

MONETARY POLICY REPORT

July 5, 2024



Board of Governors of the Federal Reserve System

LETTER OF TRANSMITTAL



BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM

Washington, D.C., July 5, 2024

THE PRESIDENT OF THE SENATE
THE SPEAKER OF THE HOUSE OF REPRESENTATIVES

The Board of Governors is pleased to submit its *Monetary Policy Report* pursuant to section 2B of the Federal Reserve Act.

Sincerely,

A handwritten signature in black ink that reads "Jerome H. Powell". The signature is written in a cursive, flowing style.

Jerome H. Powell, Chair

STATEMENT ON LONGER-RUN GOALS AND MONETARY POLICY STRATEGY

Adopted effective January 24, 2012; as reaffirmed effective January 30, 2024

The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Employment, inflation, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Monetary policy plays an important role in stabilizing the economy in response to these disturbances. The Committee's primary means of adjusting the stance of monetary policy is through changes in the target range for the federal funds rate. The Committee judges that the level of the federal funds rate consistent with maximum employment and price stability over the longer run has declined relative to its historical average. Therefore, the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past. Owing in part to the proximity of interest rates to the effective lower bound, the Committee judges that downward risks to employment and inflation have increased. The Committee is prepared to use its full range of tools to achieve its maximum employment and price stability goals.

The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. The Committee judges that longer-term inflation expectations that are well anchored at 2 percent foster price stability and moderate long-term interest rates and enhance the Committee's ability to promote maximum employment in the face of significant economic disturbances. In order to anchor longer-term inflation expectations at this level, 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.

Monetary policy actions tend to influence economic activity, employment, and prices with a lag. In setting monetary policy, the Committee seeks over time to mitigate shortfalls of employment from the Committee's assessment of its maximum level and deviations of inflation from its longer-run goal. Moreover, sustainably achieving maximum employment and price stability depends on a stable financial system. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The Committee's employment and inflation objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it takes into account the employment shortfalls and inflation deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to review these principles and to make adjustments as appropriate at its annual organizational meeting each January, and to undertake roughly every 5 years a thorough public review of its monetary policy strategy, tools, and communication practices.

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Note: This report reflects information that was publicly available as of noon EDT on July 2, 2024.

Unless otherwise stated, the time series in the figures extend through, for daily data, June 28, 2024; for monthly data, May 2024; and, for quarterly data, 2024:Q1. In bar charts, except as noted, the change for a given period is measured to its final quarter from the final quarter of the preceding period.

For figures 26, 37, and 43, note that the S&P/Case-Shiller U.S. National Home Price Index, the S&P 500 Index, and the Dow Jones Bank Index are products of S&P Dow Jones Indices LLC and/or its affiliates and have been licensed for use by the Board. Copyright © 2024 S&P Dow Jones Indices LLC, a division of S&P Global, and/or its affiliates. All rights reserved. Redistribution, reproduction, and/or photocopying in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. For more information on any of S&P Dow Jones Indices LLC’s indices, please visit www.spdji.com. S&P® is a registered trademark of Standard & Poor’s Financial Services LLC, and Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC. Neither S&P Dow Jones Indices LLC, Dow Jones Trademark Holdings LLC, their affiliates, nor their third-party licensors make any representation or warranty, express or implied, as to the ability of any index to accurately represent the asset class or market sector that it purports to represent, and neither S&P Dow Jones Indices LLC, Dow Jones Trademark Holdings LLC, their affiliates, nor their third-party licensors shall have any liability for any errors, omissions, or interruptions of any index or the data included therein.

SUMMARY

Inflation eased notably last year and has shown modest further progress so far this year, but it remains above the Federal Open Market Committee's (FOMC) objective of 2 percent. Job gains have been strong, and the unemployment rate is still low. Meanwhile, as job vacancies continued to decline and labor supply continued to increase, the labor market moved into better balance over the first half of the year. Real gross domestic product (GDP) growth was modest in the first quarter, while growth in private domestic demand remained robust, supported by slower but still-solid increases in consumer spending, moderate growth in capital spending, and a sharp pickup in residential investment.

The FOMC has maintained the target range for the federal funds rate at $5\frac{1}{4}$ to $5\frac{1}{2}$ percent since its July 2023 meeting. In addition, the Committee has continued to reduce its holdings of Treasury securities and agency mortgage-backed securities. 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. Reducing policy restraint too soon or too much could result in a reversal of the progress on inflation. At the same time, reducing policy restraint too late or too little could unduly weaken economic activity and employment. 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 FOMC is strongly committed to returning inflation to its 2 percent objective. The Committee remains highly attentive to inflation risks and is acutely aware that high inflation imposes significant hardship, especially on those least able to meet the higher costs of essentials.

Recent Economic and Financial Developments

Inflation. Although personal consumption expenditures (PCE) price inflation slowed notably last year and has shown modest further progress this year, it remains above the FOMC's longer-run objective of 2 percent. The PCE price index rose 2.6 percent over the 12 months ending in May, down from the 4.0 percent pace over the preceding 12 months and a peak of 7.1 percent in June 2022. The core PCE price index—which excludes food and energy prices and is generally considered a better guide to the direction of future inflation—also rose 2.6 percent in the 12 months ending in May, down from 4.7 percent a year ago and slower than the 2.9 percent pace at the end of last year. On a 12-month basis, core goods price inflation and housing services price inflation continued to ease over the first part of the year, while core nonhousing services price inflation flattened out after slowing notably last year. Measures of longer-term inflation expectations are within the range of values seen in the decade before the pandemic and continue to be broadly consistent with the FOMC's longer-run objective of 2 percent.

The labor market. The labor market continued to rebalance over the first half of this year, and it remained strong. Job gains were solid, averaging 248,000 per month over the first five months of the year, and the unemployment rate remained low. Labor demand has eased, as job openings have declined in many sectors of the economy, and labor supply has continued to increase, supported by a strong pace of immigration. With cooling labor demand and rising labor supply, the unemployment rate edged up to 4.0 percent in May. The balance between labor demand and supply appears similar to that in the period immediately

before the pandemic, when the labor market was relatively tight but not overheated. Nominal wage growth continued to slow in the first part of the year but remains above a pace consistent with 2 percent inflation over the longer term, given prevailing trends in productivity growth.

Economic activity. Real GDP growth is reported to have moderated in the first quarter after having increased at a robust pace in the second half of last year. Much of the slowdown was due to sizable drags in the volatile categories of net exports and inventory investment; growth in private domestic final purchases—which includes consumer spending, business fixed investment, and residential investment—also moved a little lower in the first quarter but remained solid. Real consumption growth slowed in the first quarter from a strong pace in the second half of last year, reflecting a decline in goods spending. Real business fixed investment grew at a moderate pace in the first quarter despite high interest rates, supported by strong sales growth and improvements in business sentiment and profit expectations. Activity in the housing sector picked up sharply in the first quarter as a result of a jump in existing home sales and rising construction of single-family homes.

Financial conditions. Financial conditions appear somewhat restrictive on balance. Treasury yields and the market-implied expected path of the federal funds rate have moved up, on net, since the beginning of the year, while broad equity prices have increased. Credit remains generally available to most households and businesses but at elevated interest rates, which have weighed on financing activity. The pace of bank lending to households and businesses increased in the first five months of the year but continues to be somewhat tepid. Delinquency rates on small business loans stayed slightly above pre-pandemic levels, and delinquency rates for credit cards, auto loans, and commercial real estate loans continued to increase in the first

quarter of 2024 to levels above their longer-run averages.

Financial stability. The financial system remains sound and resilient. The balance sheets of nonfinancial businesses and households stayed strong, with the combined credit-to-GDP ratio standing near its two-decade low. Business debt continued to decline in real terms, and debt-servicing capacity remained solid for most public firms, in large part due to strong earnings, large cash buffers, and low borrowing costs on existing debt. However, there were also signs of vulnerabilities building in the financial system. In asset markets, corporate bond spreads narrowed, equity prices rose faster than expected earnings, and residential property prices remained high relative to market rents. Moreover, in the banking sector, some banks' fair value losses on fixed-rate assets remained sizable, despite most of them continuing to report solid capital levels. Additionally, parts of banks' commercial real estate portfolios are facing stress. Some banks' reliance on uninsured deposits remained high. Even so, liquidity at most domestic banks remained ample, with limited reliance on short-term wholesale funding. Bond mutual funds' exposure to interest rate risk stayed elevated, and data through the third quarter of 2023 show that hedge fund leverage had grown to historical highs, driven primarily by borrowing by the largest hedge funds. (See the box "Developments Related to Financial Stability" in Part 1.)

International developments. Foreign economic activity appears to have improved in the first quarter after a soft patch in the second half of last year. In advanced foreign economies, growth rates returned to moderate levels despite the effects of restrictive monetary policy as lower inflation improved real household incomes. In emerging market economies, growth was supported by a recovery in exports and rising global demand for high-tech products, with the rise in activity in China in the first quarter being particularly

outsized. Nonetheless, other factors continued to weigh on economic growth: Data indicated ongoing weakness in China’s property sector, and in Europe, energy-intensive sectors continue to struggle, reflecting their ongoing adjustment to past increases in energy prices following Russia’s 2022 invasion of Ukraine.

Foreign headline inflation has continued to decline since the middle of last year, but the pace of disinflation has been gradual and uneven across countries and economic sectors. Still, many foreign central banks have noted this progress in lowering inflation, and some have begun to cut their policy rates. A notable exception is Japan, which ended its negative interest rate policy and yield curve control in March amid persistently high inflation. The trade-weighted exchange value of the dollar rose significantly, consistent with widening gaps between U.S. and foreign interest rates.

Monetary Policy

Interest rate policy. The FOMC has maintained the target range for the policy rate at 5¼ to 5½ percent since its July 2023 meeting. The Committee judges that the risks to achieving its employment and inflation goals have moved toward better balance over the past year. The Committee perceives the economic outlook to be uncertain and remains highly attentive to inflation risks. The Committee has indicated that it 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. Policy is well positioned to deal with the risks and uncertainties the Committee faces in pursuing both sides of its dual mandate. 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.

Balance sheet policy. The Federal Reserve has continued the process of significantly reducing its holdings of Treasury and agency

securities in a predictable manner.¹ Beginning in June 2022, principal payments from securities held in the System Open Market Account have been reinvested only to the extent that they exceeded monthly caps. Under this policy, the Federal Reserve has reduced its securities holdings about \$1.7 trillion since the start of balance sheet reduction. The FOMC has stated that it intends to maintain securities holdings at amounts consistent with implementing monetary policy efficiently and effectively in its ample-reserves regime. To ensure a smooth transition from abundant to ample reserve balances, the FOMC slowed the pace of decline of its securities holdings at the beginning of June and intends to stop reductions when reserve balances are somewhat above the level that the Committee judges to be consistent with ample reserves.

Special Topics

Housing services inflation. The PCE price index for housing services started accelerating in 2021, notably increasing its contribution to core PCE inflation. Because this index calculates average rent for all tenants—both new tenants and existing tenants—its changes tend to lag changes in market rent measures for new leases. Therefore, measures of market rent growth for new leases can help predict future changes in the PCE price index. Since mid-2022, market rents have decelerated and returned to a growth rate similar to or below their average pre-pandemic pace, while the PCE index continues to show elevated inflation, reflecting the gradual pass-through of market rates to existing tenants. As this process continues, PCE housing services inflation should gradually decline, though much uncertainty remains about the extent

1. See the May 4, 2022, press release regarding the Plans for Reducing the Size of the Federal Reserve’s Balance Sheet, available on the Board’s website at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm>.

and timing. (See the box “Housing Services Inflation and Market Rent Measures” in Part 1.)

Employment and earnings across groups. A strong labor market over the past two years has been especially beneficial for historically disadvantaged groups of workers. As a result, many of the long-standing disparities in employment and wages by sex, race, ethnicity, and education have narrowed, and some gaps reached historical lows in 2023 and the first half of 2024. However, despite this narrowing, significant disparities in absolute levels across groups remain. (See the box “Employment and Earnings across Demographic Groups” in Part 1.)

Monetary policy independence, transparency, and accountability. Congress has established a statutory framework that specifies the long-run objectives of monetary policy—maximum employment and stable prices—and gives the Federal Reserve operational independence in conducting monetary policy. In this framework, the Federal Reserve makes determinations about the monetary policy actions that are most appropriate for achieving the dual-mandate goals that Congress has assigned to it. The Federal Reserve recognizes that independence is a trust given to it by Congress and the American people and that with independence comes the need to be transparent about, and accountable for, its monetary policy decisions. Transparency also improves monetary policy’s effectiveness. The Federal Reserve promotes transparency by providing

information about FOMC decisions through policy communications and a variety of publications. The means by which the Federal Reserve informs the American people about its monetary policy decisions include official FOMC statements, monetary policy reports, and Committee meeting minutes and transcripts, as well as speeches, press conferences, and congressional testimony given by Federal Reserve officials. (See the box “Monetary Policy Independence, Transparency, and Accountability” in Part 2.)

Federal Reserve’s balance sheet and money markets. The size of the Federal Reserve’s balance sheet has continued to decrease since February as the FOMC has reduced its securities holdings. Reserve balances, the largest liability on the Federal Reserve’s balance sheet, and usage of the overnight reverse repurchase agreement facility—another Federal Reserve liability—both declined. (See the box “Developments in the Federal Reserve’s Balance Sheet and Money Markets” in Part 2.)

Monetary policy rules. Simple monetary policy rules, which prescribe a setting for the policy interest rate in response to the behavior of a small number of economic variables, can provide useful guidance to policymakers. With inflation easing over the past year, the policy rate prescriptions of most simple monetary policy rules have decreased recently and now call for levels of the federal funds rate that are close to or below the current target range for the federal funds rate. (See the box “Monetary Policy Rules in the Current Environment” in Part 2.)

PART 1

RECENT ECONOMIC AND FINANCIAL DEVELOPMENTS

Domestic Developments

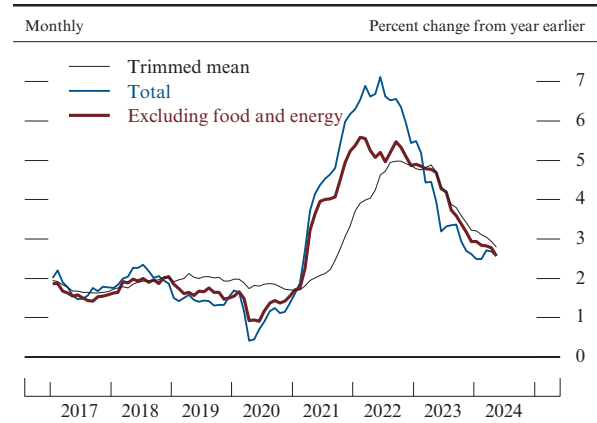
Inflation eased notably last year and has shown modest further progress in recent months

Inflation stepped down markedly last year and has shown modest further progress so far this year. Inflation remains elevated, though, and is still above the Federal Open Market Committee’s (FOMC) longer-run objective of 2 percent. The price index for personal consumption expenditures (PCE) rose 2.6 percent over the 12 months ending in May, down from the 4.0 percent pace a year ago but little changed since the end of last year (figure 1). After having slowed markedly in the second half of 2023, monthly core PCE price inflation—which excludes food and energy prices and is generally considered a better guide to the direction of future inflation—firmed in the first quarter of this year and then eased somewhat in April and May. As a result, the 12-month change in core PCE prices declined from the 4.7 percent pace in May of last year to 2.9 percent in December and moved down further this year, to 2.6 percent in May (figure 2). A similar message is evident from the trimmed mean measure of PCE prices constructed by the Federal Reserve Bank of Dallas, which provides an alternative approach to reducing the influence of idiosyncratic price movements. The index increased 2.8 percent over the 12 months ending in May, a pace that is somewhat slower than at the end of last year (as shown in figure 1).

Consumer energy prices have increased, while food price inflation has flattened out

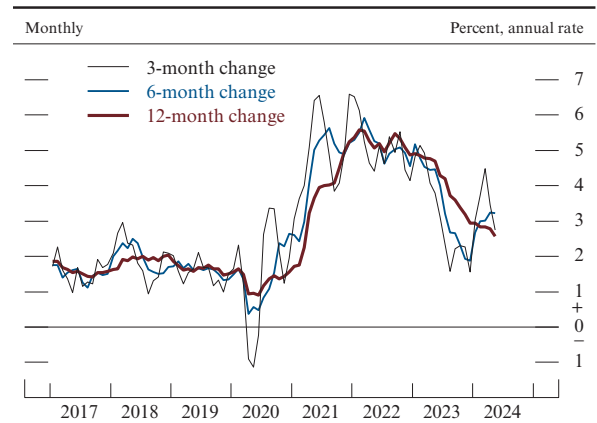
PCE energy prices increased 4.8 percent in the 12 months ending in May after having declined 12.3 percent over the preceding 12 months

1. Personal consumption expenditures price indexes



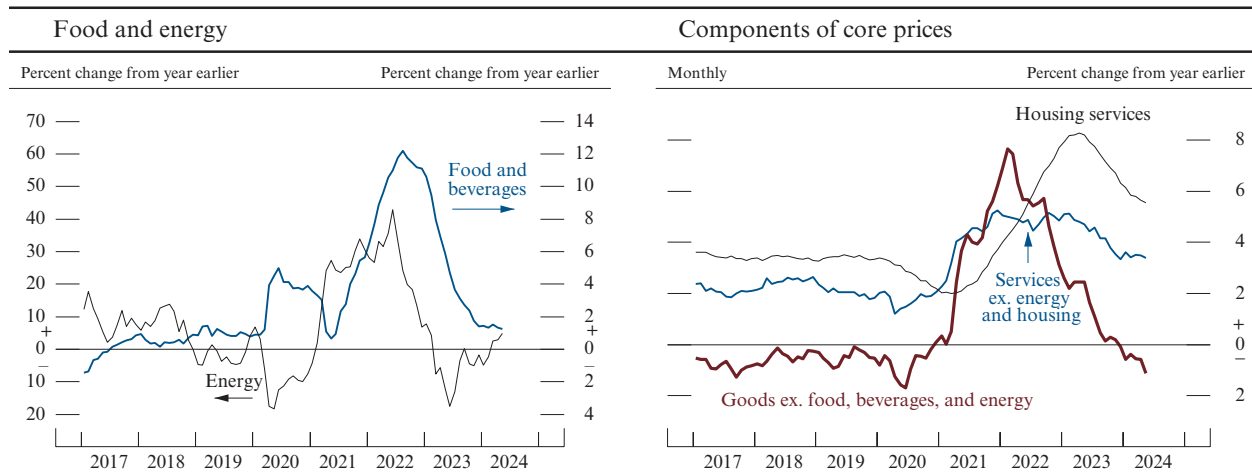
SOURCE: For trimmed mean, Federal Reserve Bank of Dallas; for all else, Bureau of Economic Analysis; all via Haver Analytics.

2. Core personal consumption expenditures price index



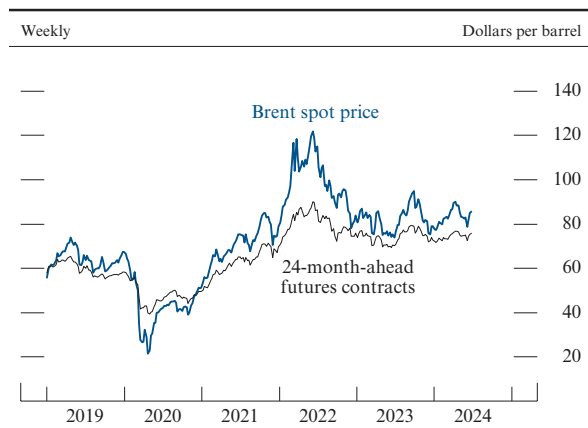
SOURCE: Bureau of Economic Analysis, personal consumption expenditures via Haver Analytics.

3. Subcomponents of personal consumption expenditures price indexes



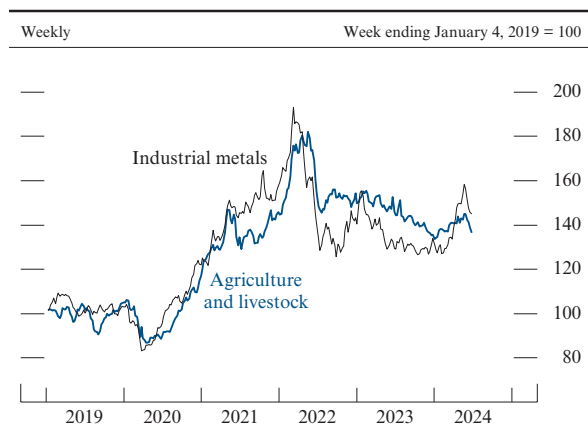
NOTE: The data are monthly.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

4. Spot and futures prices for crude oil



NOTE: The data are weekly averages of daily data and extend through June 28, 2024.
SOURCE: ICE Brent Futures via Bloomberg.

5. Spot prices for commodities



NOTE: The data are weekly averages of daily data and extend through June 28, 2024.
SOURCE: For industrial metals, S&P GSCI Industrial Metals Spot Index; for agriculture and livestock, S&P GSCI Agriculture & Livestock Spot Index; both via Haver Analytics.

(figure 3, left panel). Oil prices increased, on net, in the first half of this year (figure 4). Prices rose amid concerns about escalation of the conflict in the Middle East, additional costs of rerouting some oil shipping away from the Red Sea, and ongoing production cuts by OPEC (Organization of the Petroleum Exporting Countries) and its allies. Continuing geopolitical tensions, including tensions emanating from the conflicts in the Middle East and Ukraine, pose an upside risk to energy prices.

Prices of agricultural commodities and livestock edged up, on net, over the first half of this year after having come down markedly in 2022 and 2023 from the highs reached at the start of Russia’s war on Ukraine in early 2022 (figure 5). As a result of these movements, the 12-month change in PCE food prices slowed substantially from its peak of 12.2 percent in August 2022 to just 1.2 percent in May (as shown in figure 3, left panel).

Prices of both energy and food products are of particular importance for lower-income households, for which such necessities account for a large share of expenditures. Reflecting the sharp increases seen in 2021 and 2022, these price indexes are 25 percent and 32 percent higher than in 2019, for food and energy, respectively.

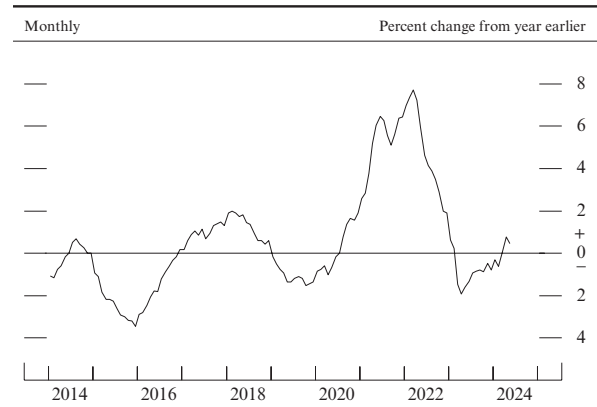
Core goods prices increased modestly this year after having declined sharply in the second half of 2023

In assessing the outlook for inflation, it is helpful to consider three separate components of core prices: core goods, housing services, and core nonhousing services. After posting notable declines in the second half of last year, core goods prices increased modestly, on net, over the first months of this year. This development likely reflects, in part, movements in nonfuel import prices, which turned up in recent months after having declined, on net, over 2023 (figure 6). Smoothing through these monthly movements, prices for core goods over the 12 months ending in May moved down 1.1 percent, similar to their pre-pandemic rate of decline, after having increased 2.5 percent over the previous 12-month period (figure 3, right panel). The progress on inflation for core goods reflects improvements in supply–demand imbalances. Indeed, the supply chain issues and other capacity constraints that had earlier boosted inflation so much continued to ease, though at a more gradual pace this year than over the past two years, and supply–demand conditions in goods markets appear to be relatively balanced. For example, the shares of respondents to the Quarterly Survey of Plant Capacity Utilization citing insufficient supply of labor or materials as reasons for producing below capacity, which had increased considerably during the pandemic, have continued to fall and are now near pre-pandemic levels (figure 7).

Housing services price inflation continued to slow gradually but remains elevated . . .

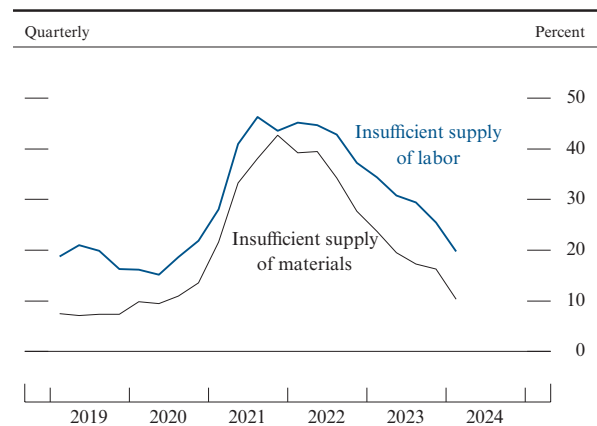
The 12-month change in housing services prices moved down from more than 8 percent in May 2023 to 5.5 percent in May of this year but is still well above its pre-pandemic level (as shown in figure 3, right panel). Market rent inflation, which measures increases in rents for *new* housing leases to *new* tenants, has fallen markedly since late 2022 to near pre-pandemic rates, and this slowdown points to continued easing of housing services inflation over the

6. Nonfuel import price index



SOURCE: Bureau of Labor Statistics via Haver Analytics.

7. Reasons for operating below full capacity



NOTE: The series are the share of firms selecting each reason for operating below full capacity.

SOURCE: U.S. Census Bureau: Quarterly Survey of Plant Capacity Utilization.

year ahead. (The box “Housing Services Inflation and Market Rent Measures” provides further details.)

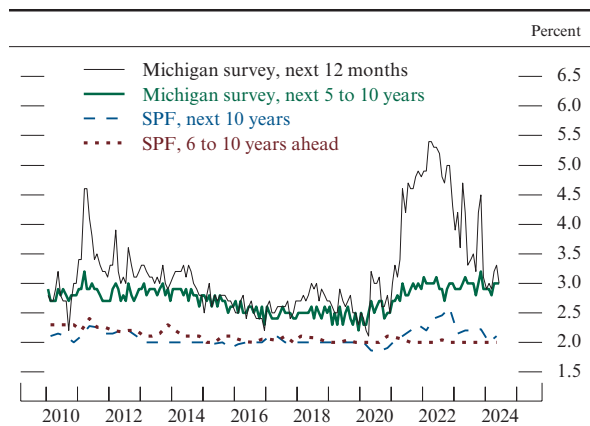
... while core nonhousing services price inflation flattened out so far this year

Finally, price inflation for core nonhousing services—a broad group that includes services such as travel and dining, financial services, and car repair—slowed last year but flattened out, on net, in the first five months of this year. Core nonhousing services prices rose 3.4 percent in the 12 months ending in May, down from 4.7 percent a year ago but little changed since the end of last year (as shown in figure 3, right panel). The lack of further progress this year is due in large part to price increases in volatile categories—for example, portfolio management services, which can be influenced by idiosyncratic factors, such as swings in the stock market, more than supply and demand conditions. Because labor is a significant input to these service sectors, the ongoing deceleration in labor costs—supported by softening labor demand and improvements in labor supply—suggests that disinflation will eventually resume for this category.

Measures of longer-term inflation expectations have been stable; shorter-term expectations have been volatile but are generally lower than a year earlier

The generally held view among economists and policymakers is that inflation expectations influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of expected inflation over a longer horizon have generally been moving sideways over the past year, within the range seen during the decade before the pandemic, and they appear broadly consistent with the FOMC’s longer-run 2 percent inflation objective. This development is seen for surveys of households, such as the University of Michigan Surveys of Consumers, and for surveys of professional forecasters (figure 8). For example, the median forecaster in the Survey of Professional

8. Measures of inflation expectations



NOTE: The data for the Michigan survey are monthly and extend through June 2024. The Survey of Professional Forecasters (SPF) data are quarterly and extend through 2024:Q2.

SOURCE: University of Michigan Surveys of Consumers; Federal Reserve Bank of Philadelphia, SPF.

