106th Annual Report

2019

Board of Governors of the Federal Reserve System

106th Annual Report

2019

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

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1 Overview

This report covers the calendar-year 2019 operations and activities of the Federal Reserve, the central bank of the United States, categorized in the five key functional areas:

- **Conducting monetary policy and monitoring economic developments.** Section 2 provides adapted versions of the Board's semiannual *Monetary Policy Reports* to Congress. Highlights in 2019 include
  - detailed assessments of both economic developments and Federal Reserve monetary policy activities
  - a review of the Federal Reserve's strategic framework for monetary policy
- **Promoting financial system stability.** Section 3 reviews Board and System activities and research undertaken to foster a resilient and stable financial system. Highlights in 2019 include
  - publication of semiannual *Financial Stability Reports* and continued quarterly assessments of vulnerabilities relevant for financial stability
  - interpretive guidance finalized by the Financial Stability Oversight Council regarding nonbank financial company designations
- **Supervising and regulating financial institutions and their activities**. Section 4 summarizes the Board's efforts related to financial institution oversight and examinations, supervisory policymaking, and regulatory activities and enforcement. Highlights in 2019 include
  - implementation of all of the major provisions of the Economic Growth, Regulatory Relief, and Consumer Protection Act
  - publication of the semiannual *Supervision and Regulation Report*

Federal Reserve Response to COVID-19

Since this report covers only Federal Reserve 2019 operations and activities, it does not include information on our response to the COVID-19 pandemic. For more detail on our response to the pandemic, visit the Board's website at https://www.federalreserve.gov/covid-19.htm.

- **Fostering payment and settlement system safety and efficiency.** Section 5 describes actions by the Board and Reserve Banks to promote the effectiveness of the nation's payment systems, discusses initiatives to promote payment system safety, and provides data on Reserve Bank services and income. Highlights in 2019 include
  - plans to develop the FedNow Service to support faster payments in the United States
  - research, technical experimentation, and policy analysis on stablecoins, central bank digital currencies, and the role of BigTech firms in payments
- **Promoting consumer protection and community development.** Section 6 provides information on the Board's efforts to promote a fair and transparent financial services market for consumers, protect consumer rights, and ensure that Board policies and research take consumer and community perspectives into account. Highlights in 2019 include
  - community development listening sessions and roundtables held to hear perspectives on such topics as the state of rural banking and modernization of the Community Reinvestment Act
  - oversight and enforcement of consumer protection laws and regulations, including fair lending and unfair and deceptive acts or practices

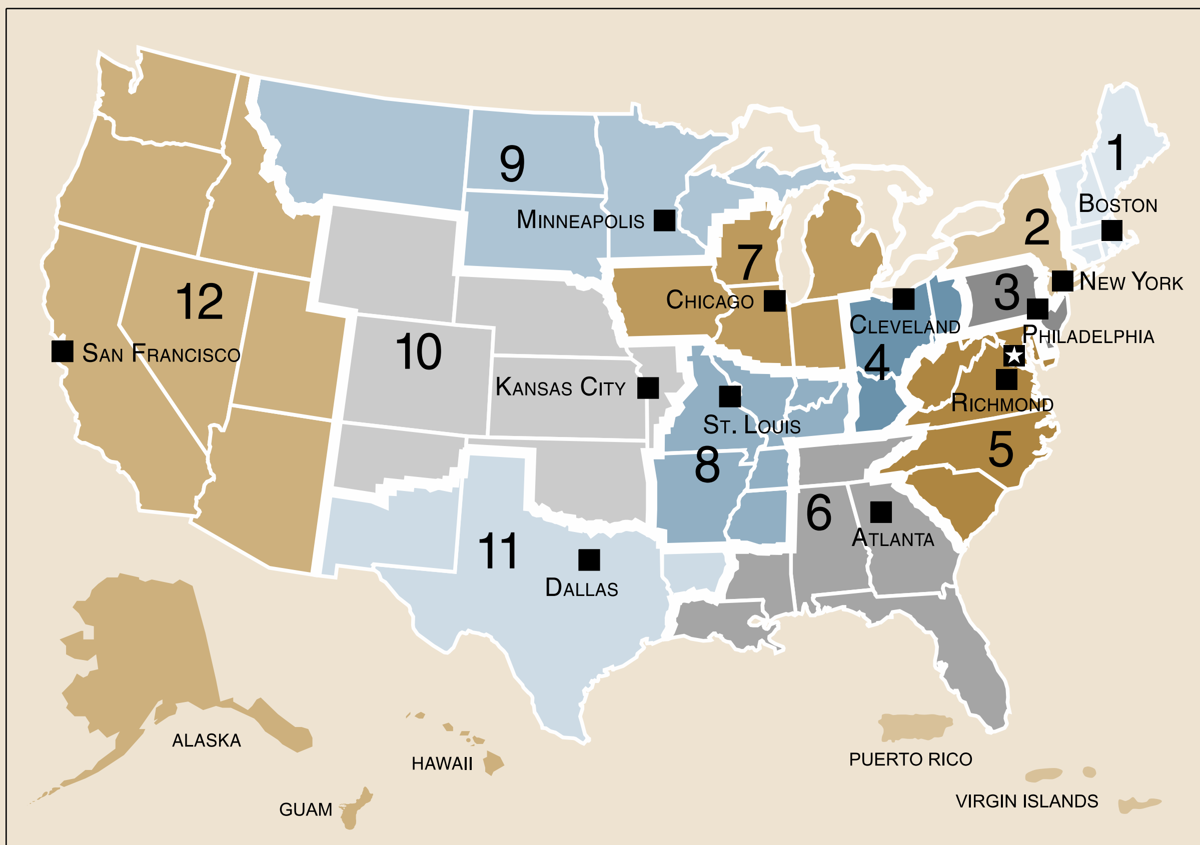
About the Federal Reserve System

The Federal Reserve was created by an act of Congress on December 23, 1913, to provide the nation with a safer, more flexible, and more stable monetary and financial system. In establishing the Federal Reserve System, the United States was divided geographically into 12 Districts, each with a separately incorporated Reserve Bank (see figure 1).

For more information about the Federal Reserve Board and the Federal Reserve System, visit the Board's website at https://www.federalreserve.gov/aboutthefed/default.htm. An online version of this annual report is available at https://www.federalreserve.gov/publications/annual-report/default.htm.

Figure 1. The Federal Reserve System

The Federal Reserve System consists of a seven-member Board of Governors with headquarters in Washington, D.C., and the 12 Reserve Banks located in major cities throughout the United States (for more information on the System and Districts, including leadership at the Board and the Banks, see "Federal Reserve System Organization" in appendix A).



■ Federal Reserve Bank city

☆ Board of Governors of the Federal Reserve System, Washington, D.C.

2 Monetary Policy and Economic Developments

As required by section 2B of the Federal Reserve Act, the Federal Reserve Board submits written reports to the Congress that contain discussions of "the conduct of monetary policy and economic developments and prospects for the future." The *Monetary Policy Report,* submitted semiannually to the Senate Committee on Banking, Housing, and Urban Affairs and to the House Committee on Banking and Financial Services, is delivered concurrently with testimony from the Federal Reserve Board Chair.

The following discussion is a review of U.S. monetary policy and economic developments in 2019, excerpted from the *Monetary Policy Report* published in February 2020 and July 2019. Those complete reports are available on the Board's website at https://www.federalreserve.gov/monetarypolicy/files/20200207_mprfullreport.pdf (February 2020) and https://www.federalreserve.gov/monetarypolicy/files/20190705_mprfullreport.pdf (July 2019).

Monetary Policy Report February 2020

Summary

The U.S. economy continued to grow moderately last year and the labor market strengthened further. With these gains, the current expansion entered its 11th year, becoming the longest on record. However, inflation was below the Federal Open Market Committee's (FOMC) longer-run objective of 2 percent. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the FOMC lowered the target range for the federal funds rate at its July, September, and October meetings, bringing it to the current range of 1½ to 1¾ percent. In the Committee's subsequent meetings, it judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective.

Economic and Financial Developments

The labor market. The labor market continued to strengthen last year. Payroll employment growth remained solid in the second half of 2019, and while the pace of job gains during the year as a whole was somewhat slower than in 2018, it was faster than what is needed to provide jobs for new entrants to the labor force. The unemployment rate moved down from 3.9 percent at the end of 2018 to 3.5 percent in December, and the labor force participation rate increased. Meanwhile, wage gains remained moderate although above the pace of gains seen earlier in the expansion.

Inflation. After having been close to the FOMC's objective of 2 percent in 2018, consumer price inflation, as measured by the price index for personal consumption expenditures, moved back below 2 percent last year, where it has been during most of the current expansion. The 12-month change was 1.6 percent in December 2019, as was the 12-month measure that excludes consumer food and energy prices (so-called core inflation), which historically has been a better indicator of where inflation will be in the future than the overall figure. The downshift relative to 2018 partly results from particularly low readings in the monthly price data in the early part of last year that appear to reflect transitory influences. Survey-based measures of longer-run inflation expectations have been broadly stable since the middle of last year, and market-based measures of inflation compensation are little changed on net.

Economic growth. Real gross domestic product (GDP) is reported to have increased at a moderate rate in the second half of 2019, although growth was somewhat slower than in the first half of the year and in 2018. Consumer spending rose at a moderate pace, on average, and residential investment turned up after having declined in 2018 and the first half of 2019. In contrast, business fixed investment declined in the second half of last year, reflecting a number of factors that likely include trade policy uncertainty and weak global growth. Downside risks to the U.S.

outlook seem to have receded in the latter part of the year, as the conflicts over trade policy diminished somewhat, economic growth abroad showed signs of stabilizing, and financial conditions eased. More recently, possible spillovers from the effects of the coronavirus in China have presented a new risk to the outlook.

Financial conditions. Domestic financial conditions for businesses and households remained supportive of spending and economic activity. After showing some volatility over the summer, nominal Treasury yields declined and equity prices increased notably, on balance, supported by accommodative monetary policy actions and easing of investors' concerns regarding trade policy prospects and the global economic outlook. Spreads of yields on corporate bonds over those on comparable-maturity Treasury securities continued to narrow, and mortgage rates remained low. Moreover, loans remained widely available for most businesses and households, and credit provided by commercial banks continued to expand at a moderate pace.

Financial stability. The U.S. financial system is substantially more resilient than it was before the financial crisis. Leverage in the financial sector appears low relative to historical norms. Total household debt has grown at a slower pace than economic activity over the past decade, in part reflecting that mortgage credit has remained tight for borrowers with low credit scores, undocumented income, or high debt-to-income ratios. In contrast, the levels of business debt continue to be elevated compared with the levels of either business assets or GDP, with the riskiest firms accounting for most of the increase in debt in recent years. While overall liquidity and maturity mismatches and funding risks in the financial system remain low, the volatility in repurchase agreement (repo) markets in mid-September 2019 highlighted the possibility for frictions in repo markets to spill over to other markets. Finally, asset valuations are elevated and have risen since July 2019, as investor risk appetite appears to have increased. (See the box "Developments Related to Financial Stability" on pages 24–25 of the February 2020 *Monetary Policy Report*.)

International developments. After weakening in 2018, foreign economic growth slowed further in 2019, held down by a slump in global manufacturing, elevated trade tensions, and political and social unrest in several countries. Growth in Asian economies slowed markedly, especially in Hong Kong and India, and many Latin American economies continued to underperform. The pace of economic activity weakened in several advanced foreign economies as well. However, recent indicators provide tentative signs of stabilization. The global slowdown in manufacturing and trade appears to be nearing an end, and consumer spending and services activity around the world continue to hold up. Moreover, in some economically important regions, such as China and the euro area, data through early this year suggested that growth was steadying. The recent emergence of the coronavirus, however, could lead to disruptions in China that spill over to the rest of the global economy. Amid weak economic activity and dormant inflation pressures, foreign central banks generally adopted a more accommodative policy stance.

Financial conditions abroad eased in the second half of last year, supported by accommodative actions by central banks and, later in the period, positive political developments, including progress on the U.S.–China trade negotiations and diminished risks of a disorderly Brexit. On balance, since July global equity prices moved higher, sovereign bond spreads in the European periphery narrowed, and measures of sovereign spreads in emerging market economies decreased somewhat. In many advanced foreign economies, long-term interest rates remained well below the levels seen at the end of 2018.

Monetary Policy

Interest rate policy. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the FOMC lowered the target range for the federal funds rate over the second half of 2019. Specifically, at its July, September, and October meetings, the FOMC lowered the target range a cumulative 75 basis points, bringing it to the current range of 1½ to 1¾ percent. In its subsequent meetings, the Committee judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective. The Committee noted that it will continue to monitor the implications of incoming information for the economic outlook as it assesses the appropriate path of the target range for the federal funds rate.

Balance sheet policy. At its July meeting, the FOMC decided to conclude the reduction of its aggregate securities holdings in the System Open Market Account, or SOMA, in August. Ending the runoff earlier than initially planned was seen as having only very small effects on the balance sheet, with negli-

gible implications for the economic outlook; it was also seen as helpful in simplifying communications regarding the use of the Committee's policy tools at a time when the Committee was lowering the target range for the federal funds rate. As discussed further in the next paragraph, since October 2019, the size of the balance sheet has been expanding to provide an ample level of reserves to ensure that the federal funds rate trades within the FOMC's target range.

Monetary policy implementation. Domestic short-term funding markets were volatile in mid-September—amid large flows related to corporate tax payments and settlement of Treasury securities—and experienced a significant tightening of conditions. Since then, the Federal Reserve has been conducting open market operations—repo operations and Treasury bill purchases—in order to maintain ample reserve balances over time. While the balance sheet has expanded in light of the open market operations to maintain ample reserves, these operations are purely technical measures to support the effective implementation of the FOMC's monetary policy, are not intended to change the stance of monetary policy, and reflect the Committee's intention to implement monetary policy in a regime with an ample supply of reserves. The Committee will continue to monitor money market developments as it assesses the level of reserves most consistent with efficient and effective policy implementation and stands ready to adjust the details of its technical operations as necessary to foster efficient and effective implementation of monetary policy. (See the box "Money Market Developments and Monetary Policy Implementation"on pages 42–43 of the February 2020 *Monetary Policy Report*.)

Special Topics

Manufacturing and U.S. business cycles. After increasing solidly in 2017 and 2018, manufacturing output turned down last year. This decline raised fears among some observers that the weakness could spread and potentially lead to an economy-wide recession. In general, a decline in manufacturing similar to that in 2019 would not be large enough to initiate a major downturn for the economy. Furthermore, after accounting for changing trends in growth of manufacturing output, mild slowdowns have often occurred during expansionary phases of business cycles. In contrast, a more pronounced contraction in manufacturing has historically been associated with an economy-wide recession. (See the box "Manufacturing and U.S. Business Cycles" on pages 14–15 of the February 2020 *Monetary Policy Report*.)

Monetary policy rules. Prescriptions for the policy interest rate from monetary policy rules often depend on judgments and assumptions about economic variables that are inherently uncertain and may change over time. Notably, many policy rules depend on estimates of resource slack and of the longer-run neutral real interest rate, both of which are not directly observable and are estimated with a high degree of uncertainty. As a result, the amount of policy accommodation that these rules prescribe—and whether that amount is appropriate in light of underlying economic conditions—is also uncertain. Such a situation cautions against mechanically following the prescriptions of any specific rule. (See the box "Monetary Policy Rules and Uncertainty in Monetary Policy Settings" on pages 33–37 of the February 2020 *Monetary Policy Report*.)

Framework review and *Fed Listens* events. In 2019, the Federal Reserve System began a broad review of the monetary policy strategy, tools, and communication practices it uses to pursue its statutory dual-mandate goals of maximum employment and price stability. The Federal Reserve sees this review as particularly important at this time because the U.S. economy appears to have changed in ways that matter for monetary policy. For example, the neutral level of the policy interest rate appears to have fallen in the United States and abroad, increasing the risk that the effective lower bound on interest rates will constrain central banks from reducing their policy interest rates enough to effectively support economic activity during downturns. The review is considering what monetary policy strategy will best enable the Federal Reserve to meet its dual mandate in the future, whether the existing monetary policy tools are sufficient to achieve and maintain the dual mandate, and how communication about monetary policy can be improved.

A key component of the review has been a series of public *Fed Listens* events engaging with a broad range of stakeholders in the U.S. economy about how the Federal Reserve can best meet its statutory goals. During 14 *Fed Listens* events in 2019, policymakers heard from individuals and groups around the country on issues related to the labor market, inflation, interest rates, and the transmission of monetary policy. (See the box "Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices" on pages 40–41 of the February 2020 *Monetary Policy Report*.)

Part 1: Recent Economic and Financial Developments

Domestic Developments

The labor market strengthened further last year but at a slower pace than in 2018 . . .

Payroll employment gains were solid in the second half of 2019 and averaged 176,000 per month during the year as a whole. This pace is somewhat slower than the average monthly gains in 2018, even accounting for the anticipated effects of the Bureau of Labor Statistics' upcoming benchmark revision to payroll employment (figure 1).[1] However, the pace of job gains appears to have remained faster than what is needed to provide jobs for net new entrants to the labor force as the population grows.[2]

Reflecting the employment gains over this period, the unemployment rate declined further in 2019 and stood at 3.5 percent in December, 0.4 percentage point below its year-earlier level and at its lowest level since 1969 (figure 2). In addition, the unemployment rate is 0.6 percentage point below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level.[3]

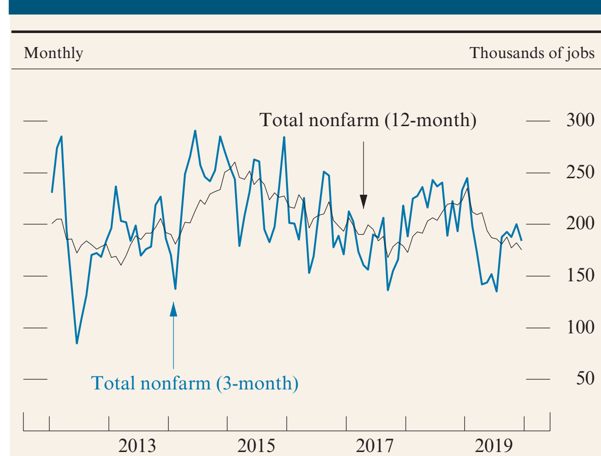
Strengthening labor market conditions are also evident in rising labor force participation rates (LFPRs)—that is, the shares of the population either working or actively seeking work. The LFPR for individuals aged 16 and over was 63.2 percent in December, above its level a year ago despite the downward pressure of about ¼ percentage point per year associated with the aging of the population. The LFPR for prime-age individuals (between 25 and 54 years old), which is much less sensitive to the effects of population aging, has been rising over the past few years and continued to increase in 2019 (figure 3). The employment-to-population ratio for individuals aged 16 and over—that is, the share of people who are working—was 61.0 percent in December and has been increasing since 2011.

Other indicators are also consistent with strong labor market conditions, albeit with some slowing in the pace of improvement since 2018. As reported in the Job Openings and Labor Turnover Survey (JOLTS), job openings have remained plentiful, although the private-sector job openings rate has come down over the past year. Similarly, the quits rate in the JOLTS has remained near the top of its historical range, an indication that workers are being bid away from their current jobs or have become more confident that they can successfully switch jobs if they so wish. These data accord well with surveys of consumers that indicate households perceive jobs as plentiful. The JOLTS layoff rate and the number of people filing initial claims for unemployment insurance benefits—historically, a good early indicator of economic downturns—have both remained quite low.

. . . and unemployment rates have fallen, on net, for all major demographic groups over the past several years

Differences in unemployment rates across ethnic and racial groups have narrowed in recent years, on net, as they typically do during economic expansions, after having widened during the 2007–09 recession. The decline in the unemployment rate for African Americans has been particularly sizable, and its average rate in the second half of October 2019 was the

Figure 1. Net change in payroll employment



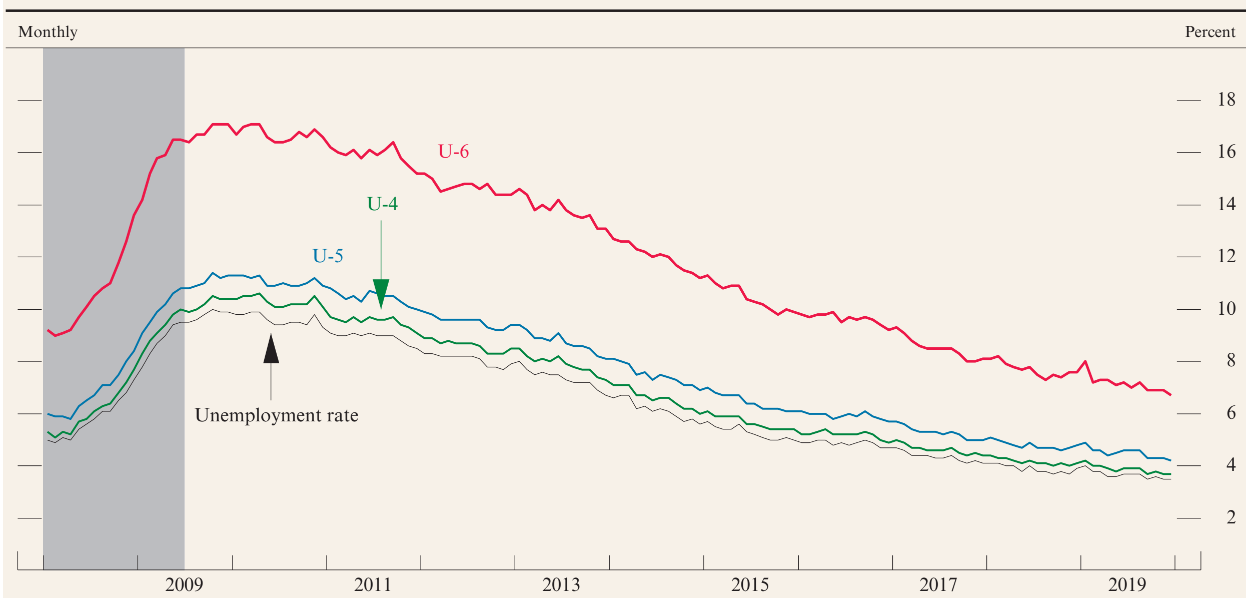
Note: The data are 3-month and 12-month moving averages.
Source: Bureau of Labor Statistics via Haver Analytics.

1 The annual benchmark revision to payroll employment will be published on February 7, after this report has gone to print. According to the Bureau of Labor Statistics' preliminary estimates, increases in payrolls will be revised downward roughly 40,000 per month from April 2018 through March 2019. Payroll figures after March 2019 are subject to revision as well.

2 To keep up with population growth, roughly 115,000 to 145,000 payroll jobs per month need to be created, on average, to maintain a constant unemployment rate with an unchanged-labor force participation rate. There is considerable uncertainty around these estimates, as the difference between monthly payroll gains and employment changes from the Current Population Survey (the source of the unemployment and participation rates) can be quite volatile over short periods.

3 See the most recent economic projections that were released after the December FOMC meeting in Part 3 of the February 2020 *Monetary Policy Report*.

Figure 2. Measures of labor underutilization

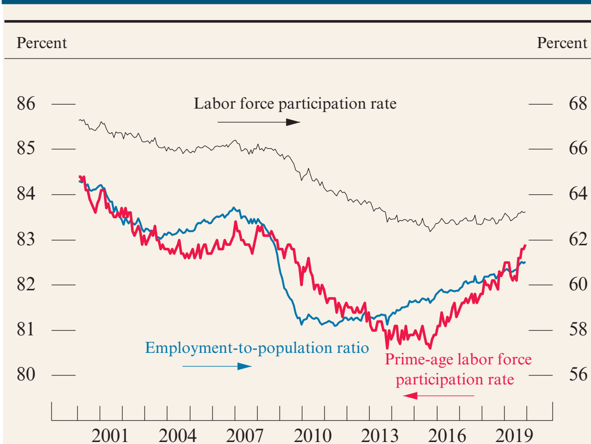


Note: Unemployment rate measures total unemployed as a percentage of the labor force. U-4 measures total unemployed plus discouraged workers, as a percentage of the labor force plus discouraged workers. Discouraged workers are a subset of marginally attached workers who are not currently looking for work because they believe no jobs are available for them. U-5 measures total unemployed plus all marginally attached to the labor force, as a percentage of the labor force plus persons marginally attached to the labor force. Marginally attached workers are not in the labor force, want and are available for work, and have looked for a job in the past 12 months. U-6 measures total unemployed plus all marginally attached workers plus total employed part time for economic reasons, as a percentage of the labor force plus all marginally attached workers. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.

Source: Bureau of Labor Statistics via Haver Analytics.

lowest recorded since the data began in 1972. Although the unemployment rates for African Americans and for Hispanics remain substantially above those for whites and for Asians, those differentials in the second half of 2019 were at their narrowest levels on record. The rise in LFPRs for prime-age individuals over the past few years has also been apparent in each of these racial and ethnic groups.

Figure 3. Labor force participation rates and employment-to-population ratio



Note: The data are monthly. The prime-age labor force participation rate is a percentage of the population aged 25 to 54. The labor force participation rate and the employment-to-population ratio are percentages of the population aged 16 and over.

Source: Bureau of Labor Statistics via Haver Analytics.

Increases in labor compensation have remained moderate by historical standards . . .

Despite strong labor market conditions, the available indicators generally suggest that increases in hourly labor compensation have remained moderate, averaging about 3 percent over the past two years. These indicators include the employment cost index, a measure of both wages and the cost to employers of providing benefits; compensation per hour in the business sector, a broad-based but volatile measure of wages, salaries, and benefits; and average hourly earnings from the payroll survey, a monthly index that is timely but does not account for benefits. The median 12-month wage growth of individuals reporting to the Current Population Survey calculated by the Federal Reserve Bank of Atlanta, which tends to be higher than broader-based measures of wage growth, remains near the upper portion of its range

over the past couple of years.[4] Interestingly, wage growth over the past few years has been strongest for workers in relatively low-paying jobs, suggesting that the strong labor market is having a more pronounced benefit for these workers.

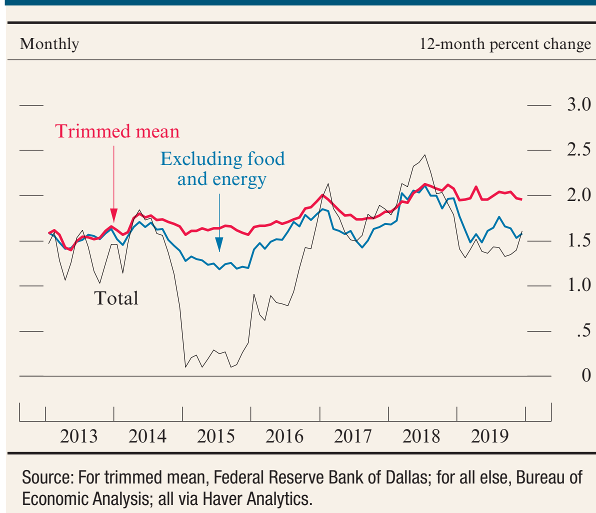
. . . and likely have been restrained by slow growth in labor productivity over much of the expansion

These moderate rates of hourly compensation gains likely reflect the offsetting influences of a strengthening labor market and productivity growth that has been weak through much of the expansion. From 2008 to 2018, labor productivity increased a little more than 1 percent per year, on average, well below the average pace from 1996 to 2007 of nearly 3 percent and also below the average gain in the 1974–95 period. Although considerable debate remains about the reasons for the slowdown in productivity growth over this period, the weakness may be partly attributable to the sharp pullback in capital investment, including on research and development, during the most recent recession and the relatively slow recovery that followed. More recently, labor productivity is estimated to have increased 1.5 percent over the four quarters ending in 2019:Q3—a small improvement from the preceding year, especially given the volatility of the productivity data, but still moderate relative to earlier periods. While it is uncertain whether productivity growth will continue to improve, a sustained pickup in productivity growth, as well as additional labor market strengthening, would support stronger gains in labor compensation.

Inflation was below 2 percent last year

After having been close to the FOMC's objective of 2 percent in 2018, inflation moved back below 2 percent last year, where it has been for most of the time since the end of the most recent recession. The 12-month change in the price index for personal consumption expenditures (PCE) was 1.6 percent in December 2019, as was the 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator of where inflation will be in the future than the overall index (figure 4). Both measures are down from the rates recorded a year ago; the slowing partly results from particularly low readings in the monthly price data in the first quarter of 2019, which appear to reflect idiosyncratic price declines in

Figure 4. Change in the price index for personal consumption expenditures



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

a number of specific categories such as apparel, used cars, banking services, and portfolio management services. Indeed, core inflation picked up after the first quarter and was at an average annual rate of 1.9 percent over the remainder of the year.

The trimmed mean PCE price index, calculated by the Federal Reserve Bank of Dallas, also suggests a transitory element to inflation readings early last year. The trimmed mean provides an alternative way to purge inflation of transitory influences, and it is less sensitive than the core index to idiosyncratic price movements such as those noted earlier.[5] The 12-month change in this measure was about the same in December 2019 as it was in 2018.

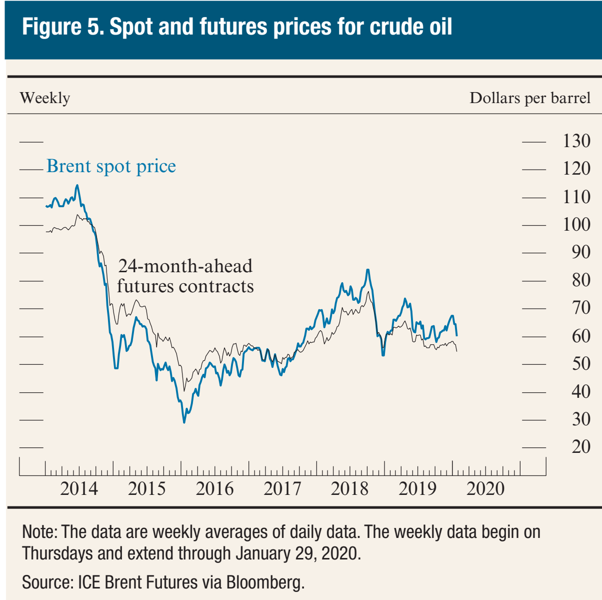
Oil prices fluctuated in 2019

After falling from more than $80 per barrel to less than $60 per barrel in late 2018, the Brent spot price of crude oil fluctuated between $60 and $70 for most of 2019. Prices generally moved up in the second half of last year, supported by expectations of supply cuts in OPEC member countries and, later on, diminished concerns about the global outlook (figure 5). Prices also spiked briefly in early January over tensions with Iran. In recent weeks, however, oil prices moved lower amid heightened fears that the coronavirus outbreak that started in China might weigh on economic growth and the demand for oil. Despite these fluctua-

[4] The Atlanta Fed's measure differs from others in that it measures the wage growth only of workers who were employed both in the current survey month and 12 months earlier.

[5] The trimmed mean index excludes prices that showed particularly large increases or decreases in a given month. Note that, since 1995, 12-month changes in the trimmed mean index have averaged about 0.3 percentage point above core PCE inflation and 0.2 percentage point above total PCE inflation.

Figure 5. Spot and futures prices for crude oil



Note: The data are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020.

Source: ICE Brent Futures via Bloomberg.

tions in oil prices, retail gasoline prices generally edged lower since mid-2019. For 2019 as a whole, consumer energy prices rose modestly more than the core index. Meanwhile, food prices posted only a small increase in 2019, held down by soft prices for farm commodities, and contributed very little to overall consumer price inflation.

Reported prices of imports other than energy fell

Nonfuel import prices, before accounting for the effects of tariffs on the price of imported goods, have continued to decline from their mid-2018 peak, responding to lower foreign inflation and declines in non-oil commodity prices.[6] After declining in the first half of 2019, prices of industrial metals appear to have bottomed out in recent months, consistent with increased optimism about global demand following positive trade developments.

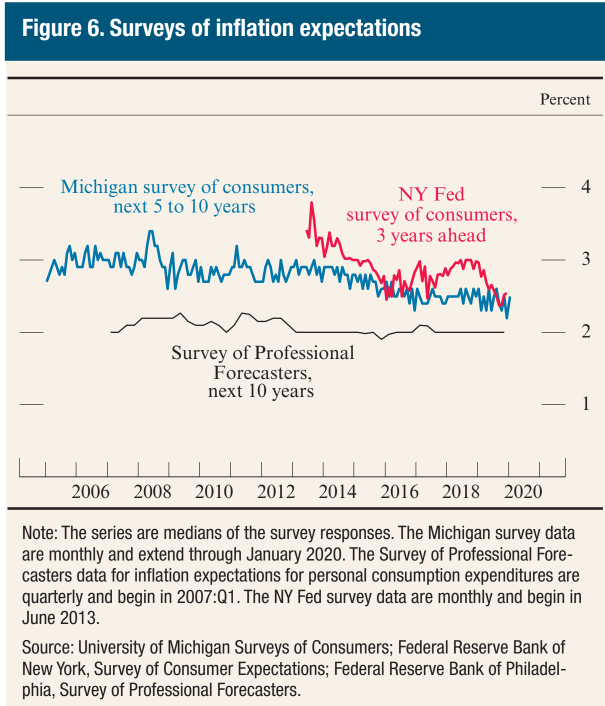
Survey-based measures of inflation expectations have been broadly stable . . .

Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained broadly stable over the past year. In the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years has been very close to 2 percent for the past several years (figure 6). In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years has fluctuated within a narrow range around 2½ percent since the end of 2016, though this level is between ¼ and ½ percentage point lower than had prevailed through 2014. In the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, the median of respondents' expected inflation rate three years hence moved lower, on net, in the second half of last year and averaged 2.5 percent, ¼ percentage point below its average over the preceding three years.

. . . and market-based measures of inflation compensation have also been little changed

Inflation expectations can also be gauged by market-based measures of inflation compensation. However, the inference is not straightforward, because market-based measures can be importantly affected by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable-maturity Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—have been little changed, on net, since the middle of 2019, with both measures below their respective ranges that persisted for most of the

Figure 6. Surveys of inflation expectations

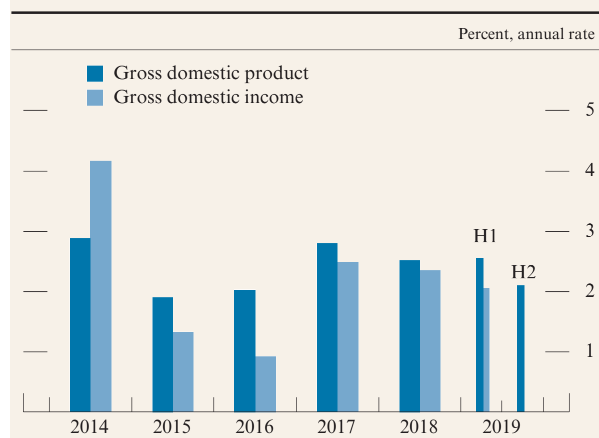


Note: The series are medians of the survey responses. The Michigan survey data are monthly and extend through January 2020. The Survey of Professional Forecasters data for inflation expectations for personal consumption expenditures are quarterly and begin in 2007:Q1. The NY Fed survey data are monthly and begin in June 2013.

Source: University of Michigan Surveys of Consumers; Federal Reserve Bank of New York, Survey of Consumer Expectations; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters.

6 Published import price indexes exclude tariffs. However, tariffs add to the prices that purchasers of imports actually pay, and tariff-inclusive import prices have likely increased, rather than declined, since mid-2018.

Figure 7. Change in real gross domestic product and gross domestic income



Note: Gross domestic income is not yet available for 2019:H2.

Source: Bureau of Economic Analysis via Haver Analytics.

10 years before the start of notable declines in mid-2014.[7] The TIPS-based measure of 5-to-10-year-forward inflation compensation and the analogous measure from inflation swaps are now about 1¾ percent and 2 percent, respectively.[8]

Growth of gross domestic product was moderate in the second half of 2019 . . .

Real gross domestic product (GDP) is reported to have increased at a moderate average annual rate of 2.1 percent in the second half of 2019, although growth was somewhat slower than in the first half of the year and in 2018 (figure 7). Consumer spending rose at a moderate pace, on average, and residential investment turned up after having declined since the end of 2017. In contrast, business fixed investment declined in the second half of last year, reflecting a number of factors that likely include uncertainty regarding trade tensions and the weak global growth outlook. Those factors also continued to weigh on manufacturing output, which declined over the first half of 2019 and has moved roughly sideways since then. (See the box "Manufacturing and U.S. Business Cycles" on pages 14–15 of the February 2020 *Monetary Policy Report*.) Despite those headwinds, the economic expansion continues to be supported by steady job gains, increases in household wealth, expansionary fiscal policy, and supportive domestic financial conditions that include moderate borrowing costs and easy access to credit for many households and businesses.

. . . and downside risks to the outlook receded somewhat

Downside risks to the economic outlook seem to have receded somewhat in the latter part of 2019. Labor market conditions and economic growth in the United States have been resilient to the global headwinds in 2019, and conflicts over trade policy diminished somewhat toward the end of the year. Economic growth abroad also shows signs of stabilizing, though the coronavirus outbreak presents a more recent risk. Reflecting these factors as well as more accommodative monetary policy stances in the United States and some foreign economies, financial conditions eased somewhat over the second half of the year. Statistical models designed to gauge the probability of recession using various indicators, including the Treasury yield curve, suggest that the likelihood of a recession occurring over the next year has fallen noticeably in recent months. Similarly, as shown in Part 3, when Federal Reserve policymakers most recently presented their economic projections, in December, fewer participants judged the risks to the outlook to be tilted to the downside compared with their projections from last June.

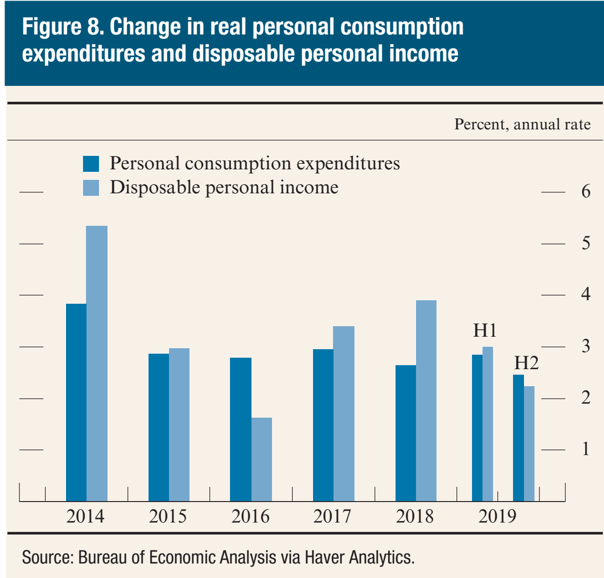
Ongoing improvements in the labor market continue to support household income and consumer spending

Consumer spending rose at a moderate pace, on average, in the third and fourth quarters of 2019 and posted another solid gain for the year as a whole (figure 8). The growth in real PCE in recent years reflects the continued improvements in the labor market, which have supported further increases in household income. Real disposable personal income, a measure of households' after-tax purchasing power, increased 2.6 percent in 2019, a solid gain albeit below the robust increase in 2018 that was bolstered by a reduction in personal income taxes. The personal saving rate, at 7.7 percent in the fourth quarter, was little changed from the previous year.

[7] Inflation compensation implied by the TIPS breakeven inflation rate is based on the difference, at comparable maturities, between yields on nominal Treasury securities and yields on TIPS, which are indexed to the total consumer price index (CPI). Inflation swaps are contracts in which one party makes payments of certain fixed nominal amounts in exchange for cash flows that are indexed to cumulative CPI inflation over some horizon. Inflation compensation derived from inflation swaps typically exceeds TIPS-based compensation, but week-to-week movements in the two measures are highly correlated.

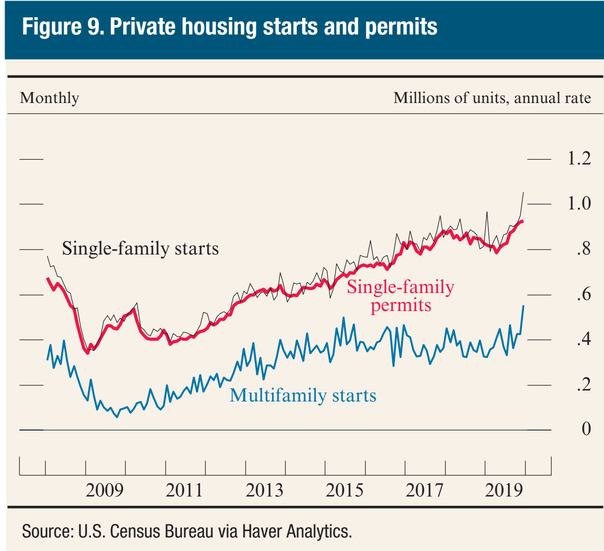
[8] As these measures are based on CPI inflation, one should probably subtract about ¼ percentage point—the average differential with PCE inflation over the past two decades—to infer inflation compensation on a PCE basis.

Figure 8. Change in real personal consumption expenditures and disposable personal income



Source: Bureau of Economic Analysis via Haver Analytics.

Figure 9. Private housing starts and permits



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

Spending was also supported by high household wealth . . .

The relatively high level of aggregate household net worth also supported consumer spending last year. House prices, which are of particular importance for the value of assets held by a large portion of households, continued to increase in 2019, although at a more moderate pace than in recent years. In addition, U.S. equity prices, which fell sharply at the end of 2018, have rebounded since then. Equity wealth is more concentrated among high-wealth households with high propensities to save than is housing wealth, however, and may therefore provide less support for consumption. The ratio of aggregate household net worth to household income held steady through the third quarter of last year at 6.9, near its all-time high.

. . . and consumer sentiment remains strong

Consumers have remained upbeat during the past year. The Michigan index of consumer sentiment, which declined last summer as trade tensions spiked, recovered in recent months and currently stands at a high level by historical standards. The sentiment measure from the Conference Board, which has been more stable, also suggests consumers are fairly upbeat.

Borrowing conditions for households remain generally favorable, and borrowing costs have moved down since the middle of 2019 . . .

Financing conditions for consumers remain supportive of growth in household spending. Interest rates on credit cards and auto loans declined, on net, during the second half of 2019, and consumer credit continued to expand at a moderate pace. Standards and delinquency rates for these loans have been generally stable. For student loans, credit remains widely available, with over 90 percent of such credit being extended by the federal government. After peaking in 2013, delinquencies on such loans have been gradually declining, reflecting in part the continued improvements in the labor market. In the mortgage market, credit has continued to be readily available for households with solid credit profiles but remains noticeably tighter than before the most recent recession for borrowers with low credit scores.

. . . and activity in the housing sector has picked up, likely reflecting lower interest rates

Residential investment picked up in the second half of 2019 after declining for six straight quarters. Housing starts for single-family and multifamily housing units increased sharply in the second half of last year and posted appreciable gains for the year as a whole, with starts and permits for new construction rising to the highest levels in more than 10 years (figure 9). Sales of new and existing homes also increased during 2019. This improvement appears to have importantly reflected the reduction in mortgage interest rates; after increasing appreciably from mid-2017 through 2018, rates declined markedly last year, fully reversing those earlier increases. Despite the lower mortgage rates, households' perceptions of homebuying conditions have remained low, likely reflecting ongoing increases in housing prices.

In contrast, business fixed investment weakened in the second half of 2019 . . .

After increasing more than 5 percent per year in 2017 and 2018, business fixed investment—spending by

businesses on structures, equipment, and intangibles such as research and development—stalled in 2019, as a moderate gain in the first quarter was offset by small declines over the rest of the year. The softness in business investment last year was evident in each of the three main components, and a portion of the weakening appears to reflect concerns over trade policy and slower foreign growth; other factors included the suspension of deliveries of the Boeing 737 Max aircraft and the continued decline in drilling and mining structures investment amid oil prices that fell back from the levels reached in 2018. Forward-looking indicators of business spending—such as orders of capital goods, surveys of business conditions and sentiment, and profit expectations from industry analysts—all appear to have stabilized in recent months but suggest that investment is likely to remain subdued (figure 10).

. . . despite corporate financing conditions that remained accommodative overall

Financing conditions for nonfinancial firms have remained accommodative amid lower interest rates. Flows of credit to large nonfinancial firms remained solid overall in the third quarter of 2019. The gross issuance of corporate bonds, although lower than in the first half of last year, was robust across credit categories. Yields on both investment- and speculative-grade corporate bonds continued to decrease and are near historical lows. Spreads on corporate bond yields over comparable-maturity Treasury securities have continued to narrow, on net, since the middle of last year and are at the lower end of their historical distributions. Respondents to the January Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that banks eased several terms on commercial and industrial (C&I) loans but that demand for C&I loans has continued to weaken, consistent with the slowdown in business investment. C&I loan growth at banks has slowed since the first half of last year, while commercial real estate loan growth has continued to be strong. Meanwhile, financing conditions for small businesses have remained generally accommodative, but credit growth has been subdued.

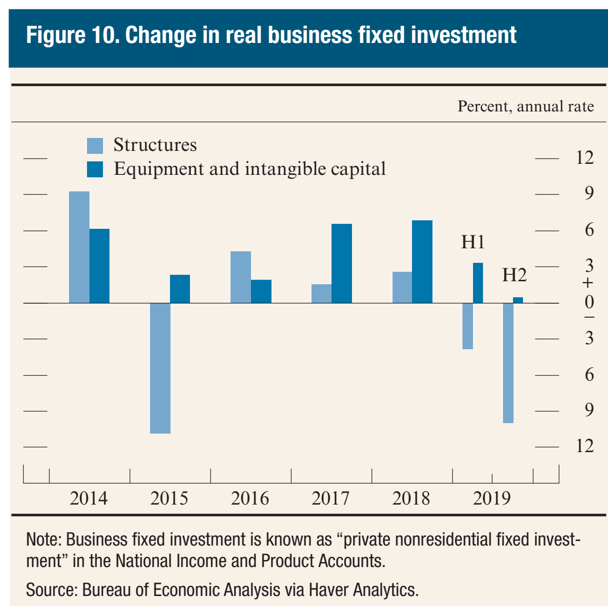
Net exports added to GDP growth in 2019, as exports grew little but imports declined

Real exports grew only a touch in 2019, as tariffs on U.S. exports increased and foreign growth weakened. Real imports declined last year, in part reflecting higher tariffs on imported goods and weakness in investment and manufacturing. As a result, real net exports—after having subtracted from U.S. real GDP growth in 2018—provided a modest boost to GDP growth in 2019. Relative to 2018, the nominal trade deficit is slightly less negative, and the current account deficit is little changed as a percent of GDP (figure 11).

Federal fiscal policy actions continued to boost economic growth in 2019 while raising the federal unified budget deficit . . .

The effects of fiscal policy actions enacted at the federal level in earlier years continued to boost GDP growth in 2019; the Tax Cuts and Jobs Act of 2017

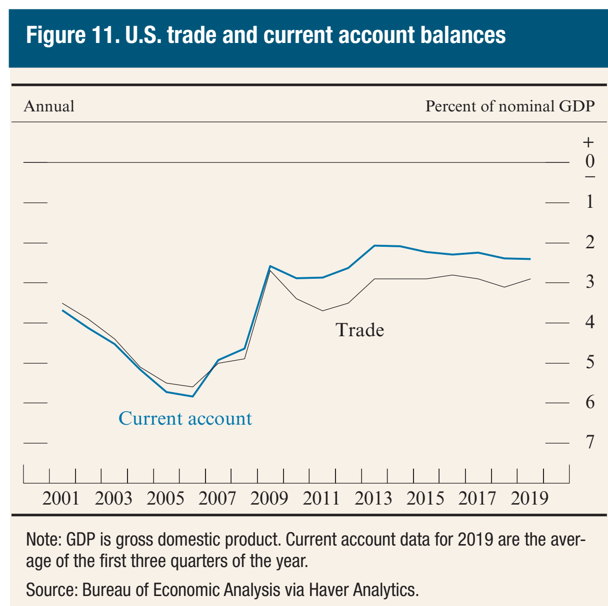
Figure 10. Change in real business fixed investment



Note: Business fixed investment is known as "private nonresidential fixed investment" in the National Income and Product Accounts.

Source: Bureau of Economic Analysis via Haver Analytics.

Figure 11. U.S. trade and current account balances



Note: GDP is gross domestic product. Current account data for 2019 are the average of the first three quarters of the year.

Source: Bureau of Economic Analysis via Haver Analytics.

lowered personal and business income taxes, and rising appropriations consistent with the Bipartisan Budget Act of 2018 boosted federal purchases.[9] In 2019, federal purchases rose 4.3 percent, well above the 2.7 percent increase of 2018.

The federal unified budget deficit widened further in fiscal year 2019 to 4½ percent of nominal GDP from 3¾ percent of GDP in 2018, as expenditures moved up as a share of the economy while receipts moved sideways. Expenditures, at 21 percent of GDP, are above the level that prevailed in the decade before the start of the 2007–09 recession, while receipts have continued to run below their average levels. The ratio of federal debt held by the public to nominal GDP rose to 79 percent in fiscal 2019 and was quite elevated relative to historical norms. The Congressional Budget Office projects that this ratio will rise further over the next several years, reflecting large and rising deficits under current fiscal policy.

. . . and the fiscal position of most state and local governments is stable

The fiscal position of most state and local governments remains stable, although there is a range of experiences across these governments. Revenues for these governments have continued to grow in recent quarters, as the economic expansion pushes up income and sales tax collections for state governments, and past house price gains continue to push up property tax collections for local governments. Boosted by a rebound in construction spending following two years of weak growth, real purchases by state and local governments rose moderately last year but still remained quite restrained, partly reflecting budget pressures associated with pension and retiree health-care obligations. State and local government payrolls increased moderately in 2019 but have only roughly regained the peak observed before the current expansion, and real outlays for construction are more than 10 percent below their pre-recession peak. The debt of these governments as a share of the economy has continued to edge lower and currently equals around 14 percent of GDP, well below the previous peak of 21 percent following the most recent recession.

Financial Developments

The expected path of the federal funds rate over the next several years shifted down

Market-based measures of the expected path of the federal funds rate over the next several years have moved down, on net, since the middle of last year and show about a 30 basis point decrease in the federal funds rate over 2020 and a relatively flat path thereafter. Survey-based measures of the expected path of the policy rate also shifted down from the levels observed in the middle of 2019 but indicate no change to the target range for the federal funds rate over 2020 from its level at the end of 2019. According to the results of the most recent Survey of Primary Dealers and Survey of Market Participants, both conducted by the Federal Reserve Bank of New York in December, the median of respondents' modal projections implies a flat trajectory for the target range of the federal funds rate for the next few years.[10] Additionally, market-based measures of uncertainty about the policy rate approximately one to two years ahead declined, on balance, from their levels at the end of last June and are close to their average level in recent years.

U.S. nominal Treasury yields decreased on net

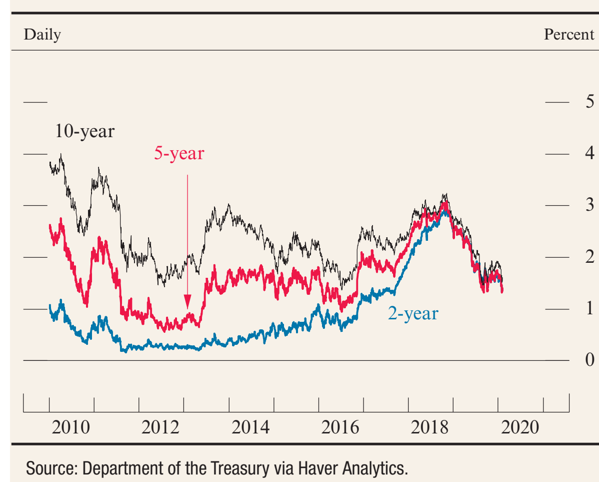
After moving significantly lower over the first half of 2019, nominal Treasury yields also fell sharply in August, largely in response to investors' concerns regarding trade tensions between the United States and China and the global economic outlook (figure 12). Later in the year, as these concerns abated, Treasury yields rose, the yield curve steepened, and uncertainty about near-term Treasury yields—measured by option-implied volatility on short- and longer-dated swap rates—declined. However, in the second half of January, investors' concerns about the implications of the coronavirus outbreak for the economic outlook weighed on Treasury yields and led to a flattening of the yield curve as well as some increase in uncertainty about near-term Treasury yields. Since the middle of last year, Treasury yields ended lower on net.

Consistent with changes in the yields on nominal Treasury securities, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates— decreased,

9 The Congressional Budget Office (CBO) estimated that the Tax Cuts and Jobs Act would reduce annual tax revenue by around 1 percent of GDP, on average, from fiscal years 2018 through 2021. This revenue projection includes the CBO's estimated macroeconomic effects of the legislation, which add almost ¼ percentage point to GDP growth, on average, over the same period.

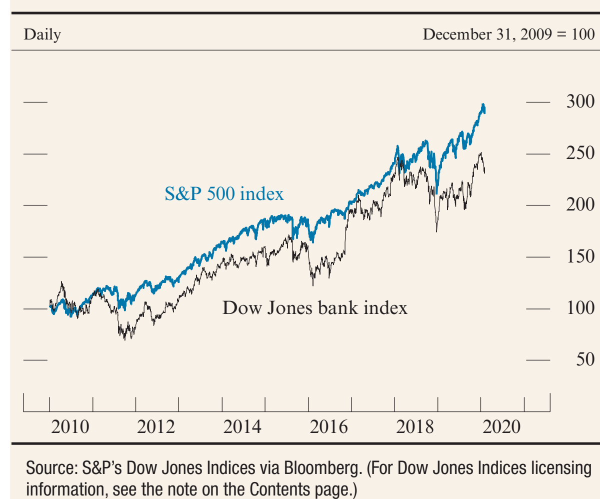
10 The results of the Survey of Primary Dealers and the Survey of Market Participants are available on the Federal Reserve Bank of New York's website at https://www.newyorkfed.org/markets/primarydealer_survey_questions.html and https://www.newyorkfed.org/markets/survey_market_participants, respectively.

Figure 12. Yields on nominal Treasury securities



Source: Department of the Treasury via Haver Analytics.

Figure 13. Equity prices



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

on balance, since the middle of last year and remained low by historical standards. Meanwhile, yields on both investment- and speculative-grade corporate bonds continued to decline and also stayed low by historical standards. Spreads on corporate bond yields over comparable-maturity Treasury yields narrowed moderately, on net, over the second half of 2019 and remained in the lower end of their historical distribution.

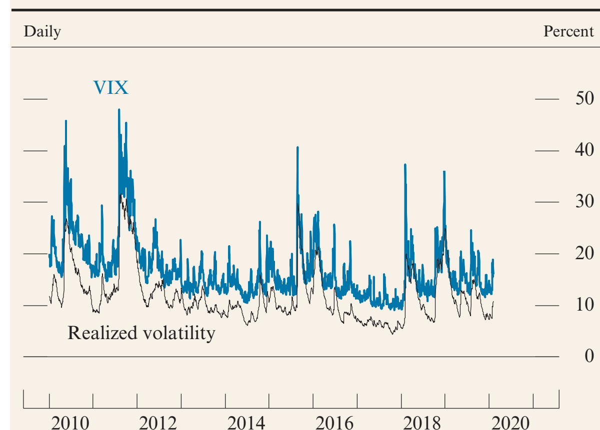
Broad equity price indexes increased notably

Equity prices fluctuated in August and September along with investors' concerns about trade developments and the economic outlook. Later in 2019 and into 2020, as these concerns abated, equity prices rose substantially and were reportedly boosted by greater certainty among investors that monetary policy would remain accommodative in the near term (figure 13). Gains were spread across most major economic sectors, with the exception of the energy sector, for which stock prices declined markedly. Measures of implied and realized stock price volatility for the S&P 500 index—the VIX and the 20-day realized volatility—increased in August to fairly elevated levels but declined later in the year (figure 14). (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability" on pages 24–25 of the February 2020 *Monetary Policy Report*.)

Markets for Treasury securities, mortgage-backed securities, and municipal bonds have functioned well

While available indicators of Treasury market functioning have generally remained stable since the first half of 2019—including bid-ask spreads, bid sizes, and estimates of transaction costs—some, such as measures of market depth, have decreased. However, the decline in measures of market depth has reportedly not led to any concerns about Treasury market liquidity. Liquidity conditions in the agency MBS market were also generally stable. Credit conditions in municipal bond markets remained stable as well, with yield spreads on 20-year general obligation municipal bonds over comparable-maturity Treasury securities declining notably and standing near historically low levels.

Figure 14. S&P 500 volatility



Note: The VIX is a measure of implied volatility that represents the expected annualized change in the S&P 500 index over the following 30 days. For realized volatility, five-minute S&P 500 returns are used in an exponentially weighted moving average with 75 percent of weight distributed over the past 20 days.

Source: Cboe Volatility Index® (VIX®) accessed via Bloomberg; Federal Reserve Board staff estimates.

Money market rates moved down in line with decreases in the FOMC's target range, except for some notable volatility in mid-September

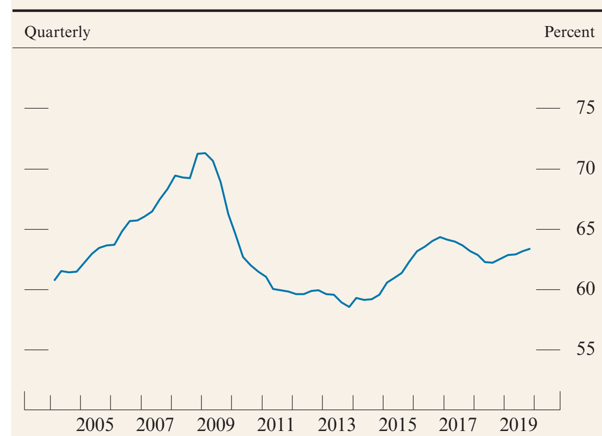
Decreases in the FOMC's target range for the federal funds rate in July, September, and October transmitted effectively through money markets, with yields on a broad set of money market instruments moving lower in response to the FOMC's policy actions.

The effective federal funds rate moved nearly in parity with the interest rate paid on reserves and was closely tracked by the overnight Eurodollar rate. Other short-term interest rates, including those on commercial paper and negotiable certificates of deposit, also moved down in line with decreases in the policy rate. Domestic short-term funding markets were volatile in mid-September—amid large flows related to corporate tax payments and settlement of Treasury securities—and experienced significant tightening of conditions. The effective federal funds rate rose above the target range on September 17 but then moved back within the target range following the Federal Reserve's open market operations, which eased pressures in money markets (see the box "Money Market Developments and Monetary Policy Implementation" on pages 42–43 of the February 2020 *Monetary Policy Report*).

Bank credit continued to expand, and bank profitability remained robust

Aggregate credit provided by commercial banks continued to expand through the second half of 2019, as the strength in commercial real estate and residential real estate loan growth, helped by falling interest rates, more than offset the slowdown in C&I and consumer loans. In the second half of last year, the pace of bank credit expansion was about in line with that of nominal GDP, leaving the ratio of total commercial bank credit to current-dollar GDP little changed from its value last June (figure 15). Overall, measures of bank profitability ticked down a bit in the third quarter because of narrower net interest margins but remain near their post-crisis highs.

Figure 15. 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.

International Developments

Growth in advanced foreign economies weakened, but it appears to be stabilizing

Real GDP growth in several advanced foreign economies (AFEs) appears to have stepped down in the second half of the year. However, incoming data suggest that the slowdown in the AFEs may have bottomed out. Household spending has generally remained resilient, sustained by low unemployment rates and rising wages. Financial conditions have improved further, supported in part by accommodative monetary policy actions. The protracted slump in global manufacturing, which weighed on external demand across the AFEs, is showing tentative signs of nearing an end. In the euro area, where manufacturing activity was particularly weak, recent indicators suggest that growth may be steadying. In Japan, real GDP appears to have contracted sharply at the end of 2019, following a consumption tax hike in October, but its effects are likely to be transitory. In the United Kingdom, Brexit-related uncertainty weighed on economic activity throughout 2019; around the turn of the year, U.K. and European Union authorities took the necessary steps to prevent a disorderly Brexit from occurring on January 31, 2020, but they still need to negotiate a new trade arrangement.

Inflationary pressures remained subdued in many advanced foreign economies

Against a backdrop of slower economic growth, consumer prices in many AFEs continued to rise at a subdued pace, especially in the euro area and Japan. Canada remains an exception, as inflation there hovered around 2 percent.

Central banks in several advanced foreign economies provided accommodation

In response to subdued growth and below-target inflation, the European Central Bank introduced a new stimulus package in September of last year, including a deposit rate cut of 10 basis points to

negative 0.5 percent, a restart of its Asset Purchase Programme, and more favorable terms for its targeted longer-term refinancing operations. Similarly, the Reserve Bank of Australia and the Reserve Bank of New Zealand reduced their policy rates in the second half of last year, citing concerns about the global outlook. The Bank of Canada, the Bank of England, and the Bank of Japan kept their policy rates unchanged, although communications by their officials took a more dovish tone, emphasizing increased downside risks to the global economy. In contrast, Sweden's Riksbank and Norway's Norges Bank increased their policy rates, citing favorable macroeconomic conditions and concerns about growing financial imbalances.

Financial conditions in advanced foreign economies eased further

Notwithstanding slowing global growth and bouts of political tensions, financial conditions in the AFEs, on balance, eased further in the second half of 2019, supported by accommodative central bank actions, progress on trade negotiations between the United States and China, and diminished fears of a hard Brexit. Long-term interest rates in many AFEs remained well below the levels seen at the end of 2018. Equity prices, as well as prices of other risky assets, increased moderately. Sovereign bond spreads over German bund yields for euro-area peripheral countries narrowed slightly. In recent weeks, however, equity and bond markets gave up some of their gains as uncertainty about the economic effects of the coronavirus weighed on investors' sentiment.

Growth slowed markedly in many emerging market economies, but there are tentative signs of stabilization

Chinese GDP growth slowed further in the second half of 2019 against the backdrop of increased tariffs on Chinese exports, global weakness in trade and manufacturing, and authorities' deleveraging campaign that continued to exert a drag on the economy. However, recent data suggest that China's economic activity picked up at the end of last year, in part supported by some fiscal and monetary policy stimulus and some easing of trade tensions. In emerging Asia excluding China, economic growth was dragged down by a sharp contraction in Hong Kong, where social and political unrest resulted in severe economic disruptions, and by weakness in India, where an ongoing credit crunch continues to weigh on activity. In several other Asian economies, GDP growth held steady but at a lackluster pace amid headwinds from moderating global growth. GDP growth in Korea, Taiwan, and the Philippines rebounded in the last quarter of 2019, consistent with signs of stabilization in the global manufacturing cycle, especially in the high-tech sector. However, the recent emergence of the coronavirus could lead to disruptions in China that spill over to other Asian countries and, more generally, to the rest of the global economy.

Many Latin American economies continued to underperform. Economic stagnation persisted in Mexico, reflecting both domestic factors—including market concerns about economic policies—and external factors, notably, renewed weakness in U.S. manufacturing production. Severe social unrest in several countries—including Chile, Ecuador, and Bolivia—disrupted economic activity. Argentina's financial crisis continued, while Venezuela's economy likely continued to contract. Growth in Brazil, in contrast, edged up as aggregate demand continued to recover, supported by further reductions in policy interest rates.

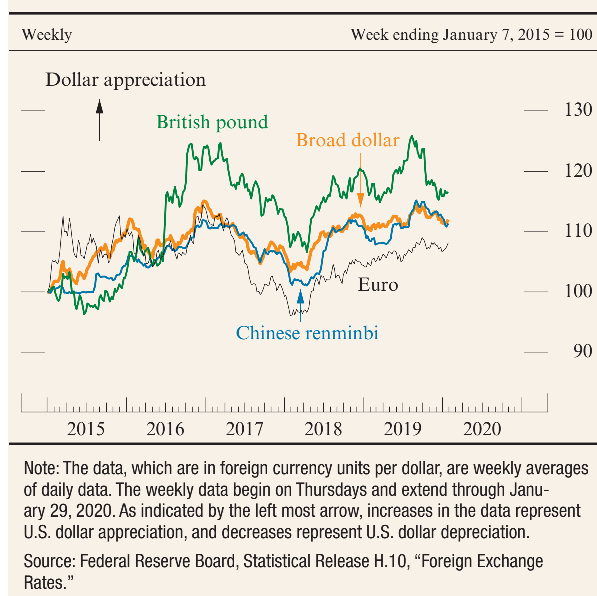
Financial conditions in emerging market economies fluctuated but, on net, eased somewhat

Notwithstanding social and political tensions as well as concerns about the global outlook, financial conditions in the emerging market economies (EMEs) eased somewhat in the second half of 2019. Conditions were supported by the accommodative actions of the FOMC and several foreign central banks and, later in the year, by progress in the negotiations between the United States and its major trading partners as well as improved prospects about global growth. EME equity prices generally increased, especially for Brazil. And measures of EME sovereign bond spreads over U.S. Treasury yields generally decreased. Political tensions in Hong Kong contributed to an underperformance of Chinese risky assets. After several months of withdrawals, flows to dedicated EME mutual funds resumed in the fourth quarter of 2019, consistent with the improved sentiment toward global prospects. However, in reaction to the emergence of the coronavirus, in late January equity and bond markets gave up some of their gains.

The dollar fluctuated but is, on balance, little changed

The foreign exchange value of the U.S. dollar fluctuated but is, on balance, little changed compared with last July (figure 16). While concerns about global growth and trade tensions contributed to the appreciation of the dollar over the summer, monetary policy easing by the Federal Reserve and progress on

Figure 16. U.S. dollar exchange rate indexes



Note: The data, which are in foreign currency units per dollar, are weekly averages of daily data. The weekly data begin on Thursdays and extend through January 29, 2020. As indicated by the left most arrow, increases in the data represent U.S. dollar appreciation, and decreases represent U.S. dollar depreciation.

Source: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

U.S.–China trade negotiations led to a depreciation of the dollar, especially with respect to the Chinese renminbi. The British pound appreciated notably against the dollar as fears of a disorderly Brexit diminished.

Part 2: Monetary Policy

The Federal Open Market Committee reduced the federal funds rate to support sustained economic expansion and foster a return of inflation to the Committee's 2 percent objective

After having gradually increased its target range for the federal funds rate from late 2015 through the end of 2018, the Committee maintained its target range for the federal funds rate at 2¼ to 2½ percent during the first half of 2019. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Federal Open Market Committee (FOMC) lowered the target range for the federal funds rate at its July, September, and October meetings by 25 basis points each, bringing it to 1½ to 1¾ percent (figure 17).[11] At its December and January meetings, the Committee judged that the prevailing stance of monetary policy was appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation returning to its symmetric 2 percent objective.

Future changes in the federal funds rate will depend on the economic outlook and risks to the outlook as informed by incoming data

The FOMC has continued to emphasize that the actual path of monetary policy will depend on the evolution of the economic outlook and risks to the outlook as informed by incoming data. Specifically, in deciding on the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and symmetric 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

In addition to evaluating a wide range of economic and financial data and information gathered from business contacts and other informed parties around the country, policymakers routinely consult prescriptions for the policy interest rate from various monetary policy rules, which can provide useful guidance to the FOMC. Although many practical considerations make it undesirable for the FOMC to mechanically follow the prescriptions of any specific rule, the FOMC's framework for conducting systematic monetary policy respects key principles of good monetary policy embodied by these rules, while at the same time, providing flexibility to address many of the limitations of these policy rules (see the box "Monetary Policy Rules and Uncertainty in Monetary Policy Settings" on pages 33–37 of the February 2020 *Monetary Policy Report*).

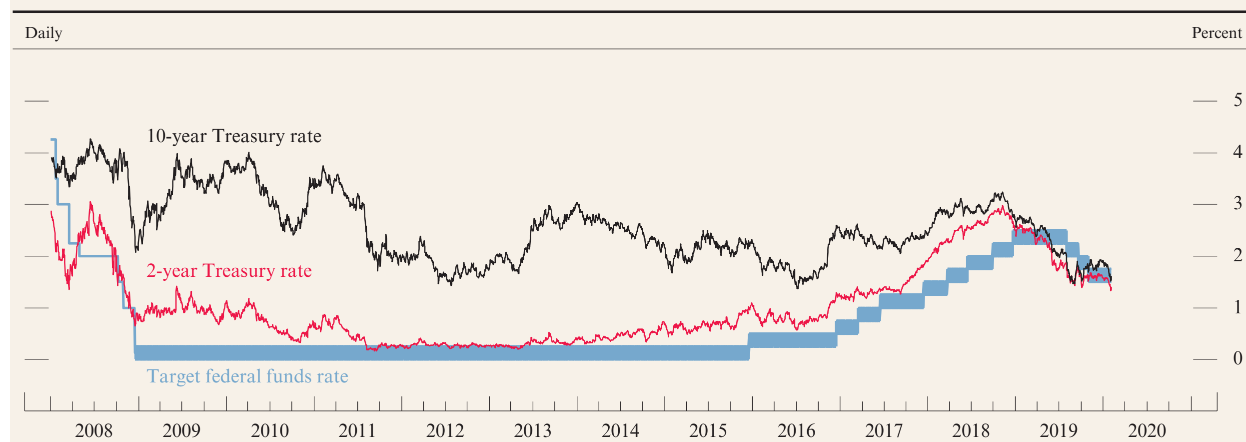
The FOMC concluded the reduction of its aggregate securities holdings in the System Open Market Account . . .

At its July meeting, along with its decision to lower the target range for the federal funds rate, the FOMC also announced that it was ending the runoff of securities holdings two months earlier than the initially planned termination at the end of September.[12] Ending the runoff earlier than initially planned was

[11] See the FOMC statements issued after the July, September, and October meetings, which are available (along with other post-meeting statements) on the Monetary Policy portion of the Board's website at https://www.federalreserve.gov/monetarypolicy.htm.

[12] The Committee had initially indicated in its Balance Sheet Normalization Principles and Plans, issued in March 2019, that it intended to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of September 2019. The document is available on the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190320c.htm.

Figure 17. 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.

seen as having only very small effects on the balance sheet, with negligible implications for the economic outlook. Moreover, doing so avoided the appearance of inconsistency in continuing to allow the balance sheet to run off while simultaneously lowering the target range for the federal funds rate.

Since then, the Federal Reserve has rolled over at auction all principal payments from its holdings of Treasury securities and has reinvested all principal payments from its holdings of agency debt and agency mortgage-backed securities (MBS) received during each calendar month. The Committee intends to continue to reduce its holdings of agency debt and agency MBS, consistent with the aim of holding primarily Treasury securities in the long run. To allow for a gradual runoff of the MBS portfolio, principal payments from agency debt and agency MBS of up to $20 billion per month have been reinvested in Treasury securities; agency MBS principal payments in excess of $20 billion each month have been reinvested in agency MBS.[13]

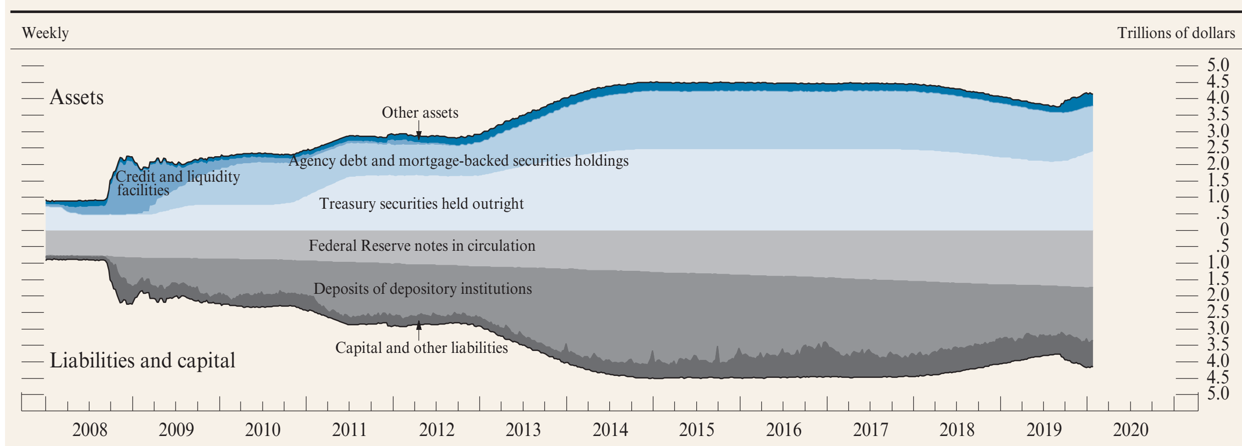
. . . and reaffirmed its intention to implement monetary policy in a regime with an ample supply of reserves

In a monetary policy regime with an ample supply of reserves, 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 active management of the supply of reserves is not required. The Federal Reserve will still conduct periodic open market operations as necessary to accommodate the trend growth in the demand for its nonreserve liabilities, such as currency in circulation, and maintain an ample supply of reserves over time. Separate from such periodic open market operations, beginning in October 2019, the Federal Reserve has implemented a temporary program of open market operations, specifically Treasury bill purchases, aimed at durably raising reserves to levels at or above those prevailing in early September (see the box "Money Market Developments and Monetary Policy Implementation" on pages 42–43 of the February 2020 *Monetary Policy Report*). These actions are purely technical measures to support the effective implementation of the FOMC's monetary policy and are not intended to change the stance of monetary policy. These Treasury bill purchases are distinct from the large-scale asset purchase programs that the Federal Reserve deployed after the financial crisis. In those programs, the Federal Reserve purchased longer-term securities to put downward pressure on longer-term interest rates and ease broader financial conditions.

The Federal Reserve's total assets have increased from about $3.8 trillion last July to about $4.1 trillion at present, with holdings of Treasury securities at approximately $2.4 trillion and holdings of agency debt and agency MBS at approximately $1.4 trillion (figure 18). The increase in the size of the balance sheet partly reflects an increase in the level of nonreserve liabilities—such as currency in circulation and the TGA—and a rise in the level of reserve balances,

[13] See the Balance Sheet Normalization Principles and Plans in note 12. Since August, the Federal Reserve has reinvested, on average, about $7 billion per month in agency MBS.

Figure 18. Federal Reserve assets and liabilities



Note: "Credit and liquidity facilities" consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns, and AIG; and other credit facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, and the Term Asset-Backed Securities Loan Facility. "Other assets" includes repurchase agreements as well as unamortized premiums and discounts on securities held outright. "Capital and other liabilities" includes reverse repurchase agreements, the U.S. Treasury General Account, and the U.S. Treasury Supplementary Financing Account. The data extend through January 29, 2020.

Source: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

which have increased from approximately $1.5 trillion last July to approximately $1.6 trillion at present.

Meanwhile, interest income on the Federal Reserve's securities holdings has continued to result in substantial remittances to the U.S. Treasury. Preliminary data indicate that the Federal Reserve remitted about $55 billion in 2019.

The effective federal funds rate moved down in line with the FOMC's target range for the federal funds rate

The Federal Reserve reduced the effective federal funds rate following the FOMC's decisions in July, September, and October to lower the target range for the federal funds rate by reducing the interest rate paid on required and excess reserve balances and the interest rate offered on overnight reverse repurchase agreements (ON RRPs). Specifically, the Federal Reserve lowered the interest rate paid on required and excess reserve balances to 2.10 percent in July, 1.80 percent in September, and 1.55 percent in October. In addition, the Federal Reserve lowered the ON RRP offering rate to 2 percent in July, 1.70 percent in September, and 1.45 percent in October. The Federal Reserve also approved a ¼ percentage point decrease in the discount rate (the primary credit rate) in July, September, and October. Yields on a broad set of money market instruments also moved lower, roughly in line with the effective federal funds rate, in response to the FOMC's policy decisions in July, September, and October.

The Federal Reserve continued the review of its strategic framework for monetary policy

In the second half of 2019, the Federal Reserve continued the review of its monetary policy strategy, tools, and communication practices. The goal of this assessment is to identify possible ways to improve the Committee's current policy framework in order to ensure that the Federal Reserve is best positioned going forward to achieve its statutory mandate of maximum employment and price stability. (The box "Federal Reserve Review of Monetary Policy Strategy, Tools, and Communication Practices" on pages 40–41 of the February 2020 *Monetary Policy Report* discusses the review and the public outreach that has accompanied it.)

Monetary Policy Report July 2019

Summary

Economic activity increased at a solid pace in the early part of 2019, and the labor market has continued to strengthen. However, inflation has been running below the Federal Open Market Committee's (FOMC) longer-run objective of 2 percent. At its meeting in June, the FOMC judged that current and prospective economic conditions called for maintaining the target range for the federal funds rate at 2¼ to 2½ percent. Nonetheless, in light of increased uncertainties around the economic outlook and muted inflation pressures, the Committee indicated that it will closely monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near the Committee's symmetric 2 percent objective.

Economic and Financial Developments

The labor market. The labor market has continued to strengthen. Over the first five months of 2019, payrolls increased an average of 165,000 per month. This rate is down from the average pace of 223,000 in 2018, but it is faster than what is needed to provide jobs for new entrants into the labor force. The unemployment rate moved down from 3.9 percent in December to 3.6 percent in May; meanwhile, wage gains have remained moderate.

Inflation. Consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures, moved down from a little above the FOMC's objective of 2 percent in the middle of last year to a rate of 1.5 percent in May. The 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator than the overall figure of where inflation will be in the future, was 1.6 percent in May—down from a rate of 2 percent from a year ago. However, these year-over-year declines mainly reflect soft readings in the monthly price data earlier this year, which appear to reflect transitory influences. Survey-based measures of longer-run inflation expectations are little changed, while market-based measures of inflation compensation have declined recently to levels close to or below the low levels seen late last year.

Economic growth. In the first quarter, real gross domestic product (GDP) is reported to have increased at an annual rate of 3.1 percent, bolstered by a sizable contribution from net exports and business inventories. By contrast, consumer spending in the first quarter was lackluster but appears to have picked up in recent months. Meanwhile, following robust gains last year, business fixed investment slowed in the first quarter, and indicators suggest that investment decelerated further in the spring. All told, incoming data for the second quarter suggest a moderation in GDP growth—despite a pickup in consumption—as the contributions from net exports and inventories reverse and the impetus from business investment wanes further.

Financial conditions. Nominal Treasury yields moved significantly lower over the first half of 2019, largely reflecting investors' concerns about trade tensions and the global economic outlook, as well as expectations of a more accommodative path for the federal funds rate than had been anticipated earlier. On net, since the end of 2018, spreads of yields on corporate bonds over those on comparable-maturity Treasury securities have narrowed, and stock prices have increased. Moreover, loans remained widely available for most households, and credit provided by commercial banks continued to expand at a moderate pace. Overall, domestic financial conditions for businesses and households continued to be supportive of economic growth over the first half of 2019.

