



# Financial Institutions and the Economy I

## Part II

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# Key Questions We Will Focus On

- What is monetary policy?
  - Actions taken by the central bank to influence interest rates in the economy
  - Goals of monetary policy: the dual mandate
- What is inflation and why is it costly?
  - A sustained increase in the general level of prices
  - Unanticipated costs, makes long-term planning difficult
- When is there a role for monetary policy?
  - “Real” economic output can only grow as fast as employment and productivity allow
  - Monetary policy can only boost growth in the short run; in the long run, monetary policy affects only inflation, not unemployment
- Tools of monetary policy
- Policy normalization & discuss outlook for 2016-2017

# The Definition of Monetary Policy

- Actions taken by the central bank to influence interest rates in the economy
- The Federal Open Market Committee (FOMC) conducts monetary policy by setting the target range for its policy rate -- the federal funds rate, the interest rate that banks charge each other for lending or borrowing reserve balances overnight.
- The federal funds rate is a key short-term interest rate that influences other interest rates in the economy

# The Goals of Monetary Policy – The “Dual Mandate”

In 1977, Congress amended the Federal Reserve Act to include the Dual Mandate:

"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."

The amendment left it up to the Fed to define these terms and how policy would achieve these goals

# The Goals of Monetary Policy – The “Dual Mandate”

## FOMC consensus statement: (January 2012)

### Price stability

- Inflation is determined primarily by monetary policy (an accepted idea since 1970s)
- Inflation goal: 2 percent average

### Maximum employment

- In the long run, employment growth potential is determined by factors outside monetary policy
- Thus, there is no specific employment goal

# The Goals of Monetary Policy – The “Dual Mandate”

## Statement on Longer-Run Goals and Monetary Policy Strategy (January 2024)

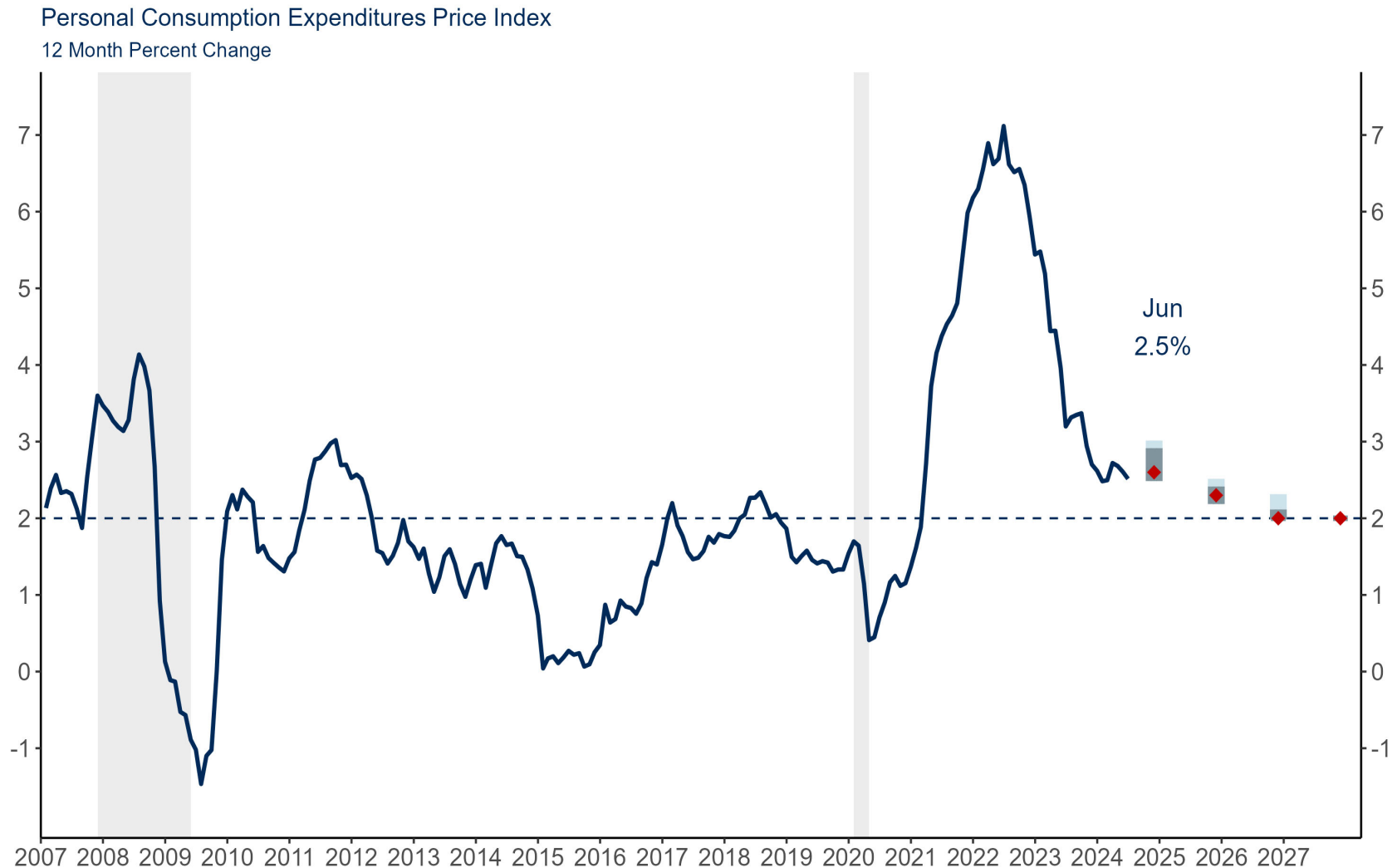
### Price stability

- In order to anchor longer-term inflation expectations at this level (2%), the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.

# What is inflation and why is it costly?

- Inflation is a **sustained** increase in the **general** level of prices
- How is it measured?
  - Several different measures: CPI, GDP deflator, PCE Price Index
  - Basket of goods and services that represents what the average American household consumes on a regular basis:
    - Food and Beverages, Housing, Apparel, Transportation, Medical Care, Recreation, Education and Communication, Other Goods and Services
  - Weighted by percentage of total household spending

# Personal Consumption Expenditure Price Index



Notes: FOMC projection is the median, range, and central tendency for Q4/Q4 percent changes, from the June 2019 meeting. Red dots indicate median projections.

Source: Bureau of Economic Analysis & Board of Governors via Haver Analytics <sup>8</sup>



## Why is it costly?

- **Cost 1:** A high inflation rate leads to a high nominal interest rate. Why?
  - Imagine you are the lender, what interest rate would you ask for if inflation was 2% (what about 6%)?
    - Lenders care about the “real” return on the loan—they take into consideration inflation
  - Makes for too little money use—wasted time and effort in making transactions

## Why is it costly?

- **Cost 2:** Surprise inflation imposes unanticipated costs and redistributes income and wealth
- Suppose inflation is 6%:
  - The monthly price increase for a basket of goods and services would be 0.5% while wages are fixed:

<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	...	<u>Dec.</u>
\$1,000	\$1,005	\$1,010	...	\$1,060
  - Inflation is a tax on consumption later in the year
- If inflation is a surprise and interest rate on savings don't adjust then real returns are less than anticipated
  - Inflation erodes wealth of savers, and gives gift to borrowers—redistributes income from savers to borrowers

## Effects of **variable** (unanticipated) inflation:

- If, in addition to being positive, inflation is variable, planning ahead becomes increasingly challenging
  - With more uncertain future prices, any long-term contract is more difficult to set-up (mortgages, business loans)
  - Fewer long-term projects are undertaken (roads and power plants, office buildings, research and development, defense contracts)
- To summarize: inflation leads to high nominal interest rates, acts as a tax on consumption, erodes savings and creates uncertainty. It is costly!
- For these reasons, price stability is a central focus of monetary policy

## Before we can discuss when there is a role for monetary policy, we need to recall a few things:

- The long-run growth (or potential) growth of an economy depends on:
  - Labor force growth (employment)
  - Productivity
- Real Output (Y) = # Employed x Worker Productivity
- Therefore, any change in the number of workers **and/or** productivity will change real output:

$$\% \Delta \text{ Output} = \% \Delta \text{ Employed} + \% \Delta \text{ Productivity}$$