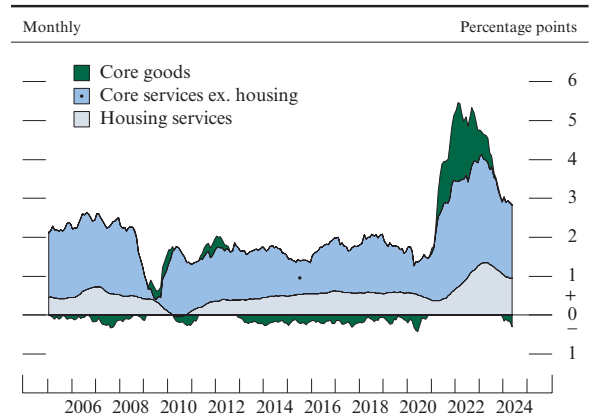
Housing Services Inflation and Market Rent Measures

The price index for housing services includes rents explicitly paid by renters as well as implicit rents that homeowners would have to pay if they were renting their homes known as owners' equivalent rent (OER). This index is an important component of the price index for personal consumption expenditures (PCE), composing about 15.5 percent of the total PCE price index. Housing services prices started accelerating in 2021, and, as figure A illustrates, the contribution of these prices to the 12-month change in the core PCE price index increased notably, reaching a peak of 1.4 percentage points in 2023. In May 2024, the contribution of this component stood at 1.0 percentage point, down from its peak but still well above the 0.5 percentage point that was typical before the COVID-19 pandemic.

The PCE price index for housing services is derived from two components of the consumer price index (CPI): rent of primary residence and OER.¹ The rent of primary residence index measures the average rent paid by tenants. OER estimates the rent that homeowners would pay if they were renting their homes without furnishings or utilities and is derived from rental data for units in the same neighborhood, with an adjustment for structure type.²

Because the price index for housing services measures average rent for all tenants—both new tenants and existing tenants—its changes are more subdued and tend to lag changes in rent measures for new leases, described later. Because rental agreements typically last for 12 months, most renters will not see an immediate increase in their rent even if the rent for new leases increases sharply. Additionally, the Bureau of Labor Statistics, the agency responsible for computing the CPI, reports that when rent increases occur for

A. Contributions to 12-month change in core personal consumption expenditures price index



SOURCE: Bureau of Economic Analysis via Haver Analytics; Federal Reserve Board staff calculations.

units, they are typically smaller for continuing tenants renewing their lease than they are for new tenants.³

This lag implies that measures of rent growth for new leases can help predict future changes in the PCE price index for housing services. Over the past few decades, private firms have started publishing various “market rent” measures that track the average rent for new leases by new tenants.⁴ For example, the

(continued on next page)

1. The sum of the weights of these two components in the total CPI is 34.4 percent, considerably higher than their weight in the total PCE price index.

2. The typical structure type varies significantly across owner- and tenant-occupied units: Owner-occupied homes are mostly single-family units, while renter-occupied homes are roughly evenly divided between single-family and multifamily units. Constructing the OER measure involves reweighting the sample of rent quotes for a given area to reflect the relative importance of owner-occupied housing in that area. See slide 13 of Robert Cage (2019), “Measurement of Owner Occupied Housing in the U.S. Consumer Price Index” (Washington: Bureau of Labor Statistics, November 15), https://www.bea.gov/system/files/2019-11/bea_tac_nov2019_cage.pdf.

3. See Ben Houck (2022), “Housing Leases in the U.S. Rental Market,” *Spotlight on Statistics* (Washington: Bureau of Labor Statistics, September), <https://www.bls.gov/spotlight/2022/housing-leases-in-the-u-s-rental-market/home.htm>.

4. PCE prices for housing services differ from these market rent measures for reasons beyond the fact that market rent measures are limited to new leases to new tenants. In addition, the discrepancy arises from the methodology used for index construction (for example, the rent measures used in the PCE price index sample a given residence only once every six months), the representativeness of the sample, and the way in which the measure controls for quality adjustments. Moreover, market rent measures capture the “asking” prices posted by landlords, while the rent measures used in the PCE price index gauge the rent that tenants actually pay. Among these factors, whether all leases are used (as opposed to only new leases) appears to be the main contributor to this discrepancy. See Brian Adams, Lara Loewenstein, Hugh Montag, and Randal Verbrugge (2024), “Disentangling Rent Index Differences: Data, Methods, and Scope,” *American Economic Review: Insights*, vol. 6 (June), pp. 230–45.

Housing Services Inflation *(continued)*

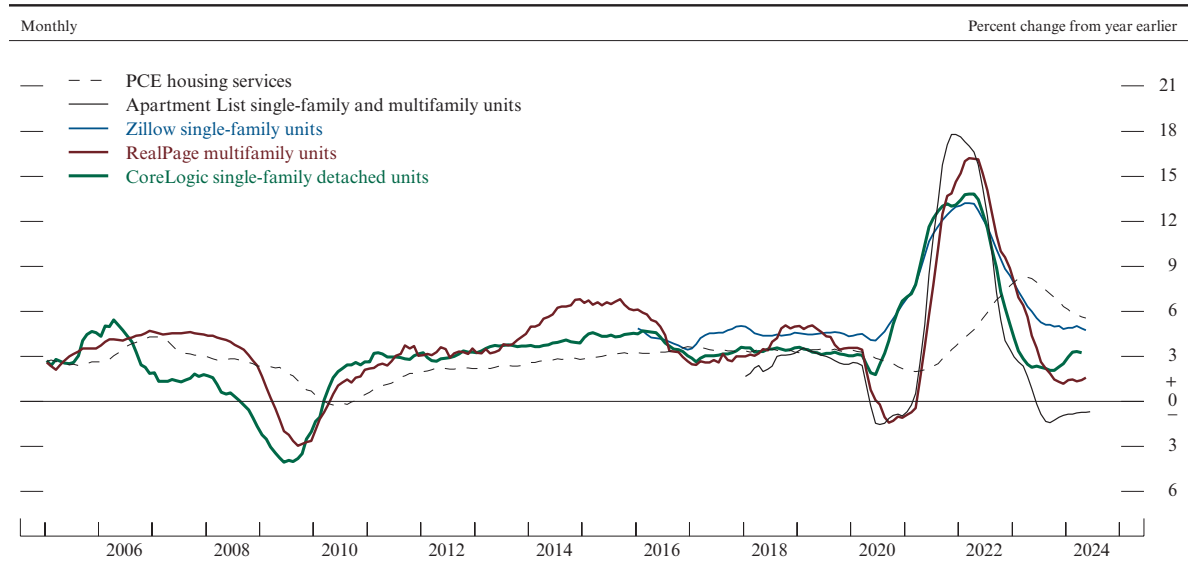
CoreLogic Single-Family Rent Index measures changes in average market rents for single-family homes. Other measures include the Zillow, Apartment List, and RealPage indexes, which vary in terms of the type of unit they cover (single-family versus multifamily), their methodologies, and the representativeness of the national rental market.⁵

5. The Zillow Observed Rent Index for single-family residences, available beginning in 2015, focuses on changes in asking rents for single-family units. The RealPage Rent Index, available beginning in 1996, measures changes in average market rents across professionally managed

Figure B illustrates that, historically, the year-over-year change in market rents is an informative leading indicator for the year-over-year change in PCE housing *(continued)*

multifamily apartment buildings. The Apartment List National Rent Index, available beginning in 2017, measures changes in median market rents across the entire rental market for both single-family and multifamily units. To calculate unit-level rent growth, all these measures, including the CoreLogic index, use the repeat-rent methodology to control for differences in property characteristics among the units listed for rent in different periods.

B. Housing rents



NOTE: CoreLogic data extend through April 2024, Zillow data start in January 2016, and Apartment List data start in January 2018 and extend through June 2024. Zillow, CoreLogic, Apartment List, and RealPage measure market-rate rents—that is, rents for a new lease by a new tenant. PCE is personal consumption expenditures.
 SOURCE: Bureau of Economic Analysis, PCE, via Haver Analytics; CoreLogic, Inc.; Zillow, Inc.; Apartment List, Inc. via Haver Analytics; RealPage, Inc.; Federal Reserve Board staff calculations.

services prices, with the market rent measure typically leading the PCE measure by one year.⁶ This relationship is particularly evident in the periods following the Great Recession and the COVID-19 pandemic. For example, PCE housing services inflation reached a peak of 8.3 percent in April 2023, exactly one year after the 12-month change for the CoreLogic index reached its peak of 13.8 percent.

Since mid-2022, each of these measures of market rents has decelerated and returned to a growth rate similar to or below its average pre-pandemic pace.⁷ While the PCE price index for housing services also began decelerating in mid-2023, its current rate of increase remains well above the average rate seen in the years before the pandemic. As noted earlier, changes in the PCE price index for housing services tend to lag changes in market rents because rental

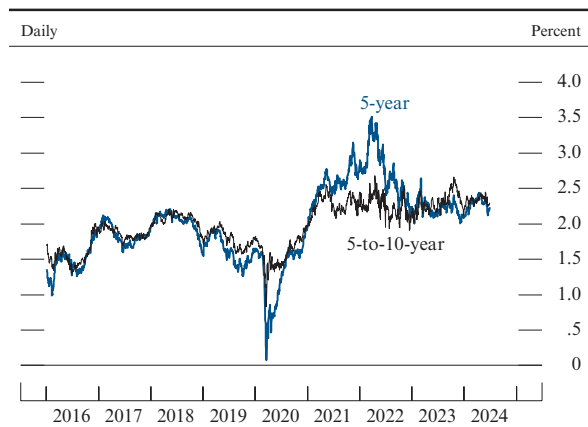
contracts typically last for a year and rents for existing tenants take some time to catch up to the rents charged to new tenants. In particular, the rise in measures of market rents, including the CoreLogic Single-Family Rent Index and the Zillow Observed Rent Index, from the onset of the pandemic until now has been larger than the corresponding increase in the PCE price index for housing services, suggesting that the PCE price measure has not yet fully caught up with the current state of the rental market.⁸ However, as long as market rents continue to increase moderately, PCE housing services inflation should gradually decline and eventually return to its pre-pandemic pace as well. However, significant uncertainty remains regarding the timing of this decline and whether market rent inflation will, in fact, remain moderate.

6. Several studies use market rent measures to predict housing services inflation. See, for instance, Marijn A. Bolhuis, Judd N.L. Cramer, and Lawrence H. Summers (2022), "The Coming Rise in Residential Inflation," *Review of Finance*, vol. 26 (September), pp. 1051–72; and Kevin J. Lansing, Luiz E. Oliveira, and Adam Hale Shapiro (2022), "Will Rising Rents Push Up Future Inflation?" FRBSF Economic Letter 2022-03 (San Francisco: Federal Reserve Bank of San Francisco, February), <https://www.frbsf.org/wp-content/uploads/sites/4/el2022-03.pdf>.

7. In addition, the Bureau of Labor Statistics has recently started publishing a quarterly rent index for new tenants (the New Tenant Rent Index). While the New Tenant Rent Index is subject to revision with each release, the year-over-year growth of this index declined from its peak of 12.9 percent in the second quarter of 2022 to 0.4 percent in the first quarter of 2024, the lowest reading since the second quarter of 2010. See Bureau of Labor Statistics (n.d.), "New Tenant Rent Index," webpage, <https://www.bls.gov/pir/new-tenant-rent.htm>.

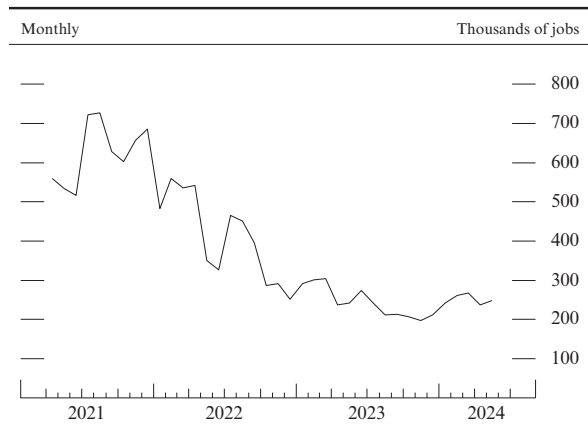
8. Between January 2020 and April 2024, the CoreLogic Single-Family Rent Index and the Zillow Observed Rent Index have increased 32 percent and 38 percent, respectively, while PCE prices for housing services have increased 23 percent. See Christopher D. Cotton (2024), "A Faster Convergence of Shelter Prices and Market Rent: Implications for Inflation," *Current Policy Perspectives 2024-4* (Boston: Federal Reserve Bank of Boston, June), <https://www.bostonfed.org/-/media/Documents/Workingpapers/PDF/2024/cpp20240617.pdf>.

9. Inflation compensation implied by Treasury Inflation-Protected Securities



NOTE: The data are at a business-day frequency and are estimated from smoothed nominal and inflation-indexed Treasury yield curves.
SOURCE: Federal Reserve Bank of New York; Federal Reserve Board staff calculations.

10. Nonfarm payroll employment



NOTE: The data shown are a 3-month moving average of the change in nonfarm payroll employment.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

Forecasters, conducted by the Federal Reserve Bank of Philadelphia, continued to expect PCE price inflation to average 2 percent over the five years beginning five years from now.

Inflation expectations over a shorter horizon—which tend to follow observed inflation more closely and tend to be more volatile—have moved down, on net, since the middle of 2022 to near the range seen during the decade before the pandemic. In recent months, the median value for inflation expectations over the next year as measured in the Michigan survey has been generally lower than readings from a year earlier. Similarly, expected inflation for the next year as measured in the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, has also declined, on average, from a year earlier.

Market-based measures of longer-term inflation compensation, which are based on financial instruments linked to inflation such as Treasury Inflation-Protected Securities, are also broadly in line with readings seen in the years before the pandemic and consistent with PCE inflation returning to 2 percent. These measures have been little changed, on net, since the beginning of the year (figure 9).

The labor market remains strong

Payroll employment gains have been strong, averaging 248,000 per month over the first five months of the year. Job gains slowed from the first half to the second half of last year but appear to have picked up, on net, so far this year (figure 10). Recent job gains have been broad based, with over 60 percent of industries expanding their employment, on net, over the three months ending in May. That said, gains have been particularly strong in health care and in state and local governments, where employment remains below the levels implied by pre-pandemic trends.²

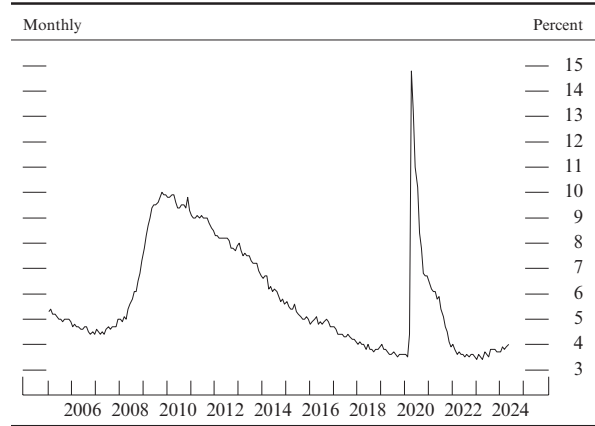
2. Administrative data from the Quarterly Census of Employment and Wages (QCEW) suggest that job growth last year was solid, but not as strong as reported in the Current Employment Statistics (CES). The CES

The unemployment rate has edged up since the middle of 2023 but was still at a historically low level of 4.0 percent in May. Through May, the unemployment rate has remained at or below 4 percent for over two years (figure 11). Unemployment rates among most age, educational attainment, sex, and ethnic and racial groups remain near their respective historical lows (figure 12).

Labor demand has been gradually cooling . . .

Demand for labor remained strong in the first half of 2024 but has continued to cool gradually, on net, from its very elevated levels of early 2022. Job openings, as measured in the Job Openings and Labor Turnover Survey (JOLTS), have continued to fall from their all-time high recorded in March 2022 but are

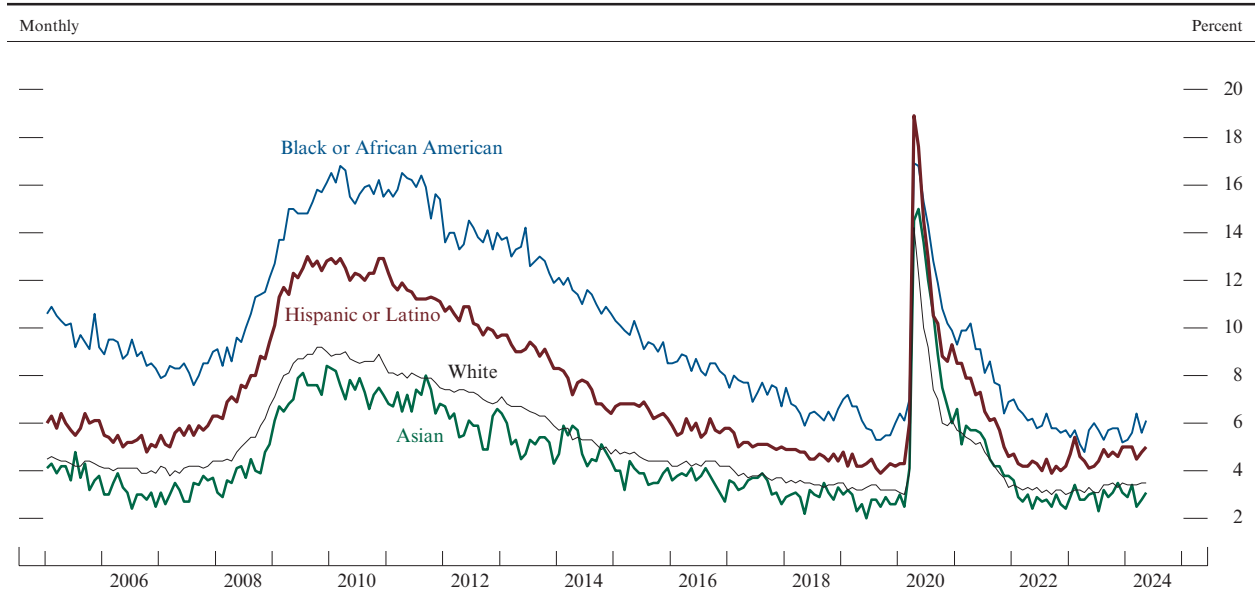
11. Civilian unemployment rate



SOURCE: Bureau of Labor Statistics via Haver Analytics.

payroll data will be revised in early 2025, when the Bureau of Labor Statistics benchmarks these data to employment counts from the QCEW as part of its annual benchmarking process.

12. Unemployment rate, by race and ethnicity



NOTE: Unemployment rate measures total unemployed as a percentage of the labor force. Persons whose ethnicity is identified as Hispanic or Latino may be of any race. Small sample sizes preclude reliable estimates for Native Americans and other groups for which monthly data are not reported by the Bureau of Labor Statistics.

SOURCE: Bureau of Labor Statistics via Haver Analytics.

still slightly above pre-pandemic levels.³ An alternative measure of job vacancies using job postings data from the large online job board Indeed also shows that while vacancies have proceeded to move gradually lower through the first half of 2024, they have remained above pre-pandemic levels.⁴ Consistent with the decline in job vacancies, the National Federation of Independent Business (NFIB) survey indicated that on net, in May, fewer firms planned to add workers over the next three months than was the case at the end of 2023; firms' hiring plans reported in the NFIB survey have been trending down since the middle of 2021.

The cooling in labor demand has been mostly due to reductions in firm hiring, as indicators of layoffs, such as initial claims for unemployment insurance and the rate of layoffs and discharges in the JOLTS report, have remained at historically low levels.

. . . and labor supply has increased further . . .

Meanwhile, the supply of labor has continued to increase on net. While labor force participation has leveled off over the past year, the U.S. population increased strongly because of high levels of immigration.

The labor force participation rate (LFPR)—which measures the share of people either working or actively seeking work—increased solidly from the beginning of 2021 through the middle of 2023 but appears to have

3. Some analysts have noted that the vacancy-posting behavior of firms may have changed since 2019 in ways that lift the number of vacancies. For example, multi-establishment firms may be posting vacancies for a single job opening at several or all of its establishments if the new job allows workers to work remotely from any establishment. These multiple job postings may result in overcounting of job vacancies in establishment-level measures, such as those from JOLTS and Indeed. Alternatively, after having experienced an exceptionally strong labor market in 2022, firms may now be more willing to post vacancies for positions that they are unlikely to fill immediately.

4. Indeed job postings data are available on the company's Hiring Lab portal at <https://data.indeed.com/#/postings>.

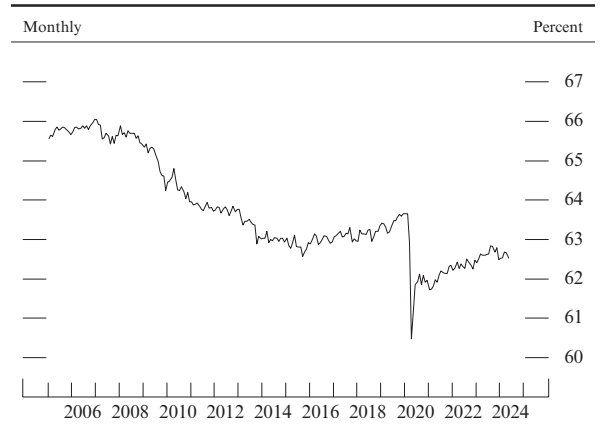
flattened out at a relatively high level since then. The LFPR was 62.5 percent in May, a touch below its average level over the past 12 months (figure 13). Notably, the post-pandemic recovery in the LFPR has differed widely across demographic groups, with the participation rate for women aged 25 to 54 reaching all-time highs in recent months and the participation rate for individuals older than 55 exhibiting no signs of recovery. (The box “Employment and Earnings across Demographic Groups” provides further details.)

Labor supply has also been boosted in recent years by relatively strong population growth due to a notable expansion in immigration. Though official estimates by the Census Bureau show a robust increase in population growth in 2022 and 2023, recent estimates by the Congressional Budget Office indicate that actual population growth may have been considerably higher. The most recent data suggest that immigration is somewhat slower than the strong rates seen late last year.⁵

... resulting in a normalization of labor market conditions

With cooling labor demand and rising labor supply, the labor market became gradually less tight over the first half of this year, although it nevertheless remains strong. The balance between demand and supply in the labor market appears similar to that during the period immediately before the pandemic.

13. Labor force participation rate



NOTE: Data are monthly, and values before January 2024 are estimated by Federal Reserve Board staff in order to eliminate discontinuities in the published history.
 SOURCE: Bureau of Labor Statistics via Haver Analytics.

5. A recent report from the Congressional Budget Office (CBO) estimates that immigration in 2022 and 2023 was considerably higher than in the Census Bureau’s estimates. See Congressional Budget Office (2024), *The Demographic Outlook: 2024 to 2054* (Washington: CBO, January), <https://www.cbo.gov/publication/59697>. Recent studies have put more weight on the CBO estimates, in part because the Census Bureau is using lagged estimates of immigration from the American Community Survey, while the CBO is using more recent, high-frequency data. See Wendy Edelberg and Tara Watson (2024), “New Immigration Estimates Help Make Sense of the Pace of Employment,” Hamilton Project (Washington: Brookings Institution, March), https://www.brookings.edu/wp-content/uploads/2024/03/20240307_Immigration_Employment_Paper.pdf.

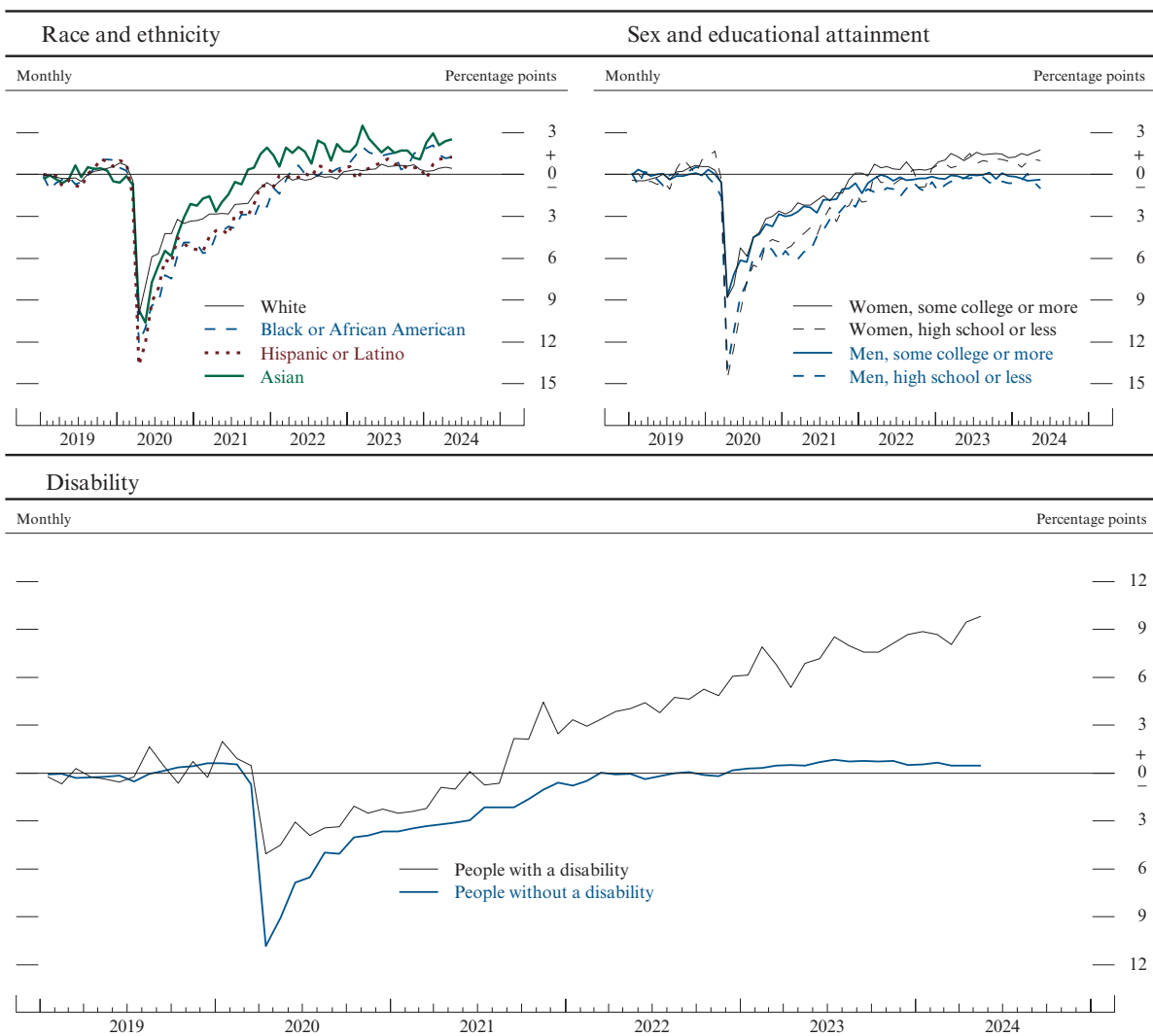
Employment and Earnings across Demographic Groups

At the aggregate level, solid labor demand and improved labor supply, together with ongoing gains in productivity and falling inflation, have resulted in high rates of employment and rising real wages over the past year. This solid labor market performance has been broadly shared and has been especially beneficial for historically disadvantaged groups of workers. As a result, many of the long-standing disparities in employment and wages by sex, race, ethnicity, and education have narrowed, and some gaps reached historical lows in 2023 and the first half of 2024. However, despite this narrowing, significant disparities in absolute levels across groups remain.

Among prime-age people (aged 25 to 54), the employment-to-population (EPOP) ratio for Black or African American workers remained near its historical peak in the first half of 2024, and the gap in the EPOP ratio between prime-age Black and white workers fell to its lowest point in almost 50 years. Similarly, prime-age Hispanic or Latino workers' EPOP ratio has increased notably over the first part of 2024 and is now more than 1 percentage point above its 2019 level (figure A, top-left panel). That improvement has further reduced the EPOP ratio gap between Hispanic or Latino workers and white workers from already

(continued)

A. Prime-age employment-to-population ratios compared with the 2019 average ratio, by group



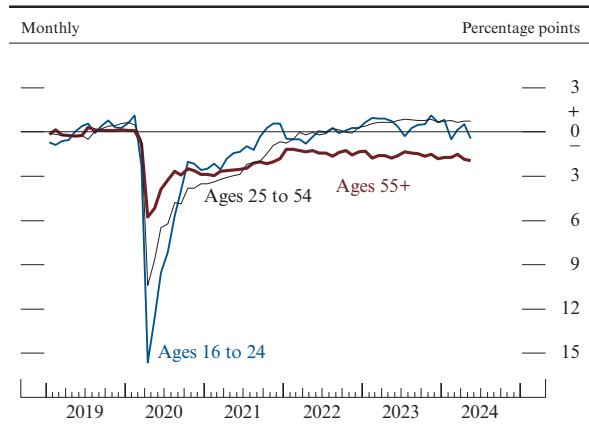
NOTE: Prime age is 25 to 54. All series are seasonally adjusted by the Federal Reserve Board staff.
SOURCE: Bureau of Labor Statistics; U.S. Census Bureau, Current Population Survey; Federal Reserve Board staff calculations.

historically low levels. Although the EPOP ratio for prime-age Asian workers has moved somewhat lower over the past year, it remains historically high and above its 2019 level.¹

The EPOP ratio for prime-age women has continued to increase steadily, reaching another record high in the first few months of 2024, whereas the EPOP ratio for prime-age men has been mostly flat over the past year, near its level in the year before the pandemic (figure A, top-right panel). As a result, the EPOP ratio gap between prime-age men and women fell to a record low this year. The increase in the female EPOP ratio relative to the pre-pandemic period is (almost) entirely attributable to rising labor force participation, which had also been increasing briskly before the pandemic, consistent with a growing share of women with a college degree.² Other factors, including strong labor market conditions and greater availability of remote-work options, may have also contributed to rising prime-age female labor force participation.³

Among prime-age persons with a disability, the EPOP ratio has surged well above its 2019 level during the past few years (figure A, bottom panel). Some of this increase is likely due to the unique labor market circumstances of the past few years. With tight labor market conditions, employers may have been relatively more likely to hire persons with a disability than in other times. Additionally, the rise of remote work may have enabled persons with a disability to work without the challenges of on-site work. However, some of the increase could stem from a change in the composition of this group, as the number of persons with a disability rose following the pandemic, which may have raised

B. Employment-to-population ratios relative to 2019 average, by age



NOTE: Data before January 2023 are estimated by Federal Reserve Board staff in order to eliminate discontinuities in the published history. SOURCE: Bureau of Labor Statistics; U.S. Census Bureau, Current Population Survey; Federal Reserve Board staff calculations.

the average employment rate for this group.⁴ For persons without a disability, the EPOP ratio is little changed from its 2019 level.