Financial stability. The U.S. financial system continues to be substantially more resilient than in the period leading up to the financial crisis. Asset valuations remain somewhat elevated in a number of markets, with investors continuing to exhibit high appetite for risk. Borrowing by businesses continues to outpace GDP, with the most rapid increases in debt concentrated among the riskiest firms. In contrast, household borrowing remains modest relative to income, and the debt growth is concentrated among borrowers with high credit scores. Key financial institutions, including the largest banks, continue to be well capitalized and hold large quantities of liquid assets. Funding risks in the financial system remain low relative to the period leading up to the crisis.

International developments. After slowing in 2018, foreign economic growth appears to have stabilized in the first half of the year, but at a restrained pace. While aggregate activity in the advanced foreign economies (AFEs) increased slowly from the soft patch of late last year, activity in emerging Asia generally struggled to gain a solid footing, and several Latin American economies continued to underperform. Growth abroad has been held down in part by

a slowdown in the manufacturing sector against the backdrop of softening global trade flows. With both inflation and activity in the AFEs remaining subdued, AFE central banks took a more accommodative policy stance.

Despite trade tensions that weighed on financial markets, financial conditions abroad generally eased in the first half of the year, supported by accommodative communications by major central banks. On balance, global equity prices moved higher, sovereign yields in major foreign economies declined, and sovereign bond spreads in the emerging market economies were little changed. Market-implied paths of policy rates in AFEs generally declined.

Monetary Policy

Interest rate policy. In its meetings over the first half of 2019, the FOMC judged that the stance of monetary policy was appropriate to achieve the Committee's objectives of maximum employment and 2 percent inflation, and it decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. These decisions reflected incoming information showing the solid fundamentals of the U.S. economy supporting continued growth and strong employment. For most of this period, the Committee indicated that, in light of global economic and financial developments and muted inflation pressures, it would be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate. At the June FOMC meeting, however, the Committee noted that uncertainties about the global and domestic economic outlook had increased. In light of these uncertainties and muted inflation pressures, the Committee indicated that it will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.

In the most recent Summary of Economic Projections, which was compiled at the time of the June FOMC meeting, participants generally revised down their individual assessments of the appropriate path for monetary policy relative to their assessments at the time of the March meeting. (The participants' most recent economic projections—released after the June FOMC meeting—are discussed in more detail in Part 3 of the July 2019 *Monetary Policy Report*.) However, as the Committee has continued to emphasize, the timing and size of future adjustments to the target range for the federal funds rate will depend on the Committee's assessment of realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation.

Balance sheet policy. Over the first half of the year, the FOMC made two announcements regarding the longer-run policy implementation framework and its plans for normalizing the balance sheet. Following its January meeting, the Committee noted that it decided to continue to implement monetary policy in a regime with ample reserves. Consistent with that decision, in March, the Committee announced plans to conclude the reduction of its aggregate securities holdings at the end of September 2019. (See the box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" on pages 42–43 of the July *2019 Monetary Policy Report*.) The Committee is prepared to adjust the details for completing balance sheet normalization in light of economic and financial developments, consistent with its policy objectives of maximum employment and price stability.

Special Topics

Labor market conditions for lower- and higher-educated workers. The labor market has strengthened since the end of the last recession, but the pattern of recovery has varied across workers with different levels of education. Workers with a college degree or more experienced a swifter recovery in employment, while those with a high school degree or less had a much more delayed recovery in employment. This pattern is typical of business cycles, and recent research sheds light on mechanisms that may lead to differences in the timing of recovery for lower- and higher-educated workers. (See the box "How Have Lower-Educated Workers Fared since the Great Recession?" on pages 8–9 of the July 2019 *Monetary Policy Report*.)

Global manufacturing and trade. Growth in global trade and manufacturing has weakened significantly since 2017 even as growth in services has held up. Trade policy developments appear to have lowered trade flows to some extent, while uncertainty surrounding trade policy may be weighing on investment. The global tech cycle and a general slowdown in global demand, reflecting idiosyncratic factors specific to different economies, have also likely weighed on demand for traded goods. (See the box "The Persistent Slowdown in Global Trade and Manufacturing" on pages 30–31 of the July 2019 *Monetary Policy Report*.)

Monetary policy rules. Monetary policy rules are mathematical formulas that relate a policy interest rate, such as the federal funds rate, to a small number of other economic variables, typically including the deviation of inflation from its target value and a measure of resource slack in the economy. The prescriptions for the policy interest rate from these rules can provide helpful guidance for the FOMC. This discussion presents five policy rules—illustrative of the many rules that have received attention in the research literature—and provides examples of two ways to compute historical prescriptions of policy rules. (See the box Monetary Policy Rules and Their Interactions with the Economy" on pages 37–41 of the July 2019 *Monetary Policy Report*.)

Monetary policy implementation and balance sheet normalization. Since the beginning of this year, the FOMC has made important decisions regarding its framework for monetary policy implementation and the process of normalizing the size of its balance sheet. The Committee decided to continue to implement monetary policy in a regime with an ample supply of reserves and announced that it intends to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of September 2019. (See the box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" on pages 42–43 of the July 2019 *Monetary Policy Report*.)

Part 1: Recent Economic and Financial Developments

Domestic Developments

The labor market strengthened further during the first half of 2019 but at a slower pace than last year . . .

Labor market conditions have continued to strengthen so far this year but at a pace slower than last year. Total nonfarm payroll employment has averaged gains of about 165,000 per month over the first five months of 2019, according to the Bureau of Labor Statistics. This pace is slower than the average monthly gains in 2018, but it is faster than what is needed to provide jobs for net new entrants into the labor force as the working-age population grows.[1]

In April and May of this year, the unemployment rate stood at 3.6 percent, ¼ percentage point lower than its level in December 2018 and its lowest level since 1969. In addition, the unemployment rate is ½ percentage point below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level.[2]

In May, the labor force participation rate (LFPR) for individuals 16 and over—that is, the share of the population either working or actively seeking work—was 62.8 percent, and it has changed little, on net, since late 2013. The aging of the population is an important contributor to an underlying downward trend in the overall participation rate. In particular, members of the baby-boom cohort are increasingly moving into their retirement years, ages when labor force participation typically falls. The flat trajectory in the overall LFPR is therefore consistent with strengthening labor market conditions; indeed, the LFPR for prime-age individuals (between 25 and 54 years old), which is much less sensitive to the effects of population aging, has been rising over the past few years. Combining both the unemployment rate and the LFPR, the employment-to-population ratio (EPOP) for individuals 16 and over—the share of that segment of the population who are working—was 60.6 percent in May and has been gradually increasing throughout the expansion. The increase has been considerably larger for those with at least some college education than for those with no more than a high school diploma. (The box "How Have Lower-Educated Workers Fared since the Great Recession?"on pages 8–9 of the July 2019 *Monetary Policy Report* discusses movements in the EPOP by educational level over the current expansion.)

Other indicators are also consistent with strong labor market conditions. As reported in the Job Openings and Labor Turnover Survey (JOLTS), the average of the private-sector job openings rate over the first four months of the year was near its historical high, consistent with surveys indicating that businesses see vacancies as hard to fill. Similarly, the quits rate in the JOLTS is also near the top of its historical range, an indication that workers are being bid away from their current jobs or have become more confident

[1] Owing to population growth, roughly 115,000 to 145,000 jobs per month need to be created, on average, to keep the unemployment rate constant with an unchangedlabor force participation rate. However, the participation rate fell over the December to May period, reducing the number of job gains that would have been needed. There is considerable uncertainty around these estimates, as the difference between monthly payroll gains and employment changes from the Current Population Survey (the source of the unemployment and participation rates) can be quite volatile over short periods.

[2] See the most recent economic projections that were released after the June FOMC meeting in Part 3 of the July 2019 *Monetary Policy Report*.

that they can successfully switch jobs if they wish to. This interpretation accords well with surveys of consumers that indicate households perceive jobs as plentiful. The JOLTS layoff rate and the number of people filing initial claims for unemployment insurance benefits have both remained quite low.

. . . and unemployment rates have fallen for all major demographic groups over the past several years

Differences in unemployment rates across ethnic and racial groups have narrowed in recent years, as they typically do during economic expansions, after having widened during the recession. However, unemployment rates for African Americans and Hispanics remain substantially above those for whites and Asians. The rise in LFPRs for prime-age individuals over the past few years has also been apparent in each of these racial and ethnic groups.

Increases in labor compensation have picked up but remain moderate by historical standards . . .

Despite strong labor market conditions, the available indicators generally suggest that increases in hourly labor compensation have remained moderate. The employment cost index—a measure of both wages and the cost to employers of providing benefits—was 2¾ percent higher in March of 2019 relative to its year-earlier level. Compensation per hour in the business sector—a broad-based but volatile measure of wages, salaries, and benefits—rose 1½ percent over the four quarters ending in 2019:Q1, less than the annual increases over the preceding couple of years. Among measures that do not account for benefits, average hourly earnings rose 3.1 percent in May relative to 12 months earlier, a slightly faster rate of increase than during the same period of a year ago. According to the Federal Reserve Bank of Atlanta, the median 12-month wage growth of individuals reporting to the Current Population Survey increased about 3¾ percent in May, near the upper portion of its range over the past couple of years.[3]

. . . and likely have been restrained by slow growth in labor productivity over much of the expansion

These moderate rates of hourly compensation gains likely reflect the offsetting influences of a strengthening labor market and productivity growth that has been weak through much of the expansion. From 2008 to 2017, labor productivity increased a little more than 1 percent per year, on average, well below the average pace from 1996 to 2007 of nearly 3 percent and also below the average gain in the 1974–95 period. Although considerable debate remains about the reasons for the slowdown in productivity growth over this period, the weakness may be partly attributable to the sharp pullback in capital investment during the most recent recession and the relatively slow recovery that followed. More recently, however, labor productivity rose 1¾ percent in 2018 and picked up further in the first quarter of 2019.[4] While it is uncertain whether this faster rate of growth will persist, a sustained pickup in productivity growth, as well as additional labor market strengthening, would support stronger gains in labor compensation.

Price inflation has dipped below 2 percent this year

Consumer price inflation has moved down below the FOMC's objective of 2 percent this year.[5] As measured by the 12-month change in the price index for personal consumption expenditures (PCE), inflation is estimated to have been 1.5 percent in May after being at or above 2 percent for much of 2018. Core PCE inflation—which excludes consumer food and energy prices that are often quite volatile, and which therefore typically provides a better indication than the total measure of where overall inflation will be in the future—also moved lower in recent months and is estimated to have been 1.6 percent over the 12 months ending in May. The slowing in core inflation to date reflects particularly low readings in the first three months of the year that appear due to idiosyncratic price declines in a number of specific categories such as apparel, used cars, and banking services and portfolio management services. Indeed, in April and May, core inflation accelerated, posting larger average monthly gains than in the first quarter.

The trimmed mean PCE price index, produced by the Federal Reserve Bank of Dallas, provides an alternative way to purge inflation of transitory influences, and it is less sensitive than the core index to idiosyncratic price movements such as those noted earlier.[6]

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[3] The Atlanta Fed's measure differs from others in that it measures the wage growth only of workers who were employed both in the current survey month and 12 months earlier.

[4] In the first quarter, labor productivity surged 3½ percent at an annual rate, bringing the four-quarter change to 2½ percent, reflecting a strong pickup in business-sector output and unusual weakness in hours relative to measured gains in payroll employment. This weakness is attributable to a steep decline in a volatile component of hours that is not directly measured in the Bureau of Labor Statistics' establishment survey.

[5] The increases in tariffs on imported goods last year likely provided only a small boost to inflation in 2018 and in the first half of this year.

[6] The trimmed mean index excludes whichever prices showed the largest increases or decreases in a given month. Note that, since

The 12-month change in this measure was 2 percent in May.

Oil prices rebounded through the spring but have moved down recently . . .

After dropping sharply late last year, the Brent price of crude oil moved up to almost $75 per barrel in mid-April, partly reflecting declines in production in Iran and Venezuela and voluntary supply cuts by other OPEC members and partner countries. More recently, however, prices have fallen back to around $65 per barrel because of concerns about global growth. The changes in oil prices have contributed to similar movements in retail gasoline prices, which rose through early spring but have also fallen back recently.

. . . and prices of imports other than energy fell

Nonfuel import prices, before accounting for the effects of tariffs on the price of imported goods, have continued to decline from their mid-2018 peak, responding to dollar appreciation, lower foreign inflation, and declines in non-oil commodity prices.[7] In particular, prices of industrial metals have fallen in recent months, partly on concerns about weak global demand.

Survey-based measures of inflation expectations have been stable . . .

Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained generally stable over the past year. In the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years has been very close to 2 percent for the past several years. In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years has fluctuated around 2½ percent since the end of 2016, though this level is about ¼ percentage point lower than had prevailed through 2014. In the Survey of Consumer Expectations, conducted by the Federal Reserve Bank of New York, the median of respondents' expected inflation rate three years hence has fluctuated between 2½ percent and 3 percent over the past five years.

. . . while market-based measures of inflation compensation have come down since the first half of 2018

Inflation expectations can also be gauged by market-based measures of inflation compensation. However, the inference is not straightforward, because market-based measures can be importantly affected by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable-maturity Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—tend to fall when markets are volatile because of the incorporation of liquidity risks. Such declines occurred around the turn of the year and again in May and June, when market volatility picked up again. Despite the fluctuations this year, these measures of inflation compensation remain notably below levels that prevailed in the summer of 2018.[8] The TIPS-based measure of 5-to-10-year-forward inflation compensation and the analogous measure from inflation swaps are now about 1¾ percent and 2 percent, respectively, with both measures below their respective ranges that prevailed for most of the 10 years before the start of the notable declines in mid-2014.[9]

Real gross domestic product growth was strong in the first quarter, but there are recent signs of slowing

Real gross domestic product (GDP) rose at an annual rate of 3 percent in 2018. In the first quarter, real GDP again moved up at an annual rate of around 3 percent. However, there are indications that growth will moderate in the second quarter.[10] Net exports

1995, changes in the trimmed mean index have averaged about 0.3 percentage point above core PCE inflation and 0.2 percentage point above total PCE inflation.

[7] Published import price indexes exclude tariffs. However, tariffs add to the prices that purchasers of imports actually pay.

[8] Inflation compensation implied by the TIPS breakeven inflation rate is based on the difference, at comparable maturities, between yields on nominal Treasury securities and yields on TIPS, which are indexed to the total consumer price index (CPI). Inflation swaps are contracts in which one party makes payments of certain fixed nominal amounts in exchange for cash flows that are indexed to cumulative CPI inflation over some horizon. Inflation compensation derived from inflation swaps typically exceeds TIPS-based compensation, but week-to-week movements in the two measures are highly correlated.

[9] As these measures are based on the CPI inflation index, one should probably subtract about ¼ percentage point—the average differential with PCE inflation and CPI inflation over the past two decades—to infer inflation compensation on a PCE price basis.

[10] It is worth noting that gross domestic income (GDI) has been notably weaker than GDP. GDI is reported to have risen only 1.7 percent in the first quarter relative to the same period of a year ago, 1½ percentage points less than measured GDP growth. GDP and GDI measure the same economic concept, and any difference between the two figures reflects measurement error.

and business inventories provided a sizable boost to first-quarter GDP growth, but their contributions appear to have reversed in the months following. Notably, private domestic final purchases—that is, final purchases by households and businesses, which tend to provide a better indication of future GDP growth than most other components of overall spending—posted only a modest increase in the first quarter. The slowing that occurred in consumer spending appears to have been temporary, but the slowing in business fixed investment appears to be more persistent. Manufacturing output fell in the first quarter, and it moved down further in April before posting a small gain in May. Although lower production levels of motor vehicles and aircraft were important contributors to the weakness, the recent declines in manufacturing were broad based.[11] Nevertheless, the economic expansion continues to be abetted by steady job gains, increases in household wealth, expansionary fiscal policy, and still-supportive domestic financial conditions, including moderate borrowing costs and easy access to credit for many households and businesses.

Growth in business fixed investment has softened after strong gains in 2018

Investment spending by businesses rose rapidly in 2018 but appears to have decelerated sharply this year. In the first quarter, growth slowed to an annual rate of 4½ percent, while new orders for nondefense capital goods, excluding the volatile aircraft category, have declined modestly, on balance, in recent months. In addition, forward-looking indicators of business spending such as capital spending plans have deteriorated amid downbeat business sentiment and profit expectations from industry analysts, reportedly reflecting trade tensions and concerns about global growth.

By contrast, activity in the housing sector had been declining but recently shows signs of stabilizing

Residential investment fell in 2018 and declined further in the first quarter. More recently, the pace of construction activity appears to have stabilized as housing starts for single-family and multifamily housing units rose, on average, in April and May. Existing home sales moved higher as well over the same period, while new home sales moved down a bit following a sizable increase in the first quarter. Consumers' perceptions of homebuying conditions and housing affordability have improved, which is consistent with the declines in mortgage rates this year and the slowing in growth of home prices.

Ongoing improvements in the labor market and gains in wealth continue to support household income and consumer spending . . .

After increasing at a moderate pace of 2½ percent in 2018 as a whole, real consumer spending slowed considerably in the first quarter. However, incoming data suggest that consumer spending picked up in recent months, with PCE in May up at an annual rate of 2½ percent relative to the average level in the fourth quarter.

Real disposable personal income (DPI), a measure of households' after-tax purchasing power, increased at a solid annual rate of 3 percent in 2018; however, so far this year, growth in real DPI has been more moderate despite strong gains in wage and salary income. With consumer spending rising more than disposable income so far this year, the personal saving rate moved down from an average of 6½ percent in the fourth quarter to around 6 percent in May.

Ongoing gains in household wealth have likely continued to support consumer spending. House prices, which are of particular importance for the balance sheet positions of a large portion of households, continued to increase through May, although at a more moderate pace than in recent years. In addition, U.S. equity prices, which fell sharply at the end of 2018, have rebounded this year. Buoyed by increases in home and equity prices, aggregate household net worth moved up to 6.8 times household income in the first quarter.

. . . and consumer sentiment remains strong

Consumers have remained upbeat. Although the Michigan index of consumer sentiment dipped at the turn of the year, it has since rallied, and the sentiment measure from the Conference Board survey also climbed in the second quarter from its first-quarter level. In June, both the Michigan and the Conference Board indexes of consumer sentiment were about in the middle of their ranges over the past few years.

Borrowing conditions for households remain generally favorable . . .

Despite increases in interest rates for consumer loans and some reported further tightening in credit card lending standards, financing conditions for consum-

[11] Recently, a large aircraft manufacturer slowed its production and temporarily halted deliveries of an aircraft model. This production slowdown lowers manufacturing output and generates a small drag on real GDP growth in the first half of the year.

ers largely remain supportive of growth in household spending. Consumer credit expanded at a moderate pace in the first quarter, rising faster than disposable income. Mortgage credit has continued to be readily available for households with solid credit profiles but remains noticeably tighter than before the most recent recession for borrowers with low credit scores. Standards for automotive loans have been generally stable, and overall delinquency rates for these loans were little changed in the first quarter at a moderate level. Financing conditions in the student loan market remain firm, with over 90 percent of such credit being extended by the federal government. After peaking in 2013, delinquencies on such loans have been gradually declining, reflecting in part the continued improvements in the labor market.

. . . while corporate financing conditions tightened somewhat relative to last year but remained accommodative overall

Aggregate flows of credit to large nonfinancial firms remained strong in the first quarter, supported in part by relatively low interest rates and accommodative financing conditions. The gross issuance of corporate bonds, which had fallen substantially in December, rebounded in the first quarter as market volatility receded. After increasing notably in late 2018, spreads on both investment- and speculative-grade corporate bonds over comparable-maturity Treasury securities have both declined, on net, this year as investors' risk appetite seems to have recovered. In April, respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that demand for commercial and industrial loans weakened in the first quarter even as lending standards remained unchanged and terms for such loans eased.[12] However, banks reported tightening lending standards on all categories of commercial real estate loans. Meanwhile, financing conditions for small businesses have remained generally accommodative, but credit growth has been subdued.

Net exports supported GDP growth in the first quarter

After being a small drag on U.S. real GDP growth last year, net exports, which can have sizable swings from quarter to quarter, added about 1 percentage point to the rate of growth in the first quarter. Real U.S. exports increased at an annual rate of about 5½ percent, as exports of agricultural products and automobiles expanded robustly. Real imports fell 2 percent following solid increases in 2018. Nominal goods trade data through May suggest that exports edged down in the second quarter, while imports were about flat. The available data suggest that the trade deficit and the current account in the first half of the year were little changed as a percent of GDP from 2018.

Federal fiscal policy actions boosted economic growth in 2018 but had a smaller effect on first-quarter real GDP because of the partial government shutdown . . .

Fiscal policy at the federal level boosted GDP growth in 2018 because of lower personal and business income taxes from the Tax Cuts and Jobs Act of 2017 and because of an increase in federal purchases due to the Bipartisan Budget Act of 2018.[13] After increasing 2¾ percent in 2018, federal government purchases were flat in the first quarter of 2019, reflecting the effects of the partial federal government shutdown. The government shutdown, which was in effect from December 22 through January 25, held down GDP growth in the first quarter, largely because of the lost work of furloughed federal government workers and affected federal contractors. That said, federal purchases are expected to rebound in the second quarter.

The federal unified budget deficit widened in fiscal year 2018 to around 4 percent of nominal GDP from 3½ percent of GDP in 2017 because receipts moved lower, to 16 percent of GDP. Expenditures are currently around 21 percent of GDP, slightly above the level that prevailed in the decade before the start of the 2007–09 recession. The ratio of federal debt held by the public to nominal GDP rose to around 77 percent in fiscal 2018 and was quite elevated relative to historical norms. The Congressional Budget Office projects that this ratio will rise further over the next several years.

. . . and the fiscal position of most state and local governments is stable

The fiscal position of most state and local governments is stable, although there is a range of experiences across these governments. The revenue of state governments has grown moderately in recent quarters, as the economic expansion continues to push up income and sales tax collections. At the local level,

[12] The SLOOS is available on the Board's website at https://www.federalreserve.gov/data/sloos/sloos.htm.

[13] The Joint Committee on Taxation estimated that the Tax Cuts and Jobs Act would reduce average annual tax revenue by a little more than 1 percent of GDP starting in 2018 and for several years thereafter. This revenue estimate does not account for the potential macroeconomic effects of the legislation.

property tax collections continue to rise, pushed higher by past house price gains. Real state and local government purchases grew modestly last year; however, outlays have surged so far this year, driven largely by a boost in construction spending. State and local infrastructure spending was weak for many years, and there appears to be demand for higher expenditures in this area. State and local government payrolls expanded slowly last year and over the first five months of 2019, and employment by these governments remains below its peak before the current expansion.

Financial Developments

The expected path of the federal funds rate over the next several years has moved down

Market-based measures of the expected path for the federal funds rate over the next several years have declined substantially since the end of 2018. Various factors contributed to this shift, including increased investor concerns about downside risks to the global economic outlook and rising trade tensions. In addition, investors reportedly interpreted FOMC communications over the first half of 2019 as signaling the Federal Reserve is likely to lower the target range for the federal funds rate in light of muted inflation pressures and uncertainties about the global economic outlook.

Survey-based measures of the expected path of the policy rate also shifted down relative to the levels observed at the end of 2018. According to the results of the most recent Survey of Primary Dealers and Survey of Market Participants, both conducted by the Federal Reserve Bank of New York just before the June FOMC meeting, the median of respondents' modal projections implies a declining trajectory for the target range of the federal funds rate for 2019, which flattens out in 2020. Relative to the December survey, the median of these projections moved down 50 basis points for July 2019 and 100 basis points for December 2019.[14] Additionally, market-based measures of uncertainty about the policy rate approximately one to two years ahead increased, on balance, from their levels at the end of last December.

[14] The results of the Survey of Primary Dealers and the Survey of Market Participants are available on the Federal Reserve Bank of New York's website at https://www.newyorkfed.org/markets/primarydealer_survey_questions.html and https://www.newyorkfed.org/markets/survey_market_participants, respectively.

The nominal Treasury yield curve has moved down and continued to flatten

Since the end of 2018, the nominal Treasury yield curve shifted down and flattened further, with the 2-, 5-, and 10-year nominal Treasury yields all declining about 70 basis points on net. The decrease in Treasury yields, which is consistent with the revision in market participants' expectations for the path of policy rates, largely reflects FOMC communications as well as investors' concerns about the global economic outlook and the escalation of trade disputes. Option-implied volatility on swap rates—an indicator of uncertainty about Treasury yields—has increased notably, on net, since the beginning of the year. In particular, measures of near-term interest rate uncertainty have reached the levels seen at the end of 2018.

Yields on 30-year agency mortgage-backed securities (MBS)—an important factor influencing mortgage interest rates—decreased in line with the decline in the 10-year nominal Treasury yield and remained low by historical standards. Likewise, yields on both investment-grade and high-yield corporate debt declined significantly from the levels in late 2018 and stayed very low. Despite widening in May, the spreads on corporate bond yields over comparable-maturity Treasury yields have narrowed, on net, over the first half of 2019 and are close to their historical medians.

Broad equity price indexes increased on net

After declining sharply at the end of 2018, broad U.S. stock market indexes have recovered, on net, over the first half of 2019. The broad rebound in stock prices—which included all major economic sectors—was reportedly supported by Federal Reserve communications that were perceived as more accommodative than previously anticipated. Stocks fluctuated in May and June as downside risks and trade tensions were offset by further expectations of easier monetary policy.

Measures of implied and realized stock price volatility for the S&P 500 index declined notably on net. Following the highs seen at the end of 2018, these volatility measures declined until late April, with the VIX—a measure of implied volatility—returning to near the 10th percentile of its historical distribution and with realized volatility close to the 30th percentile of its historical range. At the beginning of May, following the escalation of trade tensions, these volatility measures increased and have remained elevated since then, but they have stayed well below the high levels of December and now stand close to their his-

torical medians. Several measures of financial conditions that aggregate large sets of financial data into summary indexes eased considerably since the end of 2018 but have tightened a bit since the beginning of May, in line with the decline in stock prices over that month, and have remained relatively elevated since then. (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability" on pages 24–25 of the July 2019 *Monetary Policy Report*.)

Markets for Treasury securities, mortgage-backed securities, and municipal bonds have functioned well

Available indicators of Treasury market functioning have generally remained stable since the beginning of 2019, with a variety of measures—including bid-ask spreads, bid sizes, and estimates of transaction costs—displaying few signs of liquidity pressures. Liquidity conditions in the agency MBS market were also generally stable. Credit conditions in municipal bond markets remained stable as well, with yield spreads on 20-year general obligation municipal bonds over comparable-maturity Treasury securities declining somewhat on net.

Money market rates were little changed

Rates across money markets were little changed, on balance, in the first half of 2019. Conditions in domestic short-term funding markets continued to be broadly stable since the end of 2018. Overnight secured and unsecured rates declined in line with the technical adjustment announced after the May FOMC meeting, which lowered the interests paid on required and excess reserve balances by 5 basis points. Other short-term interest rates, including those on commercial paper and negotiable certificates of deposit, were also little changed since the beginning of the year.

Bank credit continued to expand, and bank profitability remained robust

Credit provided by commercial banks to fund businesses as well as commercial and residential real estate continued to grow in 2019, albeit at a slower pace than in the second half of 2018. By contrast, consumer loan growth accelerated since the beginning of the year. In the first quarter of 2019, the pace of total bank credit expansion was about in line with that of nominal GDP, leaving the ratio of total commercial bank credit to current-dollar GDP little changed relative to last December. Overall, measures of bank profitability remained solid in the first quarter of 2019, supported by wider net interest margins and steady loan growth.

International Developments

Advanced foreign economies have been slowly emerging from the recent soft patch

After a significant slowdown in the second half of last year, growth picked up in many advanced foreign economies (AFEs) at the start of 2019, but at a still restrained pace. Notwithstanding continued weakness in the manufacturing sector and softening external demand, domestic demand in the AFEs generally improved amid rising employment and wages as well as easier financial conditions. The pickup in growth also reflected temporary factors. Economic activity in the euro area was boosted by the fading effects of car production disruptions in Germany and protests in France in 2018. Growth in the United Kingdom surged as expectations of trade disruptions surrounding the original date of the United Kingdom's exit from the European Union, or Brexit, led to stockpiling by households and firms. Economic activity in Canada, by contrast, remained depressed by oil production cuts, but recent indicators point to a rebound in growth in the second quarter.

Core inflation remained low in advanced foreign economies

The rebound in energy prices earlier in the year pushed up consumer price inflation in many AFEs. However, despite further improvement in labor market conditions, inflationary pressures remained contained, with core inflation readings notably muted in the euro area and Japan. In Canada and the United Kingdom, by contrast, core inflation rates moved close to 2 percent.

AFE central banks took a more accommodative policy stance

With activity only slowly picking up and core inflation persistently low, European Central Bank (ECB) communications took a more accommodative tone. In March, the ECB indicated that it would keep its policy rate in negative territory through at least the middle of next year and rolled out a new round of loans for euro-area banks to reduce the risk of renewed funding pressures. In June, ECB President Mario Draghi added that the ECB would introduce new stimulus measures if the economic outlook did not improve. The Bank of Canada and Bank of England signaled more-gradual increases in interest rates, given a moderation in the pace of global economic activity. The Reserve Bank of Australia in June and

July cut its policy rate in response to below-target inflation and weak economic growth.

Central banks' more accommodative policy stances supported AFE asset prices

The more accommodative policy stance in major AFEs contributed to an overall easing of financial conditions in the first half of the year. Market-implied paths of policy rates and long-term interest rates on sovereign bonds have generally fallen sharply, as in the United States. Broad stock market indexes across AFEs are up, on net, since January. However, concerns about global growth and rising trade tensions weighed on risky asset prices over the course of May and June. Sovereign bond spreads in Italy fluctuated amid uncertainty about the country's fiscal outlook.

Economic activity in emerging Asia struggled to gain a solid footing

In China, real GDP growth picked up in the first quarter, supported in part by fiscal and monetary policy measures that targeted smaller businesses and infrastructure spending, as well as by the more favorable financial conditions amid investor optimism on a U.S.–China trade deal. Recent activity indicators, however, suggest that the underlying momentum in the economy remains relatively subdued against the backdrop of reemerging trade tensions, global weakness in trade and manufacturing, and the Chinese authorities' continued caution about providing substantial further credit stimulus. Amid moderating global trade and activity, real GDP growth in other Asian economies in the first quarter generally remained below their 2018 pace, with growth in Korea turning negative (see the box "The Persistent Slowdown in Global Trade and Manufacturing" on pages 30–31 of the July 2019 *Monetary Policy Report*).

Latin American economies continued to underperform

In Mexico, real GDP contracted in the first quarter following generally weak performance in the past two years. Tighter fiscal policy and disruptions from labor unrest weighed on activity amid a backdrop of softening U.S. manufacturing demand and persistent declines in petroleum production. Recent indicators suggest some improvement in the second quarter, although uncertainty regarding trade relations with the United States appears to have increased. In Brazil, real GDP also contracted in the first quarter, as a mining disaster and ongoing weakness in the Argentine economy weighed on Brazilian economic activity. Investment continued to decline, held down by uncertainty over whether Brazil's government would enact major fiscal and other economic reforms.

Financial conditions in many emerging market economies improved, on net, despite the reemergence of trade tensions

Financial conditions in many emerging market economies (EMEs) eased earlier in the year in response to the more accommodative policy stance of the Federal Reserve and major AFE central banks. However, in recent months, political uncertainties in some EMEs and renewed trade tensions between the United States and major trading partners have weighed on EME asset prices. On net, broad measures of EME sovereign bond spreads over U.S. Treasury rates are down a little, while benchmark EME equity indexes are a bit higher since the beginning of the year. Flows to dedicated EME mutual funds increased earlier in the year but turned negative in the second quarter. While deteriorations in asset prices and capital flows have been sizable for some economies, particularly Turkey and Argentina, broad indicators of financial stress in EMEs are below those seen during other periods of significant stress in recent years.

The dollar depreciated a little

Over the first half of the year, the foreign exchange value of the U.S. dollar fluctuated but was, on net, a little lower. Increased investor optimism about prospects for trade negotiations early this year as well as downward-revised expectations for U.S. interest rates led to a depreciation of the dollar. But the more accommodative tone of communications from major foreign central banks and safe-haven flows—in part in response to trade tensions and concerns about global growth—helped push the dollar up. In addition, the Chinese renminbi has come under some downward pressure since trade tensions escalated in recent months.

Part 2: Monetary Policy

The FOMC maintained its target range for the federal funds rate

From late 2015 through the end of 2018, the Federal Open Market Committee (FOMC) gradually increased its target range for the federal funds rate as the economy continued to make progress toward the Committee's congressionally mandated objectives of maximum employment and price stability. In its meetings over the first half of 2019, the Committee judged that the stance of monetary policy was appro-

priate to achieve its dual mandate, and it decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. These decisions reflected incoming information showing the solid fundamentals of the U.S. economy supporting continued growth and strong employment.

Looking ahead, the FOMC will act as appropriate to sustain the expansion, with a strong labor market and inflation near its 2 percent objective

At its meetings since the beginning of the year, the Committee stated that it continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes.

At the June meeting, however, the Committee noted that uncertainties about the outlook had increased.[15] Since the beginning of May, the tenor of incoming information on economic activity, on balance, has become somewhat more downbeat, and uncertainties about the economic outlook have increased. Growth indicators from around the world have disappointed, on net, raising concerns about the strength of the global economy. Meanwhile, contacts in business and agriculture have reported heightened concerns over trade developments. In light of these uncertainties and muted inflation pressures, the Committee indicated that it will act as appropriate to sustain the expansion, with a strong labor market and inflation near its objective. The Committee is firmly committed to its symmetric 2 percent inflation objective. In the Committee's economic projections released after the June meeting, participants generally revised down their individual assessments of the appropriate path for the policy rate from their assessments at the time of the March meeting (see Part 3 of the July 2019 *Monetary Policy Report* for more details).

Future changes in the federal funds rate will depend on the economic outlook and risks to the outlook as informed by incoming data

The FOMC has continued to emphasize that the actual path of monetary policy will depend on the evolution of the economic outlook and risks to the outlook as informed by incoming data. Specifically, in deciding on the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and symmetric 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

In addition to weighing a wide range of economic and financial data and information received from business contacts and other informed parties around the country, policymakers regularly consult prescriptions for the interest rate arising from various monetary policy rules. These rule prescriptions can serve as useful guidelines to the FOMC in the course of arriving at its policy decisions. Nonetheless, numerous practical considerations make clear that the FOMC cannot mechanically set the policy rate by following the prescriptions of any specific rule. The FOMC's framework for conducting monetary policy involves a systematic approach in keeping with key principles of good monetary policy but allows for more flexibility than is implied by simple policy rules (see the box "Monetary Policy Rules and Their Interactions with the Economy" on pages 37–41 of the July 2019 *Monetary Policy Report*).

Since the beginning of the year, the FOMC has issued two statements regarding monetary policy implementation and balance sheet normalization

At its January meeting, the Committee indicated that it intends to continue to implement monetary policy in a regime in which the provision of 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.[16] After the March FOMC meeting, the Committee issued a statement indicating that it plans to conclude the reduction of the Federal Reserve's securities holdings at the end of September.[17] (The box "Framework for Monetary Policy Implementation and Normalization of the Federal Reserve's Balance Sheet" on pages 42–43 of the July 2019 *Monetary Policy Report* details the recent decision about policy implementation and balance sheet normalization.)

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[15] See the FOMC statement issued after the June meeting, which is available on the Monetary Policy portion of the Board's website at https://www.federalreserve.gov/monetarypolicy.htm.

[16] See the Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, which is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

[17] See the Balance Sheet Normalization Principles and Plans, which can be found on the Board's website at https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm.

The Committee is prepared to adjust the details for completing balance sheet normalization in light of economic and financial developments, consistent with its congressionally mandated objectives of maximum employment and price stability.

The Federal Reserve's total assets have continued to decline from about $4.1 trillion last December to about $3.8 trillion at present, with holdings of Treasury securities at approximately $2.1 trillion and holdings of agency debt and agency mortgage-backed securities at approximately $1.5 trillion.

As the Federal Reserve has continued to gradually reduce its securities holdings, the level of reserve balances in the banking system has declined. In particular, the level of reserve balances has decreased by about $150 billion since the end of last year and by about $1.3 trillion since its peak in 2014.[18]

Meanwhile, interest income on the Federal Reserve's securities holdings has continued to result in sizable remittances to the U.S. Treasury. Preliminary data indicate that the Federal Reserve remitted about $27 billion in the first half of 2019.

The Federal Reserve's implementation of monetary policy has continued smoothly

Since the middle of March, the effective federal funds rate has traded slightly above the interest rate paid on reserve balances. At the May meeting, the Committee made a third small technical adjustment to lower the setting of the interest rate on excess reserves by 5 basis points to a level 15 basis points below the top of the target range for the federal funds rate; this adjustment successfully fostered trading in the federal funds market at rates well within the FOMC's target range. Overall, rates across money markets were broadly stable since the beginning of 2019, and the usage of the overnight reverse repurchase agreement facility has remained low.

The Federal Reserve has started the review of its strategic framework for monetary policy

With labor market conditions close to maximum employment and inflation near the Committee's 2 percent objective, the FOMC judged it an appropriate time for the Federal Reserve to conduct a public review of its strategic framework for monetary policy—including the policy strategy, tools, and communication practices. The goal of this assessment is to identify possible ways to improve the Committee's current policy framework in order to ensure that the Federal Reserve is best positioned going forward to achieve its statutory mandate of maximum employment and price stability.

The review includes outreach to and consultation with a broad range of people and groups interested in the U.S. economy. The Federal Reserve System is currently conducting a series of Fed Listens events around the country, typically with a town hall format, to hear perspectives from representatives of business and industry, labor leaders, community and economic development officials, academics, nonprofit organization executives, and others. Policymakers plan to report their findings to the public during the first half of 2020.

[18] Since the start of the normalization program, reserve balances have dropped by approximately $700 billion.

3 Financial Stability

A stable financial system promotes economic welfare through many channels: It facilitates household savings to purchase a home, finance a college education, and smooth consumption in response to job loss and other adverse developments; it promotes responsible risk-taking and economic growth by channeling savings to firms to start new businesses and expand existing businesses; and it spreads risk across investors.

A financial system is considered stable when financial institutions—banks, savings and loan associations, and other financial product and service providers—and financial markets are able to provide households, communities, and businesses with the resources, services, and products they need to invest, grow, and participate in a well-functioning economy. Disruptions to these activities of the financial system have arisen during, and contributed to, stressed macroeconomic environments. Accordingly, the Federal Reserve's objective to promote financial stability strongly complements the goals of price stability and full employment. In pursuit of continued financial stability, the Federal Reserve monitors the potential buildup of risks to financial stability; uses such analyses to inform Federal Reserve responses, including the design of stress-test scenarios and decisions regarding other policy tools such as the countercyclical capital buffer; works with other domestic agencies directly and through the Financial Stability Oversight Council (FSOC); and engages with the global community in monitoring, supervision, and regulation that mitigate the risks and consequences of financial instability domestically and abroad.

Moreover, the Federal Reserve promotes financial stability through its supervision and regulation of financial institutions. A central tenet of the Federal Reserve's efforts in promoting financial stability is the adoption of an approach to supervision and regulation that, in addition to a traditional approach focused on the safety and soundness of individual institutions, accounts for the stability of the financial system as a whole. In particular, a supervisory approach accounting for financial stability concerns informs the supervision of systemically important financial institutions (SIFIs), including large bank holding companies, the U.S. operations of certain foreign banking organizations, and financial market utilities (FMUs). In addition, the Federal Reserve serves as a "consolidated supervisor" of nonbank financial companies designated by the FSOC as institutions whose distress or failure could pose a threat to the stability of the U.S. financial system as a whole (see "Financial Stability Oversight Council Activities" later in this section). Enhanced standards for the largest, most systemic firms promote the safety of the overall system and minimize the regulatory burden on smaller, less systemic institutions.

This section discusses key financial stability activities undertaken by the Federal Reserve over 2019, which include monitoring risks to financial stability; promoting a perspective on the supervision and regulation of large, complex financial institutions that accounts for the potential spillovers from distress at such institutions to the financial system and broader economy; and engaging in domestic and international cooperation and coordination.

Some of these activities are also discussed elsewhere in this annual report. A broader set of economic and financial developments are discussed in section 2, "Monetary Policy and Economic Developments," with the discussion that follows concerning surveillance of economic and financial developments focused on financial stability. The full range of activities associated with supervision of SIFIs, designated nonbank companies, and designated FMUs is discussed in section 4, "Supervision and Regulation."

Monitoring Risks to Financial Stability

Financial institutions are linked together through a complex set of relationships, and their condition depends on the economic condition of the nonfinan-

cial sector. In turn, the condition of the nonfinancial sector hinges on the strength of financial institutions' balance sheets, as the nonfinancial sector obtains funding through the financial sector. Monitoring risks to financial stability is aimed at better understanding these complex linkages and has been an important part of Federal Reserve efforts in pursuit of overall economic stability.

A stable financial system, when hit by adverse events, or "shocks," is able to continue meeting demands for financial services from households and businesses, such as credit provision and payment services. By contrast, in an unstable system, these same shocks are likely to have much larger effects, disrupting the flow of credit and leading to declines in employment and economic activity.

Consistent with this view of financial stability, the Federal Reserve Board's monitoring framework distinguishes between shocks to and vulnerabilities of the financial system. Shocks, such as sudden changes to financial or economic conditions, are inherently hard to predict. Vulnerabilities tend to build up over time and are the aspects of the financial system that are most expected to cause widespread problems in times of stress. Accordingly, the Federal Reserve maintains a flexible, forward-looking financial stability monitoring program focused on assessing the financial system's vulnerabilities to a wide range of potential adverse shocks.

Each quarter, Federal Reserve Board staff assess a set of vulnerabilities relevant for financial stability, including but not limited to asset valuation pressures, borrowing by businesses and households, leverage in the financial sector, and funding risk. These monitoring efforts inform discussions concerning policies to promote financial stability, such as supervision and regulatory policies as well as monetary policy. They also inform Federal Reserve interactions with broader monitoring efforts, such as those by the FSOC and the Financial Stability Board (FSB).

The Federal Reserve Board published two *Financial Stability Report*s in 2019.[1] The report, which is published on a semiannual basis, summarizes the Board's framework for assessing the resilience of the U.S. financial system and presents the Board's current assessment of financial system vulnerabilities. It aims to promote public understanding about Federal Reserve views on this topic and thereby increase transparency and accountability. The report complements the annual report of the FSOC, which is chaired by the Secretary of the Treasury and includes the Federal Reserve Chair and other financial regulators.

Asset Valuation Pressures

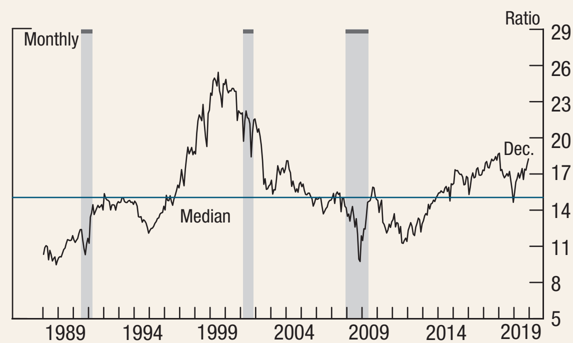
Overvalued assets are a fundamental source of vulnerability because the unwinding of high prices can be destabilizing, especially if the assets are widely held and the values are supported by excessive leverage, maturity transformation, or risk opacity. Moreover, stretched asset valuations are likely to be an indicator of a broader buildup in risk-taking. Nonetheless, it is very difficult to judge whether an asset price is overvalued relative to fundamentals. As a result, the Federal Reserve's analysis of asset valuation pressures typically includes a broad range of possible valuation metrics and tracks developments in areas in which asset prices are rising particularly rapidly, into which investor flows have been considerable, or where volatility has been at unusually low or high levels.

Across markets, asset valuations were notable in the first half of 2019 and then increased to somewhat elevated levels through December 2019. These developments were supported by the continuing economic expansion and an apparent increase in investors' appetite for risk. Among several large asset categories, spreads, risk premiums, and implied volatility declined and, at the end of 2019, stood at the low ends of their historical distributions.

Equity prices increased substantially toward the end of the year, driven primarily by the decline in Treasury yields, positive trade developments, and strong labor market data. The forward price-to-earnings ratio of S&P 500 firms increased since midsummer of 2019 and stood quite high relative to its historical distribution (figure 1). Measures of realized and implied volatility of stock prices moved down since December 2018, lying at the lower ends of their historical distributions (figure 2). Investor appetite for corporate bonds was quite strong, with spreads remaining low despite high levels of corporate leverage. Investment- and speculative-grade spreads narrowed notably and, at the end of 2019, stood in the lower range of their historical distributions (figure 3).

1 See Board of Governors of the Federal Reserve System (2019), *Financial Stability Report* (Washington: Board of Governors, May), https://www.federalreserve.gov/publications/files/financial-stability-report-201905.pdf; and Board of Governors of the Federal Reserve System (2019), *Financial Stability Report* (Washington: Board of Governors, November), https://www.federalreserve.gov/publications/files/financial-stability-report-20191115.pdf.

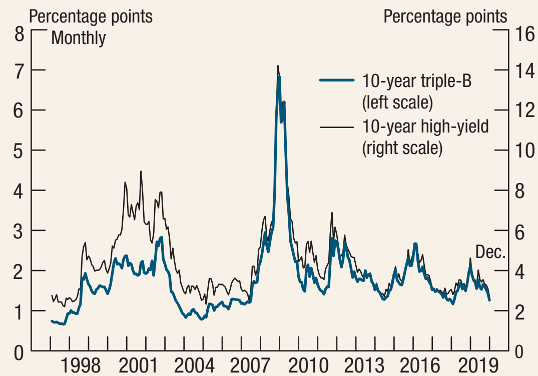
Figure 1. Forward price-to-earnings ratio of S&P 500 firms, 1988–2019



Note: The data, based on expected earnings for 12 months ahead, extend through December 2019 and consist of the aggregate forward price-to-earnings ratio of S&P 500 firms. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: July 1990–March 1991, March 2001–November 2001, and December 2007–June 2009.

Source: Federal Reserve Board staff calculations using Refinitiv (formerly Thomson Reuters), IBES Estimates.

Figure 3. Corporate bond spreads, 1997–2019



Note: The data extend through December 2019. The 10-year triple-B reflects the effective yield of the ICE BofAML 7-to-10-year triple-B U.S. Corporate Index (C4A4), and the 10-year high-yield reflects the effective yield of the ICE BofAML 7-to-10-year U.S. Cash Pay High Yield Index (J4A0). Treasury yields from smoothed yield curve estimated from off-the-run securities.

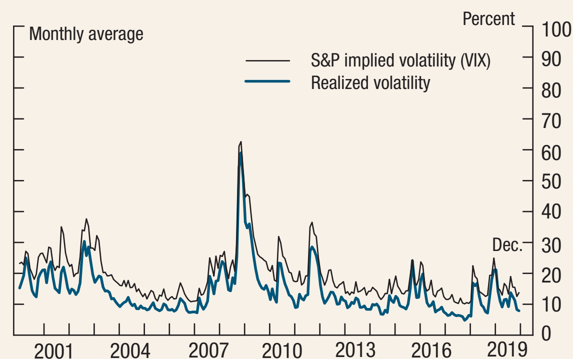
Source: ICE Data Indices, LLC, used with permission; Department of the Treasury.

Valuation pressures in the commercial real estate (CRE) sector were elevated. CRE prices increased substantially over the past seven years (figure 4). That said, price-to-rent ratios are moving toward their long-run trend, and price growth decelerated toward the end of 2019. Home prices grew moderately, consistent with rents. Farmland prices continued falling from recent historical highs but stayed in the elevated region.

Borrowing by Households and Businesses

Excessive borrowing by households and businesses has been an important contributor to past financial crises. Highly indebted households and nonfinancial businesses may be vulnerable to negative shocks to incomes or asset values and may be forced to curtail spending, which could amplify the effects of financial shocks. In turn, losses among households and businesses can lead to mounting losses at financial institutions, creating an adverse feedback loop in which weaknesses among households, nonfinancial businesses, and financial institutions cause further declines in income and accelerate financial losses,

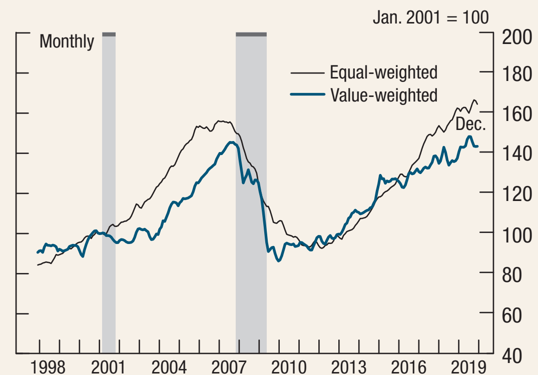
Figure 2. S&P 500 volatility, 2000–19



Note: The data extend through December 2019. Realized volatility is estimated from five-minute returns using an exponentially weighted moving average with 75 percent of the weight distributed over the past 20 days.

Source: Bloomberg Finance LP.

Figure 4. Commercial real estate price index, 1998–2019



Note: The data extend through December 2019. The value-weighted series reflects larger asset sales most common in core markets, while the equal-weighted series reflects the more numerous but lower-priced property sales of secondary and tertiary markets. Both series are deflated using the consumer price index for all urban consumers less food and energy and are seasonally adjusted by Board staff. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001 and December 2007–June 2009.

Source: CoStar Group, Inc., CoStar Commercial Repeat Sale Indices; Bureau of Labor Statistics, consumer price index, via Haver Analytics.

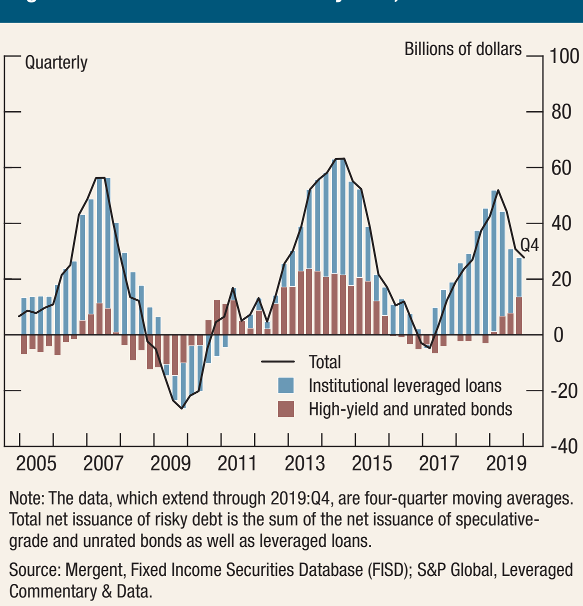
potentially leading to financial instability and a sharp contraction in economic activity.

Vulnerabilities associated with household and business borrowing remained moderate overall in 2019. However, business debt and household debt, which started to diverge following the 2007–09 recession, have continued to trend in opposite directions (figure 5). Business credit continued to grow faster than nominal gross domestic product (GDP), bringing the business-sector credit-to-GDP ratio to historical highs.

Gross leverage of public firms remained at historically high levels. Leverage is especially high for public firms with positive debt balances that have a speculative-grade credit rating or are unrated. Such firms account for about one-third of nonfinancial business debt. The overall increase in investor risk appetite, associated with elevated asset valuations, did not translate into an acceleration of demand for risky debt. Net issuance of risky debt at the end of 2019 was below the high levels in previous years—albeit still solid by historical standards (figure 6). Commonly used measures of underwriting standards on leveraged loans remained weak, as shown by the high share of deals with debt-to-EBITDA (earnings before interest, taxes, depreciation, and amortization) ratios above 6 (figure 7).

Nonetheless, the strong economy and low interest rates helped sustain a solid credit performance of leveraged loans in 2019, with the default rate on such loans near the low end of its historical range. At the same time, the favorable credit performance of the corporate sector was due at least in part to the strength of overall economic activity, and high leverage could leave some parts of the corporate sector vulnerable to difficulties should adverse shocks materialize. For instance, in an economic downturn, wide-

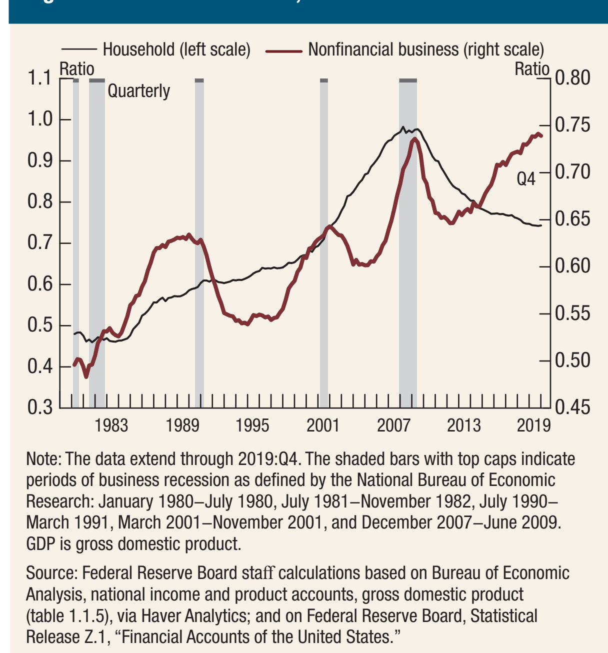
Figure 6. Total net issuance of risky debt, 2005–19



Note: The data, which extend through 2019:Q4, are four-quarter moving averages. Total net issuance of risky debt is the sum of the net issuance of speculative-grade and unrated bonds as well as leveraged loans.

Source: Mergent, Fixed Income Securities Database (FISD); S&P Global, Leveraged Commentary & Data.

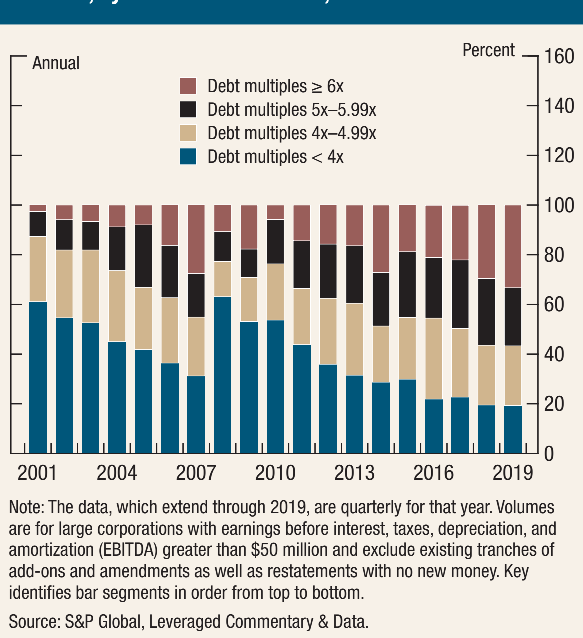
Figure 5. Credit-to-GDP ratio, 1980–2019



Note: The data extend through 2019:Q4. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: January 1980–July 1980, July 1981–November 1982, July 1990–March 1991, March 2001–November 2001, and December 2007–June 2009. GDP is gross domestic product.

Source: Federal Reserve Board staff calculations based on Bureau of Economic Analysis, national income and product accounts, gross domestic product (table 1.1.5), via Haver Analytics; and on Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

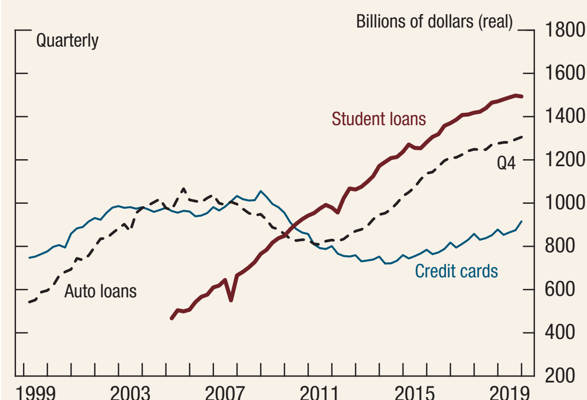
Figure 7. Distribution of large institutional leveraged loan volumes, by debt-to-EBITDA ratio, 2001–19



Note: The data, which extend through 2019, are quarterly for that year. Volumes are for large corporations with earnings before interest, taxes, depreciation, and amortization (EBITDA) greater than $50 million and exclude existing tranches of add-ons and amendments as well as restatements with no new money. Key identifies bar segments in order from top to bottom.

Source: S&P Global, Leveraged Commentary & Data.

Figure 8. Consumer credit balances, 1999–2019



Note: The data extend through 2019:Q4 and are converted to constant 2019 dollars using the consumer price index; the series for student loans starts in 2005.

Source: FRBNY Consumer Credit Panel/Equifax; Bureau of Labor Statistics, consumer price index, via Haver Analytics.

spread downgrades of bonds to speculative-grade ratings could lead investors to sell the downgraded bonds rapidly, increasing market illiquidity and downward price pressures in a segment of the corporate bond market known already to exhibit relatively low liquidity.[2]

In contrast to the business sector, household debt growth continued to be modest over the past year. Aggregate borrowing relative to income in the household sector has declined significantly from its 2007 peak, with growth skewed mostly toward households with strong credit histories.

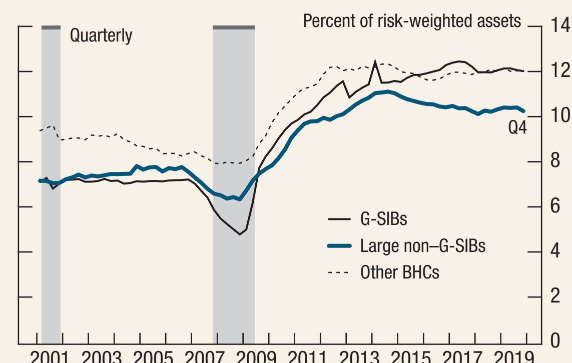
The composition of household debt has experienced significant changes over the past 10 years (figure 8). Credit card debt decreased significantly between 2009 and 2011, and its level in 2019 (in real terms) remains well below its 2008 peak. By contrast, student and auto loans have maintained a strong upward trend during the past 10 years.

Leverage in the Financial System

Vulnerabilities related to financial-sector leverage appear low, in part because of regulatory reforms enacted since the financial crisis. Core financial intermediaries, including large banks, insurance companies, and broker-dealers, appear well positioned to weather economic stress.

[2] The box "Vulnerabilities Associated with Elevated Business Debt" in the May 2019 *Financial Stability Report* thoroughly discusses the risks associated with credit rating downgrades. See the report, pp. 22–25, in note 1.

Figure 9. Common equity Tier 1 ratio, 2001–19



Note: The data extend through 2019:Q4 and are seasonally adjusted by Board staff. Before 2014:Q1, the numerator of the common equity Tier 1 ratio is Tier 1 common capital for advanced-approaches bank holding companies (BHCs) and intermediate holding companies (IHCs) (before 2015:Q1, for non-advanced-approaches BHCs). Afterward, the numerator is common equity Tier 1 capital. For purposes of this figure, G-SIBs comprise the eight global systemically important banks that are headquartered in the United States. Large non–G-SIBs comprise U.S. banking organizations--both BHCs and IHCs—with assets greater than $100 billion. The denominator is risk-weighted assets. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001 and December 2007–June 2009.

Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

Regulatory capital remained at historically high levels for large domestic banks. In 2019, the ratio of common equity Tier 1 capital to risk-weighted assets stayed around 12 percent, on average, for the eight U.S. headquartered G-SIBs (global systemically important banks) and around 10 percent for large non–G-SIBs—that is, bank holding companies and intermediate holding companies that have total assets greater than $100 billion but are not considered G-SIBs (figure 9). Moreover, the leverage ratio, which looks at common equity relative to total assets without adjusting for risk, also remained at levels substantially above pre-crisis norms. Finally, all 18 firms participating in the Federal Reserve's supervisory stress tests for 2019 were able to maintain capital ratios above required minimums to absorb losses from a severe macroeconomic shock.[3]

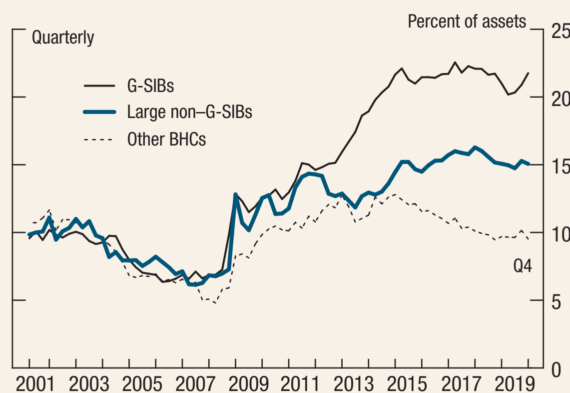
Overall, broker-dealer leverage remained low. Leverage for bank-affiliated dealers fell slightly in the latter part of the year and stayed at the relatively low levels reached in the post-crisis period. Measures of hedge fund leverage remained elevated compared with their post-crisis levels. The increased use of leverage by hedge funds exposes their counterparties to risk and

[3] The 2019 supervisory stress-test methodology and results are available on the Board's website at https://www.federalreserve.gov/publications/june-2019-executive-summary.htm.

raises the possibility that adverse shocks would result in forced asset sales that could exacerbate price declines. That said, hedge funds do not play the same central role in the financial system as banks or other institutions.

Leverage among property and casualty insurance companies is low, while leverage among life insurance companies is moderate.

Figure 10. Liquid assets held by banks, 2001–19



Note: Liquid assets are calculated as cash and reserves plus estimates of securities that qualify as high-quality liquid assets as defined by the Liquidity Coverage Ratio requirement. Accordingly, Level 1 assets and discounts and restrictions on Level 2 assets are incorporated into the estimate. For purposes of this figure, G-SIBs comprise the eight global systemically important banks that are headquartered in the United States. Large non–G-SIBs comprise U.S. banking organizations—both bank holding companies (BHCs) and intermediate holding companies—with assets greater than $100 billion.

Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

Funding Risk

Vulnerabilities associated with funding risk continued to be modest in 2019, in part because of the post-crisis implementation of liquidity regulations for banks and the 2016 money market reforms.[4] The stress that emerged in short-term funding markets in mid-September highlighted the potential for shocks that can adversely affect the smooth functioning of these large and systemically important markets. These developments led to a higher assessment of vulnerabilities stemming from liquidity and maturity transformation toward the end of the year, raising the level of vulnerability from low to moderate.

Banks, securities dealers, money market mutual funds (also referred to as money market funds, or MMFs), and other financial market participants lend to and borrow from each other for short periods, typically ranging from overnight to two weeks, against high-quality collateral. These short-term secured loans are known as repurchase agreements (repos). The repo market allows securities dealers to finance their own inventories of Treasury securities or to finance purchases of Treasury securities by levered investors, such as hedge funds. Interest rates on these and other short-term loans among financial institutions spiked in mid-September, and some rates remained relatively elevated through early October. The pressures in repo markets in this particular episode appeared to be driven by short-lived changes to demand and supply that occurred against a backdrop of increasing Treasury securities outstanding and declining reserves in the banking system. The Federal Reserve conducted a number of operations to keep the federal funds rate within the target range, relieving pressures in short-term funding markets.[5] That said, these developments underscored frictions in the intermediation of credit in short-term money markets, warranting further careful monitoring of vulnerabilities in this segment going forward.

At the same time, many vulnerabilities related to maturity and liquidity transformation remain subdued. In total, liquid assets in the banking system have increased substantially since the financial crisis. Large banks and G-SIBs, in particular, hold substantial amounts of liquid assets, far exceeding pre-crisis levels and well above regulatory requirements (figure 10). Large bank reliance on short-term wholesale funding is low. From this perspective, bank funding was less susceptible to runs at the end of 2019 than in the period leading up to the financial crisis—further reducing vulnerabilities from liquidity transformation.

Assets in "prime" MMFs and some alternative short-term investment vehicles remain low. The same observation holds true for aggregate measures of runnable liabilities. MMF reforms implemented in

[4] See Securities and Exchange Commission (2014), "SEC Adopts Money Market Fund Reform Rules," press release, July 23, https://www.sec.gov/news/press-release/2014-143.

[5] These measures included, among others, a repo operation conducted on September 17, a 5 basis point technical adjustment to the administered interest rates on September 19, and a new schedule of term and overnight repo operations until the end of the quarter on September 20. Furthermore, on October 11, the Fed announced purchases of Treasury bills through the second quarter of 2020 and extended its overnight and term repo operations through at least January 2020; see Board of Governors of the Federal Reserve System (2019), "Statement Regarding Monetary Policy Implementation," press release, October 11, https://www.federalreserve.gov/newsevents/pressreleases/monetary20191011a.htm.

2016 have reduced run risk in the financial system. The reforms required prime MMFs, which have proved vulnerable to runs in the past, to use floating net asset values that adjust with the market prices of the assets they hold, which resulted in a shift by investors into government MMFs. A shift in investments toward short-term vehicles that provide alternatives to MMFs and could also be vulnerable to runs or run-like dynamics would increase risk, but assets in these alternatives have increased only modestly compared with the drop in prime MMF assets.

Domestic and International Cooperation and Coordination

The Federal Reserve cooperated and coordinated with both domestic and international institutions in 2019 to promote financial stability.

Financial Stability Oversight Council Activities

As mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act, the FSOC was created in 2010 and, as noted earlier, is chaired by the Treasury Secretary and includes the Federal Reserve Chair as a member (see box 1). It established an institutional framework for identifying and responding to the sources of systemic risk. Through collaborative participation in the FSOC, U.S. financial regulators monitor not only institutions, but also the financial system as a whole. The Federal Reserve, in conjunction with other participants, assists in monitoring financial risks, analyzes the implications of those risks for financial stability, and identifies steps that can be taken to mitigate those risks. In addition, when an institution is designated by the FSOC as systemically important, the Federal Reserve assumes responsibility for supervising that institution.

In 2019, the Federal Reserve worked, in conjunction with other FSOC participants, on the following major initiative:

Nonbank designations guidance. On December 4, 2019, members of the FSOC voted to approve the final interpretive guidance on nonbank financial company determinations.[6] The guidance describes the approach that the council intends to take in using an activities-based strategy. The key focus of the guidance is on the council working with relevant financial regulators to identify products, activities, or practices that could raise potential risks to financial stability and to address those risks, leveraging the expertise of primary financial regulatory agencies.

[6] See U.S. Department of the Treasury (2019), "Financial Stability Oversight Council Issues Final Guidance on Nonbank Designations," press release, December 4, https://home.treasury.gov/news/press-releases/sm844.

Box 1. Regular Reporting on Financial Stability Oversight Council Activities

The Federal Reserve cooperated and coordinated with domestic agencies in 2019 to promote financial stability, including through the activities of the Financial Stability Oversight Council (FSOC).

Meeting minutes. In 2019, the FSOC met five times, including at least once a quarter. The minutes for each meeting are available on the U.S. Treasury website (https://www.treasury.gov/initiatives/fsoc/council-meetings/Pages/meeting-minutes.aspx).

FSOC annual report. On December 4, 2019, the FSOC released its ninth annual report (https://home.treasury.gov/system/files/261/FSOC2019AnnualReport.pdf), which includes a review of key developments in 2019 and a set of recommended actions that could be taken to ensure financial stability and to mitigate systemic risks that affect the economy.

For more on the FSOC, see https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc.

Financial Stability Board Activities

In light of the interconnected global financial system and the global activities of large U.S. financial institutions, the Federal Reserve participates in international bodies, such as the FSB. The FSB monitors the global financial system and promotes financial stability through the development of sound policies that can be implemented across countries. The Federal Reserve is a member of the FSB, along with the Securities and Exchange Commission and the U.S. Treasury.

In the past year, the FSB has examined several issues, including monitoring of nonbank financial intermediation, challenges in correspondent banking, the emergence of so-called global stablecoins, transitioning away from the use of LIBOR (London interbank offered rate), asset management, fintech (emerging financial technologies), evaluating the effects of reforms, and development of effective resolution regimes for large financial institutions.

4 Supervision and Regulation

The Federal Reserve promotes a safe, sound, and efficient banking and financial system that supports the growth and stability of the U.S. economy. The Federal Reserve carries out its supervisory and regulatory responsibilities and supporting functions primarily by

- supervising the activities of financial institutions to ensure their safety and soundness;
- developing regulatory policy (rulemakings, supervision and regulation letters, policy statements, and guidance) and acting on applications filed by banking organizations; and
- monitoring trends in the banking sector by collecting and analyzing data.[1]

Supervised and Regulated Institutions

For supervisory purposes, the Federal Reserve categorizes institutions it supervises and regulates into the groups described in table 1. For additional information on the Federal Reserve's supervisory and regulatory activities, see box 1.

State Member Banks

At the end of 2019, a total of 1,540 banks (excluding non-depository trust companies and private banks) were members of the Federal Reserve System, of which 754 were state chartered. Federal Reserve System member banks operated 51,263 branches, and accounted for 33 percent of all commercial banks in the United States and 68 percent of all commercial banking offices. State-chartered commercial banks that are members of the Federal Reserve, commonly referred to as state member banks, represented approximately 16 percent of all insured U.S. commercial banks and held approximately 17 percent of all insured commercial bank assets in the United States.

[1] Along with the other federal financial regulatory agencies.

Box 1. Banking Sector Conditions

For more information on banking sector conditions, see the *Supervision and Regulation Report*, which is submitted semiannually to the Senate Committee on Banking, Housing, and Urban Affairs and to the House Committee on Financial Services. The reports are available on the Board's website at https://www.federalreserve.gov/publications/supervision-and-regulation-report.htm, and are delivered concurrently with testimony from the Federal Reserve Board Vice Chair for Supervision.

Bank Holding Companies

At year-end 2019, a total of 4,124 U.S. bank holding companies (BHCs) were in operation, of which 3,725 were top-tier BHCs. These organizations controlled 3,827 insured commercial banks and held approximately 94 percent of all insured commercial bank assets in the United States.

BHCs that meet certain capital, managerial, and other requirements may elect to become financial holding companies (FHCs). FHCs can generally engage in a broader range of financial activities than other BHCs. As of year-end 2019, a total of 487 domestic BHCs and 44 foreign banking organizations had FHC status. Of the domestic FHCs, 21 had consolidated assets of $100 billion or more; 46 between $10 billion and $100 billion; 156 between $1 billion and $10 billion; and 264 less than $1 billion.

Savings and Loan Holding Companies

At year-end 2019, a total of 358 SLHCs were in operation, of which 187 were top-tier SLHCs. These SLHCs control 195 depository institutions. Approximately 92 percent of SLHCs engage primarily in depository activities. These firms hold approximately 19 percent ($346 billion) of the total combined assets of all SLHCs. The Office of the Comptroller of the Currency (OCC) is the primary regulator for most of the subsidiary savings associations of the firms

Table 1. Summary of organizations supervised by the Federal Reserve

Portfolio	Definition	Number of institutions	Total assets ($ trillions)
Large Institution Supervision Coordinating Committee (LISCC)	Eight U.S. global systemically important banking organizations: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, State Street, and Wells Fargo; four foreign banking organizations (FBOs) with large and complex U.S. operations: Barclays, Credit Suisse, Deutsche Bank, and UBS	12	12.4
State member banks (SMBs)	SMBs within LISCC organizations	5	0.8
Large and foreign banking organizations (LFBO)	Non-LISCC firms with total assets $100 billion or more and non-LISCC FBOs	173	8.2
Large banking organizations	Non-LISCC U.S. firms with total assets $100 billion or more	16	3.6
Large foreign banking organizations	Non-LISCC FBOs with combined U.S. assets $100 billion or more	14	3.4
Less complex foreign banking organizations	FBOs with combined U.S. assets less than $100 billion	143	1.1
State member banks	SMBs within LFBO organizations	6	0.6
Regional banking organizations (RBOs)	Total assets between $10 billion and $100 billion	88	2.2
State member banks	SMBs within RBOs	41	0.7
Community banking organizations (CBO)	Total assets less than $10 billion	3,815*	2.4
State member banks	SMBs within CBOs	702	0.5
Insurance and commercial savings and loan holding companies (SLHCs)	SLHCs primarily engaged in insurance or commercial activities	8 insurance 4 commercial	1.1

* Includes 3,754 holding companies and 61 state member banks that do not have holding companies.

Source: Call Report, FFIEC 002, FR 2320, FR Y-7Q, FR Y-9C, FR Y-9SP, and S&P Global Market Intelligence.

engaged primarily in depository activities. Fifteen SLHCs are engaged primarily in nonbanking activities, such as insurance underwriting (8 SLHCs), securities brokerage (3 SLHCs), and commercial activities (4 SLHCs). The 25 largest SLHCs accounted for more than $1.7 trillion of total combined assets.

Savings and loan holding companies significantly engaged in insurance activities. At year-end 2019, the Federal Reserve supervised eight insurance SLHCs (ISLHCs), with $1.1 trillion in estimated total combined assets, and $166 billion in insured depository assets. Four of these firms have total assets greater than $100 billion and for seven of the eight, insured depository assets represent less than half of total assets.

As the consolidated supervisor of ISLHCs, the Federal Reserve evaluates the organization's risk-management practices, the financial condition of the overall organization, and the impact of the nonbank activities on the depository institution. The Federal Reserve relies to the fullest extent possible on the work of the primary functional regulators, including the OCC and the state insurance regulators, as part of the overall supervisory assessment of ISLHCs.

During 2019, the Federal Reserve established the Insurance Policy Advisory Committee (IPAC), as required by the Economic Growth, Regulatory Relief, and Consumer Protection Act of 2018 (EGRRCPA), and held the IPAC inaugural meeting.

Financial Market Utilities

FMUs manage or operate multilateral systems for the purpose of transferring, clearing, or settling payments, securities, or other financial transactions among financial institutions or between financial institutions and the FMU. Under the Federal Reserve Act, the Federal Reserve supervises FMUs that are chartered as member banks or Edge Act corporations and coordinates with other federal banking supervisors to supervise FMUs considered bank service providers under the Bank Service Company Act (BSCA).

In July 2012, the Financial Stability Oversight Council voted to designate eight FMUs as systemically important under title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act).

As a result of these designations, the Board assumed an expanded set of responsibilities related to these designated FMUs that includes promoting uniform risk-management standards, playing an enhanced role in the supervision of designated FMUs, reducing systemic risk, and supporting the stability of the broader financial system. For certain designated FMUs, the Board established risk-management standards and expectations that are articulated in the Board's Regulation HH.

In addition to setting minimum risk-management standards, Regulation HH establishes requirements for the advance notice of proposed material changes to the rules, procedures, or operations of a designated FMU for which the Board is the supervisory agency under title VIII. Finally, Regulation HH also establishes minimum conditions and requirements for a Federal Reserve Bank to establish and maintain an account for, and provide services to, a designated FMU.[2] Where the Board is not the title VIII Supervisory Agency, the Federal Reserve works closely with the Securities and Exchange Commission and the Commodities Futures Trading Commission to promote robust FMU risk management and monitor systemic risks across the designated FMUs.

International Activities

Foreign operations of U.S. banking organizations. At the end of 2019, a total of 33 banks were operating 328 branches in foreign countries and overseas areas of the United States. Fifteen national banks were operating 266 of these branches, 13 state member banks were operating 49 of these branches, and 5 nonmember banks were operating the remaining 13.

Edge Act and agreement corporations. At year-end 2019, out of 35 banking organizations chartered as Edge Act or agreement corporations, 3 operated 6 Edge Act and agreement branches. These corporations are examined annually.

U.S. activities of foreign banks. As of year-end 2019, a total of 136 foreign banks from 47 countries operated 147 state-licensed branches and agencies, of which 6 were insured by the Federal Deposit Insurance Corporation (FDIC), and 53 OCC-licensed branches and agencies, of which 4 were insured by the FDIC. These foreign banks also owned eight Edge Act and agreement corporations. In addition, they held a controlling interest in 36 U.S. commercial banks. Altogether, the U.S. offices of these foreign banks controlled approximately 19.6 percent of U.S. commercial banking assets. These 136 foreign banks also operated 66 representative offices; an additional 36 foreign banks operated in the United States through a representative office.

The Federal Reserve conducted or participated with state and federal regulatory authorities in 616 examinations of foreign banks in 2019.

Supervisory Developments

Supervisory and Regulatory Initiatives

The Federal Reserve's supervision activities include examinations and inspections to ensure that financial institutions operate in a safe and sound manner and comply with laws and regulations. These include an assessment of a financial institution's risk-management systems, financial conditions, and compliance. For the largest financial institutions, the Federal Reserve maintains a continuous supervisory presence with dedicated teams of examiners. Smaller firms are examined periodically. In 2019, the Federal Reserve conducted 327 examinations of state member banks, 2,794 inspections of bank holding companies, and 154 inspections at savings and loan holding companies. Tables 2 and 3 provide information on examinations and inspections conducted by the Federal Reserve during the past five years.

Specialized Examinations

The Federal Reserve conducts specialized examinations of supervised financial institutions in the areas of capital planning and stress testing; information technology; fiduciary activities; transfer agent activities; government and municipal securities dealing and brokering, and cybersecurity and critical infrastructure. The Federal Reserve also conducts specialized examinations of certain nonbank entities that extend credit subject to the Board's margin regulations.

Capital Planning and Stress Testing

Since the 2007–09 financial crisis, the Board has led a series of initiatives to strengthen the capital planning practices and positions of the largest banking organizations. The Federal Reserve's annual Comprehensive Capital Analysis and Review (CCAR) assesses the capital adequacy of large banking organizations. CCAR includes the supervisory and company-run stress tests that are conducted as a part of the Fed-

[2] The Federal Reserve Banks maintain accounts for and provide services to several designated FMUs.

Table 2. State member banks and bank holding companies, 2015–19

Entity/item	2019	2018	2017	2016	2015
State member banks					
Total number	754	794	815	829	839
Total assets (billions of dollars)	2,642	2,851	2,729	2,577	2,356
Number of examinations	554	563	643	663	698
By Federal Reserve System	327	321	354	406	392
By state banking agency	227	242	289	257	306
Top-tier bank holding companies					
Large (assets of more than $1 billion)					
Total number	631	604	583	569	547
Total assets (billions of dollars)	20,037	19,233	18,762	17,593	16,961
Number of inspections	805	549	597	659	709
By Federal Reserve System[1]	761	533	574	646	669
On site	466	325	394	438	458
Off site	295	208	180	208	211
By state banking agency	44	16	23	13	40
Small (assets of $1 billion or less)					
Total number	3,094	3,273	3,448	3,682	3,719
Total assets (billions of dollars)	870	893	931	914	938
Number of inspections	2,122	2,216	2,318	2,597	2,783
By Federal Reserve System	2,033	2,132	2,252	2,525	2,709
On site	71	81	101	126	123
Off site	1,962	2,051	2,151	2,399	2,586
By state banking agency	89	84	66	72	74
Financial holding companies					
Domestic	487	490	492	473	442
Foreign	44	44	42	42	40

1 For large bank holding companies subject to continuous, risk-focused supervision, includes multiple targeted reviews.

eral Reserve's Dodd-Frank Act stress tests and a qualitative assessment of firms' capital plans.