$$\% \Delta \text{ Output} = 1.3\% + 1.8\%$$

- In this example, the real economy's long-run growth potential is 3.1%

# How does the real economy's potential growth relate to monetary policy?

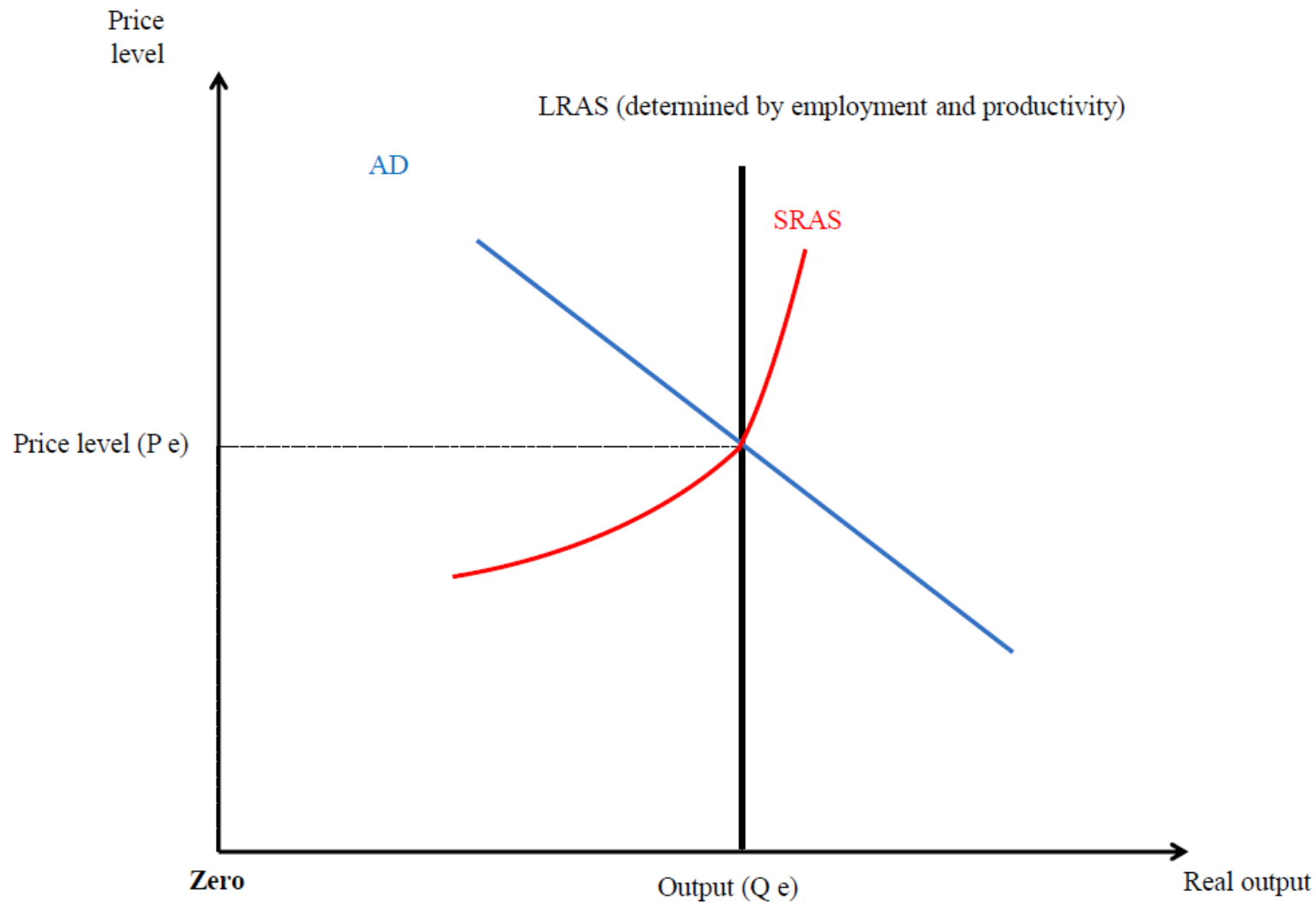
When the economy is operating at its potential, there is no imbalance between supply and demand:

- The amount of goods produced = amount of goods supplied
- The amount of labor produced = amount of labor supplied

## Importantly

- Inflation is stable
- Unemployment is at its "natural rate"
  - There will always be some unemployment due to labor market frictions and structural changes in the economy but in this case there is no cyclical unemployment

# An Economy at Potential



# How does the real economy's potential growth relate to monetary policy?

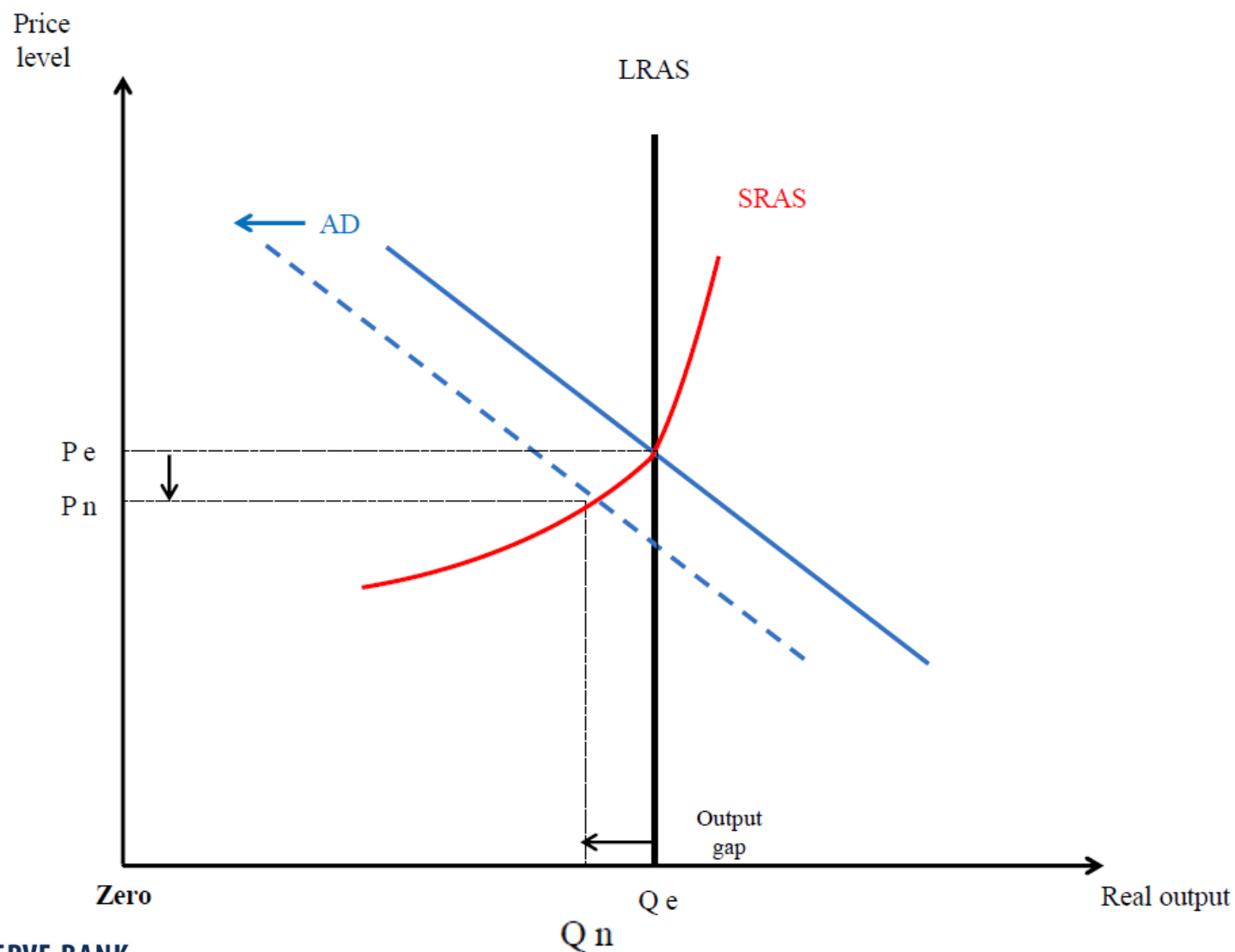
When the economy is operating below its long-run potential:

- Businesses/factories aren't producing as much (shorter workweeks/less shifts)
- Businesses use less labor (shorter workweeks/employ less workers)—the unemployment rate is higher (above the natural rate)
- Downward pressure on prices and wages

When the economy is operating above its long-run potential:

- Businesses/factories are producing more (longer workweeks/more shifts)
- Businesses use more labor (longer workweeks/employ more workers)—the unemployment rate is lower (below the natural rate)
- Upward pressure on prices and wages

