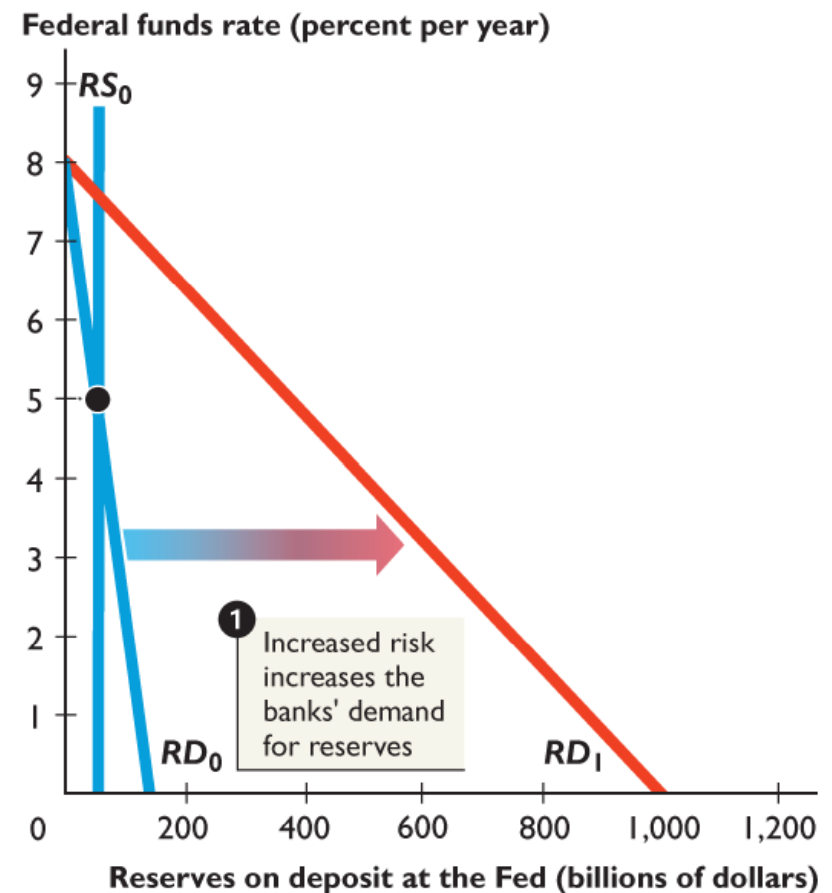
17.1 HOW THE FED CONDUCTS MONETARY POLICY

In a financial crisis:

1. The banks face increased risk and their demand for reserves increases to RD_1 .

If the Fed took no action, the federal funds rate would rise, bank lending would shrink.

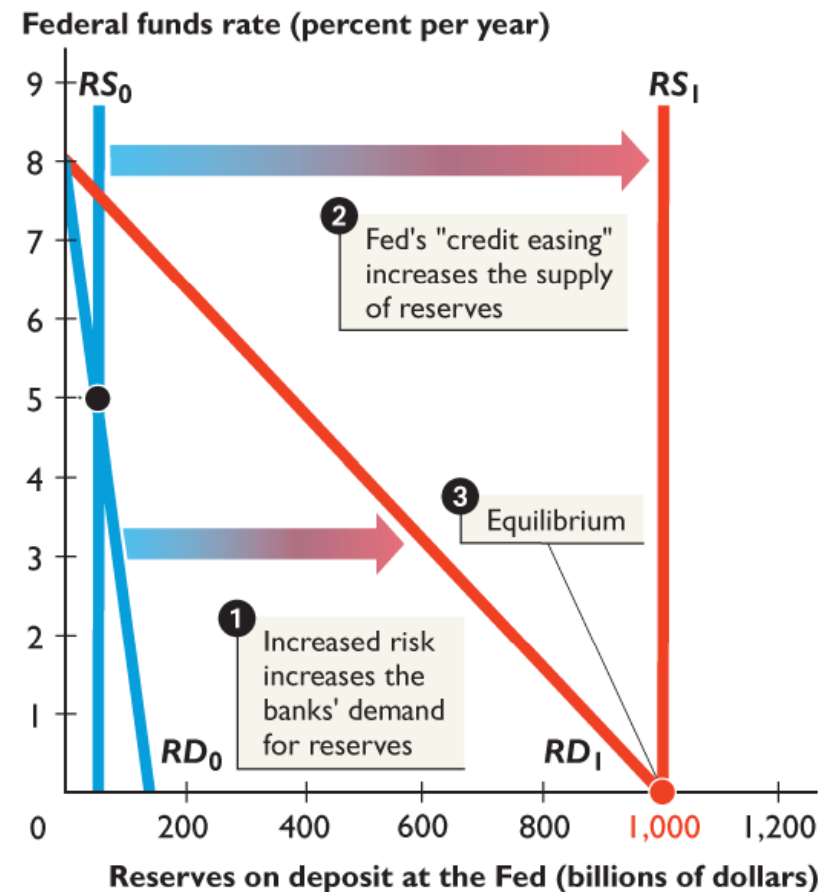
The quantity of money would decrease and a recession would intensify.



17.1 HOW THE FED CONDUCTS MONETARY POLICY

To avoid this outcome,

2. The Fed's credit easing and other actions increase the supply of reserves to RS_1 .
3. The Federal funds rate falls to zero and reserves increase to \$1,000 billion.