In 2019, CCAR evaluated the capital planning processes and capital positions of 18 of the largest banking firms, including the capital actions, such as dividend payments and share repurchases, those firms planned to make over the subsequent year. The supervisory stress test results showed that the nation's largest and most complex banks had capital levels that would allow them to stay well above their minimum requirements after being tested against a severe hypothetical recession. In addition, a majority of firms are now meeting the Federal Reserve's capital planning expectations.

More details on the 2019 supervisory stress test results are available at https://www.federalreserve.gov/publications/files/2019-dfast-results-20190621.pdf.

More details on the 2019 CCAR results are available at https://www.federalreserve.gov/publications/files/2019-ccar-assessment-framework-results-20190627.pdf.

Information Technology Activities

During 2019, the Federal Reserve conducted examinations of information technology activities (inclusive of cyber) at financial institutions. Additionally, under the authority of the BSCA, the Federal Reserve, FDIC, and OCC (the federal banking agencies) examine and assign Uniform Rating System for Information Technology rating to technology service providers that provide services for specific regulated financial institutions.

In 2019, the Federal Financial Institutions Examination Council (FFIEC), of which the Federal Reserve is a member, issued guidance for the examination of financial institutions and their service providers.[3]

3 The FFIEC is an interagency body of financial regulatory agencies established to prescribe uniform principles, standards, and report forms and to promote uniformity in the supervision of financial institutions. The council has six voting members: the Board of Governors of the Federal Reserve System, the FDIC, the National Credit Union Administration, the OCC, the Consumer Financial Protection Bureau, and the chair of the State Liaison Committee.

Table 3. Savings and loan holding companies, 2015–19

Entity/item	2019	2018	2017	2016	2015
Top-tier savings and loan holding companies					
Large (assets of more than $1 billion)					
Total number	53	55	59	67	67
Total assets (billions of dollars)	1,822	1,615	1,696	1,664	1,525
Number of inspections	52	40	52	54	58
By Federal Reserve System	52	40	52	54	57
On site	30	20	31	34	31
Off site	22	20	21	20	26
Small (assets of $1 billion or less)					
Total number	134	139	164	171	194
Total assets (billions of dollars)	39	38	47	50	55
Number of inspections	102	107	165	181	187
By Federal Reserve System	102	107	165	181	187
On site	3	1	9	9	13
Off site	99	106	156	172	174

The Federal Reserve participated in the FFIEC's IT Subcommittee of the Task Force on Supervision, the primary interagency group responsible for coordination across member agencies on information technology policy. The Federal Reserve contributed to the development and publication of the Business Continuity Management component of the IT Examination Handbook to help examiners determine whether management of banks, other regulated entities, and their service providers have prepared their operations to avoid disruptions and to recover services.

Fiduciary Activities

In 2019, Federal Reserve examiners conducted 119 fiduciary examinations of state member banks and non-depository trust companies.

Transfer Agents

During 2019, the Federal Reserve conducted transfer agent examinations at five state member banks and three BHCs that were registered as transfer agents.

Government and Municipal Securities Dealers and Brokers

The Federal Reserve is responsible for examining state member banks and foreign banks for compliance with the Government Securities Act of 1986 and with Treasury regulations governing dealing and brokering in government securities. There are 22 banking organizations that have government securities dealers or brokers for which the Federal Reserve is the appropriate regulatory authority. During 2019, the Federal Reserve conducted six examinations of government securities activities at these organizations.

The Federal Reserve is also responsible for ensuring that state member banks and BHCs that act as municipal securities dealers comply with the Securities Act Amendments of 1975. Municipal securities dealers are examined, pursuant to the Municipal Securities Rulemaking Board's rule G-16, at least once every two calendar years. During 2019, the Federal Reserve examined three entities that dealt in municipal securities.

Securities Credit Lenders

Under the Securities Exchange Act of 1934, the Board is responsible for regulating credit in certain transactions involving the purchasing or carrying of securities. As part of its general examination program, the Federal Reserve examines the banks under its jurisdiction for compliance with the Board's Regulation U. In addition, the Federal Reserve maintains a registry of persons other than banks, brokers, and dealers who extend credit subject to Regulation U. The Federal Reserve may conduct specialized examinations of these lenders if they are not already subject to supervision by the Farm Credit Administration or the National Credit Union Administration (NCUA).

Cybersecurity and Critical Infrastructure

The Federal Reserve collaborated with other financial regulators, the U.S. Treasury, private industry, and international partners to promote effective safeguards against cyber threats to the financial services sector and to bolster the sector's cyber resiliency. Throughout the year, Federal Reserve examiners conducted targeted cybersecurity assessments of the largest and most systemically important financial

institutions, FMUs, and service providers. The Federal Reserve worked closely with the OCC and FDIC to implement improved examination procedures for the cybersecurity assessments of service providers. Federal Reserve examiners also continued to conduct tailored cybersecurity assessments at community and regional banking organizations.

In August 2019, the Federal Reserve and the other FFIEC members issued a statement emphasizing the benefits of using a standardized approach to assess and improve cybersecurity preparedness at financial institutions.

The Federal Reserve actively participated in other interagency groups, such as the Financial and Banking Information Infrastructure Committee (FBIIC), to share information and collaborate on cybersecurity and critical infrastructure issues affecting the financial sector. In coordination with FBIIC members, the Federal Reserve collaborated with government and industry stakeholders to plan and execute sectorwide and regional tabletop exercises focused on identifying areas where sector resiliency, information sharing, and public-private collaboration can be enhanced with respect to potential cybersecurity incidents.

In addition, the Federal Reserve was actively involved in international policy coordination to address cyber-related risks and efforts to bolster cyber resiliency. The Federal Reserve participated in the development of the Cyber Incident Response and Recovery Survey of Industry Practices issued by the Financial Stability Board. As part of the G-7 Cyber Expert Group, the Federal Reserve participated in an exercise to test G-7 members' preparedness to address the impact of a cross-border cyber incident.

Oversight Activities

The Board's Division of Supervision and Regulation conducts oversight of safety and soundness supervision, specifically Reserve Bank supervision programs and the Large Institution Supervision Coordinating Committee program.

For more information on the Federal Reserve's oversight activities, see box 2.

Enforcement Actions

The Federal Reserve has enforcement authority over the financial institutions it supervises and their affiliated parties. Enforcement actions may be taken to address unsafe and unsound practices or violations of any law or regulation. Formal enforcement actions include cease and desist orders, written agreements, prompt corrective action directives, removal and prohibition orders, and civil money penalties.

In 2019, the Federal Reserve completed 67 formal enforcement actions. Civil money penalties totaling $324,075,700 were assessed. As directed by statute, all civil money penalties are remitted to either the Treasury or the Federal Emergency Management Agency. The Reserve Banks completed 79 informal enforcement actions. Informal enforcement actions include memoranda of understanding, commitment letters, and board of directors' resolutions.

Enforcement orders and prompt corrective action directives, which are issued by the Board, and written agreements, which are executed by the Reserve Banks, are made public and are posted on the Board's website (https://www.federalreserve.gov/apps/enforcementactions/search.aspx).

Other Laws and Regulation Enforcement Activity/Actions

The Federal Reserve's enforcement responsibilities also extend to the disclosure of financial information by state member banks and the use of credit to purchase and carry securities.

Financial Disclosures by State Member Banks

Under the Securities Exchange Act of 1934 and the Federal Reserve's Regulation H, certain state member banks are required to make financial disclosures to the Federal Reserve using the same reporting forms that are normally used by publicly held entities to submit information to the Securities and Exchange Commission (SEC).[4]

In 2019, only two state member banks were required to submit data to the Federal Reserve. The information submitted by these two small state member banks is available to the public upon request and is primarily used for disclosure to the bank's shareholders and public investors.

[4] Under section 12(g) of the Securities Exchange Act, certain companies that have issued securities are subject to SEC registration and filing requirements that are similar to those imposed on public companies. Per section 12(i) of the Securities Exchange Act, the powers of the SEC over banking entities that fall under section 12(g) are vested with the appropriate banking regulator. Specifically, state member banks with 2,000 or more shareholders and more than $10 million in total assets are required to register with, and submit data to, the Federal Reserve.

Box 2. Oversight Activities

Reserve Bank Oversight. The Board is responsible for assessing how Reserve Banks execute the supervisory authority delegated to them under the Federal Reserve Act. The Board provides each Reserve Bank president with an annual written assessment of the Bank's performance.

The Board assesses Reserve Bank safety and soundness supervision programs as well as associated national programs and support offices administered at Reserve Banks. Given the changing regulatory environment, the Board recently reevaluated its oversight approach and made revisions to improve efficiency and effectiveness. The Board's oversight work focuses on evaluating the Reserve Banks' supervisory judgment and decisionmaking primarily through independent, focused reviews and ongoing monitoring of supervisory activities. The Board also leverages the results of Reserve Banks' internal audit and/or quality assurance areas, as appropriate, under the new program.

In 2019, Board staff completed four oversight reviews across Reserve Banks and one national program review. The year-end annual performance assessment, provided to each Reserve Bank president, incorporated the results of these oversight reviews and ongoing monitoring activities.

LISCC Oversight. In 2018, the Division of Supervision and Regulation (S&R) established a framework for oversight of the Large Institution Supervision Coordinating Committee (LISCC) supervisory program. This framework provides for the evaluation of the LISCC governance structure, program management, and program execution, and establishes operating standards for the LISCC supervisory program. Implementation of the framework is the responsibility of Board staff who annually conduct an independent assessment of LISCC supervision performance through a combination of point-in-time reviews and continuous monitoring. This work ensures that the LISCC supervisory program exercises sound supervisory judgment and operates in accordance with Federal Reserve System and LISCC program guidance.

LISCC oversight is risk-focused, based on an annual LISCC supervisory program risk assessment. An oversight plan delineates the work scheduled for each annual review cycle. LISCC oversight provides S&R and LISCC management with program performance updates primarily through review-specific reports and an annual performance assessment report. The annual report summarizes the results of the reviews and monitoring conducted throughout the year.

In 2019, Board staff conducted four reviews of the LISCC supervisory program. Board staff communicated the results of these reviews to S&R and LISCC senior management in individual review reports, aggregating the results in the annual performance assessment report. In addition to conducting reviews, Board staff implemented key internal operational controls, including LISCC oversight program operating procedures, project and issues tracking, and internal program management reporting.

Securities Credit

Under the Securities Exchange Act of 1934, the Board is responsible for regulating credit in certain transactions involving the purchasing or carrying of securities. The Board's Regulation T limits the amount of credit that may be provided by securities brokers and dealers when the credit is used to purchase debt and equity securities. The Board's Regulation U limits the amount of credit that may be provided by lenders other than brokers and dealers when the credit is used to purchase or carry publicly held equity securities if the loan is secured by those or other publicly held equity securities. The Board's Regulation X applies these credit limitations, or margin requirements, to certain borrowers and to certain credit extensions, such as credit obtained from foreign lenders by U.S. citizens.

Several regulatory agencies enforce the Board's securities credit regulations. The SEC, the Financial Industry Regulatory Authority, and the Chicago Board Options Exchange examine brokers and dealers for compliance with Regulation T. With respect to compliance with Regulation U, the federal banking agencies examine banks under their respective jurisdictions; the Farm Credit Administration and the NCUA examine lenders under their respective jurisdictions; and the Federal Reserve examines other Regulation U lenders.

Assessments for Supervision and Regulation

On May 24, 2018, EGRRCPA amended provisions in the Dodd-Frank Act as well as other statutes administered by the Board. One amendment made by EGRRCPA raises the minimum asset threshold for assessing BHCs and SLHCs for the cost of supervision.

Starting with 2018 assessments, BHCs and SLHCs with total consolidated assets between $50 billion and $100 billion are no longer subject to assessments. As a collecting entity, the Board does not recognize the supervision and regulation assessments as revenue nor does the Board use the collections to fund

Board expenses; the funds are transferred to the U.S. Treasury. The Board collected and transferred $585,880,463 in 2019 for the 2018 supervision and regulation assessment.

Training and Technical Assistance

The Federal Reserve provides training and technical assistance to foreign supervisors and minority-owned depository institutions, and engages in industry outreach in connection with supervisory objectives.

Current Expected Credit Losses Implementation

The Financial Accounting Standards Board issued an accounting standard in 2016 that overhauls the accounting for credit losses with a new impairment model based on the CECL methodology. CECL's implementation will affect a broad range of supervisory activities, including regulatory reports, examinations, and examiner training.

During 2019, Board staff developed and provided industry outreach materials and examiner training materials, and updated examiner work programs for CECL. Separately, in October 2019, the Board along with the OCC, FDIC, and NCUA issued for public comment a proposed interagency policy statement on allowances for credit losses.

International Training and Technical Assistance

In 2019, the Federal Reserve continued to provide training and technical assistance on supervisory matters to foreign central banks and supervisory authorities. Technical assistance involves visits by Federal Reserve staff members to foreign authorities as well as consultations with foreign supervisors who visit the Board of Governors or the Reserve Banks. In 2019, the Federal Reserve offered a number of training programs for the benefit of foreign supervisory authorities, which were held in the United States and in foreign jurisdictions.

Federal Reserve staff took part in technical assistance and training assignments led by the International Monetary Fund (IMF), the World Bank, and the Financial Stability Institute. The Federal Reserve also contributed to regional capacity development efforts through partnerships with the Asia-Pacific Economic Cooperation Financial Regulators Training Initiative, South East Asian Central Banks Research and Training Centre, Caribbean Group of Banking Supervisors, and the Association of Bank Supervisors of the Americas.

Efforts to Support Minority-Owned Depository Institutions

The Federal Reserve System implements its responsibilities under section 367 of the Dodd-Frank Act primarily through its Partnership for Progress (PFP) program. Established in 2008, this program promotes the viability of minority depository institutions (MDIs) by facilitating activities designed to strengthen their business strategies, maximize their resources, and increase their awareness and understanding of supervisory expectations.

In addition, the Federal Reserve continues to maintain the PFP website, which supports MDIs by providing them with technical information and links to useful resources (https://www.fedpartnership.gov). Representatives from each of the 12 Federal Reserve Districts, along with staff from the Divisions of Supervision & Regulation and Consumer & Community Affairs at the Board of Governors, continue to offer technical assistance tailored to MDIs by providing targeted supervisory guidance, identifying additional resources, and fostering mutually beneficial partnerships between MDIs and community organizations. As of year-end 2019, the Federal Reserve's MDI portfolio consisted of 15 state member banks.

Throughout 2019, the System supported MDIs and conducted a number of programs, initiatives, and conferences specific to MDIs, including the following:

- In June, the PFP co-hosted an Interagency MDI and Community Development Financial Institution (CDFI) conference, "Focus on the Future: Prospering in a Changing Industry." Representatives from the PFP, the FDIC, and OCC addressed a wide range of issues regarding the challenges MDIs and CDFIs face in ensuring their long-term success and viability.
- In September, the Federal Reserve Bank of Kansas City, in partnership with the Board and several other Reserve Banks, hosted the fourth annual forum designed to provide minority bankers with industry knowledge and development to enhance their careers and grow their professional networks. The forum featured insights from leaders across the System and the financial services industry on topics including cybersecurity, leadership development, and cultural intelligence. Forum sessions included discussions on banking trends, effective leadership, and the economic outlook for banks nationwide.

PFP led two sessions to discuss the Federal Reserve's support for MDIs. All MDI banks were encouraged to attend and several sent representatives to the conference.

- In October, Board and Reserve Bank staff represented PFP at the annual National Bankers Association (NBA) conference in Washington, D.C. The annual conference attracts dozens of MDI leaders, and this year the PFP presented on permissibility of fund investments by banks and hosted an exhibition table. The NBA is a trade organization for minority- and women-owned financial institutions that serves as an advocate for the nation's MDIs on legislative and regulatory matters concerning and affecting its members and the communities they serve. The NBA also offers a number of services, including lobbying services, vendor financing, cash management services, and corporate trust accounts, among others.
- During 2019, the PFP coordinators at each of the Reserve Banks maintained regular contact with supervised MDIs and provided technical assistance. A team led by the district coordinator from the Federal Reserve Bank of San Francisco provided technical expertise on the Bank Secrecy Act (BSA) to an MDI that requested technical assistance after they learned about the outreach options available through the Federal Reserve's PFP program.
- In 2019, the Board commissioned two external researchers to do original research on MDIs. Two papers were finished and delivered in June, one that focused on the Community Reinvestment Act (CRA) for Native American banks,[5] and the other that looked at the governance structures of MDIs in Los Angeles.[6]
- In November, the Federal Reserve partnered with the FDIC to host an MDI roundtable in Chicago, which brought together regional MDIs and large banks. The purpose was to connect the two types of institutions to discuss potential mutually beneficial partnerships that would help the MDIs and provide CRA credit to the larger banks. Ten large regional banks and 11 MDIs attended the event.

[5] Research paper is available at https://fedpartnership.gov/-/media/federal-reserve-resources/research/buckley_kashian_craforindiancoutry_final_073119.pdf?la=en.

[6] Research paper is available at https://fedpartnership.gov/-/media/federal-reserve-resources/mdis-evolving-financial-technologies-and-the-challenge-of-governance.pdf?la=en.

International Coordination on Supervisory Policies

As a member of several international financial standard-setting bodies, the Federal Reserve actively participates in efforts to advance sound supervisory policies for internationally active financial organizations and to enhance the strength and stability of the international financial system.

Basel Committee on Banking Supervision

During 2019, the Federal Reserve contributed to supervisory policy recommendations, reports, and papers issued for consultative purposes or finalized by the BCBS that are designed to improve the supervision of banking organizations' practices and to address specific issues that emerged during the 2007–09 financial crisis.[7]

Some examples of final BCBS documents issued in 2019 include

- *Minimum capital requirements for market risk* (issued in January, revised in February, and available at https://www.bis.org/bcbs/publ/d457.pdf).
- *Revisions to leverage ratio disclosure requirements* (issued in June and available at https://www.bis.org/bcbs/publ/d468.pdf).
- *Leverage ratio treatment of client cleared derivatives* (issued in June and available at https://www.bis.org/bcbs/publ/d467.pdf).
- *Margin requirements for non-centrally cleared derivatives* (issued in July and available at https://www.bis.org/bcbs/publ/d475.pdf).
- *Revisions to market risk disclosure requirements* (issued in November and available at https://www.bis.org/bcbs/publ/d484.pdf).

Some examples of consultative BCBS documents issued in 2019 include

- *Consolidated Basel Framework* (issued in April and available at https://www.bis.org/bcbs/publ/d462.pdf).
- *Credit Valuation Adjustment risk – targeted revisions* (issued in November and available at https://www.bis.org/bcbs/publ/d488.pdf).
- *Introduction of guidelines on interaction and cooperation between prudential and AML/CFT supervi-*

[7] The BCBS provides a forum for regular cooperation on banking supervisory matters. Its 45 members comprise central banks and bank supervisors from 28 jurisdictions.

sion (issued in November 2019 at https://www.bis.org/bcbs/publ/d483.htm).

A comprehensive list of BCBS publications is available at https://www.bis.org/bcbs/publications.htm.

Financial Stability Board

In 2019, the Federal Reserve continued its participation in a variety of activities of the FSB, an international group that helps coordinate the work of national financial authorities and international standard-setting bodies, and develops and promotes the implementation of financial sector policies in the interest of financial stability.

Some examples of FSB publications issued in 2019 include

- *FinTech and market structure in financial services: Market developments and potential financial stability implications* (issued in February and available at https://www.fsb.org/wp-content/uploads/P140219.pdf).
- *Cyber Incident Response and Recovery: Progress Report to the G20 Finance Ministers and Central Bank Governors* (issued in May and available at https://www.fsb.org/wp-content/uploads/P280519-1.pdf).
- *Crypto-assets: Work underway, regulatory approaches and potential gaps* (issued in May and available at https://www.fsb.org/wp-content/uploads/P310519.pdf).
- *FSB Report on Market Fragmentation* (issued in June and available at https://www.fsb.org/wp-content/uploads/P040619-2.pdf).
- *Evaluation of the effects of financial regulatory reforms on small and medium-sized enterprise (SME) financing* (issued in November and available at https://www.fsb.org/wp-content/uploads/P291119-1.pdf).
- *Vulnerabilities associated with leveraged loans and collateralized loan obligations* (issued in December and available at https://www.fsb.org/wp-content/uploads/P191219.pdf).

A comprehensive list of FSB publications is available at https://www.fsb.org/publications.

Committee on Payments and Market Infrastructures

In 2019, the Federal Reserve continued its active participation in the activities of the CPMI, a forum in which central banks promote the safety and efficiency of payment, clearing and settlement activities, and related arrangements.

In conducting its work on financial market infrastructure and market-related reforms, the CPMI often coordinated with the International Organization of Securities Commissions (IOSCO). Over the course of 2019, CPMI-IOSCO continued to monitor implementation of the Principles for Financial Market Infrastructures (PFMI), including by conducting an assessment of consistency with the PFMI of the legal, regulatory, and oversight frameworks in the United States for payment systems, central securities depositories, and securities settlement systems.

Additionally, CPMI-IOSCO published a discussion paper on central counterparty default management auctions, a compilation of authorities' experience with cooperation, and a report on governance arrangements for critical over-the-counter derivatives data elements. The CPMI also issued a report on wholesale digital tokens, released a toolkit to aid in the operationalization of its 2018 strategy on addressing the risk of wholesale payments fraud related to endpoint security, and, jointly with the G-7 and IMF, prepared a report on global stablecoins. Additional information is available at https://www.bis.org/.

International Association of Insurance Supervisors

The Federal Reserve continued its participation in 2019 in the development of international supervisory standards. The Federal Reserve participates actively in standard-setting at the IAIS in consultation and collaboration with state insurance regulators, the National Association of Insurance Commissioners, and the Federal Insurance Office. The Federal Reserve's participation focuses on those aspects most relevant to financial stability and consolidated supervision.

In 2019, the IAIS finalized a comprehensive review and update of its Insurance Core Principles (ICPs), adopted the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame),[8] and adopted the Holistic Framework for the assessment and mitigation of systemic risk in the insurance sector. The IAIS also agreed to a five-year monitoring period for its Insurance Capital

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8 Additional information on ICPs and ComFrame are available at https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe.

Standard,[9] beginning in 2020. In addition, the IAIS issued several final and consultative reports in 2019.

Papers and reports:

- *Explanatory Note on ComFrame* (issued in November and available at https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe).
- *IAIS ICPs and ComFrame* (adopted in November 2019 and available at https://www.iaisweb.org/page/supervisory-material/insurance-core-principles-and-comframe).
- *Explanatory Note on Holistic Framework for systemic risk* (issued in November and available at https://www.iaisweb.org/page/supervisory-material/financial-stability).
- *Application Paper on Recovery Planning* (issued in November and available at https://www.iaisweb.org/page/supervisory-material/application-papers/file/87519/application-paper-on-recovery-planning).
- *Application Paper on Proactive Supervision of Corporate Governance* (issued in February and available at https://www.iaisweb.org/page/supervisory-material/application-papers/file/80572/application-paper-on-proactive-supervision-of-corporate-governance).

Consultative papers:

- *Draft Issues Paper on the Implementation of TCFD Recommendation* (issued in December and available at https://www.iaisweb.org/page/consultations/closed-consultations/2019/draft-issues-paper-on-the-implementation-of-the-tcfd-recommendations).
- *Draft Application Paper on Liquidity Risk Management* (issued in November and available at https://www.iaisweb.org/page/consultations/closed-consultations/2019/draft-application-paper-on-liquidity-risk-management).
- *Draft Issues Paper on Use of BDA in Insurance* (issued in September and available at https://www.iaisweb.org/page/consultations/closed-consultations/2019/draft-issues-paper-on-use-of-bda-in-insurance).

[9] Additional information is available at https://www.iaisweb.org/page/supervisory-material/insurance-capital-standard.

Shared National Credit Program

The SNC Program is an interagency review and assessment of risk in the largest and most complex credits shared by multiple regulated financial institutions. The SNC Program is governed by an interagency agreement among the Board, the FDIC, and the OCC. SNC reviews are completed in the first and third quarters of the calendar year. Large agent banks receive two reviews each year while most other agent banks receive a single review each year.

For information on the 2019 Shared National Credit review, visit the Board's website at https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200131a.htm.

Bank Secrecy Act and Anti-Money-Laundering Compliance

The Federal Reserve is responsible for examining institutions for compliance with the BSA and applicable AML laws and regulations and conducts such examinations in accordance with the FFIEC's *Bank Secrecy Act/Anti-Money-Laundering Examination Manual*.

The Federal Reserve is currently participating in an ongoing interagency effort to update this manual. Many of the revisions are designed to emphasize and enhance the risk-focused approach to BSA/AML supervision and to continue to provide transparency into the BSA/AML examination process.

International Coordination on Sanctions, Anti-Money-Laundering, and Counter-Terrorism Financing

The Federal Reserve participates in a number of international coordination initiatives related to sanctions, money laundering, and terrorism financing. The Federal Reserve has a long-standing role in the U.S. delegation to the intergovernmental Financial Action Task Force (FATF) and its working groups, contributing a banking supervisory perspective to the formulation of international standards. The Federal Reserve participated in the FATF Supervisors' Forum on improving the effectiveness of supervision in November 2019.

The Federal Reserve also continues to participate in committees and subcommittees through the Bank for International Settlements. Specifically, the Federal Reserve actively participates in the AML Experts Group under the BCBS that focuses on AML and countering financing of terrorism (CFT) issues and assisted in developing the consultative document

issued in November 2019 on the cooperation between prudential and AML/CFT supervision. In addition, the Federal Reserve participated in meetings during the year to discuss BSA/AML issues with foreign delegations from Mexico and the United Kingdom. These dialogues are designed to promote information sharing and understanding of BSA/AML issues between U.S. and country-specific financial sectors.

Incentive Compensation

The Federal Reserve believes that supervision of incentive compensation programs at financial institutions can play an important role in helping safeguard financial institutions against practices that threaten safety and soundness, provide for excessive compensation, or could lead to material financial loss.

The Federal Reserve along with the other federal banking agencies adopted interagency guidance oriented to the risk-taking incentives created by incentive compensation arrangements in June 2010. The guidance is based on the principles that incentive compensation arrangements at a banking organization should provide employees incentives that appropriately balance risk and reward; be compatible with effective controls and risk management; and be supported by strong corporate governance.

Role of Supervisory Guidance

In September 2018, the Federal Reserve—along with other federal financial agencies—issued a statement confirming the proper role of supervisory guidance.[10] The statement explained that unlike a law or regulation, supervisory guidance does not have the force and effect of law. Accordingly, the statement also clarified that examiners will not cite a financial institution for a "violation" of supervisory guidance as they would for a violation of a law or regulation.

To ensure that supervisory guidance is properly applied, the Federal Reserve has taken several steps since issuance of the statement, including conducting several internal training sessions, providing internal examination materials, more closely reviewing draft supervisory communications to institutions, and coordinating with other federal banking agencies. The Federal Reserve remains committed to ensuring the proper role of guidance in the supervisory process.

Regulatory Reports

The Federal Reserve, along with the other member FFIEC agencies, requires banking organizations to periodically submit reports that provide information about their financial condition and structure.

Federal Reserve Regulatory Reports

The Federal Reserve requires that U.S. holding companies periodically submit reports that provide information about their financial condition and structure.[11] This information is essential to formulating and conducting financial institution regulation and supervision. It is also used to respond to information requests by Congress and the public about holding companies and their nonbank subsidiaries. Foreign banking organizations also are required to periodically submit reports to the Federal Reserve. For more information on the various reporting forms, see https://www.federalreserve.gov/apps/reportforms/default.aspx.

Effective during 2019, the following regulatory reporting forms had substantive revisions:

- **FR Y-9C**—(1) reduced reporting burden for holding companies with total assets less than $5 billion by adding new reporting thresholds, revising existing reporting thresholds, reducing reporting frequencies and combining certain data items; (2) revised instructions pertaining to the risk-weighting of high volatility commercial real estate exposures and the treatment of reciprocal deposits as required under EGRRCPA; and (3) implemented reporting methodology and capital transition for CECL.

Other regulatory reporting forms implementing CECL include the following:

- **FR 2314 and FR 2314S**
- **FR 2320**
- **FR 2886b**
- **FR Y-7N and FR Y-7NS**
- **FR Y-8**
- **FR Y-9LP**
- **FR Y-9SP**
- **FR Y-11 and FR Y-11S**

[10] SR letter 18-5 is available at https://www.federalreserve.gov/supervisionreg/srletters/sr1805.htm.

[11] Holding companies are defined as BHCs, intermediate holding companies (IHCs), SLHCs, and securities holding companies.

- **FR Y-14**—implemented changes to address the revised accounting standards for the adoption of the CECL methodology. Also, to align the FR Y-14 with other regulatory reports, incorporated revised rules and non-CECL accounting principles as well as made other revisions and clarifications.
- **FR Y-15**—added a separate line item for equity securities with readily determinable fair values not held for trading; added line items for foreign derivative claims, total cross-jurisdictional claims, foreign derivative liabilities, other foreign liabilities, and total cross-jurisdictional liabilities; and added a requirement that respondents keep a record of the data submitted.
- **FR 2052a**—implemented certain revisions in response to the enactment of EGRRCPA and corresponding changes to the treatment of certain municipal obligations that are liquid and readily marketable as high-quality liquid assets under the Liquidity Coverage Ratio rule.
- **FR 2510**—created a new form collecting more granular data regarding common or correlated exposures and funding dependencies than is currently collected by existing reports by providing more information about U.S. global systemically important banks' consolidated exposures and funding positions to different countries according to instrument, counterparty sector, currency and remaining maturity.

FFIEC Regulatory Reports

The Federal Reserve, along with the other member FFIEC agencies, requires financial institutions to submit various uniform regulatory reports.[12] This information is essential to formulating and conducting supervision and regulation and for the ongoing assessment of the overall soundness of the nation's financial system. During 2019, the following FFIEC reporting forms had substantive revisions:

- **FFIEC 031, 041, 051 and 101**—implemented reporting methodology and capital transition for CECL.

Other FFIEC reporting forms implementing CECL include the following:

- **FFIEC 002 and FFIEC 002S**
- **FFIEC 030 and FFIEC 030S**
- **FFIEC 051**—implemented reduced reporting requirements for institutions with less than $5 billion in total consolidated assets and meeting certain other conditions by increasing the reporting threshold from $1 billion to $5 billion for filing the shorter FFIEC 051 report relative to the FFIEC 041 report, and reduced frequency of reporting from quarterly to semiannual for approximately one-third of existing FFIEC 051 items as required under EGRRCPA.

Staff Development Programs

The Federal Reserve's staff development program supports the ongoing development of nearly 3,300 professional supervisory staff, ensuring that they have the requisite skills necessary to meet their evolving supervisory responsibilities. The Federal Reserve also provides course offerings to staff at state banking agencies. Training activities in 2019 are summarized in table 4.

Examiner Commissioning Program

An overview of the Federal Reserve System's Examiner Commissioning Program is provided in SR letter

[12] The law establishing the FFIEC and defining its functions requires the FFIEC to develop uniform reporting systems for federally supervised financial institutions.

Table 4. Training for supervision and regulation, 2019

Course sponsor or type	Number of enrollments		Instructional time (approximate training days)[1]	Number of course offerings
	Federal Reserve personnel	State and federal banking agency personnel		
Federal Reserve System	1,710	10	615	123
FFIEC	793	480	376	94
Rapid Response[2]	8,218	963	4	37

[1] Training days are approximate. System courses were calculated using five days as an average, with FFIEC courses calculated using four days as an average.

[2] Rapid Response is a virtual program created by the Federal Reserve System as a means of providing information on emerging topics to Federal Reserve and state bank examiners.

17-6, "Overview of the Federal Reserve's Supervisory Education Programs."

The Federal Reserve has three examiner commissioning programs: (1) community bank, (2) consumer compliance, and (3) large financial institutions. Individuals in these programs progress through a combination of in-person and virtual instruction, aligned with on-the-job training over a period of about three years. Commissioning of an examiner is contingent upon approval from the Supervision and Regulation function at the Board of Governors as well as an individual passing a professionally validated proficiency examination.

In 2019, 63 examiners were commissioned (40 in safety and soundness and 23 in consumer compliance). The large financial institutions program was fully implemented in 2019.

Continuing Professional Development

In addition to the examiner commissioning programs, the Federal Reserve System offers a number of continuing professional development programs, and partners with the FFIEC and the Conference of State Bank Supervisors to provide specialized supervisory training to commissioned examiners.

In 2019, continuing professional development training was developed for several supervision initiatives, including CECL, financial technology, and large and regional financial institution training for consumer compliance staff.

Regulatory Developments

The Federal Reserve carries out its regulatory responsibilities by developing regulatory policy (rulemakings, supervision and regulation letters, policy statements, and guidance) and reviewing and acting on a variety of applications filed by banking organizations.

Rulemakings and Guidance

The Federal Reserve issues new regulations or revises existing regulations in response to laws enacted by Congress or because of evolving conditions in the financial marketplace. Over 2019, the Federal Reserve made significant progress to implement provisions of the EGRRCPA. The Federal Reserve, working with the other federal banking agencies, has implemented all of the major provisions of EGRRCPA. The Federal Reserve issued the following rules and statements in 2019 (see table 5).

Banking Applications

The Federal Reserve reviews applications submitted by bank holding companies, state member banks, savings and loan holding companies, foreign banking organizations, and other entities for approval to undertake various transactions and to engage in new activities. In 2019, the Federal Reserve acted on 1,099 applications filed under the six relevant statutes.

The Federal Reserve published the *Semiannual Report on Banking Applications Activity*, which provides aggregate information on proposals filed by banking organizations and reviewed by the Federal Reserve. The current report as well as historical reports are available at https://www.federalreserve.gov/publications/semiannual-report-on-banking-applications-activity.htm.

Public Notice of Federal Reserve Decisions and Filings Received

The Board's website provides information on orders and announcements (https://www.federalreserve.gov/newsevents/pressreleases.htm) as well as a guide for U.S. and foreign banking organizations that wish to submit applications (https://www.federalreserve.gov/bankinforeg/afi/afi.htm).

Table 5. Federal Reserve or interagency rulemakings/statements (proposed and final), 2019

Date issued	Rule/guidance
1/8/2019	Board invites public comment on proposal that would modify company-run stress testing requirements to conform with EGRRCPA. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190108a.htm
2/5/2019	Board finalizes set of changes that will increase the transparency of its stress testing program for nation's largest and most complex banks. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190205a.htm
3/6/2019	Board announces it will limit the use of the "qualitative objection" in its Comprehensive Capital Analysis and Review (CCAR) exercise, effective for the 2019 cycle. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190306b.htm
3/15/2019	Agencies adopt interim final rule to facilitate transfers of legacy swaps. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190315a.htm
4/2/2019	Agencies invite public comment on a proposed rule to limit the interconnectedness of large banks and reduce the impact from failure of the largest banks. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190402a.htm
4/8/2019	Board invites public comment on changes to the regulatory framework that would more closely match rules for foreign banks with the risks they pose to U.S. financial system. Board press release and visuals: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190408a.htm
4/16/2019	Agencies invite comment on modifications to resolution plan requirements as part of EGRRCPA. The proposal keeps existing requirements for largest firms and reduces requirements for firms with less risk. Interagency press release and visuals: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190416a.htm
4/18/2019	Agencies invite public comment on revisions to the supplementary leverage ratio as required by EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190418a.htm
4/23/2019	Board invites public comment on proposal to simplify and increase the transparency of rules for determining control of a banking organization. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190423a.htm
5/3/2019	Board invites public comment on a proposal to apply netting protections to a broader range of financial institutions. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190503a.htm
5/9/2019	Board approves final rule to repeal regulations that incorporated the Secure and Fair Enforcement for Mortgage Licensing Act. Banking institutions that were subject to the Board's rules are now subject to rules from the Consumer Financial Protection Bureau. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190509a.htm
5/30/2019	Agencies issue final rule regarding the treatment of certain municipal obligations as high-quality liquid assets as part of EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190530a.htm
6/17/2019	Agencies issue final rule to streamline regulatory reporting requirements and commit to further review of reporting burdens for small institutions as part of EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190617a.htm
6/21/2019	Board releases results of 2019 Dodd-Frank Act stress tests. The banks tested had strong capital levels that would allow them to stay well above their minimum requirements after being tested against a severe hypothetical recession. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190621a.htm
6/27/2019	Board releases results of its 2019 Comprehensive Capital Analysis and Review stress test. The banks tested had strong capital levels and virtually all are now meeting the Board's supervisory expectations. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190627a.htm
7/9/2019	Agencies issue final rule to simplify regulatory capital rules. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190709a.htm
7/12/2019	Agencies invite public comment on a proposed rule on the capital treatment of land development loans as part of EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190712a.htm
7/17/2019	Agencies announce coordination of reviews for certain foreign funds under the Volcker rule. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190717a.htm
7/22/2019	Agencies and FinCEN improve transparency of risk-focused BSA/AML supervision. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190722a.htm

(continued on next page)

Table 5.—*continued*

Date issued	Rule/guidance
7/26/2019	Agencies release public sections of resolution plans for eight large banks. Agencies complete resolution plan evaluations and extend deadline for certain firms. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190726a.htm
9/6/2019	Board invites public comment on proposal to establish capital requirements for certain insurance companies supervised by the Board. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190906a.htm
9/27/2019	Agencies issue final rule to exempt residential real estate transactions of $400,000 or less from appraisal requirements as part of EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190927a.htm
10/2/2019	Agencies issue final rule to update rules restricting the ability of a director or other management official to serve at more than one depository institution, known as management interlock rules. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191002a.htm
10/8/2019	Agencies finalize changes to simplify the Volcker rule. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191008a.htm
10/10/2019	Board finalizes rules that tailor its regulations for domestic and foreign banks to more closely match their risk profiles as part of EGRRCPA. The rules reduce compliance requirements for firms with less risk while maintaining the most stringent requirements for the largest and most complex banks. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191010a.htm
10/17/2019	Agencies seek comment on proposed interagency policy statement on allowances for credit losses and proposed interagency guidance on credit risk review systems. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191017a.htm
10/18/2019	Agencies request information on use and impact of CAMELS ratings. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191018a.htm
10/28/2019	Agencies finalize changes to resolution plan requirements as part of EGRRCPA. The rules maintain requirements for the largest firms and reduce requirements for smaller firms. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191028b.htm
10/28/2019	Agencies invite comment on proposal to amend swap margin rules. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191028a.htm
10/29/2019	Agencies issue final rule to simplify capital calculation for community banks (community bank leverage ratio). Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191029a.htm
11/8/2019	Board invites public comment on proposal to extend by 18 months initial compliance dates for foreign banks subject to its single-counterparty credit limit rule. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191108a.htm
11/19/2019	Agencies finalize changes to supplementary leverage ratio as required by EGRRCPA. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191119a.htm
11/19/2019	Agencies issue final rule on treatment of high-volatility commercial real estate. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191119b.htm
11/19/2019	Agencies finalize rule to update calculation of counterparty credit risk for derivative contracts. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191119c.htm
12/3/2019	Agencies clarify requirements for providing financial services to hemp-related businesses. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191203a.htm
12/13/2019	Federal Reserve Board announces it will extend until January 22, 2020, comment period for its proposal to establish risk-based capital requirements for certain insurance companies supervised by the Board. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191213a.htm
12/17/2019	Agencies find no deficiencies in resolution plans from the largest banks; find shortcomings for several firms. Interagency press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191217a.htm
12/20/2019	Agencies extend comment period for proposed rule to amend swap margin rules. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191220b.htm
12/20/2019	Agencies extend deadline on request for information on CAMELS rating system. Board press release: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191220a.htm

5 Payment System and Reserve Bank Oversight

The Federal Reserve performs several key functions to maintain the integrity of the U.S. payment and settlement system. These functions help keep cash, check, and electronic transactions moving reliably through the U.S. economy on behalf of consumers, businesses, and others participating in the economy.

The Federal Reserve Banks, in particular, provide payment services to depository and certain other institutions, distribute the nation's currency and coin to depository institutions, and serve as fiscal agents and depositories for the U.S. government and other entities.

The Federal Reserve serves as a catalyst for payment system improvements and conducts Reserve Bank oversight to ensure effective internal controls, operations, and management.

Payment Services to Depository and Other Institutions

Reserve Banks provide a range of payment and related services to depository and certain other institutions; these "priced services" include collecting checks, operating an automated clearinghouse (ACH) service, transferring funds and securities, and providing a multilateral settlement service.[1]

Commercial Check-Collection Service

The commercial check-collection service provides a suite of electronic and paper processing options for forward and return collections.

[1] *Depository institutions* are defined as commercial banks, thrifts, and credit unions. Besides playing an important role in the broader economy by providing transaction accounts, such as checking accounts, to consumers, households, and businesses, these institutions play an important role in the Federal Reserve System's payment and settlement system function.

The ACH enables depository institutions and their customers to process large volumes of payments through electronic batch processes.

Box 1. FedNow Service

The Federal Reserve announced on August 5, 2019, its plans to develop a nationwide faster payment settlement service, named the FedNow Service. The FedNow Service will help enable financial institutions to deliver end-to-end faster payment services to their customers, and users will be able to send and receive payments any time, any day, and have full access to those funds within seconds. See "Evolutions and Improvements to the System" for more information on the FedNow Service and other Federal Reserve efforts in 2019.

In 2019, the Reserve Banks recovered 104.0 percent of the total costs of their commercial check-collection service, including the related private-sector adjustment factor (PSAF). Revenue from operations totaled $128.1 million, resulting in net income of $6.3 million. The Reserve Banks' operating expenses and imputed costs totaled $121.9 million. Reserve Banks handled 4.4 billion checks in 2019, a decrease of 7.4 percent from 2018 (see table 1). The average daily value of checks collected by the Reserve Banks in 2019 was approximately $33.1 billion, a decrease of 2 percent from the previous year.

Commercial Automated Clearinghouse Service

The commercial ACH service provides domestic and cross-border batched payment options for same-day and next-day settlement.

In 2019, the Reserve Banks recovered 97.6 percent of the total costs of their commercial ACH services, including the related PSAF. Revenue from operations totaled $152.9 million, resulting in a net loss of $1.7 million. The Reserve Banks' operating expenses and imputed costs totaled $154.8 million. The Reserve Banks processed 15.6 billion commercial ACH transactions in 2019, an increase of 6.1 percent from 2018 (see table 1). The average daily value of FedACH transfers in 2019 was approximately $112 billion, an increase of 8.6 percent from the previous year.

Fedwire Funds and National Settlement Services

In 2019, the Reserve Banks recovered 97.3 percent of the costs of their Fedwire Funds and National Settlement Services, including the related PSAF. Revenue from operations totaled $135.5 million, resulting in a net loss of $2.1 million. The Reserve Banks' operating expenses and imputed costs totaled $137.7 million in 2019.

Fedwire Funds Service

The Fedwire Funds Service allows its participants to send or receive domestic time-critical payments using their balances at Reserve Banks to transfer funds in real time.

Box 2. Cost Recovery Requirements

The Federal Reserve must (under the Monetary Control Act of 1980) establish fees for "priced services" to recover, over the long run, all the direct and indirect costs associated with its payment and settlement system service. Costs include those actually incurred as well as the imputed costs that would have been incurred—including financing costs, taxes, and certain other expenses—and the return on equity (profit) that would have been earned if a private business firm had provided the services.[1] The imputed costs and imputed profit are collectively referred to as the private-sector adjustment factor (PSAF).

From 2010 through 2019, the Reserve Banks recovered 103.9 percent of the total priced services costs, including the PSAF (see table A).[1] In 2019, Reserve Banks recovered 99.4 percent of the total priced services costs, including the PSAF.[1] The Reserve Banks' operating expenses and imputed costs totaled $441.2 million. Revenue from operations totaled $444.0 million, resulting in net income from priced services of $2.9 million. The commercial check-collection service and the Fedwire Security Service achieved full cost recovery. The FedACH and Fedwire Funds and National Settlement Services, however, did not achieve full cost recovery, FedACH because of investment costs associated with the multiyear technology initiative to modernize its processing platform, and Fedwire Funds and National Settlement Services because of investment costs associated with initiatives to promote operational resiliency and message enhancements.

[1] According to the Accounting Standards Codification (ASC) Topic 715 (ASC 715), *Compensation-Retirement Benefits*, the Reserve Banks recognized a $618.7 million reduction in equity related to the priced services' benefit plans through 2019. Including this reduction in equity, which represents a decline in economic value, results in cost recovery of 100.7 percent for the 10-year period. For details on how implementing ASC 715 affected the pro forma financial statements, refer to note 3 to the pro forma financial statements at the end of this section.

Table A. Priced services cost recovery, 2010–19

Millions of dollars, except as noted

Year	Revenue from services[1]	Operating expenses and imputed costs[2]	Targeted return on equity[3]	Total costs	Cost recovery (percent)[4]
2010	574.7	532.8	13.1	545.9	105.3
2011	478.6	444.4	16.8	461.2	103.8
2012	449.8	423.0	8.9	432.0	104.1
2013	441.3	409.3	4.2	413.5	106.7
2014	433.1	418.7	5.5	424.1	102.1
2015	429.1	397.8	5.6	403.4	106.4
2016	434.1	410.5	4.1	414.7	104.7
2017	441.6	419.4	4.6	424.0	104.1
2018	442.5	428.1	5.2	433.3	102.1
2019	444.0	441.2	5.4	446.5	99.4
2010–19	4,569.0	4,325.2	73.4	4,398.7	103.9

Note: Here and elsewhere in this section, components may not sum to totals or yield percentages shown because of rounding. Excludes amounts related to development of the FedNow Service.

[1] For the 10-year period, includes revenue from services of $4,558.6 million and other income and expense (net) of $10.4 million.

[2] For the 10-year period, includes operating expenses of $4,171.5 million, imputed costs of $49.0 million, and imputed income taxes of $104.8 million.

[3] From 2010 to 2012, the PSAF was adjusted to reflect the actual clearing balance levels maintained; previously, the PSAF had been calculated based on a projection of clearing balance levels.

[4] Revenue from services divided by total costs. For the 10-year period, cost recovery is 100.7 percent, including the effect of accumulated other comprehensive income (AOCI) reported by the priced services under ASC 715. For details on changes to the estimation of priced services AOCI and their effect on the pro forma financial statements, refer to note 3 to the "Pro Forma Financial Statements for Federal Reserve Priced Services" at the end of this section.

Table 1. Activity in Federal Reserve priced services, 2017–19
Thousands of items, except as noted

Service	2019	2018	2017	Percent change	
				2018–19	2017–18
Commercial check	4,389,011	4,739,534	5,152,521	-7.4	-8.0
Commercial ACH	15,583,792	14,691,615	13,749,249	6.1	6.9
Fedwire funds transfer	172,435	162,980	156,788	5.8	3.9
National settlement	502	521	517	-3.8	0.8
Fedwire securities	3,246	3,510	3,465	-7.5	1.3

Note: Activity in commercial check is the total number of commercial checks collected, including processed and fine-sort items; in commercial ACH, the total number of commercial items processed; in Fedwire funds transfer and securities transfer, the number of transactions originated online and offline; and in national settlement, the number of settlement entries processed.

From 2018 to 2019, the number of Fedwire funds transfers originated by depository institutions increased 5.8 percent, to approximately 172.4 million (see table 1). The average daily value of Fedwire funds transfers in 2019 was $2.8 trillion, a decrease of 2.8 percent from the previous year.

National Settlement Service

The National Settlement Service is a multilateral settlement system that allows participants in private-sector clearing arrangements to settle transactions using their balances at Reserve Banks.

In 2019, the service processed settlement files for 12 local and national private-sector arrangements. The Reserve Banks processed 9,675 files that contained about 502,000 settlement entries for these arrangements in 2019 (see table 1). Settlement file activity in 2019 was roughly the same as in 2018, and settlement entries decreased 3.8 percent.

Fedwire Securities Service

The Fedwire Securities Service allows its participants to transfer electronically to other service participants certain securities issued by the U.S. Department of the Treasury, federal government agencies, government-sponsored enterprises, and certain international organizations.[2]

In 2019, the Reserve Banks recovered 100.3 percent of the costs of their Fedwire Securities Service, including the related PSAF. Revenue from operations totaled $27.1 million, resulting in a net income of $0.4 million. The Reserve Banks' operating expenses and imputed costs totaled $26.7 million in 2019. In 2019, the number of non-Treasury securities transfers processed via the service decreased 7.5 percent from 2018, to approximately 3.2 million (see table 1). The average daily value of Fedwire Securities transfers in 2019 was approximately $1.4 trillion, an increase of approximately 16.7 percent from the previous year.

FedLine Solutions: Access to Reserve Bank Services

The Reserve Banks' FedLine Solutions provide depository institutions with a variety of connections for accessing the Banks' payment and information services.

For priced services, the Reserve Banks charge fees for these connections and allocate the associated costs and revenue to the various services. There are currently six FedLine Solutions through which customers can access the Reserve Banks' priced services: FedMail, FedLine Exchange, FedLine Web, FedLine Advantage, FedLine Command, and FedLine Direct. These FedLine Solutions are designed to meet the individual connectivity, security, and contingency requirements of depository institution customers.

Between 2008 and 2019, Reserve Bank priced FedLine connections decreased nearly 25 percent, while the number of depository institutions in the United States declined 35 percent.

The Reserve Banks continue to focus on increased resiliency and availability of the FedLine Solutions. Additionally, the Reserve Banks are advancing the safety and security of the FedLine Solutions through key infrastructure upgrades, network modernization,

[2] The expenses, revenues, volumes, and fees reported here are for transfers of securities issued by federal government agencies, government-sponsored enterprises, and certain international organizations. Reserve Banks provide Treasury securities services in their role as Treasury's fiscal agent. These services are not considered priced services. For details, see "Financing and Securities Services" later in this section.

proactive monitoring of an evolving threat environment, and strengthening of endpoint security policies.

Federal Reserve Intraday Credit

The Federal Reserve Board governs the use of Federal Reserve Bank intraday credit, also known as daylight overdrafts.[3] A daylight overdraft occurs when an institution's account activity creates a negative balance in the institution's Federal Reserve account at any time in the operating day. Daylight overdrafts enable an institution to send payments more freely throughout the day than if it were limited strictly by its available intraday funds balance, increasing efficiency and reducing payment system risk.

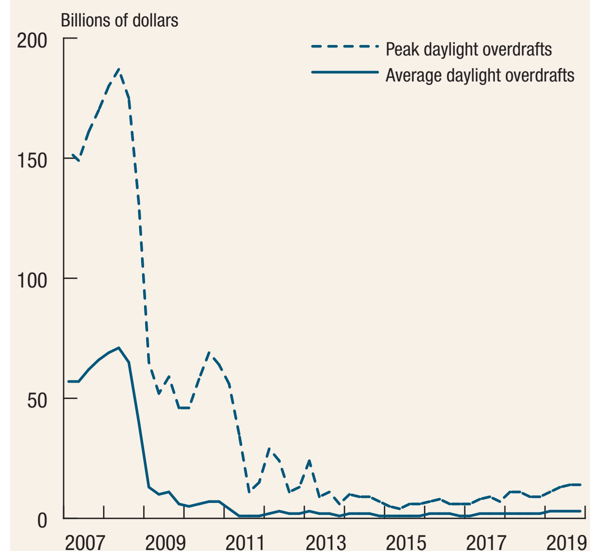
Institutions currently hold historically high levels of overnight balances at the Federal Reserve Banks, while daylight overdrafts remained historically low, as shown in figure 1.[4]

Fees collected for daylight overdrafts are also at historically low levels. In 2019, institutions paid about $111,428 in daylight overdraft fees; in contrast, fees totaled more than $50 million in 2008. The decrease in fees is largely attributable to the elevated level of reserve balances that began to accumulate in late 2008 and to the 2011 policy revision that eliminated fees for daylight overdrafts that are collateralized.

Currency and Coin

The Federal Reserve Board issues the nation's currency (in the form of Federal Reserve notes) to 28 Federal Reserve Bank offices. The Reserve Banks, in turn, distribute Federal Reserve notes to depository institutions in response to public demand. Together, the Board and Reserve Banks work to maintain the integrity of and confidence in Federal Reserve notes.

Figure 1. Aggregate daylight overdrafts, 2007–19



In 2019, the Board paid $795.9 million to the Treasury's Bureau of Engraving and Printing (BEP) for costs associated with the production of 5.7 billion Federal Reserve notes. The volume of Federal Reserve notes issued and outstanding at year-end 2019 totaled 44.9 billion pieces, a 3.5 percent increase from 2018. More than half of this growth was attributable to growth in demand for $100 notes, and an additional 27.3 percent was attributable to growth in demand for $1 and $20 notes. In 2019, the Reserve Banks distributed 35.4 billion Federal Reserve notes into circulation, a 3.7 percent decrease from 2018, and received 33.9 billion Federal Reserve notes from circulation, a 3.3 percent decrease from 2018.

The value of Federal Reserve notes issued and outstanding at year-end 2019 totaled $1,759.5 billion, a 5.3 percent increase from 2018. The year-over-year increase is attributable largely to increased demand for $100 notes. The Board estimates that at least one-half of the value of Federal Reserve notes in circulation is held abroad, mainly as a store of value.

The Reserve Banks also distribute coin to depository institutions on behalf of the U.S. Mint.[5] In 2019, Reserve Banks distributed 68.3 billion coins into cir-

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[3] See Payment System Risk policy, https://www.federalreserve.gov/paymentsystems/psr_about.htm. The Payment System Risk policy recognizes explicitly the role of the central bank in providing intraday balances and credit to healthy institutions; under the policy, the Reserve Banks provide collateralized intraday credit at no cost.

[4] Before the 2007–09 financial crisis, overnight balances were much lower and daylight overdrafts significantly higher than levels observed since late 2008. The use of daylight overdrafts spiked amid the market turmoil near the end of 2008 but dropped sharply as various liquidity programs initiated by the Federal Reserve, all since terminated, took effect. During this period, the Federal Reserve also began paying interest on balances held at the Reserve Banks, increased its lending under the Term Auction Facility, and began purchasing government-sponsored enterprise mortgage-backed securities. These measures tended to increase balances institutions held at the Banks, which decreased the demand for intraday credit. In 2007, for example, institutions held, on average, less than $20 billion in overnight balances, and total average daylight overdrafts were around $60 billion.

[5] The Federal Reserve Board is the issuing authority for Federal Reserve notes, while the U.S. Mint, a bureau of the U.S. Treasury, is the issuing authority for coin.

culation, a 2.2 percent decrease from 2018, and received 56.1 billion coins from circulation, which is unchanged from 2018.

Fiscal Agency and Government Depository Services

The Federal Reserve Banks, upon the direction of the Secretary of the Treasury, act as fiscal agents of the U.S. government.[6] The Reserve Banks, in their role as fiscal agents, provide services such as payment services, financing and securities services, and financial accounting and reporting services, as well as maintain the Treasury's operating cash account.

To support further the Treasury's mission, the Reserve Banks develop, operate, and maintain a number of automated systems and provide associated technology infrastructure services. The Reserve Banks also provide certain fiscal agency and depository services to other entities.

In 2019, Reserve Bank expenses for providing fiscal agency and depository services totaled $729.0 million, an increase of $23.0 million, or 3.3 percent (see table 2). The Treasury and other entities reimburse fully the Reserve Banks for the expense of providing fiscal agency and depository services. Support for Treasury programs accounted for 94.4 percent of expenses, and support for other entities accounted for the remaining 5.6 percent.

[6] In accordance with section 15 of the Federal Reserve Act. See https://www.federalreserve.gov/aboutthefed/section15.htm.

Payment Services

The Reserve Banks support the Treasury by developing, operating, and maintaining electronic systems that allow the public to receive payments from and authorize payments to federal agencies, as well as by providing operational and customer support.

The Reserve Banks process payments, such as federal payroll, Social Security benefits, and veterans' benefits, from the Treasury's account at the Federal Reserve and process payments made to the Treasury's account at the Federal Reserve, which include collections such as fees and debts owed to the federal government.

Reserve Bank expenses for payment services were $292.1 million in 2019, a decrease of $7.5 million, or 2.5 percent. The programs that contributed most to Reserve Bank expenses in 2019 were the Stored Value Card program, the Pay.gov program, and the U.S. Treasury Electronic Payment Solution Center, which are discussed in more detail below.

The Reserve Banks work with the Treasury to support the Stored Value Card program, which comprises three military cash-management services: EagleCash, EZPay, and Navy Cash. These programs provide electronic payment methods for goods and services on military bases and Navy ships. Stored Value Cards are in use on more than 80 military bases and installations in 19 countries (including the U.S.) and on board more than 135 ships. In 2019, the Reserve Banks continued to provide operations and customer support, replaced legacy equipment, and

Table 2. Expenses of the Federal Reserve Banks for fiscal agency and depository services, 2017–19
Thousands of dollars[1]

Agency and service	2019	2018	2017
Department of the Treasury			
Payment services	292,078	299,619	290,541
Financing and Treasury securities services	191,614	168,387	169,044
Fiscal accounting and reporting services	65,105	62,985	63,091
Technology infrastructure services[2]	139,703	135,660	137,720
Total, Treasury	688,500	666,651	660,396
Other entities	40,471	39,344	37,875
Total reimbursable expenses	**728,971**	**705,995**	**698,271**

[1] Service costs include reimbursable pension costs, where applicable. Previous versions of the Annual Report provided a separate line item for pension expenses.
[2] These costs include the development and support costs of Treasury technology infrastructure.

developed new functionality and capability for the Stored Value Card.

The Reserve Banks also work with the Treasury to expand electronic payment services to the Treasury's account at the Federal Reserve. The Reserve Banks operate and maintain Pay.gov, an application that allows the public to use the internet to initiate and authorize payments to the federal government using a U.S.-held bank account (through ACH Debit), a credit or debit card, or a digital wallet through services such as PayPal or Amazon Pay. In 2019, Pay.gov processed 221 million online payments valued at $212.0 billion. In addition, the Reserve Banks worked with the Treasury to support the movement of $85.0 billion in commercial deposits to the Treasury's account at the Federal Reserve and processed and settled 288 million electronic payment transactions valued at $695.0 billion. The Reserve Banks are also supporting the Treasury's efforts to modernize its electronic tax collection system.

Additionally, the Reserve Banks support the Treasury's efforts to expand electronic disbursements—which include Social Security, Supplemental Security Income, and veterans' payments—and federal government invoicing for goods and services. The Reserve Banks support the Treasury's initiatives aimed at eliminating paper check payments and increasing electronic payments to beneficiaries through the operation of the U.S. Treasury Electronic Payment Solution Center, which processes requests from the public to convert federal benefit payments, from paper check to electronic delivery. In 2019, the center completed its 10 millionth enrollment. The program, which started in 2005, has allowed the Treasury to achieve $1.2 billion in savings from administration and postal expenses. The Reserve Banks also work with the Treasury to support outreach, implementation, development, operations, and maintenance of the invoice processing platform, which accepts, processes, and presents transaction data between government agencies and vendor systems to facilitate electronic order-to-payment processing. In 2019, the invoice processing platform began a multiyear modernization initiative.

Financing and Securities Services

The Reserve Banks work closely with the Treasury in support of the financing needed to operate the federal government, which includes forecasting, scheduling, auctioning, issuing, settling, maintaining, and redeeming marketable Treasury securities (for example, bills, notes, and bonds). The Reserve Banks also support the Treasury's efforts to encourage savings by issuing, maintaining, and redeeming U.S. savings bonds, as well as providing fulfillment services. And the Reserve Banks provide customer service and operate the automated systems that support marketable Treasury securities and U.S. savings bonds.

Reserve Bank expenses for financing and securities services were $191.6 million in 2019, an increase of $23.2 million, or 13.8 percent, primarily attributable to development efforts to modernize the applications that support the issuance, maintenance, and redemption of marketable Treasury securities and U.S. savings bonds. Increased expenses also reflect a full year of operations support associated with the Treasury's introduction of the eight-week bill.

In 2019, the Reserve Banks, in partnership with the Treasury, conducted 325 auctions that resulted in the Treasury's awarding $11.7 trillion in wholesale Treasury marketable securities to investors and supported the issuance and servicing of $104.7 billion in savings and marketable securities, which are held in the TreasuryDirect system.

Accounting and Reporting Services

The Reserve Banks support the Treasury's accounting and reporting functions by forecasting, monitoring, and managing the government's overall cash requirements, cash flow, and government-wide accounting services. The Reserve Banks also support the Treasury's publication of the daily and monthly Treasury statements; the Combined Statement of Receipts, Outlays, and Balances of the United States Government; and the *Financial Report of the United States Government*.[7]

Reserve Bank expenses for financial accounting and reporting services were $65.1 million in 2019, an increase of $2.1 million, or 3.4 percent. The pro-

[7] The Daily Treasury Statement summarizes the U.S. Treasury's cash and debt operations for the federal government on a modified cash basis and can be accessed at https://fiscal.treasury.gov/reports-statements/dts/. The Monthly Treasury Statement summarizes the financial activities of the federal government and off-budget federal entities and can be accessed at https://www.fiscal.treasury.gov/reports-statements/mts/. The Combined Statement of Receipts, Outlays, and Balances of the United States Government is recognized as the official publication of the government's receipts and outlays and can be accessed at https://fiscal.treasury.gov/reports-statements/combined-statement/. The Financial Report of the United States Government provides the President, Congress, and the American people with a comprehensive view of the federal government's finances and can be accessed at https://fiscal.treasury.gov/reports-statements/financial-report/.

grams that contributed most to Reserve Bank expenses in 2019 were the Central Accounting Reporting System (CARS) and G-Invoicing, which are discussed in more detail below.

The Reserve Banks operate and maintain CARS, which handles accounting and reporting for all federal agencies and is the electronic system of record for the government's financial data. In 2019, the Treasury, with the support of the Reserve Banks and data from the CARS application and other sources, unveiled "Your Guide to America's Finances," which was developed to make the government's financial information accessible and presented in plain language with visualizations.[8] The guide helps Americans understand the core financial concepts of revenue, spending, deficit, and debt and the part these concepts play in the overall financial picture of the United States. The Reserve Banks conducted market research, completed data analysis, developed the user interface, and helped develop a strategy to promote the guide to the public. In addition, the Reserve Banks operate and maintain the G-Invoicing application, which is a front-end application used by federal agencies to originate buy/sell intragovernmental transactions; manage the receipt and acceptance of general terms and conditions agreements, orders, and invoices; and initiate funds settlement. In 2019, the Reserve Banks worked with the Treasury to enhance the G-Invoicing application to improve the quality, usability, and auditability of federal government financial data.

Infrastructure and Technology Services

The Reserve Banks design, build, and maintain the technology infrastructure and environments that host the majority of applications that the Reserve Banks develop, operate, or maintain on behalf of the Treasury.

In 2019, the Reserve Banks continued to operate the infrastructure and modernize systems, increased automation, strengthened operational resiliency through enhanced technical failover capabilities, improved operational reporting and communications, and strengthened the Treasury's systems against ever-evolving cybersecurity threats.

Reserve Bank expenses for infrastructure and technology services were $139.7 million in 2019, an increase of $4.0 million, or 3.0 percent.

[8] "Your Guide to America's Finances" can be accessed at https://datalab.usaspending.gov/americas-finance-guide/index.html.

Services Provided to Other Entities

The Reserve Banks, when permitted by federal statute or when required by the Secretary of the Treasury, also provide other domestic and international entities with U.S.-dollar denominated banking services, which include funds, securities, and gold safekeeping; securities clearing, settlement, and investment; and correspondent banking.

The Reserve Banks also issue and maintain, in electronic form, many federal government agency, government-sponsored enterprise, and certain international organizations securities. The majority of securities services are performed for the Federal Home Loan Mortgage Association (Freddie Mac), the Federal National Mortgage Association (Fannie Mae), and the Government National Mortgage Association (Ginnie Mae).

Reserve Bank expenses for services provided to other entities were $40.5 million in 2019, an increase of $1.1 million, or 2.9 percent.

Evolutions and Improvements to the System

The Federal Reserve performs many functions in the payment system, including

- payment system operator,
- supervisor and regulator of financial institutions and systemically important financial market utilities (see box 3),
- researcher, and
- catalyst for system improvements.

FedNow Service

The development of the FedNow Service will be a focus of the Federal Reserve for the foreseeable future. The Federal Reserve anticipates that the FedNow Service will be available sometime in 2023 or 2024. As the Federal Reserve finalizes the service implementation timeline, information for depository institutions will be available through existing Federal Reserve Bank communication channels.

The Federal Reserve announced its plans on August 5, 2019, to develop the FedNow Service, a new real-time gross settlement service, to support nationwide access to faster payments. The Federal

Box 3. Payment System Regulatory Activity in 2019

Congress has assigned to the Board responsibility for implementing the Federal Reserve Act and certain other laws pertaining to a wide range of banking and financial activities, including those related to the payment and settlement system. The Board implements those laws in part through its regulations. See the Board's website at https://www.federalreserve.gov/supervisionreg/reglisting.htm.

- **Regulation CC (January 2019).** The Board published a final rule that amends subpart C to address situations where there is a dispute as to whether a check has been altered or was issued with an unauthorized signature, and the original paper check is not available for inspection. https://www.govinfo.gov/content/pkg/FR-2018-12-10/html/2018-25746.htm
- **Regulation J (January 2019).** The Board published final amendments that clarify and simplify certain provisions of Regulation J, remove obsolete provisions, and align the rights and obligations of sending banks, paying banks, and Federal Reserve Banks with the Board's recent amendments to Regulation CC to reflect the virtually all-electronic check collection and return environment. https://www.govinfo.gov/content/pkg/FR-2018-11-30/html/2018-25267.htm
- **Regulation CC (September 2019).** The Board and the Consumer Financial Protection Bureau jointly issued regulations that implement a statu-tory requirement in the Electronic Funds Availabil-ity (EFA) Act to adjust the dollar amounts under the EFA Act for inflation. The agencies also amended Regulation CC to incorporate the Eco-nomic Growth, Regulatory Relief, and Consumer Protection Act amendments to the EFA Act, which include extending coverage to American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam and making certain other technical amendments. https://www.govinfo.gov/content/pkg/FR-2019-07-03/html/2019-13668.htm

Reserve's provision of the FedNow Service will provide core infrastructure to promote ubiquitous, safe, and efficient faster payments in the United States.

As part of the process for developing the FedNow Service, the Federal Reserve Board requested public comment on the service's desired features and functionality. The comment period, which closed on November 7, 2019, yielded approximately 182 comment letters from more than 353 industry stakeholders. Commenters represented a wide array of faster payments stakeholders, including banks of all sizes, core processors, trade organizations, consumer organizations, financial technology firms, and service providers, among others. The Federal Reserve is in the process of considering this industry feedback on the FedNow Service's features and functionality and plans to publish a *Federal Register* notice with a finalized the FedNow Service description.

Other Improvements and Efforts

The Reserve Banks have been engaged in a number of multiyear technology initiatives that will modernize their priced-services processing platforms. These investments are expected to enhance efficiency, the overall quality of operations, and the Reserve Banks' ability to offer additional services, consistent with the longstanding principles of fostering efficiency and safety, to depository institutions. The Reserve Banks continued to enhance the resiliency and information security posture of the Fedwire Funds, National Settlement Service, and Fedwire Securities Service through the Fedwire Resiliency Program, a multiyear initiative to respond to environmental threats and cyberthreats. The Reserve Banks are also developing and planning to implement a new FedACH-processing platform to improve the efficiency and reliability of their current FedACH operations.

During 2019, the Federal Reserve continued developmental work to replace the aging high-speed currency processing equipment and sensors at all Reserve Banks by 2026. Through a competitive process, the Federal Reserve selected two vendors to build prototype machines for delivery in 2020. Following the prototype assessments, the Reserve Banks will select one vendor to develop new production machines. In addition to new machine development, the Federal Reserve awarded a contract in 2019 and expects to award additional contracts in 2020 to replace sensors within the replacement high-speed currency processing equipment.

The improvement of the efficiency, effectiveness, and security of information technology (IT) services and operations continued to be a central focus of the Federal Reserve Banks. Led by the Federal Reserve's National IT organization, the 2019–2022 IT System IT Strategic Plan sets priorities, aligns IT direction and resources, and ensures IT leaders and team members are working towards a common set of goals. The

goals of the plan are security, simplicity, and productivity with priorities in cybersecurity, cloud-enabled technologies, and end-user capabilities. National IT continues to guide the plan's implementation and track progress toward the goals.

The Reserve Banks remained vigilant about their cybersecurity posture, investing in risk-mitigation initiatives and programs and continuously monitoring and assessing cybersecurity risks to operations and protecting systems and data. The Federal Reserve implemented several cybersecurity initiatives that enhanced identity and access management capabilities; enhanced the ability to respond to evolving cybersecurity threats with agility, decisiveness, and speed by streamlining decisionmaking during a cybersecurity incident; and continued to improve continuous monitoring capabilities of critical assets.

Several Reserve Banks took action in 2019 to maintain and renovate their facilities. Major multiyear facility programs at several Reserve Bank offices continued, focused on updating obsolescent building systems to ensure infrastructure resiliency and continuity of operations. The Philadelphia Reserve Bank initiated construction activities for its multiyear program to replace its entire mechanical and electrical infrastructure. Other programs addressed the need to update office and operations areas in support of efficiency and working environment.

For more information on the acquisition costs and net book value of the Reserve Banks and Branches, see table 14 in Appendix G ("Statistical Tables") of this annual report.

Oversight of Federal Reserve Banks

The combined financial statements of the Reserve Banks and the financial statements of each of the 12 Reserve Banks are audited annually by an independent public accounting firm retained by the Board of Governors.[9] In addition, the Reserve Banks are subject to oversight by the Board of Governors, which performs its own reviews (see box 3).

The Reserve Banks use the 2013 framework established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to assess their internal controls over financial reporting, including the safeguarding of assets. The management of each Reserve Bank annually provides an assertion letter to its board of directors that confirms adherence to COSO standards.

The Federal Reserve Board engaged KPMG LLP (KPMG) to audit the 2019 combined and individual financial statements of the Reserve Banks.[10] In 2019, KPMG also conducted audits of the internal controls associated with financial reporting for each of the Reserve Banks. Fees for KPMG's services totaled $7.2 million. To ensure auditor independence, the Board requires that KPMG be independent in all matters relating to the audits. Specifically, KPMG

Box 4. Payment System Research and Analysis

The Federal Reserve conducts research on a wide range of topics related to the design and activities of payment, clearing, and settlement (PCS) systems and financial market infrastructures, as well as the role of these systems in the commercial activities of consumers, businesses, and governments.

In 2019, topics examined in Federal Reserve research included the following:

- measurement and analysis of long-run trends and short-run developments in the use of established payment methods[1]
- drivers and potential effects of innovations in the payment system, particularly those related to new and emerging technologies, such as digital currencies
- design, oversight, and regulation of financial market infrastructures
- developments related to payments fraud

For more information, see the Board's Payment Research website at https://www.federalreserve.gov/paymentsystems/payres_about.htm; see also Federal Reserve Bank Payments Groups at https://www.federalreserve.gov/paymentsystems/payres_fedgroups.htm.

1 In particular, see information about recent releases by the Federal Reserve Payments Study, available at https://www.federalreserve.gov/paymentsystems/fr-payments-study.htm.

9 See "Federal Reserve Banks Combined Financial Statements" at https://www.federalreserve.gov/aboutthefed/audited-annual-financial-statements.htm.

10 In addition, KPMG audited the Office of Employee Benefits of the Federal Reserve System (OEB), the Retirement Plan for Employees of the Federal Reserve System (System Plan), and the Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The System Plan and the Thrift Plan provide retirement benefits to employees of the Board, the Federal Reserve Banks, the OEB, and the Consumer Financial Protection Bureau.

may not perform services for the Reserve Banks or affiliates that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2019, the Reserve Banks did not engage KPMG for significant non-audit services.

The Board's reviews of the Reserve Banks include a wide range of oversight activities, conducted primarily by its Division of Reserve Bank Operations and Payment Systems. Division personnel monitor, on an ongoing basis, the activities of each Reserve Bank, National IT, and the System's Office of Employee Benefits (OEB). The oversight program identifies the most strategically important Reserve Bank current and emerging risks and defines specific approaches to achieve a comprehensive evaluation of the Reserve Banks' controls, operations, and management effectiveness.

The comprehensive reviews include an assessment of the internal audit function's effectiveness and its conformance to the Institute of Internal Auditors' (IIA) International Standards for the Professional Practice of Internal Auditing, applicable policies and guidance, and the IIA's code of ethics.

The Board also reviews System Open Market Account (SOMA) and foreign currency holdings annually to

- determine whether the New York Reserve Bank, while conducting the related transactions and associated controls, complies with the policies established by the Federal Open Market Committee (FOMC); and
- assess SOMA-related IT project management and application development, vendor management, and system resiliency and contingency plans.

In addition, KPMG audits the year-end schedule of SOMA participated asset and liability accounts and the related schedule of participated income accounts. The FOMC is provided with the external audit reports and a report on the Board review.

Income and Expenses

Annually, the Board releases the Combined Reserve Banks financial statements with financial information as of December 31 and includes the accounts and results of operations of each of the 12 Reserve Banks.

In 2019, income was $103.2 billion, compared with $112.7 billion in 2018; expenses totaled $47.7 billion, compared with $49.4 billion in 2018; and net income before remittances to Treasury totaled $55.5 billion in 2019, compared with $63.1 billion in 2018.

Table 3 summarizes the income, expenses, and distributions of net earnings of the Reserve Banks for 2019 and 2018. Appendix G of this report, "Statistical Tables," provides more detailed information on the Reserve Banks.[11] Additionally, appendix G summarizes the Reserve Banks' 2019 budget performance and 2020 budgets, budgeting processes, and trends in expenses and employment.

SOMA Holdings

The FOMC has authorized and directed the Federal Reserve Bank of New York execute open market transactions to the extent necessary to carry out the domestic policy directive adopted by the FOMC. The Federal Reserve Bank of New York, on behalf of the Reserve Banks, holds in the SOMA the resulting securities, which include U.S. Treasuries, federal agency and government-sponsored enterprise debt securities, federal agency and government-sponsored enterprise mortgage-backed securities, investments denominated in foreign currencies, and commitments to buy or sell related securities.

Table 4 summarizes the average daily assets (liabilities), current income (expenses), and average interest rate of SOMA holdings for 2019 and 2018.

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[11] Table 9A is a statement of condition for each Reserve Bank; table 10 details the income and expenses of each Reserve Bank for 2019; table 11 shows a condensed statement for each Reserve Bank for the years 1914 through 2019; and table 13 gives the number and annual salaries of officers and employees for each Reserve Bank.

Table 3. Income, expenses, and distribution of net earnings of the Federal Reserve Banks, 2019 and 2018
Millions of dollars

Item	2019	2018
Current income	103,220	112,727
Loan interest income	1	3
SOMA interest income	102,737	112,257
Other current income[1]	482	467[2]
Net expenses	45,423	47,329
Operating expenses	4,690	4,409[2]
Reimbursements	-729	-706
System pension service cost	510	577[2]
Interest paid on depository institutions deposits and others	34,939	38,486
Interest expense on securities sold under agreements to repurchase	6,012	4,559
Other expenses	1	4
Current net income	57,797	65,398
Net (deductions from) additions to current net income	-169	-273
Treasury securities gains, net	0	5
Federal agency and government-sponsored enterprise mortgage-backed securities (losses) gains, net	9	-3
Foreign currency translation losses, net	-168	-390
Other deductions or additions	-10	115[2]
Assessments by the Board of Governors[3]	2,170	2,024
For Board expenditures	814	838
For currency costs	837	849
For Consumer Financial Protection Bureau costs[4]	519	337
Net income before providing for remittances to the Treasury	55,458	63,101
Earnings remittances to the Treasury	54,893	65,319
Net income after providing for remittances to the Treasury	565	-2,218
Other comprehensive gain	149	42
Comprehensive (loss) income	714	-2,176
Total distribution of net income	55,607	63,143
Dividends on capital stock	714	999
Transfer to surplus and change in accumulated other comprehensive income	0	-3,175
Earnings remittances to the Treasury[5]	54,893	65,319

[1] Includes income from priced services and securities lending fees.

[2] Income and expenses from 2018 have been reclassified in accordance with accounting standard updates.

[3] A detailed account of the assessments and expenditures of the Board of Governors appears in the Board of Governors Financial Statements (see https://www.federalreserve.gov/aboutthefed/audited-annual-financial-statements.htm).

[4] The Board of Governors assesses the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau.

[5] Earnings remittances to the Treasury in 2018 included two lump sum payments totaling a $3.175 billion as required by the Bipartisan Budget Act of 2018 and the Economic Growth, Regulatory Relief, and Consumer Protection Act.

Table 4. System Open Market Account (SOMA) holdings and Loans of the Federal Reserve Banks, 2019 and 2018
Millions of dollars, except as noted

Item	Average daily assets (+)/liabilities (–)			Current income (+)/expense (–)			Average interest rate (percent)	
	2019	2018	Year-over-year change	2019	2018	Year-over-year change	2019	2018
SOMA Holdings								
Securities purchased under agreements to resell	56,971	*	256	971	*	971	1.70	n/a
U.S. Treasury securities[1]	2,233,384	2,442,075	-208,691	58,532	62,807	-4,275	2.62	2.57
Government-sponsored enterprise debt (GSE) securities[1]	2,682	3,638	-956	137	175	-38	5.10	4.81
Federal agency and GSE mortgage-backed securities[2]	1,574,798	1,769,026	-194,228	43,124	49,289	-6,165	2.74	2.79
Foreign currency denominated investments[3]	20,744	21,335	-591	-33	-29	-4	-0.16	-0.14
Central bank liquidity swaps[4]	273	677	-404	6	15	-9	2.43	2.23
Other SOMA assets[5]	4	7	-3	*	*	*	1.85	1.50
Total SOMA assets	3,888,856	4,236,758	-347,902	102,737	112,257	-9,520	2.64	2.65
Securities sold under agreements to repurchase: primary dealers and expanded counterparties	-4,981	-12,552	7,571	-102	-186	84	2.04	1.48
Securities sold under agreements to repurchase: foreign official and international accounts	-269,399	-236,818	-32,581	-5,910	-4,373	-1,537	2.19	1.85
Total securities sold under agreements to repurchase	-274,380	-249,370	-25,010	-6,012	-4,559	-1,453	2.19	1.83
Other SOMA liabilities[6]	-97	-302	205	n/a	n/a	n/a	n/a	n/a
Total SOMA liabilities	-274,477	-249,672	-24,805	-6,012	-4,559	-1,453	2.19	1.83
Total SOMA holdings	**3,614,379**	**3,987,086**	**-372,707**	**96,726**	**107,698**	**-10,972**	**2.68**	**2.70**

1 Face value, net of unamortized premiums and discounts.

2 Face value, which is the remaining principal balance of the securities, net of unamortized premiums and discounts. Does not include unsettled transactions.