Although most groups have shown robust employment gains over the past few years, the EPOP ratio for people aged 55 or older remains approximately 2 percentage points below its 2019 level and has changed little since late 2021 (figure B). This shortfall is attributable to a persistent increase in the rate of retirement among this group. Most of the increase in retirement relative to 2019 is due to the continued aging of the baby-boom generation, a trend that was expected to have occurred even without the pandemic.⁵ However, retirements have also been

(continued on next page)

1. As monthly series have greater sampling variability for smaller groups, we do not plot EPOP ratio estimates for American Indians or Alaska Natives.

2. For a discussion of the contribution of educational attainment to prime-age female labor force participation before the pandemic, see Didem Tüzemen and Thao Tran (2019), “The Uneven Recovery in Prime-Age Labor Force Participation,” Federal Reserve Bank of Kansas City, *Economic Review*, vol. 104 (Third Quarter), pp. 21–41, <https://www.kansascityfed.org/Economic%20Review/documents/652/2019-The%20Uneven%20Recovery%20in%20Prime-Age%20Labor%20Force%20Participation.pdf>.

3. For a discussion on access to remote work and participation rates, see Maria D. Tito (2024), “Does the Ability to Work Remotely Alter Labor Force Attachment? An Analysis of Female Labor Force Participation,” FEDS Notes (Washington: Board of Governors of the Federal Reserve System, January 19), <https://doi.org/10.17016/2380-7172.3433>.

4. The increase in the number of persons with a disability may be linked to cases of long COVID, which, while debilitating, might not limit work as much as other types of disabilities. As a result, an influx of relatively higher-employment individuals into the disabled category could have raised employment rates for this group even if no individual’s employment changed.

5. For example, as baby boomers have continued to age, the median age of the population aged 55 or older increased from 66 in 2019 to 67 in the first half of 2024, and the median age of that group is expected to continue increasing into the future. This shift in the composition of the 55-or-older population has naturally lowered the observed EPOP ratio for this group nearly 0.5 percentage point per year, as EPOP ratios are lower at older ages.

Employment and Earnings *(continued)*

elevated above the level expected from aging alone, mostly for individuals aged 65 or older.⁶

While employment disparities across many demographic groups are now within historically narrow ranges, substantial gender, racial, and ethnic gaps remain, underscoring long-standing structural factors. Currently, prime-age women are employed at a rate 10 percentage points less than men, while prime-age Black and Hispanic workers are employed at a rate 3 to 4 percentage points less than white workers.

Similar to employment, a continued strong labor market has supported strong nominal wage growth, and as inflation has come down, that strong nominal wage growth has translated into higher real wage growth. Real wage growth has been comparatively robust for historically disadvantaged groups. As shown in the top-left panel of figure C, real wage growth—as measured

by the Federal Reserve Bank of Atlanta’s Wage Growth Tracker and deflated by the personal consumption expenditures price index—was consistently stronger for workers in lower wage quartiles compared with the top quartiles during the pandemic and early recovery, but now all quartiles are experiencing similar growth.⁷

Strong wage growth across the income distribution is reflected in the experiences of different demographic groups. Wage growth for nonwhite workers has been a bit stronger than that for white workers for much of the past year (figure C, top-right panel). Wages for women and men have grown essentially in tandem over the past year (figure C, bottom-left panel).⁸ Real wage growth for workers with a high school diploma or less remains strong and has been rising a bit faster than for workers with more education, on average, over the past few years (figure C, bottom-right panel).

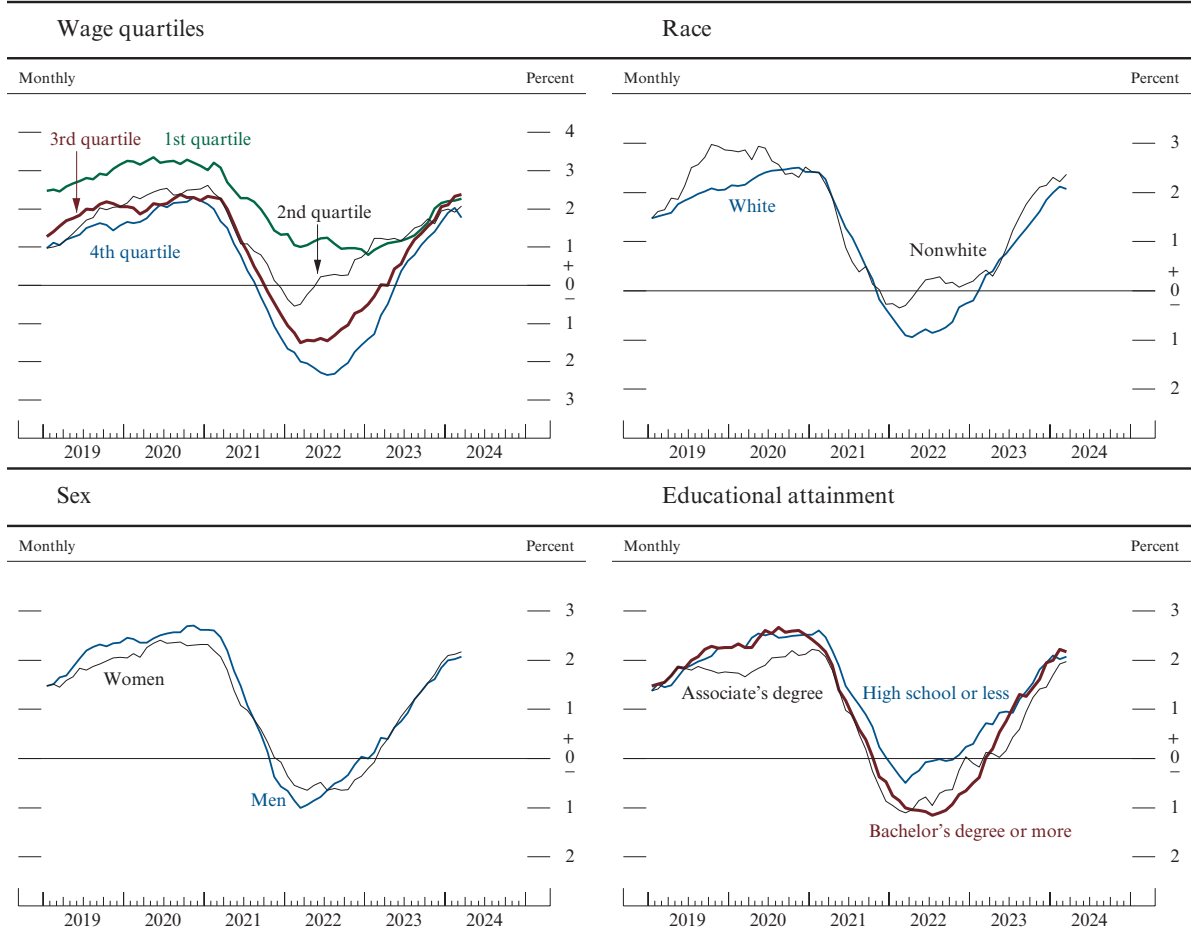
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6. For an analysis on the increase in retirements following the pandemic, see Joshua Montes, Christopher Smith, and Juliana Dajon (2022), “The Great Retirement Boom: The Pandemic-Era Surge in Retirements and Implications for Future Labor Force Participation,” Finance and Economics Discussion Series 2022-081 (Washington: Board of Governors of the Federal Reserve System, November), <https://doi.org/10.17016/FEDS.2022.081>.

7. To reduce noise due to sampling variation, which can be pronounced when considering disaggregated groups’ wage changes, the series shown in figure C are the 12-month moving averages of the groups’ median 12-month real wage changes. Thus, by construction, these series lag the actual real wage changes. Wage data extend through March 2024 only to avoid complications stemming from changes in the underlying data source.

8. The measure of real wage growth shown in the figure uses the same price index for all groups, but inflation experiences can differ across demographic groups because of differences in what they purchase or where they shop. See Jacob Orchard (2021), “Cyclical Demand Shifts and Cost of Living Inequality,” working paper, February (revised September 2022).

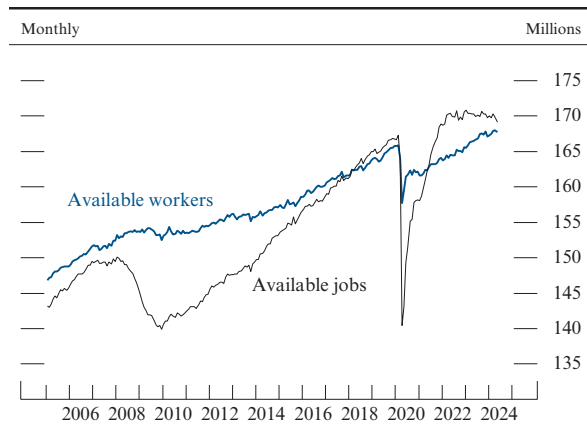
C. Median real wage growth, by group



NOTE: The data extend through March 2024. Series show 12-month moving averages of the median percent change in the hourly wage of individuals observed 12 months apart, deflated by the 12-month moving average of the 12-month percent change in the personal consumption expenditures price index. In the top-left panel, workers are assigned to wage quartiles based on the average of their wage reports in both Current Population Survey outgoing rotation group interviews; workers in the lowest 25 percent of the average wage distribution are assigned to the 1st quartile, and those in the top 25 percent are assigned to the 4th quartile.

SOURCE: Federal Reserve Bank of Atlanta, Wage Growth Tracker; Bureau of Labor Statistics; U.S. Census Bureau, Current Population Survey.

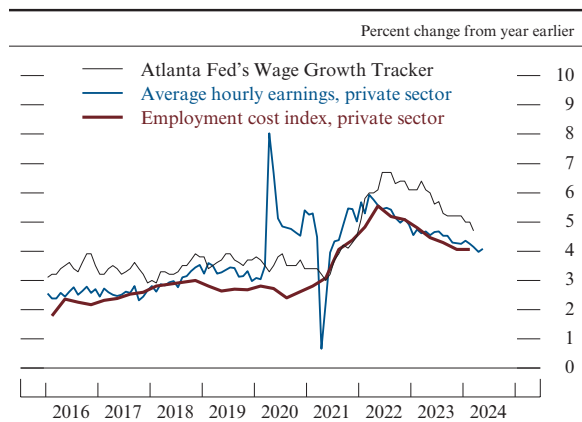
14. Available jobs versus available workers



NOTE: Available jobs are employment plus job openings as of the end of the previous month. Available workers are the labor force. Data for employment and labor force before January 2024 are estimated by Federal Reserve Board staff in order to eliminate discontinuities in the published history.

SOURCE: Bureau of Labor Statistics via Haver Analytics; U.S. Census Bureau; Federal Reserve Board staff calculations.

15. Measures of change in hourly compensation



NOTE: For the private-sector employment cost index, change is over the 12 months ending in the last month of each quarter; for private-sector average hourly earnings, the data are 12-month percent changes; for the Atlanta Fed's Wage Growth Tracker, the data are shown as a 3-month moving average of the 12-month percent change and extend through March 2024.

SOURCE: Bureau of Labor Statistics; Federal Reserve Bank of Atlanta, Wage Growth Tracker; all via Haver Analytics.

A variety of labor market indicators support this assessment. The ratio of job openings to unemployment has fallen notably from its peak of about 2.0 in spring 2022 to 1.2 in May, the same as its average in 2019. Similarly, the gap between the number of total available jobs (measured by employed workers plus job openings) and the number of available workers (measured by the size of the labor force) has also moved down markedly from its peak of 6.1 million in spring 2022 to 1.4 million in May and is only a bit above its 2019 average of 1.2 million (figure 14). The unemployment rate has continued to edge up this year and reached 4.0 percent in May, modestly higher than in 2019. In addition, the percentage of workers quitting their jobs each month, an indicator of the availability of attractive job prospects, has continued to move down this year and, though still elevated, is now modestly below its pre-pandemic level. Similarly, the share of respondents to the Conference Board Consumer Confidence Survey reporting that jobs are plentiful has continued to move down and is somewhat lower than its level in 2019. Furthermore, the NFIB survey indicates that firms' perceptions of labor market tightness have come down from their recent peaks and returned to their pre-pandemic range. Finally, business contacts surveyed for the Federal Reserve's May 2024 Beige Book reported signs of a cooling labor market—including easing in hiring plans, better labor availability, and modest wage growth—and, similar to 2019, cited some difficulty finding workers in selected industries or areas.⁶

Wage growth remains elevated but has slowed

Consistent with the easing in labor market tightness, nominal wage growth continued to slow so far this year, though it remains above its pre-pandemic pace and likely too high, given productivity trends, to be consistent with 2 percent inflation over time (figure 15). Total hourly compensation, as measured by the

6. See the May 2024 Beige Book, available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/beigebook202405.htm>.

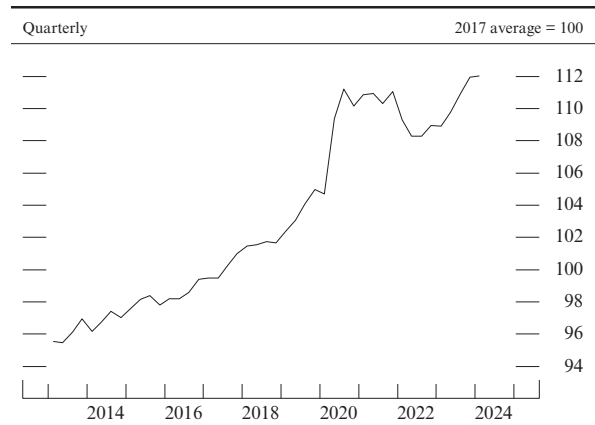
employment cost index, increased 4.1 percent over the 12 months ending in March, a noticeable slowing from the peak increase of 5.5 percent in mid-2022. Other aggregate measures of labor compensation, such as average hourly earnings (a less comprehensive measure of compensation) and the Federal Reserve Bank of Atlanta’s Wage Growth Tracker (which reports the median 12-month wage growth of individuals responding to the Current Population Survey), have also continued to slow from their recent peaks in 2022 but remain well above their pre-pandemic growth rates. Wage growth has not normalized to the same extent as the measures of labor market tightness cited earlier, suggesting that there is some persistence in the adjustment process to past shocks. With PCE prices having risen 2.6 percent over the 12 months through May, these nominal wage measures suggest that most workers saw increases in the purchasing power of their wages over the past year.

Labor productivity has increased at a moderate pace with significant volatility

The extent to which nominal wage gains raise firms’ costs and act as a source of inflation pressure depends importantly on the pace of productivity growth. Labor productivity in the business sector—the ratio of output to hours worked—has been extremely volatile since the pandemic began. It increased sharply in 2020, moved roughly sideways in 2021, declined strongly in 2022, and then rebounded solidly in 2023 (figure 16). Averaging through these large swings, business-sector productivity has increased at a moderate annual average rate of 1½ percent since the onset of the pandemic, in line with the average rate of growth observed during the previous business cycle (from the fourth quarter of 2007 to the fourth quarter of 2019).

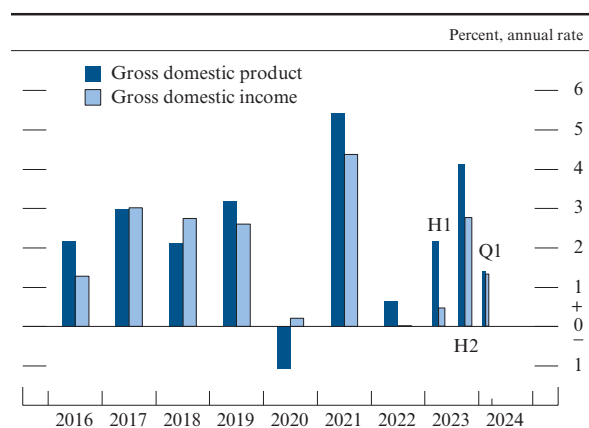
The pace of future productivity growth is highly uncertain. It is possible that productivity growth could remain at around its current moderate pace. However, it is also possible that the rapid adoption of new technologies like artificial intelligence (AI)

16. U.S. labor productivity



NOTE: The data are output per hour in the business sector.
SOURCE: Bureau of Labor Statistics via Haver Analytics.

17. Change in real gross domestic product and gross domestic income



NOTE: The key identifies bars in order from left to right.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

and robotics, as well as the high rate of new business formation brought about by the pandemic, could boost productivity growth above that pace in coming years.

Growth in gross domestic product moderated in the first quarter, but private domestic demand remained solid

After expanding at a robust pace in the second half of last year despite restrictive financial conditions, real gross domestic product (GDP) decelerated to a moderate annual growth rate of 1.4 percent in the first quarter of this year (figure 17). The step-down was due in large part to sizable drags from net exports and inventory investment; these categories of expenditures tend to be volatile even in normal times and have been even more so since the pandemic. Growth in private domestic final purchases—that is, consumer spending, business fixed investment, and residential investment—also moderated in the first quarter but remained solid.⁷ Among these components of GDP, consumer spending rose strongly in the second half of last year and decelerated in the first quarter as goods spending declined while services spending continued to rise solidly. Business fixed investment increased at a moderate pace in the first quarter as a result of strength in nontransportation equipment spending and intellectual property investment, while nonresidential structures slowed after surging in 2023. Residential investment grew rapidly in the first quarter, reflecting, for the most part, increases in existing home sales and construction of single-family homes.

7. Real gross domestic income (GDI) has been notably weaker than GDP in recent years; both series measure the same economic concept, and any difference between the two figures reflects measurement error in one or both series. GDI is reported to have increased at a pace only slightly slower than GDP in the first quarter but had risen notably less than GDP over the previous three years. As a result, productivity calculated from the income side of the national accounts would be considerably weaker than the published figures over the past three years.

After having returned to pre-pandemic levels in late 2021, manufacturing output has been little changed, on net, since then. While motor vehicle production has continued to rebound from earlier disruptions, factory production outside of motor vehicles has drifted down somewhat. The diffusion indexes of new orders from various national and regional surveys of manufacturers remained mostly soft in June, suggesting continued modest weakness in coming months.

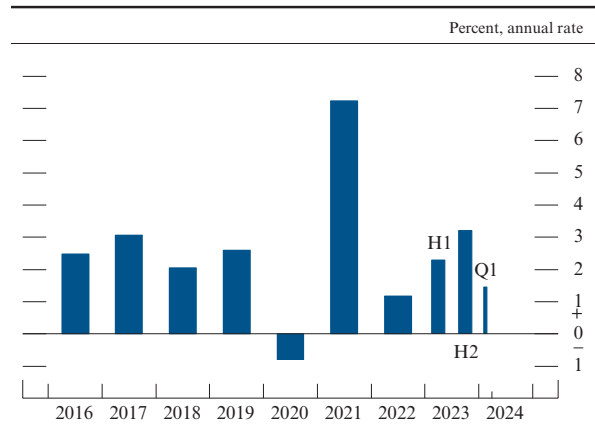
Consumer spending growth has been resilient but eased this year

Consumer spending adjusted for inflation grew at a solid rate of 2.7 percent in 2023 but slowed in the first quarter to a moderate 1.5 percent pace (figure 18). The resilience in consumer spending last year in the face of high interest rates likely reflected strong job gains and rising real wages. Indeed, real disposable personal income increased at a robust 3.8 percent rate in 2023. In addition, last year’s spending was bolstered by households drawing down their liquid assets, such as checking accounts, and relying more on credit.

More recently, the easing in consumer spending growth in the first quarter was accompanied by a softening in some household spending fundamentals along with somewhat restrictive financial conditions. Disposable personal income growth moderated in the first quarter after a robust pace last year. While household finances appear healthy in the aggregate, credit card and auto loan delinquencies continued to rise in the first quarter, suggesting that a growing share of households are experiencing some financial stress.

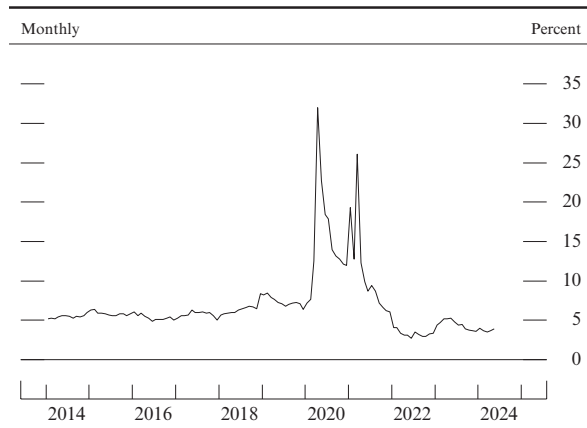
Despite the recent easing in consumer spending growth, households continue to spend more of their income than is typical. The saving rate—the difference between current income and spending, as a share of income—was 3.8 percent in the first quarter and has been well below its pre-pandemic average of over 6 percent for nine consecutive

18. Change in real personal consumption expenditures



SOURCE: Bureau of Economic Analysis via Haver Analytics.

19. Personal saving rate

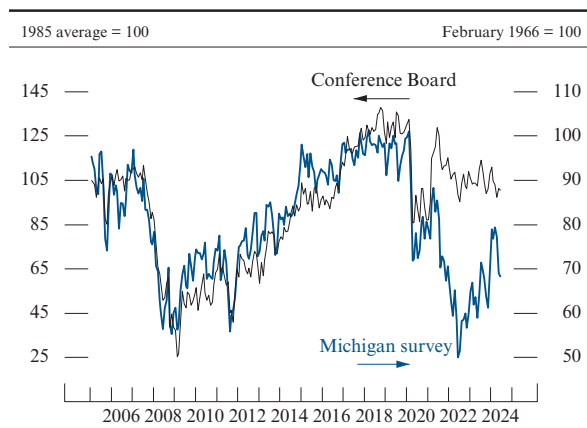


SOURCE: Bureau of Economic Analysis via Haver Analytics.

quarters (figure 19). This low saving rate likely reflects in large part the effects of high wealth and still-strong balance sheets of higher-income households.

Consumer spending since the pandemic has been more robust than measures of consumer sentiment would suggest. The indexes of consumer sentiment published by both the University of Michigan and the Conference Board remain well below their pre-pandemic levels. Although the Michigan survey index has improved markedly since spring 2022, it is further below its pre-pandemic level than the Conference Board index, which puts more weight on labor market conditions (figure 20).

20. Indexes of consumer sentiment

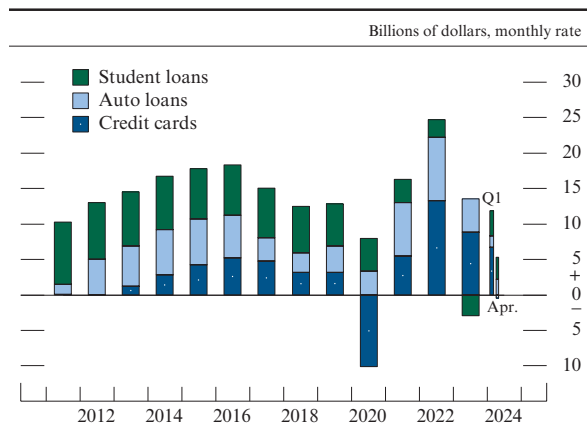


NOTE: The data are monthly and extend through June 2024.
SOURCE: University of Michigan Surveys of Consumers; Conference Board.

Consumer financing conditions remain somewhat restrictive

Consumer financing conditions have been somewhat restrictive, reflecting high borrowing costs and tight bank lending standards. Interest rates for consumer credit products such as new credit cards and auto loans edged down in recent months but remained elevated. In the April Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS), conducted by the Federal Reserve Board, banks reported continued tightening of lending standards for consumer loans in the first quarter, likely reflecting increases in delinquency rates. Indeed, credit card and auto loan delinquency rates—measured as the fraction of balances that are at least 30 days past due—have increased from their 2021 lows and are above the levels observed just before the pandemic.

21. Consumer credit flows



NOTE: Credit card balances were little changed in 2011 and 2012.
SOURCE: Federal Reserve Board, Statistical Release G.19, “Consumer Credit.”

Even so, financing has been generally available to support consumer spending. Consumer credit expanded moderately, on net, during the first four months of the year, driven by still-solid growth in credit card balances and modest growth in auto loans and student loans (figure 21).

Residential investment turned around and has increased since mid-2023

After rising sharply between early 2022 and late 2023, mortgage interest rates have fallen back some since last fall but, at around 7 percent, remain well above their pre-pandemic peak in 2018 (figure 22). Following the sharp rise in mortgage rates, residential investment declined steeply in 2022 and fell further in the first half of last year but has picked up since mid-2023. Solid income growth and the declines in interest rates late last year have provided support for residential investment demand so far this year. Indeed, residential investment rose sharply in the first quarter.

Sales of existing homes have moved up a touch this year but remain at very low levels. Relatively high mortgage interest rates and house prices have reduced affordability and depressed homebuying sentiment. Moreover, though new listings of existing homes have increased modestly this year, the supply of existing homes for sale remains quite low, as many homeowners are reportedly “rate locked”—unwilling to move and take out a new mortgage while mortgage rates are relatively high. Many households purchased homes or refinanced when fixed mortgage rates were at historically low levels in 2020 and 2021, and, as a result, the majority of outstanding mortgages have interest rates below 4 percent (figure 23).

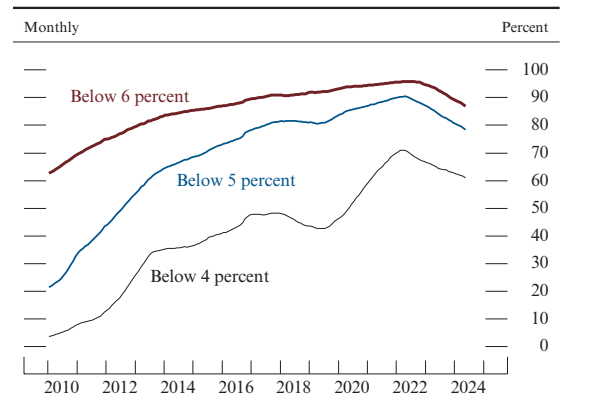
In contrast to existing home sales, sales of new homes declined when mortgage rates first increased, but they bounced back fairly quickly and have remained around their pre-pandemic levels. The new home market has likely been supported by demand from buyers who are unable to find homes in the existing home market and by homebuilder interest rate incentives (figure 24).

22. Mortgage interest rates



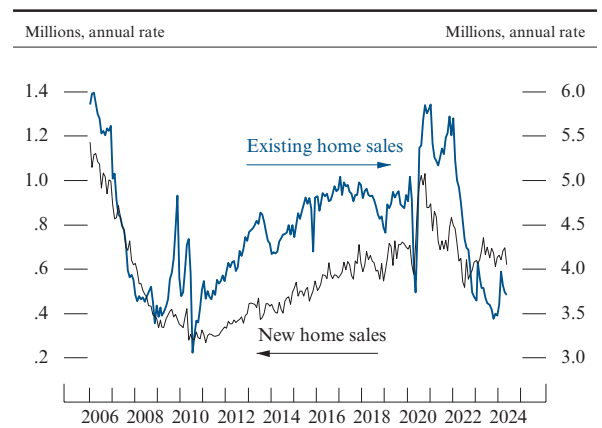
NOTE: The data are contract rates on 30-year, fixed-rate conventional home mortgage commitments and extend through June 27, 2024.
SOURCE: Freddie Mac Primary Mortgage Market Survey via Haver Analytics.