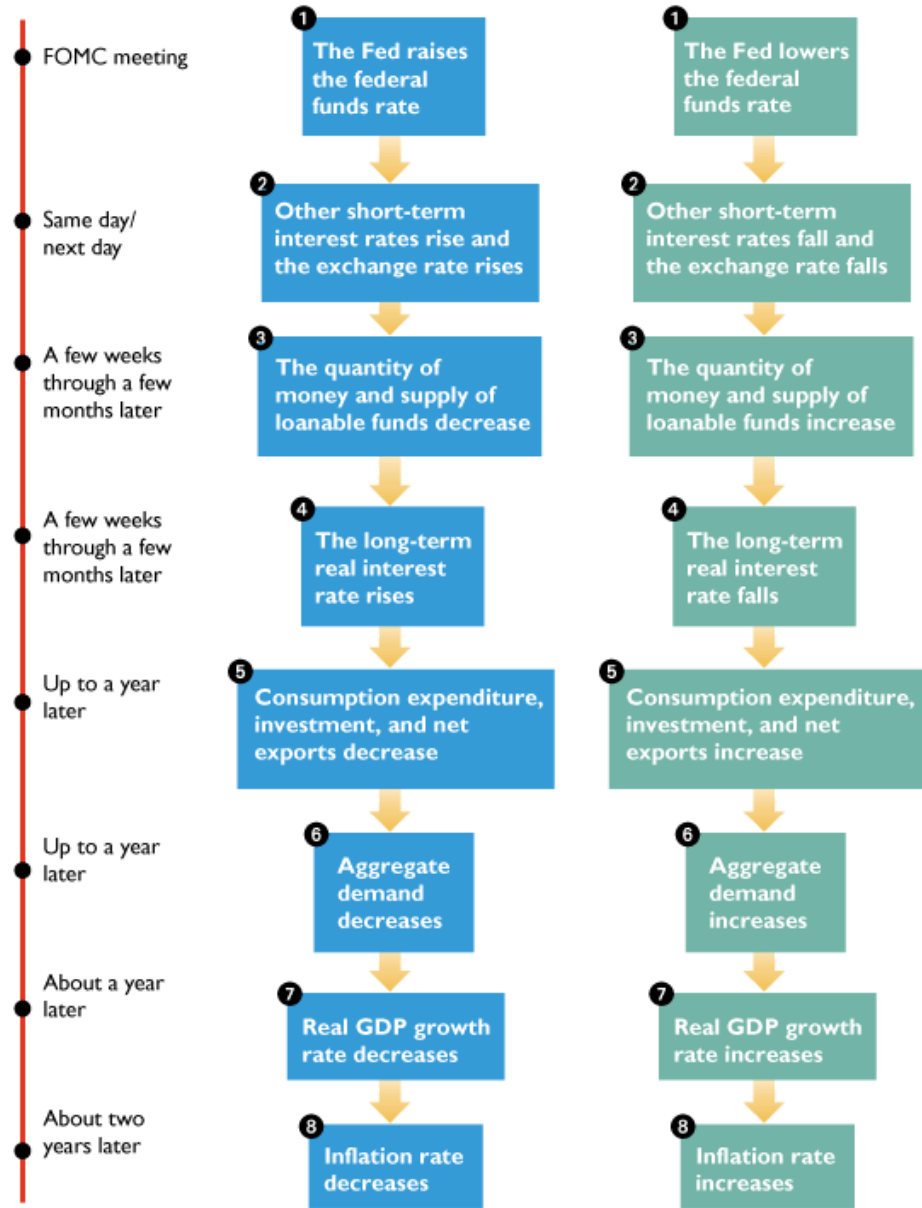


17.2 MONETARY POLICY TRANSMISSION

When the Fed changes the federal funds rate, events ripple through the economy and lead to the ultimate policy goals.

■ Quick Overview

Figure 17.4 summarizes the ripple effects.



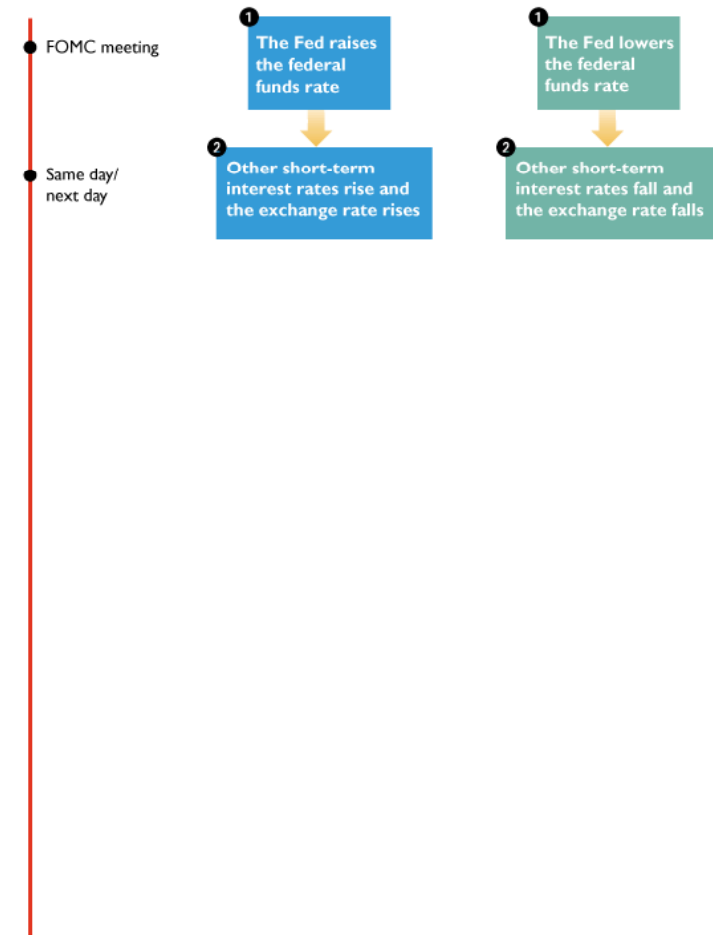
(a) The Fed tightens

(b) The Fed eases

17.2 MONETARY POLICY TRANSMISSION

■ Interest Rate Changes

1. The first effect of a monetary policy decision by the FOMC is a change in the federal funds rate.
2. Other interest rates then change quickly and relatively predictably.



(a) The Fed tightens

(b) The Fed eases

17.2 MONETARY POLICY TRANSMISSION

■ Exchange Rate Changes

The exchange rate responds to changes in the interest rate in the United States relative to the interest rates in other countries—the *U.S. interest rate differential*.

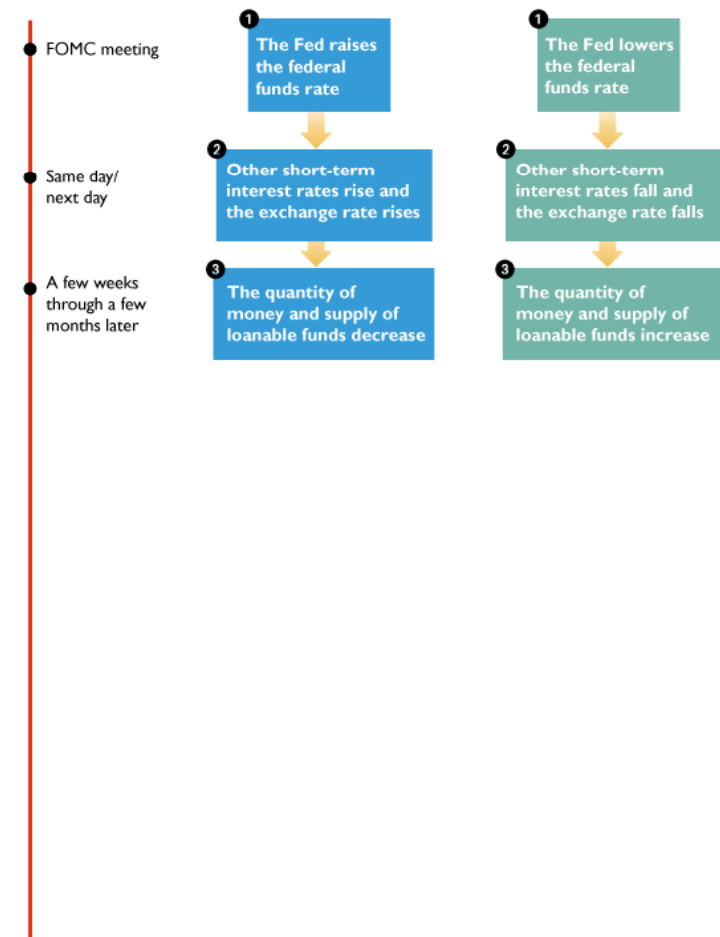
When the Fed raises the federal funds rate, the U.S. interest rate differential rises and, other things remaining the same, the U.S. dollar appreciates.

And when the Fed lowers the federal funds rate, the U.S. interest rate differential falls and, other things remaining the same, the U.S. dollar depreciates.

17.2 MONETARY POLICY TRANSMISSION

■ Money and Bank Loans

3. To change the federal funds rate, the Fed must change the quantity of bank reserves, which in turn changes the quantity of deposits and loans that the banking system can create.