3 Foreign currency denominated assets are revalued daily at market exchange rates.

4 Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.

5 Cash and short-term investments related to the federal agency and government-sponsored enterprise mortgage-backed securities (GSE MBS) portfolio.

6 Represents the obligation to return cash margin posted by counterparties as collateral under commitments to purchase and sell federal agency and GSE MBS, as well as obligations that arise from the failure of a seller to deliver securities on the settlement date.

n/a Not applicable.

* Less than $500,000.

Pro Forma Financial Statements for Federal Reserve Priced Services

Table 5. Pro forma balance sheet for Federal Reserve priced services, December 31, 2019 and 2018
Millions of dollars

Item	2019		2018	
Short-term assets (note 1)				
Imputed investments	656.2		770.1	
Receivables	39.3		38.2	
Materials and supplies	0.6		0.6	
Prepaid expenses	12.2		14.4	
Items in process of collection	80.7		236.2	
Total short-term assets		789.0		1,059.5
Long-term assets (note 2)				
Premises	111.5		113.0	
Furniture and equipment	32.7		37.0	
Leases, leasehold improvements, and long-term prepayments	91.6		103.8	
Deferred tax asset	176.1		183.3	
Total long-term assets		411.9		437.1
Total assets		1,200.9		1,496.6
Short-term liabilities (note 3)				
Deferred-availability items	736.9		1,006.2	
Short-term debt	27.4		27.6	
Short-term payables	24.7		25.7	
Total short-term liabilities		789.0		1,059.5
Long-term liabilities (note 3)				
Long-term debt	10.1		19.1[r]	
Accrued benefit costs	341.8		343.2[r]	
Total long-term liabilities		351.9		362.3
Total liabilities		1,140.9		1,421.8
Equity (including accumulated other comprehensive loss of $618.7 million and $624.1 million at December 31, 2019 and 2018, respectively)		60.0		74.8
Total liabilities and equity (note 3)		1,200.9		1,496.6

Note: Components may not sum to totals because of rounding. The accompanying notes are an integral part of these pro forma priced services financial statements.

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Table 6. Pro forma income statement for Federal Reserve priced services, 2019 and 2018
Millions of dollars

Item	2019		2018	
Revenue from services provided to depository institutions (note 4)		443.6		442.5
Operating expenses (note 5)		440.7		421.6
Income from operations		2.9		20.9
Imputed costs (note 6)				
Interest on debt	0.3		3.1	
Interest on float	-4.8		-4.7	
Sales taxes	4.2	-0.3	3.8	2.3
Income from operations after imputed costs		3.2		18.7
Other income and expenses (note 7)				
Investment income	0.5		0.0	
Income before income taxes		3.7		18.7
Imputed income taxes (note 6)		0.8		4.2
Net income		2.9		14.4
Memo: Targeted return on equity (note 6)		5.4		5.2

Note: Components may not sum to totals because of rounding. The accompanying notes are an integral part of these pro forma priced services financial statements.

Table 7. Pro forma income statement for Federal Reserve priced services, by service, 2019
Millions of dollars

Item	Total	Commercial check collection	Commercial ACH	Fedwire funds	Fedwire securities
Revenue from services (note 4)	443.6	128.1	152.9	135.5	27.1
Operating expenses (note 5)[1]	440.7	118.6	158.8	136.9	26.3
Income from operations	2.9	9.5	(5.9)	(1.5)	0.7
Imputed costs (note 6)	(0.3)	1.5	(3.5)	1.4	0.3
Income from operations after imputed costs	3.2	8.0	(2.4)	(2.9)	0.5
Other income and expenses, net (note 7)	0.5	0.1	0.2	0.1	0.0
Income before income taxes	3.7	8.1	(2.2)	(2.7)	0.5
Imputed income taxes (note 6)	0.8	1.8	(0.5)	(0.6)	0.1
Net income	2.9	6.3	(1.7)	(2.1)	0.4
Memo: Targeted return on equity (note 6)	5.4	1.4	2.0	1.6	0.3
Cost recovery (percent) (note 8)	99.4%	104.0%	97.6%	97.3%	100.3%

Note: Components may not sum to totals because of rounding. Excludes amounts related to development of the FedNow Service. The accompanying notes are an integral part of these pro forma priced services financial statements.

[1] Operating expenses include pension costs, Board expenses, and reimbursements for certain nonpriced services.

Notes to Pro Forma Financial Statements for Priced Services

(1) Short-Term Assets

Receivables are composed of fees due the Reserve Banks for providing priced services and the share of suspense- and difference-account balances related to priced services.

Items in process of collection are gross Federal Reserve cash items in process of collection (CIPC), stated on a basis comparable to that of a commercial bank. They reflect adjustments for intra-Reserve Bank items that would otherwise be double-counted on the combined Federal Reserve balance sheet and adjustments for items associated with nonpriced items (such as those collected for government agencies). Among the costs to be recovered under the Monetary Control Act is the cost of float, or net CIPC during the period (the difference between gross CIPC and deferred-availability items, which is the portion of gross CIPC that involves a financing cost), valued at the federal funds rate. Investments of excess financing derived from credit float are assumed to be invested in federal funds.

(2) Long-Term Assets

Long-term assets consist of long-term assets used solely in priced services and the priced-service portion of long-term assets shared with nonpriced services, including a deferred tax asset related to the priced services pension and postretirement benefits obligation. The tax rate associated with the deferred tax asset was 22.2 percent for 2019 and 22.7 percent for 2018.

Long-term assets also consist of an estimate of the assets of the Board of Governors used in the development of priced services.

(3) Liabilities and Equity

Under the matched-book capital structure for assets, short-term assets are financed with short-term payables and imputed short-term debt, if needed. Long-term assets are financed with long-term liabilities, imputed long-term debt, and imputed equity, if needed. To meet the Federal Deposit Insurance Corporation (FDIC) requirements for a well-capitalized institution, in 2019 equity is imputed at 5.0 percent of total assets and 10.4 percent of risk-weighted assets, and 2018 equity is imputed at 5.0 percent of total assets and 11.3 percent of risk-weighted assets.

The Board's Payment System Risk policy reflects the international standards for financial market infrastructures developed by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions in the Principles for Financial Market Infrastructures. The policy outlines the expectation that the Fedwire Services will meet or exceed the applicable risk-management standards. Although the Fedwire Funds Service does not face the risk that a business shock would cause the service to wind down in a disorderly manner and disrupt the stability of the financial system, in order to foster competition with private-sector financial market infrastructures, the Reserve Banks' priced services will hold six months of the Fedwire Funds Service's current operating expenses as liquid net financial assets and equity on the pro forma balance sheet and, if necessary, impute additional assets and equity to meet the requirement. The imputed assets held as liquid net financial assets are cash items in process of collection, which are assumed to be invested in federal funds. In

2019 and 2018, there was sufficient assets and equity such that additional imputed balances were not required.

In accordance with ASC 715, *Compensation–Retirement Benefits*, the Reserve Banks record the funded status of pension and other benefit plans on their balance sheets. To reflect the funded status of their benefit plans, the Reserve Banks recognize the deferred items related to these plans, which include prior service costs and actuarial gains or losses, on the balance sheet. This results in an adjustment to the pension and other benefit plan liabilities related to priced services and the recognition of an associated deferred tax asset with an offsetting adjustment, net of tax, to accumulated other comprehensive income (AOCI), which is included in equity. The Reserve Bank priced services recognized a pension asset, which is a component of accrued benefit costs, of $17.0 million in 2019 and a pension asset of $18.8 million in 2018.[12] The change in the funded status of the pension and other benefit plans resulted in a corresponding decrease in accumulated other comprehensive loss of $9.4 million in 2019.

(4) Revenue

Revenue represents fees charged to depository institutions for priced services and is realized from each institution through direct charges to an institution's account.

(5) Operating Expenses

Operating expenses consist of the direct, indirect, and other general administrative expenses of the Reserve Banks for priced services (that is, Check, ACH, FedWire Funds, and FedWire Securities) and the expenses of the Board related to the development of priced services. Board expenses were $7.0 million in 2019 and $5.1 million in 2018. Operating expenses exclude amounts related to the development of the FedNow Service.

In accordance with ASC 715, the Reserve Bank priced services recognized qualified pension-plan operating expenses of $28.8 million in 2019 and $26.5 million in 2018. Operating expenses also include the nonqualified net pension expense of $9.9 million in 2019 and $5.0 million in 2018. The 2019 pension expense increase reflects the impact of adopting an update to ASC 715 requiring disaggregation of other components of net benefit expense from service costs. Reserve Banks prospectively adopted this accounting change in 2019. If other components of net benefit cost had been disaggregated from service costs during 2018, qualified pension-plan operating expenses would have increased $8.4 million to $34.8 million. ASC 715 does not change the systematic approach required by generally accepted accounting principles to recognize the expenses associated with the Reserve Banks' benefit plans in the income statement. As a result, these expenses do not include amounts related to changes in the funded status of the Reserve Banks' benefit plans, which are reflected in AOCI.

The income statement by service reflects revenue, operating expenses, imputed costs, other income and expenses, and cost recovery. The tax rate associated with imputed taxes was 22.2 percent for 2019 and 22.7 percent for 2018.

(6) Imputed Costs

Imputed costs consist of income taxes, return on equity, interest on debt, sales taxes, and interest on float. Many imputed costs are derived from the PSAF

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[12] The prior year pension asset was restated from $19.1 million to $18.8 million because of revisions to the calculation methodology.

model. The 2019 cost of short-term debt imputed in the PSAF model is based on nonfinancial commercial paper rates; the cost of imputed long-term debt is based on Merrill Lynch Corporate and High Yield Index returns; and the effective tax rate is derived from U.S. publicly traded firm data, which serve as the proxy for the financial data of a representative private-sector firm. The after-tax rate of return on equity is based on the returns of the equity market as a whole.[13]

Interest is imputed on the debt assumed necessary to finance priced-service assets. These imputed costs are allocated among priced services according to the ratio of operating expenses, less shipping expenses, for each service to the total expenses, less the total shipping expenses, for all services.

Interest on float is derived from the value of float to be recovered for the check and ACH services, Fedwire Funds Service, and Fedwire Securities Services through per-item fees during the period. Float income or cost is based on the actual float incurred for each priced service.

The following shows the daily average recovery of actual credit float by the Reserve Banks for 2019 and 2018, in millions of dollars:[14]

	2019	2018
Total float	-225.3	-254.6
Float not related to priced services[1]	-9.7	-0.1
Float subject to recovery through per-item fees	-215.6	-254.5

[1] Float not related to priced services includes float generated by services to government agencies and by other central bank services.

Float that is created by account adjustments due to transaction errors and the observance of nonstandard holidays by some depository institutions was recovered from the depository institutions through charging institutions directly. Float subject to recovery is valued at the federal funds rate. Certain ACH funding requirements and check products generate credit float; this float has been subtracted from the cost base subject to recovery in 2019 and 2018.

(7) Other Income and Expenses

Other income consists of income on imputed investments. Excess financing resulting from additional equity imputed to meet the FDIC well-capitalized requirements is assumed to be invested and earning interest at the 3-month Treasury bill rate.

(8) Cost Recovery

Annual cost recovery is the ratio of revenue, including other income, to the sum of operating expenses, imputed costs, imputed income taxes, and after-tax targeted return on equity.

[13] See Federal Reserve Bank Services Private-Sector Adjustment Factor, 77 Fed. Reg. 67,007 (November 8, 2012), https://www.gpo.gov/fdsys/pkg/FR-2012-11-08/pdf/2012-26918.pdf, for details regarding the PSAF methodology change.

[14] Credit float occurs when the Reserve Banks debit the paying bank for checks and other items prior to providing credit to the depositing bank.

6 Consumer and Community Affairs

The Federal Reserve is committed to promoting fair and transparent financial service markets, protecting consumers' rights, and ensuring that Federal Reserve policies and research take consumer and community perspectives into account. The Board is charged with identifying and monitoring consumer and community development issues, and makes sure the voices of consumers and communities are heard at the Fed. The Board supports consumer financial inclusion and community development through targeted work in supervision, regulatory policy, and research and analysis.

To fulfill its consumer protection and community development function, the Federal Reserve performs several key roles:

- Formulating and carrying out supervision and examination policy to ensure that financial institutions under its jurisdiction[1] comply with consumer protection laws and regulations and meet requirements of community reinvestment laws and regulations;
- writing and reviewing regulations that implement consumer protection and community reinvestment laws;
- conducting research, analysis, and data collection to identify and assess emerging consumer and community development issues to understand opportunities and risks when making policy decisions; and
- engaging, convening, and informing key stakeholders to identify issues and advance what works in community reinvestment and consumer protection.

Supervision and Examinations

The Federal Reserve's consumer protection supervision program includes a review of state member banks' performance under the Community Reinvestment Act (CRA) as well as assessment of compliance with and enforcement of a wide range of consumer protection laws and regulations, for example, those related to fair lending, unfair or deceptive acts or practices (UDAP), and flood insurance.

The Board's Division of Consumer and Community Affairs develops policies that govern, and provide oversight of, the Reserve Banks' programs for consumer compliance supervision and examination of state member banks and bank holding companies (BHCs). In addition, the Board coordinates with the prudential regulators and the Consumer Financial Protection Bureau (CFPB) as part of the supervisory coordination requirements under the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), and ensures that consumer compliance risk is appropriately incorporated into financial institutions' consolidated risk-management programs. The Board also develops and delivers examiner training; analyzes bank and BHC applica-

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[1] The Federal Reserve has examination and enforcement authority for federal consumer financial laws and regulations for insured depository institutions with assets of $10 billion or less that are state member banks and not affiliates of covered institutions, as well as for conducting CRA examinations for all state member banks regardless of size. The Federal Reserve Board also has examination and enforcement authority for certain federal consumer financial laws and regulations for insured depository institutions that are state member banks with $10 billion or less in assets, while the Consumer Financial Protection Bureau has examination and enforcement authority for many federal consumer financial laws and regulations for insured depository institutions with over $10 billion in assets and their affiliates (covered institutions), as mandated by the Dodd-Frank Act. For data on state member banks and other institutions supervised by the Federal Reserve (including number and assets of), see section 4, "Supervision and Regulation."

Agency and branch offices of foreign banking organizations, Edge Act corporations, and agreement corporations fall under the Federal Reserve's purview for consumer compliance activities. An agreement corporation is a type of bank chartered by a state to engage in international banking. The bank agrees with the Federal Reserve Board to limit its activities to those allowed by an Edge Act corporation. An Edge Act corporation is a banking institution with a special charter from the Federal Reserve to conduct international banking operations and certain other forms of business without complying with state-by-state banking laws. By setting up or investing in Edge Act corporations, U.S. banks are able to gain portfolio exposure to financial investing operations not available under standard banking laws.

tions related to consumer protection, convenience and needs, and the CRA; and processes consumer complaints.

Examinations are the Federal Reserve's primary method of ensuring compliance with consumer protection laws and assessing the adequacy of consumer compliance risk-management systems within regulated entities. During 2019, the Reserve Banks completed 238 consumer compliance examinations of state member banks, 221 CRA examinations of state member banks, 19 examinations of foreign banking organizations, 1 examination of Edge Act corporations, and no examinations of agreement corporations.

In February 2019, the Board revised its ratings system for large financial institutions that represents a supervisory evaluation of whether a firm possesses sufficient financial and operational strength and resilience to maintain safe-and-sound operations and comply with laws and regulations, including those related to consumer protection, through a range of conditions.[2] The Board also released a letter to clarify the supervisory rating system to be applied for holding companies with less than $100 billion in consolidated assets.[3]

Supervisory Matters

Enforcement Activities

Fair Lending and UDAP Enforcement

The Board is committed to ensuring that the institutions it supervises comply fully with the federal fair lending laws—the Equal Credit Opportunity Act (ECOA) and the Fair Housing Act (FHA). The ECOA prohibits creditors from discriminating against any applicant, in any aspect of a credit transaction, on the basis of race, color, religion, national origin, sex, marital status, or age. In addition, creditors may not discriminate against an applicant because the applicant receives income from a public assistance program or has exercised, in good faith, any right under the Consumer Credit Protection Act. The FHA prohibits discrimination in residential real-estate-related transactions—including the making and purchasing of mortgage loans—on the basis of race, color, religion, sex, handicap, familial status, or national origin.

The Board supervises all state member banks for compliance with the FHA. The Board and the CFPB both have supervisory authority for compliance with the ECOA. For state member banks with assets of $10 billion or less, the Board has the authority to enforce the ECOA. For state member banks with assets over $10 billion, the CFPB has this authority.

With respect to the Federal Trade Commission Act (FTC Act), which prohibits unfair or deceptive acts or practices, the Board has supervisory and enforcement authority over all state member banks, regardless of asset size. The Board is committed to ensuring that the institutions it supervises comply fully with the prohibition on unfair or deceptive acts or practices as outlined in the FTC Act. An act or practice may be found to be unfair if it causes or is likely to cause substantial injury to consumers that is not reasonably avoidable by consumers and not outweighed by countervailing benefits to consumers or to competition. A representation, omission, or practice is deceptive if it is likely to mislead a consumer acting reasonably under the circumstances and is material, and thus likely to affect a consumer's conduct or decision regarding a product or service.

Fair lending and UDAP reviews are conducted regularly within the supervisory cycle. Additionally, examiners may conduct fair lending and UDAP reviews outside of the usual supervisory cycle, if warranted by fair lending and UDAP risk. When examiners find evidence of potential discrimination or potential UDAP violations, they work closely with the Board's Fair Lending or UDAP Enforcement staff, who provide additional legal and statistical expertise and ensure that fair lending and UDAP laws are enforced consistently and rigorously throughout the Federal Reserve System.

With respect to fair lending, pursuant to the ECOA, if the Board has reason to believe that a creditor has engaged in a pattern or practice of discrimination in violation of the ECOA, the matter must be referred to the Department of Justice (DOJ). The DOJ reviews the referral and determines whether further investigation is warranted. A DOJ investigation may result in a public civil enforcement action. Alternatively, the DOJ may decide to return the matter to the Board for administrative enforcement. When a matter is returned to the Board, staff ensure that the

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2 See https://www.federalreserve.gov/supervisionreg/srletters/sr1903.htm.

3 See https://www.federalreserve.gov/supervisionreg/srletters/sr1904.htm.

institution takes all appropriate corrective action. In 2019, the Board referred one fair lending matter to DOJ.

If there is a fair lending violation that does not constitute a pattern or practice under the ECOA or a UDAP violation, the Federal Reserve takes action to ensure that the violation is remedied by the bank. The Federal Reserve frequently uses informal supervisory tools (such as memoranda of understanding between banks' boards of directors and the Reserve Banks, or board resolutions) to ensure that violations are corrected. When necessary, the Board can bring public enforcement actions.

The Board brought one public enforcement action for UDAP violations in 2019, issuing a consent order against a bank for deceptive and unfair practices related to the bank's operation and billing of certain add-on products. The order required the bank to validate that it has provided appropriate restitution to more than 30,000 customers and to take other corrective actions.[4] The bank claimed to have paid $8.8 million in restitution prior to the entry of the consent order. The bank also reported that it would pay additional restitution to the affected customers pursuant to the terms of the consent order.

Given the complexity of this area of supervision, the Federal Reserve seeks to provide transparency on its perspectives and processes to the industry and the public. Fair Lending and UDAP Enforcement staff meet regularly with consumer advocates, supervised institutions, and industry representatives to discuss fair lending and UDAP issues and receive feedback. Through this outreach, the Board is able to address emerging fair lending and UDAP issues and promote sound fair lending and UDAP compliance. This includes staff participation in numerous meetings, conferences, and trainings sponsored by consumer advocates, industry representatives, and interagency groups.

Flood Insurance

The National Flood Insurance Act imposes certain requirements on loans secured by buildings or mobile homes located in, or to be located in, areas determined to have special flood hazards. Under the Federal Reserve's Regulation H, which implements the act, state member banks are generally prohibited from making, extending, increasing, or renewing any such loan unless the building or mobile home, as well as any personal property securing the loan, are covered by flood insurance for the term of the loan. The law requires the Board and other federal financial institution regulatory agencies to impose civil money penalties when they find a pattern or practice of violations of the regulation.

In 2019, the Federal Reserve issued four formal consent orders and assessed $162,000 in civil money penalties against state member banks to address violations of the flood regulations. These statutorily mandated penalties were forwarded to the National Flood Mitigation Fund held by the Treasury for the benefit of the Federal Emergency Management Agency.

Community Reinvestment Act

The CRA requires that the Federal Reserve and other federal banking regulatory agencies encourage financial institutions to help meet the credit needs of the local communities where they do business, consistent with safe-and-sound operations. To carry out this mandate, the Federal Reserve

- examines state member banks to assess their performance under the CRA;
- considers banks' CRA performance in context with other supervisory information when analyzing applications for mergers and acquisitions; and
- disseminates information about community development practices to bankers and the public through community development offices at the Reserve Banks.[5]

The Federal Reserve assesses and rates the CRA performance of state member banks in the course of examinations conducted by staff at the 12 Reserve Banks. During the 2019 reporting period, the Reserve Banks completed 221 CRA examinations of state member banks. Of those banks examined, 24 were rated "Outstanding," 196 were rated "Satisfactory," none were rated "Needs to Improve," and 1 was rated "Substantial Non-Compliance."

The Board is committed to strong, interagency CRA regulations that help banks meet the credit needs of the local low- and moderate-income (LMI) communities they serve and align with the ways financial products and services are delivered. Toward this end, the Federal Reserve has been actively engaged with

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[4] For more information, see https://www.federalreserve.gov/newsevents/pressreleases/files/orders20191119a2.pdf.

[5] For more information on various community development activities of the Federal Reserve System, see https://www.fedcommunities.org/.

the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) in working to update the CRA regulations to better reflect structural and technological changes in the banking industry and provide clarity in supervisory expectations.

Throughout 2019, the Board's CRA team focused on modernizing the CRA. In particular, the Board worked with the OCC and the FDIC to analyze potential regulatory approaches in order to develop interagency standards for performance under the CRA, with the goals of tailoring regulations to bank size and business model while accounting for the different credit needs of the local communities—including LMI areas—that are at the heart of the statute.[6]

Board staff gathered extensive CRA performance data to inform potential policy opportunities. Governor Lael Brainard shared this detailed analysis in public remarks in January 2020, and the Board released datasets that informed its analysis in March 2020.[7] In addition, the Board published a report on a series of external engagement meetings that were held in October 2018 through January 2019 with bankers and community members to collect information to help identify issues and potential solutions that informed its work to revise the regulations.[8] The Board also continued to update its website to provide access to information and educational materials on the CRA (https://www.federalreserve.gov/consumerscommunities/cra_about.htm).

Mergers and Acquisitions

The Board is required by law to consider specific factors when evaluating proposed mergers and acquisitions, including competitive considerations, financial condition, managerial resources (including compliance with laws and regulations), convenience and needs of the community to be served (including the record of performance under the CRA), and financial stability. In evaluating bank applications, the Federal Reserve relies on the banks' overall compliance record, including recent fair lending examinations. In addition, the Federal Reserve considers the CRA records of the relevant depository institutions, assessments of other relevant supervisors, the supervisory views of examiners, and information provided by the applicant and public commenters. If warranted, the Federal Reserve will also conduct premembership exams for a transaction in which an insured depository institution will become a state member bank or in which the surviving entity of a merger would be a state member bank.[9]

The Board provides information on its actions associated with these merger and acquisition transactions, issuing press releases and Board Orders for each.[10] The Federal Reserve also publishes semiannual reports that provide pertinent information on applications and notices filed with the Federal Reserve.[11] The reports include statistics on the number of proposals that were approved, denied, and withdrawn as well as general information about the length of time taken to process proposals. Additionally, the reports discuss common reasons that proposals have been withdrawn from consideration. Furthermore, the reports compare processing times for merger and acquisition proposals that received adverse public comments and those that did not.

In 2019, the Board amended its Rules Regarding Delegation of Authority to delegate to the Federal Reserve Banks authority to approve certain types of applications, including applications and notices regarding mergers and acquisitions that are within competitive criteria described in the delegation rules.[12] The Board expects that the revised Rules Regarding Delegation of Authority will improve efficiency and timeliness in the applications process.[13]

[6] In December, the FDIC and OCC issued a notice of proposed rulemaking (NPR) to seek public comment on their proposal to modernize CRA. Although the Board did not join the NPR, staff will analyze comments submitted in response to the NPR to inform the Board's consideration of potential options to strengthen regulatory and supervisory processes that benefit low- and moderate-income communities. For the FDIC and OCC's NPR, see https://www.federalregister.gov/documents/2020/01/09/2019-27940/community-reinvestment-act-regulations.

[7] For remarks, see https://www.federalreserve.gov/newsevents/speech/brainard20200108a.htm. For press release and data, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200306a.htm.

[8] See *Perspectives from Main Street: Stakeholder Feedback on Modernizing the Community Reinvestment Act*, at https://www.federalreserve.gov/publications/stakeholder-feedback-on-modernizing-the-community-reinvestment-act.htm.

[9] In October 2015, the Federal Reserve issued guidance providing further explanation on its criteria for waiving or conducting such pre-merger or pre-membership examinations. For more information, see https://www.federalreserve.gov/supervisionreg/srletters/SR1511.htm.

[10] To access the Board's Orders on Banking Applications, see https://www.federalreserve.gov/newsevents/pressreleases.htm.

[11] For these reports, see https://www.federalreserve.gov/supervisionreg/semiannual-reports-banking-applications-activity.htm.

[12] 84 Fed. Reg. 31,701 (July 3, 2019), https://www.govinfo.gov/content/pkg/FR-2019-07-03/pdf/2019-13970.pdf.

[13] For more information, see https://www.federalreserve.gov/supervisionreg/srletters/SR1910.htm.

Coordination with the Consumer Financial Protection Bureau

During 2019, staff continued to coordinate on supervisory matters with the CFPB in accordance with the Interagency Memorandum of Understanding on Supervision Coordination with the CFPB. The agreement is intended to establish arrangements for coordination and cooperation among the CFPB and the OCC, the FDIC, the National Credit Union Association (NCUA), and the Board of Governors. The agreement strives to minimize unnecessary regulatory burden and to avoid unnecessary duplication of effort and conflicting supervisory directives amongst the prudential regulators. The regulators work cooperatively to share exam schedules for covered institutions and covered activities to plan simultaneous exams, provide final drafts of examination reports for comment, and share supervisory information.

Coordination with Other Federal Banking Agencies

The Board regularly coordinates with other federal banking agencies, including through the development of interagency guidance, in order to clearly communicate supervisory expectations. The Federal Reserve also works with the other member agencies of the Federal Financial Institutions Examination Council to develop consistent examination principles, standards, procedures, and report formats.[14] In addition, the Federal Reserve participates in the Joint Task Force on Fair Lending, composed of all of the prudential regulators, the CFPB, the DOJ, and the Department of Housing and Urban Development (HUD). In 2019, the banking agencies continued to work together on various initiatives. In addition, interagency guidance on reporting mortgage lending data under the Home Mortgage Disclosure Act was issued in April.[15] In December, the agencies jointly issued statements that provided guidance to the industry on consumer compliance matters relating to the use of alternative data in credit underwriting that focused on consumer protection implications and highlighted potential benefits and risks.[16]

Updating Examination Procedures

Throughout 2019, Board staff worked with other agencies to develop and revise examination procedures related to various consumer compliance regulations. In April, the Board issued examination procedures under Regulations E and Z related to consumer protections for prepaid accounts, including those with covered credit features ("hybrid prepaid-credit cards"), applicable to institutions supervised by the Federal Reserve with total consolidated assets of $10 billion or less.[17] Also in April, the Board issued revised examination procedures for use in connection with HMDA data collected since January 1, 2018, pursuant to the CFPB's rules, amendments to Regulation C, and amendments to HMDA in the Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA).[18] In August, the Board published examination procedures to reflect a final interagency rule to address the private flood insurance provisions of the Biggert-Waters Flood Insurance Reform Act of 2012.[19]

Outreach

The Federal Reserve maintains a comprehensive public outreach program to promote consumer protection, financial inclusion, and community reinvestment. During 2019, the Federal Reserve continued to enhance its program, offering several Outlook Live seminars. Outlook Live seminars focused on delivering timely, relevant compliance information to the banking industry as well as to experienced examiners and other regulatory personnel.[20]

The Federal Reserve offered the following Outlook Live seminars:

- "Regulation E – Error Resolution Examiner Insights"
- "2019 Fair Lending Interagency Webinar"
- "Interagency Flood Insurance Update on Private Flood Insurance Rule"

Additionally, in 2019 three issues of *Consumer Compliance Outlook* were released, discussing regulatory and supervisory topics of interest to compliance professionals. This publication is distributed to state member banks, as well as bank and savings and

[14] For more information, see https://www.ffiec.gov/.

[15] See https://www.federalreserve.gov/supervisionreg/caletters/caltr1904.htm.

[16] See https://www.federalreserve.gov/supervisionreg/caletters/caltr1911.htm.

[17] See https://www.federalreserve.gov/supervisionreg/caletters/caltr1906.htm and https://www.federalreserve.gov/supervisionreg/caletters/caltr1907.htm.

[18] See https://www.federalreserve.gov/supervisionreg/caletters/caltr1905.htm.

[19] See https://www.federalreserve.gov/supervisionreg/caletters/caltr1910.htm.

[20] For more information and to download the seminars, see https://consumercomplianceoutlook.org/outlook-live/.

Box 1. Recognizing and Managing Consumer Protection in Fintech Services

The Federal Reserve recognizes the promise of technology and innovation—enabled largely by fintech and Big Tech—to transform the financial system and reduce frictions and delays in payments while preserving consumer protections, data privacy and security, and financial stability. The potential benefits to consumers, small businesses, and financial institutions of all sizes include enhanced product offerings, speed, and lower transaction costs that can expand responsible and socially beneficial access to financial services.

Although the expansion and pace of innovations in financial services technology offers the conveniences of seamless integration and lower costs, it introduces risks as well. In 2019, the Federal Reserve provided guidance and publications that discussed techniques to manage potential consumer protection risks related to technology when providing financial services.

- In December 2019, the Board joined four other agencies in issuing a joint statement on using alternative data in credit underwriting that addresses potential risks and benefits from the use of alternative data in underwriting (https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20191203b1.pdf). The statement noted that alternative data may expand access to credit for certain consumers and enable them to obtain additional loan products or more favorable pricing or terms. It also explained that a well-designed compliance management program provides for a thorough analysis of relevant consumer protection laws and regulations to ensure that financial institutions understand the opportunities, risks, and compliance requirements before using alternative data.
- The December 2019 *Consumer Compliance Supervision Bulletin* (https://www.federalreserve.gov/publications/2019-december-consumer-compliance-supervision-bulletin.htm) provided high-level summaries of consumer compliance issues associated with fintech risk to enhance financial institution management's understanding of common fact patterns and emerging risks and support appropriate and efficient fintech risk-management practices. This publication helps enhance transparency of the Federal Reserve's consumer compliance supervisory activities by (1) sharing information about its examiners' observations and noteworthy developments related to consumer protection, and (2) providing practical steps that institutions may consider when addressing certain consumer compliance risks.
- The third issue 2019 of *Consumer Compliance Outlook* featured the article "From Catalogs to Clicks: The Fair Lending Implications of Targeted, Internet Marketing" (https://www.consumercomplianceoutlook.org/2019/third-issue/from-catalogs-to-clicks-the-fair-lending-implications-of-targeted-internet-marketing/). This article highlighted consumer protection and financial inclusion concerns, including fair lending risks of steering and redlining, and focused on the increased use of internet-based marketing practices to target audiences by personal characteristics, geography, or even hobbies. As discussed in the article, such a practice may explicitly or implicitly classify users by prohibited characteristics protected under fair lending laws—such as race, national origin, or sex—and risk making financial inclusion out of reach for millions of consumers.

loan holding companies supervised by the Federal Reserve, among other subscribers.[21]

In December, the Board published *Consumer Compliance Supervision Bulletin*, which provides bankers and others interested in consumer protection with high-level summaries of pertinent supervisory issues and practical steps for institutions to consider when managing consumer compliance risks.

Box 1 highlights supervisory-related outreach activities focused on fintech and use of alternative data.

Examiner Training

The Board's Examiner Training program supports the ongoing professional development of consumer compliance supervisory staff, from an initial introduction to the Federal Reserve System through the development of proficiency in consumer compliance topics sufficient to earn an examiner's commission. The goal of these efforts is to ensure that examiners have the skills necessary to meet their supervisory responsibilities now and in the future.

Consumer Compliance Examiner Commissioning Program

An overview of the Federal Reserve System's Examiner Commissioning Program for assistant examiners is set forth in supervision and regulation (SR)/community affairs (CA) letter SR 17-6/CA 17-1, "Overview of the Federal Reserve's Supervisory Education Programs."[22]

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[21] For more information and to access the publications, see https://consumercomplianceoutlook.org/.

[22] See https://www.federalreserve.gov/supervisionreg/srletters/sr1706.htm.

The Consumer Compliance Examiner Commissioning Program is designed to provide an examiner with (1) a foundation for supervision in the Federal Reserve System and (2) the skills necessary to effectively perform examiner-in-charge responsibilities at a non-complex community bank. On average, examiners progress through a combination of classroom offerings, self-paced learning, virtual instruction, and on-the-job training over a period of two to three years. Achievement is measured by completing the required course content, demonstrating adequate on-the-job knowledge, and passing a professionally validated proficiency examination. In 2019, 23 examiners passed the Consumer Compliance Proficiency Examination. The combination of multiple training delivery channels offers learners and Reserve Banks an ability to customize learning and meet training demands more individually and cost effectively.

Continuing Professional Development

In addition to providing core examiner training, the Examiner Staff Development function emphasizes the importance of continuing, career-long learning. Opportunities for continuing professional development include special projects and assignments, self-study programs, rotational assignments, instruction at System schools, mentoring programs, and a consumer compliance examiner forum held every 18 months. Additionally, staff have created a learning resource for examiners moving into examination responsibilities at large financial institutions.

In 2019, the System continued to offer Rapid Response sessions. Introduced in 2008, these sessions offer examiners webinars and case studies on emerging issues or urgent training needs that result from, for example, the implementation of new laws or regulations. Three Rapid Response sessions with an exclusive consumer compliance focus were designed, developed, and presented to System staff during 2019. Additionally, seven Rapid Response sessions were offered that addressed a broader range of supervisory issues, including consumer compliance issues.

Responding to Consumer Complaints and Inquiries

The Federal Reserve investigates complaints against state member banks and selected nonbank subsidiaries of BHCs (Federal Reserve regulated entities), and forwards complaints against other creditors and businesses to the agency with relevant authority. Each Reserve Bank investigates complaints against Federal Reserve regulated entities in its District. The Federal Reserve also responds to consumer inquiries on a broad range of banking topics, including consumer protection questions.

Federal Reserve Consumer Help (FRCH) processes consumer complaints and inquiries centrally. In 2019, FRCH processed 33,782 cases. Of these cases, 19,812 were inquiries and the remainder (13,970) were complaints, with most cases received directly from consumers. Approximately 8.83 percent of cases were referred to the Federal Reserve from other federal and state agencies.

While consumers can contact FRCH by a variety of different channels, more than half of the FRCH consumer contacts occurred by telephone (56 percent). Nevertheless, 44 percent (14,714) of complaint and inquiry submissions were made electronically (via email, online submissions, and fax), and the online form page received 20,778 visits during the year.

Consumer Complaints

Complaints against Federal Reserve regulated entities totaled 3,574 in 2019. Of the total, 85 percent (3,048) were investigated. Fifty-nine percent (1,802) of the investigated complaints involved unregulated practices, and 41 percent (1,246) involved regulated practices. Approximately 2 percent of the total complaints were closed without investigation, pending the receipt of additional information from consumers or withdrawn by the consumer. Thirteen percent of the total complaints were still under investigation in January 2020. (Table 1 shows the breakdown of complaints about regulated practices by regulation or act; table 2 shows complaints by product type.)

Complaints about Regulated Practices

The majority of regulated practices complaints concerned credit card accounts (37 percent), checking accounts (23 percent), and real estate (3 percent).[23] The most common credit card complaints related to inaccurate credit reporting (82 percent), billing error resolution (4 percent), and forgery/fraud (2 percent). The most common checking account complaints related to funds availability not as expected (21 percent), deposit error resolution (16 percent), and disputed withdrawal of funds (14 percent). The most common real estate complaints related to rates and/or fees (22 percent) and flood insurance (18 percent).

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[23] Real estate loans include adjustable-rate mortgages, residential construction loans, open-end home equity lines of credit, home improvement loans, home purchase loans, home refinance/closed-end loans, and reverse mortgages.

Table 1. Investigated complaints against state member banks and selected nonbank subsidiaries of bank holding companies about regulated practices, by regulation/act, 2019

Regulation/act	Number
Regulation AA (Unfair or Deceptive Acts or Practices)	15
Regulation B (Equal Credit Opportunity)	15
Regulation BB (Community Reinvestment)	7
Regulation C (Home Mortgage Disclosure Act)	1
Regulation CC (Expedited Funds Availability)	136
Regulation D (Reserve Requirements)	1
Regulation DD (Truth in Savings)	54
Regulation E (Electronic Funds Transfers)	411
Regulation H (National Flood Insurance Act/Insurance Sales)	10
Regulation P (Privacy of Consumer Financial Information)	14
Regulation V (Fair and Accurate Credit Transactions)	50
Regulation Z (Truth in Lending)	78
Garnishment Rule	6
Homeowners Protection Act of 1998	1
Fair Credit Reporting Act	425
Fair Debt Collection Practices Act	3
Fair Housing Act	9
Real Estate Settlement Procedures Act	6
Right to Financial Privacy Act	1
Servicemembers Civil Relief Act (SCRA)	3
Total	**1,246**

Twenty-one regulated practices complaints alleging credit discrimination on the basis of prohibited borrower traits or rights were received in 2019. Sixteen discrimination complaints were related to the race, color, national origin, or ethnicity of the applicant or borrower. Five discrimination complaints were related to either the age, handicap, familial status, or religion of the applicant or borrower. Of the closed complaints alleging credit discrimination based on a prohibited basis in 2019, there was one with a violation; however, it was not related to illegal credit discrimination.

In 69 percent of investigated complaints against Federal Reserve regulated entities, evidence revealed that institutions correctly handled the situation. Of the remaining 31 percent of investigated complaints, 8 percent were identified errors that were corrected by the bank; 5 percent were deemed violations of law; and the remainder included matters involving litigation or factual disputes, internally referred complaints, or information was provided to the consumer.

Complaints about Unregulated Practices

The Board continued to monitor complaints about banking practices not subject to existing regulations. In 2019, the Board received 1,802 complaints against Federal Reserve regulated entities that involved these unregulated practices. The majority of the complaints were related to electronic transactions/prepaid products (51 percent), checking account activity (21 percent), and credit cards (11 percent).

Complaint Referrals

In 2019, the Federal Reserve forwarded 10,320 complaints to other regulatory agencies and government offices for investigation. The Federal Reserve forwarded 14 complaints to HUD that alleged violations of the FHA and were closed in 2019.[24] The Federal Reserve's investigation of these complaints revealed no instances of illegal credit discrimination.

[24] A memorandum of understanding between HUD and the federal bank regulatory agencies requires that complaints alleging a violation of the FHA be forwarded to HUD.

Table 2. Investigated complaints against state member banks and selected nonbank subsidiaries of bank holding companies about regulated practices, by product type, 2019

Subject of complaint/product type	All complaints		Complaints involving violations	
	Number	Percent	Number	Percent
Total	**1,246**	**100**	**65**	**5**
Discrimination alleged				
Real estate loans	13	1	0	0
Credit cards	0	0	0	0
Other	8	1	1	2
Nondiscrimination complaints				
Checking accounts	286	23	21	32
Real estate loans	37	3	5	8
Credit cards	463	37	1	2
Other	439	35	37	57

Note: Percentages may not sum to 100 due to rounding.

Consumer Inquiries

The Federal Reserve received 19,812 consumer inquiries in 2019 covering a wide range of topics. Consumers were typically directed to other resources, including other federal agencies or written materials, to address their inquiries.

Consumer Laws and Regulations

Throughout 2019, the Board continued to administer its regulatory responsibilities with respect to certain entities and specific statutory provisions of the consumer financial services and fair lending laws. This included drafting regulations and issuing compliance guidance for the industry and the Reserve Banks and fulfilling its role in consulting with the CFPB on consumer financial services and fair lending regulations for which the CFPB has rulemaking responsibility.

Private Flood Insurance Rule

In February 2019, the Board, the Farm Credit Administration, FDIC, NCUA, and OCC issued a final rule to implement the provisions of the Biggert-Waters Flood Insurance Reform Act of 2012. The rule requires regulated institutions to accept certain private flood insurance policies. The final rule also allows institutions to rely on an insurer's written assurance that the policy meets the criteria for a private flood insurance policy that must be accepted. At their discretion, institutions may also accept certain flood insurance policies issued by private insurers that do not meet the criteria for private flood insurance policies that must be accepted. The final rule also allows institutions to accept certain mutual aid plans, subject to agency approval.[25]

Annual Indexing of Exempt Consumer Credit and Lease Transactions

In October 2019, the Board and the CFPB announced the revised dollar thresholds in Regulation Z (Truth in Lending) and Regulation M (Consumer Leasing) that will apply in 2020 for determining exempt consumer credit and lease transactions. These thresholds are set pursuant to statutory changes enacted by the Dodd-Frank Act that require adjusting these thresholds annually based on the annual percentage increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). Transactions at or below the thresholds are subject to the protections of the regulations.[26]

Annual Indexing of Threshold for Small Loan Exemption from Appraisal Requirements for Higher-Priced Mortgage Loans

In October 2019, the Board, the CFPB, and the OCC announced that the threshold for exempting loans from special appraisal requirements for higher-priced mortgage loans would increase for 2020.[27] The Dodd-Frank Act amended the Truth in Lending Act to add special appraisal requirements for higher-priced mortgage loans, including a requirement that creditors obtain a written appraisal based on a physical visit to the home's interior before making a higher-priced mortgage loan. The rules implementing these requirements contain an exemption for loans of $25,000 or less and also provide that the exemption threshold will be adjusted annually to reflect increases in the CPI-W.

Annual Adjustment to CRA Asset-Size Thresholds for Small and Intermediate Small Institutions

In addition, in December the Board, the FDIC, and the OCC announced the annual adjustment to the asset-size thresholds used to define small bank, small savings association, intermediate small bank, and intermediate small savings association under the CRA regulations.[28]

Financial institutions are evaluated under different CRA examination procedures based on their asset-size classification. Those meeting the small and intermediate small institution asset-size thresholds are not subject to the reporting requirements applicable to large banks and savings associations unless they choose to be evaluated as a large institution.

Annual adjustments to these asset-size thresholds are based on the change in the average of the CPI-W, not seasonally adjusted, for each 12-month period ending in November, with rounding to the nearest million.

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[25] For more information, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190212a.htm.

[26] For more information, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191031b.htm.

[27] For more information, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191031a.htm.

[28] For more information, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20191231a.htm.

As a result of the 1.62 percent increase in the CPI-W for the period ending in November 2019, the definitions of small and intermediate small institutions for CRA examinations were changed as follows:

- "Small bank" or "small savings association" means an institution that, as of December 31 of either of the prior two calendar years, had assets of less than $1.305 billion.
- "Intermediate small bank" or "intermediate small savings association" means a small institution with assets of at least $326 million as of December 31 of both of the prior two calendar years and less than $1.305 billion as of December 31 of either of the prior two calendar years.

These asset-size threshold adjustments took effect on January 1, 2020.

Consumer Research and Analysis of Emerging Issues and Policy

Throughout 2019, the Board analyzed emerging issues in consumer financial services policies and practices in order to understand their implications for the market-risk surveillance and supervisory policies that are core to the Federal Reserve's functions. This research and analysis also provided insight into consumer financial decisionmaking.

Researching Issues Affecting Consumers and Communities

In 2019, the Board explored various issues related to consumers and communities by convening experts, conducting original research, and fielding surveys. The information gleaned from these undertakings provided insights into the factors affecting consumers and households.

Household Economics and Decisionmaking

In order to better understand consumer decisionmaking in the rapidly evolving financial services sector, the Board periodically conducts internet panel surveys to gather data on consumers' experiences and perspectives on various issues of interest.

Results of the Board's sixth annual Survey of Household Economics and Decisionmaking (SHED) were published in the *Report on the Economic Well-Being of U.S. Households in 2018*, released in May 2019. The Board launched the survey to understand better consumer decisionmaking in the wake of the Great Recession, with the aim to capture a snapshot of the financial and economic well-being of U.S. households. In doing so, the SHED collects information on households that is not readily available from other sources or is not available in combination with other variables of interest.

The survey asked respondents about specific aspects of their financial lives, including the following areas:

- employment and informal work
- income and savings
- economic preparedness
- banking and credit
- housing and living arrangements
- education and human capital
- education debt and student loans
- retirement

The findings underscored the overall economic recovery and expansion over the six years of the survey. When asked about their finances, 11,000 adults surveyed in 2018 were largely positive, reflecting substantial gains since the survey began in 2013. When asked about their overall economic well-being, 75 percent of U.S. adults said they were "doing okay" or "living comfortably"—up 12 percentage points from 2013. Despite the improved finances of many adults, the survey continued to detect areas of financial distress as well as persistent differences by race, education level, and, in some cases, geography. Nearly 8 in 10 whites reported doing at least okay financially, compared to two-thirds of blacks and Hispanics.

A new topic in the 2019 report—aimed at understanding the experiences of bank customers—was difficulty accessing funds in their bank accounts. Thirteen percent of those with a bank account had at least one problem accessing funds in their account in the prior year. Problems with a bank website or mobile app (7 percent) and delays in when funds were available to use (6 percent) were the most common problems cited. Those with volatile income and low savings were more likely to experience these problems.

Community Development Research Conference

Every two years, the Board and the 12 Federal Reserve Banks collaborate to host the Federal

Reserve System Community Development Research Conference. These conferences convene researchers, policymakers, and practitioners across sectors to consider important issues that low- to moderate-income people and communities face, exploring the latest research to inform effective strategies to advance opportunity for economically vulnerable households and areas.

In 2019, the System hosted its 11th biennial conference, "Renewing the Promise of the Middle Class."[29] Research and presentations focused on

- emerging trends in education, labor practices, entrepreneurship, housing, credit, wealth, indebtedness, and other developments affecting the middle class;
- policy innovations and legacies that either encourage or discourage the creation of an inclusive middle class; and
- actions by individuals and institutions, including governments, financial institutions, community groups, businesses, and nonprofits, to create new and enduring paths to the middle class.

The conference featured keynote remarks by Federal Reserve Chair Jerome Powell, Federal Reserve Bank of Chicago President Charles Evans, Federal Reserve Board Governor Lael Brainard, and City Colleges of Chicago Chancellor Juan Salgado.

Analysis of Emerging Issues

Board staff analyze data and anticipate trends, monitor legislative activity, form working groups, and organize expert roundtables to identify emerging consumer risks and inform supervision, research, and policy. In 2019, the Board analyzed a broad range of issues in financial services markets that potentially pose risks to consumers:

- *Auto lending*: Continued to develop and maintain tools for monitoring developments in the auto finance market and their impact on consumers, especially subprime auto borrowers.
- *Consumer risk workshop*: Hosted a consumer risk-focused workshop in June for staff from across the Board, Reserve Banks, and other federal agencies. Discussion topics included defining consumer risk in a post-crisis environment, identifying stress in the household balance sheet, and using data in novel ways to signal consumer risk.
- *Housing*: Tracked general housing market trends, with a particular focus on the various factors limiting new housing supply, as well as on state and local initiatives designed to alleviate area housing shortages.
- *Small business lending*: Monitored credit availability for smaller firms that often lack the financing options and in-house financial expertise of larger firms.
- *Student lending*: Continued to analyze the impact of student loan borrowing on consumers, sharing insights from this work with the Board, other federal agencies, and the public at external conferences. In addition, staff participated in the Treasury Department's Financial Literacy and Education Commission's Postsecondary Education Committee.

See box 2 for information about related publications covering topics of student loans, small business' access to capital, and how online lenders present information about the costs and features of their credit products to prospective borrowers.

Community Development

The Federal Reserve System's Community Development function promotes economic growth and financial stability for underserved households and communities by informing research, policy, and action. Community Development is a decentralized function within the Federal Reserve System, and the Community Affairs Officers at each of the 12 Reserve Banks design strategies to respond to the specific needs in their respective Districts. Board staff provide oversight for alignment with Board objectives and coordination of System priorities.

The Economics of Place

In 2019, economic growth and employment were at record levels. However, some lower-income populations and communities have not fully realized advancement as others. The Community Development function at the Board and the Reserve Banks promotes efforts to support new ways to advance the economic outcomes of people and places where economic challenges remain.

[29] For more information, including the agenda and papers, see https://www.chicagofed.org/region/community-development/2019-federal-reserve-system-community-development-research-conference.

Box 2. Consumer and Community Outreach Highlights and Publications in 2019

The Board supports consumer financial inclusion and community development through targeted work in research and analysis, supervision, and regulatory policy. It also conducts outreach to provide various stakeholders with information and resources that support their roles in consumer protection, financial inclusion, and community reinvestment. Highlights of 2019 Federal Reserve outreach activities and related publications are below.

- Throughout 2019, the Federal Reserve System hosted 14 *Fed Listens* events, including a research conference in June 2019 at the Federal Reserve Bank of Chicago. Reserve Banks planned additional public events around the country to solicit a wide range of perspectives from diverse stakeholders on issues related to the job market, inflation, and central bank communications to the broader economy. The events were part of a comprehensive and public review of the Board's monetary policy strategy, tools, and communications practices—as a means to understand better how monetary policy affects consumers' lives. See https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-fed-listens-events.htm.
- In January, the Federal Reserve launched *Consumer & Community Context*, an article series targeting a general audience that features original analysis about the financial conditions and experiences of consumers and communities, including traditionally underserved and economically vulnerable households and neighborhoods. Themes covered during the year included student loans and small businesses' access to capital. See https://www.federalreserve.gov/publications/consumer-community-context.htm.
- The Federal Reserve System's 11th biennial Community Development Research Conference, "Renewing the Promise of the Middle Class," took place in May in Washington, D.C. The conference featured research on challenges faced by low- and moderate-income families when moving into the middle class, as well as threats to the economic security of middle-class households. See https://www.chicagofed.org/region/community-development/2019-federal-reserve-system-community-development-research-conference.
- Between October 2018 and January 2019, the Federal Reserve System hosted 29 information-gathering roundtables on the current state of, and potential revisions to, the Community Reinvestment Act (CRA). More than 400 participants, including bankers and community groups, shared views that will factor into the Board's consideration of any CRA modernization proposals. Additionally, representatives from the other federal banking agencies with CRA responsibility were invited to attend the roundtables. In June 2019, the Board published a summary of feedback received from bankers and community groups in the report *Perspectives from Main Street: Stakeholder Feedback on Modernizing the Community Reinvestment Act*. See https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190613a.htm.
- In November, the Board released *Perspectives from Main Street: Bank Branch Access in Rural Communities*, a report that examines how rural consumers and small businesses use bank branches and how their communities have been affected by branch closures. Of the counties analyzed in the report, more than half lost bank branches between 2012 and 2017, with some predominantly rural counties experiencing considerable declines. See https://www.federalreserve.gov/publications/bank-branch-access-in-rural-communities.htm.
- In December, the Board, in collaboration with the Federal Reserve Bank of Cleveland, published *Uncertain Terms: What Small Business Borrowers Find When Browsing Online Lender Websites*. The study was conducted in support of the Federal Reserve's ongoing interest in small businesses and the access to credit they need to succeed and grow. It found that nonbank online lenders are becoming more mainstream alternative providers of financing to small businesses and in 2018, nearly one-third of small business owners seeking credit had applied at a nonbank online lender. See https://www.federalreserve.gov/publications/what-small-business-borrowers-find-when-browsing-online-lender-websites.htm.

Perspectives from Main Street

Through its work, the Community Development function also ensures the voices of consumers and communities inform policy and research and solicits diverse views on issues affecting the economy and financial markets. These perspectives help improve research, policies, and transparency.

To that end, the Board released qualitative analysis based on a series of roundtable discussions and listening sessions in 2019 to inform regulatory and

supervisory approaches to the CRA and on bank branching trends in rural areas. Box 2 provides more details about these reports.

Similarly, the Federal Reserve supports access to credit and financial services for communities of color by understanding and promoting the viability of minority depository institutions (MDIs). Most recently, the Board commissioned research that explored how the CRA could better leverage investment in Native American-owned banks and how the evolution of financial technologies and public policy impact the efforts of MDIs in Los Angeles.[30]

[30] For more information, see https://www.fedpartnership.gov/-/media/federal-reserve-resources/research/buckley_kashian_craforindiancoutry_final_073119.pdf and https://www.fedpartnership.gov/-/media/federal-reserve-resources/mdis-evolving-financial-technologies-and-the-challenge-of-governance.pdf.

Appendixes

Federal Reserve System Organization

Congress designed the Federal Reserve System to give it a broad perspective on the economy and on economic activity in all parts of the nation. As such, the System is composed of a central, governmental agency—the Board of Governors—in Washington, D.C., and 12 regional Federal Reserve Banks. This section lists key officials across the System, including the Board of Governors, its officers, Federal Open Market Committee members, several System councils, and Federal Reserve Bank and Branch directors and officers for 2019.

Board of Governors

Members

The Board of Governors of the Federal Reserve System is composed of seven members, who are nominated by the President and confirmed by the Senate. The Chair and the Vice Chair of the Board are also named by the President from among the members and are confirmed by the Senate. This section lists Board members who served in 2019. For a full listing of Board members from 1914 through the present, visit www.federalreserve.gov/aboutthefed/bios/board/boardmembership.htm.

Jerome H. Powell
Chair

Richard H. Clarida
Vice Chair

Randal K. Quarles
Vice Chair for Supervision

Michelle W. Bowman

Lael Brainard

Divisions and Officers

Fifteen divisions support and carry out the mission of the Board of Governors, which is based in Washington, D.C.

Office of Board Members

Michelle A. Smith
Assistant to the Board and Director

Linda L. Robertson
Assistant to the Board

Lucretia M. Boyer
Assistant to the Board

David W. Skidmore
Assistant to the Board

Jennifer C. Gallagher
Special Assistant to the Board for Congressional Liaison

Jon Faust
Senior Special Adviser to the Chair

Joshua H. Gallin
Special Adviser to the Chair

Legal Division

Mark E. Van Der Weide
General Counsel

Richard M. Ashton
Deputy General Counsel

Laurie S. Schaffer
Deputy General Counsel

Jean C. Anderson
Associate General Counsel

Stephanie Martin
Associate General Counsel

Katherine H. Wheatley
Associate General Counsel (through August 1, 2019)

Alison M. Thro
Deputy Associate General Counsel

Cary K. Williams
Deputy Associate General Counsel

Patrick M. Bryan
Assistant General Counsel

Alicia S. Foster
Assistant General Counsel

Benjamin W. McDonough
Assistant General Counsel

Office of the Secretary

Ann Misback
Secretary of the Board

Margaret M. Shanks
Deputy Secretary

Yao-Chin Chao
Assistant Secretary

Michele T. Fennell
Assistant Secretary

Division of International Finance

Steven B. Kamin
Director

Thomas A. Connors
Deputy Director (through May 1, 2019)

Joseph W. Gruber[1]
Deputy Director

Beth Anne Wilson
Deputy Director

Shaghil Ahmed
Senior Associate Director

Brian M. Doyle[2]
Senior Associate Director

Sally M. Davies
Associate Director

Carol Bertaut
Deputy Associate Director

James A. Dahl
Deputy Associate Director

Matteo Iacoviello
Deputy Associate Director

Andrea Raffo
Deputy Associate Director

Paul Wood
Deputy Associate Director

Ricardo Correa
Assistant Director

Stephanie E. Curcuru
Assistant Director

Robert Vigfusson
Assistant Director and Chief

John H. Rogers
Senior Adviser

Brett Berger
Adviser

Division of Financial Stability

Andreas W. Lehnert
Director

Michael T. Kiley[3]
Deputy Director

William F. Bassett
Senior Associate Director

John W. Schindler
Senior Associate Director

Elizabeth Klee
Associate Director

Luca Guerrieri
Deputy Associate Director

Skander J. Van den Heuvel
Deputy Associate Director

Andrew M. Cohen
Assistant Director

Namirembe Mukasa
Assistant Director and Chief of Staff

Chiara Scotti
Assistant Director

Uzma Wahhab
Special Adviser

---

[1] Joseph W. Gruber also served as an adviser to Vice Chair Quarles in 2019.
[2] Brian M. Doyle also served as an adviser to Vice Chair Clarida in 2019.
[3] Michael T. Kiley also served as an adviser in the Office of Board Members in 2019.

Division of Monetary Affairs

Thomas Laubach
Director

James A. Clouse
Deputy Director

Rochelle M. Edge
Deputy Director

Trevor A. Reeve
Deputy Director

David H. Bowman
Senior Associate Director

Gretchen C. Weinbach
Senior Associate Director

Margaret G. DeBoer
Associate Director

Mary T. Hoffman
Associate Director

J. David Lopez-Salido
Associate Director

Matthew M. Luecke
Associate Director

Katherine Tom
Associate Director

Min Wei
Associate Director

Eric C. Engstrom
Deputy Associate Director

Christopher J. Gust
Deputy Associate Director

Karen Brooks
Assistant Director

Michiel De Pooter
Assistant Director

Giovanni Favara
Assistant Director

Etienne Gagnon
Assistant Director

Dan Li
Assistant Director

Laura Lipscomb
Assistant Director

Zeynep Senyuz
Assistant Director

Rebecca Zarutskie
Assistant Director

Antulio Bomfim[4]
Senior Adviser

Jane E. Ihrig
Senior Adviser

Don H. Kim
Senior Adviser

Ellen E. Meade
Senior Adviser

Edward M. Nelson
Senior Adviser

Robert J. Tetlow
Senior Adviser

Egon Zakrajsek
Senior Adviser

Division of Research and Statistics

Stacey Tevlin
Director (as of February 3, 2019)

David W. Wilcox
Director (through February 3, 2019)

Jeffrey C. Campione
Deputy Director

Daniel M. Covitz
Deputy Director

William L. Wascher III
Deputy Director

Eric M. Engen
Senior Associate Director

Joshua H. Gallin
Senior Associate Director

Diana Hancock
Senior Associate Director

David E. Lebow
Senior Associate Director

Michael G. Palumbo
Senior Associate Director

Elizabeth K. Kiser
Associate Director

John J. Stevens
Associate Director

Burcu Duygan-Bump
Deputy Associate Director

J. Andrew Figura
Deputy Associate Director

Glenn R. Follette
Deputy Associate Director

Erik A. Heitfield
Deputy Associate Director

Patrick E. McCabe
Deputy Associate Director

Norman J. Morin
Deputy Associate Director

Karen M. Pence
Deputy Associate Director

John M. Roberts
Deputy Associate Director

Steven A. Sharpe
Deputy Associate Director

Shane M. Sherlund
Deputy Associate Director

Lillian Shewmaker
Deputy Associate Director

Paul A. Smith
Deputy Associate Director

Gianni Amisano
Assistant Director and Chief

Charles Fleischman
Assistant Director and Chief

Li Geng
Assistant Director and Chief

Paul Lengermann
Assistant Director and Chief

Byron Lutz
Assistant Director and Chief

Raven Molloy
Assistant Director and Chief

[4] Antulio Bonfim also served as an adviser to Chair Powell in 2019.

Matthias Paustian
Assistant Director and Chief

John E. Sabelhaus
Assistant Director (through September 1, 2019)

Gustavo Suarez
Assistant Director and Chief

Clara Vega
Assistant Director and Chief

Eric C. Engstrom
Senior Adviser

S. Wayne Passmore
Senior Adviser

Robin A. Prager
Senior Adviser

Jeremy Rudd
Senior Adviser

Division of Supervision and Regulation

Michael S. Gibson
Director

Jennifer Burns
Deputy Director

Arthur W. Lindo
Deputy Director

James Price
Deputy Director (as of July 15, 2019)

Michael Johnson
Acting Deputy Director (through May 30, 2019)

Mary L. Aiken
Senior Associate Director

Barbara J. Bouchard
Senior Associate Director

Richard N. Ragan
Senior Associate Director

Lisa Ryu
Senior Associate Director

Todd Vermilyea
Senior Associate Director

Kevin M. Bertsch
Associate Director

Nida Davis
Associate Director

Christopher Finger
Associate Director

Jeffery Gunther
Associate Director

Anna L. Hewko
Associate Director

Michael J. Hsu
Associate Director

John Kolb
Associate Director

Molly Mahar
Associate Director

Richard A. Naylor II
Associate Director

Michael Solomon
Associate Director (through July 31, 2019)

Thomas R. Sullivan
Associate Director

John Beebe
Deputy Associate Director

James Ray Diggs
Deputy Associate Director

Mona Elliot
Deputy Associate Director

Constance Horsley
Deputy Associate Director

Kathleen Johnson
Deputy Associate Director

Ryan P. Lordos
Deputy Associate Director

Lara Lylozian
Deputy Associate Director/Chief Accountant

David K. Lynch
Deputy Associate Director

Susan Motyka
Deputy Associate Director

T. Kirk Odegard
Deputy Associate Director

Catherine Piche
Deputy Associate Director

Laurie Priest
Deputy Associate Director

Steven Spurry
Deputy Associate Director

Joanne Wakim
Deputy Associate Director

Suzanne L. Williams
Deputy Associate Director

Karen Caplan
Assistant Director

Keith Coughlin
Assistant Director

Christine Graham
Assistant Director

Keith A. Ligon
Assistant Director

Ann McKeehan
Assistant Director

Brent Richards
Assistant Director

Vaishali Sack
Assistant Director

Robert Sarama
Assistant Director

Catherine A. Tilford
Assistant Director

Donna Webb
Assistant Director

Norah M. Barger
Senior Adviser

Steven P. Merriett
Senior Adviser (through June 30, 2019)

Robert T. Ashman
Adviser

Fang Du
Adviser

William F. Treacy
Adviser

Division of Consumer and Community Affairs

Eric S. Belsky
Director

V. Nicole Bynum
Deputy Director

Anna Alvarez Boyd
Senior Associate Director

Suzanne G. Killian
Senior Associate Director

Carol A. Evans
Associate Director

Phyllis L. Harwell
Associate Director

Marisa A. Reid
Associate Director

David E. Buchholz
Deputy Associate Director

Joseph A. Firschein
Deputy Associate Director

Minh-Duc T. Le
Assistant Director

Caterina Petrucco-Littleton
Assistant Director

Allen Fishbein
Senior Adviser

Division of Reserve Bank Operations and Payment Systems

Matthew J. Eichner
Director

Jeffrey C. Marquardt
Deputy Director (through March 31, 2019)

Marta E. Chaffee
Senior Associate Director

Gregory L. Evans
Senior Associate Director

Susan V. Foley
Senior Associate Director

Lawrence E. Mize
Senior Associate Director

Michael J. Lambert
Associate Director

Jennifer K. Liu
Associate Director

Jennifer A. Lucier
Associate Director

David C. Mills
Associate Director

Timothy W. Maas
Deputy Associate Director

Stuart E. Sperry
Deputy Associate Director

Jeffrey Walker
Deputy Associate Director

Casey Clark
Assistant Director and Manager

Sonja Danburg
Assistant Director and Manager

Jason Hinkle
Assistant Director and Manager

Brian Lawler
Assistant Director

Mark Manuszak
Assistant Director and Chief

Travis D. Nesmith
Assistant Director and Chief

Mark J. Olechowski
Assistant Director

Rebecca L. Royer
Assistant Director

Nick Trotta
Assistant Director and Manager

Office of the Chief Operating Officer

Patrick J. McClanahan
Chief Operating Officer

Michael J. Kraemer
Chief Data Officer

Sheila Clark
Diversity and Inclusion Programs Director

Phillip C. Daher
Assistant Director

Jeffrey A. Monica
Assistant Director

Steven Miranda
Program Executive (as of September 15, 2019)

Michell Clark
Senior Adviser (as of June 9, 2019)

Division of Financial Management

Ricardo Aguilera
Director and Chief Financial Officer

Stephen J. Bernard
Deputy Director

Christine Fields
Associate Director (through September 1, 2019)

Jeffrey R. Peirce
Deputy Associate Director

Karen L. Vassallo
Deputy Associate Director

Kimberly Briggs
Assistant Director

Andrew Leonard
Senior Adviser

Division of Management

Winona Varnon
Director (as of June 9, 2019)

Michell Clark
Director (through June 9, 2019)

Steven Miranda
Deputy Director (through September 15, 2019)

Tara Tinsley-Pelitere
Senior Associate Director

Tameika L. Pope
Senior Associate Director

Curtis B. Eldridge
Associate Director and Chief

Kendra Gastright
Associate Director

Ann Buckingham
Deputy Associate Director

Timothy E. Markey
Deputy Associate Director

Reginald V. Roach
Deputy Associate Director

Keith F. Bates
Assistant Director

Catherine Jack
Assistant Director

Tim Ly
Assistant Director

Jeffrey A. Martin
Assistant Director

Stephen E. Pearson
Assistant Director

Katherine Perez-Grines
Assistant Director and Assistant Chief

Jacqueline Raia
Assistant Director

Division of Information Technology

Sharon L. Mowry
Director

Lisa M. Bell
Deputy Director

Raymond Romero
Deputy Director

Kofi A. Sapong
Deputy Director

Glenn S. Eskow
Senior Associate Director

Sheryl Lynn Warren
Senior Associate Director

Rajasekhar R. Yelisetty
Senior Associate Director

Charles B. Young
Associate Director

William K. Dennison
Deputy Associate Director

Marietta Murphy
Deputy Associate Director

Theresa C. Palya
Deputy Associate Director

Deborah Prespare
Deputy Associate Director

Eric C. Turner
Deputy Associate Director

Brian Lester
Assistant Director

Scott Meyerle
Assistant Director

Can Xuan Nguyen
Assistant Director

Langston Shaw
Assistant Director

Jonathan F. Shrier
Assistant Director

Virginia M. Wall
Assistant Director

Edgar Wang
Assistant Director

Ivan K. Wun
Assistant Director

Office of Inspector General

Mark Bialek
Inspector General

Fred Gibson
Deputy Inspector General

Jacqueline M. Becker
Associate Inspector General

Gerald Maye
Associate Inspector General

Peter Sheridan
Associate Inspector General

Stephen Carroll
Deputy Associate Inspector General

Michael VanHuysen
Assistant Inspector General

Federal Open Market Committee

The Federal Open Market Committee is made up of the seven members of the Board of Governors; the president of the Federal Reserve Bank of New York; and four of the remaining eleven Federal Reserve Bank presidents, who serve one-year terms on a rotating basis. During 2019, the Federal Open Market Committee held eight regularly scheduled meetings (see appendix B, "Minutes of Federal Open Market Committee Meetings").

Members

Jerome H. Powell
Chair, Board of Governors

John C. Williams
Vice Chairman, President, Federal Reserve Bank of New York

Michelle W. Bowman
Member, Board of Governors

Lael Brainard
Member, Board of Governors

James Bullard
President, Federal Reserve Bank of St. Louis

Richard H. Clarida
Member, Board of Governors

Charles L. Evans
President, Federal Reserve Bank of Chicago

Esther L. George
President, Federal Reserve Bank of Kansas City

Randal K. Quarles
Member, Board of Governors

Eric Rosengren
President, Federal Reserve Bank of Boston

Alternate Members

Patrick Harker
President, Federal Reserve Bank of Philadelphia

Robert S. Kaplan
President, Federal Reserve Bank of Dallas

Neel Kashkari
President, Federal Reserve Bank of Minneapolis

Loretta J. Mester
President, Federal Reserve Bank of Cleveland

Michael Strine
First Vice President, Federal Reserve Bank of New York

Officers

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Richard M. Ashton
Assistant General Counsel

Steven B. Kamin
Economist

Heinrich T. Laubach
Economist

Stacey Tevlin
Economist

Thomas A. Connors
Associate Economist (through May 1, 2019)

Rochelle M. Edge
Associate Economist

Eric M. Engen
Associate Economist

Beverly Hirtle
Associate Economist

Anna Paulson
Associate Economist (as of April 30, 2019)

Daniel G. Sullivan
Associate Economist (through April 30, 2019)

Geoffrey Tootell
Associate Economist

Christopher J. Waller
Associate Economist

William Wascher
Associate Economist

Jonathan L. Willis
Associate Economist

Beth Anne Wilson
Associate Economist

Simon Potter
Manager, System Open Market Account (through June 1, 2019)

Lorie K. Logan
Deputy Manager, System Open Market Account

Board of Governors Advisory Councils

The Federal Reserve Board uses advisory committees in carrying out its varied responsibilities. To learn more, visit https://www.federalreserve.gov/aboutthefed/advisorydefault.htm.

Federal Advisory Council

The Federal Advisory Council—a statutory body established under the Federal Reserve Act—consults with and advises the Board of Governors on all matters within the Board's jurisdiction. It is composed of one representative from each Federal Reserve District, chosen by the Reserve Bank in that District. The president and vice president of the council are selected from amongst council members. The Federal Reserve Act requires the council to meet in Washington, D.C., at least four times a year. In 2019, the council met on February 7–8, May 9–10, September 5–6, and November 21–22. The council met with the Board on February 8, May 10, September 6, and November 22, 2019.

Members

District 1
John R. Ciulla
President and Chief Executive Officer, Webster Financial Corporation and Webster Bank, Waterbury, CT

District 2
Rene F. Jones
Chairman and Chief Executive Officer, M&T Bank Corporation, Buffalo, NY

District 3
Jeffrey M. Schweitzer
Chief Executive Officer, Univest Bank and Trust Co., Souderton, PA

District 4
Beth E. Mooney
Chairman and Chief Executive Officer, KeyCorp, Cleveland, OH

District 5
Brian T. Moynihan
Chairman and Chief Executive Officer, Bank of America, Charlotte, NC

District 6
William H. Rogers, Jr.
Chairman and Chief Executive Officer, SunTrust Banks, Inc., Atlanta, GA

District 7
Jeffrey J. Brown
Chief Executive Officer, Ally Financial Inc., Detroit, MI

District 8
Ronald J. Kruszewski
Chairman, President, and Chief Executive Officer, Stifel Financial Corp., St. Louis, MO

District 9
Kevin P. Riley
President and Chief Executive Officer, First Interstate BancSystem, Inc., Billings, MT

District 10
John B. Dicus
President and Chief Executive Officer, Capitol Federal Financial, Inc., Topeka, KS

District 11
Phillip D. Green
Chairman and Chief Executive Officer, Cullen/Frost Bankers Inc., San Antonio, TX

District 12
James H. Herbert, II
Chairman and CEO, First Republic Bank, San Francisco, CA

Officers

Beth E. Mooney
President

William H. Rogers, Jr.
Vice President

Herb Taylor
Secretary

Community Depository Institutions Advisory Council

The Community Depository Institutions Advisory Council advises the Board of Governors on the economy, lending conditions, and other issues of interest to community depository institutions. Members are selected from among representatives of banks, thrift institutions, and credit unions who are serving on local advisory councils at the 12 Federal Reserve Banks. One member of each of the Reserve Bank councils serves on the Community Depository Institutions Advisory Council. The president and vice president are selected from amongst council members. The council usually meets with the Board twice a year in Washington, D.C. In 2019, the council met on April 5 and November 8.

Members

District 1

Dorothy A. Savarese
Chairman, President and Chief Executive Officer, Cape Cod 5, Orleans, MA

District 2

Tyrone E. Muse
President and Chief Executive Officer, Visions Federal Credit Union, Endicott, NY

District 3

Christopher D. Maher
President and Chief Executive Officer, OceanFirst Financial Corporation and OceanFirst Bank, Toms River, NJ

District 4

T. Michael Price
President and Chief Executive Officer, *President and Chief Executive Officer*, First Commonwealth Financial Corp., Indiana, PA

District 5

Robert A. DeAlmeida
Director, Orrstown Bank, Harrisburg, PA

District 6

Alvin J. Cowans
President and Chief Executive Officer, McCoy Federal Credit Union, Orlando, FL

District 7

Douglas S. Gordon
President and Chief Executive Officer, WaterStone Bank, SSB, Wauwatosa, WI

District 8

Ann Wells
Chief Executive Officer, Commonwealth Bank & Trust Company, Louisville, KY

District 9

Shari Laven
Chief Executive Officer, Viking Bank, Alexandria, MN

District 10

Brad Koehn
Regional President, Midwest Bank, Lincoln, NE

District 11

Joe Quiroga
President, Texas National Bank, Edinburg, TX

District 12

Richard M. Sanborn
President and Chief Executive Officer, Seacoast Commerce Bank and Seacoast Commerce Banc Holdings, San Diego, CA

Officers

Christopher D. Maher
President

Joe Quiroga
Vice President

Community Advisory Council

The Community Advisory Council was formed in 2015 to advise the Board of Governors on the economic circumstances and financial services needs of consumers and communities, with a particular focus on the concerns of low- and moderate-income populations. The council is composed of a diverse group of experts and representatives of consumer and community development organizations and interests, including from such fields as affordable housing, community and economic development, employment and labor, financial services and technology, small business, and asset and wealth building. One member of the council serves as its chair. The council first met with the Board in November 2015, and meets with the Board twice each year. In 2019, the council met with the Board on May 24 and November 1.

Members

Juan Bonilla
Deputy Director, Lawrence Community Works, Lawrence, MA

Adrian M. Brooks
CEO, Memorial Community Development Corporation, Evansville, IN

Barrett Burns
President and CEO, VantageScore Solutions LLC, Stamford, CT

Vanessa Calderón-Rosado
CEO, IBA (Inquilinos Boricuas en Acción), Boston, MA

Joshua Downey
President, Denver Area Labor Federation, AFL-CIO, Denver, CO

Donald Hinkle-Brown
President and CEO, Reinvestment Fund, Philadelphia, PA

Barb Lau
Executive Director, Association of Women Contractors, St. Paul, MN

Andrea Levere
President, Prosperity Now, Washington, DC

Andreanecia Morris
Executive Director, HousingNOLA, New Orleans, LA

Marc Norman
Associate Professor of Practice, University of Michigan, Taubman College of Architecture and Urban Planning, Ann Arbor, MI

Jonny Price
Director of Business Development, Wefunder, San Francisco, CA

Gerry Roll
Executive Director, Foundation for Appalachian Kentucky, Chavies, KY

Bethany Sanchez
Fair Lending Director, Metropolitan Milwaukee Fair Housing Council, Milwaukee, WI

Bill Schlesinger
Co-Director, Project Vida, El Paso, TX

Jesse Van Tol
CEO, National Community Reinvestment Coalition, Washington, DC

Officers

Andrea Levere
Chair

Donald Hinkle-Brown
Vice Chair

Model Validation Council

The Model Validation Council was established in 2012 by the Board of Governors to provide expert and independent advice on its process to rigorously assess the models used in stress tests of banking institutions. The Dodd-Frank Wall Street Reform and Consumer Protection Act required the Federal Reserve to conduct annual stress tests of large bank holding companies and systemically important, nonbank financial institutions supervised by the Board. The Model Validation Council provides input on the Board's efforts to assess the effectiveness of the models used in the stress tests. The council is intended to improve the quality of the Federal Reserve's model assessment program and to strengthen the confidence in the integrity and independence of the program.

Members

Monika Piazzesi
Professor, Stanford University

Jennie Bai
Assistant Professor, Georgetown University

Robert Stine
Professor, University of Pennsylvania

Paul Glasserman
Professor, Columbia University

Stijn Van Nieuwerburgh
Professor, Columbia University

Andrew Patton
Professor, Duke University

Federal Reserve Banks and Branches

To carry out the day-to-day operations of the Federal Reserve System, the nation has been divided into 12 Federal Reserve Districts, each with a Reserve Bank. The majority of Reserve Banks also have at least one Branch.

Reserve Bank and Branch Directors

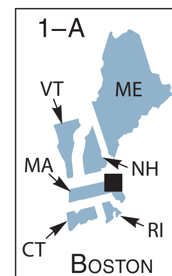
As required by the Federal Reserve Act, each Federal Reserve Bank is supervised by a nine-member board with three different classes of three directors each: Class A directors, who are nominated and elected by the member banks in that District to represent the stockholding banks; Class B directors, who are nominated and elected by the member banks to represent the public; and Class C directors, who are appointed by the Board of Governors to represent the public. Class B and Class C directors are selected with due, but not exclusive, consideration to the interests of agriculture, commerce, industry, services, labor, and consumers. Each Federal Reserve Bank Branch also has a board with either five or seven directors. A majority of the directors on each Branch board are appointed by the Federal Reserve Bank, with the remaining directors appointed by the Board of Governors.

For more information on Reserve Bank and Branch directors, see https://www.federalreserve.gov/aboutthefed/directors/about.htm.

Reserve Bank and Branch directors are listed below. For each director, the class of directorship, the director's principal place of business, and the expiration date of the director's current term are shown. Also shown are maps that identify Federal Reserve Districts by their official number, city, and letter designation. For more information on the Federal Reserve indicator letters, see https://www.uscurrency.gov/denominations/bank-note-identifiers.

District 1–Boston

Covers the states of Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; and all but Fairfield County in Connecticut.



For more information on this District and to learn more about the Federal Reserve Bank of Boston's operations, visit https://www.bostonfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/bostonfinstmt2019.pdf.

Class A

Bruce Van Saun , 2019
Chairman and Chief Executive Officer, Citizens Financial Group, Stamford, CT

Michael E. Tucker, 2020
President and Chief Executive Officer, Greenfield Cooperative Bank, Greenfield, MA

Chandler Howard, 2021
Retired President and Chief Executive Officer, Liberty Bank, Middletown, CT

Class B

Niraj Shah, 2019
Chief Executive Officer, Co-Founder, and Co-Chairman, Wayfair, Boston, MA

Kimberly Sherman Stamler, 2020
President, Related Beal, Boston, MA

Roger W. Crandall , 2021
Chairman, President, and Chief Executive Officer, MassMutual Financial Group, Springfield, MA

Class C

Christina Hull Paxson, 2019
President, Brown University, Providence, RI

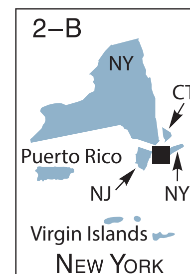
Kathleen E. Walsh, 2020
President and Chief Executive Officer, Boston Medical Center, Boston, MA

Phillip L. Clay, 2021
Professor Emeritus of City Planning, Massachusetts Institute of Technology, Cambridge, MA

District 2–New York

Covers the state of New York; Fairfield County in Connecticut; and 12 counties in northern New Jersey, and serves the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

For more information on this District and to learn more about the Federal Reserve Bank of New York's operations, visit https://www.newyorkfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/newyorkfinstmt2019.pdf.