23. Distribution of interest rates on outstanding mortgages



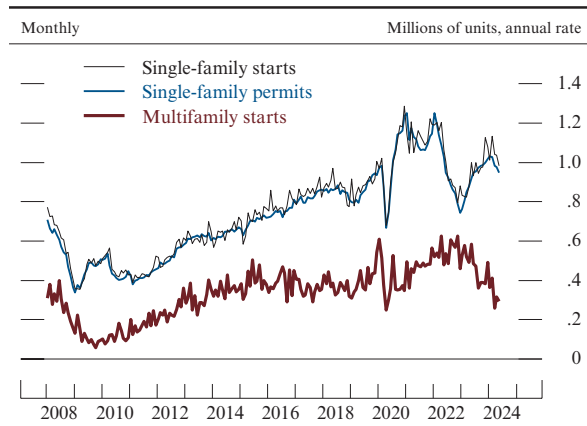
NOTE: The sample only includes outstanding mortgages current on their payments.
SOURCE: ICE, McDash®.

24. New and existing home sales



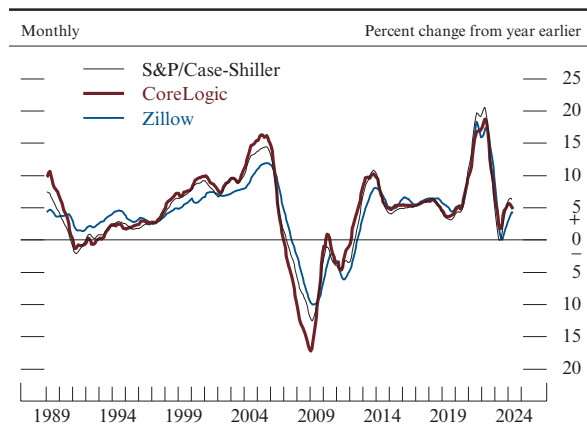
NOTE: The data are monthly. New and existing home sales include only single-family sales.
SOURCE: For new home sales, U.S. Census Bureau; for existing home sales, National Association of Realtors; all via Haver Analytics.

25. Private housing starts and permits



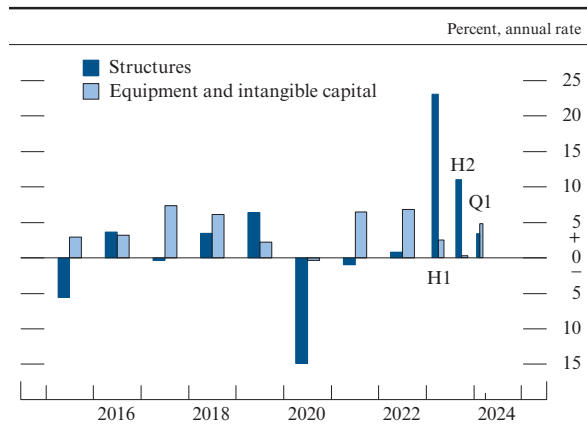
SOURCE: U.S. Census Bureau via Haver Analytics.

26. Growth rate in house prices



NOTE: S&P/Case-Shiller data extend through April 2024.
SOURCE: CoreLogic, Inc., Home Price Index; Zillow, Inc., Real Estate Data; S&P/Case-Shiller U.S. National Home Price Index. The S&P/Case-Shiller index is a product of S&P Dow Jones Indices LLC and/or its affiliates. (For Dow Jones Indices licensing information, see the note on the Contents page.)

27. Change in real business fixed investment



NOTE: Business fixed investment is known as “private nonresidential fixed investment” in the national income and product accounts. The key identifies bars in order from left to right.
SOURCE: Bureau of Economic Analysis via Haver Analytics.

The relative strength in new home demand encouraged builders to increase housing construction last year, boosting starts and permits for single-family housing (figure 25). In recent months, though, single-family housing starts and permits have drifted back down, likely because of high builder inventories and some easing in new home demand. Reflecting these demand and supply factors, house price growth slowed rapidly in 2022 from a historically high pace and has remained moderate since then (figure 26).

The balance of demand and supply in the multifamily housing market is fundamentally different from that in the single-family housing market, as it is dominated by rental units. Sharp increases in rents in 2021 and 2022 encouraged a dramatic increase in multifamily starts in those years, creating large amounts of new supply. With many units still under construction and weak rental growth since 2022, multifamily starts have been declining since last year (as shown in figure 25).⁸

Capital spending increased at a moderate pace

Business investment spending rose moderately in 2023 and in the first quarter of this year, supported by strong sales growth and improvements in business sentiment and profit expectations—and despite high interest rates (figure 27). However, the sources of strength in business investment shifted recently. Investment in structures—which had surged in early 2023 because of a boom in manufacturing construction, especially for factories that produce semiconductors or electric vehicle batteries—decelerated in the second half of 2023 and has slowed further so far this year, although the level of structures investment remains much higher than in

8. For additional discussion, see the box “Recent Housing Market Developments” in Board of Governors of the Federal Reserve System (2024), *Monetary Policy Report* (Washington: Board of Governors, March), pp. 19–21, https://www.federalreserve.gov/publications/files/20240301_mprfullreport.pdf.

previous years. Starting late last year, growth in business investment in nontransportation equipment and intellectual property stepped up, supported by gains in high-technology equipment spending and software investment.

Business financing conditions are somewhat restrictive, but credit remains generally available

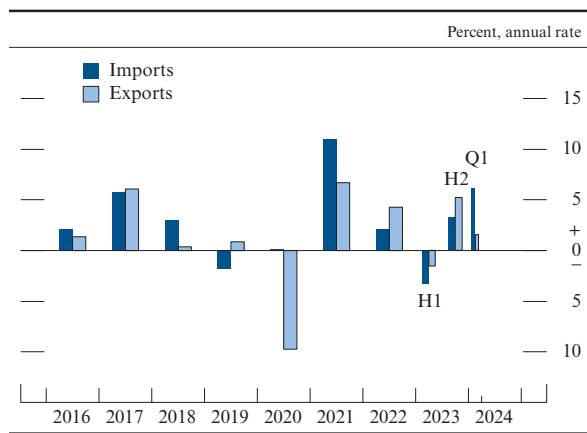
Although businesses face somewhat restrictive financing conditions, as interest rates are still elevated, credit remains generally available to most nonfinancial corporations. Banks continued to tighten lending standards for all business loan types over the first quarter of this year, and even though business loan growth at banks increased in the first five months of the year, it stayed tepid. In contrast, issuance of corporate bonds remained strong so far this year, although well below the levels that prevailed at the beginning of the tightening cycle.

For small businesses, which are more reliant on bank financing than large businesses, credit conditions remained tight but stable over the first half of this year. Surveys indicate that credit supply for small businesses tightened modestly, while interest rates on loans to small businesses were little changed, staying near the top of the range observed since 2008. In addition, while loan default rates have continued to increase, delinquency rates stabilized in the first part of the year at levels that slightly exceeded their pre-pandemic rates. Finally, loan originations have remained stable over the past year and above the range observed before the pandemic, suggesting that credit continues to be available for small businesses.

Net exports were a drag on GDP growth

On balance, net exports subtracted 0.7 percentage point from U.S. GDP growth in the first quarter of this year after having contributed about one-tenth to annualized GDP growth in the second half of last year. After moderate growth in the second half of

28. Change in real imports and exports of goods and services



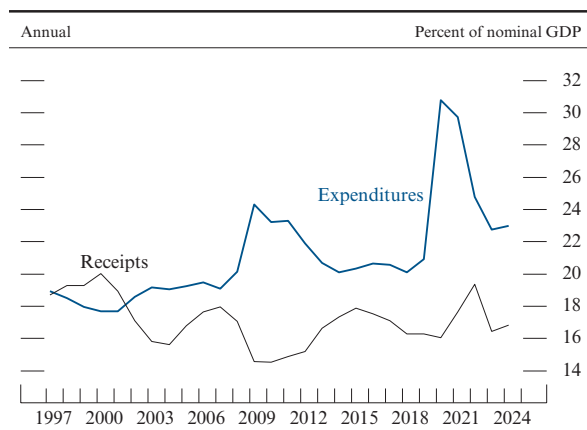
SOURCE: Bureau of Economic Analysis via Haver Analytics.

last year, real imports of goods and services have stepped up further this year despite some deceleration in U.S. GDP growth. By contrast, real export growth has slowed significantly, as some categories with especially strong growth in the second half of last year declined this year, particularly industrial supplies and materials (figure 28). The current account deficit as a share of GDP widened slightly in the first quarter of 2024 and remains wider than before the pandemic.

Federal fiscal policy actions were roughly neutral for GDP growth last year and so far this year

Federal purchases grew modestly in 2023 and moved sideways in the first quarter of the year. The overall contribution of discretionary federal fiscal policy to real GDP growth appears to have been roughly neutral last year and in the first quarter of this year, as the unwinding of pandemic-related policies offset the boost to consumption and investment from policies enacted after the pandemic.

29. Federal receipts and expenditures



NOTE: Through 2023, the receipts and expenditures data are on a unified-budget basis and are for fiscal years (October to September); gross domestic product (GDP) is for the 4 quarters ending in Q3. For 2024, receipts and expenditures are for the 12 months ending in May; GDP is the average of 2023:Q4 and 2024:Q1.

SOURCE: Department of the Treasury, Financial Management Service; Office of Management and Budget and Bureau of Economic Analysis via Haver Analytics.

The budget deficit and federal debt remain elevated

After surging to about 15 percent of GDP in fiscal year 2020, the budget deficit declined through fiscal 2022 as the imprint of the pandemic faded (figure 29). The budget deficit moved up to 6.3 percent of GDP in fiscal 2023 as net interest outlays increased, while tax receipts declined from their elevated level in 2022. Debt service costs have moved up sharply in recent years—as a result of higher interest rates and a higher level of debt—and are at their highest level in over two decades. The primary deficit—the difference between noninterest outlays and receipts—has moved down, on net, since fiscal 2020 and moved sideways in 2022 to 2023, as the effects of a decline in noninterest outlays as a share of GDP were offset by a decline in receipts as a share of GDP.

As a result of the unprecedented fiscal support enacted early in the pandemic, federal debt held by the public jumped roughly 20 percentage

points to close to 100 percent of GDP in 2020—the highest debt-to-GDP ratio since 1947 (figure 30). The debt-to-GDP ratio has moved roughly sideways since then, as upward pressure from large primary deficits has been offset by strong nominal GDP growth.

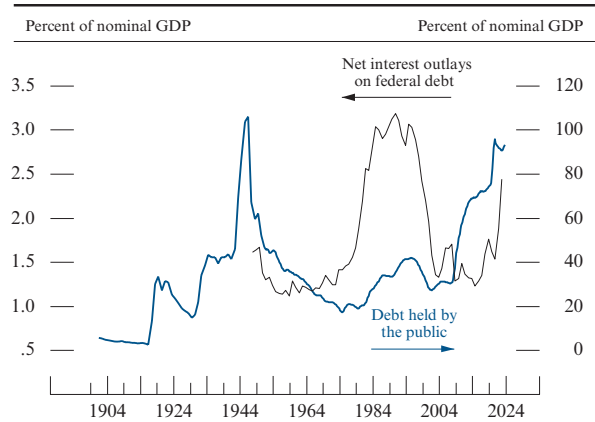
Most state and local government budget positions remained strong . . .

Federal policymakers provided a historically high level of fiscal support to state and local governments during the pandemic; this aid, together with robust state tax collections in 2021 and 2022, left the sector in a strong budget position overall (figure 31). Although state tax revenues weakened in 2023 and early this year—mainly reflecting a normalization of receipts from elevated levels in 2022, as well as the effects of recently enacted tax cuts in some states—taxes as a percentage of GDP remained near recent historical norms. Moreover, states’ total balances—that is, including rainy day fund balances and previous-year surplus funds—continued to be near all-time highs. Nevertheless, budget situations varied widely across states, with some states—particularly those that depend heavily on capital gains tax collections—facing tighter budget conditions. At the local level, overall property tax receipts rose briskly in 2023 and continued to increase at an elevated rate in the first quarter.

. . . contributing to brisk growth in employment and construction spending

Employment in state and local governments rose strongly in 2023 and early this year and has now recovered from the drop during the pandemic, though it is still below the level implied by the pre-pandemic trend (figure 32). This surge in state and local employment reflects the waning of pandemic-related headwinds such as a big increase in retirements early in the pandemic and slower wage growth relative to that in the private sector. Similarly, real construction outlays grew at a historically high rate last year, reflecting easing bottlenecks and support from federal grants, and are now somewhat above their pre-pandemic levels.

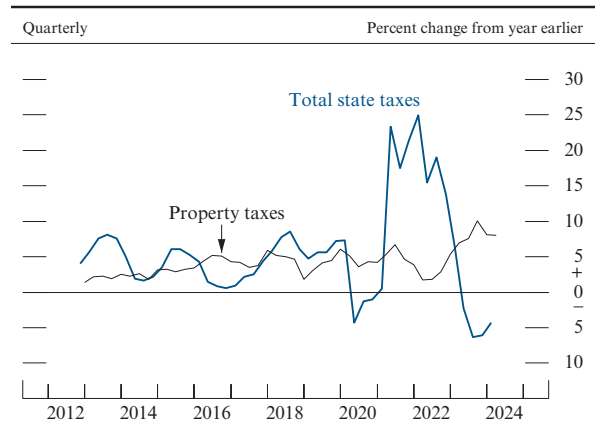
30. Federal government debt and net interest outlays



NOTE: The data for net interest outlays are annual, begin in 1948, and extend through 2023. Net interest outlays are the cost of servicing the debt held by the public, offset by certain types of interest income the government receives. Federal debt held by the public equals federal debt excluding most intragovernmental debt, evaluated at the end of the quarter. The data for federal debt are annual from 1901 to 1951 and a 4-quarter moving average thereafter. GDP is gross domestic product.

SOURCE: For GDP, Bureau of Economic Analysis via Haver Analytics; for federal debt, Congressional Budget Office and Federal Reserve Board, Statistical Release Z.1, “Financial Accounts of the United States.”

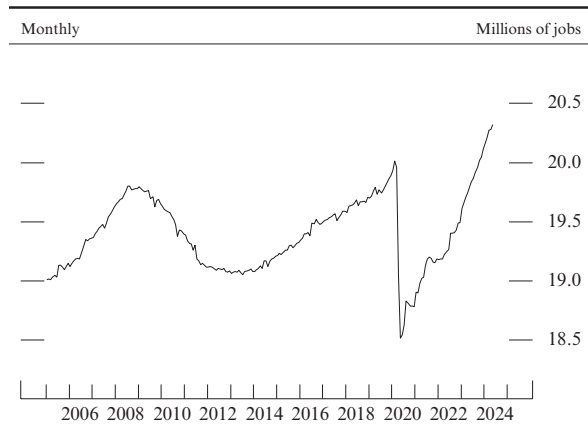
31. State and local tax receipts



NOTE: Receipts shown are year-over-year percent changes of 4-quarter moving averages and begin in 2012:Q4. Property taxes are primarily collected by local governments.

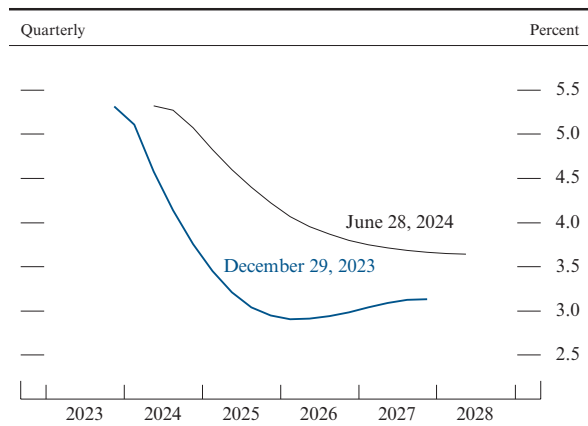
SOURCE: U.S. Census Bureau, Quarterly Summary of State and Local Government Tax Revenue.

32. State and local government payroll employment



SOURCE: Bureau of Labor Statistics via Haver Analytics.

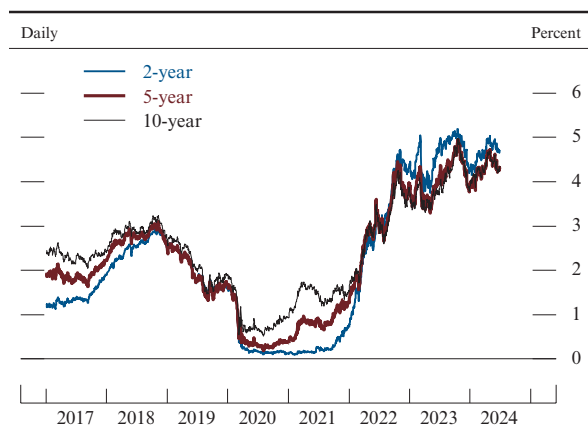
33. Market-implied federal funds rate path



NOTE: The federal funds rate path is implied by quotes on overnight index swaps—a derivative contract tied to the effective federal funds rate. The implied path as of December 29, 2023, is compared with that as of June 28, 2024. The path is estimated with a spline approach, assuming a term premium of 0 basis points. The December 29, 2023, path extends through 2027:Q4 and the June 28, 2024, path through 2028:Q2.

SOURCE: Bloomberg; Federal Reserve Board staff estimates.

34. Yields on nominal Treasury securities



SOURCE: Department of the Treasury via Haver Analytics.

Financial Developments

The expected level of the federal funds rate over the next few years is higher since the beginning of the year

Over the late winter and early spring, the market-implied federal funds rate path moved up, boosted by above-expectations inflation data that prompted market participants to reassess the monetary policy restraint required to return inflation to 2 percent. The rise in the path was partially reversed since late April amid mixed but generally softer-than-expected data on real activity and inflation. Since the beginning of the year, on net, the market-implied federal funds rate path rose substantially (figure 33). Financial market prices currently suggest that investors expect the federal funds rate to decline to about 4.9 percent and 4.0 percent by year-ends 2024 and 2025, respectively. Roughly consistent with market-implied measures, respondents to the Blue Chip Financial Forecasts survey have significantly revised upward their expectations for the path of the federal funds rate, with the average respondent in the July survey expecting the federal funds rate to decline to 5.0 percent in the fourth quarter of 2024—0.6 percentage point higher than anticipated at the end of last year.

Yields on U.S. nominal Treasury securities are higher on net

Consistent with the upward revision in the market-implied federal funds rate path, yields on shorter-term Treasury securities rose notably between mid-February and late April before retracing some of the increase afterward. Yields on longer-term nominal Treasury securities moved similarly with yields on shorter-term nominal Treasury securities. On balance, nominal Treasury yields are moderately higher than at the beginning of the year across the maturity spectrum (figure 34). An increase in real yields—as measured by yields on Treasury Inflation-Protected Securities—accounted for a large portion of the rise in nominal Treasury yields, especially at longer maturities.

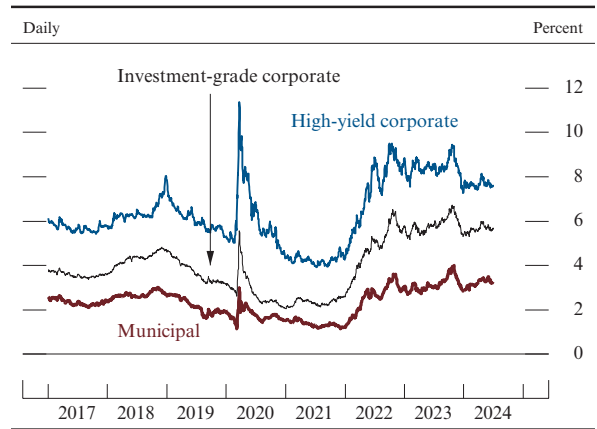
Yields on other long-term debt fluctuated with Treasury yields

Yields on corporate bonds generally followed the movements in longer-term Treasury yields and increased since the beginning of the year for both the investment- and speculative-grade segments of the market (figure 35). Both yield spreads on investment- and speculative-grade corporate bonds over comparable-maturity Treasury securities remain near the low end of their respective historical distributions as corporate bond investors appeared to be pricing in a generally optimistic outlook. Yields on municipal bonds remain at elevated levels relative to rates prevailing before the recent tightening cycle, having increased moderately since January. Meanwhile, spreads of municipal bond yields to yields on comparable-maturity Treasury securities were relatively little changed, on net, and are at compressed levels relative to their historical distribution. Yields on agency mortgage-backed securities (MBS)—an important influence on home mortgage interest rates—increased since the start of the year (figure 36). Agency MBS spreads to Treasury securities remain elevated relative to pre-pandemic levels, due in part to elevated interest rate volatility, which increases the risk of holding MBS.

Broad equity price indexes increased

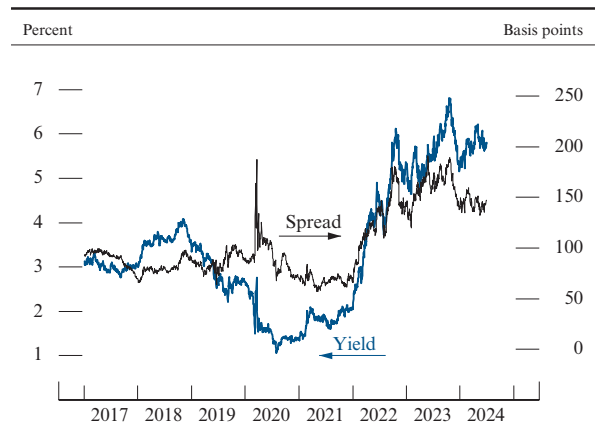
Broad equity price indexes rose substantially since the start of the year, on net, led by large technology firms (figure 37). While equity prices remained sensitive to inflation news, equity investors appeared to be generally sanguine about the prospect of inflation coming down without a sharp downturn in activity. First-quarter corporate earnings releases, which were generally solid, also supported equity valuations. Meanwhile, equity prices for small-cap firms were little changed. Equity prices for large banks increased, on net, while equity prices for regional banks declined, reflecting lingering concerns about the health of these banks related in part to the quality of their commercial real estate loans. One-month option-implied volatility on the S&P 500

35. Corporate bond yields, by securities rating, and municipal bond yield



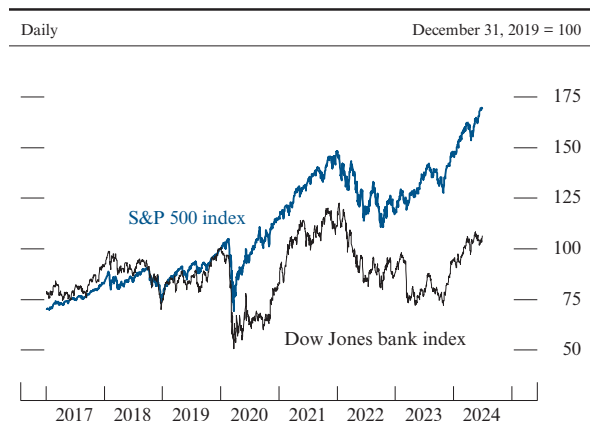
NOTE: Investment-grade corporate reflects the effective yield of the ICE Bank of America Merrill Lynch (BofAML) triple-B U.S. Corporate Index (C0A4). High-yield corporate reflects the effective yield of the ICE BofAML High Yield Index (H0A0). Municipal reflects the yield to worst of the ICE BofAML U.S. Municipal Securities Index (U0A0). SOURCE: ICE Data Indices, LLC, used with permission.

36. Yield and spread on agency mortgage-backed securities



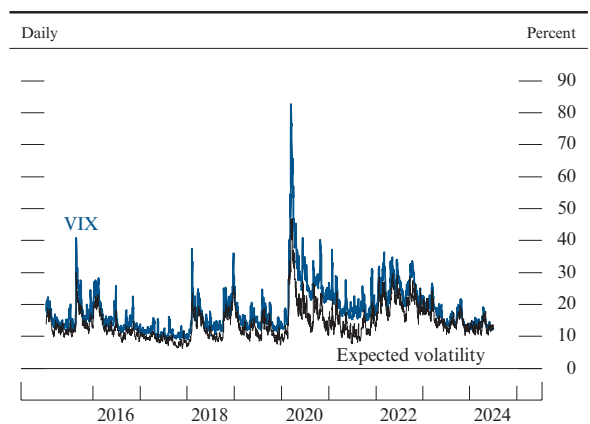
NOTE: The data are daily. Yield shown is for the uniform mortgage-backed securities 30-year current coupon, the coupon rate at which new mortgage-backed securities would be priced at par, or face, value for dates after May 31, 2019; for earlier dates, the yield shown is for the Fannie Mae 30-year current coupon. Spread shown is to the average of the 5-year and 10-year nominal Treasury yields. SOURCE: Department of the Treasury; J.P. Morgan. Courtesy of J.P. Morgan Chase & Co., Copyright 2024.

37. Equity prices



SOURCE: S&P Dow Jones Indices LLC via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

38. S&P 500 volatility



NOTE: The VIX is an option-implied volatility measure that represents the expected annualized variability of the S&P 500 index over the following 30 days. The expected volatility series shows a forecast of 1-month realized volatility, using a heterogeneous autoregressive model based on 5-minute S&P 500 returns.

SOURCE: Cboe Volatility Index® (VIX®) via Bloomberg; Refinitiv DataScope; Federal Reserve Board staff estimates.

index—the VIX—fluctuated somewhat, reaching its peak so far this year in early April amid increased inflation concerns and geopolitical tensions, but quickly retraced and ended the period little changed (figure 38). Currently, the VIX stands close to its typical historical level that was observed before the pandemic. (For a discussion of financial stability issues, see the box “Developments Related to Financial Stability.”)

Major asset markets functioned in an orderly manner, despite some indicators pointing to low liquidity

Functioning of the Treasury securities market has continued to be orderly. While a number of measures of Treasury market liquidity remain low by historical standards, some of these measures—such as on-the-run securities market depth, a measure of the availability of securities to transact at the best quoted prices—improved modestly since January. Liquidity in the equity market remained low compared with pre-pandemic levels, and liquidity conditions deteriorated slightly since the beginning of the year. The depth of the S&P 500 futures market decreased a bit, and the price impact increased slightly. Corporate and municipal bond markets continued to function well, and trading conditions remained stable; transaction costs in these markets continued to be fairly low by historical standards.

Short-term funding market conditions remained stable

Conditions in overnight money markets remained stable, with spreads of money market rates to the Federal Reserve’s administered rates roughly unchanged outside of month-end dates. Since the beginning of the year, the effective federal funds rate has stayed 7 basis points below the interest rate on reserve balances, and other unsecured overnight rates have been around similar levels with limited volatility. The Secured Overnight Financing Rate has remained 1 or 2 basis points above the offering rate on the overnight

Developments Related to Financial Stability

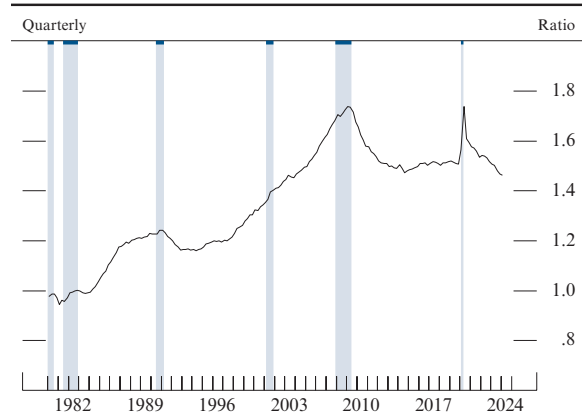
This discussion reviews vulnerabilities in the U.S. financial system. The framework used by the Federal Reserve Board for assessing the resilience of the U.S. financial system focuses on financial vulnerabilities in four broad areas: asset valuations, business and household debt, leverage in the financial sector, and funding risks. All told, the financial system remains sound and resilient. Valuations increased to levels that were high relative to fundamentals across major asset classes, with equity prices growing faster than expected earnings and residential property prices remaining high relative to market rents. Credit to nonfinancial businesses and households relative to gross domestic product (GDP) continued to decline, falling to nearly a two-decade low. Most banks continued to report solid capital levels, but fair value losses on fixed-rate assets remained sizable. In addition, some banks continued to rely significantly on uninsured deposits. Hedge fund leverage grew to historical highs, driven primarily by borrowing by the largest hedge funds.

