LSE EC1B5
Macroeconomics

Handout 15

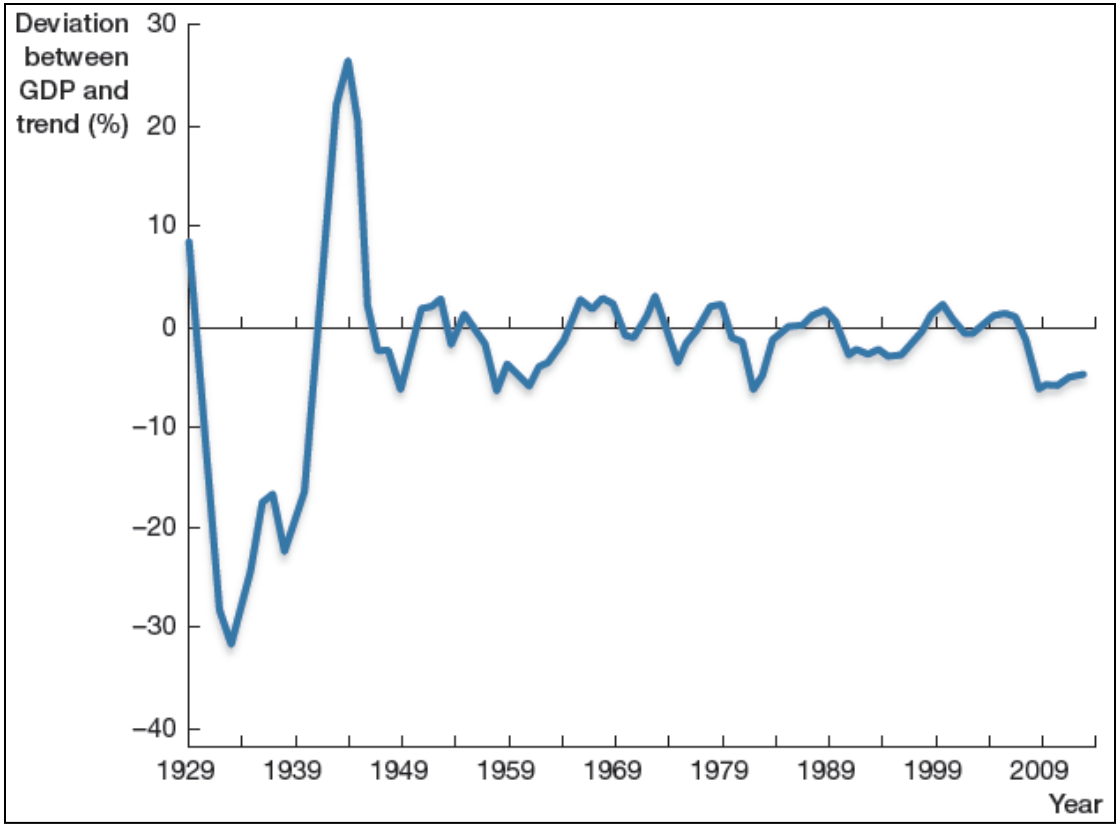
Countercyclical Macroeconomic Policy (I)

Key Ideas

1. Countercyclical policies attempt to reduce the intensity of economic fluctuations and smooth the growth rates of employment, GDP, and prices.
2. Countercyclical monetary policy reduces economic fluctuations by manipulating bank reserves and interest rates.
3. Expectations, inflation and monetary policy.

Economic Fluctuations

Last two lectures, we looked at how the economy experiences recessions and expansions in the short run.



Countercyclical Policies

Countercyclical policies attempt to reduce the intensity of economic fluctuations and smooth the GDP growth rate.

- Expansionary policy – aim to reduce the severity of an economic recession by shifting labor demand to the right and "expanding" economic activity (GDP)
- Contractionary policy – aim to slow down the economy when it grows too fast, or "overheats."