# A Negative Output Gap (Recession)





# How does the real economy's potential growth relate to monetary policy?

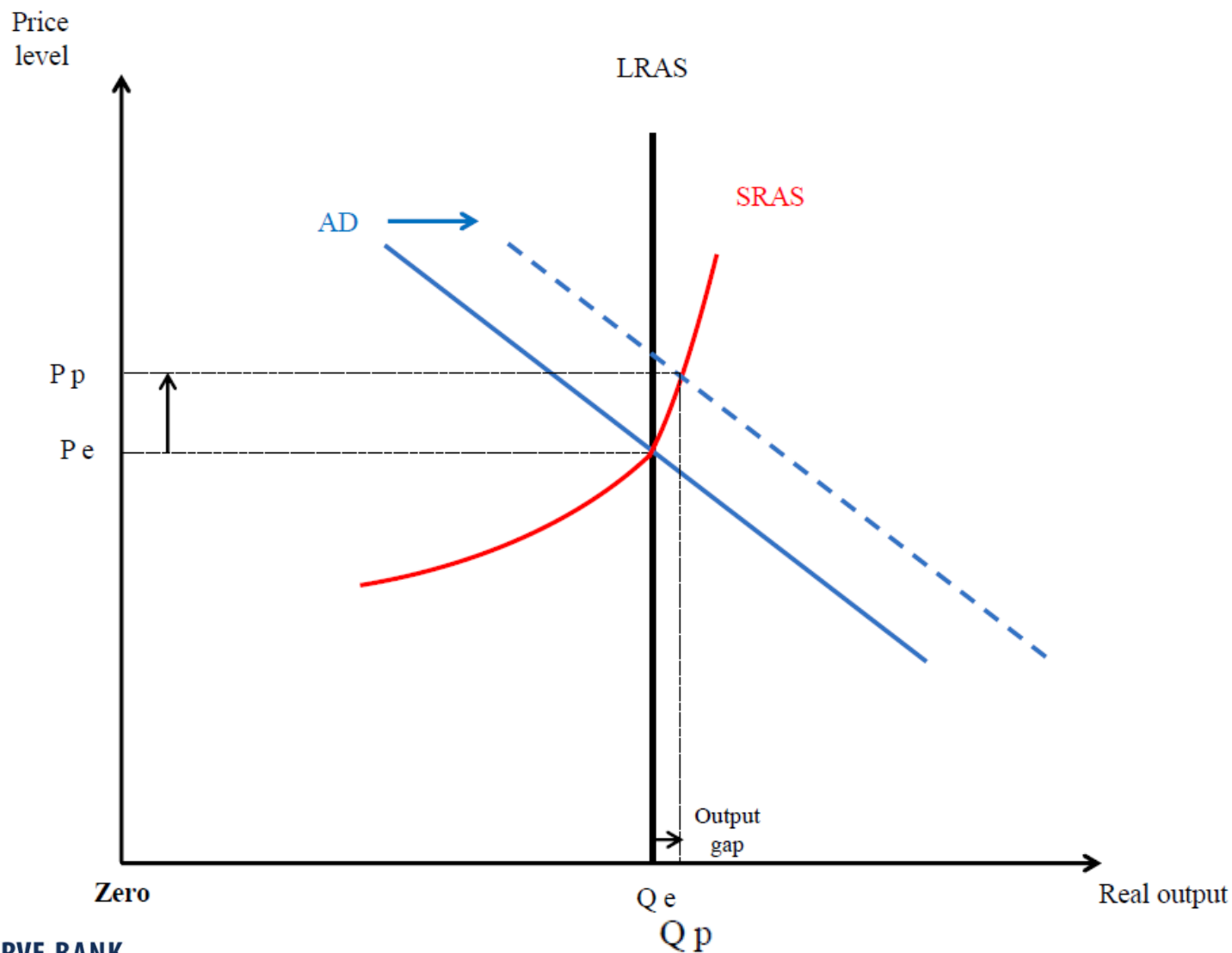
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When the economy is operating above its long-run potential:

- Businesses/factories are producing more (longer workweeks/more shifts)
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- Upward pressure on prices and wages

# A Positive Output Gap



# How does the real economy's potential growth relate to monetary policy?

When the economy is operating below its long-run potential:

- Businesses/factories aren't producing as much (shorter workweeks/less shifts)
- Businesses use less labor (shorter workweeks/employ less workers)—the unemployment rate is higher (above the natural rate)
- Downward pressure on prices and wages

When the economy is operating above its long-run potential:

- Businesses/factories are producing more (longer workweeks/more shifts)
- Businesses use more labor (longer workweeks/employ more workers)—the unemployment rate is lower (below the natural rate)
- Upward pressure on prices and wages

Given the dual mandate there is a role for monetary policy

## So how does the Fed implement monetary policy?

- The Fed implements the FOMC's policies by using its monetary policy tools to steer the federal funds rate into the FOMC's target range. The Fed's toolbox is composed of many tools, including three key tools with associated interest rates that are referred to as the Fed's administered rates:
  - **Interest on reserve balances (IORB) rate:** interest rate that banks earn from the Fed on the funds they deposit in their reserve balance accounts. ***IORB is the Fed's primary tool for guiding the federal funds rate.***
  - **Overnight reverse repurchase agreement (ON RRP) rate:** interest rate that a broad set of financial institutions can earn on deposits with the Fed. The ON RRP facility is a supplemental tool of monetary policy to help set a floor on short-term interest rates.
  - **Discount rate:** interest rate charged by the Federal Reserve to banks for loans obtained through the Fed's discount window.

## So how does the Fed change the money supply?

- In addition, the Fed uses a fourth tool, **open market operations**, to ensure that the level of reserves in the banking system remains large enough that that small adjustments to the level of reserves do not affect the federal funds rate.
  - Traditionally, the FOMC's primary tool was open market operations
  - Open market operations refer to the Fed's buying and selling of government securities in the market
  - When the Fed buys or sells bonds in the market, it changes the supply available to other purchasers, influencing the price of the bonds and yields (interest rates)

# Opportunity cost to holding money

- Think of money as the part of your wealth that is readily available to purchase goods and services
- Consumers do not keep all of their wealth readily available in the form of money for purchases. Why?
- There is an **opportunity cost** to holding money – the **nominal interest** it could earn elsewhere (CDs, mutual fund, etc.)
- Changes in interest rates changes this opportunity cost and how much money people will want to hold
  - Lower interest rates reduce the opportunity cost, so consumers hold more money (so consumers borrow more for purchases)
  - Higher interest rates increase the opportunity cost, so consumers hold less money (placing money in interest-bearing accounts/investments)

# Opportunity cost to holding money

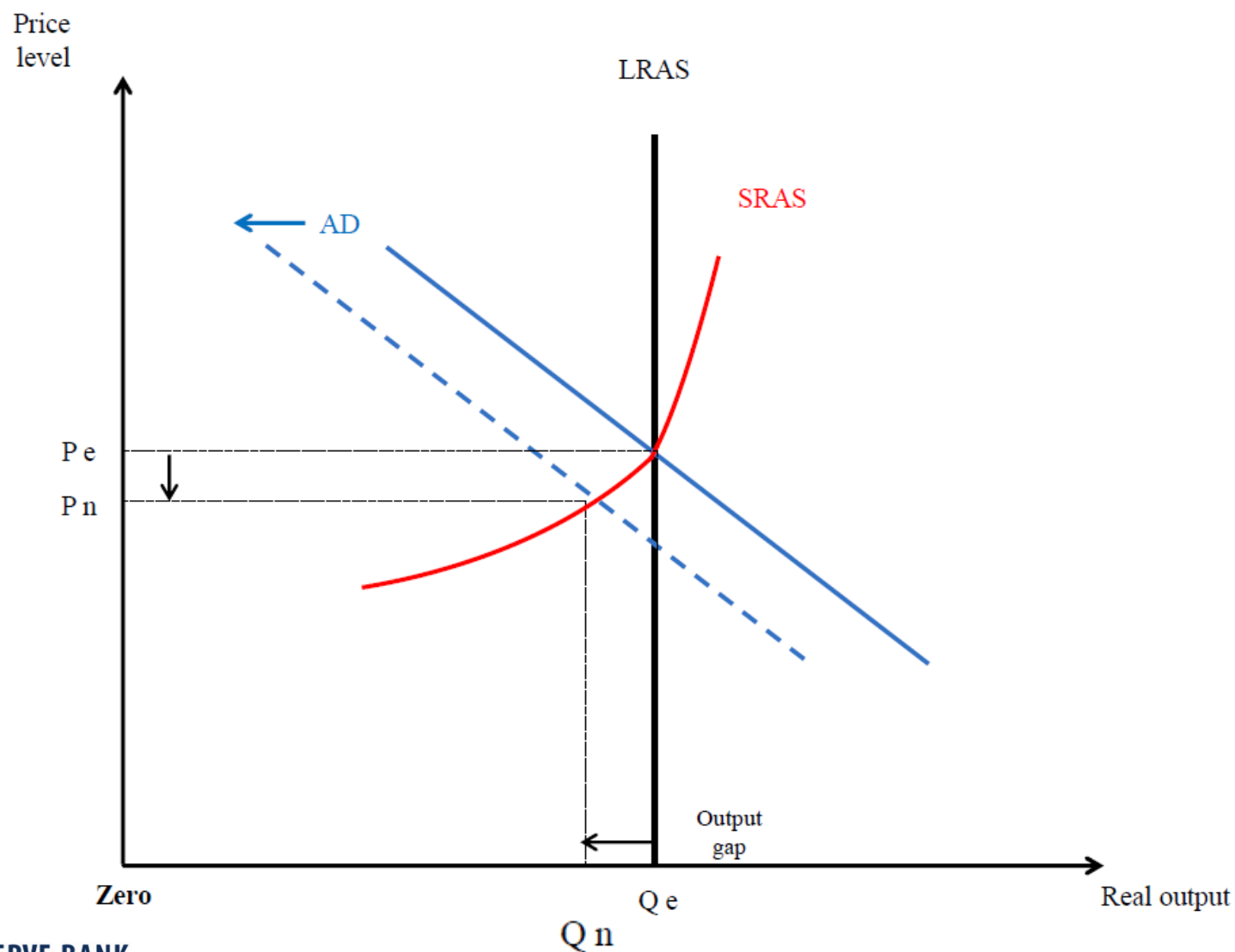
- Changes in interest rates changes this opportunity cost and how much money people will want to hold
  - Lower interest rates make (physical) investment opportunities more attractive, so business borrow more for investment purposes
  - Higher interest rates make (physical) investment opportunities more attractive, so business borrow less for investment purposes

## Monetary policy in action...

- ***When economic output is below potential*** due to weakness in the economy (weak consumer spending, business investment, government spending, net exports):
  - **Expansionary monetary policy**—lower interest rates and decrease the cost of holding money; stimulating consumer borrowing/spending and business investment
- ***When economic output is above potential*** due to strong demand:
  - **Contractionary monetary policy**—increase interest rates to increase the opportunity cost of holding money; dampening consumer borrowing/spending and business investment