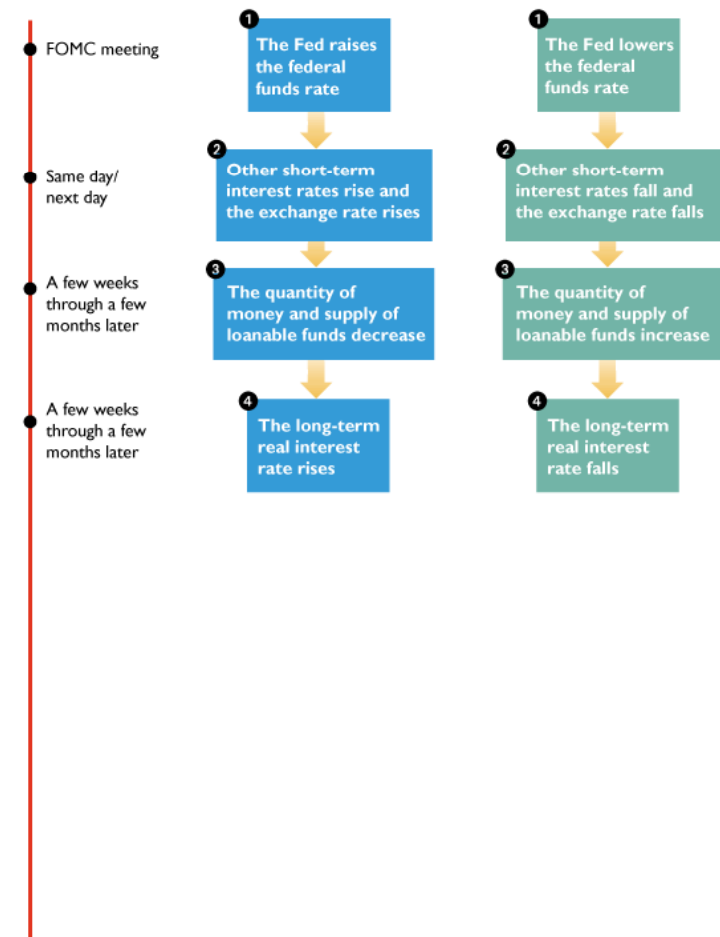
(a) The Fed tightens

(b) The Fed eases

17.2 MONETARY POLICY TRANSMISSION

■ Long-Term Real Interest Rate

4. Changes in the federal funds rate change the supply of bank loans, which changes the supply of loanable funds and changes the real interest rate in the loanable funds market.



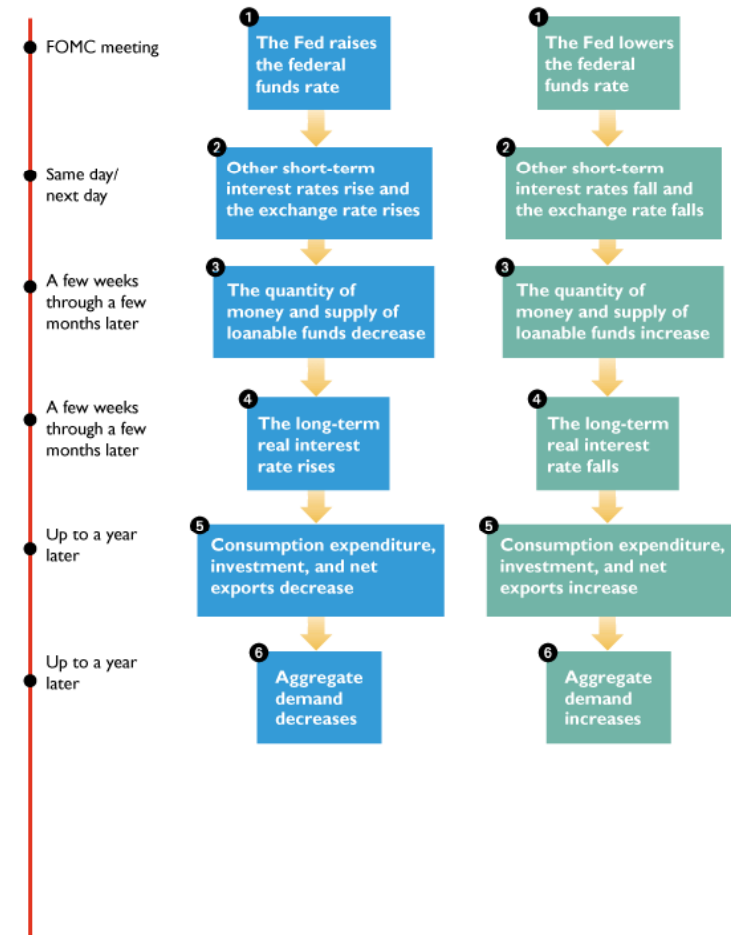
(a) The Fed tightens

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17.2 MONETARY POLICY TRANSMISSION

■ Expenditure Plans

5. A change in the real interest rate changes consumption expenditure, investment, and net exports.
6. A change consumption expenditure, investment, and net exports changes aggregate demand.

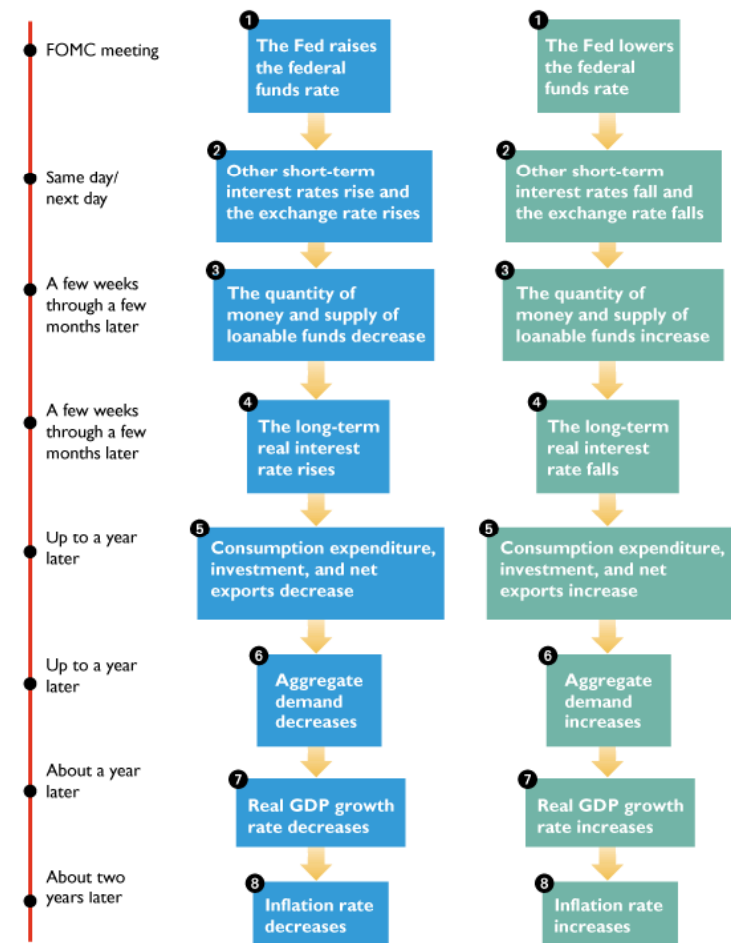


(a) The Fed tightens

(b) The Fed eases

17.2 MONETARY POLICY TRANSMISSION

7. About a year after the change in the federal funds rate occurs, real GDP growth changes.
8. About two year after the change in the federal funds rate occurs, the inflation rate change.



(a) The Fed tightens

(b) The Fed eases

17.2 MONETARY POLICY TRANSMISSION

■ The Fed Fights Recession

With inflation below target and real GDP below potential GDP, the Fed fears recession.