Contractionary policy

Why would policymakers want to reduce employment and GDP growth?

- Can reduce inflation

- Can reduce the risks of an extreme contraction by trying to cool off the economy before it overheats.

Countercyclical Policies

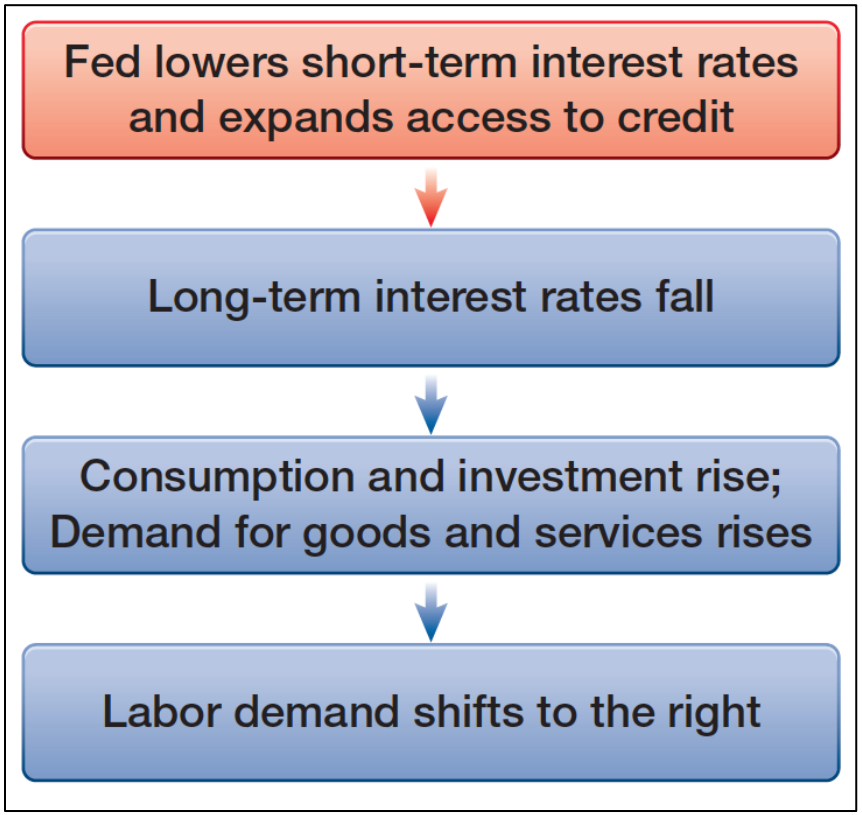
Countercyclical policies comes in two main categories:

- Countercyclical monetary policy – conducted by the central bank by influencing reserve and interest rates

- Countercyclical fiscal policy – government expenditure and taxes

Expansionary Monetary Policy

An **expansionary monetary policy** lowers short-term interest rates to increase economic activity.



Open market operation

The primary tool of monetary policy is the Fed's control of the federal funds rate.

The Fed influences the federal funds rate through **open market operations**.

Open market operation

In an open market operation, the Fed transacts with private banks to increase or decrease bank reserves held at the Fed.

The Fed can increase the supply of reserves through open market purchases (lower the federal funds rate).

The Fed can decrease the supply of reserves through an open market sale (increase the federal funds rate).

Open market purchase – an example

Suppose the Fed wants to raise bank reserves held on deposit at the Fed by $1 billion.

Suppose the Fed finds Citibank is willing to sell the Fed $1 billion worth of bonds in exchange for bank reserves on deposit at the Fed.

The Fed issues an IOU to Citibank as a form of bank reserve.