Valuations rose further to levels that were high relative to fundamentals across major asset classes. Equity prices grew faster than expected earnings, pushing the compensation for equity risk—computed as the difference between the inverse of the forward price-to-earnings ratio and expected real yields on 10-year Treasury securities—to its lowest level since 2007. Corporate bond spreads narrowed and currently stand at levels close to historical lows. Amid limited supply of homes available for sale, residential property prices remained high relative to market rents, standing near their peaks. Conditions in commercial real estate (CRE) markets continued to deteriorate, with declining transaction prices in most segments reflecting weak demand. Nominal long-term Treasury yields increased moderately since the beginning of the year and stayed close to their highest levels over the past decade and a half.

The balance sheets of nonfinancial businesses and households remained strong. The combined debt of both sectors as a share of GDP continued to decline and sat close to its lowest level in two decades (figure A). The decline is due to decreases in both business- and household-sector debt relative to GDP (figure B). Furthermore, business debt continued to decline in real terms, and debt-servicing capacity

(continued on next page)

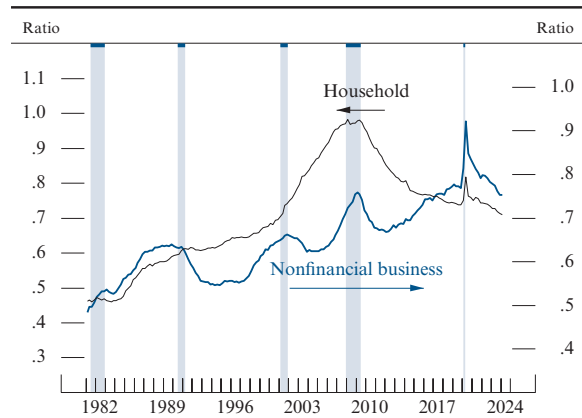
A. Private nonfinancial-sector credit-to-GDP ratio



NOTE: The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: January 1980 to July 1980, July 1981 to November 1982, July 1990 to March 1991, March 2001 to November 2001, December 2007 to June 2009, and February 2020 to April 2020. GDP is gross domestic product.

SOURCE: Federal Reserve Board, Statistical Release Z.1, “Financial Accounts of the United States”; Bureau of Economic Analysis, national income and product accounts; Federal Reserve Board staff calculations.

B. Nonfinancial business and household debt-to-GDP ratios



NOTE: The data are quarterly. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: July 1981 to November 1982, July 1990 to March 1991, March 2001 to November 2001, December 2007 to June 2009, and February 2020 to April 2020. GDP is gross domestic product.

SOURCE: Federal Reserve Board, Statistical Release Z.1, “Financial Accounts of the United States”; Bureau of Economic Analysis, national income and product accounts; Federal Reserve Board staff calculations.

Developments Related to Financial Stability *(continued)*

stayed solid for most public firms—in large part due to strong earnings, large cash buffers, and low borrowing costs on existing debt. In addition, the pass-through of higher interest rates into debt-servicing costs continues to be muted because the share of long-term, fixed-rate liabilities remained sizable. Corporate bond default rates have returned to their average levels, rising from their low points in 2021 but declining from their peaks in the second half of 2023, suggesting that credit quality is stabilizing with pockets of stress continuing for the riskiest borrowers. Expectations of year-ahead defaults stayed somewhat elevated relative to their history. Household balance sheets are still sound, as most homeowners have ample home equity cushions and strong credit histories. Borrowers with prime credit scores—for whom delinquency rates remained low and stable across credit markets—correspond to more than 60 percent of all borrowers and continued to account for most of household debt outstanding.

Regarding vulnerabilities in the financial sector, most banks continued to report capital levels well above regulatory requirements. However, fair value losses on fixed-rate assets remained sizable for some banks, while parts of banks' CRE portfolios are facing stress. Despite a moderation in deposit outflows, higher funding costs—

together with expected increases in loss provisions for CRE and consumer loans—could put downward pressure on banks' profits and their ability to build capital through retained earnings. Outside the banking sector, hedge fund leverage stayed near historical highs, partly due to funds' substantial positions in the Treasury futures basis trade. Leverage at broker-dealers continued to be near historically low levels, but limited capacity or willingness of broker-dealers to intermediate in Treasury markets during market stress remained a structural vulnerability. Life insurers' leverage increased and stood around its median.

Liquidity at most domestic banks remained ample, with limited reliance on short-term wholesale funding. However, some banks' reliance on uninsured deposits remained high, and bond mutual funds' exposure to interest rate risk continued to be significant. Structural vulnerabilities remained in other short-term funding markets. Prime and tax-exempt money market funds, as well as other cash-investment vehicles and stablecoins, continued to be vulnerable to runs. Bond and loan funds remain susceptible to redemptions during periods of stress, with more severe pressures possible if assets become more illiquid or redemptions become unusually large. In addition, life insurers continued to rely on a higher-than-average share of nontraditional liabilities.

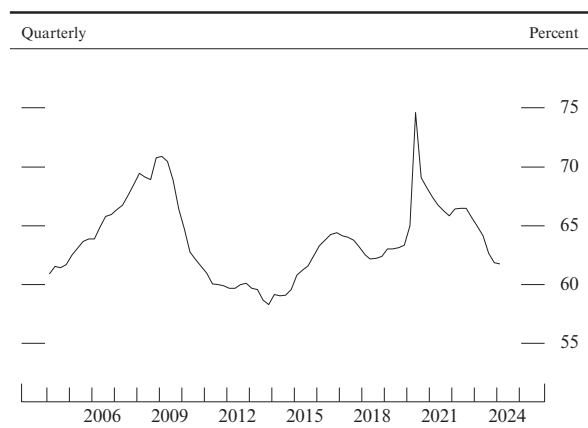
reverse repurchase agreement (ON RRP) facility, except for short-lived upward pressure around month-ends. Take-up at the ON RRP facility declined in the first quarter, reflecting an increase in the net supply of Treasury bills and the associated upward pressure on bill yields relative to the offered rate on ON RRP investments as well as relatively more attractive rates on other short-term investments such as private repurchase agreements. However, the pace of decline in take-up slowed somewhat in the second quarter, primarily because of a decline in net bill supply. (See the box “Developments in the Federal Reserve’s Balance Sheet and Money Markets” in Part 2.)

Assets under management of prime and government money market funds (MMFs), the largest investors in the ON RRP facility, trended up as they continued to offer favorable yields relative to most bank deposits. Prime MMFs increased liquid asset holdings and decreased weighted average maturities to satisfy the Securities and Exchange Commission’s reform requirements that became effective in April. Several institutional prime funds announced conversions to government funds, while a handful announced closures, citing the reform’s liquidity fees starting in October as the main driver behind the decision. However, these announced conversions and closures are unlikely to materially affect the funds’ usage of the ON RRP facility, because only minor additional portfolio changes will be required for conversions and because the decline in money fund assets due to funds closing is likely too small relative to total investments in the facility.

Bank credit continued to expand at a slow pace

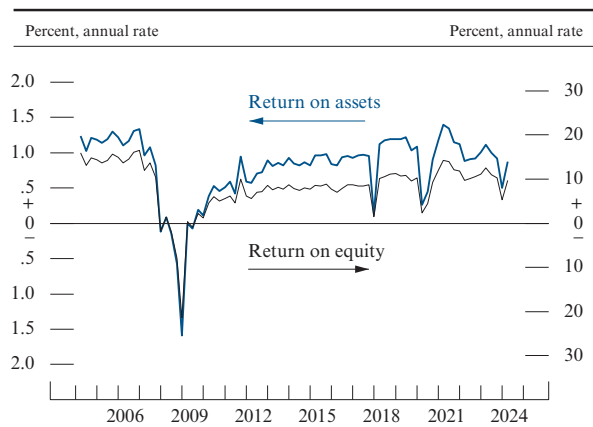
Banks’ total loan holdings grew at about a 2 percent annualized rate in the first five months of the year, modestly up from a 1.3 percent rate in the fourth quarter of 2023. The still-tepid loan growth likely reflects the effects of higher interest rates, tighter credit standards, and economic uncertainty

39. Ratio of total commercial bank credit to nominal gross domestic product



SOURCE: Federal Reserve Board, Statistical Release H.8, “Assets and Liabilities of Commercial Banks in the United States”; Bureau of Economic Analysis via Haver Analytics.

40. Profitability of bank holding companies



NOTE: The data are quarterly.
SOURCE: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

(figure 39). Banks in the SLOOS reported generally tighter standards and weaker demand over the first quarter of 2024, extending trends for standards and demand that have been reported since the middle of 2022. Delinquency rates continued to climb to above their longer-run average for commercial real estate and consumer loans in the first quarter of 2024 but remained in ranges observed before the pandemic across most other credit segments. Bank profitability picked up in the first quarter—reversing the dip in the fourth quarter of 2023—mainly driven by recent rising noninterest income and reduced loan loss provisions. Bank profitability levels are still below those that prevailed before the pandemic, reflecting rising funding costs and subdued loan demand (figure 40).

International Developments

Foreign economic growth rose after a soft patch in the second half of 2023

After a soft patch in the second half of 2023, foreign activity appears to have improved in both advanced foreign economies (AFEs) and emerging market economies (EMEs). In AFEs, growth rates returned to moderate levels despite the effects of restrictive monetary policy as lower inflation improved real household incomes. In Europe, energy-intensive sectors continue to struggle amid ongoing structural adjustment to past increases in energy prices following Russia’s 2022 invasion of Ukraine.

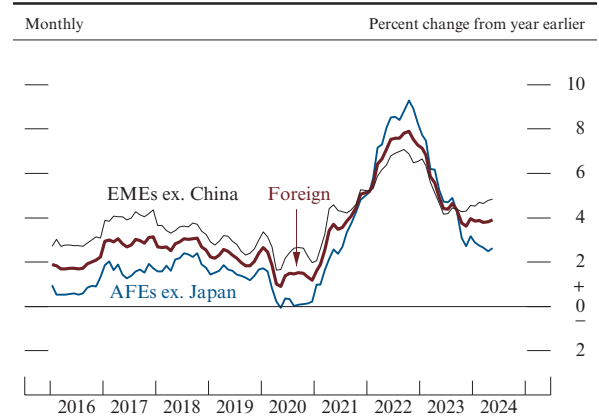
In EMEs, economic growth was supported by a rebound in exports. In addition, industrial production in emerging Asia was supported by rising global demand for high-tech products, driven in part by the AI and electric vehicle sectors. China was a significant contributor to the pickup in foreign aggregate growth, boosted by both strong exports and fiscal policy support, even though household spending expanded only moderately. Notably, activity in China’s property sector remained extremely weak and house prices fell sharply,

prompting the authorities to introduce new policy support measures.

Inflation abroad continued to ease but remains above central bank targets in most regions

Foreign headline inflation has continued to stabilize overall since the middle of last year, primarily reflecting disinflation in AFE food and energy prices (figures 41 and 42). That said, the pace of disinflation has proved to be slower than expected and uneven across countries and economic sectors. As in the U.S., the deceleration in goods prices abroad has generally outpaced that in services prices. Inflation remains above target in Europe but has been near zero in China. In many economies, the main risks to continued disinflation include both domestic factors, such as sustained wage pressures, and external geopolitical factors, such as Russia’s war against Ukraine and developments in the Middle East, which pose risks for supply chain disruptions, increased trade costs, and higher energy prices.

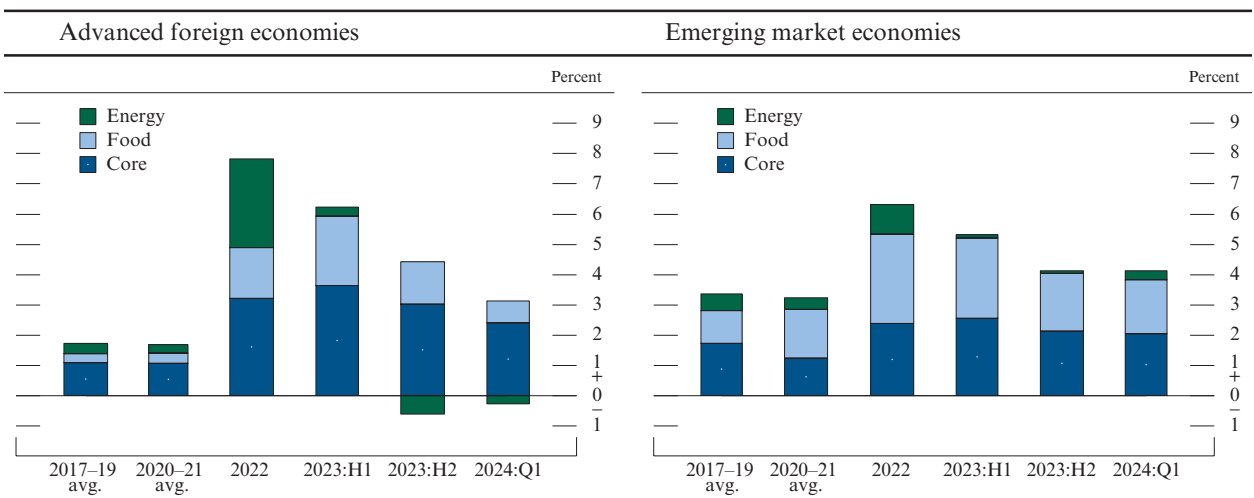
41. Consumer price inflation in foreign economies



NOTE: The advanced foreign economy (AFE) aggregate is the average of Canada, the euro area, and the U.K., weighted by shares of U.S. non-oil goods imports. The emerging market economy (EME) aggregate is the average of Argentina, Brazil, Chile, Colombia, Hong Kong, India, Indonesia, Israel, Malaysia, Mexico, the Philippines, Russia, Saudi Arabia, Singapore, South Korea, Taiwan, Thailand, and Vietnam, weighted by shares of U.S. non-oil goods imports. The foreign aggregate is the import-weighted average of all aforementioned countries. The inflation measure is the Harmonised Index of Consumer Prices for the euro area and the consumer price index for other economies.

SOURCE: Federal Reserve Board staff calculations; Haver Analytics.

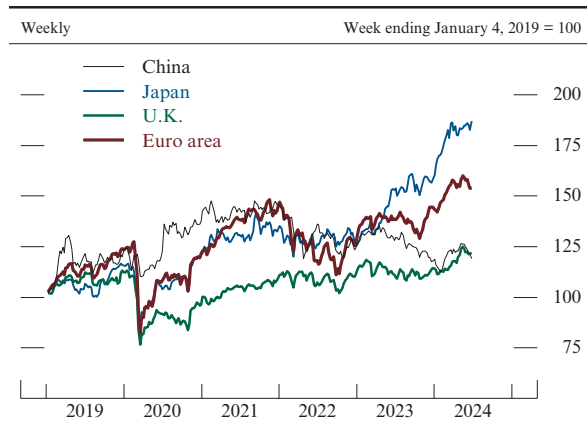
42. Components of foreign consumer price inflation



NOTE: The advanced foreign economy aggregate is the average of Canada, the euro area, and the U.K., weighted by shares of U.S. non-oil goods imports. The emerging market economy aggregate is the average of Argentina, Brazil, Chile, Colombia, Hong Kong, India, Indonesia, Israel, Malaysia, Mexico, the Philippines, Russia, Saudi Arabia, Singapore, South Korea, Taiwan, Thailand, and Vietnam, weighted by shares of U.S. non-oil goods imports, and begins in 2017:Q2. The inflation measure is the Harmonised Index of Consumer Prices for the euro area and the consumer price index for other economies. The data show percent changes from year-ago levels.

SOURCE: Federal Reserve Board staff calculations; Haver Analytics.

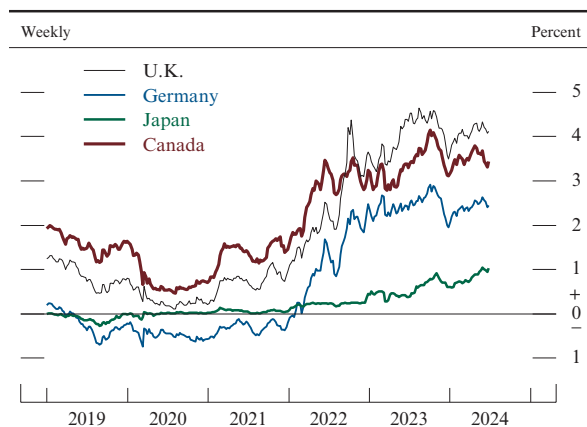
43. Equity indexes for selected foreign economies



NOTE: The data are weekly averages of daily data and extend through June 28, 2024.

SOURCE: For the euro area, Dow Jones Euro Stoxx Index; for Japan, Tokyo Stock Price Index; for China, Shanghai Composite Index; for the U.K., FTSE 100 Index; all via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

44. Nominal 10-year government bond yields in selected advanced foreign economies



NOTE: The data are weekly averages of daily benchmark yields and extend through June 28, 2024.

SOURCE: Bloomberg.

Foreign central banks cut policy rates but remain cautious

Many foreign central banks have noted progress in lowering inflation and easing resource tightness and have indicated that they expect further progress. Some have begun to cut their policy rates while continuing to stress a data-dependent approach.

In EMEs, several central banks began easing monetary policy late in 2023. AFE central banks began to cut rates in the second quarter. The Swiss National Bank, Sweden's Riksbank, the Bank of Canada, and the European Central Bank all cut their policy rates amid easing inflation. Policy rate paths implied by financial market pricing indicate that markets expect other AFE central banks to begin reducing interest rates later this year. Still, most foreign central bank communications have also emphasized upside risks to inflation from persistent core services inflation, currency depreciation, and geopolitical tensions. Japan has been a notable exception: Amid persistently high Japanese inflation, the Bank of Japan (BOJ) ended its negative interest rate policy and yield curve control in March.

Equity prices rose even as sovereign bond yields in advanced foreign economies increased

Foreign equity indexes rose significantly across AFEs and EMEs, consistent with above-expectations economic data and strong corporate earnings in many economies (figure 43). Nevertheless, investors withdrew from EME-focused investment funds as higher advanced-economy yields weighed on their demand for EME assets. In addition, some recent elections abroad contributed to notable movements in equities and other asset prices.

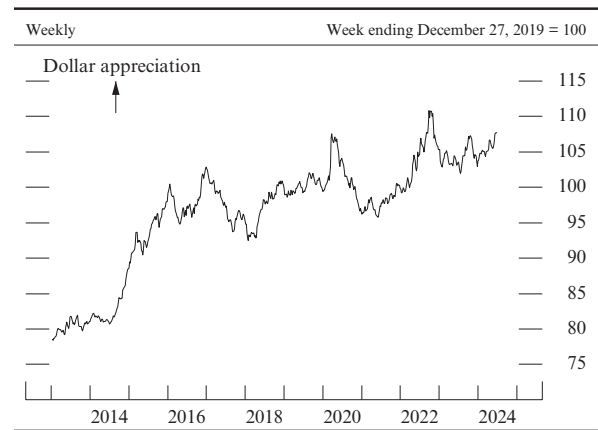
AFE sovereign bond yields increased significantly in early 2024 and are up notably since the start of the year in Germany, Japan, and the U.K. (figure 44). These increases were driven by stronger-than-expected global activity data and spillovers from higher U.S. yields. Relative to late 2023, market-implied

paths for policy rates now indicate a later start to easing and fewer rate cuts by many central banks. In Japan, yields were further supported by three BOJ tightening actions: raising policy rates from negative 0.1 percent to a band of 0 to 0.1 percent, discontinuing the yield curve control framework, and issuing guidance pointing to a potential reduction in sovereign bond purchases.

The exchange value of the dollar rose notably

Since year-end 2023, the broad dollar index—a measure of the exchange value of the dollar against a trade-weighted basket of foreign currencies—increased significantly, on net, reflecting dollar appreciation against both AFE and EME currencies (figure 45). The increase in the dollar index was consistent with a widening of interest rate differentials between the U.S. and the rest of the world.

45. U.S. dollar exchange rate index



NOTE: The data, which are in foreign currency units per dollar, are weekly averages of daily values of the broad dollar index and extend through June 28, 2024. As indicated by the arrow, increases in the data reflect U.S. dollar appreciation and decreases reflect U.S. dollar depreciation.

SOURCE: Federal Reserve Board staff calculations; Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

PART 2

MONETARY POLICY

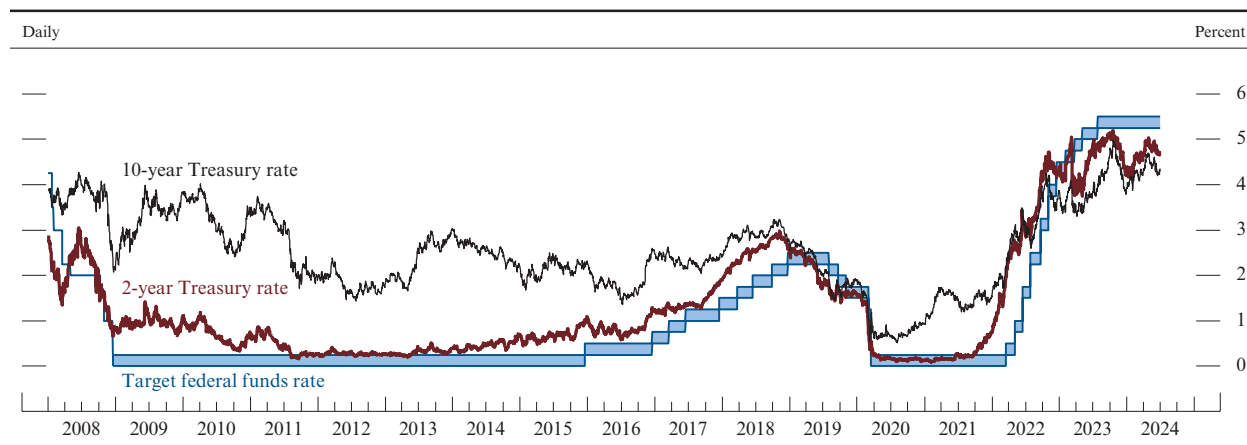
The Federal Open Market Committee has held the federal funds rate steady . . .

The Federal Reserve conducts monetary policy to promote its statutory goals of maximum employment and price stability. (See the box “Monetary Policy Independence, Transparency, and Accountability.”) Inflation has eased over the past year but has remained elevated while the economy has continued to expand at a solid pace. Job gains have been strong, and the unemployment rate has remained low. Against this backdrop, the Federal Open Market Committee (FOMC) has maintained a restrictive stance of policy at recent meetings to keep demand in line with supply and reduce inflationary pressures. Since its July 2023 meeting, the Committee has maintained the target range for the federal funds rate at 5¼ to 5½ percent, after having raised the target range a total of 525 basis points starting in early 2022 (figure 46). The FOMC’s policy tightening actions and current policy stance reflect the Committee’s strong

commitment to return inflation to its 2 percent objective. Restoring price stability is essential to achieving maximum employment and stable prices over the long run that benefit all Americans.

With labor market tightness continuing to ease gradually and inflation easing over the past year, the risks to achieving the Committee’s employment and inflation goals have moved toward better balance. The Committee remains highly attentive to inflation risks and is acutely aware that high inflation imposes significant hardship, especially on those least able to meet the higher costs of essentials, like food, housing, and transportation. 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.

46. Selected interest rates



NOTE: The 2-year and 10-year Treasury rates are the constant-maturity yields based on the most actively traded securities.
SOURCE: Department of the Treasury; Federal Reserve Board.

Monetary Policy Independence, Transparency, and Accountability

Monetary policy is carried out by the Federal Reserve in pursuit of maximum employment and price stability—the dual-mandate goals assigned to it by Congress. Congress has also given the Federal Reserve operational independence. Under this arrangement, the Federal Reserve, rather than other parts of the government, makes determinations about the monetary policy actions that are most appropriate for achieving the dual-mandate goals. This arrangement allows monetary policy decisions to be insulated from short-term political influences.

There is broad support for the principles underlying independent monetary policy. It is widely understood that the monetary policy actions that deliver maximum employment and price stability in the longer run may involve restraining measures that entail short-run economic costs, while actions that raise output and employment to unsustainable levels have no long-run real benefits and may lead to elevated inflation rates. These considerations highlight the value of monetary policy being carried out by an independent agency whose decisions are based on the congressionally assigned dual mandate.¹ Operational independence of

monetary policy has become an international norm, and economic research indicates that economic performance has tended to be better when central banks have such independence.²

Because the Federal Reserve is accountable to Congress and has been granted independence in

(continued)

1. The same basic case for independence has been sketched by successive Federal Reserve Chairs. For example, Paul Volcker noted in congressional testimony in February 1982 that “Congress deliberately set us up with an insulation from that kind of political pressure, and that that is a trust that you have given us and that we mean to discharge,” and he elaborated in July 1987: “[Not] responding to all the short-term political considerations that exist to produce easier money than the basic situation warrants and the long-term health of the currency and the economy warrants . . . [is] the basic justification for the independence of the Federal Reserve.” Alan Greenspan testified in October 1993 that there was “an awareness that independence of the central bank is an element in keeping inflation down.” Ben Bernanke remarked in May 2010: “It is important that we maintain and protect . . . the ability of central banks to make monetary policy decisions based on what is good for the economy in the longer run, independent of short-term political considerations.” Also in 2010, Janet Yellen (who was at the time Vice Chair of the Federal Reserve Board and who later served as Federal Reserve Chair) observed: “The principle of central bank independence in the conduct of monetary policy is widely accepted as vital to achieving maximum employment and price stability.” Chair Jerome Powell likewise stated in January 2023 that “the case for monetary policy independence lies in the benefits of insulating monetary policy decisions from short-term political considerations.”

See Paul A. Volcker (1982), “Panel Discussion,” in *Federal Reserve’s First Monetary Policy Report for 1982, hearings before the Committee on Banking, Housing, and Urban Affairs*, U.S. Senate, February 11 and 25, Senate Hearing 97-48, 97th Cong. (Washington: U.S. Government Printing Office), quoted text on p. 28, <https://fraser.stlouisfed.org/title/monetary-policy-oversight-671/federal-reserve-s-first-monetary-policy-report-1982-22312>; Paul A. Volcker (1987), remarks in *Federal Reserve’s Second Monetary Policy Report for 1987, hearing before the Committee on Banking, Housing, and Urban Affairs*, U.S. Senate, July 23, 100th Cong. (Washington: U.S. Government Printing Office), quoted text on p. 45, <https://fraser.stlouisfed.org/title/monetary-policy-oversight-671/federal-reserve-s-second-monetary-policy-report-1987-22373>; Alan Greenspan (1994), remarks in *The Federal Reserve Accountability Act of 1993, hearing before the Committee on Banking, Finance, and Urban Affairs*, U.S. House of Representatives, October 13, 1993, 103rd Cong. (Washington: U.S. Government Printing Office), quoted text on p. 40, <https://fraser.stlouisfed.org/title/federal-reserve-accountability-act-1993-1154>; Ben S. Bernanke (2010), “Central Bank Independence, Transparency, and Accountability,” speech delivered at the Institute for Monetary and Economic Studies International Conference, Bank of Japan, Tokyo, May 25, quoted text in paragraph 2, <https://www.federalreserve.gov/newsevents/speech/bernanke20100525a.htm>; Janet L. Yellen (2010), “Macroprudential Supervision and Monetary Policy in the Post-crisis World,” speech delivered at the Annual Meeting of the National Association for Business Economics, Denver, Colo., October 11, quoted text in paragraph 44, <https://www.federalreserve.gov/newsevents/speech/yellen20101011a.htm>; and Jerome H. Powell (2023), “Panel on ‘Central Bank Independence and the Mandate—Evolving Views,’” speech delivered at the Symposium on Central Bank Independence, Sveriges Riksbank, Stockholm, Sweden, January 10, quoted text in paragraph 2, <https://www.federalreserve.gov/newsevents/speech/powell20230110a.htm>. A detailed discussion of the issues involved is provided by Paul Tucker (2018), *Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State* (Princeton, N.J.: Princeton University Press).

2. See, for example, Christopher Crowe and Ellen E. Meade (2008), “Central Bank Independence and Transparency: Evolution and Effectiveness,” *European Journal of Political Economy*, vol. 24 (December), pp. 763–77.

the setting of monetary policy, it is vitally important that the Federal Reserve be transparent to Congress and the American people about its monetary policy actions. Transparency requires that the Federal Open Market Committee (FOMC) explain the reasons for its monetary policy decisions, including how these decisions relate to its statutory goals. This feature of transparency underlies the FOMC's assessment that "transparency and accountability . . . are essential in a democratic society."³

Specifically, monetary policy transparency consists of the process in which the Federal Reserve provides to the American people and their elected representatives information about the objectives and strategy of monetary policy, announces its decisions regarding the setting of its policy instruments, explains the reasoning behind those decisions, and provides detailed records of monetary policy committee meetings. The Federal Reserve promotes monetary policy transparency in multiple ways, including through testimony given by Federal Reserve policymakers at congressional hearings, speeches by the Chair and other FOMC meeting participants on economic and policy developments, the FOMC's postmeeting statements, the published minutes and transcripts of each FOMC meeting, the quarterly Summary of Economic Projections (SEP), the Chair's press conferences, and dialogues between FOMC participants and community representatives across the country.