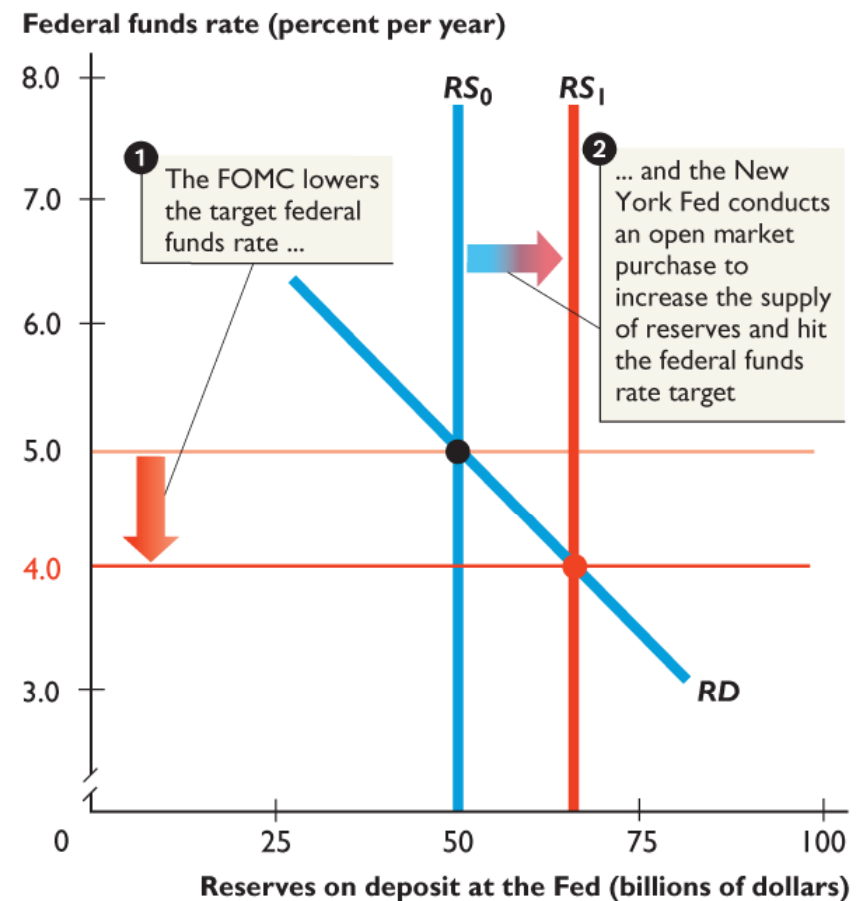
Figure 17.5 illustrates how the Fed's policy works.

17.2 MONETARY POLICY TRANSMISSION



Figure 17.5(a) shows the market for bank reserves.

1. The FOMC lowers the federal funds rate target from 5 percent to 4 percent a year.
2. The New York Fed buys securities on the open market, which increases bank reserves to hit the federal funds rate target.



(a) Market for bank reserves

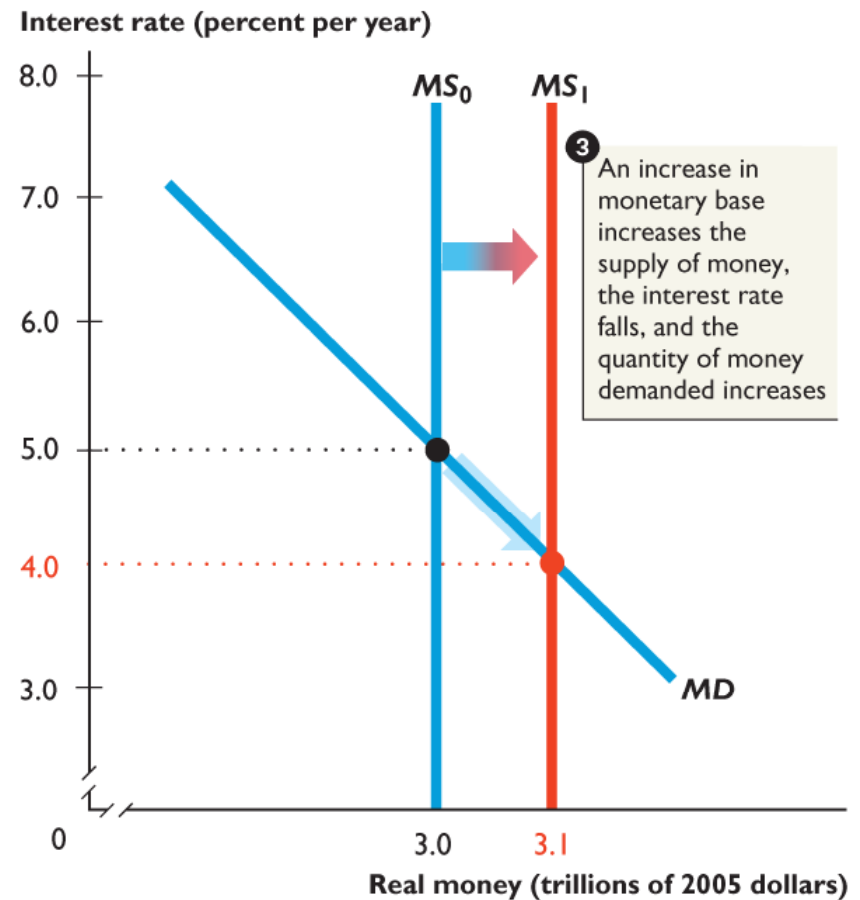
17.2 MONETARY POLICY TRANSMISSION



Figure 17.5(b) shows the money market.

3. The supply of money increases.

The short-run interest rate falls from 5 percent to 4 percent a year and the quantity of real money increases.



(b) Money market

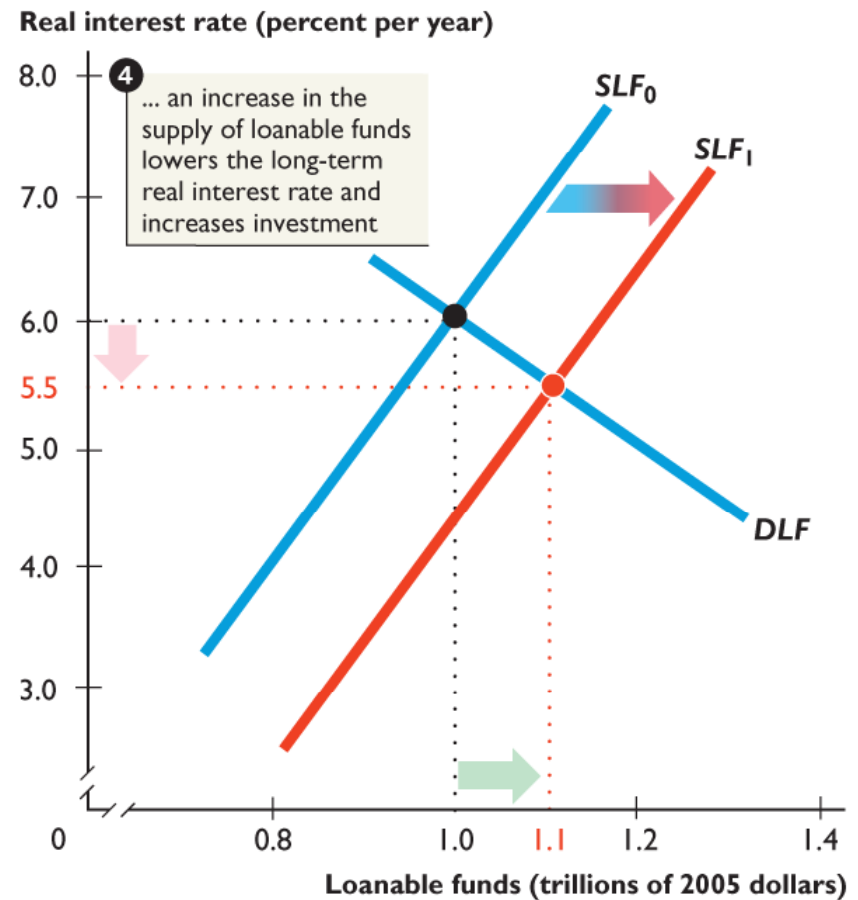
17.2 MONETARY POLICY TRANSMISSION



Figure 17.5(c) shows the market for loanable funds.