Open Market Purchase
- Balance Sheet of the Fed

Before:

Assets		Liabilities and shareholders' equity	
Treasury bonds:	$1000 billion	Reserves:	$1000 billion
Other bonds:	$1000 billion	Currency:	$1000 billion
Total assets:	$2000 billion	Total liabilities:	$2000 billion

After:

Assets		Liabilities and shareholders' equity	
Treasury bonds:	$1001 billion	Reserves:	$1001 billion
Other bonds:	$1000 billion	Currency:	$1000 billion
Total assets:	$2001 billion	Total liabilities:	$2001 billion

The Fed buys $1 billion in bonds from Citibank in exchange for $1 billion in reserves

Open Market Purchase
- Balance Sheet of Citibank

Before:

Assets		Liabilities and shareholder's equity	
Reserves:	$100 billion	Deposits and other liabilities:	$800 billion
Bonds and other investments:	$900 billion	Shareholder's equity:	$200 billion
Total assets:	$1000 billion	Liabilities + shareholder's equity:	$1000 billion

After:

Assets		Liabilities and shareholder's equity	
Reserves:	$101 billion	Deposits and other liabilities:	$800 billion
Bonds and other investments:	$899 billion	Shareholder's equity:	$200 billion
Total assets:	$1000 billion	Liabilities + shareholder's equity:	$1000 billion

Total Reserves on Deposit at the Federal Reserve Bank

Most of the time, total reserves fluctuate between $40 billion and $80 billion.

During and after the 2007–2009 recession, the Fed drastically expanded the quantity of reserves banks held to $2.5 trillion to drive down interest rates.

This dramatic increase was mostly due to an expansion in excess reserves—reserves above and beyond the regulatory minimum.

Policy Trade-offs

Monetary policymakers face many conflicting considerations:

The Fed would like to stimulate the economy during a recession…*but* the Fed does not want to risk runaway inflation.

Taylor Rule

The *Taylor rule* provides one answer:

Federal funds rate = Long-run federal funds rate target +
1.5 (Inflation rate – Inflation rate target) +
0.5 (Output gap in % points)

where

$$\text{Output gap} = \frac{\text{GDP} - \text{Trend GDP}}{\text{Trend GDP}} \times 100$$

Taylor Rule

The *Taylor rule* has two important parts:

1. It says that the Fed raises the federal funds rate 1.5 percentage points for each 1% increase in the inflation rate.

2. It says that the Fed raises the federal funds rate 0.5 percentage points for each 1% increase in the output gap.

Taylor Rule

In early 2014, inflation was 1.5% and the economy was about 5% below its trend GDP.

The *Taylor rule* recommends that the federal funds rate should be at:

Federal funds rate = 3.5% + 1.5(1.5% – 2.0%) + 0.5(– 5%) = 0.25%

Other Tools of the Fed

The Fed has other tools available to impact bank reserves:

1. Changing the reserve requirement
2. Changing the interest rate paid on reserves deposited at the Fed
3. Lending from the discount window – an alternative to the federal fund market
4. Quantitative easing – buy long-term bond