A strong emphasis on transparency has characterized the past 30 years of U.S. monetary policy. Previously, Federal Reserve officials from the 1950s to

the 1980s regularly gave congressional testimony and speeches on monetary policy. Nevertheless, important aspects of transparency were missing. The FOMC in these decades did not provide, in a systematic and timely manner, information on its monetary policy decisions.⁴ In particular, it did not follow a regular practice of issuing, after policy meetings, an announcement of Committee policy actions and the rationale for those actions. The situation changed starting in the mid-1990s. Reflecting on this change, in 2023 Chair Powell noted: "Over the past several decades we have steadily broadened our efforts to provide meaningful transparency about the basis for, and consequences of, the decisions we make."⁵

The shift to greater transparency has reflected not only the fact that transparency supports the Federal Reserve's accountability, but also widespread acceptance that transparency can contribute to the effectiveness of monetary policy. Explanations to the general public of the FOMC's decisions, strategy, and plans tend to enhance the effects of monetary policy actions on financial conditions, economic activity, and inflation. For example, a numerical inflation objective can be helpful in anchoring longer-run inflation expectations, while forward guidance (which is at times provided in FOMC statements) about the federal funds rate can influence key longer-term interest rates by shaping the private sector's assessment of the likely future course of the funds rate. Consequently, the FOMC has observed that clarity about monetary

(continued on next page)

3. See the FOMC's Statement on Longer-Run Goals and Monetary Policy Strategy (quoted text in paragraph 1), available on the Board's website at https://www.federalreserve.gov/monetarypolicy/files/fomc_longerrungoals.pdf. More specifically, paragraph 1 of this statement indicates that "the Committee seeks to explain its monetary policy decisions to the public as clearly as possible" and that "such clarity facilitates . . . transparency and accountability, which are essential in a democratic society." In the same spirit, a major contribution to the research literature on the practice of monetary policy—the 1999 book *Inflation Targeting*—earlier observed: "Transparency and communication together enhance accountability." See Ben S. Bernanke, Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen (1999), *Inflation Targeting: Lessons from the International Experience* (Princeton N.J.: Princeton University Press), quoted text on p. 296.

4. See David E. Lindsey (2003), "A Modern History of FOMC Communication: 1975–2002," memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, Division of Monetary Affairs, June 24, <https://www.federalreserve.gov/monetarypolicy/files/FOMC20030624memo01.pdf>; and Ben S. Bernanke (2013), "A Century of US Central Banking: Goals, Frameworks, Accountability," *Journal of Economic Perspectives*, vol. 27 (Fall), pp. 3–16.

5. See Powell, "Panel on 'Central Bank Independence,'" in box note 1 (quoted text in paragraph 4). See also Alan S. Blinder (2002), "Through the Looking Glass: Central Bank Transparency," CEPS Working Paper 86 (Princeton, N.J.: Princeton University Department of Economics, December), <https://gceps.princeton.edu/wp-content/uploads/2017/01/86blinder.pdf>.

Monetary Policy Independence *(continued)*

policy decisions “increases the effectiveness of monetary policy.”⁶

Today the acceptance of the need for, and benefits of, monetary policy transparency is reflected in the large volume of material that the FOMC and the individual Committee participants provide about their decisions and thinking.⁷ A major step in the direction of greater transparency took place in 1994, when announcements of policy changes began to be issued after FOMC meetings. By the end of the decade, these releases had evolved into the now standard and key part of the Committee’s policy communications—a statement released by the Committee after each meeting that announces the decision on the federal funds rate target range and any other policy actions, puts that decision in the context of the Committee’s assessment of incoming data and the economic outlook, and gives the record of the vote on the action.⁸ Further information about Committee decisions is provided via FOMC meeting minutes, released three weeks after each FOMC meeting (a shorter lag than that prevailing until the mid-2000s). After five years, transcripts of the FOMC meetings are made public.

6. See the FOMC’s Statement on Longer-Run Goals and Monetary Policy Strategy, in box note 3 (quoted text in paragraph 1).

7. For further details, see Board of Governors of the Federal Reserve System (2019), “Review of Monetary Policy Strategy, Tools, and Communications,” webpage, <https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-fed-listens-timelines.htm>; and Jerome H. Powell (2024), “Opening Remarks,” speech delivered at the Stanford Business, Government, and Society Forum, Stanford Graduate School of Business, Stanford, Calif., April 3, <https://www.federalreserve.gov/newsevents/speech/powell20240403a.htm>.

8. In the past 15 years, information about the Committee’s balance sheet policy has been an important part of the postmeeting statement and related FOMC statements. A detailed account of key communications on balance sheet policy that the Committee has issued in recent years is provided in Board of Governors of the Federal Reserve System (2024), “FOMC Communications Related to Policy Normalization,” webpage, <https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm>. A longer-term chronology, covering developments over the past decade, is available at Board of Governors of the Federal Reserve System (2024), “History of the FOMC’s Policy Normalization Discussions and Communications,” webpage, <https://www.federalreserve.gov/monetarypolicy/policy-normalization-discussions-communications-history.htm>.

At the end of 2007, the FOMC began publishing, on a quarterly basis, the SEP, which distills information about individual meeting participants’ economic projections. Since then, numerous features have been added to the SEP, including longer-run projections in 2009 and federal funds rate projections in 2012. In 2011, Chair Bernanke started holding regular postmeeting press conferences. In 2019, Chair Powell initiated the practice of holding press conferences after every FOMC meeting.

With regard to its strategy, in January 2012 the FOMC issued a Statement on Longer-Run Goals and Monetary Policy Strategy, or “consensus statement.” The consensus statement has been reaffirmed in the years since 2012, and it has been revised several times. From its inception, the consensus statement made the price-stability component of the dual mandate numerically precise by indicating that Federal Reserve policymakers interpret it as corresponding to a 2 percent longer-run inflation rate (in the personal consumption expenditures price index). Also in the area of strategy, in 2018 the Federal Reserve launched the practice of having a review of monetary policy strategy, tools, and communication practices roughly every five years. The first such framework review took place from 2019 to 2020. An innovation of this review was the holding, around the country, of *Fed Listens* events, consisting of a dialogue between Federal Reserve policymakers and community members on monetary policy and economic issues. The Federal Reserve has continued to hold *Fed Listens* events between the periods of framework review.

The framework review process also included internal FOMC deliberations. These deliberations took place at Committee meetings and were detailed in the publicly released FOMC meeting minutes. The Federal Reserve staff memos that served as an input into these deliberations were released publicly after the completion of the 2019–20 review. The next framework review is scheduled to begin later this year.

Along with the transparency-enhancing activities, documents, and statements described earlier, further information on monetary policy decisions is provided in the frequent speeches, interviews, and testimony given by FOMC meeting participants.

... and has continued the process of significantly reducing its holdings of Treasury and agency securities

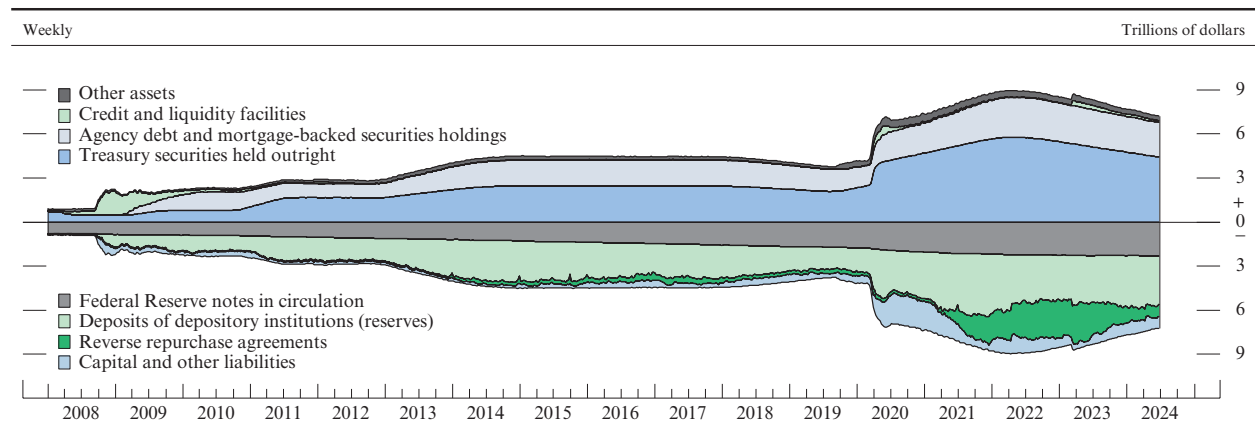
The FOMC began reducing its securities holdings in June 2022 and, since then, has continued to implement its plan for significantly reducing the size of the Federal Reserve’s balance sheet in a predictable manner.⁹ For some time, principal payments from securities held in the System Open Market Account (SOMA) had been reinvested only to the extent that they exceeded monthly caps of \$60 billion per month for Treasury securities and \$35 billion per month for agency debt and agency mortgage-backed securities (MBS). On June 1, the Committee slowed the pace of decline of its securities holdings, consistent with its Plans for Reducing the Size of the Federal Reserve’s Balance Sheet. Specifically, the Committee reduced the redemption cap on Treasury securities to \$25 billion per month and maintained the redemption cap on agency debt and agency MBS at \$35 billion per month. Any proceeds

in excess of the agency debt and agency MBS cap would be reinvested into Treasury securities, consistent with the Committee’s intention to hold primarily Treasury securities in the longer run. The decision to slow the pace of balance sheet runoff does not have implications for the stance of monetary policy and does not mean that the balance sheet will ultimately shrink by less than it would otherwise. Rather, a slower pace of balance sheet runoff helps facilitate a smooth transition from abundant to ample reserve balances and gives the Committee more time to assess market conditions as the balance sheet continues to shrink. It will also allow banks, and short-term funding markets more generally, additional time to adjust to the lower level of reserves, thus reducing the probability that money markets experience undue stress that could require an early end to runoff.

The SOMA holdings of Treasury and agency securities have declined about \$1.7 trillion since the start of the balance sheet reduction and about \$260 billion since February 2024 to around \$6.8 trillion, a level equivalent to 24 percent of U.S. nominal gross domestic product, down from its peak of 35 percent reached at the end of 2021 (figure 47). Also, since February 2024, reserve balances—

9. See the May 4, 2022, press release regarding the Plans for Reducing the Size of the Federal Reserve’s Balance Sheet, available on the Board’s website at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm>.

47. Federal Reserve assets and liabilities



NOTE: “Other assets” includes repurchase agreements, FIMA (Foreign and International Monetary Authorities) repurchase agreements, and unamortized premiums and discounts on securities held outright. “Credit and liquidity facilities” consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns Companies, Inc., and AIG; and other credit and liquidity facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, the Term Asset-Backed Securities Loan Facility, the Primary and Secondary Market Corporate Credit Facilities, the Paycheck Protection Program Liquidity Facility, the Municipal Liquidity Facility, and the Main Street Lending Program. “Agency debt and mortgage-backed securities holdings” includes agency residential mortgage-backed securities and agency commercial mortgage-backed securities. “Capital and other liabilities” includes the U.S. Treasury General Account and the U.S. Treasury Supplementary Financing Account. The key identifies shaded areas in order from top to bottom. The data extend through June 19, 2024.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, “Factors Affecting Reserve Balances.”

the largest liability item on the Federal Reserve’s balance sheet—have declined about \$180 billion to a level of around \$3.4 trillion. The smaller decline of reserve balances compared with the decline in SOMA holdings reflects decreases in nonreserve liabilities such as balances at the overnight reverse repurchase agreement facility. (See the box “Developments in the Federal Reserve’s Balance Sheet and Money Markets.”)

The FOMC has stated that it intends to maintain securities holdings at amounts consistent with implementing monetary policy efficiently and effectively in its ample-reserves regime—that is, a regime in which an ample supply of reserves ensures that control over the level of the federal funds rate and other short-term interest rates is exercised primarily through the setting of the Federal Reserve’s administered rates and in which active management of the supply of reserves is not required. To ensure a smooth transition to ample reserve balances, the FOMC slowed the pace of decline of its securities holdings in June 2024 and intends to stop reductions in its securities holdings when reserve balances are somewhat above the level that the FOMC judges to be consistent with ample reserves. Once balance sheet runoff has ceased, reserve balances will likely continue to decline at a slower pace—reflecting growth in other Federal Reserve liabilities—until the FOMC judges that reserve balances are at an ample level. Thereafter, the FOMC will manage securities holdings as needed to maintain ample reserves over time.

The FOMC will continue to monitor the implications of incoming information for the economic outlook and the balance of risks

As already indicated, the FOMC is strongly committed to returning inflation to its

2 percent objective, and, 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. Its 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. The Committee has noted that it is also prepared to adjust its approach to reducing the size of the balance sheet in light of economic and financial developments.

In addition to considering a wide range of economic and financial data, the FOMC gathers information from business contacts and other informed parties around the country, as summarized in the Beige Book. The Federal Reserve has regular arrangements under which it hears from a broad range of participants in the U.S. economy about how monetary policy affects people’s daily lives and livelihoods. In particular, the Federal Reserve has continued to gather insights into these matters through the *Fed Listens* initiative and the Federal Reserve System’s community development outreach.

Policymakers also routinely consult prescriptions for the policy interest rate provided by various monetary policy rules. These rule prescriptions can provide useful benchmarks for the conduct of monetary policy. However, simple rules cannot capture all of the complex considerations that go into the formation of appropriate monetary policy, and many practical considerations make it undesirable for the FOMC to adhere strictly to the prescriptions of any specific rule. Nevertheless, some principles of good monetary policy are embedded in these simple rules. (See the box “Monetary Policy Rules in the Current Environment.”)

Developments in the Federal Reserve’s Balance Sheet and Money Markets

The Federal Open Market Committee (FOMC) continued to reduce the size of the Federal Reserve’s System Open Market Account (SOMA) portfolio. Since the previous report, total Federal Reserve assets have decreased \$315 billion, leaving the total size of the balance sheet at \$7.3 trillion, \$1.7 trillion smaller since the reduction in the size of the SOMA portfolio began in June 2022 (figures A and B).¹ On May 1, the FOMC

announced that beginning in June, the Committee would slow the pace of decline of its securities holdings, consistent with its Plans for Reducing the Size of the Federal Reserve’s Balance Sheet.²

(continued on next page)

1. The last Federal Reserve Board statistical release H.4.1 (“Factors Affecting Reserve Balances”) before the publication of the previous *Monetary Policy Report* on March 1 was

dated February 29, 2024. As a result, this discussion refers to changes in the Federal Reserve’s balance sheet since late February.

2. See the May 4, 2022, press release regarding the Plans for Reducing the Size of the Federal Reserve’s Balance Sheet, available on the Board’s website at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm>.

A. Balance sheet comparison

Billions of dollars

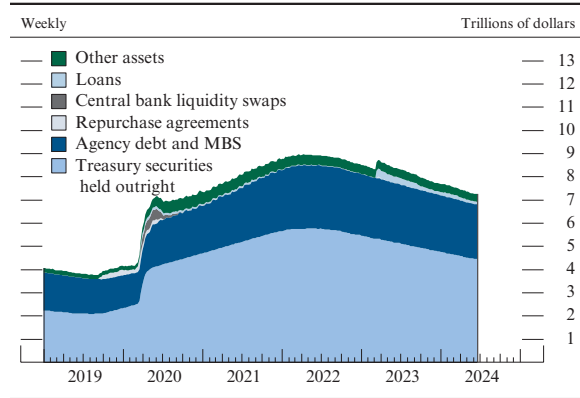
	June 19, 2024	February 28, 2024	Change (since February 2024)	Memo: Change (since Fed’s balance sheet reduction began on June 1, 2022)
Assets				
Total securities				
Treasury securities	4,453	4,661	–208	–1,318
Agency debt and MBS	2,357	2,406	–49	–353
Unamortized premiums	265	274	–8	–72
Repurchase agreements	0	0	0	0
Loans and lending facilities				
PPPLF	3	3	0	–17
Discount window	7	2	5	6
BTFP	107	163	–56	107
Other loans and lending facilities	11	15	–4	–23
Central bank liquidity swaps	0	0	0	0
Other assets	49	44	6	7
Total assets	7,253	7,568	–315	–1,663
Liabilities				
Federal Reserve notes	2,301	2,282	18	70
Reserves held by depository institutions	3,366	3,541	–175	9
Reverse repurchase agreements				
Foreign official and international accounts	389	339	50	124
Others	376	570	–194	–1,589
U.S. Treasury General Account	782	768	14	2
Other deposits	158	162	–4	–90
Other liabilities and capital	–120	–94	–25	–188
Total liabilities and capital	7,253	7,568	–315	–1,663

NOTE: MBS is mortgage-backed securities. PPPLF is Paycheck Protection Program Liquidity Facility. BTFP is Bank Term Funding Program. Components may not sum to totals because of rounding.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, “Factors Affecting Reserve Balances.”

Federal Reserve’s Balance Sheet and Money Markets *(continued)*

B. Federal Reserve assets



NOTE: MBS is mortgage-backed securities. The key identifies shaded areas in order from top to bottom. The data extend through June 19, 2024.
 SOURCE: Federal Reserve Board, Statistical Release H.4.1, “Factors Affecting Reserve Balances.”

Reserves, the largest liability item on the Federal Reserve’s balance sheet, have declined \$175 billion since late February 2024 to a level of about \$3.4 trillion.³ Since the beginning of balance sheet runoff, reserves have been little changed because the

3. Reserve balances consist of deposits held at the Federal Reserve Banks by depository institutions (DIs), such as commercial banks, savings banks, credit unions, thrift institutions, and U.S. branches and agencies of foreign banks.

reserve-draining effect of balance sheet runoff was more than offset by a \$1.6 trillion decline in balances at the overnight reverse repurchase agreement (ON RRP) facility. Since February 2024, usage of the ON RRP facility has continued to decline, albeit at a slower pace than that seen over the second half of 2023. Usage of the facility has averaged around \$450 billion since the end of February (figure C). Reduced usage of the ON RRP facility largely reflects money market mutual funds shifting their portfolios toward higher-yielding investments, including Treasury bills and private-market repurchase agreements.

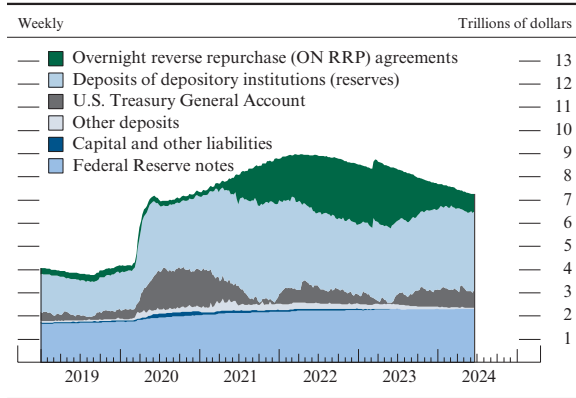
Conditions in overnight money markets remained stable. The ON RRP facility continued to serve its intended purpose of supporting the control of the effective federal funds rate (EFFR), and the Federal Reserve’s administered rates—the interest rate on reserve balances and the ON RRP offering rate—remained highly effective at maintaining the EFFR within the target range.

The Federal Reserve’s expenses have continued to exceed its income over recent months. The Federal Reserve’s deferred asset has increased \$23 billion since late February to a level of around \$175 billion.⁴ Negative net income and the associated deferred asset

(continued)

4. The deferred asset is equal to the cumulative shortfall of net income and represents the amount of future net income that will need to be realized before remittances to the Treasury resume. Although remittances are suspended at the time of this

C. Federal Reserve liabilities



NOTE: “Capital and other liabilities” includes the liability for earnings remittances due to the U.S. Treasury and contributions from the U.S. Treasury. The current sum is negative on June 19, 2024, because of the deferred asset that the Federal Reserve reports. The key identifies shaded areas in order from top to bottom. The data extend through June 19, 2024.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, “Factors Affecting Reserve Balances.”

do not affect the Federal Reserve’s conduct of monetary policy or its ability to meet its financial obligations.⁵

report, over the past decade and a half, the Federal Reserve has remitted over \$1 trillion to the Treasury.

5. Net income is expected to turn positive again as interest expenses fall, and remittances will resume once the temporary deferred asset falls to zero. As a result of the ongoing reduction in the size of the Federal Reserve’s balance sheet, interest

While the reduction in the size of the SOMA portfolio has continued as planned, amid the banking-sector developments of spring 2023, the Federal Reserve provided liquidity to help ensure the stability of the banking system and the ongoing provision of money and credit to the economy. Loans extended under the Bank Term Funding Program (BTFP)—which made longer-term funding and liquidity available to eligible depository institutions to support American households and businesses and ceased making new loans as scheduled on March 11, 2024—have decreased \$56 billion to a level of \$107 billion since February 2024.⁶

expenses will fall over time in line with the decline in the Federal Reserve’s liabilities.

6. The BTFP was established under section 13(3) of the Federal Reserve Act with the approval of the Secretary of the Treasury. The BTFP offered loans of up to one year to banks, savings associations, credit unions, and other eligible DIs against collateral such as U.S. Treasury securities, U.S. agency securities, and U.S. agency mortgage-backed securities. For more details, see Board of Governors of the Federal Reserve System (2024), “Bank Term Funding Program,” webpage, June 11, <https://www.federalreserve.gov/financial-stability/bank-term-funding-program.htm>.

Monetary Policy Rules in the Current Environment

As part of their monetary policy deliberations, policymakers regularly consult the prescriptions of a variety of simple interest rate rules without mechanically following the prescriptions of any particular rule. Simple interest rate rules relate a policy interest rate, such as the federal funds rate, to a small number of other economic variables—typically including the current deviation of inflation from its target value and a measure of resource slack in the economy.

Since 2021, inflation has run above the Federal Open Market Committee’s (FOMC) 2 percent longer-run objective, and labor market conditions have been tight. Although inflation remains elevated, it has eased over the past year, and labor supply and demand have come into better balance. Against this backdrop, the simple monetary policy rules considered in this discussion have called for levels of the policy interest rate over 2021, 2022, and the first half of 2023 that were elevated relative to the FOMC’s target range for the federal funds rate. However, the rates prescribed by these rules for the first quarter of 2024, the most recent quarter for which data are available, are close to or below the current target range for the federal funds rate at 5¼ to 5½ percent. In support of its goals of maximum employment and inflation at the rate of 2 percent over the longer run, the FOMC has maintained the target range for the federal funds rate at 5¼ to 5½ percent since last July while continuing to

reduce its holdings of Treasury securities and agency debt and agency mortgage-backed securities.

Selected Policy Rules: Descriptions

In many economic models, desirable economic outcomes can be achieved over time if monetary policy responds to changes in economic conditions in a manner that is predictable and adheres to some key design principles. In recognition of this idea, economists have analyzed many monetary policy rules, including the well-known Taylor (1993) rule, the “balanced approach” rule, the “adjusted Taylor (1993)” rule, and the “first difference” rule.¹ Figure A shows these rules, along with a “balanced approach

(continued)

1. The Taylor (1993) rule was introduced in John B. Taylor (1993), “Discretion versus Policy Rules in Practice,” *Carnegie-Rochester Conference Series on Public Policy*, vol. 39 (December), pp. 195–214. The balanced-approach rule was analyzed in John B. Taylor (1999), “A Historical Analysis of Monetary Policy Rules,” in John B. Taylor, ed., *Monetary Policy Rules* (Chicago: University of Chicago Press), pp. 319–41. The adjusted Taylor (1993) rule was studied in David Reifschneider and John C. Williams (2000), “Three Lessons for Monetary Policy in a Low-Inflation Era,” *Journal of Money, Credit and Banking*, vol. 32 (November), pp. 936–66. The first-difference rule is based on a rule suggested by Athanasios Orphanides (2003), “Historical Monetary Policy Analysis and the Taylor Rule,” *Journal of Monetary Economics*, vol. 50 (July),

A. Monetary policy rules

Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Balanced-approach (shortfalls) rule	$R_t^{BAS} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2\min\{u_t^{LR} - u_t, 0\}$
Adjusted Taylor (1993) rule	$R_t^{T93adj} = \max\{R_t^{T93} - Z_t, \text{ELB}\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-2}^{LR} - u_{t-4}^{LR})$

NOTE: R_t^{T93} , R_t^{BA} , R_t^{BAS} , R_t^{T93adj} , and R_t^{FD} represent the values of the nominal federal funds rate prescribed by the Taylor (1993), balanced-approach, balanced-approach (shortfalls), adjusted Taylor (1993), and first-difference rules, respectively.

R_{t-1} denotes the midpoint of the target range for the federal funds rate for quarter $t-1$, u_t is the unemployment rate in quarter t , and r_t^{LR} is the level of the neutral real federal funds rate in the longer run that is expected to be consistent with sustaining maximum employment and keeping inflation at the Federal Open Market Committee’s 2 percent longer-run objective, represented by π^{LR} . π_t denotes the realized 4-quarter price inflation for quarter t . In addition, u_t^{LR} is the rate of unemployment expected in the longer run. Z_t is the cumulative sum of past deviations of the federal funds rate from the prescriptions of the Taylor (1993) rule when that rule prescribes setting the federal funds rate below an effective lower bound (ELB) of 12.5 basis points.

The Taylor (1993) rule and other policy rules generally respond to the deviation of real output from its full capacity level. In these equations, the output gap has been replaced with the gap between the rate of unemployment in the longer run and its actual level (using a relationship known as Okun’s law) to represent the rules in terms of the unemployment rate. The rules are implemented as responding to core personal consumption expenditures (PCE) inflation rather than to headline PCE inflation because current and near-term core inflation rates tend to outperform headline inflation rates as predictors of the medium-term behavior of headline inflation. Box note 1 provides references for the policy rules.

(shortfalls)” rule, which responds to the unemployment rate only when it is higher than its estimated longer-run level.² All of the simple rules shown embody key design principles of good monetary policy, including the requirement that the policy rate should be adjusted by enough over time to ensure a return of inflation to the central bank’s longer-run objective and to anchor longer-term inflation expectations at levels consistent with that objective.

All five rules feature the difference between inflation and the FOMC’s longer-run objective of 2 percent. The five rules use the unemployment rate gap, measured as the difference between an estimate of the rate of unemployment in the longer run (u_t^{LR}) and the current unemployment rate; the first-difference rule includes the change in the unemployment rate gap rather than its level.³ All but the first-difference rule include an estimate of the neutral real interest rate in the longer run (r_t^{LR}).⁴

pp. 983–1022. A review of policy rules is provided in John B. Taylor and John C. Williams (2011), “Simple and Robust Rules for Monetary Policy,” in Benjamin M. Friedman and Michael Woodford, eds., *Handbook of Monetary Economics*, vol. 3B (Amsterdam: North-Holland), pp. 829–59. The same volume of the *Handbook of Monetary Economics* also discusses approaches to deriving policy rate prescriptions other than through the use of simple rules.

2. The balanced-approach (shortfalls) rule responds asymmetrically to unemployment rates above or below their estimated longer-run value: When unemployment is above that value, the policy rates are identical to those prescribed by the balanced-approach rule, whereas when unemployment is below that value, policy rates do not rise because of further declines in the unemployment rate. As a result, the prescription of the balanced-approach (shortfalls) rule has been less restrictive than that of the balanced-approach rule since the first quarter of 2022.

3. Implementations of simple rules often use the output gap as a measure of resource slack in the economy. The rules described in figure A instead use the unemployment rate gap because that gap better captures the FOMC’s statutory goal to promote maximum employment. Movements in these alternative measures of resource utilization tend to be highly correlated. For more information, see the note associated with figure A.

4. The neutral real interest rate in the longer run (r_t^{LR}) is the level of the real federal funds rate that is expected to be consistent, in the longer run, with maximum employment and stable inflation. Like u_t^{LR} , r_t^{LR} is determined largely by nonmonetary factors. The first-difference rule shown in figure A does not require an estimate of r_t^{LR} , a feature that is touted by proponents of such rules as providing an element of robustness. However, this rule has its own shortcomings. For example, research suggests that this sort of rule often results in greater volatility in employment and inflation than what would be obtained under the Taylor (1993) and balanced-approach rules.

Unlike the other simple rules featured here, the adjusted Taylor (1993) rule recognizes that the federal funds rate cannot be reduced materially below the effective lower bound (ELB). By contrast, the standard Taylor (1993) rule prescribed policy rates that, during the pandemic-induced recession, were far below zero. To make up for the cumulative shortfall in policy accommodation following a recession during which the federal funds rate is constrained by its ELB, the adjusted Taylor (1993) rule prescribes delaying the return of the policy rate to the (positive) levels prescribed by the standard Taylor (1993) rule.