Class A

Gerald H. Lipkin, 2019
Chairman, Valley National Bank and Valley National Bancorp, Wayne, NJ

Paul P. Mello, 2020
President and Chief Executive Officer, Solvay Bank, Solvay, NY

James P. Gorman, 2021
Chairman and Chief Executive Officer, Morgan Stanley, New York, NY

Class B

Adena T. Friedman, 2019
President and Chief Executive Officer, Nasdaq, New York, NY

Charles Phillips, 2020
Chief Executive Officer, Infor, New York, NY

Glenn H. Hutchins, 2021
Chairman, North Island, and *Co-Founder*, Silver Lake, New York, NY

Class C

Denise Scott, 2019
Executive Vice President, Local Initiatives Support Corporation, New York, NY

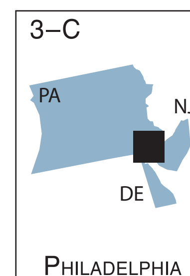
Rosa Gil, 2020
President and Chief Executive Officer, Comunilife, Inc., New York, NY

Vincent Alvarez, 2021
President, New York City Central Labor Council, AFL-CIO, New York, NY

District 3–Philadelphia

Covers the state of Delaware; nine counties in southern New Jersey; and 48 counties in the eastern two-thirds of Pennsylvania.

For more information on this District and to learn more about the Federal Reserve Bank of Philadelphia's operations, visit https://www.philadelphiafed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/philadelphiafinstmt2019.pdf.



Class A

William S. Aichele, 2019
Chairman, Univest Corporation of Pennsylvania, Souderton, PA

Jon S. Evans, 2020
President and Chief Executive Officer, Atlantic Community Bankers Bank, Camp Hill, PA

Timothy Snyder, 2021
President and Chief Executive Officer, Fleetwood Bank, Fleetwood, PA

Class B

Anthony Ibarguen, 2019
President, AquaVenture Holdings, Ltd., and *Chief Executive Officer*, Quench USA, Inc., King of Prussia, PA

Patricia Hasson, 2020
President and Executive Director, Clarifi, Philadelphia, PA

Julia H. Klein, 2021
Chairwoman and Chief Executive Officer, C. H. Briggs Company, Reading, PA

Class C

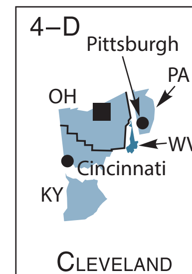
Brian M. McNeill, 2019
President and Chief Executive Officer, TouchPoint, Inc., Concordville, PA

Madeline Bell, 2020
President and Chief Executive Officer, The Children's Hospital of Philadelphia – CHOP, Philadelphia, PA

Phoebe Haddon, 2021
Chancellor, Rutgers University–Camden, Camden, NJ

District 4–Cleveland

Covers the state of Ohio; 56 counties in eastern Kentucky; 19 counties in western Pennsylvania; and 6 counties in northern West Virginia.



For more information on this District and to learn more about the Federal Reserve Bank of Cleveland's operations, visit https://www.clevelandfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/clevelandfinstmt2019.pdf.

Class A

Stephen D. Steinour, 2019
Chairman, President, and Chief Executive Officer, Huntington Bancshares Incorporated, Columbus, OH

Dean J. Miller, 2020
President and Chief Executive Officer, First National Bank of Bellevue, Bellevue, OH

Eddie L. Steiner, 2021
President and Chief Executive Officer, CSB Bancorp, Inc., Millersburg, OH

Class B

David Megenhardt, 2019
Executive Director, United Labor Agency, Cleveland, OH

Charles H. Brown, 2020
Retired Executive Adviser, Toyota Motor North America, Erlanger, KY

Valarie L. Sheppard, 2021
Comptroller Treasurer and Executive Vice President-Company Transition Leader, The Procter & Gamble Company, Cincinnati, OH

Class C

Dwight E. Smith, 2019
President and Chief Executive Officer, Sophisticated Systems, Inc., Columbus, OH

Doris Carson Williams, 2020
President and Chief Executive Officer, African American Chamber of Commerce of Western Pennsylvania, Pittsburgh, PA

Dawne S. Hickton, 2021
President and Chief Operating Officer, Jacobs Aerospace, Technology & Nuclear, Pittsburgh, PA

Cincinnati Branch

Appointed by the Federal Reserve Bank

Darin C. Hall, 2019
President and Chief Executive Officer, Civitas Development Group, Cincinnati, OH

Alfonso Cornejo, 2020
President, Hispanic Chamber Cincinnati USA, Cincinnati, OH

David C. Evans, 2020
President and Chief Executive Officer, TESSEC LLC, Dayton, OH

Tucker Ballinger, 2021
President and Chief Executive Officer, Forcht Bank, N.A., Lexington, KY

Appointed by the Board of Governors

Holly B. Wiedemann, 2019
Founder and President, AU Associates, Inc., Lexington, KY

Jenell R. Ross, 2020
President, Bob Ross Auto Group, Centerville, OH

Rachid Abdallah, 2021
Chairman and Chief Executive Officer, Jedson Engineering, Cincinnati, OH

Pittsburgh Branch

Appointed by the Federal Reserve Bank

Shelley L. Fant, 2019
President and Chief Executive Officer, FCG Solutions, Inc., Pittsburgh, PA

Audrey Dunning, 2020
President and Chief Executive Officer, AMP Growth Advisors, LLC, Cranberry Township, PA

Robert I. Glimcher, 2020
President, Glimcher Group Inc., Pittsburgh, PA

Vera Krekanova, 2021
Chief Research Officer, Allegheny Conference on Community Development, Pittsburgh, PA

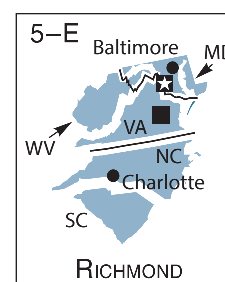
Appointed by the Board of Governors

Kathryn Z. Klaber, 2019
Managing Partner, The Klaber Group, Sewickley, PA

Suzanne Mellon, 2020
President, Carlow University, Pittsburgh, PA

Dmitri D. Shiry, 2021
Managing Partner Deloitte-Pittsburgh, Deloitte LLP, Pittsburgh, PA

District 5–Richmond



Covers the states of Maryland, Virginia, North Carolina, and South Carolina; 49 counties constituting most of West Virginia; and the District of Columbia.

For more information on this District and to learn more about the Federal Reserve Bank of Richmond's operations, visit https://www.richmondfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/richmondfinstmt2019.pdf.

Class A

William A. Loving, Jr., 2019
President and Chief Executive Officer, Pendleton Community Bank, Franklin, WV

Robert R. Hill, Jr., 2020
Chief Executive Officer, South State Corporation, Columbia, SC

Susan K. Still, 2021
President and Chief Executive Officer, HomeTown Bankshares Corporation and HomeTown Bank, Roanoke, VA

Class B

Ángel Cabrera, 2019
President, Georgia Institute of Technology, Atlanta, GA

Thomas C. Nelson, 2020
Chairman, President, and Chief Executive Officer, National Gypsum Company, Charlotte, NC

Catherine A. Meloy, 2021
President and Chief Executive Officer, Goodwill of Greater Washington/Goodwill Excel Center, Washington, DC

Class C

Margaret G. Lewis, 2019
Retired President, HCA Capital Division, Richmond, VA

Kathy J. Warden, 2020
Chief Executive Officer and President, Northrop Grumman Corporation, Falls Church, VA

Eugene A. Woods, 2021
President and Chief Executive Officer, Atrium Health, Charlotte, NC

Baltimore Branch

Appointed by the Federal Reserve Bank

Mary Ann Scully, 2019
Chairman, President, and Chief Executive Officer, Howard Bancorp, Ellicott City, MD

Vacancy, 2020

Laura L. Gamble, 2021
Regional President Greater Maryland, PNC, Baltimore, MD

Tom Geddes, 2021
Chief Executive Officer, Plank Industries, Baltimore, MD

Appointed by the Board of Governors

Wayne A. I. Frederick, MD, 2019
President, Howard University, Washington, DC

Susan J. Ganz, 2020
Chief Executive Officer, Lion Brothers Company, Inc., Owings Mills, MD

Kenneth R. Banks, 2021
President and Chief Executive Officer, Banks Contracting Company, Greenbelt, MD

Charlotte Branch

Appointed by the Federal Reserve Bank

Michael C. Crapps, 2019
President and Chief Executive Officer, First Community Bank, Lexington, SC

Vacancy, 2020

Michael D. Garcia, 2021
President, Pulp and Paper, Domtar Corp., Fort Mill, SC

Jerry L. Ocheltree, 2021
President and Chief Executive Officer, Carolina Trust Bank, Lincolnton, NC

Appointed by the Board of Governors

Vacancy, 2019

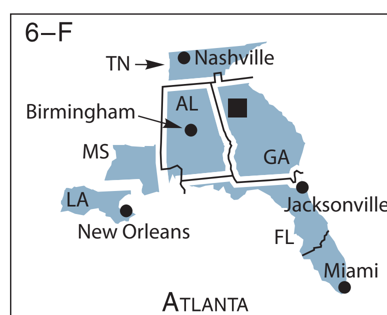
R. Glenn Sherrill, Jr., 2020
Chairman and Chief Executive Officer, SteelFab Inc., Charlotte, NC

Laura Y. Clark, 2021
Executive Vice President and Chief Impact Officer, United Way of Central Carolinas, Charlotte, NC

District 6–Atlanta

Covers the states of Alabama, Florida, and Georgia; 74 counties in the eastern two-thirds of Tennessee; 38 parishes of southern Louisiana; and 43 counties of southern Mississippi.

For more information on this District and to learn more about the Federal Reserve Bank of Atlanta's operations, visit https://www.frbatlanta.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/atlantafinstmt2019.pdf.



Class A

Robert W. Dumas, 2019
Chairman, President, and Chief Executive Officer, AuburnBank, Auburn, AL

Kessel D. Stelling, Jr., 2020
Chairman and Chief Executive Officer, Synovus Financial Corporation, Columbus, GA

Claire W. Tucker, 2021
Chief Executive Officer, CapStar Financial Holdings, Inc., Nashville, TN

Class B

Mary A. Laschinger, 2019
Chairman and Chief Executive Officer, Veritiv Corporation, Atlanta, GA

Jonathan T.M. Reckford, 2020
Chief Executive Officer, Habitat for Humanity International, Atlanta, GA

Michael Russell, 2021
Chief Executive Officer, H.J. Russell and Company, Atlanta, GA

Class C

Elizabeth A. Smith, 2019
Executive Chair, Bloomin' Brands, Inc., Tampa, FL

Myron A. Gray, 2020
Retired President, U.S. Operations, United Parcel Service, Atlanta, GA

Claire Lewis Arnold, 2021
Chief Executive Officer, Leapfrog Services, Inc., Atlanta, GA

Birmingham Branch

Appointed by the Federal Reserve Bank

Brian C. Hamilton, 2019
President and Chief Executive Officer, Trillion Communications Corp., Bessemer, AL

Herschell L. Hamilton, 2020
Chief Strategic Officer, BLOC Global Group, Birmingham, AL

David M. Benck, 2021
Vice President and General Counsel, Hibbett Sports, Birmingham, AL

David L. Nast, 2021
President and Chief Executive Officer, Progress Bank, Huntsville, AL

Appointed by the Board of Governors

Merrill H. Stewart, Jr., 2019
President, The Stewart/Perry Company, Inc., Birmingham, AL

Nancy C. Goedecke, 2020
Chairman and Chief Executive Officer, Mayer Electric Supply Company, Inc., Birmingham, AL

Vacancy, 2021

Jacksonville Branch

Appointed by the Federal Reserve Bank

Paul G. Boynton, 2019
Chairman, President, and Chief Executive Officer, Rayonier Advanced Materials, Inc., Jacksonville, FL

William O. West, 2020
Chief Executive Officer, The Bank of Tampa, Tampa, FL

John Hirabayashi, 2021
President and Chief Executive Officer, Community First Credit Union of Florida, Jacksonville, FL

Dawn Lockhart, 2021
Director of Strategic Partnerships, Office of the Mayor, City of Jacksonville, Jacksonville, FL

Appointed by the Board of Governors

Nicole B. Thomas, 2019
Hospital President, Baptist Medical Center South, Jacksonville, FL

Troy D. Taylor, 2020
Chairman and Chief Executive Officer, Coca-Cola Beverages Florida, LLC, Tampa, FL

Timothy P. Cost, 2021
President, Jacksonville University, Jacksonville, FL

Miami Branch

Appointed by the Federal Reserve Bank

Eduardo Arriola, 2019
Chairman and Chief Executive Officer, Apollo Bank, Miami, FL

N. Maria Menendez, 2020
Chief Financial Officer, GL Homes of Florida Holding, Sunrise, FL

Victoria E. Villalba, 2020
President and Chief Executive Officer, Victoria & Associates Career Services, Inc., Miami, FL

Abel L. Iglesias, 2021
President and Chief Executive Officer, Professional Bank, Coral Gables, FL

Appointed by the Board of Governors

Ana M. Menendez, 2019
Chief Financial Officer and Treasurer, Watsco, Inc., Miami, FL

Keith T. Koenig, 2020
President, City Furniture, Tamarac, FL

Michael A. Wynn, 2021
Board Chairman and President, Sunshine Ace Hardware, Bonita Springs, FL

Nashville Branch

Appointed by the Federal Reserve Bank

Amber Krupacs, 2019
Chief Financial Officer and Executive Vice President, Clayton Homes, Maryville, TN

John W. Garratt, 2020
Executive Vice President and Chief Financial Officer, Dollar General, Goodlettsville, TN

Beth R. Chase, 2021
Senior Managing Director, Ankura Consulting Group, Nashville, TN

Leif M. Murphy, 2021
Chief Executive Officer, TeamHealth Holdings, Inc., Knoxville, TN

Appointed by the Board of Governors

Matthew S. Bourlakas, 2019
President and Chief Executive Officer, Goodwill Industries of Middle Tennessee, Inc., Nashville, TN

Heath M. Holtz, 2020
Senior Vice President, Manufacturing, Purchasing and Supply Chain, Nissan North America, Inc., Franklin, TN

Thomas Zacharia, 2021
Laboratory Director/ President and Chief Executive Officer, Oak Ridge National Laboratory/ UT-Battelle, LLC, Oak Ridge, TN

New Orleans Branch

Appointed by the Federal Reserve Bank

Toni D. Cooley, 2019
Chief Executive Officer, Systems Companies, Jackson, MS

Lampkin Butts, 2020
President and Chief Operating Officer, Sanderson Farms, Inc., Laurel, MS

Katherine A. Crosby, 2021
Board Chair, Fidelity Bank, New Orleans, LA

David T. Darragh, 2021
Retired President and Chief Executive Officer, Reily Foods Company, New Orleans, LA

Appointed by the Board of Governors

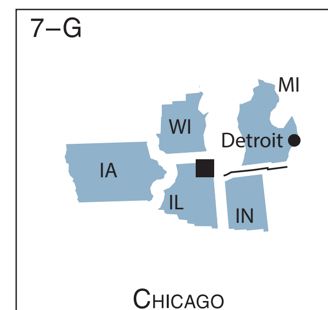
G. Janelle Frost, 2019
President and Chief Executive Officer, AMERISAFE, Inc., DeRidder, LA

Michael E. Hicks, 2020
President and Chief Executive Officer, Hixardt Technologies, Inc., Pensacola, FL

Art E. Favre, 2021
President and Chief Executive Officer, Performance Contractors, Inc., Baton Rouge, LA

District 7–Chicago

Covers the state of Iowa; 68 counties of northern Indiana; 50 counties of northern Illinois; 68 counties of southern Michigan; and 46 counties of southern Wisconsin.



For more information on this District and to learn more about the Federal Reserve Bank of Chicago's operations, visit https://www.chicagofed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/chicagofinstmt2019.pdf.

Class A

Abram A. Tubbs, 2019
Chairman and Chief Executive Officer, Ohnward Bank & Trust, Cascade, IA

David W. Nelms, 2020
Former Chairman, Discover Financial Services, Riverwoods, IL

Christopher J. Murphy III, 2021
Chairman and Chief Executive Officer, 1st Source Bank, South Bend, IN

Class B

Jorge Ramirez, 2019
Managing Director, GCM Grosvenor, Chicago, IL

Helene D. Gayle, 2020
President and Chief Executive Officer, The Chicago Community Trust, Chicago, IL

Susan M. Collins, 2021
Professor of Public Policy and Economics, University of Michigan, Ann Arbor, MI

Class C

Vacancy, 2019

E. Scott Santi, 2020
Chairman and Chief Executive Officer, Illinois Tool Works Inc., Glenview, IL

Wright L. Lassiter III, 2021
President and Chief Executive Officer, Henry Ford Health System, Detroit, MI

Detroit Branch

Appointed by the Federal Reserve Bank

Michael L. Seneski, 2019
Chief Financial Officer, Credibly, Troy, MI

Sandy K. Baruah, 2020
President and Chief Executive Officer, Detroit Regional Chamber, Detroit, MI

Sandra E. Pierce, 2020
Chairman & Senior Executive Vice President, Private Client Group and Regional Banking Director, Huntington Michigan, Southfield, MI

Rip Rapson, 2021
President and Chief Executive Officer, The Kresge Foundation, Troy, MI

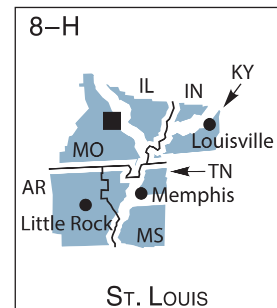
Appointed by the Board of Governors

Linda P. Hubbard, 2019
President and Chief Operating Officer, Carhartt, Inc., Dearborn, MI

Joseph B. Anderson, Jr., 2020
Chairman and Chief Executive Officer, TAG Holdings, LLC, Wixom, MI

James M. Nicholson, 2021
Co-Chairman, PVS Chemicals, Inc., Detroit, MI

District 8–St. Louis



Covers the state of Arkansas; 44 counties in southern Illinois; 24 counties in southern Indiana; 64 counties in western Kentucky; 39 counties in northern Mississippi; 71 counties in central and eastern Missouri; the city of St. Louis; and 21 counties in western Tennessee.

For more information on this District and to learn more about the Federal Reserve Bank of St. Louis's operations, visit https://www.stlouisfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/stlouisfinstmt2019.pdf.

Class A

D. Bryan Jordan, 2019
Chairman, President, and Chief Executive Officer, First Horizon National Corporation, Memphis, TN

Elizabeth G. McCoy, 2020
President and Chief Executive Officer, Planters Bank, Hopkinsville, KY

Patricia L. Clarke, 2021
President and Chief Executive Officer, First National Bank of Raymond, Raymond, IL

Class B

Alice K. Houston, 2019
Chief Executive Officer, HJI Supply Chain Solutions, Louisville, KY

John N. Roberts III, 2020
President and Chief Executive Officer, J.B. Hunt Transport Services, Inc., Lowell, AR

Vacancy, 2021

Class C

Kathleen M. Mazzarella, 2019
Chairman, President, and Chief Executive Officer, Graybar Electric Company, Inc., St. Louis, MO

James M. McKelvey, Jr., 2020
Chief Executive Officer, Invisibly, Inc., St. Louis, MO

Suzanne Sitherwood, 2021
President and Chief Executive Officer, Spire Inc., St. Louis, MO

Little Rock Branch

Appointed by the Federal Reserve Bank

R. Andrew Clyde, 2019
President and Chief Executive Officer, Murphy USA Inc., El Dorado, AR

Keith Glover, 2020
President and Chief Executive Officer, Producers Rice Mill, Inc., Stuttgart, AR

Karama Neal, 2020
Chief Operating Officer, Southern Bancorp Community Partners, Little Rock, AR

Jeff Lynch, 2021
President and Chief Executive Officer, Eagle Bank and Trust, Little Rock, AR

Appointed by the Board of Governors

Millie A. Ward, 2019
President, Stone Ward, Little Rock, AR

Vickie D. Judy, 2020
Chief Financial Officer and Vice President, America's Car-Mart, Inc, Bentonville, AR

Jamie Henry, 2021
Vice President Finance, Emerging Payments, Walmart Inc., Bentonville, AR

Louisville Branch

Appointed by the Federal Reserve Bank

Patrick J. Glotzbach, 2019
Director, New Independent Bancshares, Inc., Charlestown, IN

Emerson M. Goodwin, 2020
Vice President of Operations, ARcare d/b/a KentuckyCare, Paducah, KY

Blake B. Willoughby, 2020
President, First Breckinridge Bancshares, Inc., Irvington, KY

Ben Reno-Weber, 2021
Project Director, Greater Louisville Project, Louisville, KY

Appointed by the Board of Governors

Randy W. Schumaker, 2019
Former President and Chief Management Officer, Logan Aluminum, Inc., Russellville, KY

Sadiqa N. Reynolds, 2020
President and Chief Executive Officer, Louisville Urban League, Louisville, KY

Vacancy, 2021

Memphis Branch

Appointed by the Federal Reserve Bank

J. Brice Fletcher, 2019
Chairman, First National Bank of Eastern Arkansas, Forrest City, AR

Michael E. Cary, 2020
President and Chief Executive Officer, Carroll Bank and Trust, Huntingdon, TN

Michael Ugwueke, 2020
President and Chief Executive Officer, Methodist Le Bonheur Healthcare, Memphis, TN

Beverly Crossen, 2021
Owner, Farmhouse Tupelo, Tupelo, MS

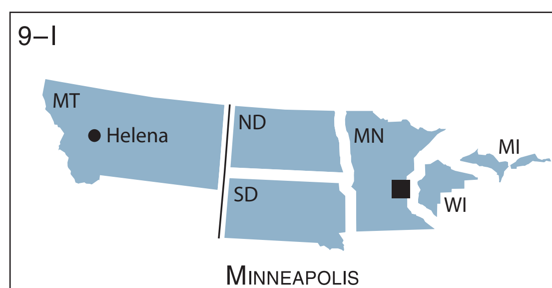
Appointed by the Board of Governors

Carolyn Chism Hardy, 2019
President and Chief Executive Officer, Chism Hardy Investments, LLC, Collierville, TN

David T. Cochran, Jr., 2020
Partner, CoCo Planting Co., Avon, MS

Eric D. Robertson, 2021
President, Community LIFT Corporation, Memphis, TN

District 9–Minneapolis



Covers the states of Minnesota, Montana, North Dakota, and South Dakota; the Upper Peninsula of Michigan; and 26 counties in northern Wisconsin.

For more information on this District and to learn more about the Federal Reserve Bank of Minneapolis's operations, visit https://www.minneapolisfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/minneapolisfinstmt2019.pdf.

Class A

Catherine T. Kelly, 2019
Regional President, PNC Bank Financial Services Group, Minneapolis-St. Paul, Minneapolis, MN

Thomas W. Armstrong, 2020
Senior Vice President/ Market President, Forward Bank, Park Falls, WI

Jeanne H. Crain, 2021
President and Chief Executive Officer, Bremer Financial Corporation, St. Paul, MN

Class B

David R. Emery, 2019
Executive Chairman, Black Hills Corporation, Rapid City, South Dakota

Kathleen Neset, 2020
President, Neset Consulting Service, Tioga, ND

Sarah Walsh, 2021
Chief Operating Officer, PayneWest Insurance, Helena, MT

Class C

Kendall J. Powell, 2019
Retired Chairman, General Mills, Inc., Minneapolis, MN

Srilata Zaheer, 2020
Dean, Carlson School of Management, University of Minnesota, Minneapolis, MN

Harry D. Melander, 2021
President, Minnesota Building and Construction Trades Council, St. Paul, MN

Helena Branch

Appointed by the Federal Reserve Bank

Mary Rutherford, 2019
President and Chief Executive Officer, Montana Community Foundation, Helena, MT

William E. Coffee, 2020
Chief Executive Officer, Stockman Financial Corporation, Billings, MT

Jason Adams, 2021
Chief Financial Officer, Energy Keepers, Inc., Polson, MT

Appointed by the Board of Governors

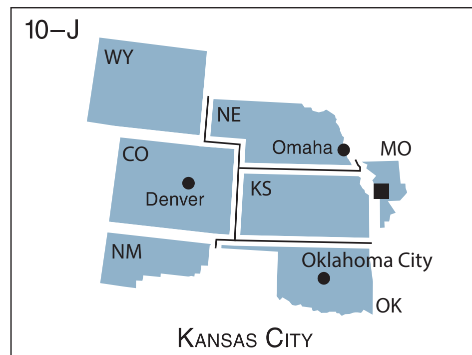
Norma Nickerson, 2020
Director, Institute for Tourism & Recreation Research, University of Montana, Missoula, MT

Bobbi Wolstein, 2021
Chief Financial Officer, LHC, Inc., Kalispell, MT

District 10–Kansas City

Covers the states of Colorado, Kansas, Nebraska, Oklahoma, and Wyoming; 43 counties in western Missouri; and 14 counties in northern New Mexico.

For more information on this District and to learn more about the Federal Reserve Bank of Kansas City's operations, visit https://www.kansascityfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/kansascityfinstmt2019.pdf.



Class A

Gregory Hohl, 2019
Chairman and President, Wahoo State Bank, Wahoo, NE

Patricia J. Minard, 2020
President and Chief Executive Officer, Southwest National Bank, Wichita, KS

Kyle Heckman, 2021
Chairman, President, and Chief Executive Officer, Flatirons Bank, Boulder, CO

Class B

Douglas J. Stussi, 2019
Executive Vice President and Treasurer, Love's Travel Stops & Country Stores, *Managing Director*, Love Family Office, Oklahoma City, OK

Lilly Marks, 2020
Vice President for Health Affairs, University of Colorado and Anschutz Medical Campus, Aurora, CO

Brent A. Stewart, Sr., 2021
President and Chief Executive Officer, United Way of Greater Kansas City, Kansas City, MO

Class C

Rose M. Washington, 2019
Chief Executive Officer, Tulsa Economic Development Corporation, Tulsa, OK

James C. Farrell, 2020
President and Chief Executive Officer, Farmers National Company, Omaha, NE

Edmond Johnson, 2021
President and Owner, Premier Manufacturing, Inc., Frederick, CO

Denver Branch

Appointed by the Federal Reserve Bank

Jeffrey C. Wallace, 2019
Chief Executive Officer, Wyoming Bank & Trust, Cheyenne, WY

Ashley J. Burt, 2020
President and Chief Executive Officer, The Gunnison Bank and Trust Company, Gunnison, CO

Nicole Glaros, 2021
Chief Investment Strategy Officer, Techstars, Boulder, CO

Katharine W. Winograd, 2021
President, Central New Mexico Community College, Albuquerque, NM

Appointed by the Board of Governors

Taryn Christison, 2019
Senior Vice President, Saunders Construction, Englewood, CO

Vacancy, 2020

Jacqueline Baca, 2021
President, Bueno Foods, Albuquerque, NM

Oklahoma City Branch

Appointed by the Federal Reserve Bank

Susan Chapman Plumb, 2019
Board Chair and Chief Executive Officer, Bank of Cherokee County, Tahlequah, OK

Christopher C. Turner, 2019
President and Chief Financial Officer, The First State Bank, Oklahoma City, OK

Dana S. Weber, 2020
President and Chief Executive Officer, Webco Industries, Inc., Sand Springs, OK

J. Walter Duncan IV, 2021
President, Duncan Oil Properties, Inc., Oklahoma City, OK

Appointed by the Board of Governors

Clint D. Abernathy, 2019
President, Abernathy Farms, Inc., Altus, OK

Katrina Washington, 2020
Owner, Stratos Realty Group, Oklahoma City, OK

Tina Patel, 2021
Chief Financial Officer, Promise Hotels, Inc., Tulsa, OK

Omaha Branch

Appointed by the Federal Reserve Bank

Annette Hamilton, 2019
Chief Operating Officer, Ho-Chunk, Inc., Winnebago, NE

Dwayne W. Sieck, 2020
President and Chief Operating Officer, Mutual of Omaha Bank, Omaha, NE

Zac Karpf, 2021
Chief Operating Officer, Platte Valley Bank, Scottsbluff, NE

Thomas J. Henning, 2021
President and Chief Executive Officer, Cash-Wa Distributing Co., Kearney, NE

Appointed by the Board of Governors

John F. Bourne, 2019
Retired International Representative, International Brotherhood of Electrical Workers, Omaha, NE

Eric L. Butler, 2020
Retired Executive Vice President and Chief Administrative Officer, Union Pacific Railroad, Omaha, NE

Kimberly A. Russel, 2021
President and Chief Executive Officer, Bryan Health, Lincoln, NE

District 11–Dallas

Covers the state of Texas; 26 parishes in northern Louisiana; and 18 counties in southern New Mexico.

For more information on this District and to learn more about the Federal Reserve Bank of Dallas's operations, visit https://www.dallasfed.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/dallasfinstmt2019.pdf.

Class A

J. Russell Shannon, 2019
President and Chief Executive Officer, National Bank of Andrews, Andrews, TX

Christopher C. Doyle, 2020
President and Chief Executive Officer, Texas First Bank, Texas City, TX

Kelly A. Barclay, 2021
President and Chief Executive Officer, Ozona National Bank, Wimberly, TX

Class B

Curtis V. Anastasio, 2019
Chairman, GasLog Partners L.P., San Antonio, TX

Gerald B. Smith, 2020
Chairman and Chief Executive Officer, Smith, Graham & Company Investment Advisors, L.P., Houston, TX

Renard U. Johnson, 2021
President and Chief Executive Officer, Management & Engineering Technologies International, Inc., El Paso, TX

Class C

Thomas J. Falk, 2019
Executive Chairman, Kimberly-Clark Corporation, Dallas, TX

Claudia Aguirre, 2020
President and Chief Executive Officer, BakerRipley, Houston, TX

Greg L. Armstrong, 2021
Retired Chairman and Chief Executive Officer, Plains All American Pipeline L.P., Houston, TX

El Paso Branch

Appointed by the Federal Reserve Bank

Paul L. Foster, 2019
President, Franklin Mountain Management, LLC, El Paso, TX

Sally A. Hurt-Deitch, 2020
Group President/Chief Executive Officer El Paso Rio Grande Valley, The Hospitals of Providence/Tenet, El Paso, TX

Teresa O. Molina, 2020
President, First New Mexico Bank, Deming, NM

William Serrata, 2021
President, El Paso Community College, El Paso, TX

Appointed by the Board of Governors

Julio Chiu, 2019
Founder and Chief Executive Officer, SEISA Medical, Inc., El Paso, TX

Richard D. Folger, 2020
Managing General Partner, Colbridge Partners Ltd., Midland, TX

Tracy J. Yellen, 2021
Chief Executive Officer, Paso del Norte Community Foundation, El Paso, TX

Houston Branch

Appointed by the Federal Reserve Bank

Darryl L. Wilson, 2019
President and Founder, The Wilson Collective, Houston, TX

Albert Chao, 2020
President and Chief Executive Officer, Westlake Chemical Corp., Houston, TX

Gina Luna, 2020
Chief Executive Officer, Luna Strategies, LLC, Houston, TX

David Zalman, 2021
Chairman and Chief Executive Officer, Prosperity Bancshares, Houston, TX

Appointed by the Board of Governors

Marcus A. Watts, 2019
President, The Friedkin Group, Houston, TX

Cynthia Taylor, 2020
President and Chief Executive Officer, Oil States International Inc., Houston, TX

Janiece Longoria, 2021
Former Chairman, Port Commission of the Port of Houston Authority, Houston, TX

San Antonio Branch

Appointed by the Federal Reserve Bank

Charles E. Amato, 2019
Chairman and Co-Founder, Southwest Business Corp., San Antonio, TX

Paula Gold-Williams, 2020
President and Chief Executive Officer, CPS Energy, San Antonio, TX

Robert L. Lozano, 2020
President/Owner, Lynn Lee Inc./Dairy Queen, Pharr, TX

Alfred B. Jones, 2021
President and Director, American Bank Holding Corp., Corpus Christi, TX

Appointed by the Board of Governors

James Conrad Weaver, 2019
Chief Executive Officer, McCombs Partners, San Antonio, TX

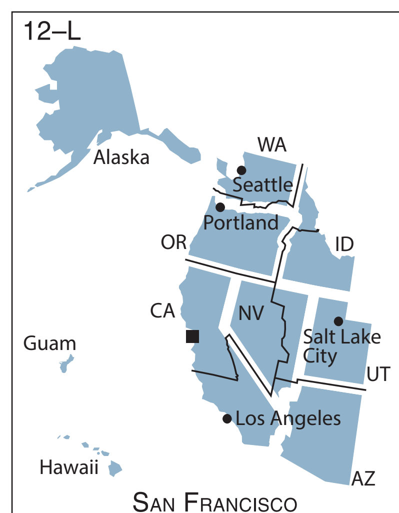
Vacancy, 2020

Jesús Garza, 2021
Retired President and Chief Executive Officer, Seton Healthcare Family, Austin, TX

District 12–San Francisco

Covers the states of Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah, and Washington, and serves American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

For more information on this District and to learn more about the Federal Reserve Bank of San Francisco's operations, visit http://www.frbsf.org/. Information on economic conditions for this District can be found in the Federal Reserve System's *Beige Book* at https://www.federalreserve.gov/monetarypolicy/beigebook2019.htm. Also find the Reserve Bank's financial statements for 2019 at https://www.federalreserve.gov/aboutthefed/files/sanfranciscofinstmt2019.pdf.



Class A

Steven R. Gardner, 2019
Chairman and Chief Executive Officer, Pacific Premier Bank, Irvine, CA

S. Randolph Compton, 2020
Chief Executive Officer and Co-Chair of the Board, Pioneer Trust Bank, N.A., Salem, OR

Greg Becker, 2021
President and Chief Executive Officer, SVB Financial Group, *Chief Executive Officer*, Silicon Valley Bank, Santa Clara, CA

Class B

Sanford L. Michelman, 2019
Chairman, Michelman & Robinson, LLP, Los Angeles, CA

Tamara L Lundgren, 2020
President and Chief Executive Officer, Schnitzer Steel Industries, Inc., Portland, OR

Arthur F. Oppenheimer, 2021
Chairman and Chief Executive Officer, Oppenheimer Companies, Inc., *President*, Oppenheimer Development Corporation, Boise, ID

Class C

Barry M. Meyer, 2019
Retired Chairman and Chief Executive Officer, Warner Bros., *Founder and Chairman*, North Ten Mile Associates, Los Angeles, CA

Rosemary Turner, 2020
Retired President, UPS North California District, Oakland, CA

David P. White, 2021
National Executive Director, SAG-AFTRA, Los Angeles, CA

Los Angeles Branch

Appointed by the Federal Reserve Bank

Steven W. Streit, 2019
Founder, President, and Chief Executive Officer, Green Dot Bank and Green Dot Corporation, Pasadena, CA

Carl J.P. Chang, 2020
Chief Executive Officer, Redwood-Kairos Real Estate Partners and Pieology Pizzeria, Rancho Santa Margarita, CA

Luis Faura, 2021
President and Chief Executive Officer, C&F Foods, Inc., City of Industry, CA

Deborah Flint, 2021
Chief Executive Officer, Los Angeles World Airports, Los Angeles, CA

Appointed by the Board of Governors

James A. Hughes, 2019
Former Director and Chief Executive Officer, First Solar, Inc., Tempe, AZ

Robert H. Gleason, 2020
President and Chief Executive Officer, Evans Hotels, San Diego, CA

Anita V. Pramoda, 2021
Chief Executive Officer, Owned Outcomes, Las Vegas, NV

Portland Branch

Appointed by the Federal Reserve Bank

Steven J. Zika, 2019
Chief Executive Officer, Hampton Lumber, Portland, OR

Hilary K. Krane, 2020
Executive Vice President, Chief Administrative Officer, and General Counsel, Nike, Inc., Beaverton, OR

Cheryl R. Nester Wolfe, 2020
President and Chief Executive Officer, Salem Health Hospital and Clinics, Salem, OR

Stacey M.L. Dodson, 2021
Market President, Portland and Southwest Washington, U.S. Bank, Portland, OR

Appointed by the Board of Governors

Anne C. Kubisch, 2019
President and Chief Executive Officer, The Ford Family Foundation, Roseburg, OR

Charles A. Wilhoite, 2020
Managing Director, Willamette Management Associates, Portland, OR

Gale Castillo, 2021
President, Cascade Centers, Inc., Portland, OR

Salt Lake City Branch

Appointed by the Federal Reserve Bank

Peter R. Metcalf, 2019
Founder, Brand Advocate, and Chief Executive Officer Emeritus, Black Diamond, Inc., Salt Lake City, UT

Jas Krdzalic, 2020
President and Chief Executive Officer, Bodybuilding.com, Boise, ID

Park Price, 2020
Chief Executive Officer Emeritus and Chairman, Bank of Idaho, Idaho Falls, ID

O. Randall Woodbury, 2021
President and Chief Executive Officer, Woodbury Corporation, Salt Lake City, UT

Appointed by the Board of Governors

Russell A. Childs, 2019
Chief Executive Officer and President, SkyWest, Inc., St. George, UT

Patricia R. Richards, 2020
President and Chief Executive Officer, SelectHealth, Inc., Murray, UT

Thomas K. Corrick, 2021

Chief Executive Officer, Boise Cascade Company, Boise, ID

Seattle Branch

Appointed by the Federal Reserve Bank

Andrew Wolff, 2019
Chief Financial Officer, International and Channel Development, Starbucks Coffee Company, Seattle, WA

Craig Dawson, 2020
President and Chief Executive Officer, Retail Lockbox, Inc., Seattle, WA

Laura Lee Stewart, 2020
President and Chief Executive Officer, Sound Community Bank and Sound Financial Bancorporation, Seattle, WA

Cheryl B. Fambles, 2021
Chief Executive Officer, Pacific Mountain Workforce Development Council, Tumwater, WA

Appointed by the Board of Governors

Sophie Minich, 2019
President and Chief Executive Officer, Cook Inlet Region, Inc., Anchorage, AK

Elaine S. Couture, 2020
Executive Vice President and Chief Executive Officer, Washington and Montana Region, Providence St. Joseph Health, Spokane, WA

West Mathison, 2021
President, Stemilt Growers, LLC, Wenatchee, WA

Reserve Bank and Branch Leadership

Each year, the Board of Governors designates one Class C director to serve as chair, and one Class C director to serve as deputy chair, of each Reserve Bank board. Reserve Banks also have a president and first vice president who are appointed by the Bank's Class C, and certain Class B, directors, subject to approval by the Board of Governors. Each Reserve Bank selects a chair for every Branch in its District from among the directors on the Branch board who were appointed by the Board of Governors. For each Branch, an officer from its Reserve Bank is also charged with the oversight of Branch operations.

Boston

Phillip L. Clay, *Chair*

Christina Hull Paxson, *Deputy Chair*

Eric S. Rosengren, *President and Chief Executive Officer*

Kenneth C. Montgomery, *First Vice President and Chief Operating Officer*

New York

Denise Scott, *Chair*

Rosa Gil, *Deputy Chair*

John C. Williams, *President*

Michael Strine, *First Vice President*

Additional office at East Rutherford, NJ

Philadelphia

Brian M. McNeill, *Chair*

Phoebe Haddon, *Deputy Chair*

Patrick T. Harker, *President and Chief Executive Officer*

James D. Narron, *First Vice President*

Cleveland

Dawne S. Hickton, *Chair*

Dwight E. Smith, *Deputy Chair*

Loretta J. Mester, *President and Chief Executive Officer*

Gregory Stefani, *First Vice President*

Cincinnati

Jenell R. Ross, *Chair*

Rick Kaglic, *Vice President and Senior Regional Officer*

Pittsburgh

Dmitri D. Shiry, *Chair*

Mekael Teshome, *Vice President and Senior Regional Officer*

Richmond

Kathy J. Warden, *Chair*

Margaret G. Lewis, *Deputy Chair*

Thomas I. Barkin, *President*

Becky C. Bareford, *First Vice President and Chief Operating Officer*

Baltimore

Susan J. Ganz, *Chair*

Andy Bauer, *Vice President and Baltimore Regional Executive*

Charlotte

R. Glenn Sherrill, Jr, *Chair*

Matthew A. Martin, *Senior Vice President and Charlotte Regional Executive*

Atlanta

Myron A. Gray, *Chair*

Elizabeth A. Smith, *Deputy Chair*

Raphael W. Bostic, *President*

André Anderson, *First Vice President*

Birmingham

Nancy C. Goedecke, *Chair*

Anoop Mishra, *Vice President and Regional Executive*

Jacksonville

Nicole B. Thomas, *Chair*

Christopher L. Oakley, *Vice President and Regional Executive*

Miami

Ana M. Menendez, *Chair*

Karen Gilmore, *Vice President and Regional Executive*

Nashville

Matthew S. Bourlakas, *Chair*

Laurel Graefe, *Vice President and Regional Executive*

New Orleans

G. Janelle Frost, *Chair*

Adrienne C. Slack, *Vice President and Regional Executive*

Chicago

Vacancy, *Chair*

E. Scott Santi, *Deputy Chair*

Charles L. Evans, *President*

Ellen J. Bromagen, *First Vice President*

Additional office at Des Moines, IA

Detroit

Joseph B. Anderson, Jr, *Chair*

Michael Hoppe, *Senior Vice President and Branch Manager*

St. Louis

Kathleen M. Mazzarella, *Chair*

Suzanne Sitherwood, *Deputy Chair*

James Bullard, *President*

David A. Sapenaro, *First Vice President*

Little Rock

Millie A. Ward, *Chair*

Robert Hopkins, *Senior Vice President and Regional Executive*

Louisville

Randy W. Schumaker, *Chair*

Nikki R. Lanier, *Senior Vice President and Regional Executive*

Memphis

Eric D. Johnson, *Chair*

Douglas G. Scarboro, *Senior Vice President and Regional Executive*

Minneapolis

Kendall J. Powell, *Chair*

Harry D. Melander, *Deputy Chair*

Neel T. Kashkari, *President*

Ron Feldman, *First Vice President*

Helena

Norma Nickerson,*Chair*

Kansas City

Rose M. Washington, *Chair*

James C. Farrell, *Deputy Chair*

Esther L. George, *President*

Kelly J. Dubbert, *First Vice President*

Denver

Taryn Christison, *Chair*

Nicholas Sly, *Assistant Vice President and Branch Executive*

Oklahoma City

Clint D. Abernathy, *Chair*

Chad R. Wilkerson, *Vice President and Branch Executive*

Omaha

Eric L. Butler, *Chair*

Nathan Kauffman, *Assistant Vice President and Branch Executive*

Dallas

Greg L. Armstrong, *Chair*

Thomas J. Falk, *Deputy Chair*

Robert S. Kaplan, *President and Chief Executive Officer*

Meredith N. Black, *First Vice President and Chief Operating Officer*

El Paso

Julio Chiu, *Chair*

Roberto A. Coronado, *Senior Vice President in Charge*

Houston

Marcus A. Watts, *Chair*

Daron D. Peschel, *Senior Vice President in Charge*

San Antonio

James Conrad Weaver, *Chair*

Blake Hastings, *Senior Vice President in Charge*

San Francisco

Barry M. Meyer, *Chair*

Rosemary Turner, *Deputy Chair*

Mary Daly, *President*

Mark A. Gould, *First Vice President*

Additional office at Phoenix, AZ

Los Angeles

Robert Gleason, *Chair*

Roger W. Replogle, *Executive Vice President and Regional Executive*

Portland

Charles A. Wilhoite, *Chair*

Lynn Jorgensen, *Vice President and Regional Executive*

Salt Lake City

Patricia R. Richards, *Chair*

Becky Potts, *Vice President and Regional Executive*

Seattle

West Mathison, *Chair*

Darlene Wilczynski, *Vice President and Regional Executive*

Leadership Conferences

Conference of Chairs

The chairs of the Federal Reserve Banks are organized into the Conference of Chairs, which meets to consider matters of common interest and to consult with and advise the Board of Governors. Such meetings, also attended by the deputy chairs, were held in Washington, D.C., on May 14–15, 2019, and November 12–13, 2019. The conference's executive committee members for 2019 are listed below.[5]

Conference of Chairs Executive Committee—2019

Kendall J. Powell, *Chair*,
Federal Reserve Bank of Minneapolis

Dawne S. Hickton, *Vice Chair*,
Federal Reserve Bank of Cleveland

Phillip L. Clay, *Member*,
Federal Reserve Bank of Boston

Conference of Presidents

The presidents of the Federal Reserve Banks are organized into the Conference of Presidents, which meets periodically to identify, define, and deliberate issues of strategic significance to the Federal Reserve System; to consider matters of common interest; and to consult with and advise the Board of Governors. The chief executive officer of each Reserve Bank was originally labeled governor and did not receive the title of president until the passage of the Banking Act of 1935. Consequently, when the Conference was first established in 1914 it was known as the Conference of Governors. Conference officers for 2019 are listed below.

Conference of Presidents—2019

Charles L. Evans, *Chair*,
Federal Reserve Bank of Chicago

James Bullard, *Vice Chair*,
Federal Reserve Bank of St. Louis

Keri Trolson, *Secretary*,
Federal Reserve Bank of Chicago

Douglas Scarboro, *Assistant Secretary*,
Federal Reserve Bank of St. Louis

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[5] On November 13, 2019, the Conference of Chairs elected Dawne S. Hickton, chair of the Federal Reserve Bank of Cleveland, as chair of the conference's executive committee for 2020. The conference also elected Phillip L. Clay, chair of the Federal Reserve Bank of Boston, as vice chair, and Greg L. Armstrong, chair of the Federal Reserve Bank of Dallas, as the executive committee's third member.

Conference of First Vice Presidents

The Conference of First Vice Presidents of the Federal Reserve Banks was organized in 1969 to meet periodically for the consideration of operations and other matters. Conference officers for 2019 are listed below.[6]

Conference of First Vice Presidents—2019

Kelly J. Dubbert, *Chair*,
Federal Reserve Bank of
Kansas City

Michael Strine, *Vice Chair*,
Federal Reserve Bank of
New York

Erika Hamilton, *Secretary*,
Federal Reserve Bank of
Kansas City

Laura Forman, *Assistant Secretary*,
Federal Reserve Bank of
New York

[6] On December 3, 2019, the conference elected Kelly J. Dubbert, Federal Reserve Bank of Kansas City, as chair for 2020 and Michael Strine, Federal Reserve Bank of New York, as vice chair. The conference also elected Laura Forman, Federal Reserve Bank of New York, as secretary and Joshua Silverstein, Federal Reserve Bank of Philadelphia, as assistant secretary.

B | Minutes of Federal Open Market Committee Meetings

The policy actions of the Federal Open Market Committee, recorded in the minutes of its meetings, are presented in the Annual Report of the Board of Governors pursuant to the requirements of section 10 of the Federal Reserve Act. That section provides that the Board shall keep a complete record of the actions taken by the Board and by the Federal Open Market Committee on all questions of policy relating to open market operations, that it shall record therein the votes taken in connection with the determination of open market policies and the reasons underlying each policy action, and that it shall include in its annual report to Congress a full account of such actions.

The minutes of the meetings contain the votes on the policy decisions made at those meetings, as well as a summary of the information and discussions that led to the decisions. In addition, four times a year, a Summary of Economic Projections is published as an addendum to the minutes. The descriptions of economic and financial conditions in the minutes and the Summary of Economic Projections are based solely on the information that was available to the Committee at the time of the meetings.

Members of the Committee voting for a particular action may differ among themselves as to the reasons for their votes; in such cases, the range of their views is noted in the minutes. When members dissent from a decision, they are identified in the minutes and a summary of the reasons for their dissent is provided.

Policy directives of the Federal Open Market Committee are issued to the Federal Reserve Bank of New York as the Bank selected by the Committee to execute transactions for the System Open Market Account. In the area of domestic open market operations, the Federal Reserve Bank of New York operates under instructions from the Federal Open Market Committee that take the form of an Authorization for Domestic Open Market Operations and a Domestic Policy Directive. (A new Domestic Policy Directive is adopted at each regularly scheduled meeting.) In the foreign currency area, the Federal Reserve Bank of New York operates under an Authorization for Foreign Currency Operations and a Foreign Currency Directive. Changes in the instruments during the year are reported in the minutes for the individual meetings.[1]

[1] As of January 1, 2019, the Federal Reserve Bank of New York was operating under the Domestic Policy Directive approved at the December 18–19, 2018, Committee meeting. The other policy instruments (the Authorization for Domestic Open Market Operations, the Authorization for Foreign Currency Operations, and the Foreign Currency Directive) in effect as of January 1, 2019, were approved at the January 30–31, 2018, meeting.

Meeting Held on January 29–30, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, January 29, 2019, at 10:00 a.m. and continued on Wednesday, January 30, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chairman

John C. Williams
Vice Chairman

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Thomas A. Connors, Rochelle M. Edge, Beverly Hirtle, Daniel G. Sullivan, Christopher J. Waller, William Wascher, Jonathan L. Willis, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Jennifer J. Burns
Deputy Director, Division of Supervision and Regulation, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chairman, Office of Board Members, Board of Governors

Antulio N. Bomfim
Special Adviser to the Chairman, Office of Board Members, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of the long-run monetary policy implementation frameworks.

Brian M. Doyle, Joseph W. Gruber, Ellen E. Meade, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Christopher J. Erceg
Senior Associate Director, Division of International Finance, Board of Governors

David E. Lebow and Michael G. Palumbo
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Edward Nelson and Robert J. Tetlow
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer[2]
Associate Director, Division of Monetary Affairs, Board of Governors

Jeffrey D. Walker[2]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Eric C. Engstrom
Deputy Associate Director, Division of Monetary Affairs,
and
Adviser, Division of Research and Statistics, Board of Governors

Glenn Follette and Norman J. Morin
Assistant Directors, Division of Research and Statistics, Board of Governors

Christopher J. Gust, Laura Lipscomb,[2] and Zeynep Senyuz[2]
Assistant Directors, Division of Monetary Affairs, Board of Governors

Dana L. Burnett, Michele Cavallo,[2] and Dan Li
Section Chiefs, Division of Monetary Affairs, Board of Governors

Sean Savage
Senior Project Manager, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Kurt F. Lewis
Principal Economist, Division of Monetary Affairs, Board of Governors

Christopher L. Smith
Principal Economist, Division of Research and Statistics, Board of Governors

Ayelen Banegas
Senior Economist, Division of Monetary Affairs, Board of Governors

Luke Pettit[2]
Senior Financial Institution and Policy Analyst, Division of Monetary Affairs, Board of Governors

Pon Sagnanert
Financial Analyst, Division of Monetary Affairs, Board of Governors

Yvette McKnight[3]
Staff Assistant, Office of the Secretary, Board of Governors

Meredith Black
First Vice President, Federal Reserve Bank of Dallas

David Altig and Sylvain Leduc
Executive Vice Presidents, Federal Reserve Banks of Atlanta and San Francisco, respectively

Bruce Fallick, Marc Giannoni, Susan McLaughlin,[2] Anna Nordstrom,[2] Angela O'Connor,[2] Keith Sill, and Mark L. J. Wright
Senior Vice Presidents, Federal Reserve Banks of Cleveland, Dallas, New York, New York, New York, Philadelphia, and Minneapolis, respectively

Roc Armenter,[2] Kathryn B. Chen,[2] Joe Peek, Alexander L. Wolman, and Patricia Zobel[2]
Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Boston, Richmond, and New York, respectively

Samuel Schulhofer-Wohl
Senior Economist and Research Advisor, Federal Reserve Bank of Chicago

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[3] Attended Tuesday session only.

Annual Organizational Matters[4]

In the agenda for this meeting, it was reported that advices of the election of the following members and alternate members of the Federal Open Market Committee for a term beginning January 29, 2019, had been received and that these individuals had executed their oaths of office.

The elected members and alternate members were as follows:

John C. Williams
President of the Federal Reserve Bank of New York, with

Michael Strine
First Vice President of the Federal Reserve Bank of New York, as alternate.

Eric Rosengren
President of the Federal Reserve Bank of Boston, with

Patrick Harker
President of the Federal Reserve Bank of Philadelphia, as alternate.

Charles L. Evans
President of the Federal Reserve Bank of Chicago, with

Loretta J. Mester
President of the Federal Reserve Bank of Cleveland, as alternate.

James Bullard
President of the Federal Reserve Bank of St. Louis, with

Robert S. Kaplan
President of the Federal Reserve Bank of Dallas, as alternate.

Esther L. George
President of the Federal Reserve Bank of Kansas City, with

Neel Kashkari
President of the Federal Reserve Bank of Minneapolis, as alternate.

By unanimous vote, the following officers of the Committee were selected to serve until the selection of their successors at the first regularly scheduled meeting of the Committee in 2020:

Jerome H. Powell
Chairman

John C. Williams
Vice Chairman

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Richard M. Ashton
Assistant General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Thomas A. Connors

Rochelle M. Edge

Eric M. Engen

Beverly Hirtle

Daniel G. Sullivan

Geoffrey Tootell

Christopher J. Waller

William Wascher

Jonathan L. Willis

Beth Anne Wilson
Associate Economists

By unanimous vote, the Federal Reserve Bank of New York was selected to execute transactions for the System Open Market Account (SOMA).

By unanimous vote, the Committee selected Simon Potter and Lorie K. Logan to serve at the pleasure of the Committee as manager and deputy manager of the SOMA, respectively, on the understanding that these selections were subject to their being satisfactory to the Federal Reserve Bank of New York.

[4] Committee organizational documents are available at https://www.federalreserve.gov/monetarypolicy/rules_authorizations.htm.

Secretary's note: Advice subsequently was received that the manager and deputy manager selections indicated above were satisfactory to the Federal Reserve Bank of New York.

By unanimous vote, the Committee approved the Authorization for Domestic Open Market Operations with a revision that makes clear that small value tests for rollovers and maturities are included in the $5 billion limit of the operational readiness testing program. The Guidelines for the Conduct of System Open Market Operations in Federal-Agency Issues remained suspended.

Authorization for Domestic Open Market Operations (As Amended Effective January 29, 2019)

Open Market Transactions

1. The Federal Open Market Committee (the "Committee") authorizes and directs the Federal Reserve Bank selected by the Committee to execute open market transactions (the "Selected Bank"), to the extent necessary to carry out the most recent domestic policy directive adopted by the Committee:

   A. To buy or sell in the open market securities that are direct obligations of, or fully guaranteed as to principal and interest by, the United States, and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, that are eligible for purchase or sale under Section 14(b) of the Federal Reserve Act ("Eligible Securities") for the System Open Market Account ("SOMA"):

      i. As an outright operation with securities dealers and foreign and international accounts maintained at the Selected Bank: on a same-day or deferred delivery basis (including such transactions as are commonly referred to as dollar rolls and coupon swaps) at market prices; or

      ii. As a temporary operation: on a same-day or deferred delivery basis, to purchase such Eligible Securities subject to an agreement to resell ("repo transactions") or to sell such Eligible Securities subject to an agreement to repurchase ("reverse repo transactions") for a term of 65 business days or less, at rates that, unless otherwise authorized by the Committee, are determined by competitive bidding, after applying reasonable limitations on the volume of agreements with individual counterparties;

   B. To allow Eligible Securities in the SOMA to mature without replacement;

   C. To exchange, at market prices, in connection with a Treasury auction, maturing Eligible Securities in the SOMA with the Treasury, in the case of Eligible Securities that are direct obligations of the United States or that are fully guaranteed as to principal and interest by the United States; and

   D. To exchange, at market prices, maturing Eligible Securities in the SOMA with an agency of the United States, in the case of Eligible Securities that are direct obligations of that agency or that are fully guaranteed as to principal and interest by that agency.

Securities Lending

2. In order to ensure the effective conduct of open market operations, the Committee authorizes the Selected Bank to operate a program to lend Eligible Securities held in the SOMA to dealers on an overnight basis (except that the Selected Bank may lend Eligible Securities for longer than an overnight term to accommodate weekend, holiday, and similar trading conventions).

   A. Such securities lending must be:

      i. At rates determined by competitive bidding;

      ii. At a minimum lending fee consistent with the objectives of the program;

      iii. Subject to reasonable limitations on the total amount of a specific issue of Eligible Securities that may be auctioned; and

      iv. Subject to reasonable limitations on the amount of Eligible Securities that each borrower may borrow.

   B. The Selected Bank may:

      i. Reject bids that, as determined in its sole discretion, could facilitate a bidder's ability to control a single issue;

ii. Accept Treasury securities or cash as collateral for any loan of securities authorized in this paragraph 2; and

iii. Accept agency securities as collateral only for a loan of agency securities authorized in this paragraph 2.

Operational Readiness Testing

3. The Committee authorizes the Selected Bank to undertake transactions of the type described in paragraphs 1 and 2 from time to time for the purpose of testing operational readiness, subject to the following limitations:

   A. All transactions authorized in this paragraph 3 shall be conducted with prior notice to the Committee;

   B. The aggregate par value of the transactions authorized in this paragraph 3 that are of the type described in paragraph 1.A.i, 1.B, 1.C and 1.D shall not exceed $5 billion per calendar year; and

   C. The outstanding amount of the transactions described in paragraphs 1.A.ii and 2 shall not exceed $5 billion at any given time.

Transactions with Customer Accounts

4. In order to ensure the effective conduct of open market operations, while assisting in the provision of short-term investments or other authorized services for foreign central bank and international accounts maintained at a Federal Reserve Bank (the “Foreign Accounts”) and accounts maintained at a Federal Reserve Bank as fiscal agent of the United States pursuant to section 15 of the Federal Reserve Act (together with the Foreign Accounts, the “Customer Accounts”), the Committee authorizes the following when undertaken on terms comparable to those available in the open market:

   A. The Selected Bank, for the SOMA, to undertake reverse repo transactions in Eligible Securities held in the SOMA with the Customer Accounts for a term of 65 business days or less; and

   B. Any Federal Reserve Bank that maintains Customer Accounts, for any such Customer Account, when appropriate and subject to all other necessary authorization and approvals, to:

      i. Undertake repo transactions in Eligible Securities with dealers with a corresponding reverse repo transaction in such Eligible Securities with the Customer Accounts; and

      ii. Undertake intra-day repo transactions in Eligible Securities with Foreign Accounts.

   Transactions undertaken with Customer Accounts under the provisions of this paragraph 4 may provide for a service fee when appropriate. Transactions undertaken with Customer Accounts are also subject to the authorization or approval of other entities, including the Board of Governors of the Federal Reserve System and, when involving accounts maintained at a Federal Reserve Bank as fiscal agent of the United States, the United States Department of the Treasury.

Additional Matters

5. The Committee authorizes the Chairman of the Committee, in fostering the Committee’s objectives during any period between meetings of the Committee, to instruct the Selected Bank to act on behalf of the Committee to:

   A. Adjust somewhat in exceptional circumstances the stance of monetary policy and to take actions that may result in material changes in the composition and size of the assets in the SOMA; or

   B. Undertake transactions with respect to Eligible Securities in order to appropriately address temporary disruptions of an operational or highly unusual nature in U.S. dollar funding markets.

   Any such adjustment described in subparagraph A of this paragraph 5 shall be made in the context of the Committee’s discussion and decision about the stance of policy at its most recent meeting and the Committee’s long-run objectives to foster maximum employment and price stability, and shall be based on economic, financial, and monetary developments since the most recent meeting of the Committee. The Chairman, whenever feasible, will consult with the Committee

before making any instruction under this paragraph 5.

The Committee voted unanimously to reaffirm without revision the Authorization for Foreign Currency Operations and the Foreign Currency Directive as shown below.

Authorization for Foreign Currency Operations (As Reaffirmed Effective January 29, 2019)

In General

1. The Federal Open Market Committee (the "Committee") authorizes the Federal Reserve Bank selected by the Committee (the "Selected Bank") to execute open market transactions for the System Open Market Account as provided in this Authorization, to the extent necessary to carry out any foreign currency directive of the Committee:

    A. To purchase and sell foreign currencies (also known as cable transfers) at home and abroad in the open market, including with the United States Treasury, with foreign monetary authorities, with the Bank for International Settlements, and with other entities in the open market. This authorization to purchase and sell foreign currencies encompasses purchases and sales through standalone spot or forward transactions and through foreign exchange swap transactions. For purposes of this Authorization, foreign exchange swap transactions are: swap transactions with the United States Treasury (also known as warehousing transactions), swap transactions with other central banks under reciprocal currency arrangements, swap transactions with other central banks under standing dollar liquidity and foreign currency liquidity swap arrangements, and swap transactions with other entities in the open market.

    B. To hold balances of, and to have outstanding forward contracts to receive or to deliver, foreign currencies.

2. All transactions in foreign currencies undertaken pursuant to paragraph 1 above shall, unless otherwise authorized by the Committee, be conducted:

    A. In a manner consistent with the obligations regarding exchange arrangements under Article IV of the Articles of Agreement of the International Monetary Fund (IMF).[1]

    B. In close and continuous cooperation and consultation, as appropriate, with the United States Treasury.

    C. In consultation, as appropriate, with foreign monetary authorities, foreign central banks, and international monetary institutions.

    D. At prevailing market rates.

Standalone Spot and Forward Transactions

3. For any operation that involves standalone spot or forward transactions in foreign currencies:

    A. Approval of such operation is required as follows:

        i. The Committee must direct the Selected Bank in advance to execute the operation if it would result in the overall volume of standalone spot and forward transactions in foreign currencies, as defined in paragraph 3.C of this Authorization, exceeding $5 billion since the close of the most recent regular meeting of the Committee. The Foreign Currency Subcommittee (the "Subcommittee") must direct the Selected Bank in advance to execute the operation if the Subcommittee believes that consultation with the Committee is not feasible in the time available.

        ii. The Committee authorizes the Subcommittee to direct the Selected Bank in advance to execute the operation if it would result in the overall volume of standalone spot and forward transactions in foreign currencies, as defined in paragraph 3.C of this Authorization, totaling $5 billion or less since the close of the

[1] In general, as specified in Article IV, each member of the IMF undertakes to collaborate with the IMF and other members to assure orderly exchange arrangements and to promote a stable system of exchange rates. These obligations include seeking to direct the member's economic and financial policies toward the objective of fostering orderly economic growth with reasonable price stability. These obligations also include avoiding manipulating exchange rates or the international monetary system in such a way that would impede effective balance of payments adjustment or to give an unfair competitive advantage over other members.

most recent regular meeting of the Committee.

B. Such an operation also shall be:

   i. Generally directed at countering disorderly market conditions; or

   ii. Undertaken to adjust System balances in light of probable future needs for currencies; or

   iii. Conducted for such other purposes as may be determined by the Committee.

C. For purposes of this Authorization, the overall volume of standalone spot and forward transactions in foreign currencies is defined as the sum (disregarding signs) of the dollar values of individual foreign currencies purchased and sold, valued at the time of the transaction.

Warehousing

4. The Committee authorizes the Selected Bank, with the prior approval of the Subcommittee and at the request of the United States Treasury, to conduct swap transactions with the United States Exchange Stabilization Fund established by section 10 of the Gold Reserve Act of 1934 under agreements in which the Selected Bank purchases foreign currencies from the Exchange Stabilization Fund and the Exchange Stabilization Fund repurchases the foreign currencies from the Selected Bank at a later date (such purchases and sales also known as warehousing).

Reciprocal Currency Arrangements, and Standing Dollar and Foreign Currency Liquidity Swaps

5. The Committee authorizes the Selected Bank to maintain reciprocal currency arrangements established under the North American Framework Agreement, standing dollar liquidity swap arrangements, and standing foreign currency liquidity swap arrangements as provided in this Authorization and to the extent necessary to carry out any foreign currency directive of the Committee.

A. For reciprocal currency arrangements all drawings must be approved in advance by the Committee (or by the Subcommittee, if the Subcommittee believes that consultation with the Committee is not feasible in the time available).

B. For standing dollar liquidity swap arrangements all drawings must be approved in advance by the Chairman. The Chairman may approve a schedule of potential drawings, and may delegate to the manager, System Open Market Account, the authority to approve individual drawings that occur according to the schedule approved by the Chairman.

C. For standing foreign currency liquidity swap arrangements all drawings must be approved in advance by the Committee (or by the Subcommittee, if the Subcommittee believes that consultation with the Committee is not feasible in the time available).

D. Operations involving standing dollar liquidity swap arrangements and standing foreign currency liquidity swap arrangements shall generally be directed at countering strains in financial markets in the United States or abroad, or reducing the risk that they could emerge, so as to mitigate their effects on economic and financial conditions in the United States.

E. For reciprocal currency arrangements, standing dollar liquidity swap arrangements, and standing foreign currency liquidity swap arrangements:

   i. All arrangements are subject to annual review and approval by the Committee;

   ii. Any new arrangements must be approved by the Committee; and

   iii. Any changes in the terms of existing arrangements must be approved in advance by the Chairman. The Chairman shall keep the Committee informed of any changes in terms, and the terms shall be consistent with principles discussed with and guidance provided by the Committee.

Other Operations in Foreign Currencies

6. Any other operations in foreign currencies for which governance is not otherwise specified in this Authorization (such as foreign exchange swap

transactions with private-sector counterparties) must be authorized and directed in advance by the Committee.

Foreign Currency Holdings

7. The Committee authorizes the Selected Bank to hold foreign currencies for the System Open Market Account in accounts maintained at foreign central banks, the Bank for International Settlements, and such other foreign institutions as approved by the Board of Governors under Section 214.5 of Regulation N, to the extent necessary to carry out any foreign currency directive of the Committee.

   A. The Selected Bank shall manage all holdings of foreign currencies for the System Open Market Account:

      i. Primarily, to ensure sufficient liquidity to enable the Selected Bank to conduct foreign currency operations as directed by the Committee;

      ii. Secondarily, to maintain a high degree of safety;

      iii. Subject to paragraphs 7.A.i and 7.A.ii, to provide the highest rate of return possible in each currency; and

      iv. To achieve such other objectives as may be authorized by the Committee.

   B. The Selected Bank may manage such foreign currency holdings by:

      i. Purchasing and selling obligations of, or fully guaranteed as to principal and interest by, a foreign government or agency thereof ("Permitted Foreign Securities") through outright purchases and sales;

      ii. Purchasing Permitted Foreign Securities under agreements for repurchase of such Permitted Foreign Securities and selling such securities under agreements for the resale of such securities; and

      iii. Managing balances in various time and other deposit accounts at foreign institutions approved by the Board of Governors under Regulation N.

   C. The Subcommittee, in consultation with the Committee, may provide additional instructions to the Selected Bank regarding holdings of foreign currencies.

Additional Matters

8. The Committee authorizes the Chairman:

   A. With the prior approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the United States Treasury about the division of responsibility for foreign currency operations between the System and the United States Treasury;

   B. To advise the Secretary of the United States Treasury concerning System foreign currency operations, and to consult with the Secretary on policy matters relating to foreign currency operations;

   C. To designate Federal Reserve System persons authorized to communicate with the United States Treasury concerning System Open Market Account foreign currency operations; and

   D. From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Policies.

9. The Committee authorizes the Selected Bank to undertake transactions of the type described in this Authorization, and foreign exchange and investment transactions that it may be otherwise authorized to undertake, from time to time for the purpose of testing operational readiness. The aggregate amount of such transactions shall not exceed $2.5 billion per calendar year. These transactions shall be conducted with prior notice to the Committee.

10. All Federal Reserve banks shall participate in the foreign currency operations for System Open Market Account in accordance with paragraph 3G(1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks dated January 1, 1944.

11. Any authority of the Subcommittee pursuant to this Authorization may be exercised by the Chairman if the Chairman believes that consultation with the Subcommittee is not feasible in the time

available. The Chairman shall promptly report to the Subcommittee any action approved by the Chairman pursuant to this paragraph.

12. The Committee authorizes the Chairman, in exceptional circumstances where it would not be feasible to convene the Committee, to foster the Committee's objectives by instructing the Selected Bank to engage in foreign currency operations not otherwise authorized pursuant to this Authorization. Any such action shall be made in the context of the Committee's discussion and decisions regarding foreign currency operations. The Chairman, whenever feasible, will consult with the Committee before making any instruction under this paragraph.

Foreign Currency Directive (As Reaffirmed Effective January 29, 2019)

1. The Committee directs the Federal Reserve Bank selected by the Committee (the "Selected Bank") to execute open market transactions, for the System Open Market Account, in accordance with the provisions of the Authorization for Foreign Currency Operations (the "Authorization") and subject to the limits in this Directive.

2. The Committee directs the Selected Bank to execute warehousing transactions, if so requested by the United States Treasury and if approved by the Foreign Currency Subcommittee (the "Subcommittee"), subject to the limitation that the outstanding balance of United States dollars provided to the United States Treasury as a result of these transactions not at any time exceed $5 billion.

3. The Committee directs the Selected Bank to maintain, for the System Open Market Account:

    A. Reciprocal currency arrangements with the following foreign central banks:

Foreign central bank	Maximum amount (millions of dollars or equivalent)
Bank of Canada	2,000
Bank of Mexico	3,000

    B. Standing dollar liquidity swap arrangements with the following foreign central banks:

    Bank of Canada
    Bank of England
    Bank of Japan
    European Central Bank
    Swiss National Bank

    C. Standing foreign currency liquidity swap arrangements with the following foreign central banks:

    Bank of Canada
    Bank of England
    Bank of Japan
    European Central Bank
    Swiss National Bank

4. The Committee directs the Selected Bank to hold and to invest foreign currencies in the portfolio in accordance with the provisions of paragraph 7 of the Authorization.

5. The Committee directs the Selected Bank to report to the Committee, at each regular meeting of the Committee, on transactions undertaken pursuant to paragraphs 1 and 6 of the Authorization. The Selected Bank is also directed to provide quarterly reports to the Committee regarding the management of the foreign currency holdings pursuant to paragraph 7 of the Authorization.

6. The Committee directs the Selected Bank to conduct testing of transactions for the purpose of operational readiness in accordance with the provisions of paragraph 9 of the Authorization.

By unanimous vote, the Committee reaffirmed its Program for Security of FOMC Information.

In the Committee's annual reconsideration of the Statement on Longer-Run Goals and Monetary Policy Strategy, participants agreed that only a minor revision was required at this meeting, which was to update the reference to the median of FOMC participants' estimates of the longer-run normal rate of unemployment from 4.6 percent to 4.4 percent. All participants supported the statement with the revision, and the Committee voted unanimously to approve the updated statement.

Statement on Longer-Run Goals and Monetary Policy Strategy (As Amended Effective January 29, 2019)

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.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. 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 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 would be concerned if inflation were running persistently above or below this objective. Communicating this symmetric inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances. The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. 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 maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, the median of FOMC participants' estimates of the longer-run normal rate of unemployment was 4.4 percent.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the 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 reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

Developments in Financial Markets and Open Market Operations

The deputy manager of the System Open Market Account (SOMA) provided an overview of developments in U.S. and global financial markets. Financial markets were quite volatile over the intermeeting period. Market participants pointed to a number of factors as contributing to the heightened volatility and sustained declines in risk asset prices and interest rates over recent months including a weaker outlook and greater uncertainties for foreign economies (particularly for Europe and China), perceptions of greater policy risks, and the partial shutdown of the federal government. Against this backdrop, market participants appeared to interpret FOMC communications at the time of the December meeting as not fully appreciating the tightening of financial conditions and the associated downside risks to the U.S. economic outlook that had emerged since the fall. In addition, some market reports suggested that investors perceived the FOMC to be insufficiently flexible in its approach to adjusting the path for the federal funds rate or the process for balance sheet normalization in light of those risks. The deterioration in risk sentiment late in December was reportedly amplified by poor liquidity and thin trading conditions around year-end.

Early in the new year, market sentiment improved following communications by Federal Reserve officials emphasizing that the Committee could be "patient" in considering further adjustments to the stance of policy and that it would be flexible in managing the reduction of securities holdings in the SOMA. On balance, stock prices finished the period

up almost 5 percent while corporate risk spreads narrowed, reversing a portion of the changes in these variables since the September FOMC meeting.

The deputy manager reported results from the Open Market Desk's latest surveys of primary dealers and market participants. Regarding the outlook for policy, the median path for the federal funds rate among respondents had shifted down about 25 basis points relative to the responses from the surveys conducted ahead of the December meeting. Moreover, the average probability that respondents attached to an increase in the target range as the next policy action declined and the corresponding probabilities they attached to the possibility that the target range would be unchanged or lowered at some point this year increased. Concerning expectations for the FOMC statement, many survey respondents anticipated the retention of language pointing to the likelihood of "some further gradual increases" in the target range for the federal funds rate but many also expected the statement to emphasize patience or data dependence in the conduct of policy. Consistent with recent communications that the FOMC would be flexible in its approach to balance sheet normalization, the survey results also suggested that the respondents anticipated that the Committee would slow the balance sheet runoff in scenarios that involved a reduction in the target range for the federal funds rate.

In reviewing money market developments, the deputy manager noted that federal funds continued to trade at rates close to the interest on excess reserves rate. Moreover, no signs of reserve scarcity were evident in the behavior of the federal funds rate; the correlation between daily changes in reserve balances and the federal funds rate remained close to zero. In other markets, repurchase agreement (repo) rates spiked at year-end, reportedly reflecting strong demands for financing from dealers associated with large Treasury auction net settlements on that day combined with a cutback in the supply of financing available from banks and others managing the size of their balance sheets over year-end for reporting purposes. The deputy manager noted that the Federal Reserve Bank of New York was planning to release a notice in early February for public comment on plans to include new data on selected deposits in the calculation of the overnight bank funding rate (OBFR). In addition, the staff had begun work aimed at publishing a series of backward-looking average secured overnight financing rates (SOFR) as a further step to support reference rate reform. The staff planned to solicit public feedback on this effort later this year and initiate publication of these averages by the first half of 2020.

Following the briefing, participants raised a number of questions about market reports that the Federal Reserve's balance sheet runoff and associated "quantitative tightening" had been an important factor contributing to the selloff in equity markets in the closing months of last year. While respondents assessed that the reduction of securities held in the SOMA would put some modest upward pressure on Treasury yields and agency mortgage-backed securities (MBS) yields over time, they generally placed little weight on balance sheet reduction as a prime factor spurring the deterioration in risk sentiment over that period. However, some other investors reportedly held firmly to the belief that the runoff of the Federal Reserve's securities holdings was a factor putting significant downward pressure on risky asset prices, and the investment decisions of these investors, particularly in thin market conditions around the year-end, might have had an outsized effect on market prices for a time. Participants also discussed the hypothesis that investors may have taken some signal about the future path of the federal funds rate based on perceptions that the Federal Reserve was unwilling to adjust the pace of balance sheet runoff in light of economic and financial developments.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Long-Run Monetary Policy Implementation Frameworks

Committee participants resumed their discussion from the December 2018 meeting of the appropriate long-run framework for monetary policy implementation. At the January meeting, the staff provided briefings on the effectiveness and efficiency of the Committee's current operating regime and on options for transitioning to the longer-run size of the balance sheet.

The staff noted that the Committee had previously indicated that, in the longer run, it intends to operate with no more securities holdings than necessary to implement monetary policy efficiently and effectively. In considering the effectiveness of the operating regime, the staff observed that over recent years, the

Federal Reserve had been able to implement monetary policy in an environment with ample reserves by adjusting administered rates—including the rates on required and excess reserve balances and the offered rate at the overnight reverse repurchase agreement facility—without needing to actively manage the supply of reserves. Over this period, the effective federal funds rate was generally steady at levels well within the Committee's target range despite substantial changes in the level of reserves in the banking system and significant changes in money markets, regulations, and financial institutions' business models. In addition, other money market rates generally moved closely with the federal funds rate. The current regime was therefore effective both in providing control of the policy rate and in ensuring transmission of the policy stance to other rates and broader financial markets.

The staff briefing also included a discussion of factors relevant in judging the level of reserves that would support the efficient implementation of monetary policy. The staff suggested that maintaining a buffer of reserves above the minimum quantity that corresponds to the flat portion of the reserve demand curve could reduce the size and frequency of open market operations needed to maintain good control of the policy rate. The aggregate level of reserves had already declined by $1.2 trillion from a peak level of $2.8 trillion reached in October 2014; the decline stemmed from both reductions in asset holdings and increases in nonreserve liabilities such as Federal Reserve notes in circulation. Some recent survey information and other evidence suggested that reserves might begin to approach an efficient level later this year. Against this backdrop, the staff presented options for substantially slowing the decline in reserves by ending the reduction in asset holdings at some point over the latter half of this year and thereafter holding the size of the SOMA portfolio roughly constant for a time so that the average level of reserves would fall at a very gradual pace reflecting the trend growth in other Federal Reserve liabilities.

The staff also described options for communicating plans both for the operating regime and for the completion of the normalization of the size of the balance sheet. If the Committee reached a decision to continue using its current operating regime, announcing this decision after the current meeting would help reduce uncertainty about both the long-run implementation framework and the likely evolution of the balance sheet. In addition, the Committee could revise its previous communications to make clear that it was flexible in its approach to normalizing the balance sheet and was prepared to change the details of its balance sheet normalization plans in light of economic and financial developments if necessary to support the FOMC's broader policy goals. The staff noted that, after the end of asset redemptions, the Desk could reinvest principal payments received from holdings of agency MBS in Treasury securities as directed.

Participants noted some of the key advantages of the Federal Reserve's current operating regime, including good control of the policy rate in a variety of conditions and good transmission to other money market rates and broader financial markets. They observed that a regime that controlled the policy rate through active management of the supply of reserves likely would have disadvantages. In particular, the level and variability of reserve demand and supply were likely to be much larger than in the period before the crisis, and stabilizing the policy rate in this environment would require large and frequent open market operations. Participants judged that, in light of their extensive previous discussions, it was now appropriate to provide the public with more certainty that the Federal Reserve would continue to use its current operating regime. Choosing an operating regime would also allow the Committee to move forward on related issues, including plans for concluding the normalization of the size of the balance sheet. Participants emphasized the importance of describing their chosen operating regime in clear terms to enhance public understanding.

Participants discussed market commentary that suggested that the process of balance sheet normalization might be influencing financial markets. Participants noted that the ongoing reduction in the Federal Reserve's asset holdings had proceeded smoothly for more than a year, with no significant effects on financial markets. The gradual reduction in securities holdings had been announced well in advance and, as intended, was proceeding largely in the background, with the federal funds rate remaining the Committee's primary tool for adjusting the stance of policy. Nonetheless, some investors might have interpreted previous communications as indicating that a very high threshold would have to be met before the Committee would be willing to adjust its balance sheet normalization plans. Participants observed that, although the target range for the federal funds rate was the Committee's primary means of adjusting the stance of policy, the balance sheet normalization process should proceed in a way that supports the

achievement of the Federal Reserve's dual-mandate goals of maximum employment and stable prices. Consistent with this principle, participants agreed that it was important to be flexible in managing the process of balance sheet normalization, and that it would be appropriate to adjust the details of balance sheet normalization plans in light of economic and financial developments if necessary to achieve the Committee's macroeconomic objectives.