# A Negative Output Gap (Recession)

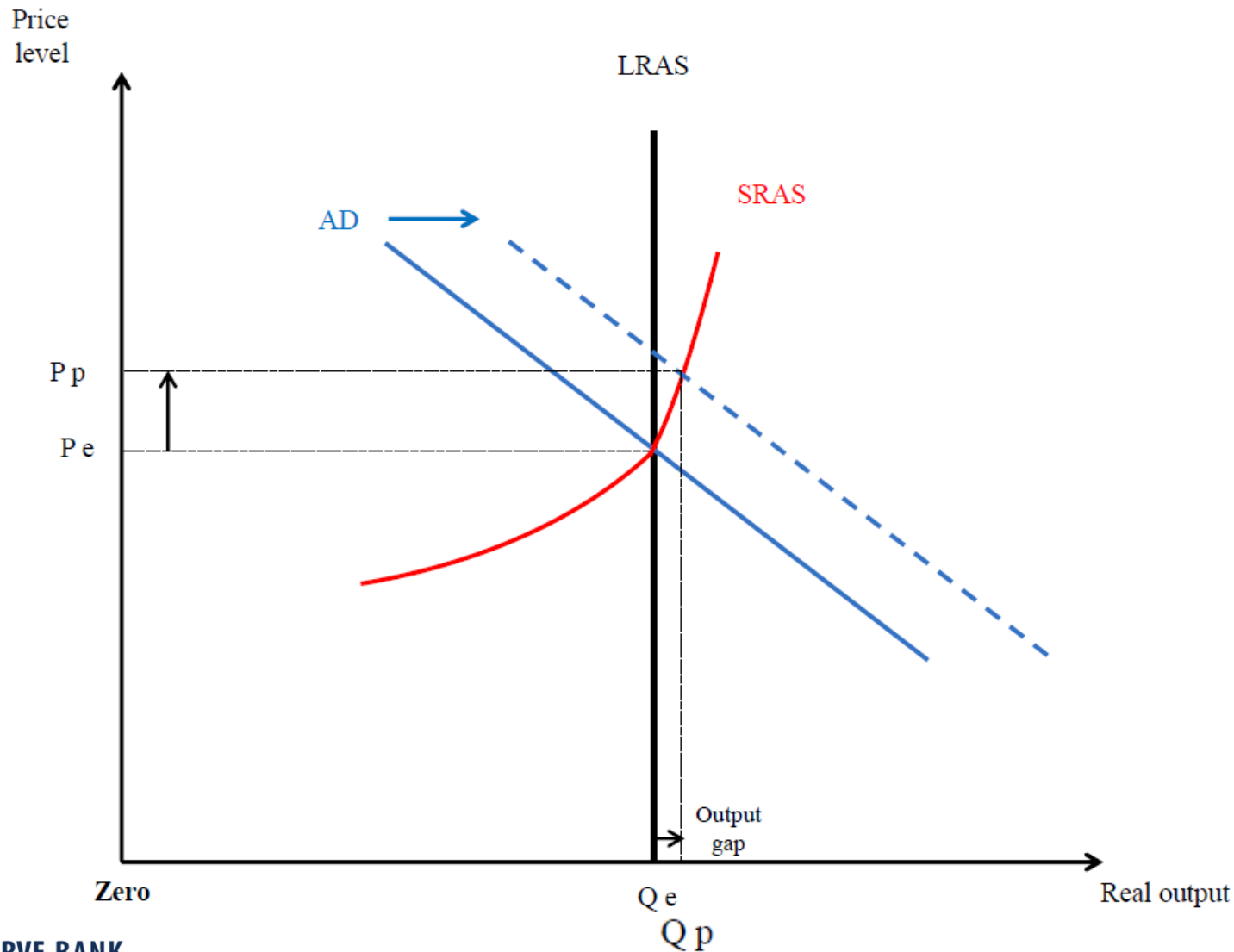


## Monetary policy in action...

Important question:

- What happens if there is no output gap (output is at its potential) and there is expansionary monetary policy?
- If no output gap exists, monetary policy only directly affects inflation in the long run, not unemployment.

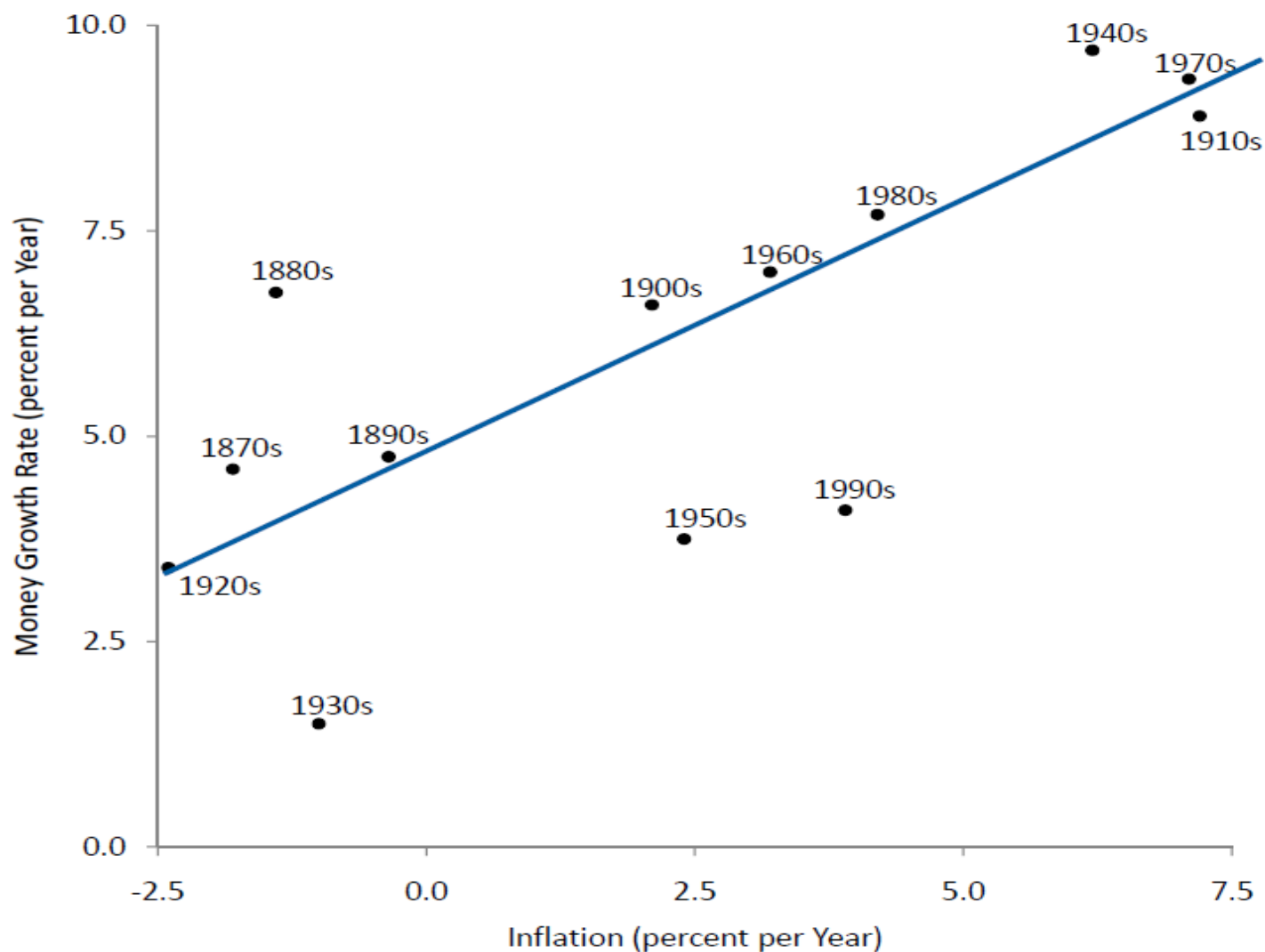
# Expansionary monetary policy pushing economy above potential



## Why would there be pressure to inflate?

- “Easy” monetary policy can spur economic growth above its sustainable level in the short run—this may be politically tempting
- But it can only lead to inflation in the long run—along with the associated costs discussed earlier
- Monetary policy decisions must set aside short-term gains and focus on larger longer-run objectives
- **Central Bank independence** is perceived as crucial for isolating monetary policy decision-making from short-term political influences