4. An increase in the supply of loans increases the supply of loanable funds.

The real interest rate falls and the quantity of investment increases.



(c) Market for loanable funds

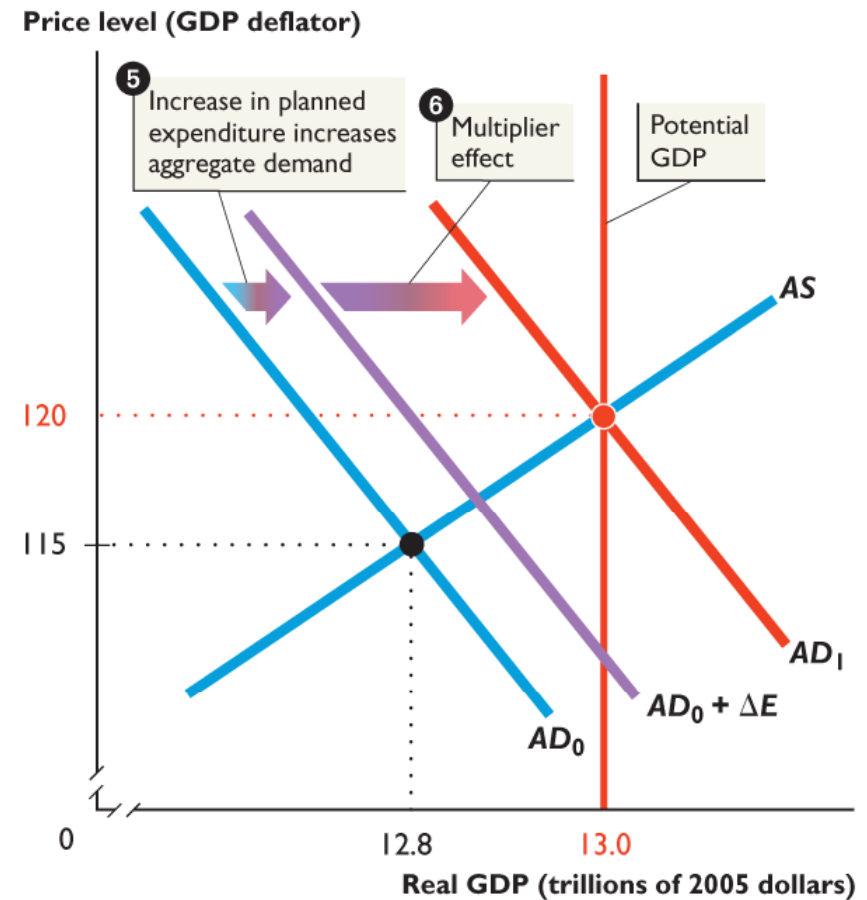
17.2 MONETARY POLICY TRANSMISSION



Figure 17.5(d) shows the recessionary gap.

5. An increase in expenditure increases aggregate demand by ΔE .
6. A multiplier effect increases aggregate demand to AD_1 .

Real GDP increases and the inflation rises.



(d) Real GDP and the price level



EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

The story of the Great Depression is complex and even today, after almost 80 years of research, economists are not in full agreement on its causes.

But one part of the story is clear and it is told by Milton Friedman and Anna J. Schwartz:

The Fed got it wrong.





EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

An increase in financial risk drove the banks to increase their holdings of reserves and everyone else to lower their bank deposits and hold more currency.

Between 1929 and 1933, the banks' desired reserve ratio increased from 8 percent to 12 percent

the currency drain ratio increased from 9 percent to 19 percent.

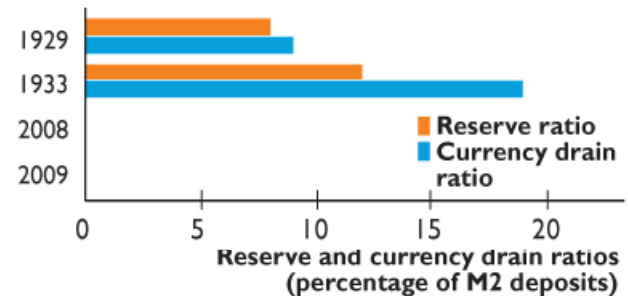


Figure 1 The flight to safety: Reserve and currency ratios increase

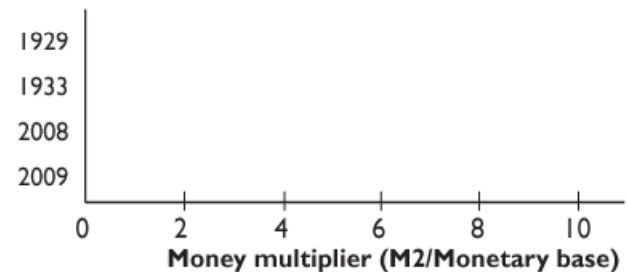


Figure 2 The collapsing money multiplier

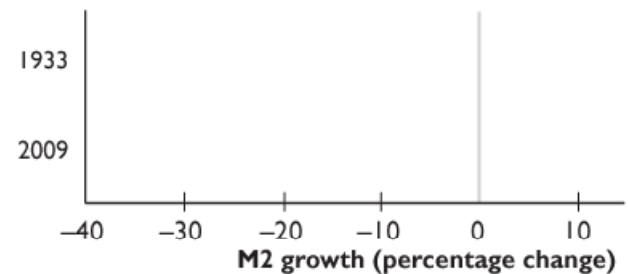


Figure 3 Money contraction versus growth



EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

The money multiplier fell from 6.5 to 3.8.

The quantity of money crashed by 35 percent.

This massive contraction in the quantity of money was accompanied by a similar contraction of bank loans.

A large number of banks failed.

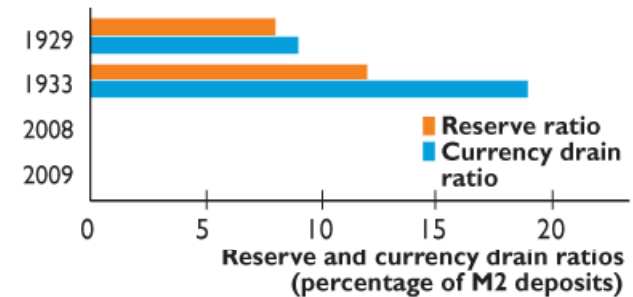


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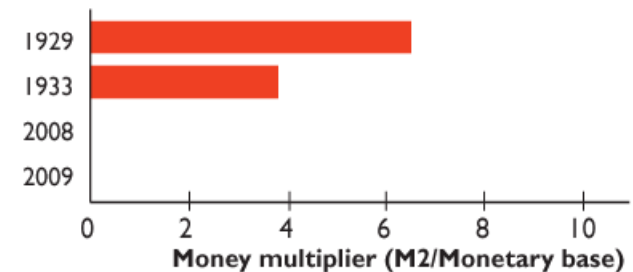


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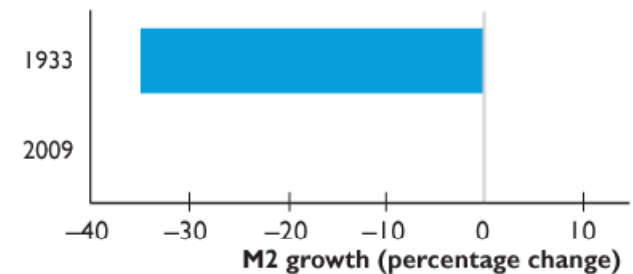


Figure 3 Money contraction versus growth



EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

Friedman and Schwartz say that this contraction of money and bank loans and failure of banks could (and should) have been avoided by a more alert and wise Fed.