Almost all participants thought that it would be desirable to announce before too long a plan to stop reducing the Federal Reserve's asset holdings later this year. Such an announcement would provide more certainty about the process for completing the normalization of the size of the Federal Reserve's balance sheet. A substantial majority expected that when asset redemptions ended, the level of reserves would likely be somewhat larger than necessary for efficient and effective implementation of monetary policy; if so, many suggested that some further very gradual decline in the average level of reserves, reflecting the trend growth of other liabilities such as Federal Reserve notes in circulation, could be appropriate. In these participants' view, this process would allow the Federal Reserve to arrive slowly at an efficient level of reserves while maintaining good control of short-term interest rates without needing to engage in more frequent open market operations. A few participants judged that there would be little benefit to allowing reserves to continue to fall after the end of redemptions or that this approach could have costs, such as an undue risk of volatility in short-term interest rates, that would exceed its benefits. These participants thought that upon ending asset redemptions, the Federal Reserve should begin adding to its assets to offset growth in nonreserve liabilities, so as to keep the average level of reserves relatively stable. A couple of participants suggested that a ceiling facility to mitigate temporary unexpected pressures in reserve markets could play a useful role in supporting policy implementation at lower levels of reserves.

Participants commented that, in light of the Committee's longstanding plan to hold primarily Treasury securities in the long run, it would be appropriate once asset redemptions end to reinvest most, if not all, principal payments received from agency MBS in Treasury securities. Some thought that continuing to reinvest agency MBS principal payments in excess of $20 billion per month in agency MBS, as under the current balance sheet normalization plan, would simplify communications or provide a helpful backstop against scenarios in which large declines in long-term interest rates caused agency MBS prepayment speeds to increase sharply. However, some others judged that retaining the cap on agency MBS redemptions was unnecessary at this stage in the normalization process. These participants noted considerations in support of this view, including that principal payments were unlikely to reach the $20 billion level after 2019, that the cap could slightly slow the return to a portfolio of primarily Treasury securities, or that the Committee would have the flexibility to adjust the details of its balance sheet normalization plans in light of economic and financial developments. Participants commented that it would be important over time to develop and communicate plans for reinvesting agency MBS principal payments, and they expected to continue their discussion of balance sheet normalization and related issues at upcoming meetings.

Following the discussion, the Chairman proposed that the Committee communicate its intentions regarding monetary policy implementation and its willingness to adjust the details of its balance sheet normalization program by publishing a statement at the conclusion of the meeting. All participants agreed with the proposed statement.

Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization (Adopted January 30, 2019)

After extensive deliberations and thorough review of experience to date, the Committee judges that it is appropriate at this time to provide additional information regarding its plans to implement monetary policy over the longer run. Additionally, the Committee is revising its earlier guidance regarding the conditions under which it could adjust the details of its balance sheet normalization program.[5] Accordingly, all participants agreed to the following:

- The Committee intends to continue to implement monetary policy in a regime in which an ample supply of reserves ensures that control over the

[5] The Committee's Policy Normalization Principles and Plans were adopted on September 16, 2014, and are available at https://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.pdf. On March 18, 2015, the Committee adopted an addendum to the Policy Normalization Principles and Plans, which is available at https://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.20150318.pdf. On June 13, 2017, the Committee adopted a second addendum to the Policy Normalization Principles and Plans, which is available at https://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.20170613.pdf.

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.

- The Committee continues to view changes in the target range for the federal funds rate as its primary means of adjusting the stance of monetary policy. The Committee is prepared to adjust any of the details for completing balance sheet normalization in light of economic and financial developments. Moreover, the Committee would be prepared to use its full range of tools, including altering the size and composition of its balance sheet, if future economic conditions were to warrant a more accommodative monetary policy than can be achieved solely by reducing the federal funds rate.

Staff Review of the Economic Situation

The information available for the January 29–30 meeting indicated that labor market conditions continued to strengthen and that growth in real gross domestic product (GDP) was solid in the fourth quarter of last year, although the availability of data was more limited than usual because of the partial federal government shutdown that extended from December 22 to January 25. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), was a bit below 2 percent in November, held down in part by recent declines in consumer energy prices. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment expanded strongly in December. The national unemployment rate edged up but was still at a low level of 3.9 percent, while the labor force participation rate also increased somewhat; as a result, the employment-to-population ratio remained steady in December. The unemployment rates for African Americans, Asians, and Hispanics in December were below their levels at the end of the previous economic expansion, although persistent differentials in unemployment rates across groups remained. The share of workers employed part time for economic reasons continued to be close to the lows reached in late 2007. The rates of private-sector job openings and quits edged down in November but were still at high levels; initial claims for unemployment insurance benefits through the middle of January were near historically low levels. Average hourly earnings for all employees rose 3.2 percent over the 12 months ending in December.

Industrial production increased solidly in December. Output gains were strong in the manufacturing and mining sectors, while the output of utilities declined, with warmer-than-usual temperatures lowering the demand for heating. Automakers' assembly schedules suggested that the production of light motor vehicles would ease somewhat in the first quarter, although new orders indexes from national and regional manufacturing surveys pointed to moderate gains in overall factory output in the coming months.

Household spending looked to have increased strongly in the fourth quarter, as real PCE growth was strong in October and November. The release of the retail sales report for December was delayed, but available indicators—such as credit card and debit card transaction data and light motor vehicle sales—suggested that household spending growth remained strong in December. Key factors that influence consumer spending—including ongoing gains in real disposable personal income and still-elevated measures of households' net worth—continued to be supportive of solid real PCE growth in the near term. Consumer sentiment, as measured by the University of Michigan Surveys of Consumers, was less upbeat in early January than it had been last year but remained at a generally favorable level.

Real residential investment appeared to have declined again in the fourth quarter, likely reflecting in part decreases in the affordability of housing arising from both the net increase in mortgage interest rates over the past year and ongoing, though somewhat slower, house price appreciation. Data on starts and permits for new residential construction in December were not available, but building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—had moved down modestly in the previous couple of months. Sales of existing homes decreased, on net, over November and December, while data on new home sales for those two months were delayed.

Growth in real private expenditures for business equipment and intellectual property looked to have picked up solidly in the fourth quarter. Nominal shipments of nondefense capital goods excluding aircraft rose, on balance, in October and November, while information on shipments for December was delayed; available indicators of transportation equip-

ment spending in the fourth quarter were strong. Forward-looking indicators of business equipment spending—such as orders for nondefense capital goods excluding aircraft and readings on business sentiment—pointed to somewhat slower spending gains in the near term. Data on nominal business expenditures for nonresidential structures outside of the drilling and mining sector in November were not available. The number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—was roughly flat in December and through most of January.

Total real government purchases appeared to have increased moderately in the fourth quarter. Nominal defense spending in October and November pointed to solid growth in real federal purchases, although spending data for December were delayed. The partial federal government shutdown restrained real federal purchases somewhat in the fourth quarter and likely had a more significant negative effect on federal purchases in the first quarter. Real purchases by state and local governments looked to have risen modestly in the fourth quarter, as the payrolls of those governments expanded a bit over that period. Nominal state and local construction spending had risen solidly in October, but construction data for November were delayed.

Data on U.S. international trade for November and December also were delayed. The available data for October suggested that the contribution of the change in net exports to real GDP growth in the fourth quarter would be much less negative than the drag of nearly 2 percentage points in the third quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased 1.8 percent over the 12 months ending in November. Core PCE price inflation, which excludes changes in consumer food and energy prices, was 1.9 percent over that same period. The consumer price index (CPI) rose 1.9 percent over the 12 months ending in December, while core CPI inflation was 2.2 percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the Michigan survey and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed.

Recent data suggested that foreign economic growth was subdued in the fourth quarter relative to earlier in the year. In the advanced foreign economies (AFEs), especially the euro area, indicators of economic activity weakened further, though they remained consistent with positive economic growth. In the emerging market economies (EMEs), growth in Mexico and Brazil appeared to have slowed to a modest pace in the fourth quarter after a temporary pickup in the third quarter. The Chinese economy expanded at a slower pace than earlier in the year amid notable weakness in household spending, and Chinese imports from other emerging Asian economies turned down. Foreign inflation fell in the fourth quarter, largely reflecting lower oil prices. Inflation pressures, especially in some AFEs, generally remained muted.

Staff Review of the Financial Situation

Investor risk sentiment fluctuated materially over the intermeeting period. A variety of factors—including FOMC communications, weaker-than-expected data, trade policy uncertainties, the partial federal government shutdown, and concerns about the outlook for corporate earnings—were cited by market participants as contributing to a deterioration in risk sentiment early in the period. During this time, broad equity indexes declined substantially amid a sharp rise in financial market volatility, and corporate bond spreads widened notably. Subsequently, positive signals regarding trade policy, robust economic data releases, and communications from FOMC participants led to an improvement in risk sentiment. On net, the S&P 500 index rose, option-implied volatility—the VIX—fell, Treasury yields declined, and corporate spreads narrowed over the intermeeting period. Despite the intermeeting moves in financial markets, financial conditions remained notably tighter than in September 2018. Financing conditions for businesses and households tightened a bit further over the intermeeting period but remained generally supportive of spending.

December FOMC communications were reportedly perceived by market participants as not fully appreciating the implications of tighter financial conditions and softening global data over recent months for the U.S. economic outlook. Subsequent communications from FOMC participants were interpreted as suggesting that the FOMC would be patient in assessing the implications of recent economic and financial developments. The market-implied path for the federal funds rate in 2019 was little changed, on net, over the intermeeting period and investors continued to expect no change to the target range for the federal funds rate at

the January FOMC meeting. The market-implied path for 2020 shifted down somewhat.

Nominal Treasury yields fluctuated substantially, with heightened risk aversion contributing to a significant decline in yields early in the intermeeting period. Subsequently, yields rose, though 2-, 5-, and 10-year yields still ended the period somewhat lower, on net. The spread between the yields on nominal 10- and 2-year Treasury securities was little changed over the period, and remained in the lower end of its historical range over recent decades. The near-term forward spread—the difference between the current implied three-month forward rate at a horizon six quarters ahead (derived from the Treasury yield curve) and the current yield on a three-month Treasury bill—narrowed, on net, and also was in the lower end of its historical distribution. The 5-year and 5-to-10-year-forward inflation compensation measures based on Treasury Inflation-Protected Securities (TIPS) edged down a bit over the period; both measures were down significantly from levels prevailing in the fall of last year.

In U.S. risky asset markets, the S&P 500 equity index was down as much as 8 percent at one point during the period but ended the period notably higher. On net, the VIX fell substantially while corporate bond spreads narrowed a bit.

The federal funds rate and other overnight funding rates rose following the increase in the target range for the federal funds rate at the December FOMC meeting. Year-end pressures in repo markets were reportedly exacerbated by a high volume of settlements of Treasury securities against a backdrop of large dealer inventories and reduced intermediation by global systemically important banks. General collateral repo rates moved up sharply at year-end but subsequently returned to normal levels.

Foreign financial markets followed the same general pattern as those in the United States. On balance, foreign equity prices moved up moderately and sovereign credit spreads in EMEs narrowed. Moreover, inflows to dedicated emerging market funds resumed after two quarters of outflows. Longer-term sovereign yields in AFEs edged lower on net.

The dollar depreciated broadly amid falling U.S. yields and greater investor optimism about prospects for some EMEs. The dollar depreciated notably against the British pound, on net, as market participants reportedly saw an increased likelihood of a delay in the Brexit process. The dollar also depreciated considerably against the Brazilian real and the Mexican peso following progress on pension reform in Brazil and a fiscal announcement in Mexico that was perceived as prudent.

Financing conditions for nonfinancial firms tightened somewhat, on balance. Gross issuance of corporate bonds slowed considerably in December across the credit rating spectrum but rebounded in January. Even so, the volume of high-yield bonds issued by nonfinancial firms remained well below its average over the past few years. Spreads on nonfinancial corporate bonds were volatile but narrowed a bit, on net, and stayed at levels well above those that prevailed a year ago. The credit quality of nonfinancial corporations continued to show signs of deterioration, although actual corporate bond defaults remained low overall. Institutional leveraged loan issuance slowed in December to its lowest level since July 2016, as loan spreads widened substantially. Small business credit market conditions were little changed, and credit conditions in municipal bond markets stayed accommodative on net.

Private-sector analysts significantly revised down their projections for corporate earnings for the fourth quarter and for 2019 as a whole. The pace of gross equity issuance through both initial and seasoned offerings was sluggish in December, amid reports that several firms may have pushed back initial equity offerings.

Respondents to the January 2019 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported that lending standards for commercial and industrial (C&I) loans remained basically unchanged in the fourth quarter, after having reported easing standards over the past several quarters. Growth of C&I loans on banks' balance sheets picked up in the fourth quarter, reflecting stronger originations as well as reduced paydowns and loan sales.

In the commercial real estate (CRE) sector, financing conditions remained accommodative. Although commercial mortgage backed securities (CMBS) spreads were volatile, they were little changed, on net, over the intermeeting period, and issuance of both agency and non-agency CMBS remained strong. CRE loan growth at banks continued to expand at a pace comparable with that seen over the course of 2018. Banks in the January SLOOS reported that demand was unchanged, on net, in the fourth quarter for nonfarm nonresidential loans, the largest CRE loan category,

while demand was reportedly weaker for multifamily loans and construction loans. On balance, banks reported tightening their standards for all types of CRE loans in the fourth quarter.

Financing conditions in the residential mortgage market also remained accommodative for most borrowers. Purchase mortgage origination activity continued to decline modestly through November, while refinancing activity continued to be muted.

In consumer credit markets, financing conditions tightened a bit but, on balance, remained generally supportive of growth in household spending. Banks reported in the SLOOS that they tightened credit card lending standards during the fourth quarter. In the consumer asset-backed securities market, spreads widened somewhat amid broad market volatility.

The staff provided an update on its views with respect to potential risks to financial stability. The increase in financial market volatility seen over the fall of last year was characterized as a return to historically more typical levels, following the historically low-volatility environment that persisted through much of 2017 and 2018. However, the increase in volatility in financial markets in December was viewed as substantial and as likely exacerbated by thin year-end liquidity, among other factors. Staff judged asset valuation pressures in equity and corporate debt markets to have abated somewhat in the period since the assessment presented in the November 2018 financial stability report. Staff continued to monitor developments in the leveraged loan market given the sharp rise in spreads and slowdown in issuance late last year. The build-up in overall nonfinancial business debt to levels close to historical highs relative to GDP was viewed as a factor that could amplify adverse shocks to the business sector. Staff continued to judge risks associated with household-sector debt as moderate. Both the risks associated with financial leverage and the vulnerabilities related to maturity transformation were viewed as being low, as they have been for some time.

Staff Economic Outlook

The U.S. economic forecast prepared by the staff for the January FOMC meeting was revised down a little, on balance, primarily reflecting somewhat lower projected paths for domestic equity prices and foreign economic growth. The staff estimated that U.S. real GDP growth was solid in the fourth quarter of last year, bolstered by consumer spending and business investment, and that the effects of the partial federal government shutdown were quite small in that quarter. Real GDP growth was expected to slow but remain solid in the first half of this year, with the effects of the partial federal government shutdown modestly restraining GDP growth in the first quarter and those effects being reversed in the second quarter. In the medium term, real GDP growth in 2019 was forecast to be at a rate above the staff's estimate of potential output growth, step down to the growth rate of potential output next year and then slow further to a pace below potential output growth in 2021. The unemployment rate was projected to decline somewhat further below the staff's estimate of its longer-run natural rate but to bottom out by the end of this year and begin to edge up in 2021. With labor market conditions judged to already be tight, the staff continued to assume that projected employment gains would manifest in smaller-than-usual downward pressure on the unemployment rate and in larger-than-usual upward pressure on the labor force participation rate.

The staff's forecast for inflation was little revised for the January FOMC meeting. Core PCE price inflation was still expected to step up to 2 percent over this year as a whole and then to run at that level through the medium term. Total PCE price inflation was forecast to be a little below core inflation this year and next, reflecting projected declines in energy prices, and then to run at the same level as core inflation in 2021.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. The staff also saw the risks to the forecasts for real GDP growth and the unemployment rate as roughly balanced. On the upside, household spending and business investment could expand faster than the staff projected, supported in part by the tax cuts enacted last year. On the downside, trade policies and foreign economic developments could move in directions that have significant negative effects on U.S. economic growth. Risks to the inflation projection also were seen as balanced. The upside risk that inflation could increase more than expected in an economy that was projected to move further above its potential was counterbalanced by the downside risk that longer-term inflation expectations may be lower

than was assumed in the staff forecast, as well as the possibility that the dollar could appreciate if foreign economic conditions deteriorated.

Participants' Views on Current Conditions and the Economic Outlook

Participants agreed that over the intermeeting period the labor market had continued to strengthen and that economic activity had been rising at a solid rate. Job gains had been strong, on average, in recent months, and the unemployment rate had remained low. Household spending had continued to grow strongly, while growth of business fixed investment had moderated from its rapid pace earlier last year. On a 12-month basis, both overall inflation and inflation for items other than food and energy had remained near 2 percent. Although market-based measures of inflation compensation had moved lower in recent months, survey-based measures of longer-term inflation expectations were little changed.

Participants continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes over the next few years. Participants generally continued to expect the growth rate of real GDP in 2019 to step down somewhat from the pace seen over 2018 to a rate closer to their estimates of longer-run growth, with a few participants commenting that waning fiscal stimulus was expected to contribute to the step-down. Several participants commented that they had nudged down their outlooks for output growth since the December meeting, citing a softening in consumer or business sentiment, a reduction in the outlook for foreign economic growth, or the tightening in financial conditions that had occurred in recent months.

In their discussion of the household sector, participants noted that recent data on spending had been strong, supported by a strong job market and rising incomes. A couple of participants commented that contacts in their Districts remained optimistic about consumer spending. However, some participants noted the recent softening in surveys of consumer sentiment. Participants observed that the recent partial federal government shutdown had presented a significant hardship for many families. A few participants also pointed to continued weakness in the housing sector, which was attributed in part to concerns about affordability among potential homebuyers.

Participants noted that growth of business fixed investment had moderated from its rapid pace earlier last year. Some participants highlighted that recent surveys of business sentiment or District contacts had indicated some weakening in optimism or confidence about the economic outlook, though available indicators suggested that the level of business sentiment had remained high. Concerns about the economic outlook were variously attributed to uncertainty or worries about slowing global economic growth, including in Europe and China; trade policy; waning fiscal policy stimulus; and the partial government shutdown. Manufacturing contacts in a number of Districts indicated that such factors were causing them to delay or defer capital expenditures. In addition, a few participants noted that recent declines in oil or gasoline prices had damped plans for capital expenditures in the energy sector. A few participants observed that conditions in the agricultural sector remained difficult, citing large inventories of agricultural commodities, uncertainty about international trade policies, and concerns regarding low prices of commodities and farmland. However, a few participants commented that business optimism had increased among contacts in their Districts, or that they were planning new capital expenditures.

Participants observed that both overall inflation and inflation for items other than food and energy remained near 2 percent on a 12-month basis. Participants continued to view inflation near the Committee's symmetric 2 percent objective as the most likely outcome. Some participants noted that some factors, such as the decline in oil prices, slower growth and softer inflation abroad, or appreciation of the dollar last year, had held down some recent inflation readings and may continue to do so this year. In addition, many participants commented that upward pressures on inflation appeared to be more muted than they appeared to be last year despite strengthening labor market conditions and rising input costs for some industries.

In their discussion of indicators of inflation expectations, participants noted that market-based measures of inflation compensation had moved lower in recent months. Participants expressed a range of views in interpreting the decline in inflation compensation. On the one hand, that decline could stem from a decrease in expected inflation on the part of market participants. In that case, the current low levels of inflation compensation could suggest that inflation expectations are below the Committee's 2 percent inflation objective. On the other hand, the decline in

inflation compensation might reflect in large part declines in risk premiums or increased concerns about downside risks to the outlook for inflation. This interpretation was seen as consistent with the behavior of the most recent survey-based measures of expected inflation, which were little changed.

In their discussion of labor markets, participants agreed that conditions had continued to strengthen. Estimates of job gains in the December employment report had been strong, the unemployment rate had remained low, and the labor force participation rate had moved up. Several participants noted solid rates of hiring or other indicators of tight labor market conditions in their Districts. Some participants commented on recent indicators at the national or District levels as suggesting a pickup in wage growth. The pickup was attributed to tightening in national or District labor market conditions or to gains in the rate of productivity growth. Continued solid productivity growth was seen as a key factor necessary to support rising real wages over time.

Participants commented on a number of risks associated with their outlook for economic activity, the labor market, and inflation over the medium term. Participants noted that some risks to the downside had increased, including the possibilities of a sharper-than-expected slowdown in global economic growth, particularly in China and Europe, a rapid waning of fiscal policy stimulus, or a further tightening of financial market conditions. An increase in some foreign and domestic government policy uncertainties, including those associated with Brexit, an escalation in international trade policy tensions, and the potential for additional extended federal government shutdowns were also cited as downside risks. A few participants expressed concern that longer-run inflation expectations may be lower than levels consistent with the Committee's 2 percent inflation objective. Several participants judged that risks that could lead to higher-than-expected inflation had diminished relative to downside risks. The potential that various sources of uncertainty might abate more quickly than expected was mentioned as a potential upside risk for the economic outlook.

In their discussion of financial developments, participants noted that although financial market conditions had not changed much, on net, over the intermeeting period, prices had been volatile and financial conditions were materially tighter than they had been several months ago, with lower equity prices and wider corporate risk spreads. Several participants also noted that the slope of the Treasury yield curve was unusually flat by historical standards, which in the past had often been associated with a deterioration in future macroeconomic performance. Participants noted that financial asset prices appeared to be sensitive to information regarding trade policy tensions, domestic fiscal and monetary policy, and global economic growth prospects. A couple of participants noted that the rise in credit spreads over recent months, if it were to persist, could restrain future economic activity. Participants agreed that it was important to continue to monitor financial market developments and assess the implications of these developments for the economic outlook.

Among those participants who commented on financial stability, a number expressed concerns about the elevated financial market volatility and the apparent decline in investors' willingness to bear risk that occurred toward the end of last year. Although these conditions had eased somewhat in recent weeks, a couple of participants noted that the strain in financial markets might have persisted or spread if it had occurred during a period of less favorable macroeconomic conditions. A couple of participants highlighted the role that decreased liquidity at the end of the year appeared to play in exacerbating changes in financial market conditions. They emphasized the need to monitor financial market structures or practices that may contribute to strained liquidity conditions. A few participants highlighted the importance of ensuring that financial institutions were able to withstand adverse financial market events—for instance, by maintaining adequate levels of capital.

In their consideration of monetary policy at this meeting, participants judged that information received since December indicated that real economic activity had been rising at a solid rate, labor market conditions had continued to strengthen, and inflation had been near the Committee's objective. Participants generally expected economic activity to continue expanding at a solid pace in the period ahead, with strong labor market conditions and inflation near 2 percent. At the time of the December meeting, the Committee had noted that it would continue to monitor global economic and financial developments and assess their implications for the economic outlook. Participants observed that since then, the economic outlook had become more uncertain. Financial market volatility had remained elevated over the intermeeting period, and, despite some easing since the December FOMC meeting, overall financial conditions had tightened since September. In addition,

the global economy had continued to record slower growth, and consumer and business sentiment had deteriorated. The government policy environment, including trade negotiations and the recent partial federal government shutdown, was also seen as a factor contributing to uncertainty about the economic outlook.

Based on their current assessments, all participants expressed the view that it would be appropriate for the Committee to maintain the target range for the federal funds rate at 2¼ to 2½ percent. With regard to the Committee's postmeeting statement, participants supported a proposed change in the forward guidance language that would replace the previous guidance referring to "some further gradual increases in the target range for the federal funds rate" with an indication that, in light of "global economic and financial developments and muted inflation pressures," the Committee would "be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate." Participants also supported a proposal to remove from the statement the characterization of risks to the economic outlook as "roughly balanced."

Participants pointed to a variety of considerations that supported a patient approach to monetary policy at this juncture as an appropriate step in managing various risks and uncertainties in the outlook. With regard to the domestic economic picture, additional data would help policymakers gauge the trajectory of business and consumer sentiment, whether the recent softness in core and total inflation and inflation compensation would persist, and the effect of the tightening of financial conditions on aggregate demand. Information arriving in coming months could also shed light on the effects of the recent partial federal government shutdown on the U.S. economy and on the results of the budget negotiations occurring in the wake of the shutdown, including the possible implications for the path of fiscal policy. A patient approach would have the added benefit of giving policymakers an opportunity to judge the response of economic activity and inflation to the recent steps taken to normalize the stance of monetary policy. Furthermore, a patient posture would allow time for a clearer picture of the international trade policy situation and the state of the global economy to emerge and, in particular, could allow policymakers to reach a firmer judgment about the extent and persistence of the economic slowdown in Europe and China.

Participants noted that maintaining the current target range for the federal funds rate for a time posed few risks at this point. The current level of the federal funds rate was at the lower end of the range of estimates of the neutral policy rate. Moreover, inflation pressures were muted, and asset valuations were less stretched than they had been a few months earlier. Many participants suggested that it was not yet clear what adjustments to the target range for the federal funds rate may be appropriate later this year; several of these participants argued that rate increases might prove necessary only if inflation outcomes were higher than in their baseline outlook. Several other participants indicated that, if the economy evolved as they expected, they would view it as appropriate to raise the target range for the federal funds rate later this year.

Participants observed that a patient posture in these circumstances was consistent with their general approach to setting the stance of policy, in which they were importantly guided by the implications of incoming data for the economic outlook. Some participants noted that, while global economic and financial developments had been important factors leading to a patient monetary policy posture, those developments mattered because they affected assessments of the policy rate path most consistent with achievement of the Committee's dual-mandate goals of maximum employment and price stability. Many participants observed that if uncertainty abated, the Committee would need to reassess the characterization of monetary policy as "patient" and might then use different statement language.

A few participants expressed concerns that in the current environment of increased uncertainty, the policy rate projections prepared as part of the Summary of Economic Projections (SEP) do not accurately convey the Committee's policy outlook. These participants were concerned that, although the individual participants' projections for the federal funds rate in the SEP reflect their individual views of the appropriate path for the policy rate conditional on the evolution of the economic outlook, at times the public had misinterpreted the median or central tendency of those projections as representing the consensus view of the Committee or as suggesting that policy was on a preset course. However, some other participants noted that the policy rate projections in the SEP are a valuable component of the overall information provided about the monetary policy outlook.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in December indicated that the labor market had continued to strengthen and that economic activity had been rising at a solid rate. Job gains had been strong, on average, in recent months, and the unemployment rate had remained low. Household spending had continued to grow strongly, while growth of business fixed investment had moderated from its rapid pace earlier last year. On a 12-month basis, both overall inflation and inflation for items other than food and energy remained near 2 percent. Although market-based measures of inflation compensation had moved lower in recent months, survey-based measures of longer-term inflation expectations were little changed.

In their consideration of the economic outlook, members noted that financial conditions had tightened, on net, since September, and that global growth had moderated; members also observed that a number of uncertainties, including those pertaining to the evolution of policies of the U.S. and foreign governments, still awaited resolution. However, members continued to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes for the U.S. economy in the period ahead. In light of global economic and financial developments and muted inflation pressures, the Committee could be patient as it determined what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. Members agreed that in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to the Committee's maximum employment and symmetric 2 percent inflation objectives. They reiterated that this assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. More generally, members noted that decisions regarding near-term adjustments of the stance of monetary policy would appropriately remain dependent on the evolution of the outlook as informed by incoming data.

With regard to the postmeeting statement, members agreed to change the characterization of recent growth in economic activity from "strong" to "solid," consistent with incoming information that suggested that the pace of expansion of the U.S. economy had moderated somewhat since late last year. The description of indicators of inflation expectations was revised to recognize that the downward moves in market-based measures of inflation compensation that occurred in recent months had been sustained, while also noting that survey-based measures of longer-term inflation expectations were little changed. Members also agreed to several adjustments in the description of the outlook for the economy and monetary policy. The statement language was revised to indicate that the Committee continued to view sustained expansion of economic activity, strong labor market conditions, and inflation near 2 percent as "the most likely outcomes." Members also agreed to add a sentence indicating that, in light of "global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes." This sentence was intended to convey the Committee's view that a patient and flexible approach was appropriate at this time as a way to manage risks while assessing incoming information bearing on the economic outlook. In light of the range of uncertainties associated with global economic and financial developments, the Committee decided that it was not useful at this time to express a judgment about the balance of risks.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective January 31, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2¼ to 2½ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.25 percent, in amounts limited only

by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per counterparty limit of $30 billion per day.

The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $30 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in December indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate. Job gains have been strong, on average, in recent months, and the unemployment rate has remained low. Household spending has continued to grow strongly, while growth of business fixed investment has moderated from its rapid pace earlier last year. On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Although market-based measures of inflation compensation have moved lower in recent months, survey-based measures of longer-term inflation expectations are little changed.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles, and Eric Rosengren.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 2.40 percent and voted unanimously to approve establishment of the primary credit rate at the existing level of 3.00 percent, effective January 31, 2019.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, March 19–20, 2019. The meeting adjourned at 10:30 a.m. on January 30, 2019.

Notation Vote

By notation vote completed on January 8, 2019, the Committee unanimously approved the minutes of the Committee meeting held on December 18–19, 2018.

James A. Clouse
Secretary

Meeting Held on March 19–20, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, March 19, 2019, at 10:00 a.m. and continued on Wednesday, March 20, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Thomas A. Connors, Rochelle M. Edge, Eric M. Engen, Christopher J. Waller, William Wascher, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Daniel M. Covitz
Deputy Director, Division of Research and Statistics, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Antulio N. Bomfim
Special Adviser to the Chair, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the “FOMC” and the “Committee” in these minutes.

[2] Attended through the discussion of developments in financial markets and open market operations.

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

Joshua Gallin and David E. Lebow
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Edward Nelson
Senior Adviser, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer[2] and David López-Salido
Associate Directors, Division of Monetary Affairs, Board of Governors

Jeffrey D. Walker[2]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andrew Figura
Assistant Director, Division of Research and Statistics, Board of Governors

Laura Lipscomb[2] Zeynep Senyuz,[2] and Rebecca Zarutskie
Assistant Directors, Division of Monetary Affairs, Board of Governors

Michele Cavallo[2]
Section Chief, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Mark A. Carlson
Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Martin Bodenstein, Marcel A. Priebsch, and Bernd Schlusche[2]
Principal Economists, Division of Monetary Affairs, Board of Governors

Mary-Frances Styczynski[2]
Lead Financial Institution and Policy Analyst, Division of Monetary Affairs, Board of Governors

Achilles Sangster II
Information Management Analyst, Division of Monetary Affairs, Board of Governors

Gregory L. Stefani
First Vice President, Federal Reserve Bank of Cleveland

David Altig, Kartik B. Athreya, Michael Dotsey, Glenn D. Rudebusch, Ellis W. Tallman, and Joseph S. Tracy
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Philadelphia, San Francisco, Cleveland, and Dallas, respectively

Antoine Martin,[2] Julie Ann Remache,[2] and Mark L. J. Wright
Senior Vice Presidents, Federal Reserve Banks of New York, New York, and Minneapolis, respectively

Roc Armenter,[2] Kathryn B. Chen,[2] Hesna Genay, Jonathan P. McCarthy, and Patricia Zobel[2]
Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Chicago, New York, and New York, respectively

Samuel Schulhofer-Wohl
Senior Economist and Research Advisor, Federal Reserve Bank of Chicago

Daniel Cooper
Senior Economist and Policy Advisor, Federal Reserve Bank of Boston

Ellen Correia Golay[2]
Markets Officer, Federal Reserve Bank of New York

A. Lee Smith
Senior Economist, Federal Reserve Bank of Kansas City

Balance Sheet Normalization

Committee participants resumed their discussion from the January 2019 meeting on options for transitioning to the longer-run size of the balance sheet. The staff described options for ending the reduction in the Federal Reserve's securities holdings at the end of September 2019 and for potentially reducing the

[3] Attended Tuesday's session only.

pace of redemptions of Treasury securities before that date. Reducing the pace of redemptions before ending them would be consistent with most previous changes in the Federal Reserve's balance sheet policy and would support a gradual transition to the long-run level of reserves. It could also reinforce the Committee's communications indicating that the FOMC was flexible in its plans for balance sheet normalization and that the process of balance sheet normalization would remain consistent with the attainment of the Federal Reserve's monetary policy objectives. However, continuing redemptions at the current pace through September might be simpler to communicate and would somewhat shorten the transition to the long-run level of reserves. The staff noted that reducing the pace of redemptions before September would leave reserves and the balance sheet slightly larger than continuing redemptions at the current pace through September. However, the longer-run level of reserves and size of the balance sheet would ultimately be determined by long-term demand for Federal Reserve liabilities. Staff projections of term premiums and macroeconomic outcomes did not differ substantially across the two options.

The staff also described a possible interim plan for reinvesting principal payments received from agency debt and agency mortgage-backed securities (MBS) after balance sheet runoff ends and until the Committee decides on the longer-run composition of the System Open Market Account (SOMA) portfolio. Consistent with the Committee's long-standing aim to hold primarily Treasury securities in the longer run, any principal payments on agency debt and agency MBS would generally be reinvested in Treasury securities in the secondary market. These reinvestments would be allocated across sectors of the Treasury market roughly in proportion to the maturity composition of Treasury securities outstanding. However, the plan would maintain the existing $20 billion per month cap on MBS redemptions; principal payments on agency debt and agency MBS above $20 billion per month would continue to be reinvested in agency MBS. This cap would limit the pace at which the Federal Reserve's agency MBS holdings could decline if prepayments accelerated; the staff projected that the redemption cap on agency debt and agency MBS was unlikely to be reached after 2019.

The staff noted that, once balance sheet runoff ended, the average level of reserves would tend to decline gradually, in line with trend growth in the Federal Reserve's nonreserve liabilities, until the Committee chose to resume growth of the balance sheet in order to maintain a level of reserves consistent with efficient and effective policy implementation.

Participants judged that ending the runoff of securities holdings at the end of September would reduce uncertainty about the Federal Reserve's plans for its securities holdings and would be consistent with the Committee's decision at its January 2019 meeting to continue implementing monetary policy in a regime of ample reserves. Participants discussed advantages and disadvantages of slowing balance sheet runoff before the September stopping date. A slowing in the pace of redemptions would accord with the Committee's general practice of adjusting its holdings of securities smoothly and predictably, which might reduce the risk that market volatility would arise in connection with the conclusion of the runoff of securities holdings. However, these advantages needed to be weighed against the additional complexity of a plan that would end balance sheet runoff in steps rather than all at once.

Participants reiterated their support for the FOMC's intention to return to holding primarily Treasury securities in the long run. Participants judged that adopting an interim approach for reinvesting agency debt and agency MBS principal payments into Treasury securities across a range of maturities was appropriate while the Committee continued to evaluate potential long-run maturity structures for the Federal Reserve's portfolio of Treasury securities. Many participants offered preliminary views on advantages and disadvantages of alternative compositions for the SOMA portfolio. Participants expected to further discuss the longer-run composition of the portfolio at upcoming meetings.

Participants commented on considerations related to allowing the average level of reserves to decline in line with trend growth in nonreserve liabilities for a time after the end of balance sheet runoff. Several participants preferred to stabilize the average level of reserves by resuming purchases of Treasury securities relatively soon after the end of runoff, because they saw little benefit to further declines in reserve balances or because they thought the Committee should minimize the risk of interest rate volatility that could occur if the supply of reserves dropped below a point consistent with efficient and effective implementation of policy. Some others preferred to allow the average level of reserves to continue to decline for a longer time after balance sheet runoff ends because such

declines could allow the Committee to learn more about underlying reserve demand, because they judged that such a process was not likely to result in excessive volatility in money market rates, or because they judged that moving to lower levels of reserves was more consistent with the Committee's previous communications indicating that it would hold no more securities than necessary for implementing monetary policy efficiently and effectively. Participants noted that the eventual resumption of purchases of securities to keep pace with growth in demand for the Federal Reserve's liabilities, whenever it occurred, would be a normal part of operations to maintain the ample-reserves monetary policy implementation regime and would not represent a change in the stance of monetary policy. Some participants suggested that, at future meetings, the Committee should discuss the potential benefits and costs of tools that might reduce reserve demand or support interest rate control.

Following the discussion, the Chair proposed that the Committee communicate its intentions regarding balance sheet normalization by publishing a statement at the conclusion of the meeting. All participants agreed that it was appropriate to issue the proposed statement.

Balance Sheet Normalization Principles and Plans (Adopted March 20, 2019)

In light of its discussions at previous meetings and the progress in normalizing the size of the Federal Reserve's securities holdings and the level of reserves in the banking system, all participants agreed that it is appropriate at this time for the Committee to provide additional information regarding its plans for the size of its securities holdings and the transition to the longer-run operating regime. At its January meeting, the Committee stated that it intends to continue to implement monetary policy in 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. The Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization released in January as well as the principles and plans listed below together revise and replace the Committee's earlier Policy Normalization Principles and Plans.

- To ensure a smooth transition to the longer-run level of reserves consistent with efficient and effective policy implementation, the Committee intends to slow the pace of the decline in reserves over coming quarters provided that the economy and money market conditions evolve about as expected.
  - The Committee intends to slow the reduction of its holdings of Treasury securities by reducing the cap on monthly redemptions from the current level of $30 billion to $15 billion beginning in May 2019.
  - The Committee intends to conclude the reduction of its aggregate securities holdings in the System Open Market Account (SOMA) at the end of September 2019.
  - The Committee intends to continue to allow its holdings of agency debt and agency mortgage-backed securities (MBS) to decline, consistent with the aim of holding primarily Treasury securities in the longer run.
    - Beginning in October 2019, principal payments received from agency debt and agency MBS will be reinvested in Treasury securities subject to a maximum amount of $20 billion per month; any principal payments in excess of that maximum will continue to be reinvested in agency MBS.
    - Principal payments from agency debt and agency MBS below the $20 billion maximum will initially be invested in Treasury securities across a range of maturities to roughly match the maturity composition of Treasury securities outstanding; the Committee will revisit this reinvestment plan in connection with its deliberations regarding the longer-run composition of the SOMA portfolio.
    - It continues to be the Committee's view that limited sales of agency MBS might be warranted in the longer run to reduce or eliminate residual holdings. The timing and pace of any sales would be communicated to the public well in advance.
  - The average level of reserves after the FOMC has concluded the reduction of its aggregate securities holdings at the end of September will likely still be somewhat above the level of reserves necessary to efficiently and effectively implement monetary policy.
    - In that case, the Committee currently anticipates that it will likely hold the size of the SOMA portfolio roughly constant for a time. During such a period, persistent gradual increases in currency and other nonreserve

liabilities would be accompanied by corresponding gradual declines in reserve balances to a level consistent with efficient and effective implementation of monetary policy.

- When the Committee judges that reserve balances have declined to this level, the SOMA portfolio will hold no more securities than necessary for efficient and effective policy implementation. Once that point is reached, the Committee will begin increasing its securities holdings to keep pace with trend growth of the Federal Reserve's non-reserve liabilities and maintain an appropriate level of reserves in the system.

Developments in Financial Markets and Open Market Operations

The manager of the SOMA discussed developments in global financial markets over the intermeeting period. In the United States, equity indexes moved higher and credit spreads tightened. Market participants attributed these moves largely to a perceived shift in the FOMC's approach to policy following communications stressing that the Committee would be patient in assessing the need for future adjustments in the target range for the federal funds rate and would be flexible on balance sheet policy.

In Europe, measures announced by the European Central Bank (ECB) in March, including an extension of forward guidance on interest rates and the announcement of another round of targeted long-term refinancing operations, were followed by a decline in euro-area equity markets, particularly bank stocks, as well as declines in euro-area rates. Market contacts attributed the price reaction to a perception that the measures were not as stimulative as might have been expected, given downward revisions in the ECB's growth and inflation forecasts. In China, authorities moved toward an easier fiscal and monetary stance; China's aggregate credit growth had rebounded slightly in recent months relative to the declining trend observed last year. The Shanghai Composite index had risen notably since the turn of the year, driven in part by fiscal and monetary stimulus measures as well as perceived progress on trade negotiations. Developments around Brexit remained a source of market uncertainty. Consistent with ongoing investor uncertainty over the outcome, risk reversals on the pound–dollar currency pair continued to point to higher demand for protection against pound depreciation relative to the dollar.

The deputy manager provided an overview of money market developments and policy implementation over the intermeeting period. The effective federal funds rate (EFFR) continued to be very stable at a level equal to the interest rate on excess reserves. Rates in overnight secured markets continued to exhibit some volatility, particularly on month-end dates. Market participants attributed some of the volatility in overnight secured rates to persistently high net dealer inventories of Treasury securities and to Treasury issuance coinciding with the month-end statement dates. Over the upcoming intermeeting period, with the combination of changes in the Treasury's balances at the Federal Reserve and additional asset redemptions, reserves were expected to decline to a new low of around $1.4 trillion by early May, with some notable fluctuations in reserves on days associated with tax flows.

The deputy manager also discussed the transition to a long-run regime of ample reserves, following the Committee's January announcement that it intends to continue to implement monetary policy in such a regime. Once the size of the Federal Reserve's balance sheet has normalized, the Open Market Desk will at some point need to conduct open market operations to maintain a level of reserves in the banking system that the Committee deems appropriate. In doing so, the Desk will need to assess banks' demand for reserves as well as forecast other Federal Reserve liabilities and plan operations to maintain a supply of reserves sufficient to ensure that control over short-term interest rates is exercised primarily through the setting of administered rates.

The deputy manager described a possible operational approach in an ample-reserves regime based on establishing a minimum operating level that would be a lower bound on the daily level of reserves. The assessment of the minimum operating level of reserves would be based on a range of information, including surveys of banks and market participants, data on banks' reserve holdings, and market monitoring. Under the proposed approach, the Desk would plan open market operations to maintain the daily level of reserves above the minimum operating level. Consistent with the Committee's intention to maintain a regime that does not require active man-

agement of the supply of reserves, the Desk could plan these open market operations over a medium-term horizon. The average level of reserves over the medium term would then be above the minimum operating level, providing a buffer of reserves to absorb daily changes in nonreserve liabilities.

Following the manager and deputy manager's report, some participants commented on various aspects of the minimum operating level approach. Decisions regarding how far to allow reserves to decline would need to balance important tradeoffs. On the one hand, a lower minimum operating level might increase the risk of excessive interest rate volatility. On the other hand, a lower minimum operating level could provide more opportunities to learn about underlying reserve demand or could be viewed as more consistent with moving to the smallest securities holdings necessary for efficient and effective monetary policy implementation. However, the scope for reducing the level of reserves much further after the end of balance sheet runoff might be fairly limited.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the March 19–20 meeting indicated that labor market conditions remained strong, although growth in real gross domestic product (GDP) appeared to have slowed markedly in the first quarter of this year from its solid fourth-quarter pace. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), was somewhat below 2 percent in December, held down in part by recent declines in consumer energy prices, while PCE price inflation for items other than food and energy was close to 2 percent; more recent readings on PCE price inflation were delayed by the earlier federal government shutdown. Survey-based measures of longer-run inflation expectations were little changed on balance.

Increases in total nonfarm payroll employment remained solid, on average, in recent months; employment rose only a little in February but had expanded strongly in January. The national unemployment rate edged down, on net, over the past two months to 3.8 percent in February, and both the labor force participation rate and the employment-to-population ratio rose slightly on balance. The unemployment rates for African Americans, Asians, and Hispanics in February were at or below their levels at the end of the previous economic expansion, though persistent differentials in unemployment rates across groups remained. The share of workers employed part time for economic reasons moved down in February and was below the lows reached in late 2007. The rate of private-sector job openings in January was the same as its fourth-quarter average and remained elevated, while the rate of quits edged up in January; the four-week moving average of initial claims for unemployment insurance benefits through early March was still near historically low levels. Average hourly earnings for all employees rose 3.4 percent over the 12 months ending in February, a significantly faster pace than a year earlier. The employment cost index for private-sector workers increased 3 percent over the 12 months ending in December, somewhat faster than a year earlier. Total labor compensation per hour in the business sector increased 2.9 percent over the four quarters of 2018, about the same rate as a year earlier.

Industrial production declined in January and rebounded only somewhat in February. Moreover, manufacturing output decreased over both months, as production in the motor vehicle and parts sector contracted notably in January and declines were more broad based in February. Production in the mining and utilities sectors expanded, on net, over the past two months. Automakers' assembly schedules suggested that the production of light motor vehicles would be roughly flat in the near term, and new orders indexes from national and regional manufacturing surveys pointed to only modest gains in overall factory output in the coming months.

Household spending looked to be slowing around the turn of the year. Real PCE decreased markedly in December after a solid increase in the previous month, and the components of the nominal retail sales data used by the Bureau of Economic Analysis (BEA) to estimate PCE rebounded only partially in January. Key factors that influence consumer spending—including a low unemployment rate, ongoing gains in real labor compensation, and still elevated measures of households' net worth—were supportive of a pickup in consumer spending to a solid pace in the near term. In addition, consumer sentiment, as

measured by the University of Michigan Surveys of Consumers, stepped up in February and early March to an upbeat level.

Real residential investment appeared to be softening further in the first quarter, likely reflecting, in part, decreases in the affordability of housing arising from both the net increase in mortgage interest rates over the past year and ongoing house price appreciation. Starts of new single-family homes increased slightly, on net, over December and January, while starts of multifamily units declined. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—moved down over those two months. In addition, sales of both new and existing homes decreased in January.

Growth in real private expenditures for business equipment and intellectual property looked to be slowing in the first quarter. Nominal shipments of nondefense capital goods excluding aircraft rose in December and January, while available indicators pointed to a decrease in transportation equipment spending in the first quarter after a strong fourth-quarter gain. Forward-looking indicators of business equipment spending—such as orders for nondefense capital goods excluding aircraft and readings on business sentiment—pointed to sluggish increases in the near term. Nominal business expenditures for nonresidential structures outside of the drilling and mining sector increased in December and January. In addition, the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—expanded, on balance, in February and through the middle of March.

Total real government purchases appeared to be moving sideways in the first quarter. Relatively strong increases in real federal defense purchases were likely to be roughly offset by an expected decline in real nondefense purchases stemming from the effects of the partial federal government shutdown. Real purchases by state and local governments looked to be rising modestly in the first quarter, as the payrolls of those governments expanded a bit in January and February, and nominal state and local construction spending rose, on net, in December and January.

The nominal U.S. international trade deficit narrowed in November before widening in December to the largest deficit since 2008. Exports declined in November and December, as exports of industrial supplies and automotive products fell in both months. Imports decreased in November before partially recovering in December, with imports of consumer goods and industrial supplies driving this swing. The BEA estimated that the change in net exports was a drag of about ¼ percentage point on the rate of real GDP growth in the fourth quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased 1.7 percent over the 12 months ending in December, slightly slower than a year earlier, as consumer energy prices declined a little and consumer food prices rose only modestly. Core PCE price inflation, which excludes changes in consumer food and energy prices, was 1.9 percent over that same period, somewhat higher than a year earlier. The consumer price index (CPI) rose 1.5 percent over the 12 months ending in February, while core CPI inflation was 2.1 percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the Michigan survey, the Blue Chip Economic Indicators, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed on balance.

Economic growth in foreign economies slowed further in the fourth quarter. This development reflected slowing in the Canadian economy and some emerging market economies (EMEs), including Brazil and Mexico, along with continued economic weakness in the euro area and China. In the advanced foreign economies (AFEs), recent data suggested that economic activity, especially in the manufacturing sector, remained subdued in the first quarter of this year. Economic activity also remained weak in many EMEs, particularly in Mexico and emerging Asia excluding China, although some data pointed to a modest pickup in China. Inflation in foreign economies slowed further early this year, partly reflecting lower retail energy prices across both AFEs and EMEs.

Staff Review of the Financial Situation

Investor sentiment toward risky assets continued to improve over the intermeeting period. Market participants cited accommodative monetary policy communications and optimism for a trade deal between the United States and China as factors that contributed to the improvement. Broad equity price indexes increased notably, corporate bond spreads narrowed, and measures of equity market volatility declined. Meanwhile, financing conditions for businesses and households improved slightly and generally remained supportive of economic activity.

FOMC communications issued following the January meeting were generally viewed by market participants as more accommodative than expected. Subsequent communications—including the minutes of the January FOMC meeting, the Chair's semiannual testimony to the Congress, and speeches by FOMC participants—were interpreted as reflecting a patient approach to monetary policy in the near term and a likely conclusion to the Federal Reserve's balance sheet reduction by the end of this year. The market-implied path for the federal funds rate in 2019 declined slightly over the period, while investors continued to expect no change to the target range for the federal funds rate at the March FOMC meeting. The market-implied path of the federal funds rate for 2020 and 2021 shifted down a little.

Yields on nominal Treasury securities declined a bit across the Treasury yield curve over the intermeeting period. Communications from FOMC participants that were more accommodative than expected amid muted readings on inflation, communications from other major central banks that, on balance, were also regarded as more accommodative than expected, and generally mixed economic data releases reportedly contributed to the decrease in yields and outweighed improved risk sentiment. The spread between the yields on nominal 10- and 2-year Treasury securities was little changed over the period and remained in the lower end of its historical range of recent decades. Measures of inflation compensation derived from Treasury Inflation-Protected Securities increased modestly, on net, although they remained below levels seen last fall.

Major U.S. equity price indexes increased over the intermeeting period, with broad-based gains across sectors. Improved prospects for a trade deal between the United States and China and accommodative monetary policy were cited as driving factors that outweighed weaker-than-expected announcements of corporate earnings for the fourth quarter of 2018 and earnings projections for 2019. Consistent with reports about a potential trade deal, stock prices of firms with greater exposure to China generally outperformed the S&P 500 index. Option-implied volatility on the S&P 500 index at the one-month horizon—the VIX—declined and reached its lowest point this year. Spreads on investment- and speculative-grade corporate bonds narrowed, consistent with the gains in equity prices, but were still wider than levels observed last fall.

Conditions in short-term funding markets generally remained stable over the intermeeting period. The EFFR was consistently equal to the rate of interest on excess reserves, while take-up in the overnight reverse repurchase agreement facility remained low. Yield spreads on commercial paper and negotiable certificates of deposit generally narrowed further from their elevated year-end levels, likely reflecting an increase in investor demand for short-term financial assets. Meanwhile, the statutory federal government debt ceiling was reestablished at $22 trillion on March 1.

The prices of foreign risky assets broadly tracked the positive moves in similar U.S. assets over the intermeeting period. Communications by major central banks, which were, on net, more accommodative than expected, along with optimism regarding trade negotiations between the United States and China, contributed to the upward price moves and more than offset the effects of continued concerns about foreign economic growth. In particular, global equity prices generally ended the period higher, and dedicated emerging market funds continued to see inflows. At the same time, long-term AFE yields declined somewhat, on net, on communications from major foreign central banks and investors' concerns about foreign economic growth.

The broad dollar index appreciated slightly as the extension of accommodative policies and revised guidance by major foreign central banks weighed on AFE currencies. An exception was the British pound, which strengthened a bit against the dollar, as market participants viewed recent Parliamentary votes as reducing the likelihood of a no-deal Brexit.

Financing conditions for nonfinancial businesses continued to be accommodative overall. Gross issuance of both investment-grade and high-yield corporate bonds was strong in January and February, recovering from the low levels observed late last year. Issuance in the institutional syndicated leveraged loan market also recovered in the first two months of the year, as new issuance in February was in line with average monthly new issuance in 2018, and spreads narrowed somewhat from their December levels. The credit quality of nonfinancial corporations continued to show signs of deterioration, although actual defaults remained low overall. Commercial and industrial lending showed continued strength in January and February. Small business credit market conditions were little changed, and credit condi-

tions in municipal bond markets stayed accommodative on net.

Private-sector analysts revised down their projections for 2019 and year-ahead corporate earnings a bit. The pace of gross equity issuance was sluggish in January but ticked up in February, consistent with the uptick in the stock market.

In the commercial real estate (CRE) sector, financing conditions continued to be generally accommodative. Commercial mortgage-backed securities (CMBS) spreads declined over the intermeeting period, with triple-B spreads moving down to near their late-November levels. Issuance of non-agency CMBS remained strong through February, and CRE lending by banks grew at a strong pace in February following relatively sluggish growth in January.

Residential mortgage financing conditions remained accommodative on balance. Purchase mortgage origination activity was flat in December but edged up in January, as mortgage rates remained lower than the peak reached last November.

Financing conditions in consumer credit markets were little changed in recent months and remained generally supportive of household spending. Credit card loan growth remained strong through December, though the pace slowed during 2018 amid tighter lending standards by commercial banks. Auto loan growth remained steady through the end of 2018.

Staff Economic Outlook

The U.S. economic projection prepared by the staff for the March FOMC meeting was revised down a little on balance. This revision reflected the effects of weaker-than-expected incoming data on both aggregate domestic spending and foreign economic growth that were only partially offset by a somewhat higher projected path for domestic equity prices and a lower projected trajectory for interest rates. The staff forecast that U.S. real GDP growth would slow markedly in the first quarter, reflecting a softening in growth of both consumer spending and business investment. But the staff judged that the first-quarter slowdown would be transitory and that real GDP growth would bounce back solidly in the second quarter. In the medium-term projection, real GDP growth was forecast to run at a rate similar to the staff's estimate of potential output growth in 2019 and 2020—a somewhat lower trajectory, on net, for real GDP than in the previous projection—and then slow to a pace below potential output growth in 2021. The staff revised up slightly its assumed underlying trend in the labor force participation rate, raising the level of potential output a bit, which contributed—along with the lower projected path for real GDP—to an assessment that resource utilization was a little less tight than in the previous forecast. The unemployment rate was projected to decline a little further below the staff's estimate of its longer-run natural rate but to bottom out by the end of this year and begin to edge up in 2021. With labor market conditions judged to still be tight, the staff continued to assume that projected employment gains would manifest in smaller-than-usual downward pressure on the unemployment rate and in larger-than-usual upward pressure on the labor force participation rate.

The staff's forecast for inflation was revised down slightly for the March FOMC meeting, reflecting some recent softer-than-expected readings on consumer prices. Core PCE price inflation was expected to remain at 1.9 percent over this year as a whole and then to edge up to 2 percent for the remainder of the medium term. Total PCE price inflation was forecast to run a bit below core inflation over the next three years, reflecting projected declines in energy prices.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years. The staff also saw the risks to the forecasts for real GDP growth and the unemployment rate as roughly balanced. On the upside, household spending and business investment could expand faster than the staff projected, supported by the tax cuts enacted at the end of 2017, still strong overall labor market conditions, and upbeat consumer sentiment. In addition, financial conditions might not tighten as much as assumed in the staff forecast. On the downside, the recent softening in a number of economic indicators could be the harbinger of a substantial deterioration in economic activity. Moreover, trade policies and foreign economic developments could move in directions that have significant negative effects on U.S. economic growth. Risks to the inflation projection also were seen as balanced. The upside risk that inflation could increase more than expected in an economy that is still projected to be operating notably above potential for an extended period was counterbalanced by the downside risk that longer-term inflation expectations may be lower than was assumed in the staff forecast, as well as the possibility that the dollar could appreciate if foreign economic conditions deteriorated.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real GDP growth, the unemployment rate, and inflation for each year from 2019 through 2021 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate. The longer-run projections represented each participant's assessment of the rate 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. These projections and policy assessments are described in the Summary of Economic Projections (SEP), which is an addendum to these minutes.

Participants agreed that information received since the January meeting indicated that the labor market had remained strong but that growth of economic activity had slowed from its solid rate in the fourth quarter. Payroll employment was little changed in February, but job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Recent indicators pointed to slower growth of household spending and business fixed investment in the first quarter. On a 12-month basis, overall inflation had declined, largely as a result of lower energy prices; inflation for items other than food and energy remained near 2 percent. On balance, market-based measures of inflation compensation had remained low in recent months, and survey-based measures of longer-term inflation expectations were little changed.

Participants continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes over the next few years. Underlying economic fundamentals continued to support sustained expansion, and most participants indicated that they did not expect the recent weakness in spending to persist beyond the first quarter. Nevertheless, participants generally expected the growth rate of real GDP this year to step down from the pace seen over 2018 to a rate at or modestly above their estimates of longer-run growth. Participants cited various factors as likely to contribute to the step-down, including slower foreign growth and waning effects of fiscal stimulus. A number of participants judged that economic growth in the remaining quarters of 2019 and in the subsequent couple of years would likely be a little lower, on balance, than they had previously forecast. Reasons cited for these downward revisions included disappointing news on global growth and less of a boost from fiscal policy than had previously been anticipated.

In their discussion of the household sector, participants noted that softness in consumer spending had contributed importantly to the projected slowing in economic growth in the current quarter. Many participants pointed to the weakness in retail sales in December as notable, although they recognized that the data for January had shown a partial recovery in retail sales. Participants also observed that much of the recent softness likely reflected temporary factors, such as the partial federal government shutdown and December's volatility in financial markets, and that consumer sentiment had recovered after these factors had receded. Consequently, many participants expected consumer spending to proceed at a stronger pace in coming months, supported by favorable underlying factors, including a strong labor market, solid growth in household incomes, improvements in financial conditions and in households' balance sheet positions, and upbeat consumer sentiment. Participants noted, however, that the continued softness in the housing sector was a concern.

Participants also commented on the apparent slowing of growth in business fixed investment in the first quarter. Factors cited as consistent with the recent softness in investment growth included downward revisions in forecasts of corporate earnings; relatively low energy prices that provided less incentive for new drilling and exploration; flattening capital goods orders; reports from contacts of softer export sales and of weaker economic activity abroad; elevated levels of uncertainty about government policies, including trade policies; and the likely effect of recent financial market volatility on business sentiment. However, many participants pointed to signs that the weakness in investment would likely abate. Some contacts in manufacturing and other sectors reported that business conditions were favorable, with strong demand for labor, business sentiment had recovered from its recent decline, and recent reductions in mortgage interest rates would provide some support for construction activity. Agricultural activity remained weak in various areas of the country, with the weakness in part reflecting adverse effects of trade policy on commodity prices. Recent widespread severe flooding had also adversely affected the agricultural sector.

Participants noted that the latest readings on overall inflation had been somewhat softer than expected. However, participants observed that these readings largely reflected the effects of earlier declines in crude oil prices and that core inflation remained near 2 percent. Most participants, while seeing inflation pressures as muted, expected the overall rate of inflation to firm somewhat and to be at or near the Committee's longer-run objective of 2 percent over the next few years. Many participants indicated that, while inflation had been close to 2 percent last year, it was noteworthy that it had not shown greater signs of firming in response to strong labor market conditions and rising nominal wage growth, as well as to the short-term upward pressure on prices arising from tariff increases. Low rates of price increases in sectors of the economy that were not cyclically sensitive were cited by a couple of participants as one reason for the recent easing in inflation. A few participants observed that the pickup in productivity growth last year was a welcome development helping to bolster potential output and damp inflationary pressures.

In their discussion of indicators of inflation expectations, participants noted that market-based measures of inflation compensation had risen modestly over the intermeeting period, although they remained low. A couple of participants stressed that recent readings on survey measures of inflation expectations were also still at low levels. Several participants suggested that longer-term inflation expectations could be at levels somewhat below those consistent with the Committee's 2 percent inflation objective and that this might make it more difficult to achieve that objective on a sustained basis.

In their discussion of the labor market, participants cited evidence that conditions remained strong, including the very low unemployment rate, a further increase in the labor force participation rate, a low number of layoffs, near-record levels of job openings and help-wanted postings, and solid job gains, on average, in recent months. Participants observed that, following strong job gains in January, there had been little growth in payrolls in February, although a few participants pointed out that the February reading had likely been affected by adverse weather conditions. A couple of participants noted that, over the medium term, some easing in payroll growth was to be expected as economic growth slowed to its longer-run trend rate. Reports from business contacts predominantly pointed to continued strong labor demand, with firms offering both higher wages and more nonwage benefits to attract workers. Economy-wide wage growth was seen as being broadly consistent with recent rates of labor productivity growth and with inflation of 2 percent. A few participants cited the combination of muted inflation pressures and expanding employment as a possible indication that some slack remained in the labor market.

Participants commented on a number of risks associated with their outlook for economic activity. A few participants noted that there remained a high level of uncertainty associated with international developments, including ongoing trade talks and Brexit deliberations, although a couple of participants remarked that the risks of adverse outcomes were somewhat lower than in January. Other downside risks included the possibility of sizable spillovers from a greater-than-expected economic slowdown in Europe and China, persistence of the softness in spending, or a sharp falloff in fiscal stimulus. A few participants observed that an economic deterioration in the United States, if it occurred, might be amplified by significant debt service burdens for many firms. Participants also mentioned a number of upside risks regarding the outlook for economic activity, including outcomes in which various sources of uncertainty were resolved favorably, consumer and business sentiment rebounded sharply, or the recent strengthening in labor productivity growth signaled a pickup in the underlying trend. Upside risks to the outlook for inflation included the possibility that wage pressures could rise unexpectedly and lead to greater-than-expected price increases.

In their discussion of financial developments, participants observed that a good deal of the tightening over the latter part of last year in financial conditions had since been reversed; Federal Reserve communications since the beginning of this year were seen as an important contributor to the recent improvements in financial conditions. Participants noted that asset valuations had recovered strongly and also discussed the decline that had occurred in recent months in yields on longer-term Treasury securities. Several participants expressed concern that the yield curve for Treasury securities was now quite flat and noted that historical evidence suggested that an inverted yield curve could portend economic weakness; however, their discussion also noted that the unusually low level of term premiums in longer-term interest rates made historical relationships a less reliable basis for assessing the implications of the recent behavior of the yield curve. Several participants pointed to the

increased debt issuance and higher leverage of nonfinancial corporations as a development that warranted continued monitoring.

In their discussion of monetary policy decisions at the current meeting, participants agreed that it would be appropriate to maintain the current target range for the federal funds rate at 2¼ to 2½ percent. Participants judged that the labor market remained strong, but that information received over the intermeeting period, including recent readings on household spending and business fixed investment, pointed to slower economic growth in the early part of this year than in the fourth quarter of 2018. Despite these indications of softer first-quarter growth, participants generally expected economic activity to continue to expand, labor markets to remain strong, and inflation to remain near 2 percent. Participants also noted significant uncertainties surrounding their economic outlooks, including those related to global economic and financial developments. In light of these uncertainties as well as continued evidence of muted inflation pressures, participants generally agreed that a patient approach to determining future adjustments to the target range for the federal funds rate remained appropriate. Several participants observed that the characterization of the Committee's approach to monetary policy as "patient" would need to be reviewed regularly as the economic outlook and uncertainties surrounding the outlook evolve. A couple of participants noted that the "patient" characterization should not be seen as limiting the Committee's options for making policy adjustments when they are deemed appropriate.

With regard to the outlook for monetary policy beyond this meeting, a majority of participants expected that the evolution of the economic outlook and risks to the outlook would likely warrant leaving the target range unchanged for the remainder of the year. Several of these participants noted that the current target range for the federal funds rate was close to their estimates of its longer-run neutral level and foresaw economic growth continuing near its longer-run trend rate over the forecast period. Participants continued to emphasize that their decisions about the appropriate target range for the federal funds rate at coming meetings would depend on their ongoing assessments of the economic outlook, as informed by a wide range of data, as well as on how the risks to the outlook evolved. Several participants noted that their views of the appropriate target range for the federal funds rate could shift in either direction based on incoming data and other developments. Some participants indicated that if the economy evolved as they currently expected, with economic growth above its longer-run trend rate, they would likely judge it appropriate to raise the target range for the federal funds rate modestly later this year.

Several participants expressed concerns that the public had, at times, misinterpreted the medians of participants' assessments of the appropriate level for the federal funds rate presented in the SEP as representing the consensus view of the Committee or as suggesting that policy was on a preset course. Such misinterpretations could complicate the Committee's communications regarding its view of appropriate monetary policy, particularly in circumstances when the future course of policy is unusually uncertain. Nonetheless, several participants noted that the policy rate projections in the SEP are a valuable component of the overall information provided about the monetary policy outlook. The Chair noted that he had asked the subcommittee on communications to consider ways to improve the information contained in the SEP and to improve communications regarding the role of the federal funds rate projections in the SEP as part of the policy process.

Participants also discussed alternative interpretations of subdued inflation pressures in current economic circumstances and the associated policy implications. Several participants observed that limited inflationary pressures during a period of historically low unemployment could be a sign that low inflation expectations were exerting downward pressure on inflation relative to the Committee's 2 percent inflation target; in addition, subdued inflation pressures could indicate a less tight labor market than suggested by common measures of resource utilization. Consistent with these observations, several participants noted that various indicators of inflation expectations had remained at the lower end of their historical range, and a few participants commented that they had recently revised down their estimates of the longer-run unemployment rate consistent with 2 percent inflation. In light of these considerations, some participants noted that the appropriate response of the federal funds rate to signs of labor market tightening could be modest provided that signs of inflation pressures continued to be limited. Some participants regarded their judgments that the federal funds rate was likely to remain on a very flat trajectory as reflecting other factors, such as low estimates of the longer-run neutral real interest rate or risk-management considerations. A few participants observed that the appropriate path for policy, insofar

as it implied lower interest rates for longer periods of time, could lead to greater financial stability risks. However, a couple of these participants noted that such financial stability risks could be addressed through appropriate use of countercyclical macroprudential policy tools or other supervisory or regulatory tools.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that the information received since the Committee met in January indicated that the labor market remained strong but that growth of economic activity had slowed from its solid rate in the fourth quarter. Payroll employment was little changed in February, but job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Recent indicators pointed to slower growth of household spending and business fixed investment in the first quarter. On a 12-month basis, overall inflation had declined, largely as a result of lower energy prices; inflation for items other than food and energy remained near 2 percent. On balance, market-based measures of inflation compensation had remained low in recent months, and survey-based measures of longer-term inflations expectations were little changed.

In their consideration of the economic outlook, members noted that financial conditions had improved since the beginning of year, but that some time would be needed to assess whether indications of weak economic growth in the first quarter would persist in subsequent quarters. Members also noted that inflationary pressures remained muted and that a number of uncertainties bearing on the U.S. and global economic outlook still awaited resolution. However, members continued to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes for the U.S. economy in the period ahead. In light of global economic and financial developments and muted inflation pressures, members concurred that the Committee could be patient as it determined what future adjustments to the target range for the federal funds rate may be appropriate to support those outcomes.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. Members agreed that in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to the Committee's maximum-employment and symmetric 2 percent inflation objectives. They reiterated that this assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. More generally, members noted that decisions regarding near-term adjustments of the stance of monetary policy would appropriately remain dependent on the evolution of the outlook as informed by incoming data.

With regard to the postmeeting statement, members agreed to characterize the labor market as remaining strong. While payroll employment had been little changed in February, job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Members also agreed to note that growth in economic activity appeared to have slowed from its solid rate in the fourth quarter, consistent with recent indicators of household spending and business fixed investment. The description of overall inflation was revised to recognize that inflation had declined, largely as a result of lower energy prices, while still noting that inflation for items other than food and energy remained near 2 percent.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective March 21, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2¼ to 2½ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.25 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.

The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $30 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in January indicates that the labor market remains strong but that growth of economic activity has slowed from its solid rate in the fourth quarter. Payroll employment was little changed in February, but job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Recent indicators point to slower growth of household spending and business fixed investment in the first quarter. On a 12-month basis, overall inflation has declined, largely as a result of lower energy prices; inflation for items other than food and energy remains near 2 percent. On balance, market-based measures of inflation compensation have remained low in recent months, and survey-based measures of longer-term inflation expectations are little changed.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles, and Eric Rosengren.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 2.40 percent and voted unanimously to approve establishment of the primary credit rate at the existing level of 3.00 percent, effective March 21, 2019.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, April 30–May 1, 2019. The meeting adjourned at 10:00 a.m. on March 20, 2019.

Notation Vote

By notation vote completed on February 19, 2019, the Committee unanimously approved the minutes of the Committee meeting held on January 29–30, 2019.

James A. Clouse
Secretary

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on March 19–20, 2019, 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 2019 to 2021 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with his or her 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.[1] "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.

Participants who submitted longer-run projections generally expected that, under appropriate monetary policy, growth of real GDP in 2019 would run at or somewhat above their individual estimates of its longer-run rate. Most participants continued to expect real GDP growth to edge down over the projection horizon, with almost all participants projecting growth in 2021 to be at or below their estimates of its longer-run rate. All participants who submitted longer-run projections continued to expect that the unemployment rate would run at or below their estimates of its longer-run level through 2021. Almost all participants projected that inflation, as measured by the four-quarter percentage change in the price index for personal consumption expenditures (PCE), would increase slightly over the next two years, and most participants expected that it would be at or slightly above the Committee's 2 percent objective in 2020 and 2021. Compared with the Summary of Economic Projections (SEP) from December 2018, all participants marked down somewhat their projections for real GDP growth in 2019, and most revised down slightly their projections for total inflation in 2019. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, most participants expected that the evolution of the economy, relative to their objectives of maximum employment and 2 percent inflation, would likely warrant keeping the federal funds rate at its current level through the end of 2019. The medians of participants' assessments of the appropriate level of the federal funds rate in 2020 and 2021 were close to the median assessment of its longer-run level. Compared with the December submissions, the median projections for the federal funds rate for the end of 2019, 2020, and 2021 were 50 basis points lower.

A substantial majority of participants continued to view the uncertainty around their projections as broadly similar to the average of the past 20 years. While a majority of participants viewed the risks to the outlook as balanced, a couple more participants than in December viewed the risks to inflation as weighted to the downside.

The Outlook for Economic Activity

As shown in table 1, the median of participants' projections for the growth rate of real GDP in 2019, conditional on their individual assessments of appropriate monetary policy, was 2.1 percent. Most participants continued to expect GDP growth to slow throughout the projection horizon, with the median projection at 1.9 percent in 2020 and at 1.8 percent in 2021, a touch lower than the median estimate of its longer-run rate of 1.9 percent. Relative to the December SEP, the medians of the projections for real GDP growth in 2019 and 2020 were 0.2 percentage point and 0.1 percentage point lower, respectively. Most participants mentioned a recent patch of weaker data on domestic economic activity, and some pointed to a softer global growth outlook, as factors behind the downward revisions to their near-term growth estimates.

The median of projections for the unemployment rate in the fourth quarter of 2019 was 3.7 percent, about ½ percentage point below the median assessment of its longer-run level. The median projections for 2020 and 2021 were 3.8 percent and 3.9 percent, respectively. These median unemployment rates were a little higher than those from the December SEP. Nevertheless, most participants continued to project that the unemployment rate in 2021 would be below their estimates of its longer-run level. The median

[1] One participant did not submit longer-run projections for real GDP growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, March 2019
Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2019	2020	2021	Longer run	2019	2020	2021	Longer run	2019	2020	2021	Longer run
Change in real GDP	2.1	1.9	1.8	1.9	1.9–2.2	1.8–2.0	1.7–2.0	1.8–2.0	1.6–2.4	1.7–2.2	1.5–2.2	1.7–2.2
December projection	2.3	2.0	1.8	1.9	2.3–2.5	1.8–2.0	1.5–2.0	1.8–2.0	2.0–2.7	1.5–2.2	1.4–2.1	1.7–2.2
Unemployment rate	3.7	3.8	3.9	4.3	3.6–3.8	3.6–3.9	3.7–4.1	4.1–4.5	3.5–4.0	3.4–4.1	3.4–4.2	4.0–4.6
December projection	3.5	3.6	3.8	4.4	3.5–3.7	3.5–3.8	3.6–3.9	4.2–4.5	3.4–4.0	3.4–4.3	3.4–4.2	4.0–4.6
PCE inflation	1.8	2.0	2.0	2.0	1.8–1.9	2.0–2.1	2.0–2.1	2.0	1.6–2.1	1.9–2.2	2.0–2.2	2.0
December projection	1.9	2.1	2.1	2.0	1.8–2.1	2.0–2.1	2.0–2.1	2.0	1.8–2.2	2.0–2.2	2.0–2.3	2.0
Core PCE inflation[4]	2.0	2.0	2.0		1.9–2.0	2.0–2.1	2.0–2.1		1.8–2.2	1.8–2.2	1.9–2.2	
December projection	2.0	2.0	2.0		2.0–2.1	2.0–2.1	2.0–2.1		1.9–2.2	2.0–2.2	2.0–2.3	
Memo: Projected appropriate policy path												
Federal funds rate	2.4	2.6	2.6	2.8	2.4–2.6	2.4–2.9	2.4–2.9	2.5–3.0	2.4–2.9	2.4–3.4	2.4–3.6	2.5–3.5
December projection	2.9	3.1	3.1	2.8	2.6–3.1	2.9–3.4	2.6–3.1	2.5–3.0	2.4–3.1	2.4–3.6	2.4–3.6	2.5–3.5

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 December projections were made in conjunction with the meeting of the Federal Open Market Committee on December 18–19, 2018. 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 December 18–19, 2018, meeting, and one participant did not submit such projections in conjunction with the March 19–20, 2019, meeting.

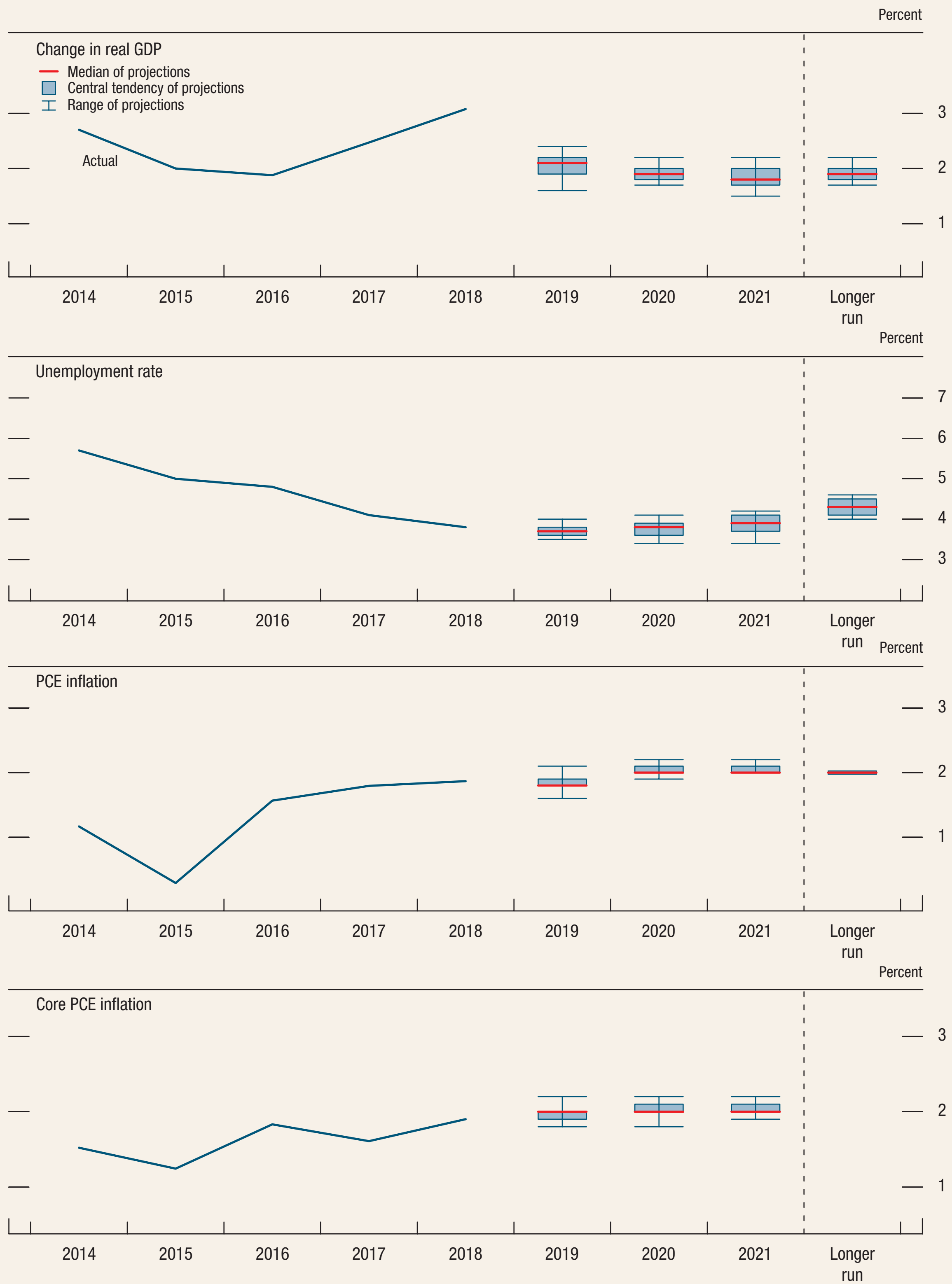
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

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.