# Money and Inflation Growth by Decade



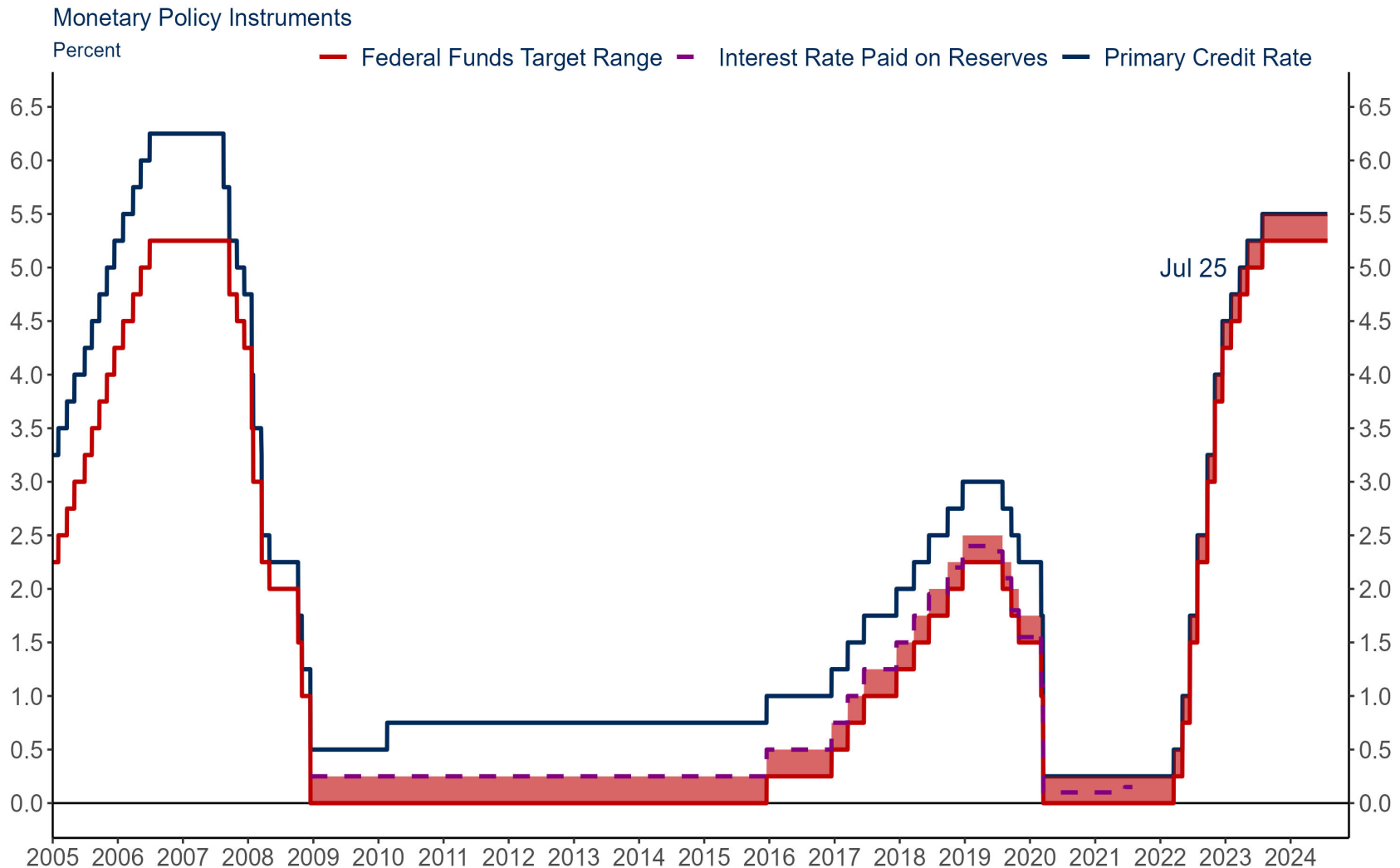
## What are some of the key policy challenges?

- Fed's monetary policy is not the only factor influencing economic activity
  - Fiscal policy, wars, natural disasters, monetary policy elsewhere, etc.
- Lack of timely information
- Data revisions
- Uncertain effects of policy

## What about unconventional monetary policy?

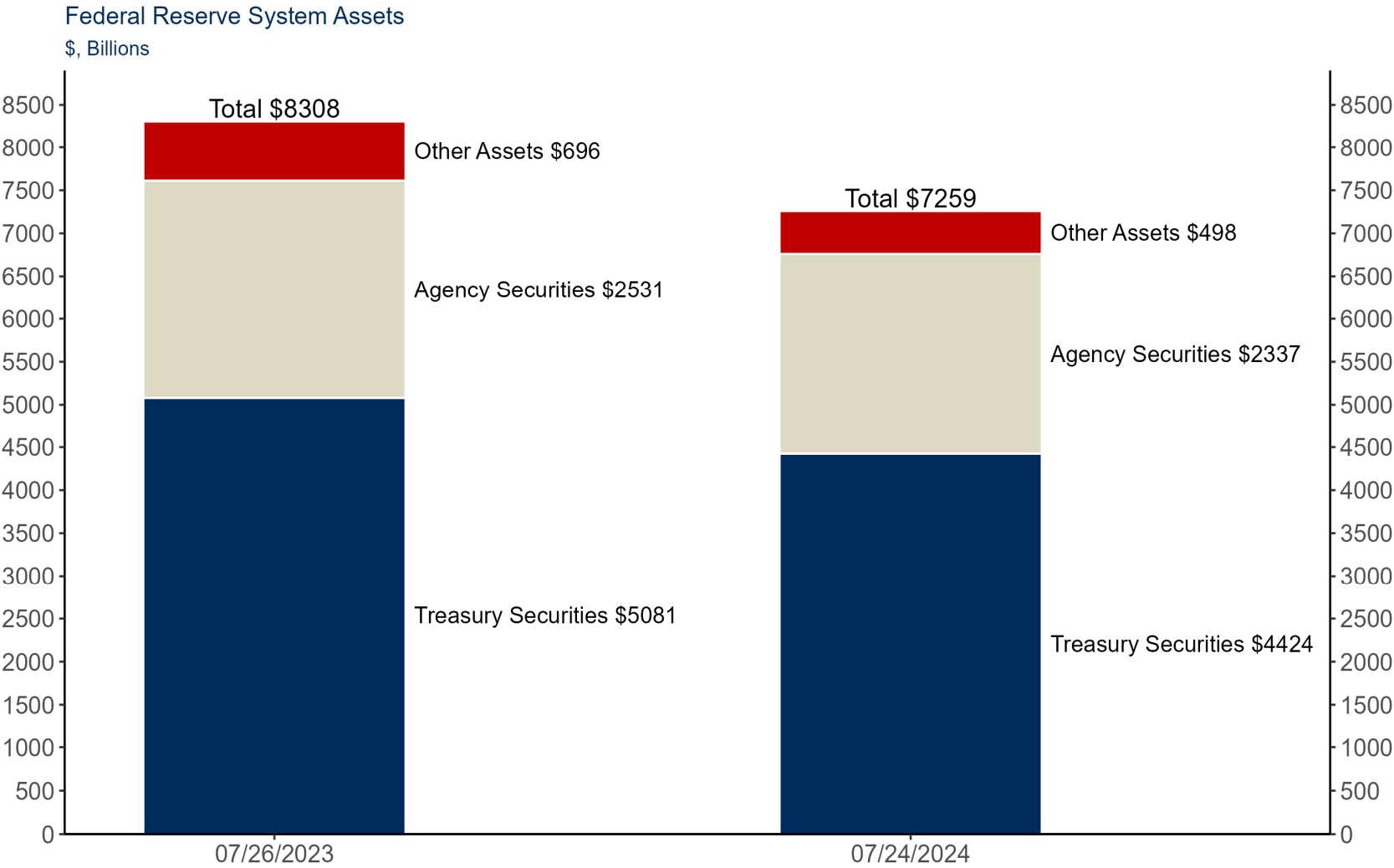
- Short term rates close to zero
- Balance sheet as policy: mainly large purchases of long-term Treasuries, MBS ("LSAPS" or "QE")
  - Size of Fed's balance sheet increased sharply: purchases of assets create reserves
  - Holding reserves not costly for banks: banks happy to hold huge quantity of reserves
- Communication as policy: "Forward guidance" about future behavior of interest rates

# Monetary Policy Instruments





# Federal Reserve System Assets



Note: Numbers may not add up due to rounding.