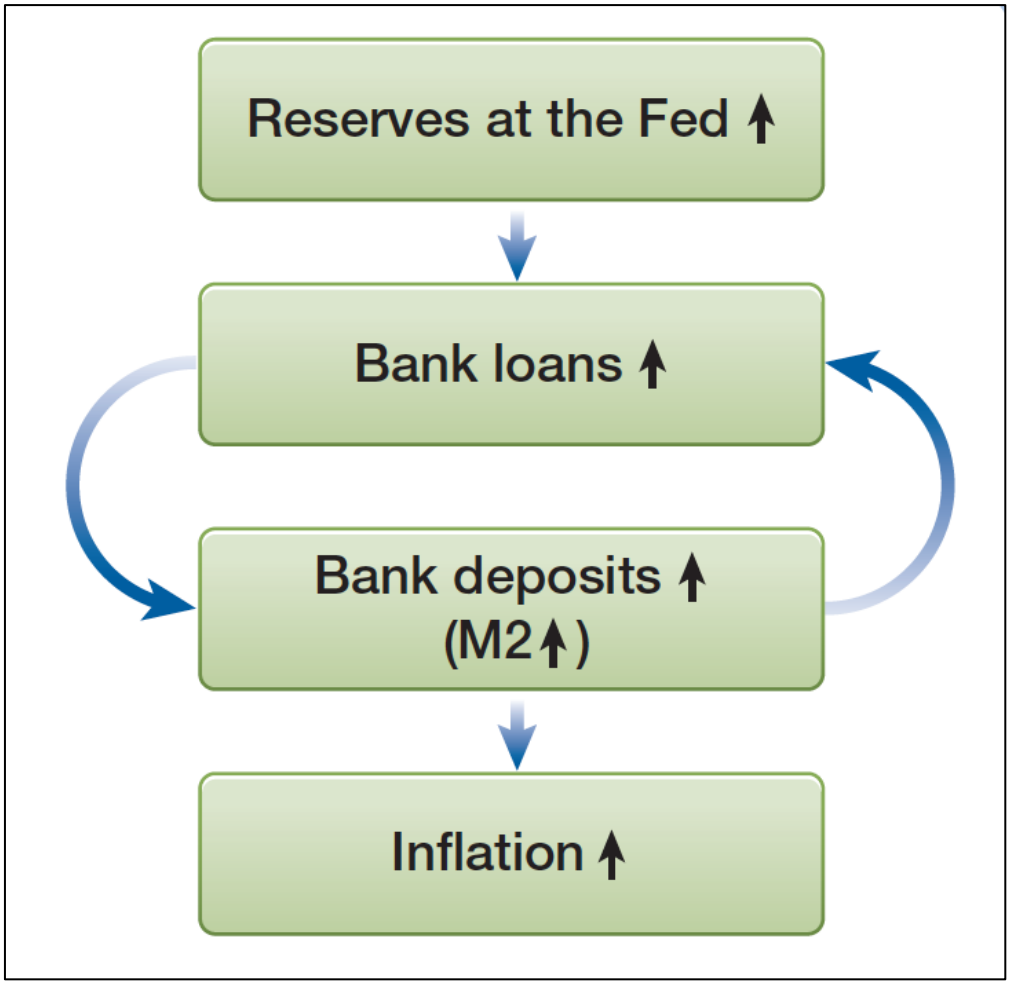
Expectations, inflation and monetary policy

The effectiveness of monetary policy depends on expectations about interest rates and inflation.

Long-term expected real interest rate = Long-term nominal interest rate – Long-term expected inflation rate

For the Fed to lower the long-term expected real interest rate, it has to either lower the long-term nominal interest rate or raise long-term expectations of the inflation rate (or both).

The path from reserves to inflation



Contractionary monetary policy

What about **contractionary monetary policy**?

It is the opposite of expansionary policy:

Contractionary monetary policy slows down growth in bank reserves, raises interest rates, reduces borrowing, slows growth in the money supply, and reduces the rate of inflation.

“Zero lower bound”

What happens if the central bank pushes the policy rate to the “zero lower bound”?

Let’s use the example of Japan from 1990 to 2010.