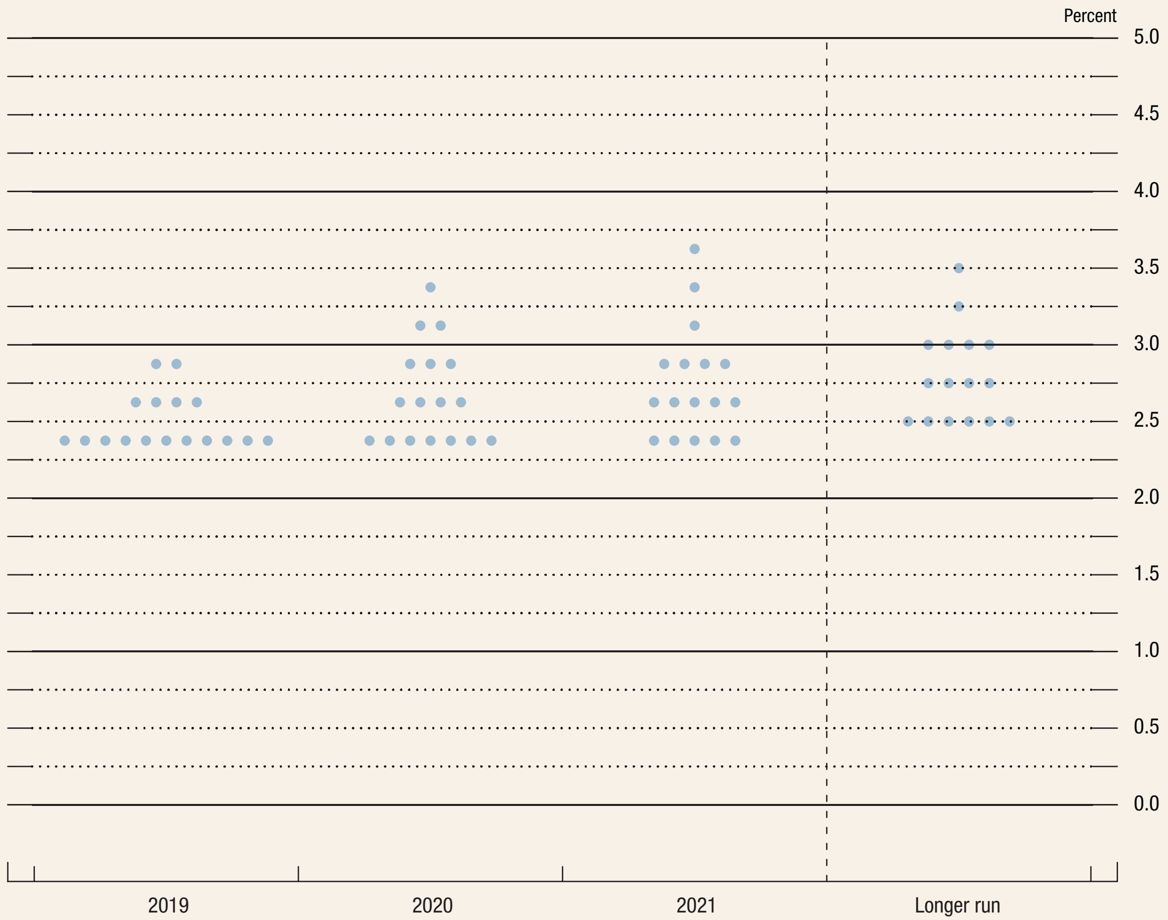
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2019–21 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 ⅛ 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. One participant did not submit longer-run projections for the federal funds rate.

estimate of the longer-run rate of unemployment was 4.3 percent, which was slightly lower than in December.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2019 to 2021 and in the longer run. The distribution of individual projections for real GDP growth for 2019 shifted down relative to that in the December SEP, while the distributions for 2020, 2021, and the longer-run rate of GDP growth changed only slightly. The distributions of individual projections for the unemployment rate in 2019 and 2020 moved modestly higher relative to those in December, and the distribution in 2021 edged higher as well. Meanwhile, the distribution for the longer-run unemployment rate shifted down a touch.

The Outlook for Inflation

As shown in table 1, the medians of projections for total PCE price inflation were 1.8 percent in 2019 and 2.0 percent in both 2020 and 2021, each a touch lower than in the December SEP. The medians of projections for core PCE price inflation over the 2019–21 period were 2.0 percent, the same as in December.

Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for total PCE price inflation and core PCE price inflation in 2019, 2020, and 2021 shifted down slightly from the December SEP. Almost all participants expected that total and core PCE price inflation would be between 1.8 and 2.2 percent throughout the projection horizon.

Appropriate Monetary Policy

Figure 3.E shows distributions of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2019 to 2021 and over the longer run. The distributions for 2019 through 2021 shifted toward lower values. Compared with the projections prepared for the December SEP, the median federal funds rate was 50 basis points lower each year over the 2019–21 period. At the end of 2019, the median of federal funds rate projections was 2.38 percent, consistent with no rate increases over the course of 2019. Thereafter, the medians of the projections were 2.63 percent at the end of both 2020 and 2021, slightly lower than the median of the longer-run projections of the federal funds rate of 2.75 percent. Muted inflationary pressures and risk-management considerations were both cited as factors contributing to the downward revisions in participants' assessments of the appropriate path for the policy rate. The distribution of individual projections for the longer-run federal funds rate ticked down from December.

Uncertainty and Risks

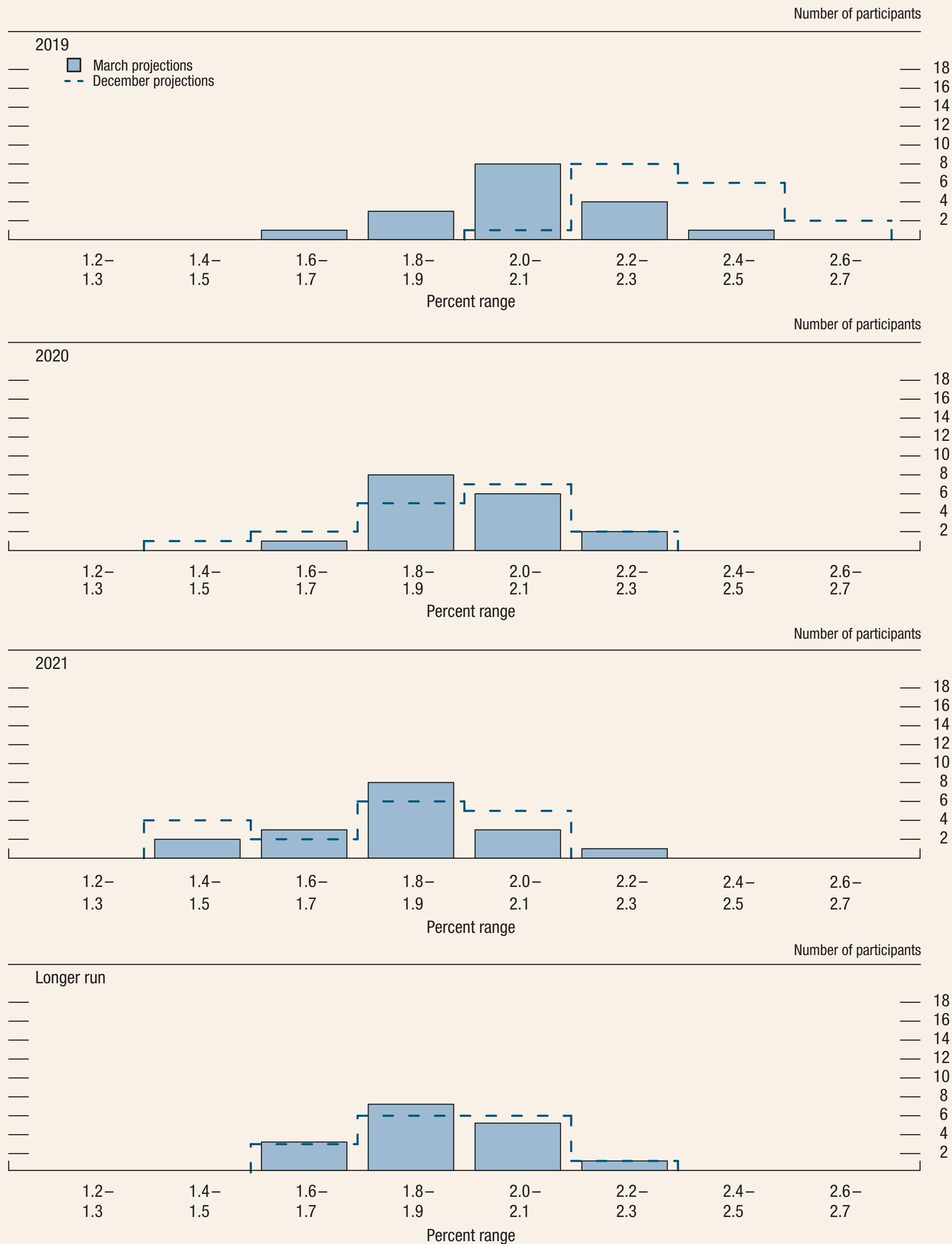
In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government forecasts over the past 20 years—for real GDP growth, the unemployment rate, and total PCE price inflation. Those measures are represented graphically in the "fan charts" shown in the top panels of figures 4.A, 4.B, and 4.C. The fan charts display the SEP medians for the three variables surrounded by symmetric confidence intervals derived from the forecast errors reported in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of being within these confidence intervals. For all three variables, this measure of uncertainty is substantial and generally increases as the forecast horizon lengthens.

Participants' assessments of the level of uncertainty surrounding their individual economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. A substantial majority of participants continued to view the degree of uncertainty attached to their economic projections for real GDP growth, unemployment, and inflation as broadly similar to the average of the past 20 years.[2]

Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their

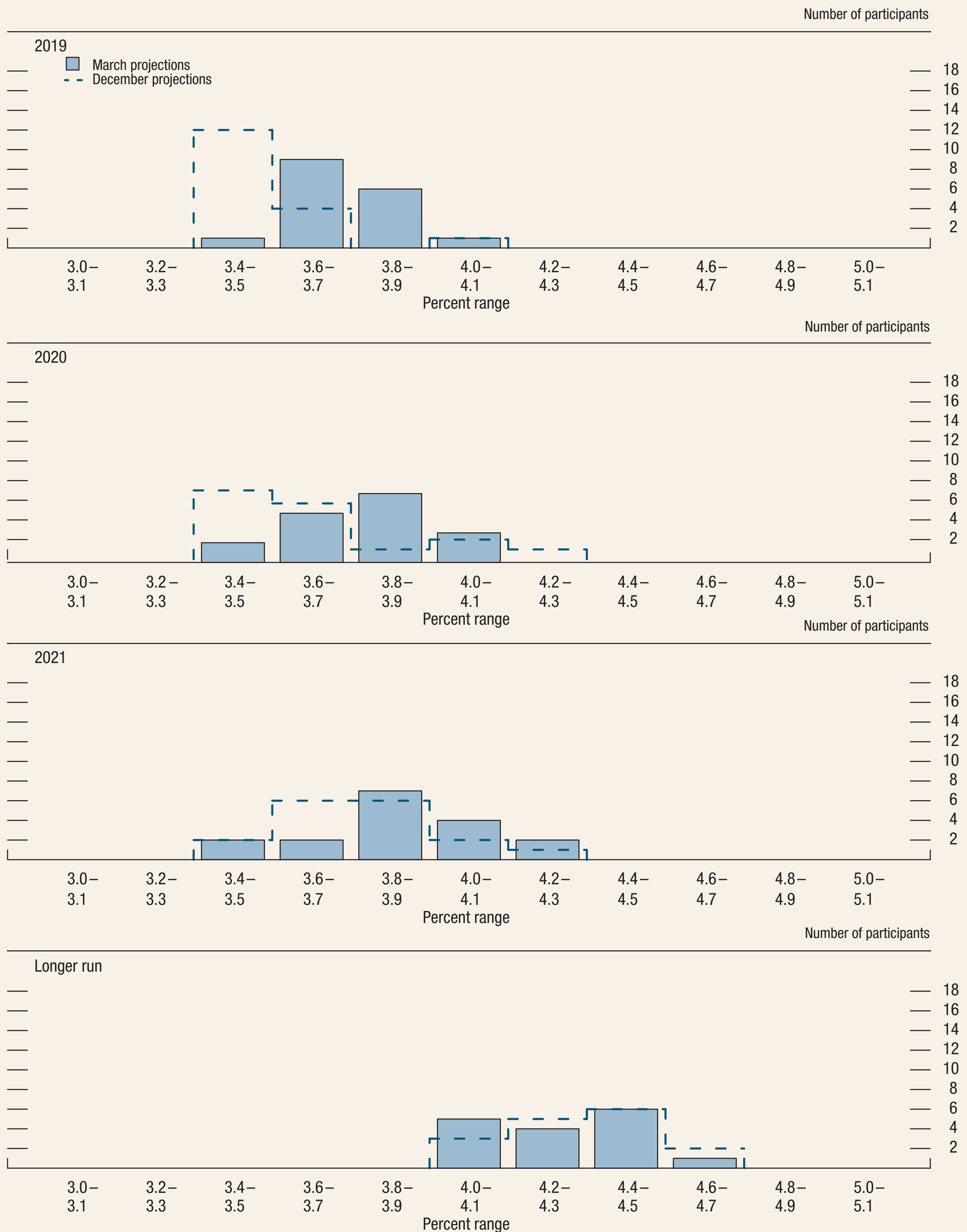
[2] At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty surrounding the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–21 and over the longer run



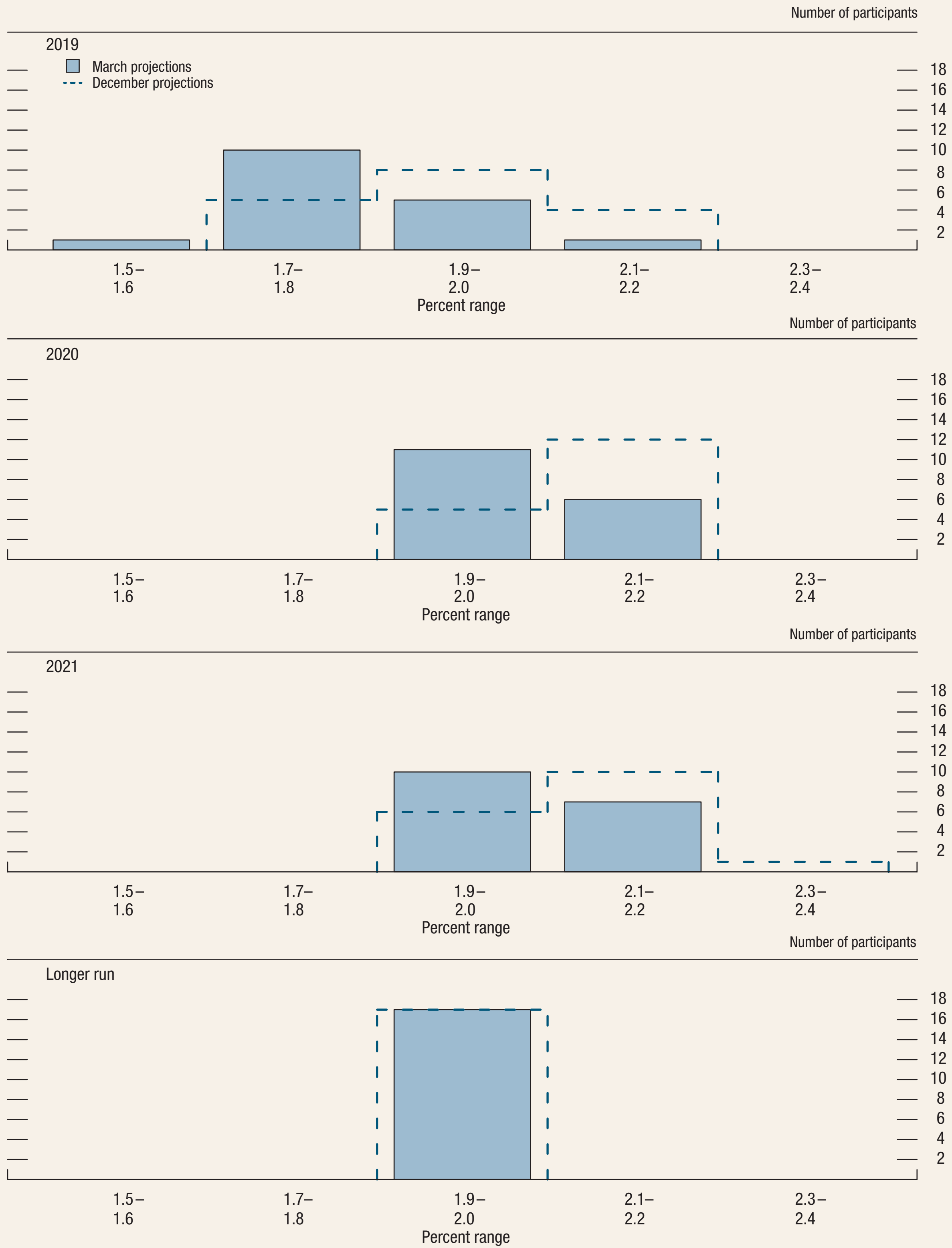
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–21 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, 2019–21 and over the longer run

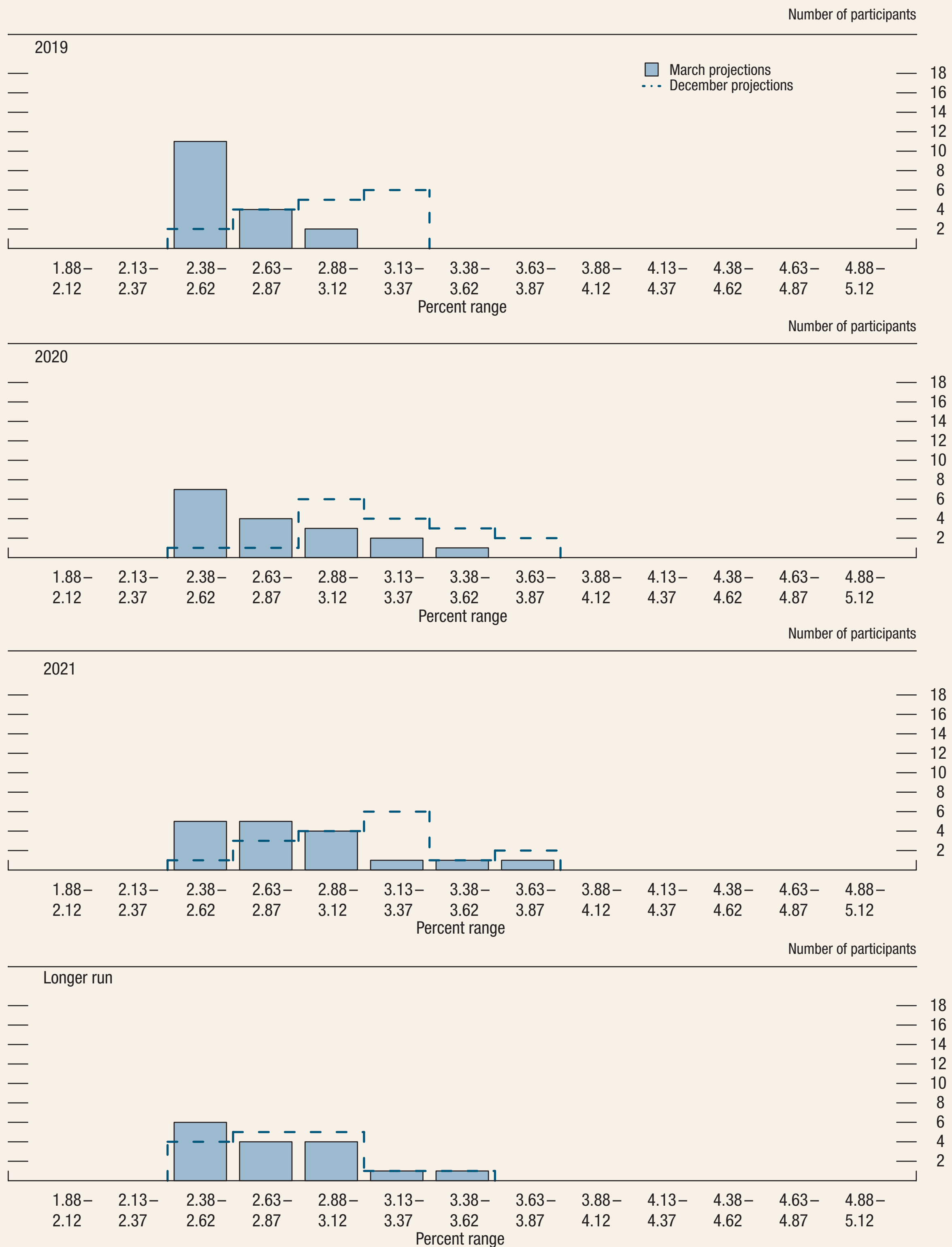


Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2019–21

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, 2019–21 and over the longer run



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

Table 2. Average historical projection error ranges
Percentage points

Variable	2019	2020	2021
Change in real GDP[1]	±1.4	±1.9	±1.9
Unemployment rate[1]	±0.5	±1.3	±1.7
Total consumer prices[2]	±0.9	±1.0	±1.1
Short-term interest rates[3]	±0.9	±2.0	±2.5

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1999 through 2018 that were released in the spring 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.

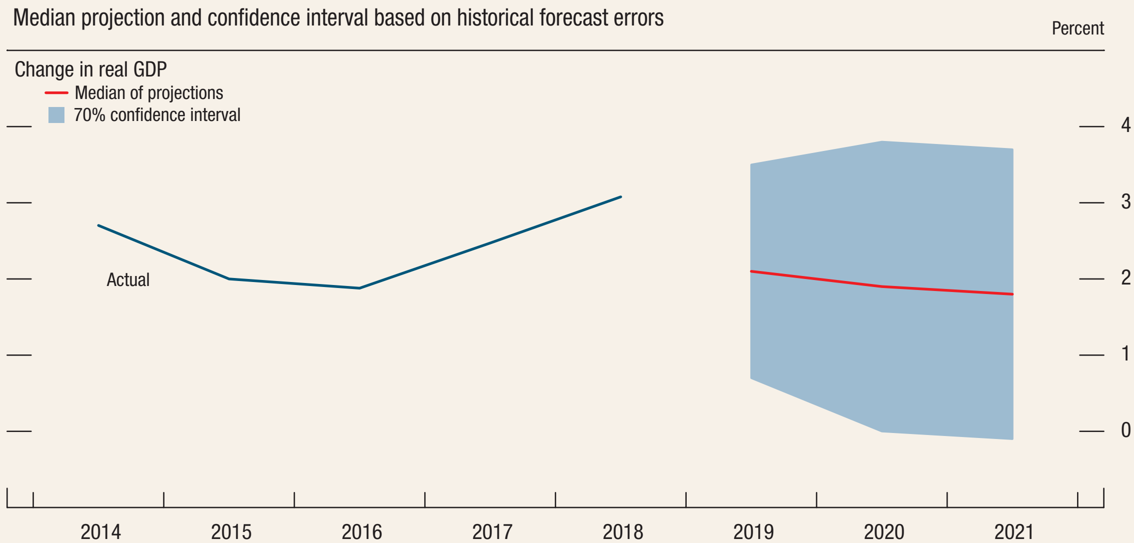
current economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. A majority of participants judged the risks to the outlook for real GDP growth, the unemployment rate, total inflation, and core inflation as broadly balanced—in other words, as broadly consistent with a symmetric fan chart. The balance of risks to the projection for real GDP growth shifted a bit lower, with four participants assessing the risks as weighted to the downside and no participant seeing it weighted to the upside. The balance of risks to the projection for the unemployment rate moved a touch higher, with three participants judging the risks to the unemployment rate as weighted to the upside and two participants viewing the risks as weighted to the downside. In addition, the balance of risks to the inflation projections shifted down slightly relative to December. Two more participants than in December saw the risks to the inflation projections as weighted to the downside, and no participant judged the risks as weighted to the upside.

In discussing the uncertainty and risks surrounding their economic projections, trade tensions as well as developments abroad were mentioned by participants as sources of uncertainty or downside risk to the economic growth outlook. For the inflation outlook, the effect of trade restrictions was cited as an upside risk, while the concern that inflation expectations could be drifting below the FOMC's objective and the potential for a stronger dollar and weaker domestic demand to put downward pressure on inflation were viewed as downside risks. A number of participants mentioned that their assessments of risks remained roughly balanced in part as a result of their downward revisions to the appropriate federal funds rate path.

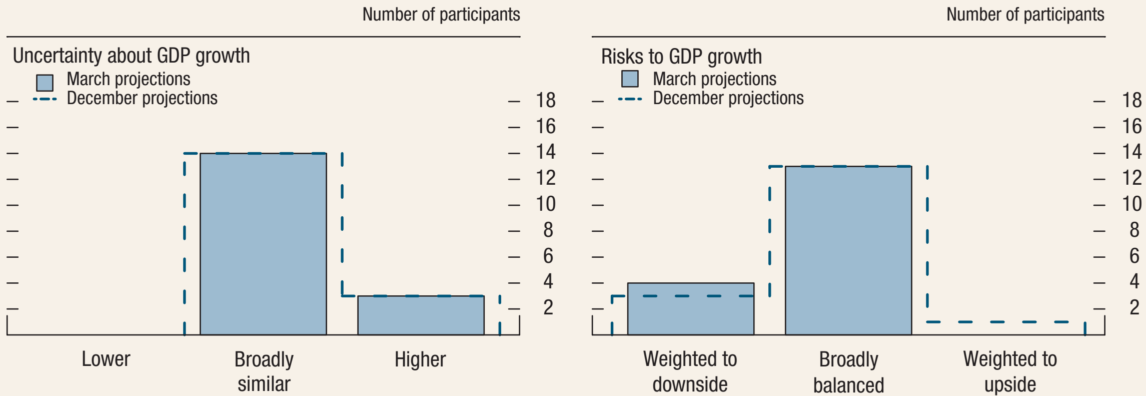
Participants' assessments of the appropriate future path of the federal funds rate are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and prospective developments over time in key economic variables such as real GDP growth, the unemployment rate, and inflation, uncertainty surrounding the projected path for the federal funds rate importantly reflects the uncertainties about the paths for these economic variables along with other factors. Figure 5 provides a graphical representation of this uncertainty, plotting the SEP median for the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, the forecast uncertainty surrounding the appropriate path of the federal funds rate is substantial and increases for longer horizons.

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

Median projection and confidence interval based on historical forecast errors



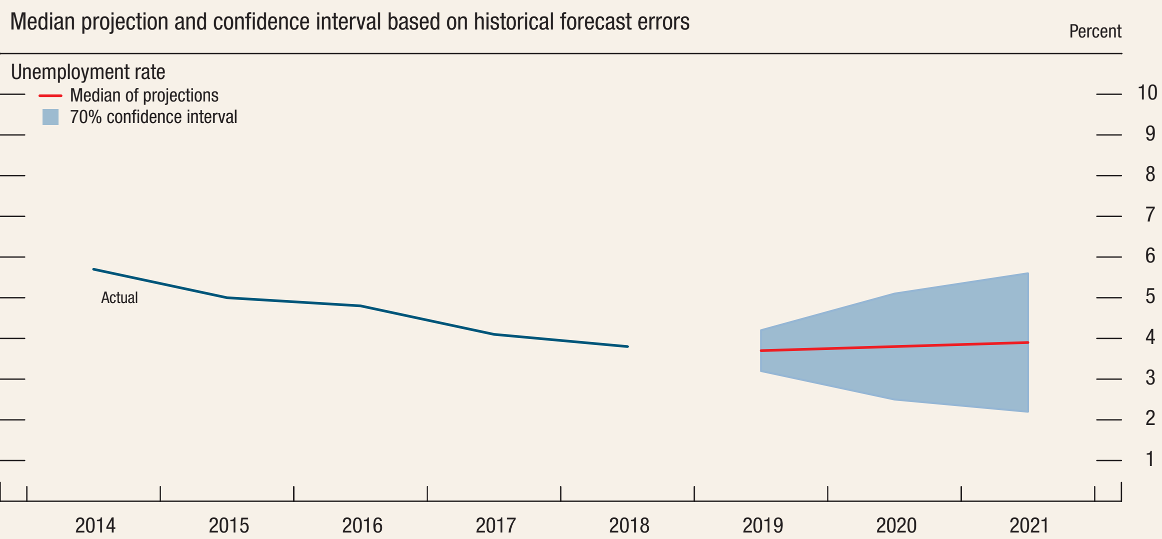
FOMC participants' assessments of uncertainty and risks around their economic projections



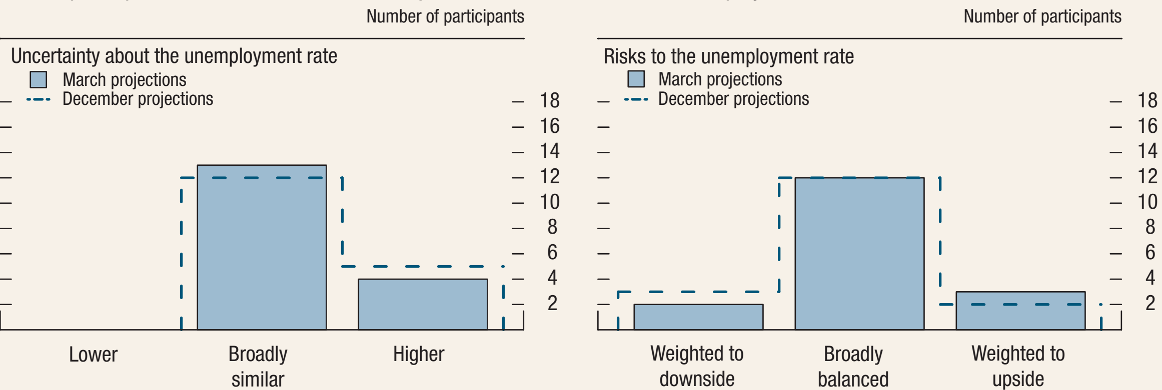
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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

Median projection and confidence interval based on historical forecast errors

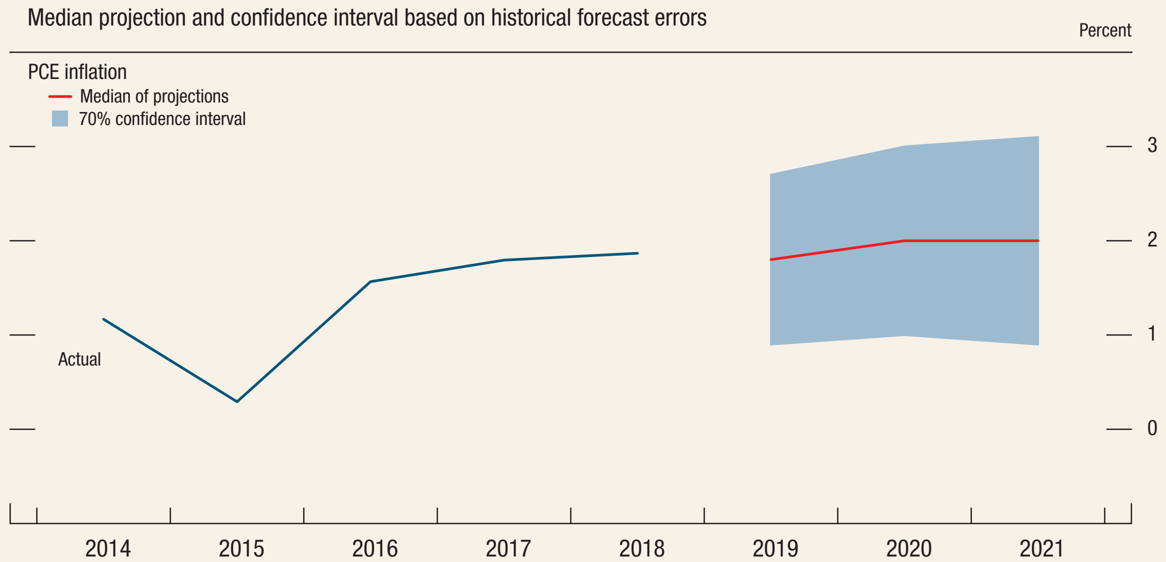


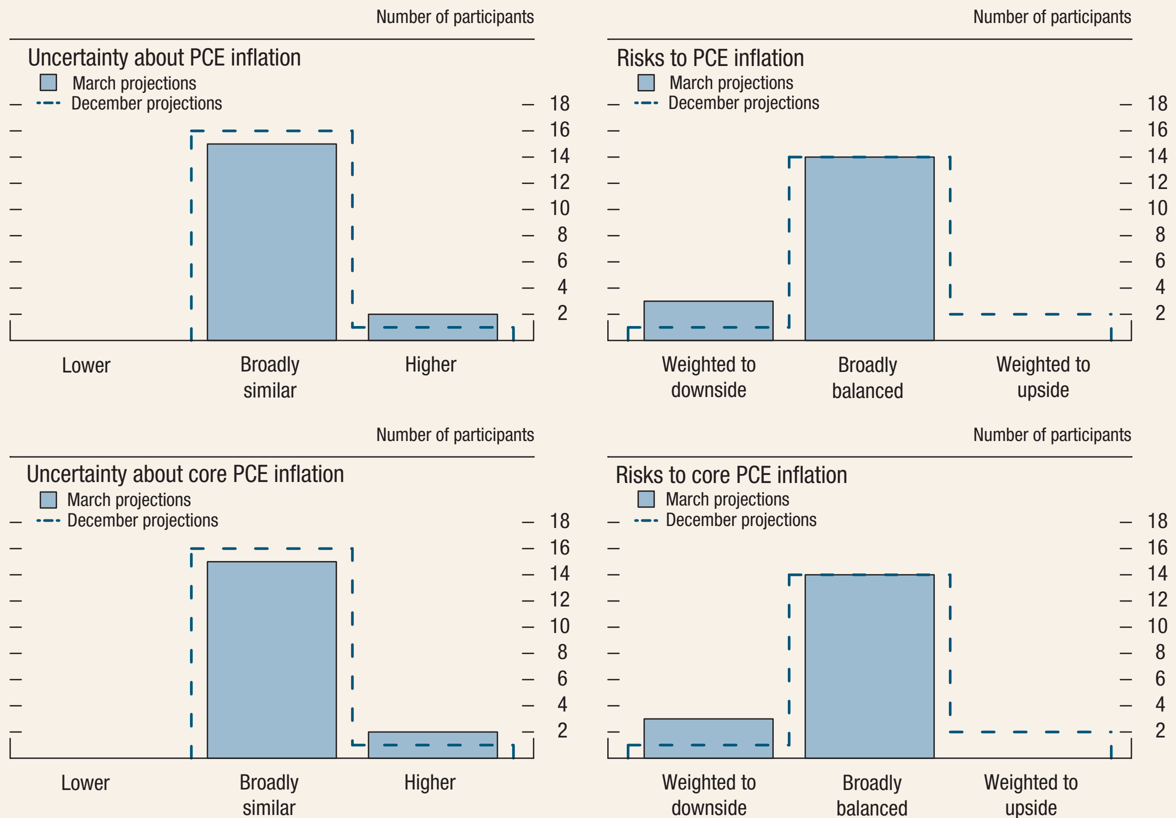
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the 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."

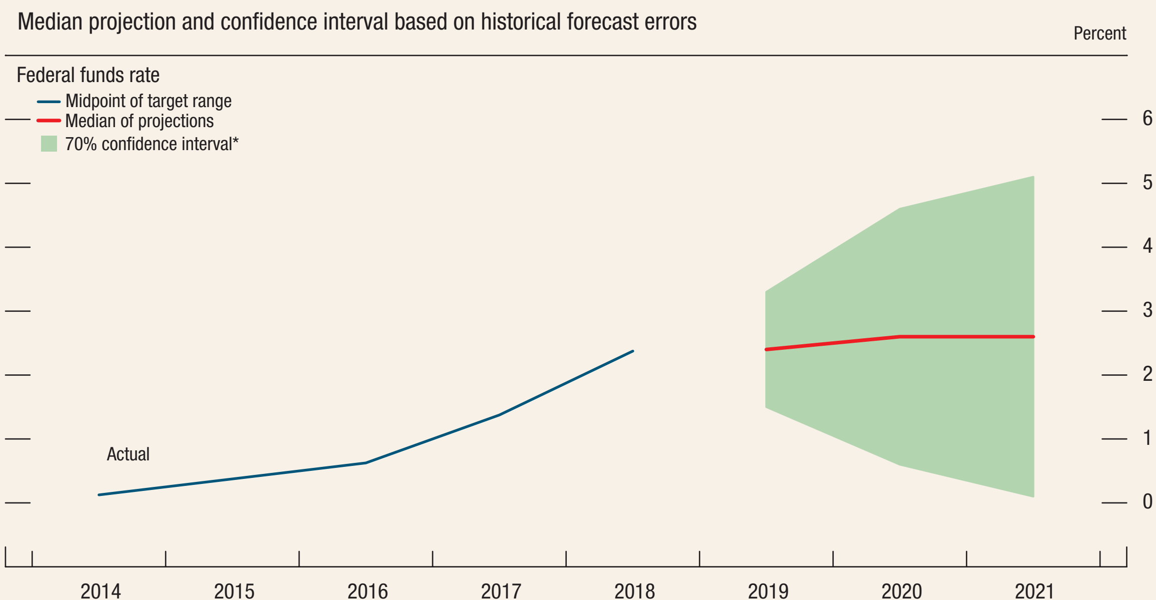
Figure 4.C. Uncertainty and risks in projections of PCE inflation





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 5. Uncertainty 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.

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 1.6 to 4.4 percent in the current year and 1.1 to 4.9 percent in the second and third years. The corresponding 70 percent confidence intervals for overall inflation would be 1.1 to 2.9 percent in the current year, 1.0 to 3.0 percent in the second year, and 0.9 to 3.1 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 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.

Meeting Held on April 30–May 1, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, April 30, 2019, at 10:00 a.m. and continued on Wednesday, May 1, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Eric M. Engen, Anna Paulson, Geoffrey Tootell, William Wascher, Jonathan L. Willis, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Antulio N. Bomfim
Special Adviser to the Chair, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of developments in financial markets and open market operations.

Brian M. Doyle,[3] Wendy E. Dunn, Ellen E. Meade, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed and Christopher J. Erceg[4]
Senior Associate Directors, Division of International Finance, Board of Governors

William F. Bassett
Senior Associate Director, Division of Financial Stability, Board of Governors

Joshua Gallin and David E. Lebow
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Robert J. Tetlow
Senior Adviser, Division of Monetary Affairs, Board of Governors

Marnie Gillis DeBoer
Associate Director, Division of Monetary Affairs, Board of Governors

John J. Stevens
Associate Director, Division of Research and Statistics, Board of Governors

Jeffrey D. Walker[2]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Eric C. Engstrom
Deputy Associate Director, Division of Monetary Affairs,
and
Adviser, Division of Research and Statistics, Board of Governors

Glenn Follette
Assistant Director, Division of Research and Statistics, Board of Governors

Laura Lipscomb[2] and Zeynep Senyuz[2]
Assistant Directors, Division of Monetary Affairs, Board of Governors

Dana L. Burnett, Michele Cavallo, and Matthew Malloy[2]
Section Chiefs, Division of Monetary Affairs, Board of Governors

[3] Attended Wednesday session only.

[4] Attended opening remarks for Tuesday session only.

Penelope A. Beattie[5]
Assistant to the Secretary, Office of the Secretary, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Juan M. Londono
Principal Economist, Division of International Finance, Board of Governors

Camelia Minoiu and Bernd Schlusche
Principal Economists, Division of Monetary Affairs, Board of Governors

Brian J. Bonis[2]
Lead Financial Institution and Policy Analyst, Division of Monetary Affairs, Board of Governors

Randall A. Williams
Senior Information Manager, Division of Monetary Affairs, Board of Governors

James M. Trevino[2]
Senior Technology Analyst, Division of Monetary Affairs, Board of Governors

Ron Feldman
First Vice President, Federal Reserve Bank of Minneapolis

Kartik B. Athreya, Michael Dotsey, Sylvain Leduc, and Ellis W. Tallman
Executive Vice Presidents, Federal Reserve Banks of Richmond, Philadelphia, San Francisco, and Cleveland, respectively

Evan F. Koenig, Antoine Martin,[2] Samuel Schulhofer-Wohl, Mark L. J. Wright, and Nathaniel Wuerffel[2]
Senior Vice Presidents, Federal Reserve Banks of Dallas, New York, Chicago, Minneapolis, and New York, respectively

David C. Wheelock
Group Vice President, Federal Reserve Bank of St. Louis

Patricia Zobel[2]
Vice President, Federal Reserve Bank of New York

Mary Amiti and William E. Riordan[2]
Assistant Vice Presidents, Federal Reserve Banks of New York and New York, respectively

John Robertson
Research Economist and Senior Advisor, Federal Reserve Bank of Atlanta

[5] Attended Tuesday session only.

Justin Meyer[2]
Markets Manager, Federal Reserve Bank of New York

Selection of Committee Officer

By unanimous vote, the Committee selected Anna Paulson to serve as Associate Economist, effective April 30, 2019, until the selection of her successor at the first regularly scheduled meeting of the Committee in 2020.

Balance Sheet Normalization

Participants resumed their discussion of issues related to balance sheet normalization with a focus on the long-run maturity composition of the System Open Market Account (SOMA) portfolio. The staff presented two illustrative scenarios as a way of highlighting a range of implications of different long-run target portfolio compositions. In the first scenario, the maturity composition of the U.S. Treasury securities in the target portfolio was similar to that of the universe of currently outstanding U.S. Treasury securities (a "proportional" portfolio). In the second, the target portfolio contained only shorter-term securities with maturities of three years or less (a "shorter maturity" portfolio). The staff provided estimates of the capacity that the Committee would have under each scenario to provide economic stimulus through a maturity extension program (MEP). The staff also provided estimates of the extent to which term premiums embedded in longer-term Treasury yields might be affected under the two different scenarios. Based on the staff's standard modeling framework, all else equal, a move to the illustrative shorter maturity portfolio would put significant upward pressure on term premiums and imply that the path of the federal funds rate would need to be correspondingly lower to achieve the same macroeconomic outcomes as in the baseline outlook. However, the staff noted the uncertainties inherent in the analysis, including the difficulties in estimating the effects of changes in SOMA holdings on longer-term interest rates and the economy more generally.

The staff presentation also considered illustrative gradual and accelerated transition paths to each long-run target portfolio. Under the illustrative "gradual" transition, reinvestments of maturing Treasury holdings, principal payments on agency mortgage-backed securities (MBS), and purchases to accommodate growth in Federal Reserve liabilities would be directed to Treasury securities with maturities in the long-run target portfolio. Under the illustrative "accelerated" transition, the reinvestment of principal payments on agency MBS and purchases to accommodate growth in Federal Reserve liabilities would be directed to Treasury bills until the weighted average maturity (WAM) of the SOMA portfolio reached the WAM associated with the target portfolio. Depending on the combination of long-run target composition and the transition plan for arriving at that composition, the staff reported that, in the illustrative scenarios, it could take from 5 years to more than 15 years for the WAM of the SOMA portfolio to reach its long-run level.

In its Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, the Committee noted that it is prepared to adjust the size and composition of the balance sheet to achieve its macroeconomic objectives in a scenario in which the federal funds rate is constrained by the effective lower bound. Against this backdrop, participants discussed the benefits and costs of alternative long-run target portfolio compositions in supporting the use of balance sheet policies in such scenarios.

In their discussion of a shorter maturity portfolio, many participants noted the advantage of increased capacity for the Federal Reserve to conduct an MEP, which could be helpful in providing policy accommodation in a future economic downturn given the secular decline in neutral real interest rates and the associated reduced scope for lowering the federal funds rate in response to negative economic shocks. Several participants viewed an MEP as a useful initial option to address a future downturn in which the Committee judged that it needed to employ balance sheet actions to provide appropriate policy accommodation. Participants acknowledged the staff analysis suggesting that creating space to conduct an MEP by moving to a shorter maturity portfolio composition could boost term premiums and result in a lower path for the federal funds rate, reducing the capacity to ease financial conditions with adjustments in short-term rates. A number of participants noted, however, that the estimates of the effect of a move to a shorter-maturity portfolio composition on the long-run neutral federal funds rate are subject to substantial uncertainty and are based on a number of strong modeling assumptions. For example, estimates of term premium effects based on experience during the crisis could overstate the effects that would be associated with a gradual evolution of the composition of the SOMA portfolio. In addition, a shift in the composition of the SOMA portfolio could result in changes in the

supply of securities that would tend to offset upward pressure on term premiums. Nonetheless, other participants expressed concern about the potential that a shorter maturity portfolio composition could result in a lower long-run neutral federal funds rate. Moreover, while a shorter maturity portfolio would provide substantial capacity to conduct an MEP, some participants raised questions about the effectiveness of MEPs as a policy tool relative to that of the federal funds rate or other unconventional policy tools. These participants noted that, in a situation in which it would be appropriate to employ unconventional policy tools, they likely would prefer to employ forward guidance or large-scale purchases of assets ahead of an MEP. In the view of these participants, the potential benefit of transitioning to a shorter maturity SOMA composition in terms of increased ability to conduct an MEP might not be worth the potential costs.

In their discussion of a proportional portfolio composition, participants observed that moving to this target SOMA composition would not be expected to have much effect on current staff estimates of term premiums and thus would likely not reduce the scope for lowering the target range for the federal funds rate target in response to adverse economic shocks. As a result, several participants judged the proportional target composition to be well aligned with the Committee's previous statements that changes in the target range for the federal funds rate are the primary means by which the Committee adjusts the stance of monetary policy. In addition, several participants noted that while the staff analysis suggested a proportional portfolio would not contain as much capacity to conduct an MEP as a shorter maturity portfolio, it still would contain meaningful capacity along these lines. Some participants noted that a proportional portfolio would also help maintain the traditional separation between the Federal Reserve's decisions regarding the composition of the SOMA portfolio and the maturity composition of Treasury debt held by the private sector. However, a number of participants judged that it would be desirable to structure the SOMA portfolio in a way that would provide more capacity to conduct an MEP than in the proportional portfolio. In addition, a couple of participants noted that a shorter maturity portfolio would maintain a narrow gap between the average maturity of the assets in the SOMA portfolio and the short average maturity of the Federal Reserve's primary liabilities.

Participants also discussed the financial stability implications that could be associated with alternative long-run target portfolio compositions. A couple of participants noted that a proportional portfolio could imply a relatively flat yield curve, which could result in greater incentives for "reach for yield" behavior in the financial system. That said, a few participants noted that a shorter maturity portfolio could affect financial stability risks by increasing the incentives for the private sector to issue short-term debt. A couple of participants judged that financial market functioning might be adversely affected if the holdings in the shorter maturity portfolio accounted for too large a share of total shorter maturity Treasury securities outstanding.

In discussing the transition to the desired long-run SOMA portfolio composition, several participants noted that a gradual pace of transition could help avoid unwanted effects on financial conditions. However, participants observed that the gradual transition paths described in the staff presentation would take many years to complete. Against this backdrop, a few participants discussed the possibility of following some type of accelerated transition, perhaps including sales of the SOMA's residual holdings of agency MBS. In addition, several participants suggested that the Committee could communicate its plans about the SOMA portfolio composition in terms of a desired change over an intermediate horizon rather than a specific long-run target.

Several participants expressed the view that a decision regarding the long-run composition of the portfolio would not need to be made for some time, and a couple of participants highlighted the importance of making such a decision in the context of the ongoing review of the Federal Reserve's monetary policy strategies, tools, and communications practices. Some participants noted the importance of developing an effective communication plan to describe the Committee's decisions regarding the long-run target composition for the SOMA portfolio and the transition to that target composition.

Developments in Financial Markets and Open Market Operations

The manager of the SOMA reviewed developments in financial markets over the intermeeting period. In the United States, prices for equities and other risk assets reportedly were buoyed by perceptions of an

accommodative stance of monetary policy, incoming economic data pointing to continued solid economic expansion, and some signs of receding downside risks to the global outlook. Treasury yields declined over the period, adding to their substantial drop since September, and the expected path of the federal funds rate as implied by futures prices shifted down as well. Market participants attributed these moves in part to FOMC communications indicating that the Committee would continue to be patient in evaluating the need for any further adjustments of the target range for the federal funds rate. Softer incoming data on inflation may also have contributed to the downward revision in the expected path of policy. Nearly all respondents on the Open Market Desk's latest surveys of primary dealers and market participants anticipated that the federal funds target range would be unchanged for the remainder of the year. In reviewing global developments, the manager noted that market prices appeared to reflect perceptions of improved economic prospects in China. However, investors reportedly remained concerned about the economic outlook for Europe and the United Kingdom.

The manager also reported on developments related to open market operations. In light of the declines in interest rates since November last year, principal payments on the Federal Reserve's holdings of agency MBS were projected to exceed the $20 billion redemption cap by a modest amount sometime this summer. As directed by the Committee, any principal payments received on agency MBS in excess of the cap would be reinvested in agency MBS. The Desk planned to conduct any such operations by purchasing uniform MBS rather than Fannie Mae and Freddie Mac securities. Consistent with the Balance Sheet Normalization Principles and Plans released following the March meeting, reinvestments of maturing Treasury securities beginning on May 2 would be based on a cap on monthly Treasury redemptions of $15 billion—down from the $30 billion monthly redemption cap that had been in place since October of last year.

The deputy manager reviewed developments in domestic money markets. Reserve balances declined by $150 billion over the intermeeting period and reached a low point of just below $1.5 trillion on April 23. The decline in reserves stemmed from a reduction in the SOMA's agency MBS and Treasury holdings of $46 billion, reducing the SOMA portfolio to $3.92 trillion, and from a shift in the composition of liabilities, predominantly related to the increase in the Treasury General Account (TGA).

The TGA was volatile during the intermeeting period. In early April, the Treasury reduced bill issuance and allowed the TGA balance to fall in anticipation of individual tax receipts. As tax receipts arrived after the tax date, the TGA rose to more than $400 billion, resulting in a sharp decline in reserves over the last two weeks of April. Against this backdrop, the distribution of rates on traded volumes in overnight unsecured markets shifted higher. The effective federal funds rate (EFFR) moved up to 2.45 percent by the end of the intermeeting period, 5 basis points above the interest on excess reserves (IOER) rate.

Several factors appeared to spur this upward pressure. Tax-related runoffs in deposits at banks reportedly led banks to increase short-term borrowing, particularly through Federal Home Loan Bank (FHLB) advances and in the federal funds market. Although some banks continued to hold large quantities of reserves, other banks were operating with reserve balances closer to their lowest comfortable levels as reported in the most recent Senior Financial Officer Survey. This distribution of reserves may have contributed to somewhat more sustained upward pressure on the federal funds rate than had been experienced in recent years around tax-payment dates. In addition, rates on Treasury repurchase agreements (repo), were, in part, pushed higher by tax-related outflows from government-only money market mutual funds and a corresponding decline in repo lending by those funds. Elevated repo rates contributed to upward pressure on the federal funds rate, as FHLBs reportedly shifted some of their liquidity investments out of federal funds and into the repo market. In addition, some market participants pointed to heightened demand for federal funds at month end by some banks in connection with their efforts to meet liquidity coverage ratio requirements as contributing to upward pressure on the federal funds rate.

The deputy manager also discussed a staff proposal in which the Board would implement a 5 basis point technical adjustment to the Interest on Required Reserves (IORR) and IOER rates. The proposed action would bring these rates to 15 basis points below the top of the target range for the federal funds rate and 10 basis points above the bottom of the range and the overnight reverse repurchase agree-

ment (ON RRP) offer rate. As with the previous technical adjustments in June and December 2018, the proposed adjustment was intended to foster trading in the federal funds market well within the target range established by the FOMC.

A technical adjustment would reduce the spread between the IOER rate and the ON RRP offering rate to 10 basis points, the smallest since the introduction of the ON RRP facility. The staff judged that the narrower spread did not pose a significant risk of increased take-up at the ON RRP facility because repo rates had been trading well above the ON RRP offer rate for some time. However, if it became appropriate in the future to further lower the IOER rate, the staff noted that the Committee might wish to first consider where to set the ON RRP offer rate relative to the target range for the federal funds rate to mitigate this risk.

The manager concluded the briefing on financial market developments and open market operations with a review of the role of standing swap lines in supporting financial stability. He recommended that the Committee vote to renew these swap lines at this meeting following the usual annual schedule.

The Committee voted unanimously to renew the reciprocal currency arrangements with the Bank of Canada and the Bank of Mexico; these arrangements are associated with the Federal Reserve's participation in the North American Framework Agreement of 1994. In addition, the Committee voted unanimously to renew the dollar and foreign currency liquidity swap arrangements with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank. The votes to renew the Federal Reserve's participation in these standing arrangements occur annually at the April or May FOMC meeting.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the April 30–May 1 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) increased at a solid rate in the first quarter even as household spending and business fixed investment rose more slowly in the first quarter than in the fourth quarter of last year. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), declined, on net, in recent months and was somewhat below 2 percent in March. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment recorded a strong gain in March, and the unemployment rate held steady at 3.8 percent. The labor force participation rate declined a little in March after having risen, on balance, in the previous few months, and the employment-to-population ratio edged down. The unemployment rates for African Americans, Asians, and Hispanics in March were at or below their levels at the end of the previous economic expansion, though persistent differentials in unemployment rates across groups remained. The share of workers employed part time for economic reasons edged up in March but was still below the lows reached in late 2007. The rate of private-sector job openings in February declined slightly from the elevated level that prevailed for much of the past year, while the rate of quits was unchanged at a high level; the four-week moving average of initial claims for unemployment insurance benefits through mid-April was near historically low levels. Average hourly earnings for all employees rose 3.2 percent over the 12 months ending in March, a somewhat faster pace than a year earlier. The employment cost index for private-sector workers increased 2.8 percent over the 12 months ending in March, the same as a year earlier.

Industrial production edged down in March and for the first quarter overall. Manufacturing output declined moderately in the first quarter, primarily reflecting a decrease in the output of motor vehicles and parts; outside of motor vehicles and parts, manufacturing production was little changed. Mining output declined, on net, over the three months ending in March. Automakers' assembly schedules suggested that the production of light motor vehicles would move up in the near term, and new orders indexes from national and regional manufacturing surveys pointed to modest gains in overall factory output in the coming months. However, industry news indicated that aircraft production would slow in the second quarter.

Consumer expenditures slowed in the first quarter, but monthly data suggested some improvement toward the end of the quarter. Real PCE increased at

a robust pace in March after having been unchanged in February, perhaps partly reflecting a delay in tax refunds from February into March that was due, in part, to the partial government shutdown. Similarly, sales of light motor vehicles rose sharply in March, although the average pace of sales in the first quarter was slower than in the fourth quarter. Key factors that influence consumer spending—including a low unemployment rate, ongoing gains in real labor compensation, and still elevated measures of households' net worth—were supportive of solid near-term gains in consumer expenditures. In addition, consumer sentiment, as measured by the University of Michigan Surveys of Consumers, edged down in April but was still upbeat. The staff reported preliminary analysis of the levels of and trends in average household wealth by racial and ethnic groups as measured by the Federal Reserve Board's Distributional Financial Accounts initiative.

Real residential investment declined at a slower rate in the first quarter than it did over the course of 2018. After an appreciable uptick in January, starts of new single-family homes fell in February and were little changed in March. Meanwhile, starts of multifamily units rose in February and stayed at that level in March. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—declined a little in February and March. Sales of both new and existing homes increased, on net, over the February-and-March period.

Growth in real private expenditures for business equipment and intellectual property slowed in the first quarter, reflecting both a slower increase in transportation equipment spending after a strong fourth-quarter gain and a decline in spending on other types of equipment outside of high tech. Nominal shipments of nondefense capital goods excluding aircraft were little changed, on net, in February and March, but they rose for the quarter as a whole. Forward-looking indicators of business equipment spending pointed to sluggish increases in the near term. Orders for nondefense capital goods excluding aircraft increased noticeably in March but were only a little above the level of shipments, and readings on business sentiment improved a bit but were still softer than last year. Real business expenditures for nonresidential structures outside of the drilling and mining sector increased somewhat in the first quarter after having declined for several quarters. Investment in drilling and mining structures moved down in the first quarter, and the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—declined, on net, from mid-March through late April.

Total real government purchases increased in the first quarter. Real purchases by the federal government were unchanged, as a relatively strong increase in defense purchases was offset by a decline in nondefense purchases stemming from the effects of the partial federal government shutdown. Real purchases by state and local governments increased briskly; payrolls of those governments expanded solidly in the first quarter, and nominal state and local construction spending rose markedly.

The nominal U.S. international trade deficit narrowed significantly in January and a touch more in February. After declining in December, the value of U.S. exports rose in January and February. However, the average dollar value of exports in the first two months of the year was only slightly above its fourth-quarter value. Imports fell in January before edging a touch higher in February, with the average of the two months declining relative to the fourth quarter. The Bureau of Economic Analysis estimated that the contribution of net exports to real GDP growth in the first quarter was about 1 percentage point.

Total U.S. consumer prices, as measured by the PCE price index, increased 1.5 percent over the 12 months ending in March. This increase was somewhat slower than a year earlier, as core PCE price inflation (which excludes changes in consumer food and energy prices) slowed to 1.6 percent, consumer food price inflation was a bit below core inflation, and consumer energy prices were little changed. The trimmed-mean measure of PCE price inflation constructed by the Federal Reserve Bank of Dallas was 2.0 percent over that 12-month period. The consumer price index (CPI) rose 1.9 percent over the 12 months ending in March, while core CPI inflation was 2.0 percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the Michigan survey, the Survey of Professional Forecasters, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed.

Foreign economic growth in the first quarter was mixed. Among the emerging market economies (EMEs), real GDP contracted in South Korea and Mexico, but activity in China strengthened, supported by tax cuts and the easing of credit condi-

tions. In the advanced foreign economies, economic indicators were downbeat in Japan but elsewhere pointed to some improvement from a weak fourth quarter; GDP growth rebounded in the euro area and also appeared to pick up in Canada and the United Kingdom. Foreign inflation slowed further early this year, partly reflecting lower retail energy prices.

Staff Review of the Financial Situation

Investor sentiment continued to improve over the intermeeting period. Broad equity price indexes rose notably and corporate bond spreads narrowed amid a decline in market volatility, and financing conditions for businesses and households also eased. Market participants cited more accommodative than expected monetary policy communications coupled with strong U.S. and Chinese data releases and positive sentiment about trade negotiations between the United States and China as factors that contributed to these developments.

Communications following the March FOMC meeting were generally viewed by investors as having a more accommodative tone than expected. The market-implied path for the federal funds rate shifted downward modestly, on net, resulting in a flat to slightly downward sloping expected path of the policy rate over the next few FOMC meetings. Market participants assigned greater probability to a lower target range of the federal funds rate than to a higher one beyond the next few meetings.

Yields on nominal Treasury securities declined modestly, on net, during the intermeeting period. Investors cited larger-than-expected downward revisions in FOMC participants' assessments of the future path of the policy rate in the Summary of Economic Projections, recent communications suggesting a patient approach to monetary policy, and weaker-than-expected euro-area data releases early in the period among factors that contributed to this decrease. These factors reportedly outweighed stronger-than-expected economic data releases for the United States and China and optimism related to trade negotiations between the two countries later in the period. Measures of inflation compensation based on Treasury Inflation Protected Securities were changed little, on net, and remained below their early fall 2018 levels.

Major U.S. equity price indexes increased over the intermeeting period, with the S&P 500 equity index returning to the levels it reached before its decline in the last quarter of 2018. Following the March FOMC meeting, bank stock prices declined, reportedly on concerns about the potential effects of a flat or inverted yield curve on bank profits; bank stocks subsequently retraced this decline partly in response to strong first-quarter earnings at some of the largest U.S. banks, ending the period a bit higher, on net. Option-implied volatility on the S&P 500—the VIX—decreased to a low level last seen in September 2018. Yields on corporate bonds continued to decline and spreads over yields of comparable-maturity Treasury securities narrowed.

Conditions in short-term funding markets remained stable during the intermeeting period. The EFFR rose to 5 basis points above the IOER rate after the federal income tax deadline on April 15. While a similar dynamic occurred around previous tax dates, the magnitude of the change was larger than in previous years. Spreads on commercial paper and negotiable certificates of deposits changed little across the maturity spectrum.

Global sovereign yields declined along with U.S. Treasury yields following the March FOMC meeting. Foreign equity prices increased, on balance, amid optimism around trade negotiations between the United States and China, stronger-than-expected Chinese data, and accommodative communications from some foreign central banks. Pronounced political and policy uncertainties led to a significant tightening of financial conditions in Turkey, Argentina, and, to a lesser extent, Brazil, but spillovers to other EMEs were limited, and EME credit spreads were generally little changed on net.

The broad dollar index increased modestly, supported by the strength of U.S. economic data relative to foreign data and the accommodative tone from foreign central banks. The British pound declined over the intermeeting period amid protracted discussions ahead of the original Brexit deadline, which was extended to October 31.

Financing conditions for nonfinancial businesses remained generally accommodative during the intermeeting period. Gross issuance of corporate bonds was strong against a backdrop of narrower corporate spreads and improved risk sentiment. Issuance of institutional leveraged loans increased, but refinancing volumes were low and loans spreads remained somewhat elevated. Respondents to the April 2019 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported easing some key

terms for commercial and industrial (C&I) loans to large and middle-market firms. For instance, banks reported narrowing loan rate spreads, easing loan covenants, and increasing the maximum size and reducing the costs of credit lines to these firms. C&I loans on banks' balance sheets grew at a robust pace in the first quarter of 2019. Gross equity issuance edged up later in the period and the volume of corporate bond upgrades slightly outpaced that of downgrades, suggesting that credit quality of nonfinancial corporations, on balance, improved.

Financing conditions for the commercial real estate (CRE) sector remained accommodative, and issuance of agency and non-agency commercial mortgage backed securities grew steadily. CRE loans on banks' balance sheets continued to grow in the first quarter, albeit at a slower pace than in previous quarters. Banks in the April SLOOS reported weaker demand across all major types of CRE loans. However, they also reported tightening lending standards for these loans.

Financing conditions in the residential mortgage market also remained supportive over the intermeeting period. Home mortgage rates decreased about 5 basis points, to levels comparable with 2017. Consistent with lower mortgage rates, home-purchase mortgage originations increased, reversing a yearlong decline.

Consumer credit conditions remained broadly supportive of growth in household spending, with all categories of consumer loans recording steady growth in the first quarter. According to the April SLOOS, commercial banks left lending standards for auto loans and other consumer loans unchanged in the first quarter. However, credit card interest rates rose and standards reportedly tightened for some borrowers.

The staff provided an update on its assessments of potential risks to financial stability. The staff judged asset valuation pressures in equity and corporate debt markets to have increased significantly this year, though not quite to the elevated levels that prevailed for much of last year. The staff also reported that in the leveraged loan market risk spreads had narrowed and nonprice terms had loosened further. The build-up in overall nonfinancial business debt to levels close to historical highs relative to GDP was viewed as a factor that could amplify adverse shocks to the business sector and the economy more broadly. The staff continued to judge risks associated with household-sector debt as moderate. Both the risks associated with financial leverage and the vulnerabilities related to maturity transformation were viewed as being low, as they have been for some time. The staff also noted that the sustained growth of lending by banks to nonbank financial firms represented an increase in financial interconnectedness.

Staff Economic Outlook

The projection for U.S. economic activity prepared by the staff for the April–May FOMC meeting was revised up on net. Real GDP growth was forecast to slow in the near term from its solid first-quarter pace, as sizable contributions from inventory investment and net exports were not expected to persist. The projection for real GDP growth over the medium term was revised up, primarily reflecting a lower assumed path for interest rates, a slightly higher trajectory for equity prices, and somewhat less appreciation of the broad real dollar. The staff's lower path for interest rates reflected a methodological change in how the staff sets its assumptions about the future path for the federal funds rate in its forecast. Real GDP was forecast to expand at a rate above the staff's estimate of potential output growth in 2019 and 2020 and then slow to a pace below potential output growth in 2021. The unemployment rate was projected to decline a little further below the staff's estimate of its longer-run natural rate and to bottom out in late 2020. With labor market conditions still judged to be tight, the staff continued to assume that projected employment gains would manifest in smaller-than-usual downward pressure on the unemployment rate and in larger-than-usual upward pressure on the labor force participation rate.

The staff's forecast for inflation was revised down slightly, reflecting some recent softer-than-expected readings on consumer price inflation that were not expected to persist along with the staff's assessment that the level to which inflation would tend to move in the absence of resource slack or supply shocks was a bit lower in the medium term than previously assumed. As a result, core PCE price inflation was expected to move up in the near term but nevertheless to run just below 2 percent over the medium term. Total PCE price inflation was forecast to run a bit below core inflation in 2020 and 2021, reflecting projected declines in energy prices.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of

the past 20 years. The staff also saw the risks to the forecasts for real GDP growth and the unemployment rate as roughly balanced. On the upside, household spending and business investment could expand faster than the staff projected, supported by the tax cuts enacted at the end of 2017, still strong overall labor market conditions, favorable financial conditions, and upbeat consumer sentiment. On the downside, the softening in some economic indicators since late last year could be the leading edge of a significant slowing in the pace of economic growth. Moreover, trade policies and foreign economic developments could move in directions that have significant negative effects on U.S. economic growth. Risks to the inflation projection also were seen as balanced. The upside risk that inflation could increase more than expected in an economy that was still projected to be operating notably above potential for an extended period was counterbalanced by the downside risks that recent soft data on consumer prices could persist and that longer-term inflation expectations may be lower than was assumed in the staff forecast, as well as the possibility that the dollar could appreciate if foreign economic conditions deteriorated.

Participants' Views on Current Conditions and the Economic Outlook

Participants agreed that labor markets had remained strong over the intermeeting period and that economic activity had risen at a solid rate. Job gains had been solid, on average, in recent months, and the unemployment rate had stayed low. Participants also observed that growth in household spending and business fixed investment had slowed in the first quarter. Overall inflation and inflation for items other than food and energy, both measured on a 12-month basis, had declined and were running below 2 percent. On balance, market-based measures of inflation compensation had remained low in recent months, and survey-based measures of longer-term inflation expectations were little changed.

Participants continued to view sustained expansion of economic activity, with strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. Participants noted the unexpected strength in first-quarter GDP growth, but some observed that the composition of growth, with large contributions from inventories and net exports and more modest contributions from consumption and investment, suggested that GDP growth in the near term would likely moderate from its strong pace of last year. For this year as a whole, a number of participants mentioned that they had marked up their projections for real GDP growth, reflecting, in part, the strong first-quarter reading. Participants cited continuing strength in labor market conditions, improvements in consumer confidence and in financial conditions, or diminished downside risks both domestically and abroad, as factors likely to support solid growth over the remainder of the year. Some participants observed that, in part because of the waning impetus from fiscal policy and past removal of monetary policy accommodation, they expected real GDP growth to slow over the medium term, moving back toward their estimates of trend output growth.

In their discussion of the household sector, participants discussed recent indicators, including retail sales and light motor vehicle sales for March, which rose from relatively weak readings in some previous months. Taken together, these developments suggested that the first-quarter softness in household spending was likely to prove temporary. With the strong jobs market, rising incomes, and upbeat consumer sentiment, growth in PCE in coming months was expected to be solid. Several participants also noted that while the housing sector had been a drag on GDP growth for some time, recent data pointed to some signs of stabilization. With mortgage rates at their lowest levels in more than a year, a few participants thought that residential construction could begin to make positive contributions to GDP growth in the near term; a few others were less optimistic.

Participants noted that growth of business fixed investment had moderated in the first quarter relative to the average pace recorded last year and discussed whether this more moderate growth was likely to persist. A number of participants expressed optimism that there would be continued growth in capital expenditures this year, albeit probably at a slower pace than in 2018. Several participants observed that financial conditions and business sentiment had continued to improve, consistent with reports from business contacts in a number of Districts; however, a few others reported less buoyant business sentiment. Many participants suggested that their own concerns from earlier in the year about downside risks from slowing global economic growth and the deterioration in financial conditions or similar concerns expressed by their business contacts had abated to some extent. However, a few participants noted that ongoing challenges in the agricultural sector, including those associated with trade uncertainty and low

prices, had been exacerbated by severe flooding in recent weeks.

Participants observed that inflation pressures remained muted and that the most recent data on overall inflation, and inflation for items other than food and energy, had come in lower than expected. At least part of the recent softness in inflation could be attributed to idiosyncratic factors that seemed likely to have only transitory effects on inflation, including unusually sharp declines in the prices of apparel and of portfolio management services. Some research suggests that idiosyncratic factors that largely affected acyclical sectors in the economy had accounted for a substantial portion of the fluctuations in inflation over the past couple of years. Consistent with the view that recent lower inflation readings could be temporary, a number of participants mentioned the trimmed mean measure of PCE price inflation, produced by the Federal Reserve Bank of Dallas, which removes the influence of unusually large changes in the prices of individual items in either direction; these participants observed that the trimmed mean measure had been stable at or close to 2 percent over recent months. Participants continued to view inflation near the Committee's symmetric 2 percent objective as the most likely outcome, but, in light of recent, softer inflation readings, some viewed the downside risks to inflation as having increased. Some participants also expressed concerns that long-term inflation expectations could be below levels consistent with the Committee's 2 percent target or at risk of falling below that level.

Participants agreed that labor market conditions remained strong. Job gains in the March employment report were solid, the unemployment rate remained low, and, while the labor force participation rate moved down a touch, it remained high relative to estimates of its underlying demographically driven, downward trend. Contacts in a number of Districts continued to report shortages of qualified workers, in some cases inducing businesses to find novel ways to attract new workers. A few participants commented that labor market conditions in their Districts were putting upward pressure on compensation levels for lower-wage jobs, although there were few reports of a broad-based pickup in wage growth. Several participants noted that business contacts expressed optimism that despite tight labor markets they would be able to find workers or would find technological solutions for labor shortage problems.

Participants commented on risks associated with their outlook for economic activity over the medium term. Some participants viewed risks to the downside for real GDP growth as having decreased, partly because prospects for a sharp slowdown in global economic growth, particularly in China and Europe, had diminished. These improvements notwithstanding, most participants observed that downside risks to the outlook for growth remain.

In discussing developments in financial markets, a number of participants noted that financial market conditions had improved following the period of stress observed over the fourth quarter of last year and that the volatility in prices and financial conditions had subsided. These factors were thought to have helped buoy consumer and business confidence or to have mitigated short-term downside risks to the real economy. More generally, the improvement in financial conditions was regarded by many participants as providing support for the outlook for economic growth and employment.

Among those participants who commented on financial stability, most highlighted recent developments related to leveraged loans and corporate bonds as well as the current high level of nonfinancial corporate indebtedness. A few participants suggested that heightened leverage and associated debt burdens could render the business sector more sensitive to economic downturns than would otherwise be the case. A couple of participants suggested that increases in bank capital in current circumstances with solid economic growth and strong profits could help support financial and macroeconomic stability over the longer run. A couple of participants observed that asset valuations in some markets appeared high, relative to fundamentals. A few participants commented on the positive role that the Board's semi-annual *Financial Stability Report* could play in facilitating public discussion of risks that could be present in some segments of the financial system.

In their discussion of monetary policy, participants agreed that it would be appropriate to maintain the current target range for the federal funds rate at 2¼ to 2½ percent. Participants judged that the labor market remained strong, and that information received over the intermeeting period showed that economic activity grew at a solid rate. However, both overall inflation and inflation for items other than

food and energy had declined and were running below the Committee's 2 percent objective. A number of participants observed that some of the risks and uncertainties that had surrounded their outlooks earlier in the year had moderated, including those related to the global economic outlook, Brexit, and trade negotiations. That said, these and other sources of uncertainty remained. In light of global economic and financial developments as well as muted inflation pressures, participants generally agreed that a patient approach to determining future adjustments to the target range for the federal funds rate remained appropriate. Participants noted that even if global economic and financial conditions continued to improve, a patient approach would likely remain warranted, especially in an environment of continued moderate economic growth and muted inflation pressures.

Participants discussed the potential policy implications of continued low inflation readings. Many participants viewed the recent dip in PCE inflation as likely to be transitory, and participants generally anticipated that a patient approach to policy adjustments was likely to be consistent with sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective. Several participants also judged that patience in adjusting policy was consistent with the Committee's balanced approach to achieving its objectives in current circumstances in which resource utilization appeared to be high while inflation continued to run below the Committee's symmetric 2 percent objective. However, a few participants noted that if the economy evolved as they expected, the Committee would likely need to firm the stance of monetary policy to sustain the economic expansion and keep inflation at levels consistent with the Committee's objective, or that the Committee would need to be attentive to the possibility that inflation pressures could build quickly in an environment of tight resource utilization. In contrast, a few other participants observed that subdued inflation coupled with real wage gains roughly in line with productivity growth might indicate that resource utilization was not as high as the recent low readings of the unemployment rate by themselves would suggest. Several participants commented that if inflation did not show signs of moving up over coming quarters, there was a risk that inflation expectations could become anchored at levels below those consistent with the Committee's symmetric 2 percent objective—a development that could make it more difficult to achieve the 2 percent inflation objective on a sustainable basis over the longer run. Participants emphasized that their monetary policy decisions would continue to depend on their assessments of the economic outlook and risks to the outlook, as informed by a wide range of data.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that the information received since the Committee met in March indicated that the labor market remained strong and that economic activity had risen at a solid rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Growth of household spending and business fixed investment had slowed in the first quarter. On a 12-month basis, overall inflation and inflation for items other than food and energy had declined and were running below 2 percent. On balance, market-based measures of inflation compensation had remained low in recent months, and survey-based measures of longer-term inflation expectations were little changed.

In their consideration of the economic outlook, members noted that financial conditions had improved since the turn of the year, and many uncertainties affecting the U.S. and global economic outlooks had receded, though some risks remained. Despite solid economic growth and a strong labor market, inflation pressures remained muted. Members continued to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes for the U.S. economy. In light of global economic and financial developments and muted inflation pressures, members concurred that the Committee could be patient as it determined what future adjustments to the target range for the federal funds rate may be appropriate to support those outcomes.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. Members agreed that in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to the Committee's maximum-employment and symmetric 2 percent inflation objectives. They reiterated that this assessment would take into account a wide range of information, including measures of labor market

conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. More generally, members noted that decisions regarding near-term adjustments of the stance of monetary policy would appropriately remain dependent on the evolution of the outlook as informed by incoming data.

With regard to the postmeeting statement, members agreed to remove references to a slowing in the pace of economic growth and little-changed payroll employment, consistent with stronger incoming information on these indicators. The description of growth in household spending and business fixed investment in the first quarter was revised to recognize that incoming data had confirmed earlier information that suggested these aspects of economic activity had slowed at that time. Members also agreed to revise the description of inflation to note that inflation for items other than food and energy had declined and was now running below 2 percent.

Members observed that a patient approach to determining future adjustments to the target range for the federal funds rate would likely remain appropriate for some time, especially in an environment of moderate economic growth and muted inflation pressures, even if global economic and financial conditions continued to improve.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective May 2, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2¼ to 2½ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.25 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> Effective May 2, 2019, the Committee directs the Desk to roll over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $15 billion. The Committee directs the Desk to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in March indicates that the labor market remains strong and that economic activity rose at a solid rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Growth of household spending and business fixed investment slowed in the first quarter. On a 12-month basis, overall inflation and inflation for items other than food and energy have declined and are running below 2 percent. On balance, market-based measures of inflation compensation have remained low in recent months, and survey-based measures of longer-term inflation expectations are little changed.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles, and Eric Rosengren.

Voting against this action: None.

Consistent with the Committee's decision to maintain the federal funds rate in a target range of 2¼ to 2½ percent, the Board of Governors voted unanimously to lower the interest rates on required and excess reserve balances to 2.35 percent, effective May 2, 2019. Setting the interest rate paid on required and excess reserve balances 15 basis points below the top of the target range for the federal funds rate was intended to foster trading in the federal funds market at rates well within the FOMC's target range. The Board of Governors also voted unanimously to approve establishment of the primary credit rate at the existing level of 3.00 percent, effective May 2, 2019.

Update from Subcommittee on Communications

Governor Clarida reported on the progress of the review of the Federal Reserve's strategic framework for monetary policy. Fed Listens events to hear stakeholders' views on the strategy, tools, and communications that would best enable the Federal Reserve to meet its statutory objectives of maximum employment and price stability had already taken place in two Federal Reserve Districts. Numerous additional events were planned, including a research conference scheduled for June at the Federal Reserve Bank of Chicago. Following these public activities, the Committee was on course to begin its deliberations about the strategic framework at meetings in the second half of 2019.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, June 18–19, 2019. The meeting adjourned at 9:50 a.m. on May 1, 2019.

Notation Vote

By notation vote completed on April 9, 2019, the Committee unanimously approved the minutes of the Committee meeting held on March 19–20, 2019.

James A. Clouse
Secretary

Meeting Held on June 18–19, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, June 18, 2019, at 10:30 a.m. and continued on Wednesday, June 19, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Eric M. Engen, Anna Paulson, Christopher J. Waller, William Wascher, and Beth Anne Wilson[2]
Associate Economists

Lorie K. Logan
Manager pro tem,[3] System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[4]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Jennifer J. Burns
Deputy Director, Division of Supervision and Regulation, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joshua Gallin
Special Adviser to the Chair, Office of Board Members, Board of Governors

Brian M. Doyle, Wendy E. Dunn,[2] **Joseph W. Gruber, Ellen E. Meade, and John M. Roberts**
Special Advisers to the Board, Office of Board Members, Board of Governors

[2] Attended Tuesday session only.

[3] In the absence of the manager, the Committee's Rules of Organization provide that the deputy manager acts as manager pro tem.

[4] Attended through the discussion of developments in financial markets and open market operations.

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

Jane E. Ihrig and Don H. Kim
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer and Min Wei
Associate Directors, Division of Monetary Affairs, Board of Governors

Christopher J. Gust[4]
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Matteo Iacoviello and Paul R. Wood[2]
Deputy Associate Directors, Division of International Finance, Board of Governors

Jeffrey D. Walker[4]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Burcu Duygan-Bump, Andrew Figura, Glenn Follette, Patrick E. McCabe, and Paul A. Smith
Assistant Directors, Division of Research and Statistics, Board of Governors

Laura Lipscomb,[4] **Zeynep Senyuz,**[4] **and Rebecca Zarutskie**
Assistant Directors, Division of Monetary Affairs, Board of Governors

Steve Spurry[4]
Assistant Director, Division of Supervision and Regulation, Board of Governors

Matthew Malloy[4]
Section Chief, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[2]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Mark A. Carlson[4]
Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

Sean Savage
Senior Project Manager, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Heather A. Wiggins[4]
Group Manager, Division of Monetary Affairs, Board of Governors

Maria Otoo
Principal Economist, Division of Research and Statistics, Board of Governors

Lubomir Petrasek, Marcelo Rezende, and Francisco Vazquez-Grande
Principal Economists, Division of Monetary Affairs, Board of Governors

Patrice Robitaille[2]
Principal Economist, Division of International Finance, Board of Governors

Donielle A. Winford
Information Management Analyst, Division of Monetary Affairs, Board of Governors

Andre Anderson
First Vice President, Federal Reserve Bank of Atlanta

David Altig and Kartik B. Athreya
Executive Vice Presidents, Federal Reserve Banks of Atlanta and Richmond, respectively

Edward S. Knotek II, Paolo A. Pesenti, Mark L. J. Wright, and Nathaniel Wuerffel[4]
Senior Vice Presidents, Federal Reserve Banks of Cleveland, New York, Minneapolis, and New York, respectively

Roc Armenter, Patrick Dwyer,[4] **George A. Kahn, Giovanni Olivei, Rania Perry,**[4] **Benedict Wensley,**[4] **and Patricia Zobel**
Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Kansas City, Boston, New York, New York, and New York, respectively

Gara Afonso[4] **and Scott Sherman**[4]
Assistant Vice Presidents, Federal Reserve Bank of New York

Nicolas Petrosky-Nadeau
Senior Research Advisor, Federal Reserve Bank of San Francisco

Jim Dolmas
Senior Research Economist, Federal Reserve Bank of Dallas

Standing Repurchase Facility

The staff briefed the Committee on the possible role of a standing fixed-rate repurchase agreement (repo) facility as part of the monetary policy implementation framework; a facility of this type would allow counterparties to obtain temporary liquidity at a fixed rate of interest through repurchase transactions with the Federal Reserve involving their holdings of select securities eligible for open market operations. The staff presentation noted how such a facility could provide a backstop against unusual spikes in the federal funds rate and other money market rates and might also provide incentives for banks to shift the composition of their portfolios of liquid assets away from reserves and toward high-quality securities. Key design features for such a facility, including the fixed rate offered to counterparties, the set of eligible counterparties, and the range of securities eligible to be placed at the facility, would influence the effectiveness of a facility in achieving either of these objectives. The staff noted a number of considerations that could arise in setting these design parameters, including potential repercussions in unsecured and secured funding markets, the eligibility of counterparties in weak financial condition, the potential that turning to such a facility could become stigmatized, and issues of a level playing field across different classes of counterparties.