Source: Board of Governors via Haver Analytics 33

## Large-scale asset purchases

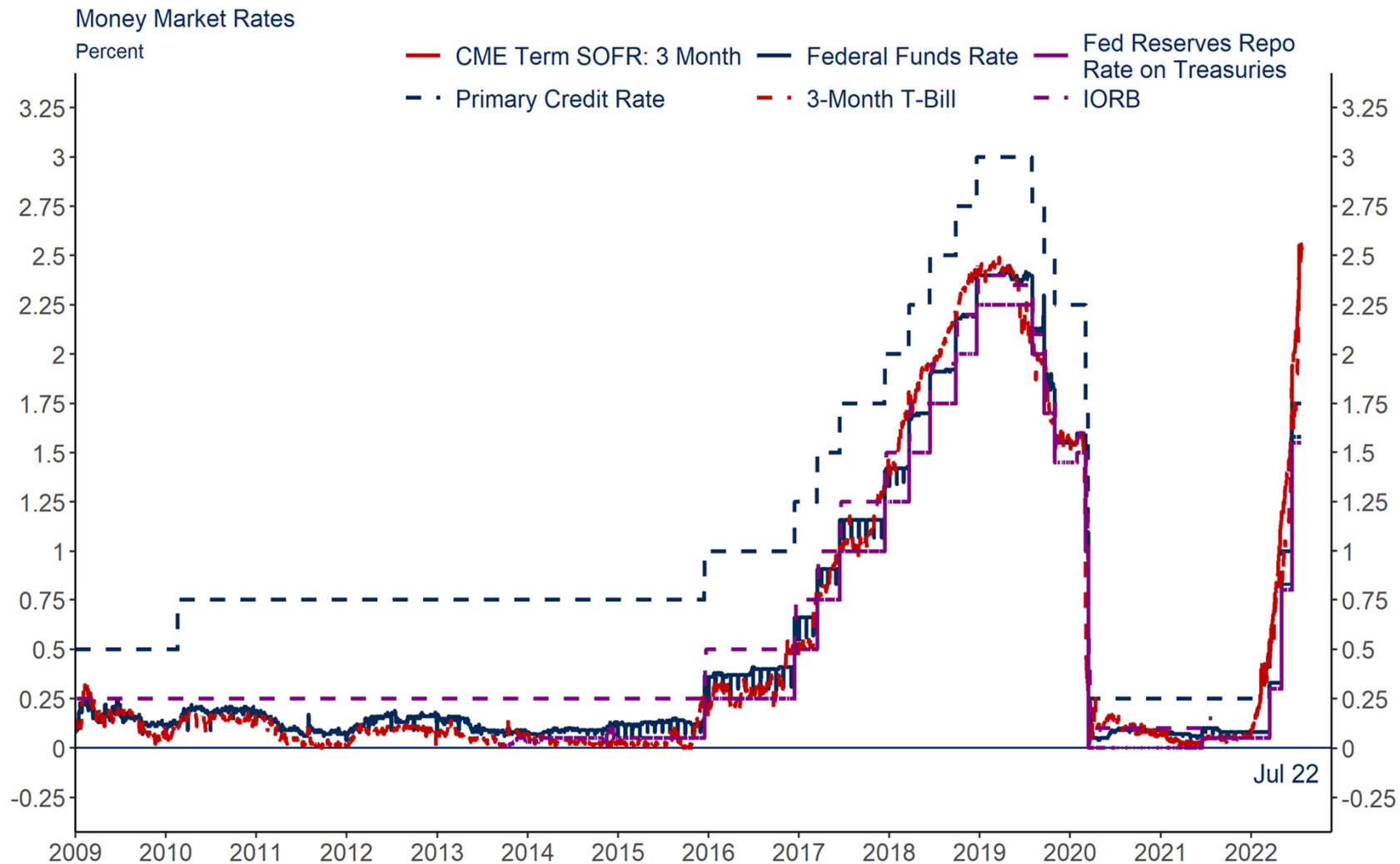
- Fed purchases bonds with longer maturities (treasury securities, mortgage-backed securities)
- The supply of bonds with longer maturities decreases—bond prices rise and longer-term yields decline
- Banks receive money for selling their bonds in the form of bank reserves
- Opportunity cost of holding money decreases
- Consumers and businesses increase borrowing
- Supply of money in the economy increases

# Forward guidance about rates

## Evolution of FOMC statement:

- December 2008: “...Committee anticipates that weak economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time...”
- March 2009: “... *for an extended period.*”
- August 2011: “... *at least through mid-2013.*”
- January 2012: “... *at least through late 2014.*”
- September 2012: “... *at least through mid-2015.*”
- December 2012: “...*at least as long as [unemployment rate > 6.5% etc.]...*”  
(move from date-based to state-based guidance)
- March 2014: “...Committee continues to anticipate... appropriate to maintain the current target range ...*for a considerable time after the asset purchase program ends...*”

# Money Market Rates



## Key takeaways:

- Monetary policy is the actions taken by the central bank to influence interest rates in the economy
- Inflation is costly, especially when unanticipated
- “Real” economic output can only grow as fast as employment and productivity
- Monetary policy can help return the economy to trend (minimizing periods of high unemployment or high inflation)
- However, in the long run, monetary policy affects only inflation, not unemployment

*Monetary policy is powerful but not a panacea*

So where is policy now?

# FOMC Statement

July 31, 2024

Recent indicators suggest that economic activity has continued to expand at a solid pace. Job gains have moderated, and the unemployment rate has moved up but remains low. Inflation has eased over the past year but remains somewhat elevated. In recent months, there has been some further progress toward the Committee's 2 percent inflation objective.

The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. The Committee judges that the risks to achieving its employment and inflation goals continue to move into better balance. The economic outlook is uncertain, and the Committee is attentive to the risks to both sides of its dual mandate.

In support of its goals, the Committee ***decided to maintain the target range for the federal funds rate at 5-1/4 to 5-1/2 percent.*** In considering any adjustments to the target range for the federal funds rate, the Committee will carefully assess incoming data, the evolving outlook, and the balance of risks. The Committee does not expect it will be appropriate to reduce the target range until it has gained greater confidence that inflation is moving sustainably toward 2 percent. In addition, the Committee will continue reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities. The Committee is strongly committed to returning inflation to its 2 percent objective.

## Continued...

In assessing the appropriate stance of monetary policy, the Committee will continue to monitor the implications of incoming information for the economic outlook. The Committee would be prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of the Committee's goals. The Committee's assessments will take into account a wide range of information, including readings on labor market conditions, inflation pressures and inflation expectations, and financial and international developments.

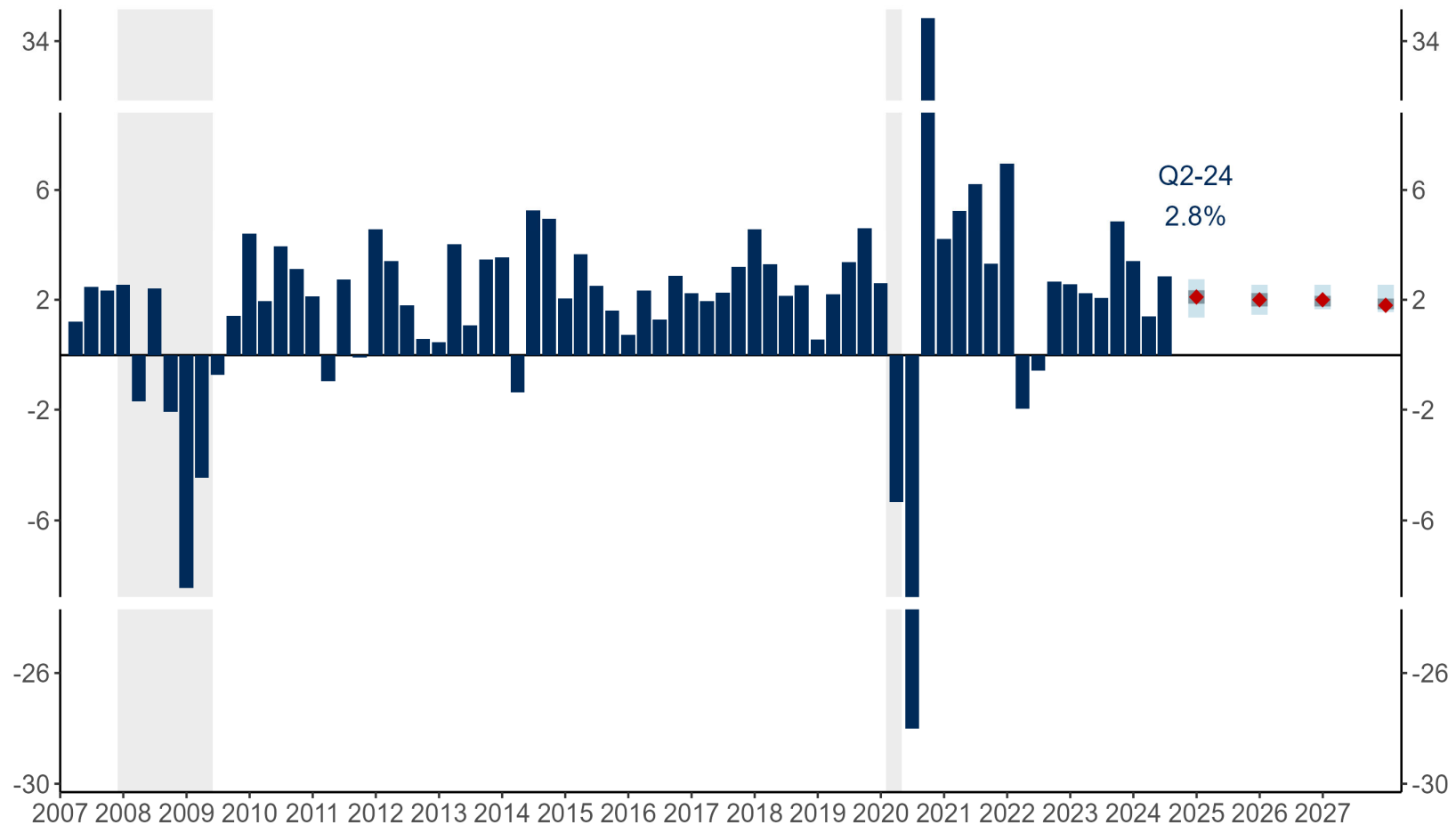
Voting for the monetary policy action were Jerome H. Powell, Chair; John C. Williams, Vice Chair; Thomas I. Barkin; Michael S. Barr; Raphael W. Bostic; Michelle W. Bowman; Lisa D. Cook; Mary C. Daly; Austan D. Goolsbee; Philip N. Jefferson; Adriana D. Kugler; and Christopher J. Waller. Austan D. Goolsbee voted as an alternate member at this meeting..