Zero lower bound and deflation

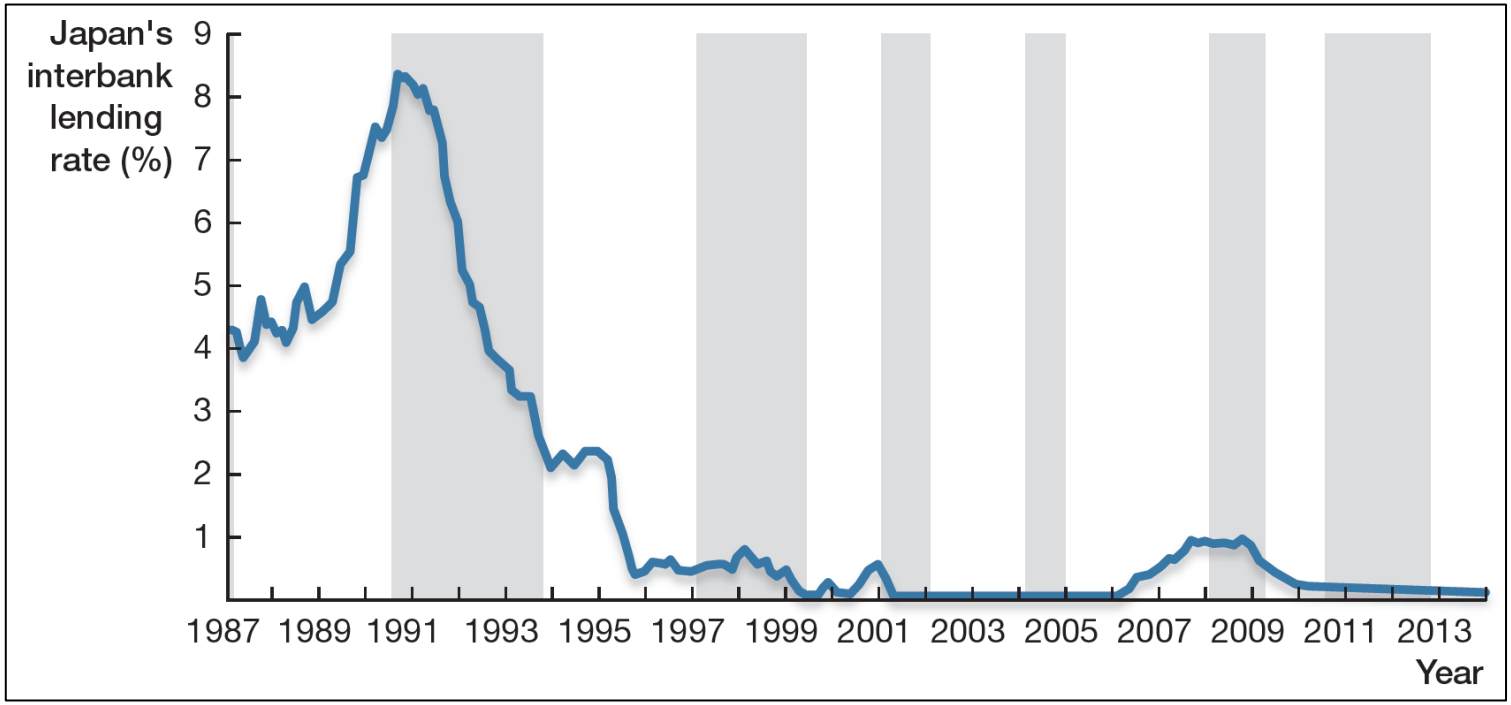
The combination of the "zero lower bound" and deflation is a problem for monetary policy.

Why? Households and firms make investment decisions based on:

Expected real interest rate =
Nominal interest rate – Expected inflation rate =

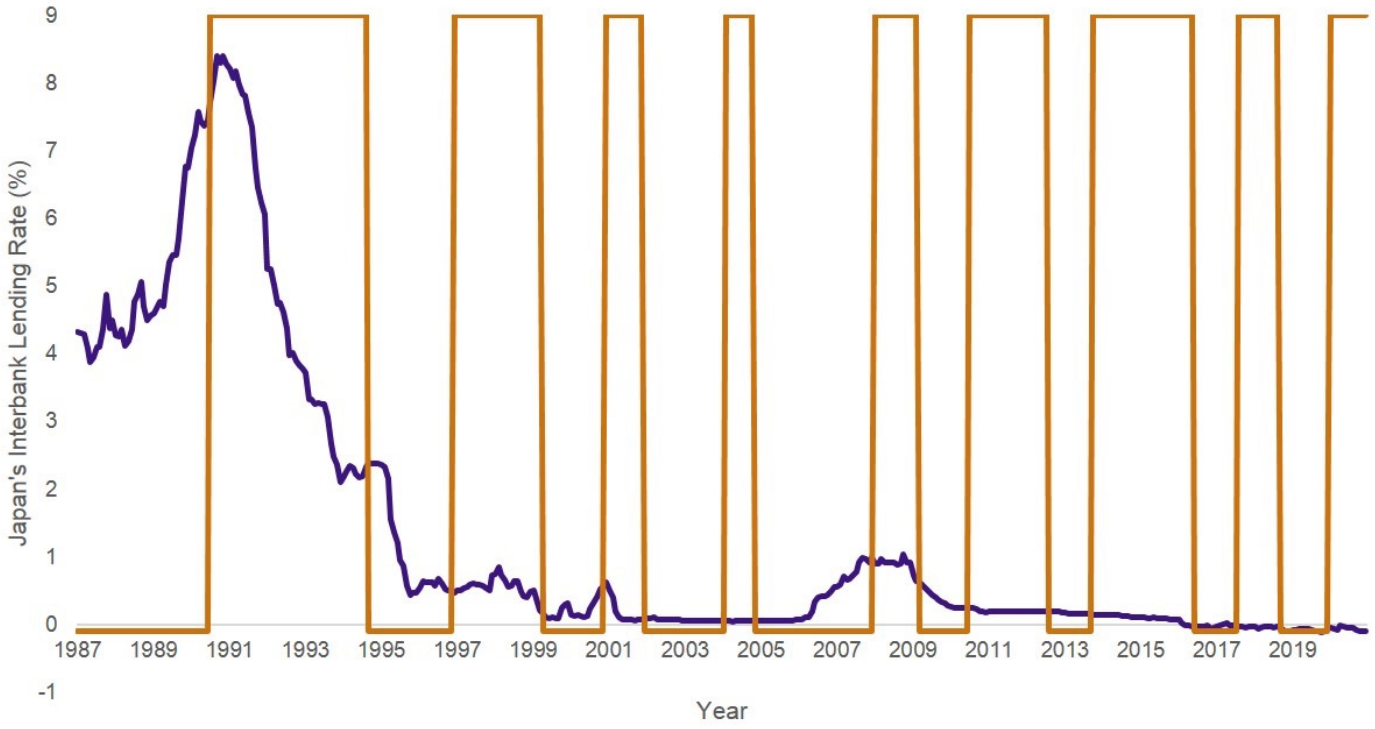
0% – (– 1%) = 1%

Japan's Interbank Lending Rate, 1987-2013



Countercyclical Monetary Policy

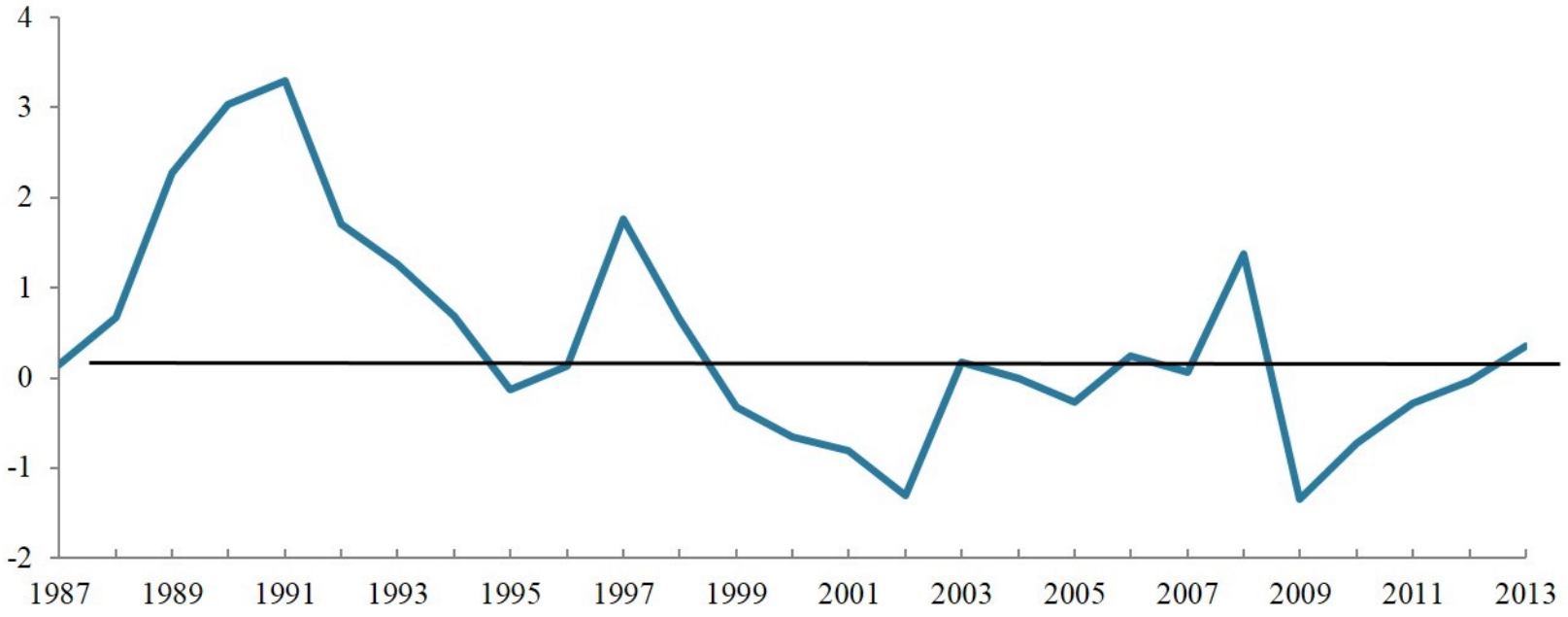