The Fed could have accommodate the banks' increased desired reserve ratio and ...

offset the rise in currency holdings as people switched out of bank deposits.

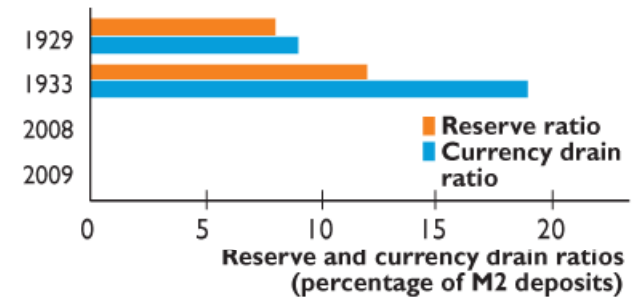


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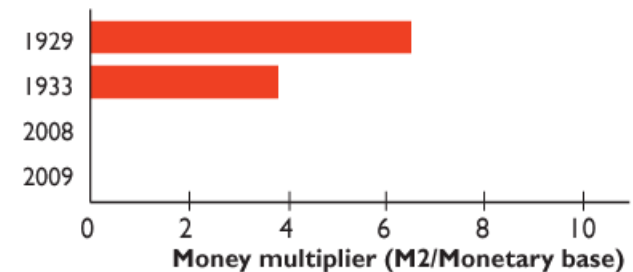


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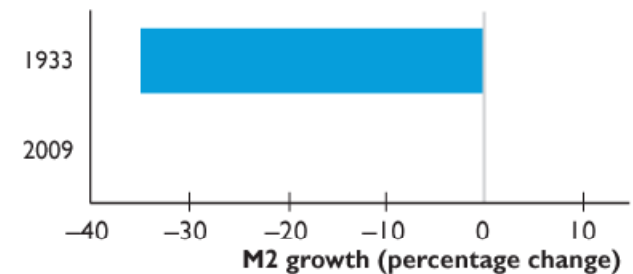


Figure 3 Money contraction versus growth



EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

Bernanke did what Friedman and Schwartz said the Fed needed to do.

At the end of 2008, the Fed flooded the banks with the reserves that they wanted.

The money multiplier fell from 9.1 in 2008 to 4.6 in 2009—much more than it had fallen from 1929 to 1933.

The quantity of money did not contract as in 1933.

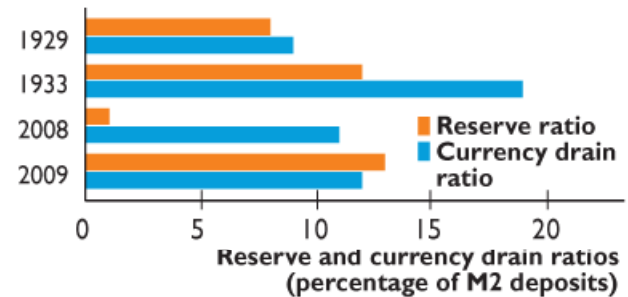


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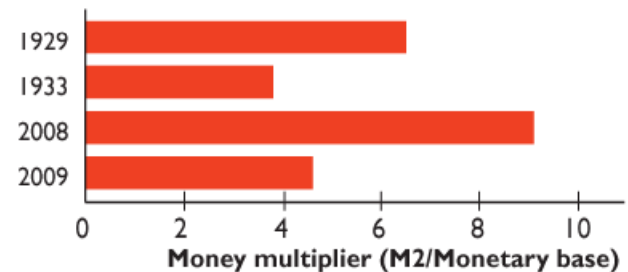


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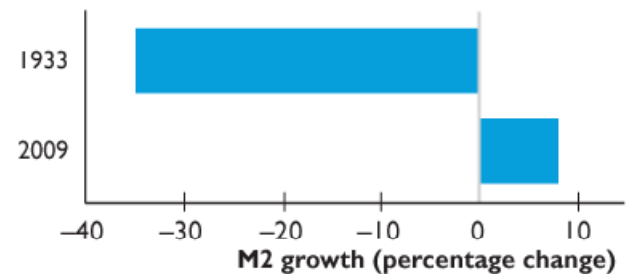


Figure 3 Money contraction versus growth



EYE on the FED in a CRISIS

Did the Fed Save Us from Another Great Depression?

We can't be sure that the Fed averted a Great Depression in 2009.

But we can be confident that the Fed's actions helped to limit the depth and duration of the 2008–2009 recession.

The Fed's next challenge will be to reverse the monetary policy stimulus as investment and exports begin to increase more quickly.

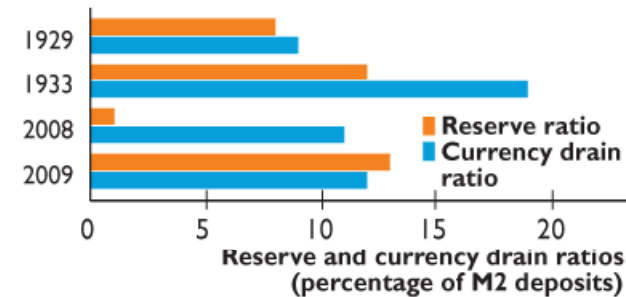


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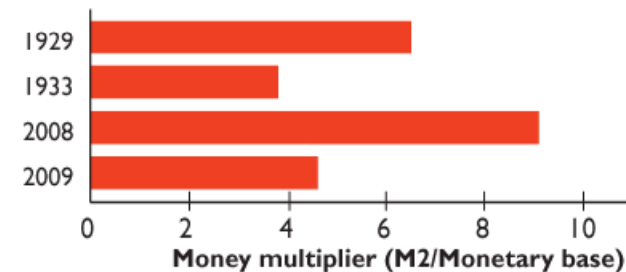


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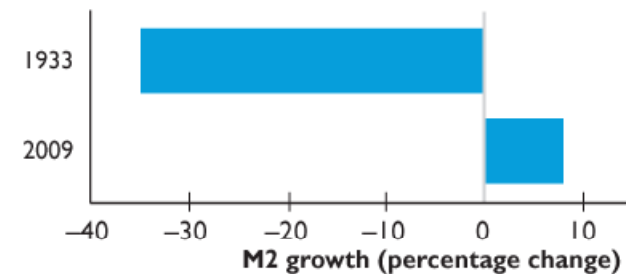


Figure 3 Money contraction versus growth

17.2 MONETARY POLICY TRANSMISSION

■ The Fed Fights Inflation

If the inflation rate is too high and real GDP is above potential GDP, the Fed takes action to lower the inflation rate and restore price stability.