# Real Gross Domestic Product

## Real Gross Domestic Product

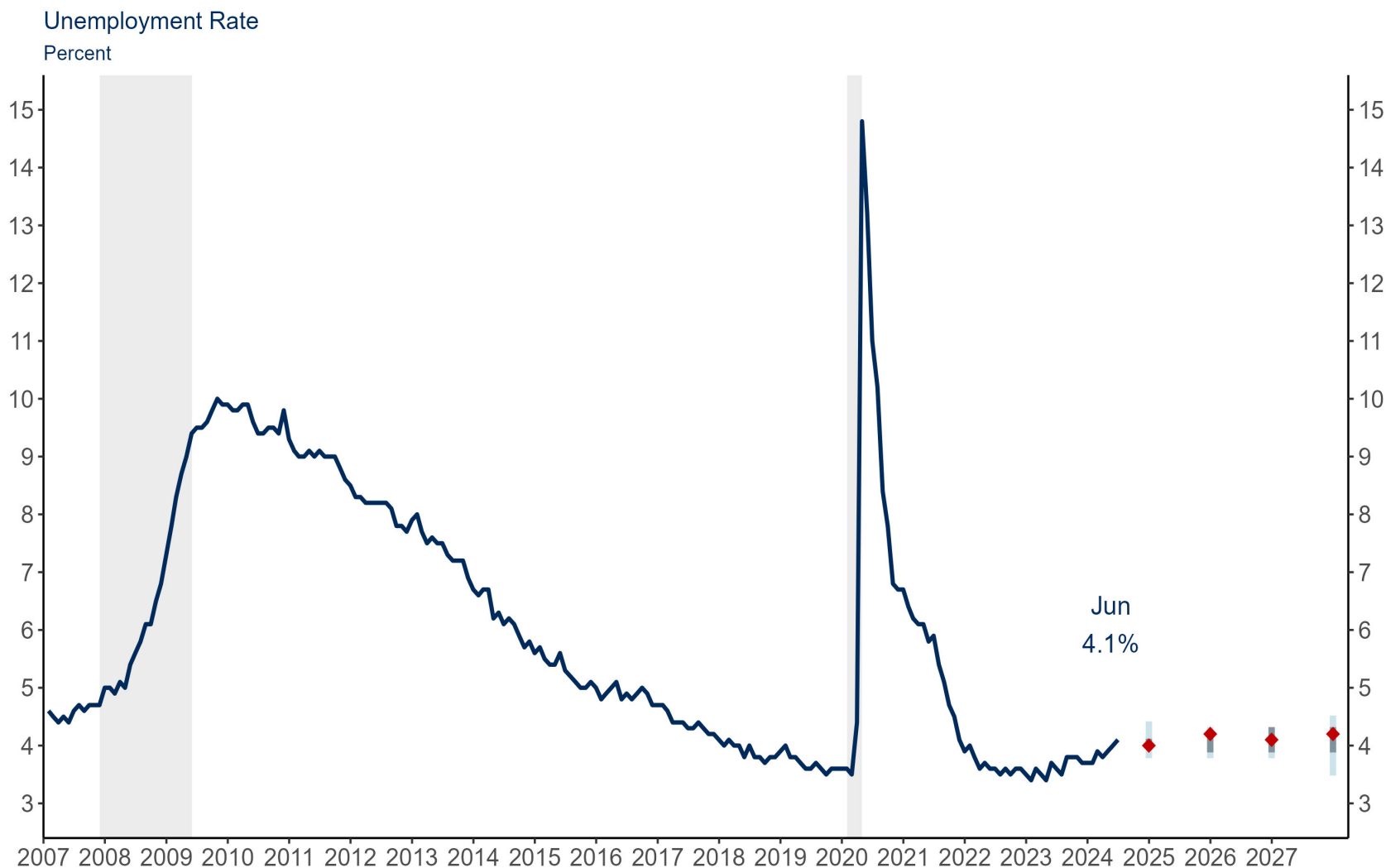
Percent change from previous quarter at annual rate



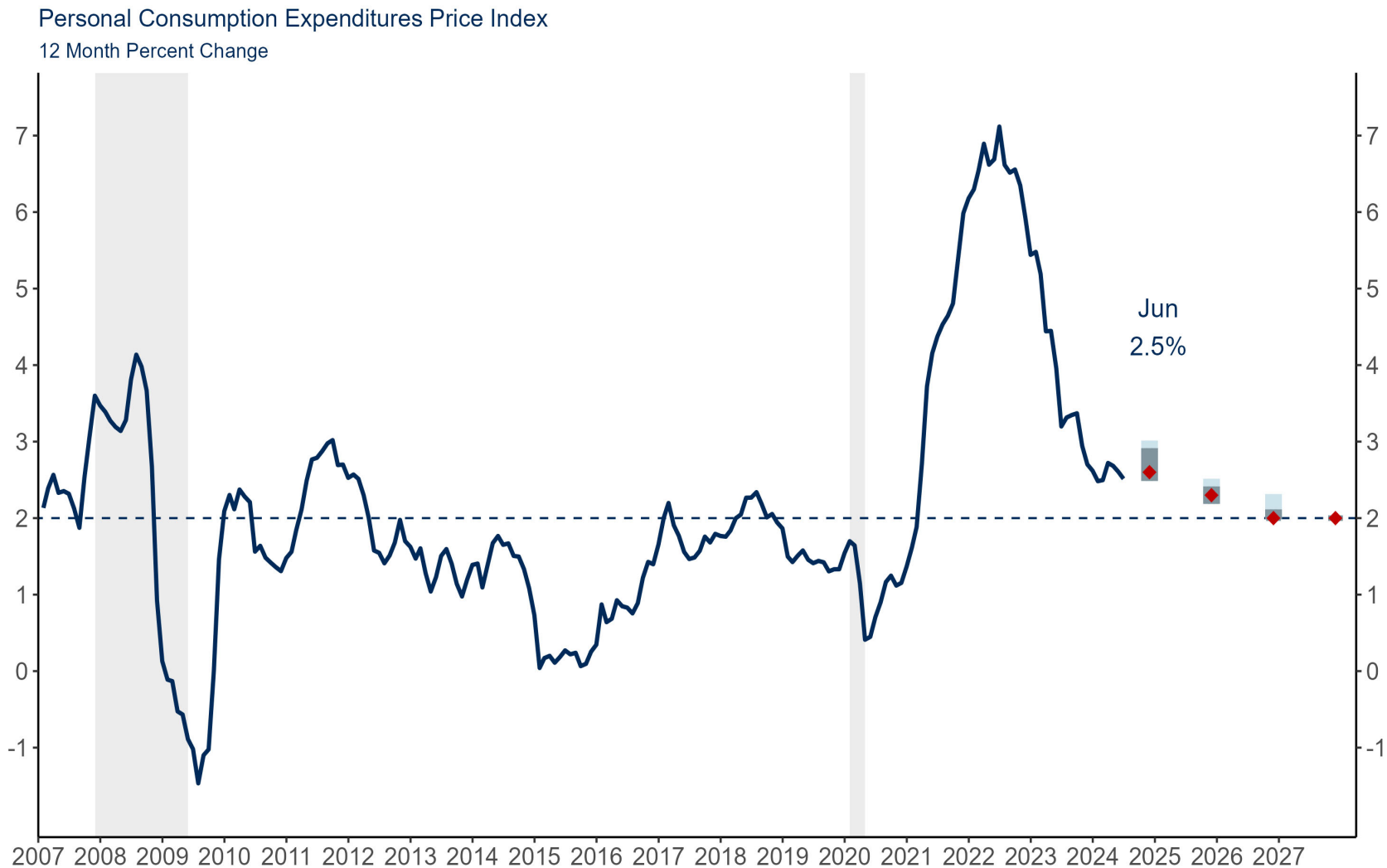
Note: Projection is the median, central tendency, and range from the June 2024 Summary of Economic Projections. Red dots indicate median projections. Projections of change in real gross domestic product (GDP) are from the fourth quarter of the previous year to the fourth quarter of the year indicated.