Exhibit 13.9: Japan's Interbank Lending Rate(1987–2020)



Japan

inflation rate (%)

Japan's Consumer Price Index Inflation Rate from 1987 to 2013



US Great Recession

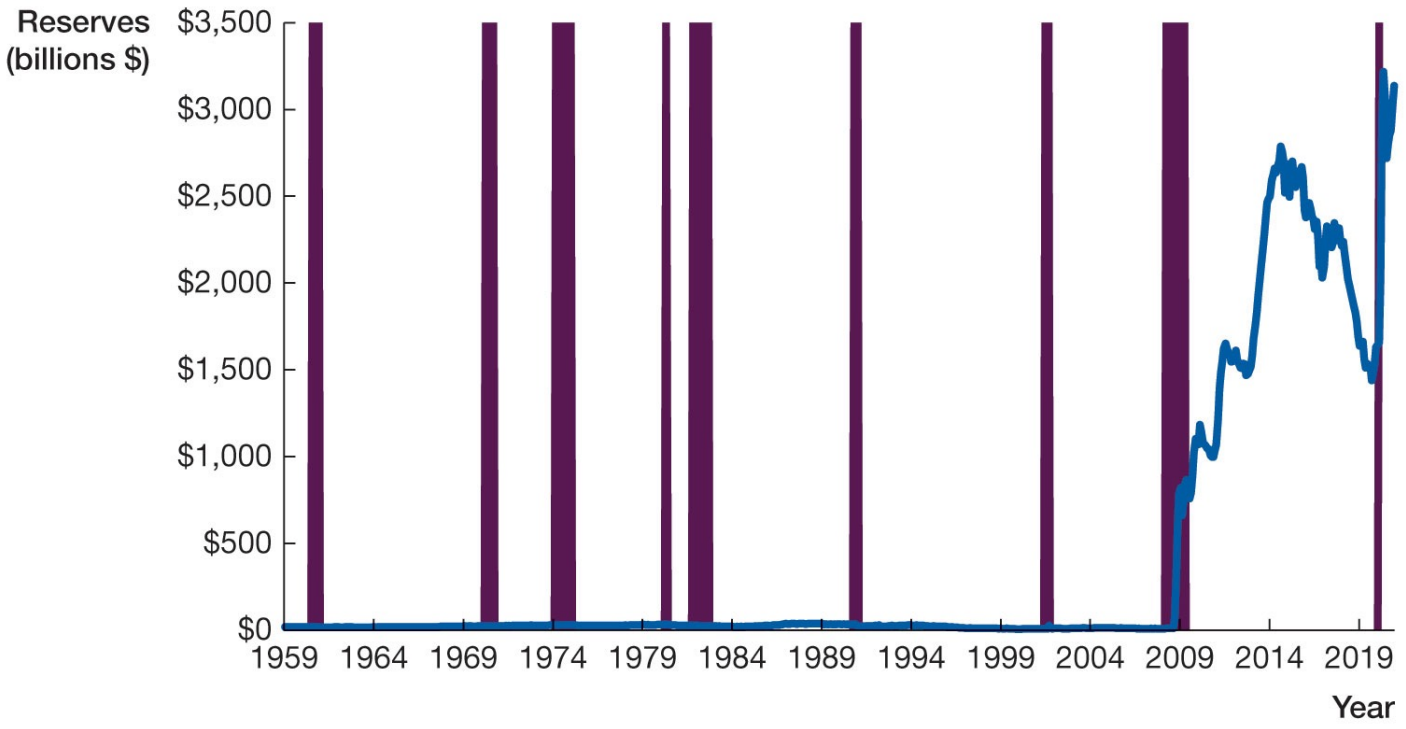
Most of the time, total reserves held at the Fed fluctuate between $40 billion and $80 billion.