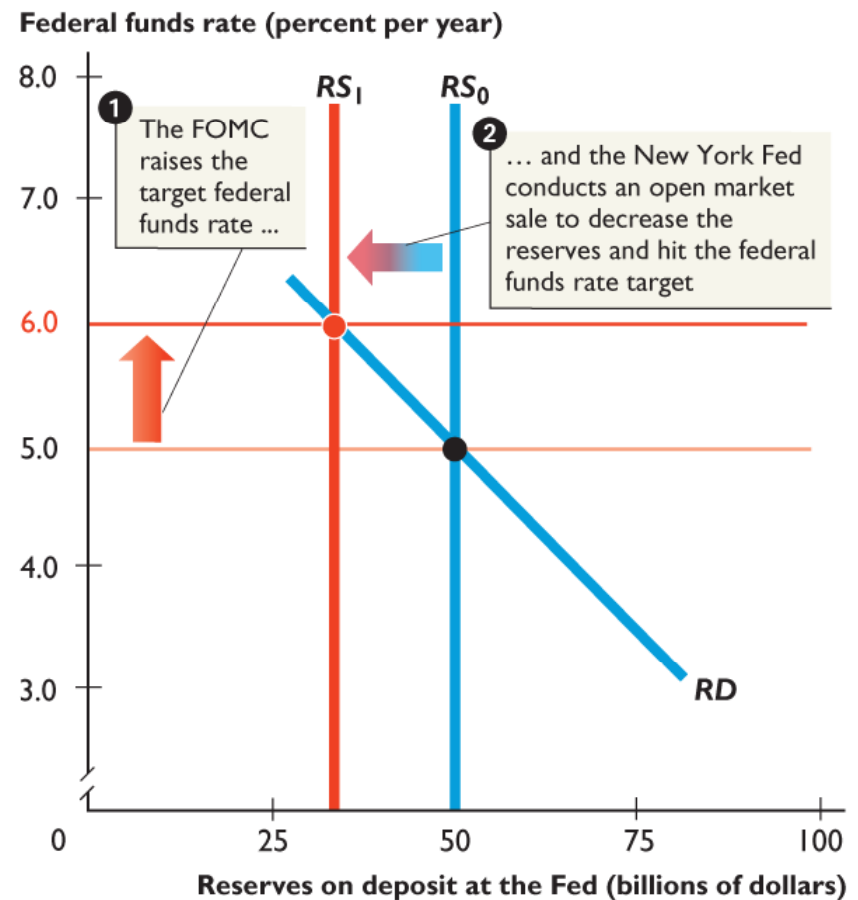
Figure 17.6 illustrates how the Fed's policy works.

17.2 MONETARY POLICY TRANSMISSION



Figure 17.6(a) shows the market for bank reserves.

1. The FOMC raises the federal funds rate target from 5 percent to 6 percent a year.
2. The New York Fed sells securities on the open market, which decreases bank reserves to hit the federal funds rate target.



(a) Market for bank reserves

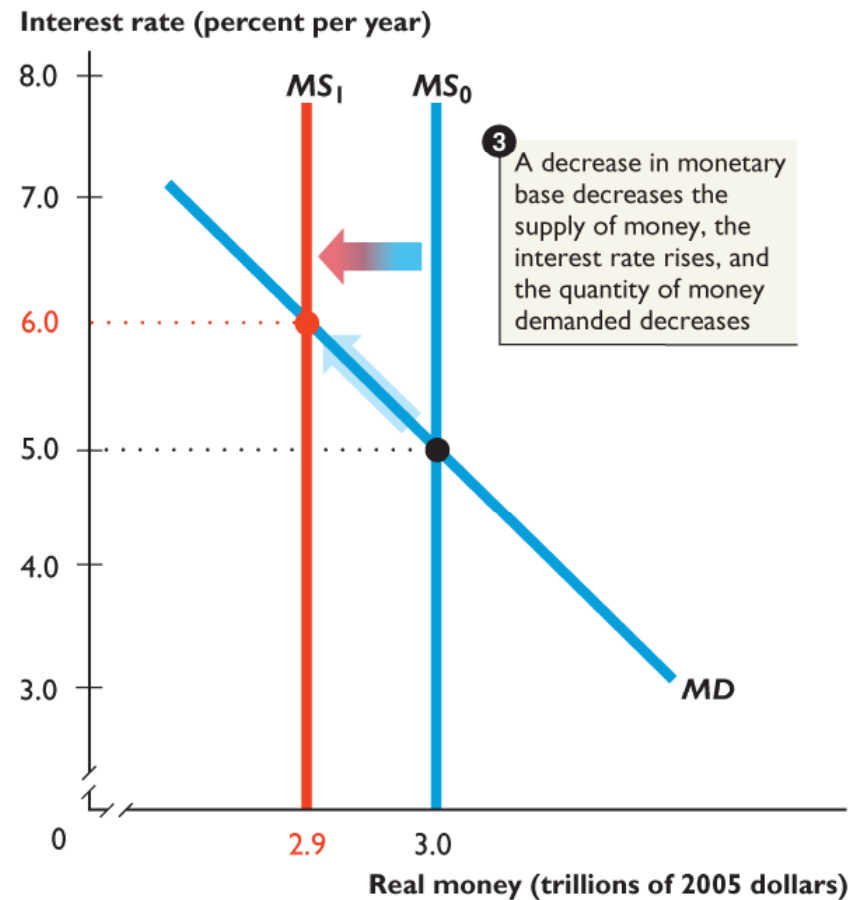
17.2 MONETARY POLICY TRANSMISSION



Figure 17.6(b) shows the money market.

3. The supply of money decreases.

The short-run interest rate rises from 5 percent to 6 percent a year and the quantity of real money decreases.



(b) Money market

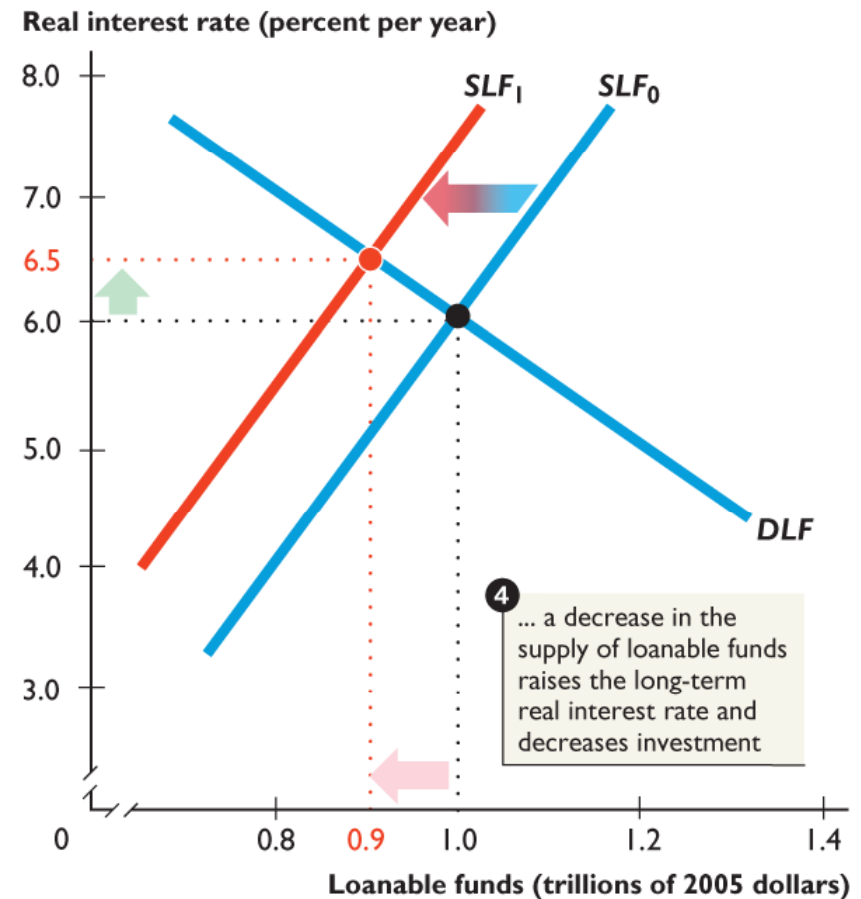
17.2 MONETARY POLICY TRANSMISSION



Figure 17.6(c) shows the market for loanable funds.