Policy Rules: Limitations

As benchmarks for monetary policy, simple policy rules have important limitations. One of these limitations is that the simple policy rules mechanically respond to only a small set of economic variables and thus necessarily abstract from many of the factors that the FOMC considers when it assesses the appropriate setting of the policy rate. In addition, the structure of the economy and current economic conditions differ in important respects from those prevailing when the simple policy rules were originally devised and proposed. As a result, most simple policy rules do not take into account the ELB on interest rates, which limits the extent to which the policy rate can be lowered to support the economy. This constraint was particularly evident during the pandemic-driven recession, when the lower bound on the policy rate motivated the FOMC’s other policy actions to support the economy. Relatedly, another limitation is that simple policy rules do not explicitly take into account other important tools of monetary policy, such as balance sheet policies. Finally, simple policy rules are not forward looking and do not allow for important risk-management considerations, associated with uncertainty about economic relationships and the evolution of the economy, that factor into FOMC decisions.

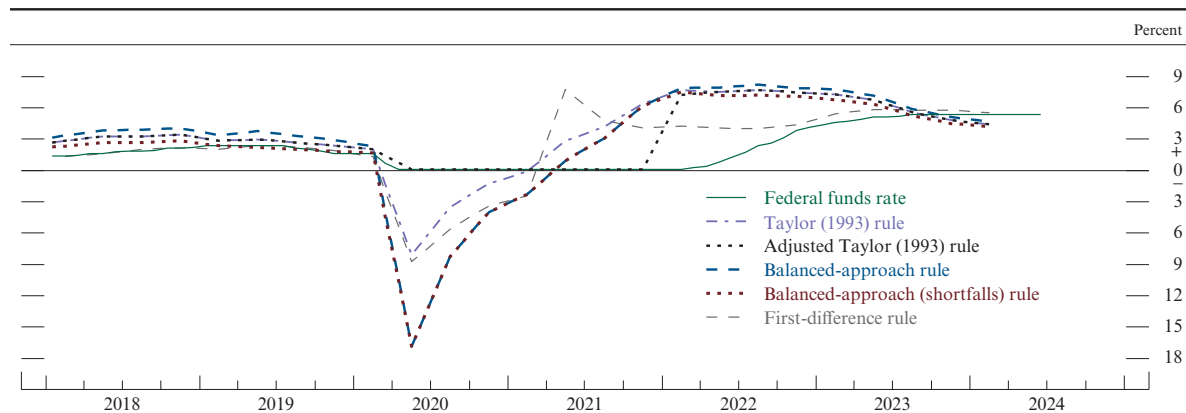
Selected Policy Rules: Prescriptions

Figure B shows historical prescriptions for the federal funds rate under the five simple rules considered. For each quarterly period, the figure reports the policy rates prescribed by the rules, taking as given the prevailing economic conditions and survey-based estimates of u_t^{LR} and r_t^{LR} at the time. All of the rules considered called for a highly accommodative stance of monetary policy in response to the pandemic-driven recession, followed by

(continued on next page)

Monetary Policy Rules *(continued)*

B. Historical federal funds rate prescriptions from simple policy rules



NOTE: The rules use historical values of core personal consumption expenditures inflation, the unemployment rate, and, where applicable, historical values of the midpoint of the target range for the federal funds rate. Quarterly projections of longer-run values for the federal funds rate, the unemployment rate, and inflation used in the computation of the rules' prescriptions are interpolations to quarterly values of projections from the Survey of Primary Dealers. The rules' prescriptions are quarterly, and the federal funds rate data are the monthly average of the daily midpoint of the target range for the federal funds rate and extend through June 2024.

SOURCE: Federal Reserve Bank of New York, Survey of Primary Dealers; Federal Reserve Bank of St. Louis, Federal Reserve Economic Data, DFEDTARL and DFEDTARU; Federal Reserve Board staff estimates.

positive values as inflation picked up and labor market conditions strengthened.⁵ In 2022 and during the first half of 2023, the prescriptions of the simple rules for

the federal funds rate were well above the prescriptions observed before the pandemic, reflecting, in large part, elevated inflation readings. Because inflation has recently run notably below levels observed at its peak in 2022, the policy rates prescribed by these rules have now declined. The current prescriptions from these rules are close to or below the current target range for the federal funds rate, though higher than survey-based estimates of the longer-run value of the federal funds rate.

5. For the adjusted Taylor (1993) rule, Z_t —the cumulative sum of past deviations of the federal funds rate from the prescriptions of the Taylor (1993) rule when that rule prescribes setting the federal funds rate below an ELB of 12.5 basis points—is positive in the third quarter of 2020, one quarter after the prescription of the Taylor (1993) rule falls below the ELB, through to the first quarter of 2022. This approach is a slight adjustment from previous editions of this

discussion in the *Monetary Policy Report*, where Z_t cumulated from the fourth quarter of 2020.

PART 3

SUMMARY OF ECONOMIC PROJECTIONS

The following material was released after the conclusion of the June 11–12, 2024, meeting of the Federal Open Market Committee.

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 11–12, 2024, meeting participants submitted their projections of the most likely outcomes for real gross domestic product (GDP) growth, the unemployment rate, and inflation for each year from 2024 to 2026 and over the longer run. Each participant’s projections were based on information available at the time of the meeting, together with her or his assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely

to affect economic outcomes. The longer-run projections represent each participant’s assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. “Appropriate monetary policy” is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, June 2024

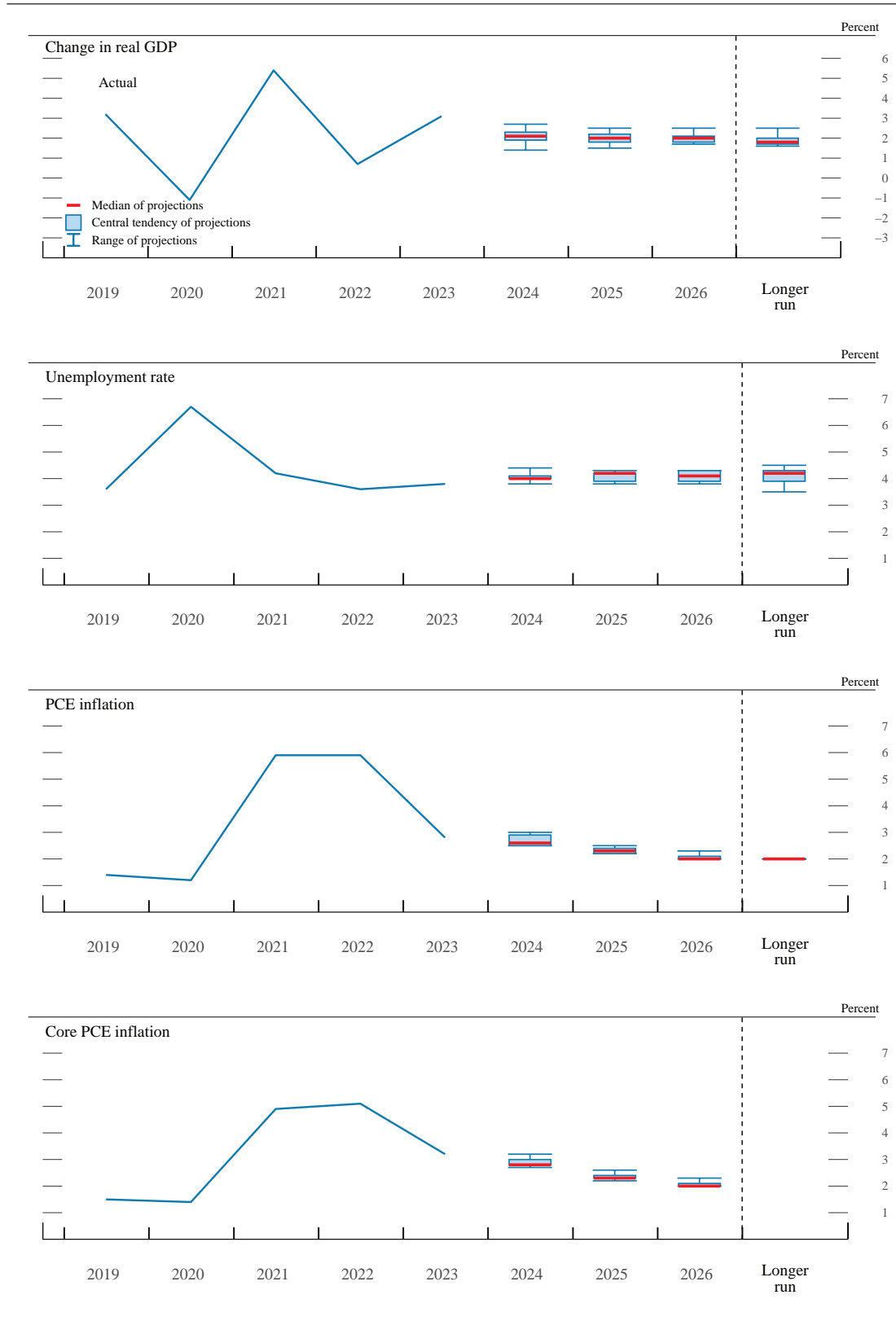
Percent

Variable	Median ¹				Central tendency ²				Range ³			
	2024	2025	2026	Longer run	2024	2025	2026	Longer run	2024	2025	2026	Longer run
Change in real GDP	2.1	2.0	2.0	1.8	1.9–2.3	1.8–2.2	1.8–2.1	1.7–2.0	1.4–2.7	1.5–2.5	1.7–2.5	1.6–2.5
March projection	2.1	2.0	2.0	1.8	2.0–2.4	1.9–2.3	1.8–2.1	1.7–2.0	1.3–2.7	1.7–2.5	1.7–2.5	1.6–2.5
Unemployment rate	4.0	4.2	4.1	4.2	4.0–4.1	3.9–4.2	3.9–4.3	3.9–4.3	3.8–4.4	3.8–4.3	3.8–4.3	3.5–4.5
March projection	4.0	4.1	4.0	4.1	3.9–4.1	3.9–4.2	3.9–4.3	3.8–4.3	3.8–4.5	3.7–4.3	3.7–4.3	3.5–4.3
PCE inflation	2.6	2.3	2.0	2.0	2.5–2.9	2.2–2.4	2.0–2.1	2.0	2.5–3.0	2.2–2.5	2.0–2.3	2.0
March projection	2.4	2.2	2.0	2.0	2.3–2.7	2.1–2.2	2.0–2.1	2.0	2.2–2.9	2.0–2.5	2.0–2.3	2.0
Core PCE inflation ⁴	2.8	2.3	2.0		2.8–3.0	2.3–2.4	2.0–2.1		2.7–3.2	2.2–2.6	2.0–2.3	
March projection	2.6	2.2	2.0		2.5–2.8	2.1–2.3	2.0–2.1		2.4–3.0	2.0–2.6	2.0–2.3	
Memo: Projected appropriate policy path												
Federal funds rate	5.1	4.1	3.1	2.8	4.9–5.4	3.9–4.4	2.9–3.6	2.5–3.5	4.9–5.4	2.9–5.4	2.4–4.9	2.4–3.8
March projection	4.6	3.9	3.1	2.6	4.6–5.1	3.4–4.1	2.6–3.4	2.5–3.1	4.4–5.4	2.6–5.4	2.4–4.9	2.4–3.8

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant’s projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant’s assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The March projections were made in conjunction with the meeting of the Federal Open Market Committee on March 19–20, 2024. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the March 19–20, 2024, meeting.

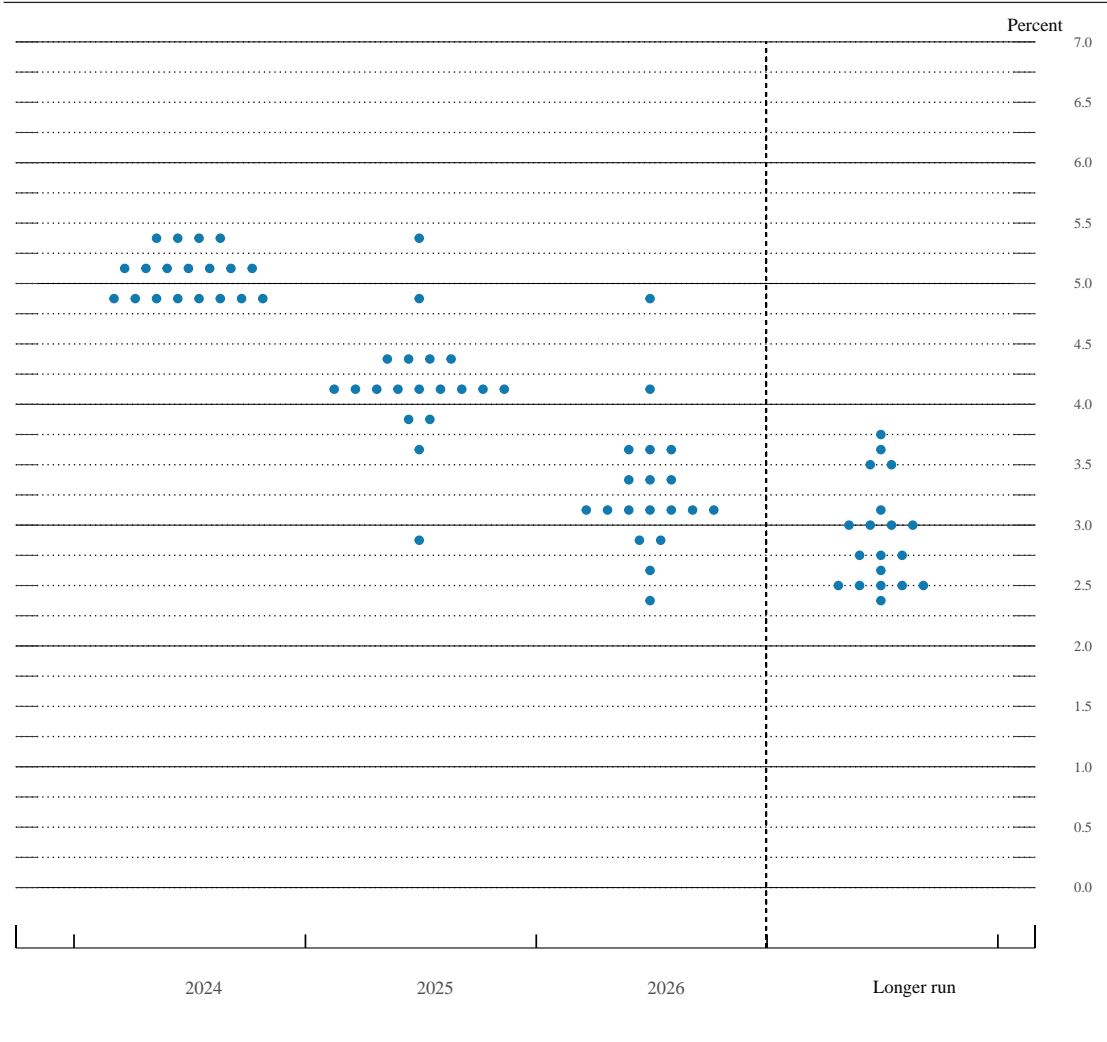
1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants’ projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2024–26 and over the longer run



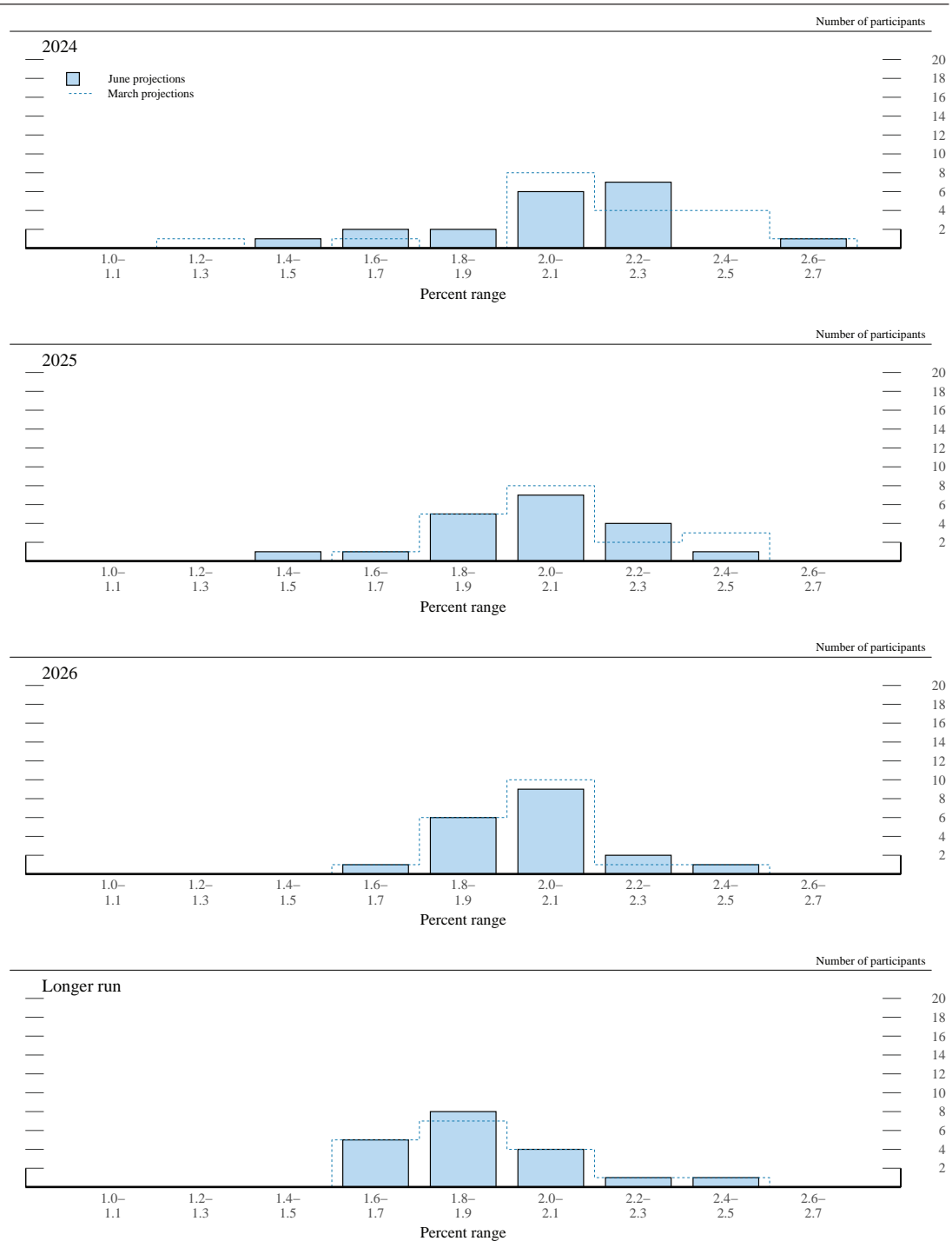
NOTE: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



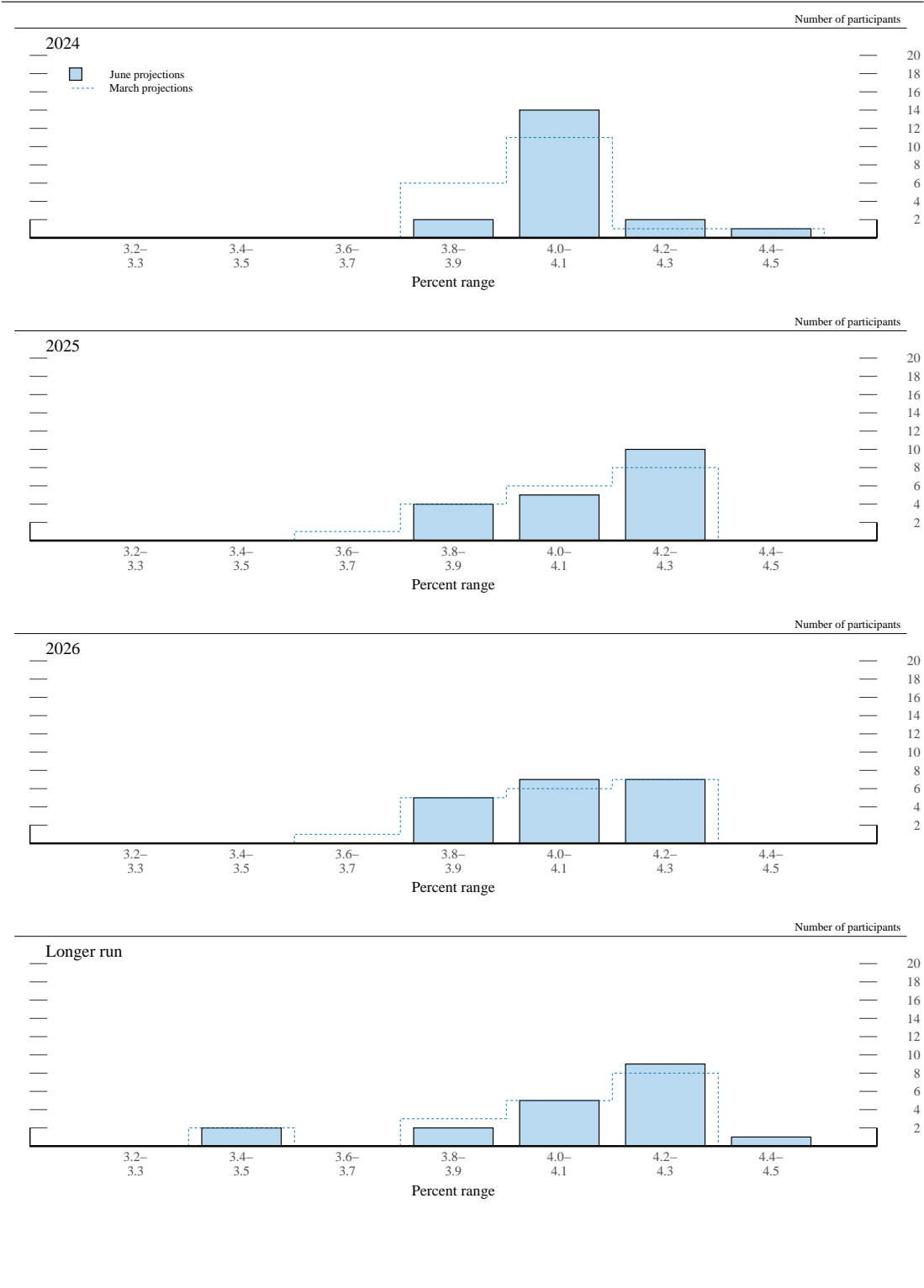
NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2024–26 and over the longer run



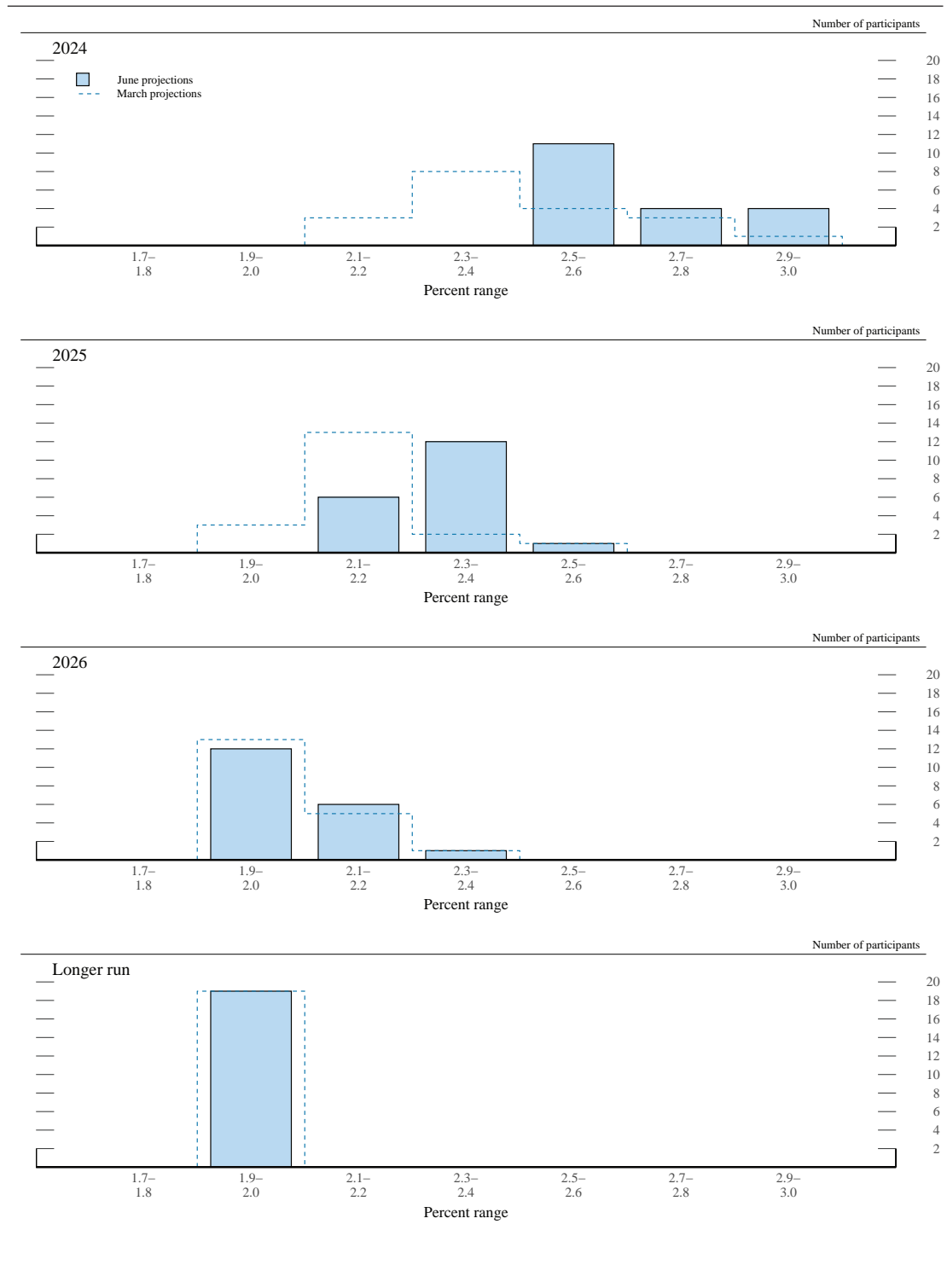
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2024–26 and over the longer run



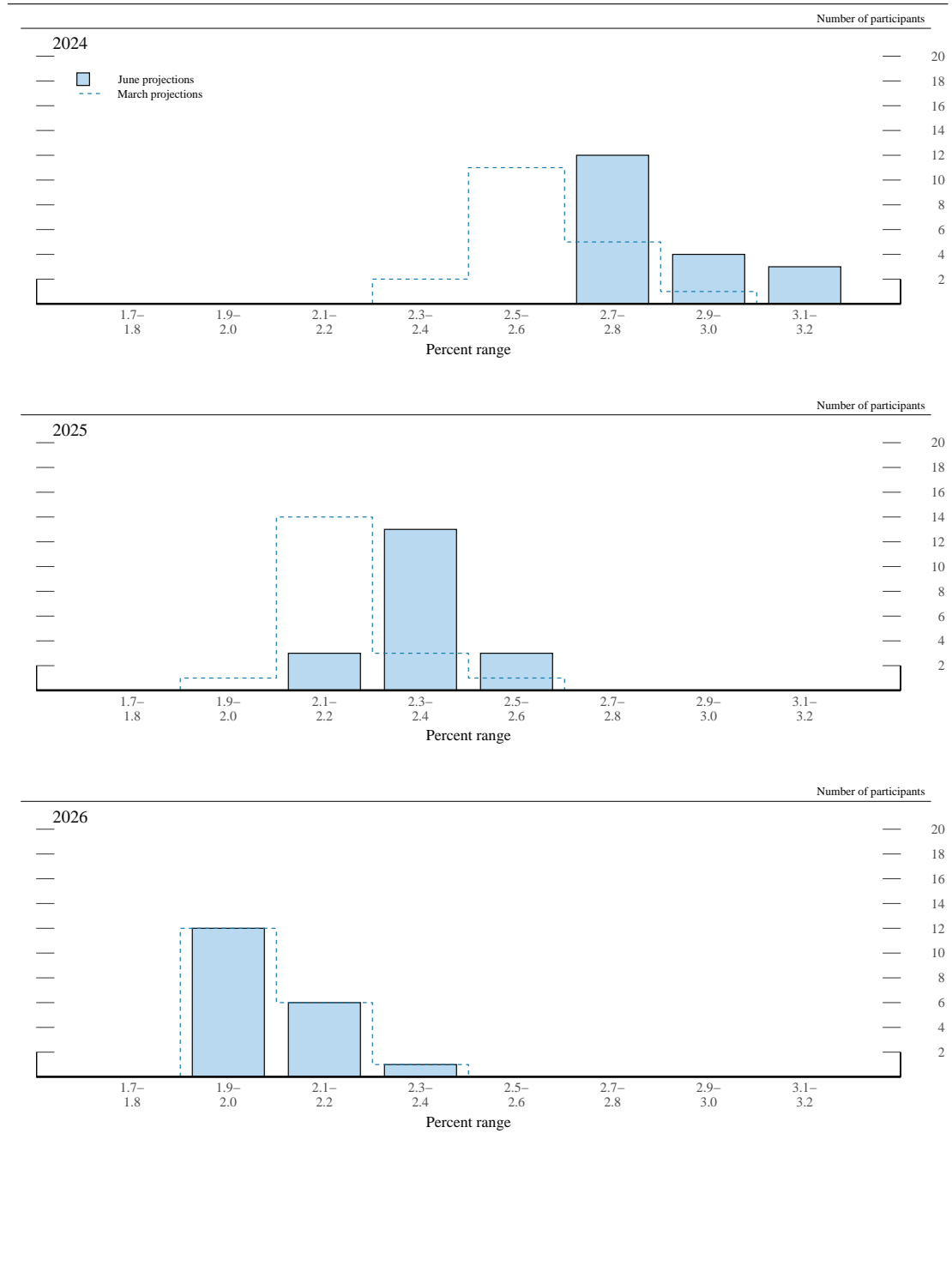
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2024–26 and over the longer run