Source: Bureau of Economic Analysis via Haver Analytics & Federal Reserve Board

# Unemployment Rate



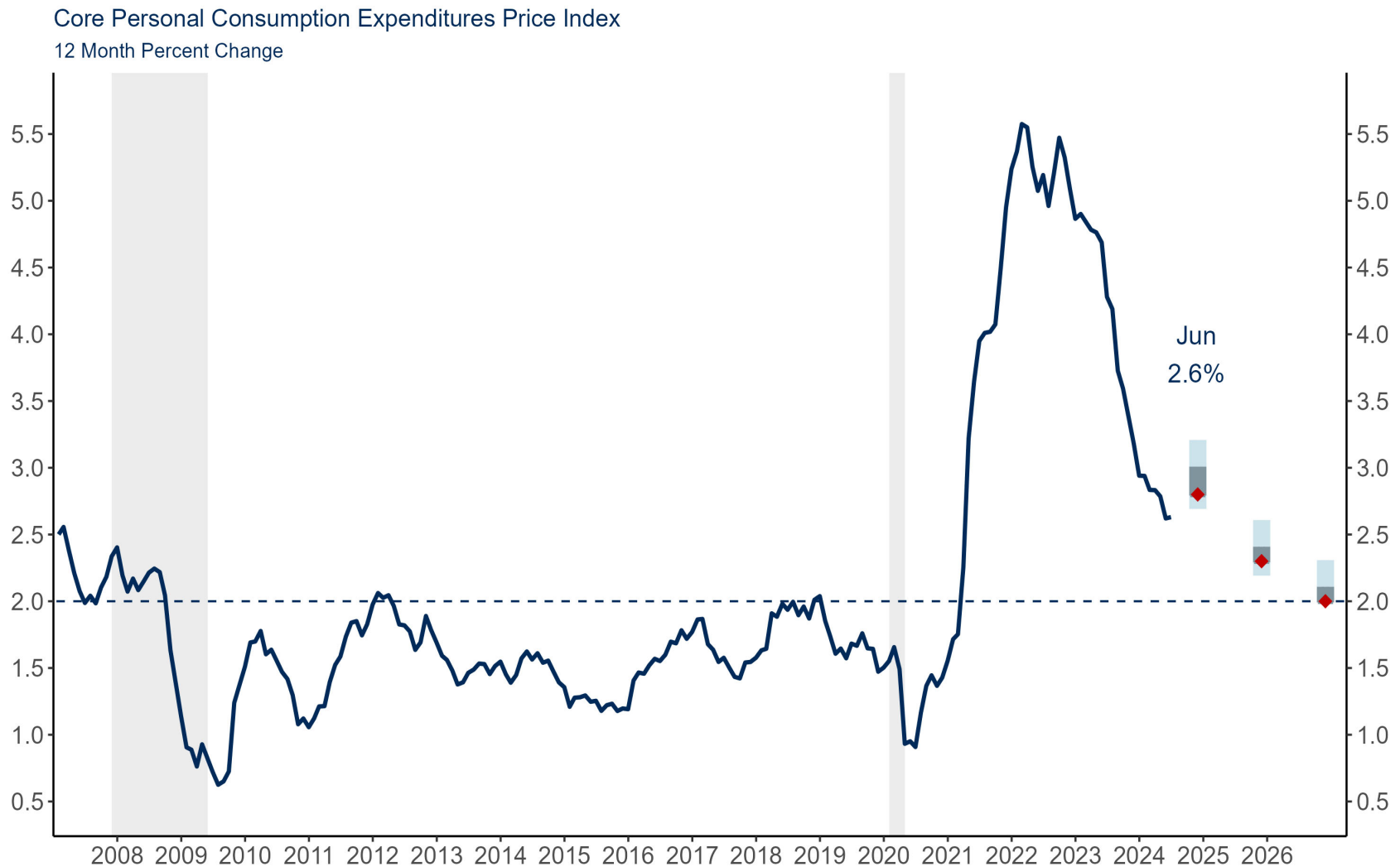
# Personal Consumption Expenditure Price Index



Notes: FOMC projection is the median, range, and central tendency for Q4/Q4 percent changes, from the June 2024 meeting. Red dots indicate median projections.

Source: Bureau of Economic Analysis & Board of Governors via Haver Analytics<sup>43</sup>

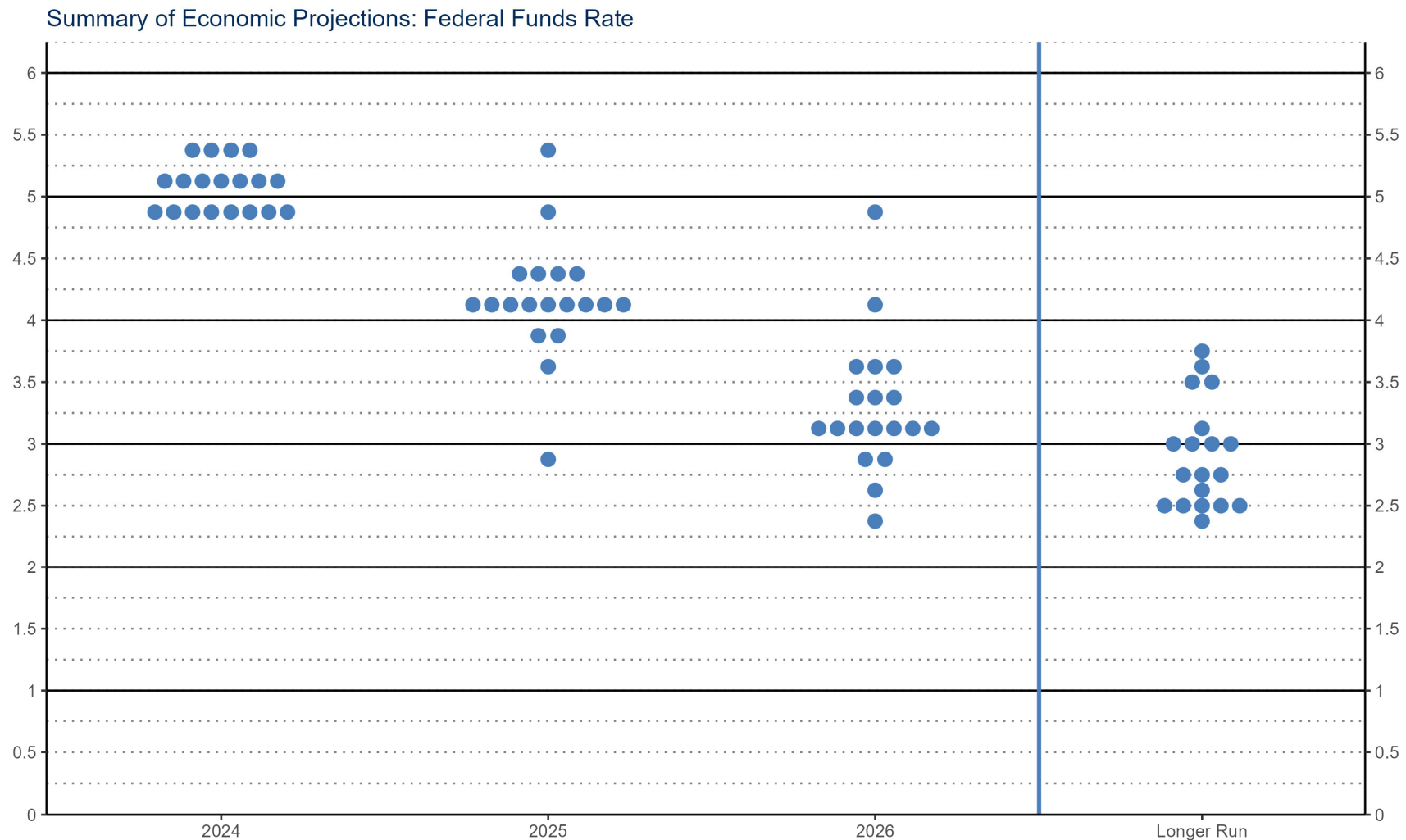
# Core Personal Consumption Expenditure Price Index



Notes: FOMC projection is the median, range, and central tendency for Q4/Q4 percent changes, from the June 2024 meeting. Red dots indicate median projections.

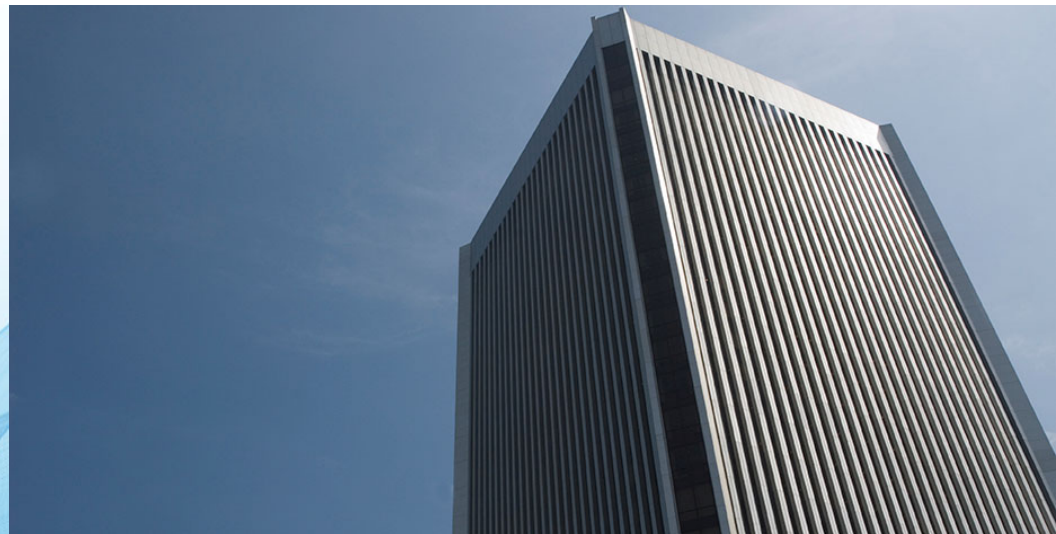
Source: Bureau of Economic Analysis & Board of Governors via Haver Analytics

# Summary of Economic Projections: Federal Funds Rate



Note: Each dot in the chart represents the value of an FOMC participant's judgment of the midpoint of the appropriate target range (or the appropriate target level) for the federal funds rate at the end of the calendar year. Projections made for the March 2021 meeting.

Source: Board of Governors



The views expressed here are those of the author, and do not necessarily represent those of the Federal Reserve Bank of Richmond or the Federal Reserve System.