4. A decrease in the supply of loans decreases the supply of loanable funds.

The real interest rate rises and the quantity of investment decreases.



(c) Market for loanable funds

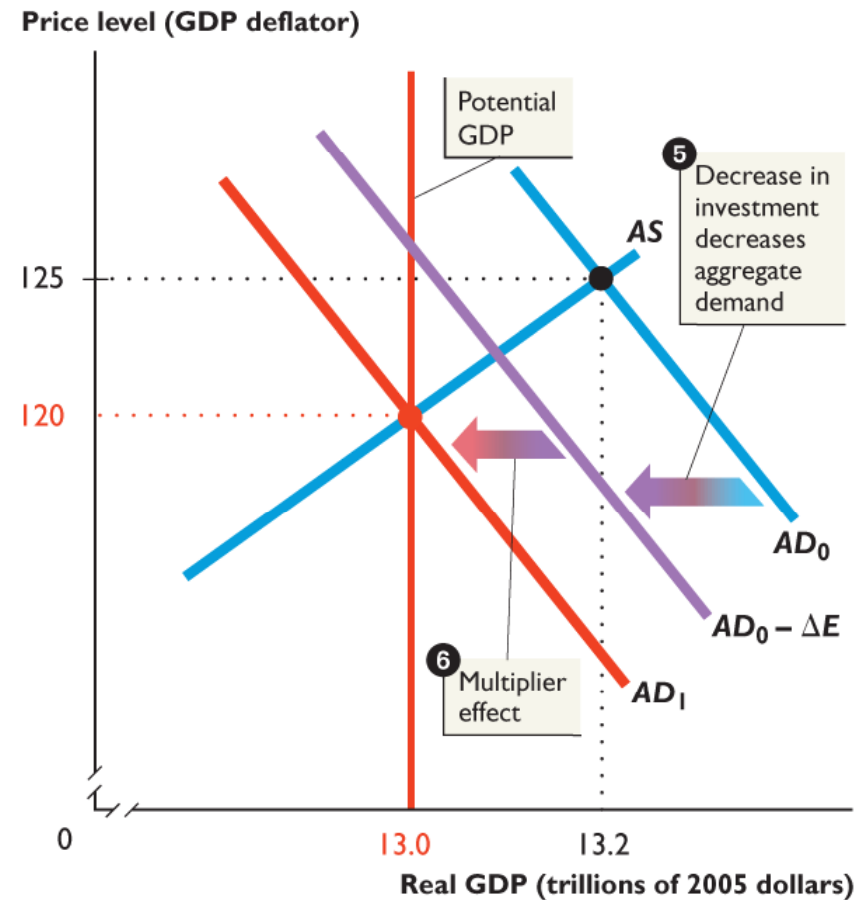
17.2 MONETARY POLICY TRANSMISSION



Figure 17.6(d) shows the inflationary gap.

5. A decrease in expenditure decreases aggregate demand by ΔE .
6. A multiplier effect decreases aggregate demand to AD_1 .

Real GDP decreases and the inflation slows.



(d) Real GDP and the price level

17.2 MONETARY POLICY TRANSMISSION

■ Loose Links and Long and Variable Lags

You've seen the ripple effects of a change in monetary policy.

In reality, these ripple effects are hard to predict and anticipate.

Figure 17.4 show that the ripple effects stretch out over a two-year period.

17.2 MONETARY POLICY TRANSMISSION

Loose Link from Federal Funds Rate to Spending

The long-term real interest rate that influences spending plans is linked only loosely to the federal funds rate.

Also, the response of the long-term real interest rate to a change in the nominal rate depends on how inflation expectations change.

The response of expenditure plans to changes in the real interest rate depends on many factors that make the response hard to predict.

17.2 MONETARY POLICY TRANSMISSION

Time Lags in the Adjustment Process

The monetary policy transmission process is long and drawn out.

Also, the economy does not always respond in exactly the same way to a given policy change.

Further, many factors other than policy are constantly changing and bringing new situations to which policy must respond.

17.2 MONETARY POLICY TRANSMISSION

■ A Final Reality Check

The time lags in the adjustment process are not predictable, but the average time lags are known.

After the Fed takes action, real GDP begins to change about one year later and the inflation rate responds with a lag that averages around two years.

This long time lag between the Fed's action and a change in the inflation rate, the ultimate policy goal, makes monetary policy very difficult to implement.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

■ Why Rules?

The alternative to a monetary policy rule is discretionary monetary policy.

Discretionary monetary policy is a monetary policy that is based on an expert assessment of the current economic situation.

A well-understood monetary policy rule helps to keep inflation expectations anchored close to the inflation target and creates an environment in which inflation is easier to forecast and manage.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

Although rules beat discretion, there are three alternative rules that the Fed might have chosen. They are

- A inflation targeting rule
- A money targeting rule
- A gold price targeting rule (gold standard)

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

■ Inflation Targeting Rule

Inflation targeting rule is a monetary policy strategy in which the central bank makes a public commitment to achieving an explicit inflation target and to explaining how its policy actions will achieve that target.

Of the alternatives to the Fed's current strategy, inflation targeting is the most likely to be considered. In fact, some economists see it as a small step from what the Fed currently does.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

How Inflation Targeting Is Conducted

Inflation targets are specified in terms of a range for the CPI inflation rate.

This range is typically between 1 percent and 3 percent a year, with an aim to achieve an average inflation rate of 2 percent a year.

Because the lags in the operation of monetary policy are long, if the inflation rate falls outside the target range, the expectation is that the central bank will move the inflation rate back on target over the next two years.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

What Does Inflation Targeting Achieve?

The idea of inflation targeting is to state publicly the goals of monetary policy, to establish a framework of accountability, and to keep the inflation rate low and stable while maintaining a high and stable employment.

There is wide agreement that inflation targeting achieves its first two goals.

It is less clear whether inflation targeting does better than the Fed's implicit targeting in achieving low and stable inflation.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

■ Money Targeting Rule

An example is Friedman's *k-percent rule*.

The ***k-percent rule*** is a monetary policy rule that makes the quantity of money grow at k percent per year, where k equals the growth rate of potential GDP.

Money targeting works when the demand for money is stable and predictable.

But technological change in the banking system leads to unpredictable changes in the demand for money, which makes money targeting unreliable.

17.3 ALTERNATIVE MONETARY POLICY STRATEGIES

■ Gold Price Targeting Rule

This monetary regime is called a gold standard.

The **gold standard** is a monetary policy rule that fixes the dollar price of gold.

Most of the world operated a gold standard until 1971.

Under a gold standard, a country has no direct control over its inflation rate.

Most economists regard the gold standard as an outmoded system, but advocates regret its passing.