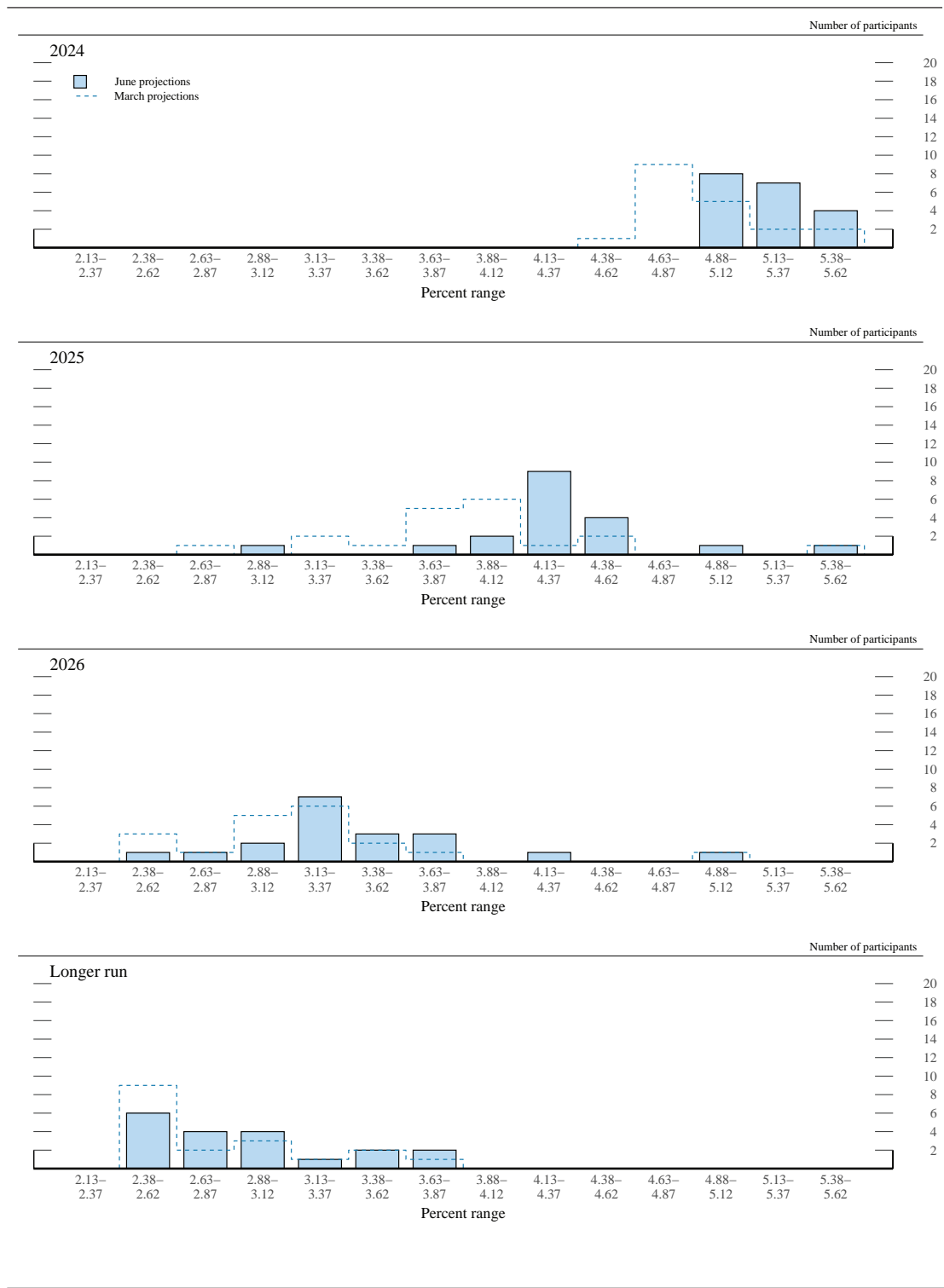
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2024–26



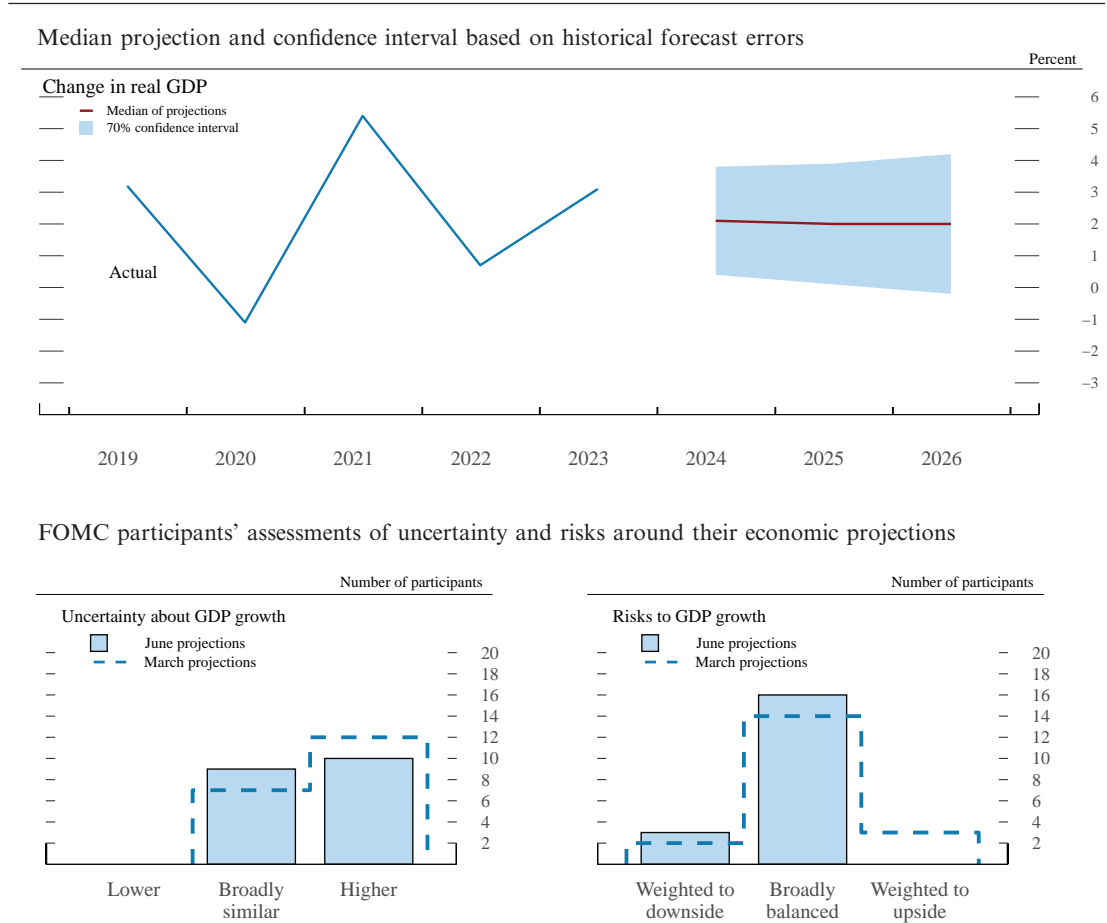
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2024–26 and over the longer run



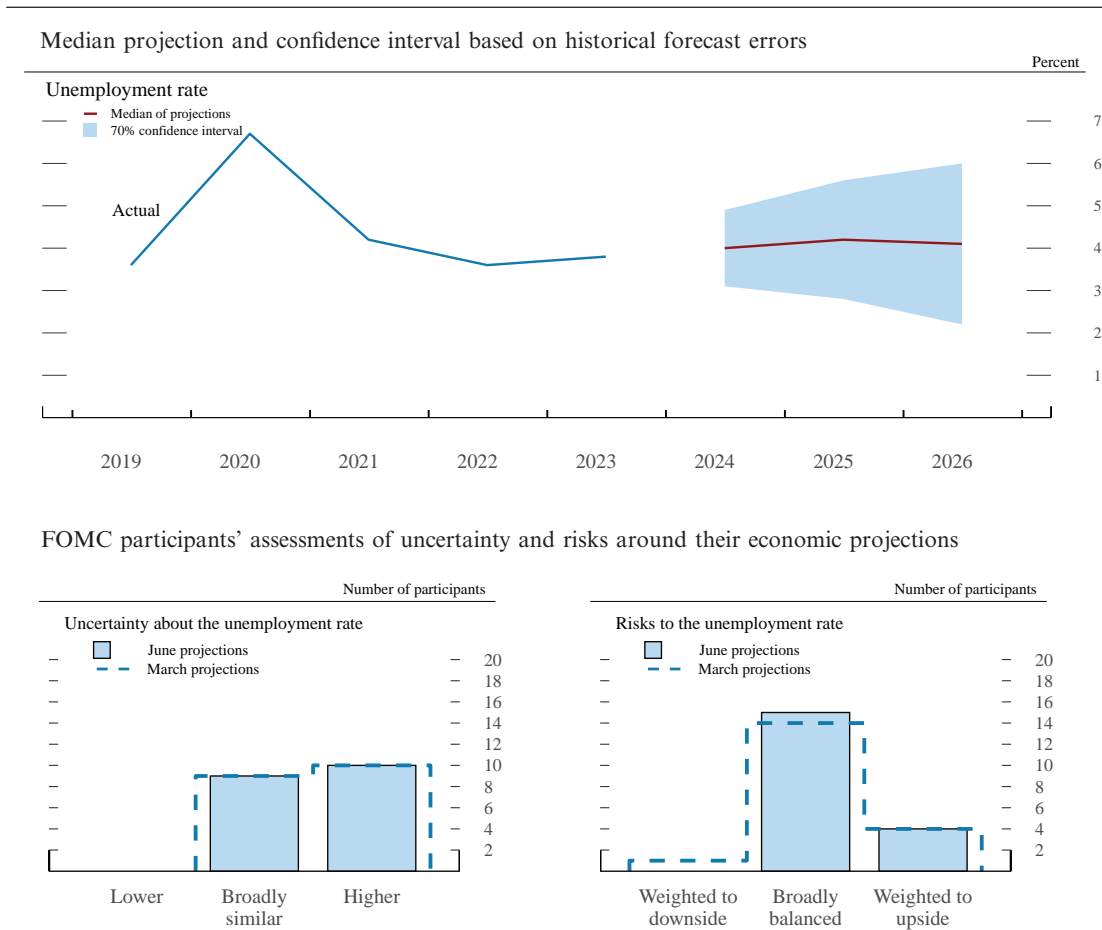
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 4.A. Uncertainty and risks in projections of GDP growth



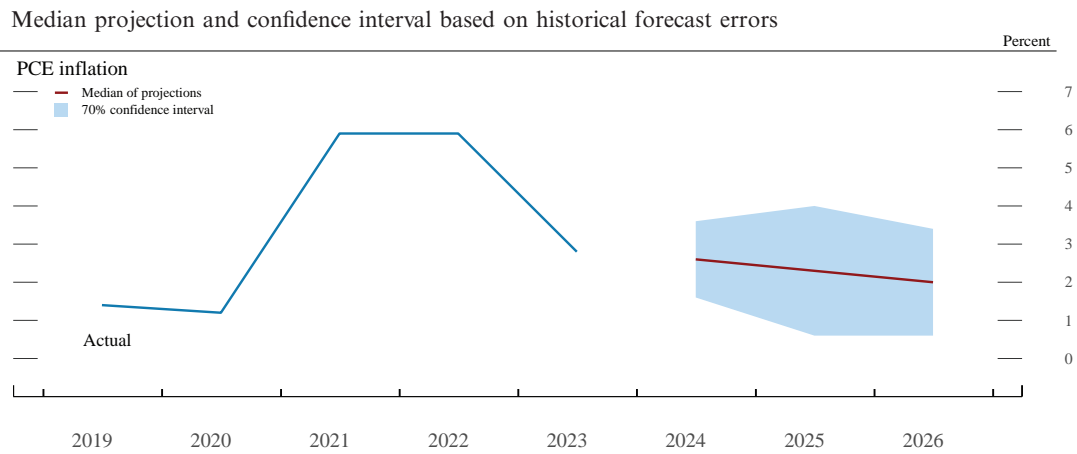
NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.B. Uncertainty and risks in projections of the unemployment rate

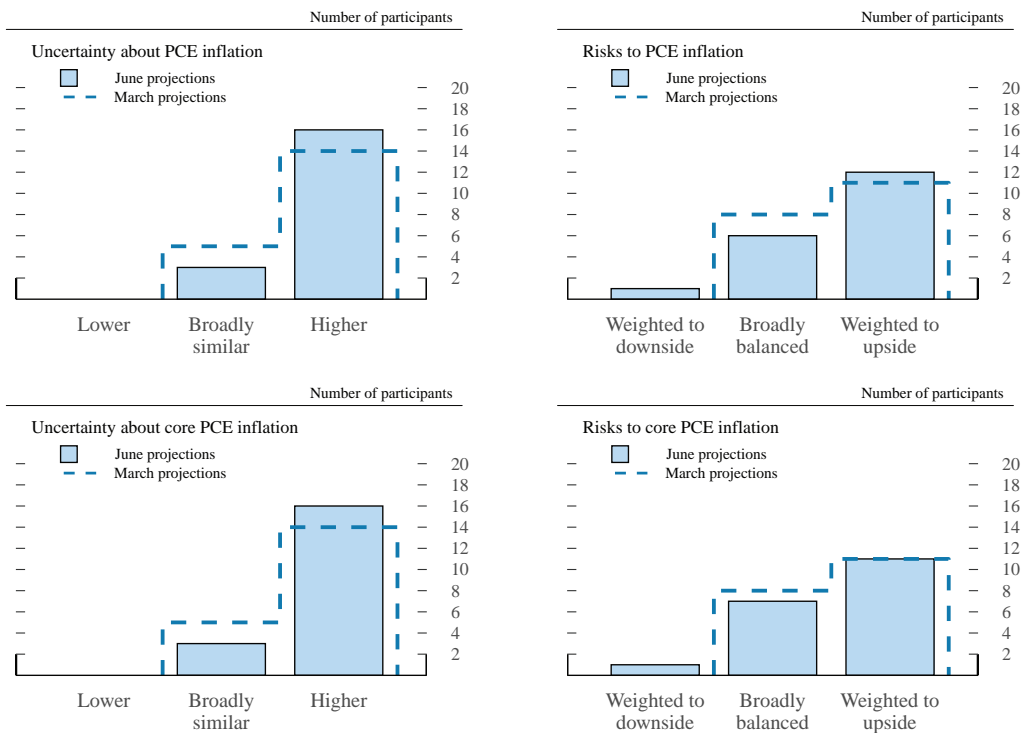


NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation

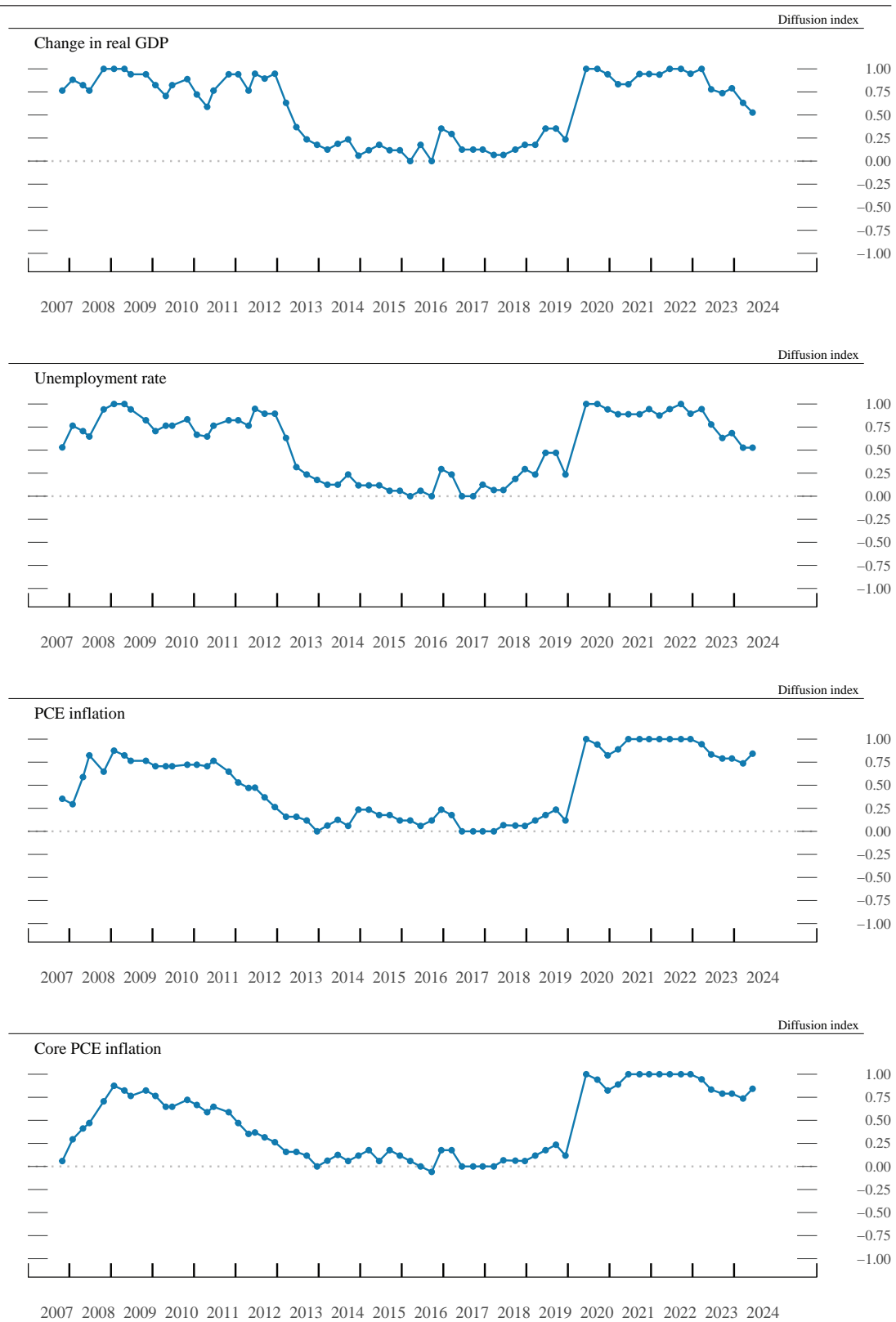


FOMC participants' assessments of uncertainty and risks around their economic projections



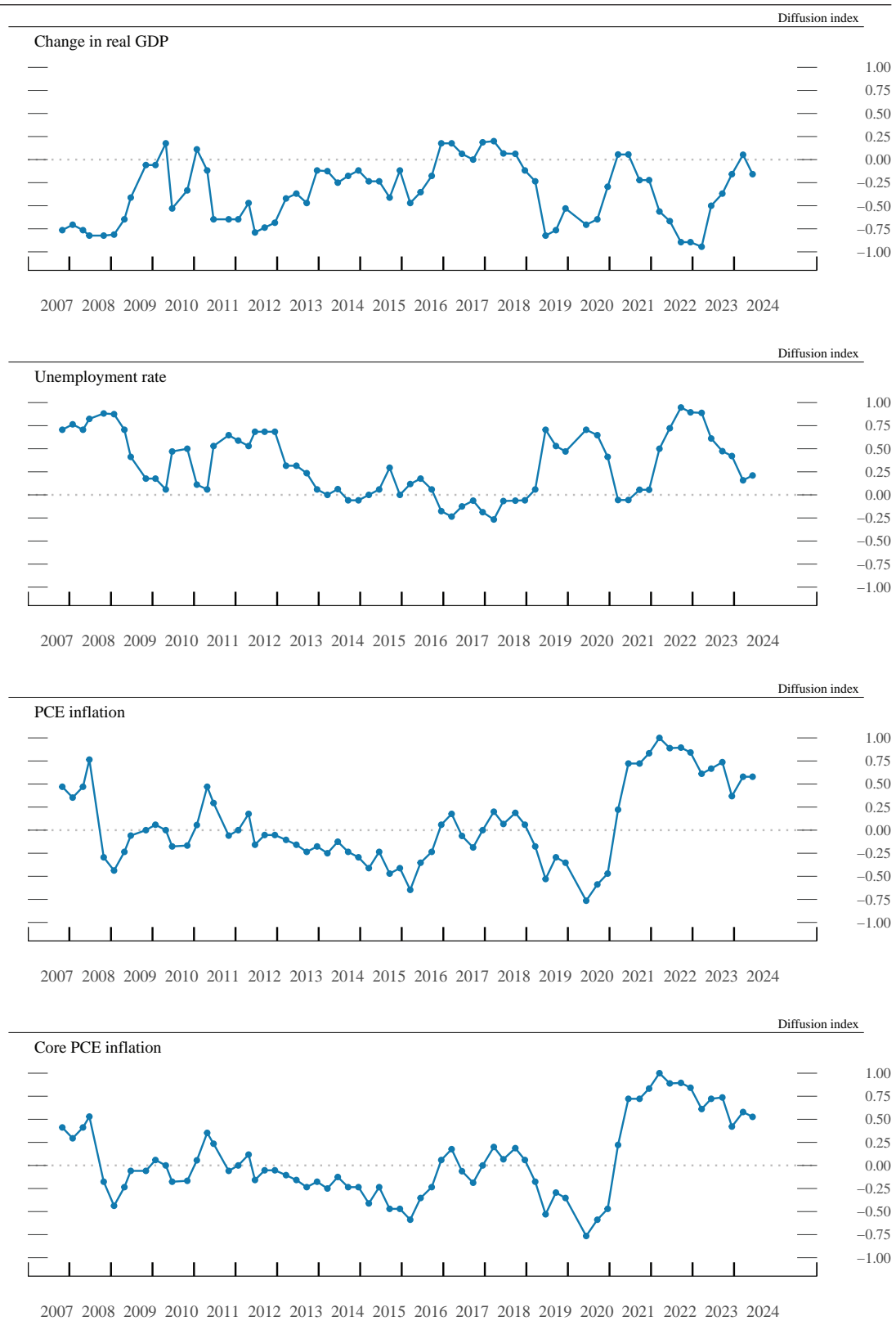
NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.D. Diffusion indexes of participants' uncertainty assessments



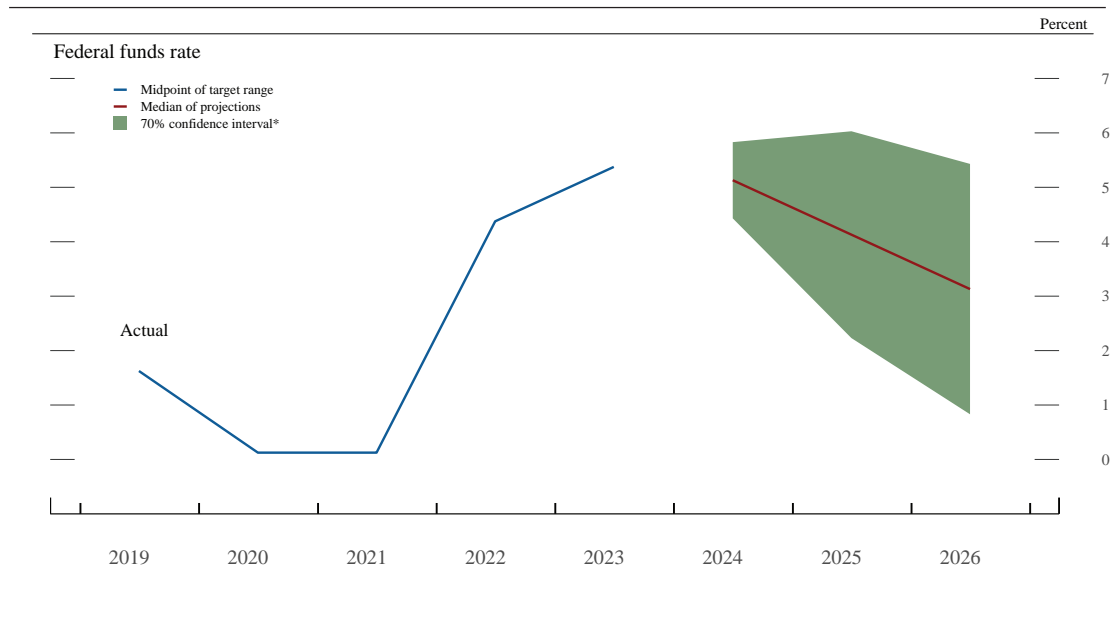
NOTE: For each SEP, participants provided responses to the question “Please indicate your judgment of the uncertainty attached to your projections relative to the levels of uncertainty over the past 20 years.” Each point in the diffusion indexes represents the number of participants who responded “Higher” minus the number who responded “Lower,” divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 4.E. Diffusion indexes of participants' risk weightings



NOTE: For each SEP, participants provided responses to the question “Please indicate your judgment of the risk weighting around your projections.” Each point in the diffusion indexes represents the number of participants who responded “Weighted to the Upside” minus the number who responded “Weighted to the Downside,” divided by the total number of participants. Figure excludes March 2020 when no projections were submitted.

Figure 5. Uncertainty and risks in projections of the federal funds rate



NOTE: The blue and red lines are based on actual values and median projected values, respectively, of the Committee’s target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants’ individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero - the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants’ current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Table 2. Average historical projection error ranges
Percentage points

Variable	2024	2025	2026
Change in real GDP ¹	± 1.7	± 1.9	± 2.2
Unemployment rate ¹	± 0.9	± 1.4	± 1.9
Total consumer prices ²	± 1.0	± 1.7	± 1.4
Short-term interest rates ³	± 0.7	± 1.9	± 2.3

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 2004 through 2023 that were released in the summer by various private and government forecasters. As described in the box “Forecast Uncertainty,” under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), “Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve’s Approach,” Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), <https://dx.doi.org/10.17016/FEDS.2017.020>.

1. Definitions of variables are in the general note to table 1.
2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.
3. For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers

reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.3 to 4.7 percent in the current year, 1.1 to 4.9 percent in the second year, and 0.8 to 5.2 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.0 to 3.0 percent in the current year, 0.3 to 3.7 percent in the second year, and 0.6 to 3.4 percent in the third year. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels

(continued)

of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual

assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

ABBREVIATIONS

AFE	advanced foreign economy
AI	artificial intelligence
BOJ	Bank of Japan
BTFP	Bank Term Funding Program
CBO	Congressional Budget Office
CES	Current Employment Statistics
COVID-19	coronavirus disease 2019
CPI	consumer price index
CRE	commercial real estate
DI	depository institution
EFFR	effective federal funds rate
ELB	effective lower bound
EME	emerging market economy
EPOP ratio	employment-to-population ratio
FOMC	Federal Open Market Committee; also, the Committee
GDI	gross domestic income
GDP	gross domestic product
JOLTS	Job Openings and Labor Turnover Survey
LFPR	labor force participation rate
MBS	mortgage-backed securities
MMF	money market fund
NFIB	National Federation of Independent Business
OER	owners' equivalent rent
ON RRP	overnight reverse repurchase agreement
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
QCEW	Quarterly Census of Employment and Wages
SEP	Summary of Economic Projections
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SOMA	System Open Market Account
S&P	Standard & Poor's
VIX	implied volatility for the S&P 500 index