During and after the 2007–2009 recession, the Fed drastically expanded the quantity of reserves banks held to $2.5 trillion to drive down interest rates.

This dramatic increase was mostly due to an expansion in excess reserves—reserves above and beyond the regulatory minimum.

Countercyclical Monetary Policy

Total Reserves on Deposit at the Federal Reserve Bank (Monthly Data from January 1959 through December 2020)



Example of countercyclical monetary policy

In December 2020, inflation was 1.5%, and GDP was about 3% below its trend GDP.

Assuming a 2.5% long-run federal funds rate target, the *Taylor rule* recommends that the federal funds rate should be at:

Federal funds rate = 2.5% + 1.5(1.5% – 2.0%) + 0.5(– 3%) = 0.25%

Example: Suppose long-term federal funds rate (FFR) = 2.5%, inflation rate target = 2%, trend GDP = $10 billion.

The tables on the next slide show the calculations of the FFR based on the *Taylor rule*.

Table 1: Inflation rate changes with a GDP = trend GDP (zero output gap).

Table 2: Output gap changes with inflation at its target level of 2%

Table 1: Federal Funds Rate with No Output Gap and Varying Inflation Rates

Long-term FFR target	Inflation	Inflation target	GDP $billions	GDP trend $billions	Output gap	FFR
2.5%	0.5%	2%	10	10	0%	**0.25%**
2.5%	1%	2%	10	10	0%	**1.0%**
2.5%	2%	2%	10	10	0%	**2.5%**
2.5%	3%	2%	10	10	0%	**4.0%**
2.5%	4%	2%	10	10	0%	**5.5%**

Table 2: Federal Funds Rate with Inflation Rate at Its Target and Varying GDP

Long-term FFR target	Inflation	Inflation target	GDP $billions	GDP trend $billions	Output gap	FFR
2.5%	2%	2%	9.6	10	-4%	**0.5%**
2.5%	2%	2%	9.8	10	-2%	**1.5%**
2.5%	2%	2%	10	10	0%	**2.5%**
2.5%	2%	2%	10.3	10	3%	**4.0%**
2.5%	2%	2%	10.5	10	5%	**5.0%**