Participants commented on a number of issues in connection with key design parameters for a repo facility. In terms of the setting of the facility's fixed rate, many participants acknowledged a tradeoff in determining the level of the rate relative to other money market rates. On the one hand, establishing the rate at a narrow spread above money market rates would likely provide better interest rate control and could also be helpful in avoiding stigma that can be associated with the use of standing lending facilities with fixed rates set well above the level of money market rates. On the other hand, setting the rate close to the level of money market rates could result in very sizable Federal Reserve operations on a daily basis that could be viewed as disintermediating the activity of private entities in money markets.

In considering the eligible set of counterparties for a repo facility, a number of participants noted that making the facility available only to primary dealers would likely imply that the effects of the facility would be most direct on repo markets, while the influence on the federal funds market would be only indirect. A couple of participants noted that, particularly if banks were eligible counterparties, it would be important for counterparties of all sizes to have access to funding through the facility on the same terms. A few participants noted that a facility could enhance financial stability by providing a means by which nonbank counterparties can readily obtain liquidity against their high-quality assets. A couple of other participants noted ways that a repo facility could have unintended effects on financial stability; for example, if reserves help support overall financial stability, a facility that significantly reduced the demand for reserves might not be beneficial.

Many participants commented on issues associated with the availability of such a facility to firms in different states of financial condition. Several thought there should not be a guarantee of access to such a facility regardless of a firm's financial condition, while a number of others were willing to consider how such a facility could be structured to work effectively in a stressed environment where high-quality liquid assets were used as collateral. A few participants noted that the availability of the facility to banks during periods of stress, particularly when they might be in weak financial condition, could be an important factor determining whether a facility would significantly reduce banks' demand for reserves in normal times.

In their discussion of key objectives for establishing a repo facility, some participants raised questions about whether such a facility is needed in an ample-reserves framework, noting that the current ample-reserves regime has provided good interest rate control. Other participants commented on the potential benefits of such a facility as a way to enhance interest rate control in the current implementation regime or as a means to operate in the current implementation framework but with a significantly smaller quantity of reserves than at present. A couple of participants noted that a facility could damp volatility in repo rates. Several participants noted that a facility could possibly aid with multiple policy objectives.

A number of participants noted that the policy objectives for a fixed-rate standing repo facility would have implications for the appropriate design for the facility. Several participants recognized the need to carefully evaluate possible parameter settings to guard against unintended consequences, including the potential for moral hazard or a more volatile Federal Reserve balance sheet. In addition, several participants highlighted the importance of evaluating whether other tools or initiatives could better achieve

the desired goals. Overall, no decisions were reached at this meeting; participants stated that additional work would be necessary to clearly define the objectives of such a facility and to evaluate its potential net benefits.

Developments in Financial Markets and Open Market Operations

The manager pro tem discussed developments in global financial markets over the intermeeting period. Trade-related developments reportedly led many market participants to take a more pessimistic view of the U.S. economic outlook. Equity prices and interest rates fell noticeably after the announcement of higher tariffs on Chinese imports in early May and then again after news that tariffs might be imposed on Mexican imports. In response to these developments, markets appeared to become more sensitive to incoming news about the outlook for global growth and inflation, including data that pointed to a continued subdued inflation environment and to slower economic growth in the United States and abroad.

Treasury yields fell sharply and far-forward measures of inflation compensation dropped significantly in the United States and abroad. Against this backdrop, market participants reportedly viewed communications by Federal Reserve officials as signaling a greater likelihood of a cut in the target range for the federal funds rate later in the year. The expected path of the federal funds rate embedded in futures prices shifted down significantly over the period.

In the euro area, far-forward measures of inflation compensation fell noticeably, and market participants reportedly increasingly came to believe that further monetary policy accommodation would be needed. Late in the intermeeting period, remarks by European Central Bank (ECB) President Draghi were interpreted as suggesting increased odds of further asset purchases by the ECB. Euro-area peripheral spreads to German equivalents moved sharply lower, and far-forward inflation compensation recovered modestly.

The manager pro tem turned next to a review of money market developments and Open Market Desk operations. Money market rates generally stabilized at modestly lower levels over the intermeeting period, likely reflecting both the technical adjustment in the interest on excess reserves (IOER) rate following the May FOMC meeting and a sizable increase in reserve balances associated with a decline in balances held by the Treasury in its account at the Federal Reserve. Market participants reported seeing slightly more pass-through from repo rates to the federal funds rate on days with heightened firmness in repo rates. Market participants attributed recent increases in repo rates on month-end and mid-month Treasury auction settlement dates in part to elevated net dealer inventories of Treasury securities, which dealers finance in the repo market.

Regarding open market operations over the period, given the substantial decline in mortgage rates over recent months and an associated increase in refinancing activity, principal payments on the Federal Reserve's holdings of agency mortgage-backed securities (MBS) had recently moved somewhat above the $20 billion monthly redemption cap. As a result, the Desk began in May to reinvest agency MBS principal payments in excess of the cap. Based on current market rates and prepayment forecasts, the Desk expected to reinvest modest amounts of agency MBS over the coming months and possibly again in 2020, particularly during the summer months.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the June 18–19 meeting indicated that labor market conditions remained strong. Real gross domestic product (GDP) appeared to be rising at a moderate rate in the second quarter, as household spending growth picked up from the weak first quarter while business fixed investment was soft. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), was below 2 percent in April. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment expanded solidly, on average, in April and May; however, job gains slowed sharply in May after a strong increase in April. The unemployment rate declined to 3.6 percent in April and remained there in May, its lowest level in 50 years. The labor force participation rate moved down somewhat in April and held steady in May, remaining close to its average over the previous few years; the employment-to-population ratio stayed

flat in April and May. The unemployment rates for African Americans, Asians, and Hispanics decreased, on net, over April and May and were below their levels at the end of the previous economic expansion, though persistent differentials in unemployment rates across groups remained. The average share of workers employed part time for economic reasons over April and May continued to be below the lows reached in late 2007. The rate of private-sector job openings moved up in March and held steady in April, while the rate of quits was unchanged at a high level; the four-week moving average of initial claims for unemployment insurance benefits through early June was near historically low levels. Average hourly earnings for all employees rose 3.1 percent over the 12 months ending in May, slightly lower than in April but somewhat faster than a year earlier. Total labor compensation per hour in the business sector increased 1.6 percent over the four quarters ending in the first quarter, slower than a year earlier.

Total consumer prices, as measured by the PCE price index, increased 1.5 percent over the 12 months ending in April. This increase was slower than a year earlier, as core PCE price inflation (which excludes changes in consumer food and energy prices) moved down to 1.6 percent, consumer food price inflation remained well below core inflation, and consumer energy price inflation slowed considerably to about the same rate as core inflation. The trimmed mean measure of PCE price inflation constructed by the Federal Reserve Bank of Dallas was 2.0 percent over that 12-month period. The consumer price index (CPI) rose 1.8 percent over the 12 months ending in May, while core CPI inflation was 2.0 percent. The monthly change in core PCE prices in April and the staff's estimate of the change in May—based on the CPI data and the relevant prices from the producer price index—were higher in both of these months than the very low readings seen in January through March. Recent survey-based measures of longer-run inflation expectations were little changed on balance. While measures from the Desk's Survey of Primary Dealers and Survey of Market Participants were little changed, the preliminary June reading from the University of Michigan Surveys of Consumers dropped significantly to below its range in recent years.

Growth in real consumer expenditures appeared to pick up to a solid rate in the second quarter from its weak first-quarter pace. The components of the nominal retail sales data used by the Bureau of Economic Analysis to estimate PCE increased in May, and the retail sales data for the previous two months were revised up notably. Sales of light motor vehicles rose sharply in May after stepping down in April. Key factors that influence consumer spending—including a low unemployment rate, further gains in real disposable income, and still elevated measures of households' net worth—were supportive of solid real PCE growth in the near term. In addition, the Michigan survey measure of consumer sentiment edged down in the preliminary June reading but was still at an upbeat level.

Real residential investment in the second quarter looked to be continuing the decline seen earlier in the year, albeit at a slower rate. Starts of new single-family homes rose in April but fell back in May, while starts of multifamily units increased over both months. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—was at roughly the same level in May as its first-quarter average. Sales of new homes fell notably in April after a marked gain in March, and existing home sales edged down in April.

Real nonresidential private fixed investment appeared soft in the second quarter. Real private expenditures for business equipment and intellectual property looked to be roughly flat, as nominal shipments of nondefense capital goods excluding aircraft moved sideways in April. Forward-looking indicators of business equipment spending pointed to possible decreases in the near term. Orders for nondefense capital goods excluding aircraft declined notably in April and continued to be below the level of shipments, readings on business sentiment deteriorated further, and analysts' expectations of firms' longer-term profit growth moved down sharply. Nominal business expenditures for nonresidential structures outside of the drilling and mining sector decreased in April, and the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—continued to decline through mid-June.

Industrial production moved down in April and picked up in May, leaving output about flat over those two months, but production was lower than at the beginning of the year. Manufacturing output declined, on net, over April and May, although mining output expanded. Automakers' assembly schedules suggested that the production of light motor vehicles would move up in the near term, but new orders indexes from national and regional manufacturing surveys pointed to continued soft total factory

output in the coming months. Moreover, industry news indicated that aircraft production would continue to be slow in the near term.

Total real government purchases appeared to be rising solidly in the second quarter. Federal government purchases were being boosted by strong increases in defense spending through May and the return of nondefense purchases to more typical levels after the partial federal government shutdown in the first quarter. Real purchases by state and local governments seemed to be rising modestly; total payrolls of these governments edged down over April and May, but nominal state and local construction spending expanded notably in April.

Net exports added substantially to real GDP growth in the first quarter, as exports increased robustly and imports fell. After widening in March, the nominal trade deficit narrowed in April; even though exports declined, imports declined by more. The available data suggested that net exports would be a small drag on real GDP growth in the second quarter.

Growth in the foreign economies remained subdued in the first quarter, as soft growth in the Canadian economy and weakness in several emerging market economies (EMEs) offset somewhat stronger growth in other advanced foreign economies (AFEs) and in China's economy. Recent indicators suggested that the pace of economic activity picked up in Canada in the second quarter but slowed in some other AFEs. Economic growth also appeared to have slowed in China. Foreign inflation remained subdued but rose a bit from lows earlier in the year, in part reflecting higher retail energy prices in many economies.

Staff Review of the Financial Situation

Investors' concerns about downside risks to the economic outlook weighed on financial markets over the intermeeting period. Market participants cited negative news about international trade tensions and, to a lesser extent, soft U.S. and foreign economic data as factors that contributed to these developments. Nominal Treasury yields posted notable declines and the expected path of policy shifted down considerably over the period. Equity prices declined, on net, and corporate bond spreads widened. However, financing conditions for businesses and households generally remained supportive of economic growth.

FOMC communications following the May meeting had little net effect on yields, though they rose modestly following the Chair's press conference. Later in the period, the expected path of policy moved down, partly in response to incoming information pointing to a weaker economic outlook. The market-implied probability for a 25 basis point cut in the target range for the federal funds rate by the July FOMC meeting rose to about 85 percent. The market-implied path for the federal funds rate for 2019 and 2020 shifted down markedly. Based on overnight index swap rates, investors expected the federal funds rate to decline about 60 basis points by the end of this year—a downward revision of 40 basis points over the intermeeting period.

Longer-term Treasury yields fell considerably over the period, with the declines driven primarily by negative headlines about trade tensions between the United States and two major trading partners, China and Mexico. Softer-than-expected domestic economic news, such as the weaker-than-expected employment data, also contributed to the declines. The spread between 10-year and 3-month Treasury yields fell to the bottom decile of its distribution since 1971. Measures of inflation compensation derived from Treasury Inflation-Protected Securities also decreased notably over the period along with declines in oil prices.

Major U.S. equity price indexes declined, on net, over the intermeeting period. Equity prices fell notably over the first few weeks of the period, primarily in response to the escalation of trade tensions with China and Mexico. Firms with high China exposure and those in cyclical sectors—such as energy, information technology, industrials, communication services, and banks—posted particularly large losses. However, later in the period, stock prices regained a significant portion of their losses amid an easing of trade tensions with Mexico and expectations of a more accommodative stance of policy. One-month option-implied volatility on the S&P 500 index—the VIX—increased over the period, and corporate credit spreads widened.

Conditions in short-term funding markets remained stable over the intermeeting period. Overnight interest rates in short-term funding markets declined in response to the technical adjustment that reduced the IOER rate 5 basis points to 2.35 percent after the May FOMC meeting. The average of the effective federal funds rate over the period was about 6 basis points below the level just before the May FOMC meeting, well within the FOMC's target range. Rates on commercial paper and negotiable certificates of deposit also declined somewhat.

Escalation of trade tensions and soft economic data also weighed on foreign financial markets. Most major global equity price indexes declined, on net, and EME sovereign spreads widened modestly. In the AFEs, policy expectations and sovereign yields declined notably, in part reflecting more-accommodative monetary policy communications by major central banks.

The broad dollar index rose a bit over the intermeeting period. The Japanese yen and Swiss franc, which are viewed as safe-haven currencies, appreciated against the dollar. The British pound depreciated amid increased uncertainty around Brexit. Increased trade tensions contributed to some depreciation of the Chinese renminbi. The value of the Mexican peso against the dollar fluctuated in response to announcements related to potential tariffs on imports from Mexico but ended the period only slightly lower.

Financing conditions for nonfinancial businesses continued to be accommodative overall. Gross issuance of corporate bonds was strong in May following a spell of seasonal weakness in April. The credit quality of nonfinancial corporations remained solid, as the volume of nonfinancial corporate bond upgrades outpaced that of downgrades in May. Issuance in the institutional syndicated leveraged loan market was subdued in April but rebounded in May, reflecting strong issuance beyond that associated with refinancing of maturing leveraged loans. Meanwhile, commercial and industrial lending slowed somewhat in April and May after a period of stronger growth in the first quarter. Small business credit market conditions were little changed, and credit conditions in municipal bond markets stayed accommodative on net.

In the commercial real estate (CRE) sector, financing conditions continued to be generally accommodative. Commercial mortgage-backed securities (CMBS) spreads widened slightly over the intermeeting period but remained near the low end of their post-crisis range. Issuance of agency and non-agency CMBS was solid in May, and CRE lending by banks expanded in April and May at a slower rate than in the first quarter.

Financing conditions in the residential mortgage market also remained supportive over the intermeeting period. Home mortgage rates decreased about 40 basis points. Since last November, mortgage rates had declined more than 1 percentage point, contributing to an increase in home-purchase mortgage originations to the solid levels seen in 2017.

Financing conditions in consumer credit markets were little changed in recent months and remained generally supportive of household spending, although the supply of credit to consumers with subprime credit scores continued to be tight. Consumer credit expanded at a moderate pace in the first quarter, with bank credit data pointing to a pickup in April and May. Conditions in the consumer asset-backed securities market remained stable over the intermeeting period, with robust issuance and spreads that were little changed at low levels.

Staff Economic Outlook

The projection for U.S. economic activity prepared by the staff for the June FOMC meeting was revised down somewhat on balance. Real GDP growth was forecast to slow to a moderate rate in the second quarter and move down to a more modest pace in the second half of the year, primarily reflecting a more downbeat near-term outlook for business fixed investment. The projection for real GDP growth over the medium term was little changed, as the effects of a higher projected path for the broad real dollar and lower trajectory for foreign economic growth were largely counterbalanced by a lower projected path for interest rates. Real GDP was forecast to expand at a rate a little above the staff's estimate of potential output growth in 2019 and 2020 and then slow to a pace slightly below potential output growth in 2021. The unemployment rate was projected to be roughly flat through 2021 and remain below the staff's estimate of its longer-run natural rate. With labor market conditions judged to be tight, the staff continued to assume that projected employment gains would manifest in smaller-than-usual downward pressure on the unemployment rate and in larger-than-usual upward pressure on the labor force participation rate.

The staff's forecast for inflation was little changed on balance. The forecast for total PCE price inflation this year was revised down somewhat, reflecting a lower near-term projection for energy prices. The core inflation forecast for this year was unchanged at a level below 2 percent. Both total and core inflation were projected to move up slightly next year, as the low readings early this year were expected to be transitory, but nevertheless to continue to run below 2 percent.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years, although uncertainty was seen to have increased since the previous forecast. Moreover, the staff also judged that the risks to the forecast for real GDP growth had tilted to the downside, with a skew to the upside for the unemployment rate. The increased uncertainty and shift to downside risks around the projection reflected the staff's assessment that international trade tensions and foreign economic developments seemed more likely to move in directions that could have significant negative effects on the U.S. economy than to resolve more favorably than assumed. With the risks to the forecast for economic activity tilted to the downside, the risks to the inflation projection were also viewed as having a downward skew.

Participants' Views on Current Conditions and the Economic Outlook

Participants judged that uncertainties and downside risks surrounding the economic outlook had increased significantly over recent weeks. While they continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes, many participants attached significant odds to scenarios with less favorable outcomes.[5] Moreover, nearly all participants in their submissions to the Summary of Economic Projections (SEP), had revised down their assessment of the appropriate path of the federal funds rate over the projection period that would be consistent with their modal economic outlook. Many participants noted that, since the Committee's previous meeting, the economy appeared to have lost some momentum and pointed to a number of factors supporting that view including recent weak indicators for business confidence, business spending and manufacturing activity; trade developments; and signs of slowing global economic growth. Many participants noted that they viewed the risks to their growth and inflation projections, such as those emanating from greater uncertainty about trade, as shifting notably over recent weeks and that risks were now weighted to the downside.

Participants discussed at some length the softness in various indicators of business fixed investment in the second quarter. Incoming data on shipments and orders of new capital goods looked weak and recent readings from some manufacturing surveys had dropped sharply. Private sector analysts had marked down their forecasts for longer-term corporate profit growth. Manufacturing production had posted declines so far this year. In addition, contacts reported that softer export sales, weaker economic activity abroad, and elevated levels of uncertainty regarding the global outlook were weighing on business sentiment and leading firms to reassess plans for investment spending. Several participants noted comments from business contacts reporting that their base case now assumed that uncertainties about the global outlook would remain prominent over the medium term and would continue to act as a drag on investment. Several participants also noted reports from some business contacts in the manufacturing sector suggesting that they were putting capital expenditures or hiring plans on hold and were reevaluating their global supply chains in light of trade uncertainties. A couple of participants, however, pointed to signs that investment might pick up, including reports from some contacts that their orders and shipments remained strong and that some contacts planned to hire more workers. A few participants also noted ongoing challenges in the agricultural sector, including those associated with increased trade uncertainty, weak export markets, wet weather, and severe flooding. A few participants remarked on the decline in energy prices and the associated reduction in activity in the energy sector.

In their discussion of the household sector, participants noted that available data on consumer spending had been solid, supported by a strong labor market and rising incomes. Several participants also noted that measures of consumer sentiment remained upbeat, and a couple noted that their business contacts confirmed the view that consumer spending had rebounded from the weak patch earlier in the year. Several participants, however, noted that tariffs could eventually become a drag on consumer durables spending, especially if additional tariffs on consumer goods were imposed, and that they would be monitoring incoming data for signs of this effect.

[5] In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real GDP growth, the unemployment rate, and inflation for each year from 2019 through 2021 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate. The longer-run projections represented each participant's assessment of the rate 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. These projections and policy assessments are described in the Summary of Economic Projections, which is an addendum to these minutes.

A couple of participants noted that the continued softness in the housing sector was a concern, even though the decline in mortgage rates since last fall was expected to provide stronger impetus for activity; a couple of participants were somewhat optimistic that residential investment would pick up.

In their discussion of the labor market, participants cited evidence that conditions remained strong, including the very low unemployment rate and the fact that job gains had been solid, on average, in recent months. That said, job gains in May were weaker than expected and, in light of other developments, participants judged that it would be important to closely monitor incoming data for any signs of softening in labor market conditions. Reports from business contacts pointed to continued strong labor demand, with many firms planning to hire more workers. Economy-wide wage growth was seen as being broadly consistent with modest average rates of labor productivity growth in recent years. However, a few participants noted that there were limited signs of upward pressure on wage inflation. A few participants cited the combination of muted inflation pressures, moderate wage growth, and expanding employment as a possible indication that some slack remained in the labor market. Partly reflecting that combination of developments, several participants had revised down their SEP estimates of the longer-run normal rate of unemployment.

Participants noted that readings on overall inflation and inflation for items other than food and energy had come in lower than expected over recent months. In light of recent softer inflation readings, perceptions of downside risks to growth, and global disinflationary pressures, many participants viewed the risks to the outlook for inflation as weighted to the downside. Several participants indicated that, while headline inflation had been close to 2 percent last year, it was noteworthy that inflation had softened this year despite continued strong labor market conditions. Participants generally noted that they revised down their SEP projections of inflation for the current year in light of recent data. They still anticipated that the overall rate of inflation would firm somewhat and move up to the Committee's longer-run symmetric objective of 2 percent over the next few years. Consistent with that view, several participants commented that alternative measures of inflation that removed the influence of unusually large changes in the prices of individual items in either direction were running around 2 percent. However, a number of participants anticipated that the return to 2 percent would take longer than previously projected even with an assumed path for the federal funds rate that was lower than in their previous projections.

In their discussion of indicators of inflation expectations, participants generally observed that market-based measures of inflation compensation had declined and were at low levels. Some participants also noted that recent readings on some survey measures of consumers' inflation expectations had declined or stood at historically low levels. Many participants further noted that longer-term inflation expectations could be somewhat below levels consistent with the Committee's 2 percent inflation objective, or that the continued weakness in inflation could prompt expectations to slip further. These developments might make it more difficult to achieve their inflation objective on a sustained basis. However, several participants remarked that inflation expectations appeared to be at levels consistent with the Committee's 2 percent inflation objective.

Participants generally agreed that downside risks to the outlook for economic activity had risen materially since their May meeting, particularly those associated with ongoing trade negotiations and slowing economic growth abroad. Other downside risks cited by several participants included the possibility that federal budget negotiations could result in a sharp reduction in government spending or that negotiations to raise the federal debt limit could be prolonged. A couple of participants observed that an economic deterioration in the United States, if it occurred, might be amplified by significant debt burdens for many firms. A few participants remarked that an upside risk to the outlook for economic activity and inflation included a scenario in which trade negotiations were resolved favorably and business sentiment rebounded sharply.

In their discussion of financial developments, participants observed that the increase in uncertainty surrounding the global outlook had affected risk sentiment in financial markets. While overall financial conditions remained supportive of growth, those conditions appeared to be premised importantly on expectations that the Federal Reserve would ease policy in the near term to help offset the drag on economic growth stemming from uncertainties about the global outlook and other downside risks. Participants also discussed the decline in yields on longer-term Treasury securities in recent months. Many participants noted that the spread between the 10-year and

3-month Treasury yields was now negative, and several noted that their assessment of the risk of a slowing in the economic expansion had increased based on either the shape of the yield curve or other financial and economic indicators. A few participants pointed to the growth in debt issuance by nonfinancial corporations and still generally high asset valuations as developments that warranted continued monitoring.

In their discussion of monetary policy decisions at this meeting, participants noted that, under their baseline outlook, the labor market was likely to remain strong with economic activity growing at a moderate pace. However, they judged that the risks and uncertainties surrounding their outlooks, particularly those related to the global economic outlook, had intensified in recent weeks. Moreover, inflation continued to run below the Committee's 2 percent objective; similarly, inflation for items other than food and energy had remained below 2 percent as well. In addition, some readings on inflation expectations had been low. The increase in risks and uncertainties surrounding the outlook was quite recent and nearly all participants agreed that it would be appropriate to maintain the current target range for the federal funds rate at 2¼ to 2½ percent at this meeting. However, they noted that it would be important to monitor the implications of incoming information and global economic developments for the U.S. economic outlook. A couple of participants favored a cut in the target range at this meeting, judging that a prolonged period with inflation running below 2 percent warranted a more accommodative policy response to firmly center inflation and inflation expectations around the Committee's symmetric 2 percent objective.

With regard to the outlook for monetary policy beyond this meeting, nearly all participants had revised down their assessment of the appropriate path for the federal funds rate over the projection period in their SEP submissions, and some had marked down their estimates of the longer-run normal level of the funds rate as well. Many participants indicated that the case for somewhat more accommodative policy had strengthened. Participants widely noted that the global developments that led to the heightened uncertainties about the economic outlook were quite recent. Many judged additional monetary policy accommodation would be warranted in the near term should these recent developments prove to be sustained and continue to weigh on the economic outlook. Several others noted that additional monetary policy accommodation could well be appropriate if incoming information showed further deterioration in the outlook. Participants stated a variety of reasons that would call for a lower path of the federal funds rate. Several participants noted that a near-term cut in the target range for the federal funds rate could help cushion the effects of possible future adverse shocks to the economy and, hence, was appropriate policy from a risk-management perspective. Some participants also noted that the continued shortfall in inflation risked a softening of inflation expectations that could slow the sustained return of inflation to the Committee's 2 percent objective. Several participants pointed out that they had revised down their estimates of the longer-run normal rate of unemployment and, as a result, saw a smaller upward contribution to inflation pressures from tight resource utilization than they had earlier. A few participants were concerned that inflation expectations had already moved below levels consistent with the Committee's symmetric 2 percent objective and that it was important to provide additional accommodation in the near term to bolster inflation expectations. A few participants judged that allowing inflation to run above 2 percent for some time could help strengthen the credibility of the Committee's commitment to its symmetric 2 percent inflation objective.

Some participants suggested that although they now judged that the appropriate path of the federal funds rate would follow a flatter trajectory than they had previously assumed, there was not yet a strong case for a rate cut from current levels. They preferred to gather more information on the trajectory of the economy before concluding that a change in policy stance is warranted. A few participants expressed the view that with the economy still in a favorable position in terms of the dual mandate, an easing of policy in an attempt to increase inflation a few tenths of a percentage point risked overheating the labor markets and fueling financial imbalances. Several participants observed that the trimmed mean measure of PCE price inflation constructed by the Federal Reserve Bank of Dallas had stayed near 2 percent recently, underscoring the view that the recent low readings on inflation will prove transitory.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members noted the significant increase in risks and uncertainties attending the economic outlook. There were signs of weakness in U.S. business

spending, and foreign economic data were generally disappointing, raising concerns about the strength of global economic growth. While strong labor markets and rising incomes continued to support the outlook for consumer spending, uncertainties and risks regarding the global outlook appeared to be contributing to a deterioration in risk sentiment in financial markets and a decline in business confidence that pointed to a weaker outlook for business investment in the United States. Inflation pressures remained muted and some readings on inflation expectations were at low levels. Although nearly all members agreed to maintain the target range for the federal funds rate at 2¼ to 2½ percent at this meeting, they generally agreed that risks and uncertainties surrounding the economic outlook had intensified and many judged that additional policy accommodation would be warranted if they continued to weigh on the economic outlook. One member preferred to lower the target range for the federal funds rate by 25 basis points at this meeting, stating that the Committee should ease policy at this meeting to re-center inflation and inflation expectations at the Committee's symmetric 2 percent objective.

Members agreed that in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to the Committee's maximum-employment and symmetric 2 percent inflation objectives. They reiterated that this assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. More generally, members noted that decisions regarding near-term adjustments of the stance of monetary policy would appropriately remain dependent on the implications of incoming information for the economic outlook.

With regard to the postmeeting statement, members agreed to several adjustments in the description of the economic situation, including a revision in the description of market-based measures of inflation compensation to recognize the recent fall in inflation compensation. The Committee retained the characterization of the most likely outcomes as "sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective" but added a clause to emphasize that uncertainties about this outlook had increased. In describing the monetary policy outlook, members agreed to remove the "patient" language and to emphasize instead that, in light of these uncertainties and muted inflation pressures, the Committee would closely monitor the implications of incoming information for the economic outlook and would act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the System Open Market Account in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective June 20, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2¼ to 2½ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.25 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $15 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in May indicates that

the labor market remains strong and that economic activity is rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although growth of household spending appears to have picked up from earlier in the year, indicators of business fixed investment have been soft. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation have declined; survey-based measures of longer-term inflation expectations are little changed.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2¼ to 2½ percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes, but uncertainties about this outlook have increased. In light of these uncertainties and muted inflation pressures, the Committee will closely monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles, and Eric Rosengren.

Voting against this action: James Bullard.

Mr. Bullard dissented because he believed that the current stance of monetary policy could be better positioned to foster progress toward the Committee's statutory objectives of maximum employment and stable prices. Particularly in light of persistent low readings on inflation and from indicators of inflation expectations along with the risks to the U.S. outlook associated with global economic developments, he noted that a policy rate reduction at the current meeting would help re-center inflation and inflation expectations at levels consistent with the Committee's symmetric 2 percent inflation objective and simultaneously provide some insurance against unexpected developments that could slow U.S. economic growth.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 2.35 percent and voted unanimously to approve establishment of the primary credit rate at the existing level of 3.00 percent, effective June 20, 2019.

Update from Subcommittee on Communications

Governor Clarida provided a brief update on the work of the subcommittee on communications. The Fed Listens conferences conducted to date were viewed as successful in identifying many important issues for the strategic review of monetary policy strategy, tools, and communications. Additional Fed Listens events were planned over the remainder of the year. The Committee was likely to begin internal deliberations on aspects of the strategic review over coming FOMC meetings.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, July 30–31, 2019. The meeting adjourned at 10:05 a.m. on June 19, 2019.

Notation Vote

By notation vote completed on May 21, 2019, the Committee unanimously approved the minutes of the Committee meeting held on April 30–May 1, 2019.

James A. Clouse
Secretary

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 18–19, 2019, 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 2019 to 2021 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with his or her 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.[1] "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.

Participants who submitted longer-run projections generally expected that, under appropriate monetary policy, growth of real GDP in 2019 would run at or somewhat above their individual estimates of its longer-run rate. Thereafter, almost all participants expected real GDP growth to edge down, with the vast majority of participants projecting growth in 2021 to be at or below their estimates of its longer-run rate. All participants who submitted longer-run projections continued to expect that the unemployment rate would run at or below their estimates of its longer-run level through 2021. Compared with the Summary of Economic Projections (SEP) from March 2019, most participants revised down slightly their projections for the unemployment rate from 2019 through 2021. All participants marked down somewhat their projections for 2019 for total inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), and almost all did so for their projections for core inflation. All participants projected that inflation would increase in 2020, from 2019, and a majority expected another slight increase in 2021.

[1] One participant did not submit longer-run projections for real GDP growth, the unemployment rate, or the federal funds rate.

The vast majority of participants expected that inflation would be at or slightly above the Committee's 2 percent objective in 2021. Core PCE price inflation was also expected to increase over the projection period, rising to 2.0 percent in 2021. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, just over half of the participants expected that the evolution of the economy, relative to their objectives of maximum employment and 2 percent inflation, would likely warrant keeping the federal funds rate at or slightly above its current level through the end of 2019; almost half projected that a lower level for the federal funds rate would be appropriate by year-end. The median of participants' assessments of the appropriate level of the federal funds rate at the end of the projection period was close to the median of their assessments of the longer-run federal funds rate level. Nearly all participants lowered their projections for the appropriate level of the federal funds rate, relative to March, at some point in the forecast period. The medians for the federal funds rate for 2020 and 2021 were 50 basis points and 25 basis points lower than in March, respectively. The median of projections for the longrun normal level of the federal funds rate was 25 basis points lower than in the March projections.

Most participants regarded the uncertainties around their forecasts for GDP growth, total inflation, and core inflation as broadly similar to the average of the past 20 years. About half of the participants viewed the level of uncertainty around their unemployment rate projections as being similar to the average of the past 20 years, and about the same number viewed uncertainty as higher. Participants' assessments of risks to their outlooks for output growth and the unemployment rate shifted notably relative to their assessments in March. As a result, most participants viewed the risks for GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. About half of participants viewed the risks to inflation as being broadly balanced, with a similar number viewing inflation risks as being weighted to the downside.

The Outlook for Real GDP Growth and Unemployment

As shown in table 1, the median of participants' projections for the growth rate of real GDP in 2019, conditional on their individual assessments of appropriate monetary policy, was 2.1 percent, a bit above the

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, June 2019
Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2019	2020	2021	Longer run	2019	2020	2021	Longer run	2019	2020	2021	Longer run
Change in real GDP	2.1	2.0	1.8	1.9	2.0–2.2	1.8–2.2	1.8–2.0	1.8–2.0	2.0–2.4	1.5–2.3	1.5–2.1	1.7–2.1
March projection	2.1	1.9	1.8	1.9	1.9–2.2	1.8–2.0	1.7–2.0	1.8–2.0	1.6–2.4	1.7–2.2	1.5–2.2	1.7–2.2
Unemployment rate	3.6	3.7	3.8	4.2	3.6–3.7	3.5–3.9	3.6–4.0	4.0–4.4	3.5–3.8	3.3–4.0	3.3–4.2	3.6–4.5
March projection	3.7	3.8	3.9	4.3	3.6–3.8	3.6–3.9	3.7–4.1	4.1–4.5	3.5–4.0	3.4–4.1	3.4–4.2	4.0–4.6
PCE inflation	1.5	1.9	2.0	2.0	1.5–1.6	1.9–2.0	2.0–2.1	2.0	1.4–1.7	1.8–2.1	1.9–2.2	2.0
March projection	1.8	2.0	2.0	2.0	1.8–1.9	2.0–2.1	2.0–2.1	2.0	1.6–2.1	1.9–2.2	2.0–2.2	2.0
Core PCE inflation[4]	1.8	1.9	2.0		1.7–1.8	1.9–2.0	2.0–2.1		1.4–1.8	1.8–2.1	1.8–2.2	
March projection	2.0	2.0	2.0		1.9–2.0	2.0–2.1	2.0–2.1		1.8–2.2	1.8–2.2	1.9–2.2	
Memo: Projected appropriate policy path												
Federal funds rate	2.4	2.1	2.4	2.5	1.9–2.4	1.9–2.4	1.9–2.6	2.5–3.0	1.9–2.6	1.9–3.1	1.9–3.1	2.4–3.3
March projection	2.4	2.6	2.6	2.8	2.4–2.6	2.4–2.9	2.4–2.9	2.5–3.0	2.4–2.9	2.4–3.4	2.4–3.6	2.5–3.5

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, 2019. 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, 2019, meeting, and one participant did not submit such projections in conjunction with the June 18–19, 2019, meeting.

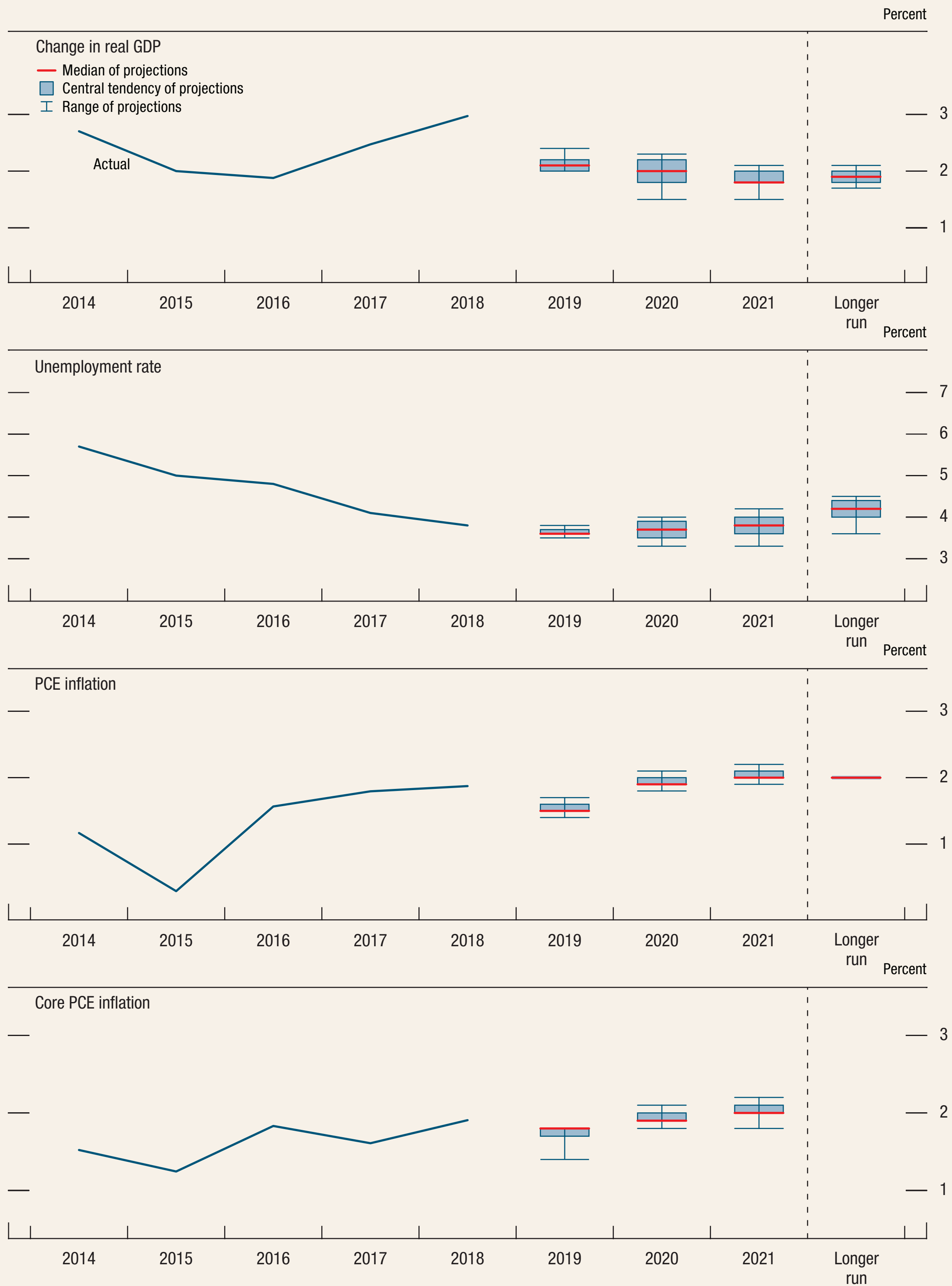
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

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.

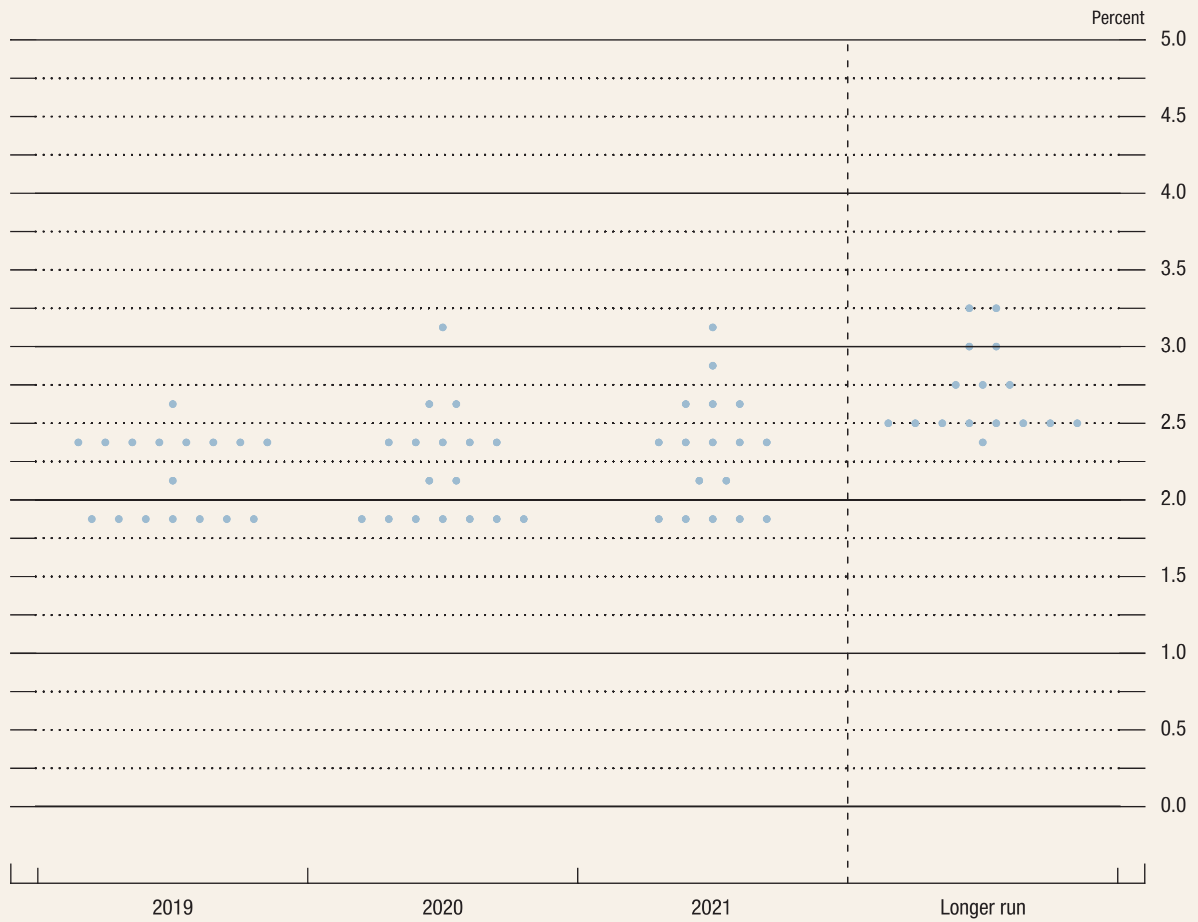
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2019–21 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 ⅛ 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. One participant did not submit longer-run projections for the federal funds rate.

median estimate of its longer-run rate of 1.9 percent. Almost all participants continued to expect GDP growth to slow over the projection period, with the median projection at 2.0 percent in 2020 and at 1.8 percent in 2021. Relative to the March SEP, the medians of the projections for real GDP growth in 2019, 2020, 2021, and the longer run were little changed.

The median of projections for the unemployment rate in the fourth quarter of 2019 was 3.6 percent, about ½ percentage point below the median assessment of its longer-run level of 4.2 percent. The medians of projections for 2020 and 2021 were 3.7 percent and 3.8 percent, respectively. These median unemployment rates, along with the median for the unemployment rate in the longer run, were a little lower than those from the March SEP. As was the case in March, almost all participants who submitted longer-run projections expected that the unemployment rate in 2021 would be below their estimates of its longer-run level.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2019 to 2021 and in the longer run. The distribution of individual projections for real GDP growth for 2019 through 2021 all shifted up modestly relative to that in the March SEP. The distribution for the longer-run growth rate was little changed. The distributions of individual projections for the unemployment rate in 2019 and 2020 moved lower relative to those in March, and the distribution in 2021 edged down as well. Meanwhile, the distribution for the longer-run unemployment rate shifted down a touch.

The Outlook for Inflation

As shown in table 1, the median of projections for total PCE price inflation was 1.5 percent in 2019, notably lower than in the March SEP, while the median for 2020, at 1.9 percent, was a touch lower than in March. The median for total inflation for 2021 was unchanged from March at 2.0 percent. The medians of projections for core PCE price inflation for 2019 and 2020 were 1.8 percent and 1.9 percent, respectively, both a little lower relative to the March SEP. The median for 2021 was 2.0 percent, unchanged from the March SEP.

Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for total PCE price inflation and core PCE price inflation in 2019 shifted down notably from the March SEP, while those for 2020 and 2021 changed more modestly. Beyond the current year, for which projections also reflect data in hand, almost all participants expected total and core PCE price inflation to be between 1.9 and 2.2 percent.

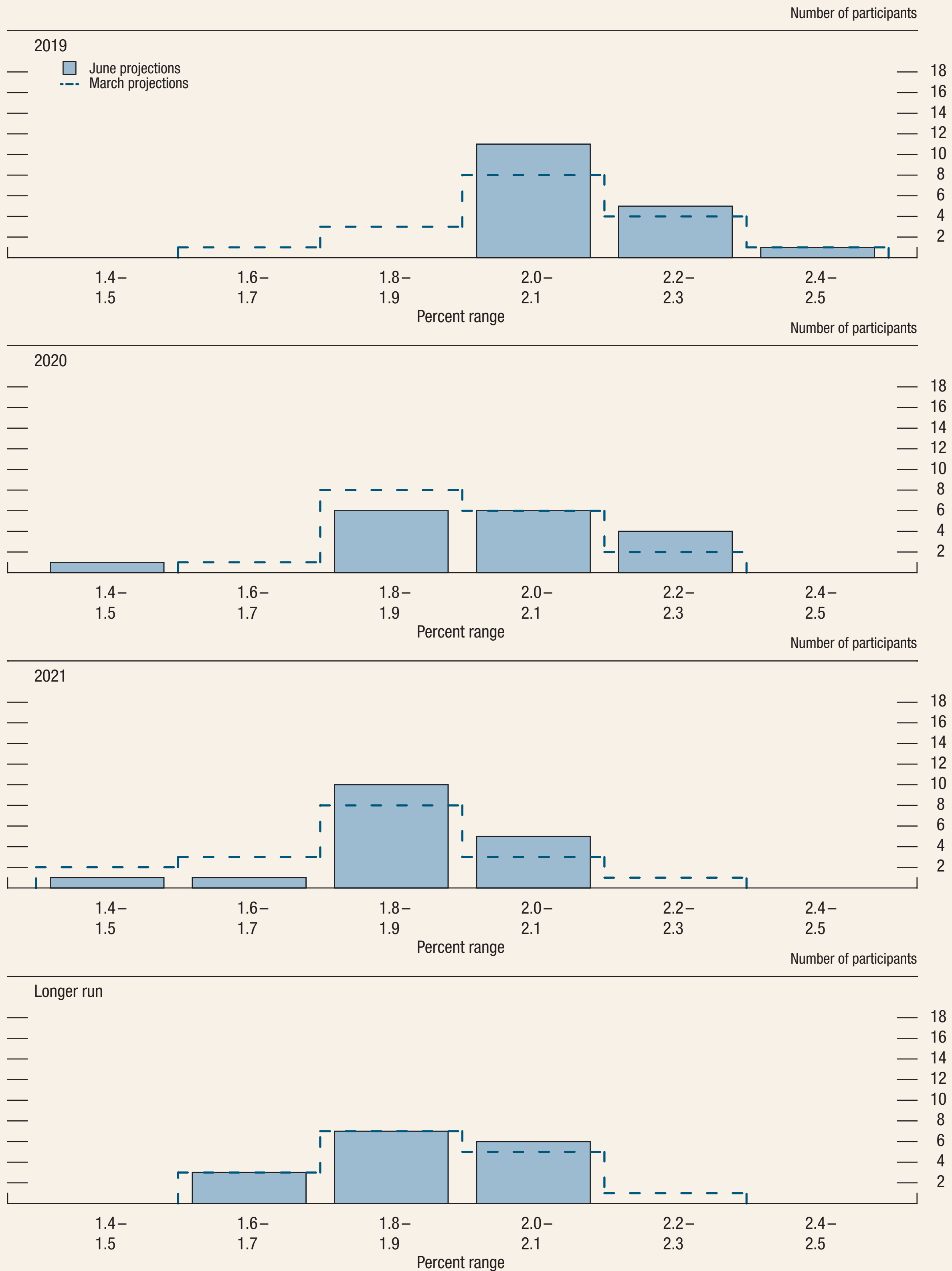
Appropriate Monetary Policy

Figure 3.E shows distributions of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2019 to 2021 and over the longer run. On the whole, the distributions for 2019 through 2021 shifted toward lower values. Almost all participants viewed the appropriate levels of the federal funds rate at the end of 2019, 2020, and 2021 as lower than those that they deemed appropriate in March. Nearly all participants lowered their projections for the appropriate level of the federal funds rate, relative to March, at some point in the projection period, and none raised their projections for the federal funds rate for any year. Compared with the projections prepared for the March SEP, the median federal funds rate was 50 basis points lower in 2020, 25 basis points lower in 2021, and 25 basis points lower in the longer-run. While the median of federal funds rate projections at the end of 2019 remained at 2.38 percent, almost half of participants projected an appropriate level of the target range for the federal funds rate at the end of 2019 that was 25 basis points or 50 basis points lower than at present. In subsequent years, the medians of the projections were 2.13 percent at the end of 2020 and 2.38 percent at the end of 2021, slightly lower than the median of the longer-run projections of the federal funds rate of 2.50 percent. Muted inflation pressures and concerns about declining inflation expectations, trade developments, and foreign economic growth, as well as weaker business fixed investment, were cited as factors contributing to the downward revisions in participants' assessments of the appropriate path for the policy rate.

Uncertainty and Risks

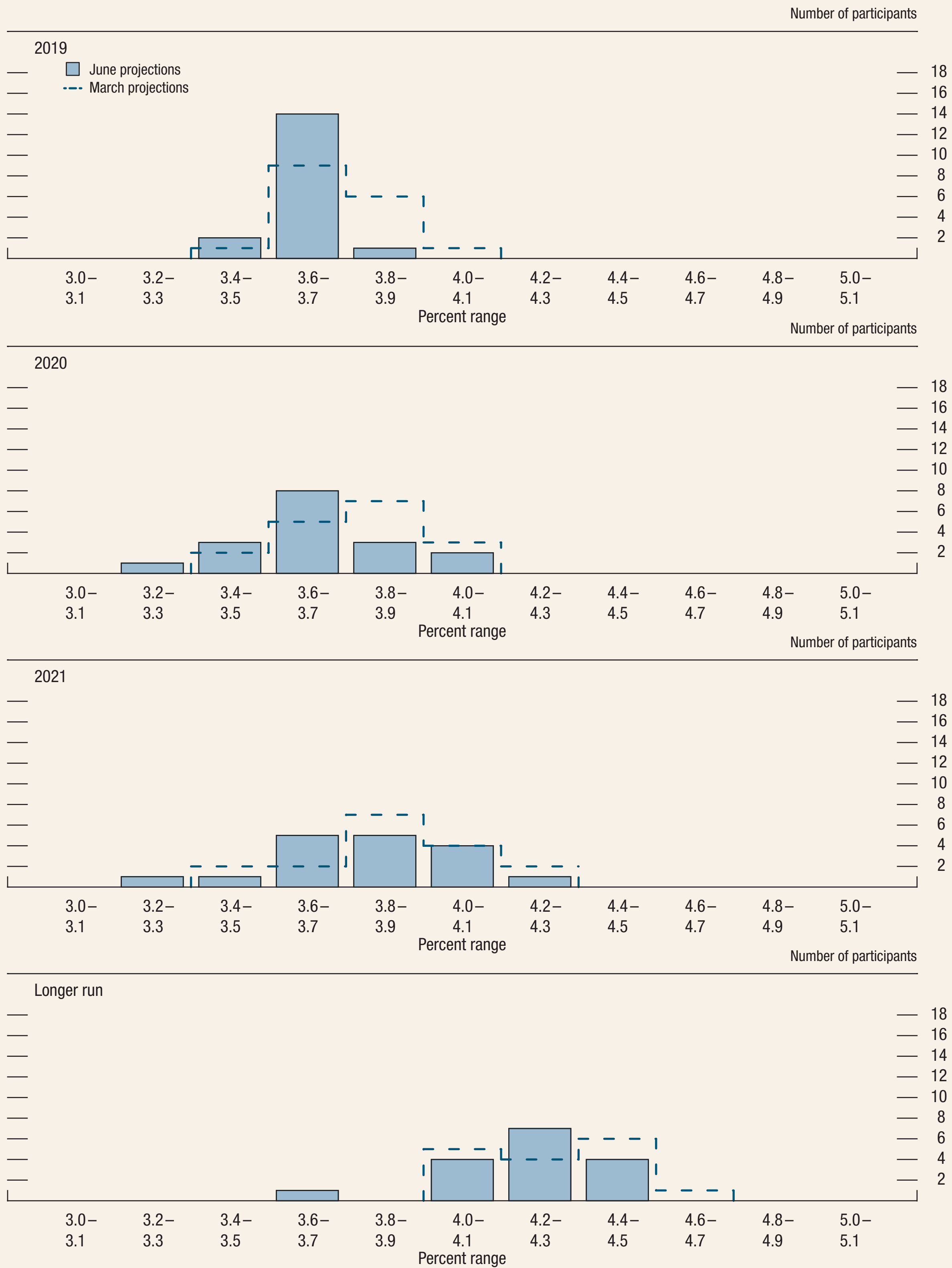
In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government fore-

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–21 and over the longer run



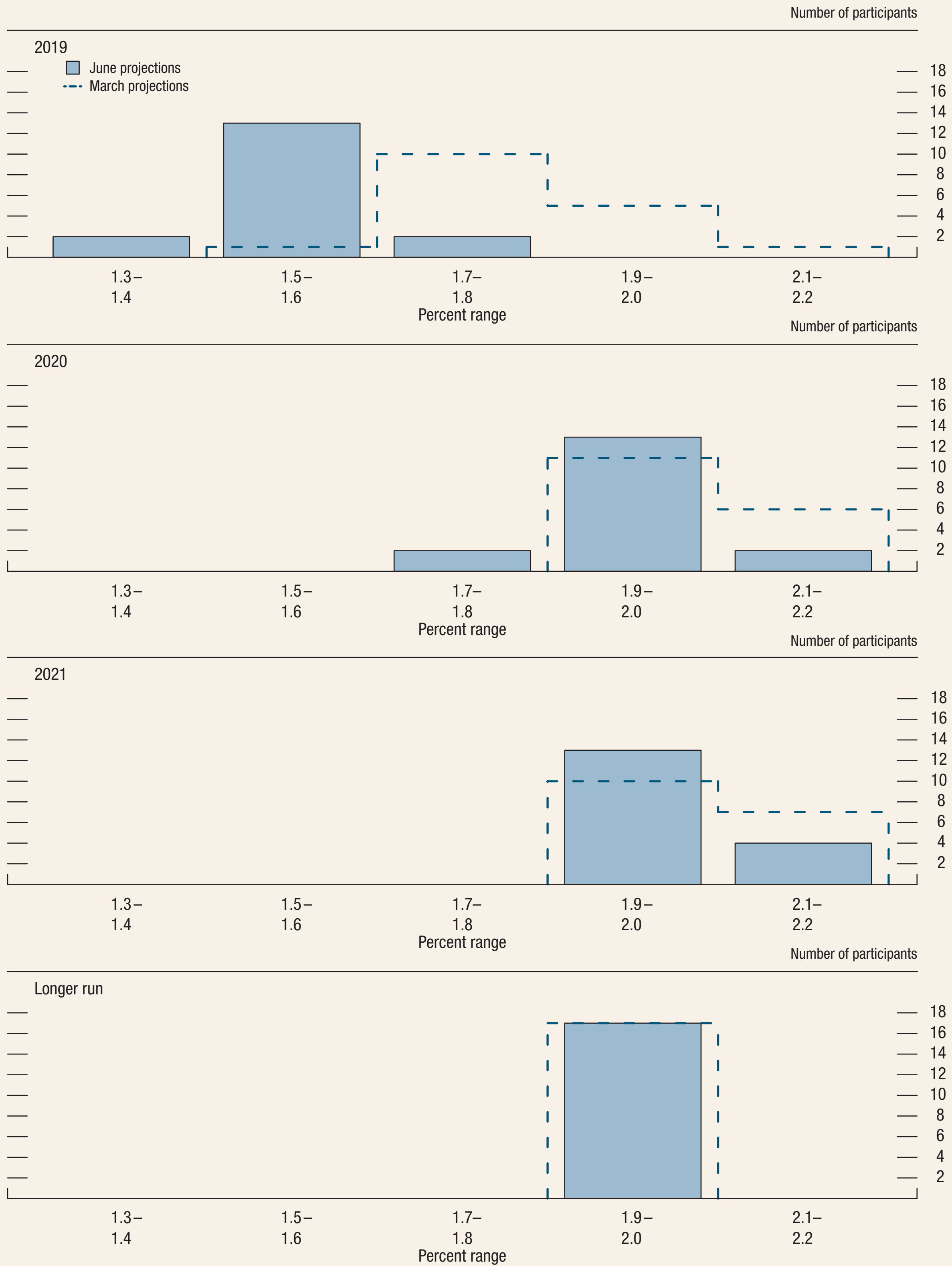
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–21 and over the longer run



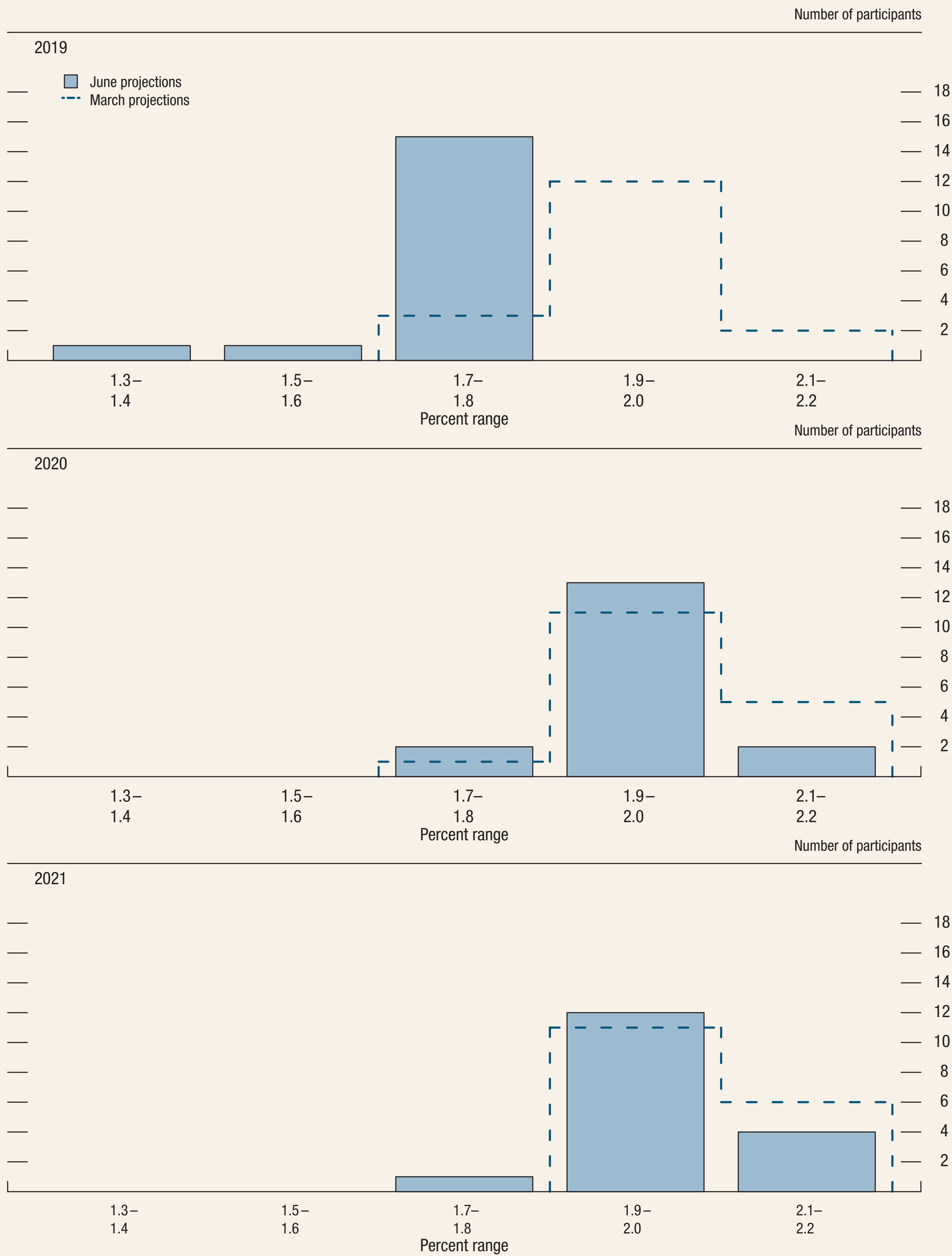
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2019–21 and over the longer run



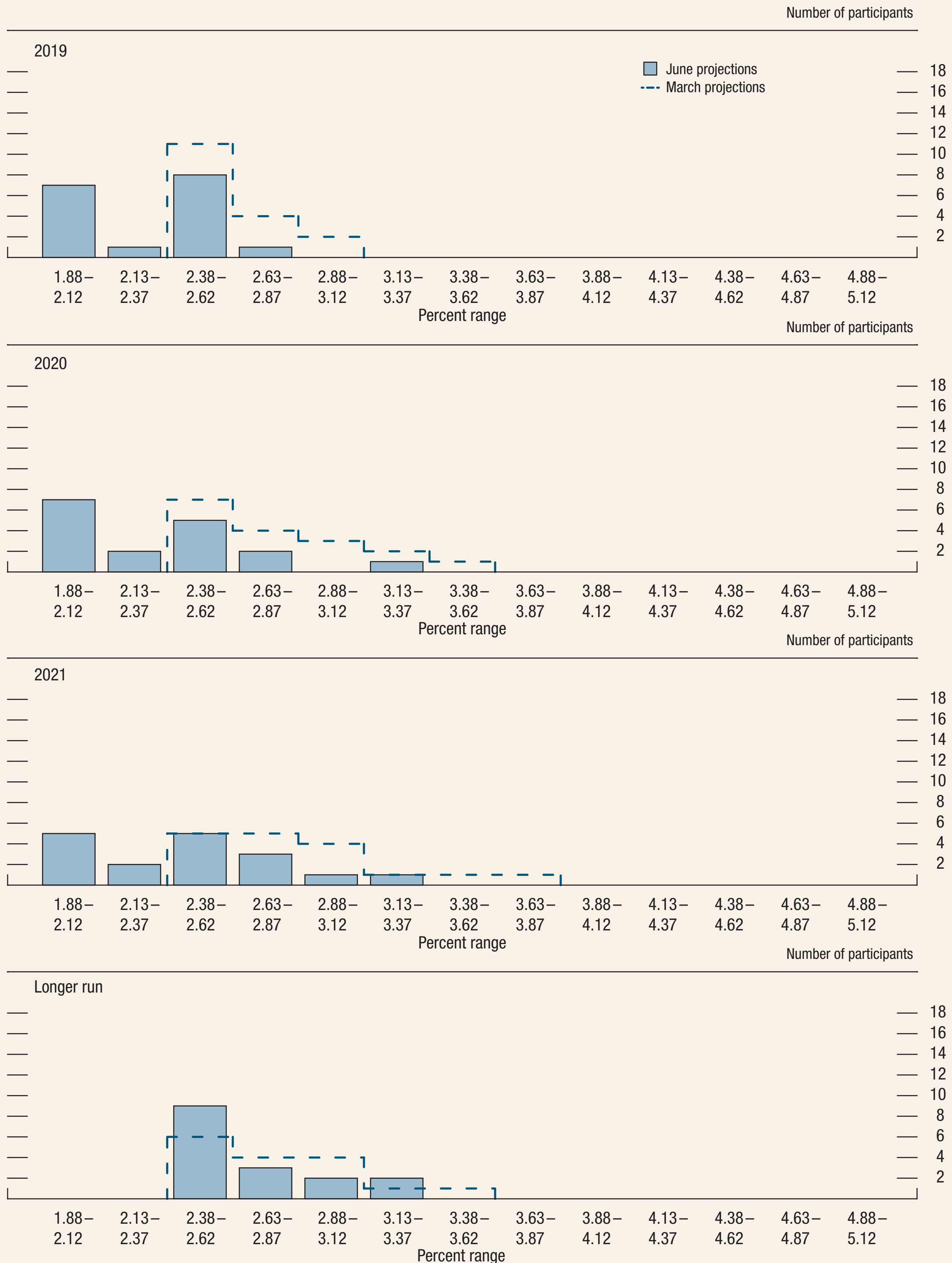
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2019–21



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, 2019–21 and over the longer run



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

Table 2. Average historical projection error ranges
Percentage points

Variable	2019	2020	2021
Change in real GDP[1]	±1.3	±1.8	±2.0
Unemployment rate[1]	±0.4	±1.2	±1.8
Total consumer prices[2]	±0.7	±1.0	±1.0
Short-term interest rates[3]	±0.7	±1.9	±2.2

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1999 through 2018 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.

casts over the past 20 years—for real GDP growth, the unemployment rate, and total PCE price inflation. Those measures are represented graphically in the "fan charts" shown in the top panels of figures 4.A, 4.B, and 4.C. The fan charts display the SEP medians for the three variables surrounded by symmetric confidence intervals derived from the forecast errors reported in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of being within these confidence intervals. For all three variables, this measure of uncertainty is substantial and generally increases as the forecast horizon lengthens.

Participants' assessments of the level of uncertainty surrounding their individual economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. The vast majority of participants continued to view the uncertainty around their projections for inflation as broadly similar to the average of the past 20 years; most also viewed uncertainty around their projections for GDP growth as similar to the average of the past 20 years. Views on uncertainty around unemployment rate projections were roughly evenly distributed between those who saw similar levels of uncertainty relative to the historical average and those who saw higher uncertainty.[2]

Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their current economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. The balance of risks to the projection for real GDP growth shifted lower, with 14 participants assessing the risks as weighted to the downside, 3 assessing them to be broadly balanced, and no participant seeing them as weighted to the upside. Similarly, the balance of risks to the projection for the unemployment rate moved higher, with 12 participants judging the risks to the unemployment rate as weighted to the upside and 5 participants viewing the risks as broadly balanced. In addition, the balance of risks to the inflation projections shifted down relative to March. Six more participants than in March saw the risks to the inflation projections as weighted to the downside, and no participant judged the risks as weighted to the upside.

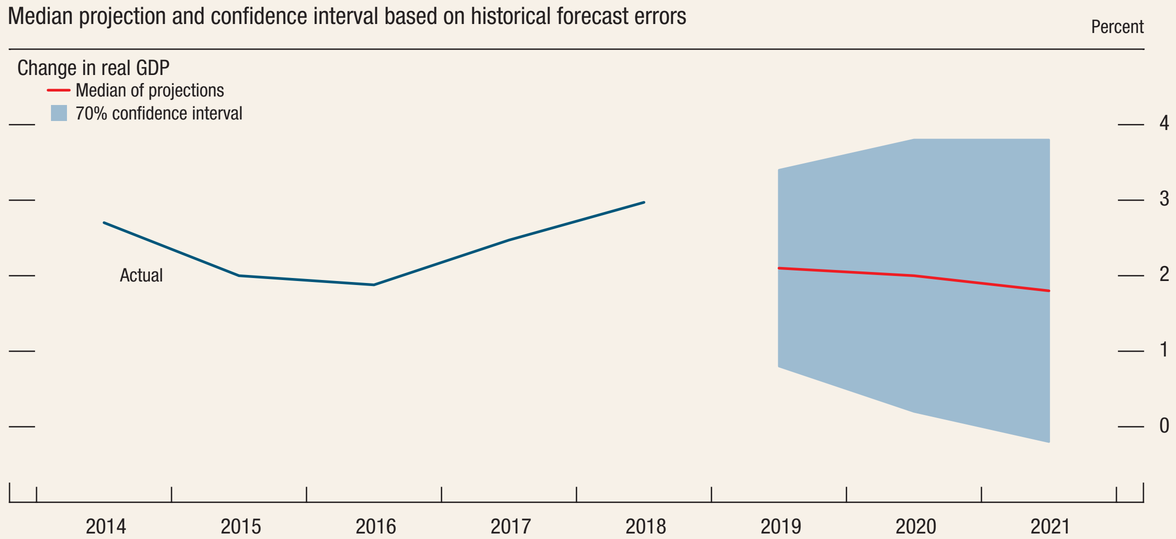
In discussing the uncertainty and risks surrounding their economic projections, trade developments, concerns about global economic growth, and weaker business fixed investment were mentioned by participants as sources of uncertainty or downside risk to the U.S. economic growth outlook. For the inflation outlook, the effect of trade developments was cited as a source of upside risk, while the possibility that inflation expectations could be drifting below levels consistent with the FOMC's 2 percent inflation objective or the potential for a stronger dollar or weaker domestic demand to put downward pressure on inflation were viewed as downside risks. A number of participants mentioned that their assessments of risks remained roughly balanced in part because the downward revisions to their appropriate path for the federal funds rate were offsetting factors that would otherwise contribute to asymmetric risks.

Participants' assessments of the appropriate future path of the federal funds rate are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and pro-

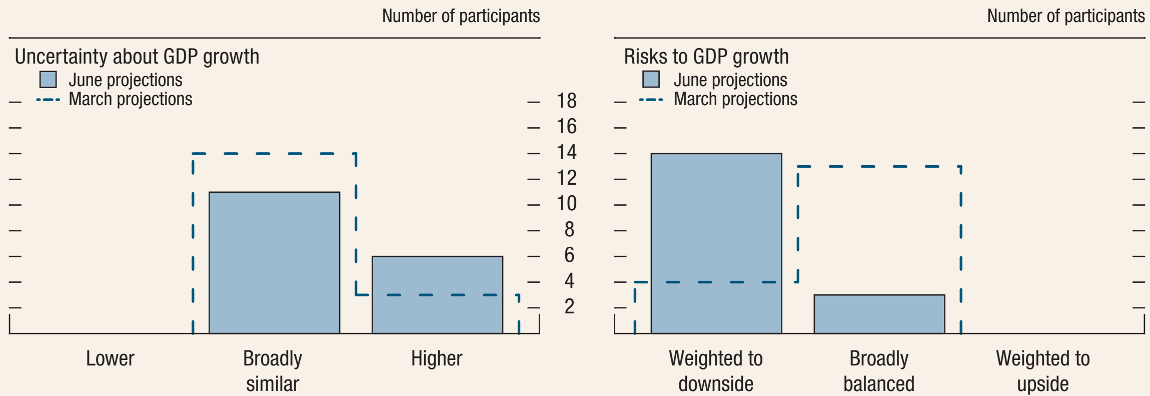
2 At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty surrounding the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

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

Median projection and confidence interval based on historical forecast errors

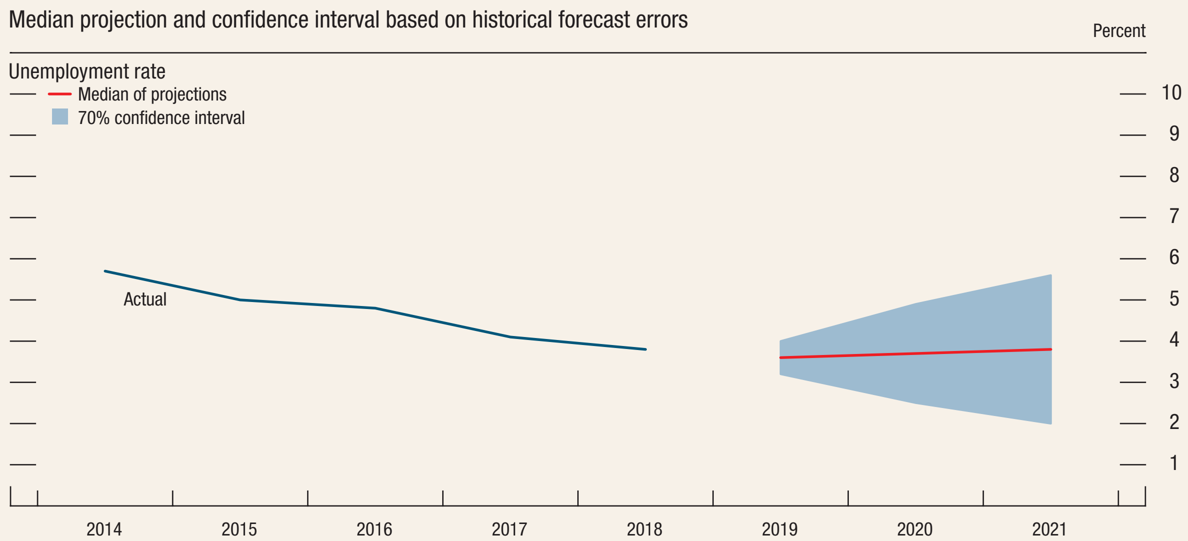


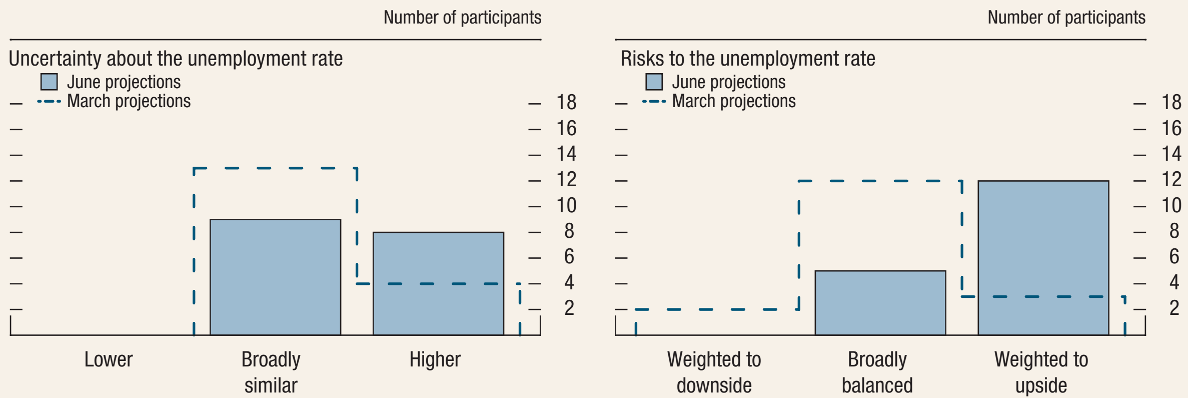
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in 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."

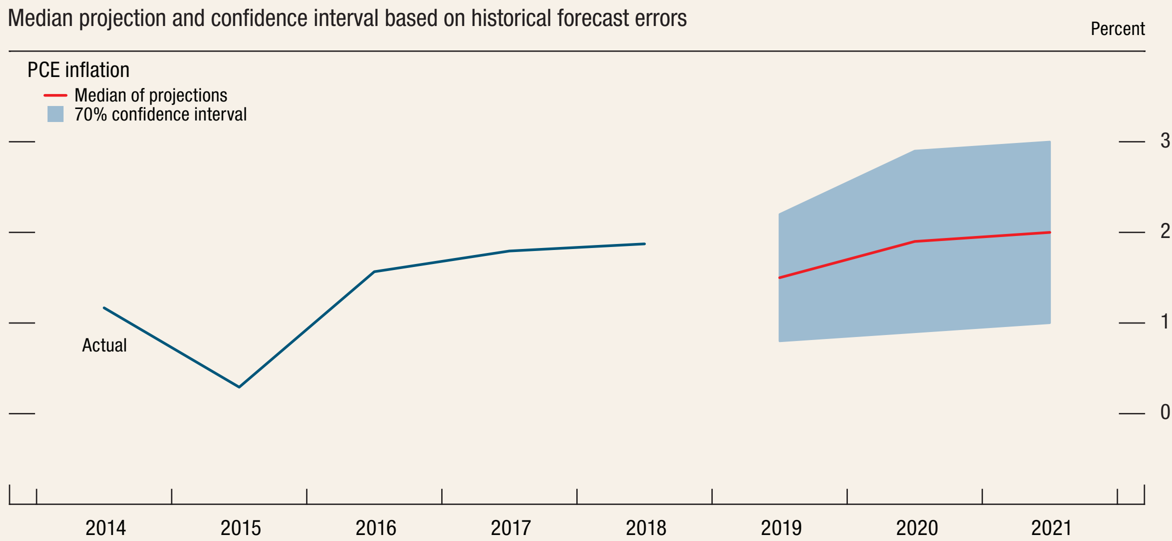
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

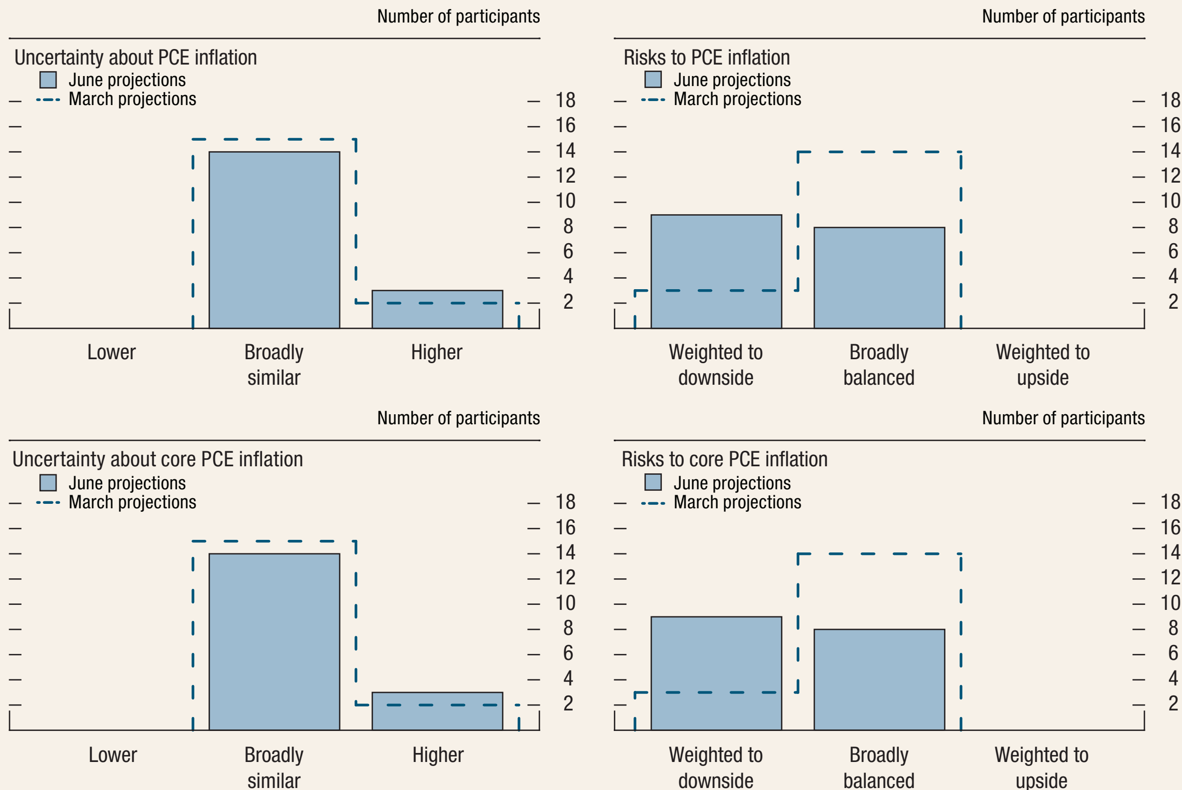




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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

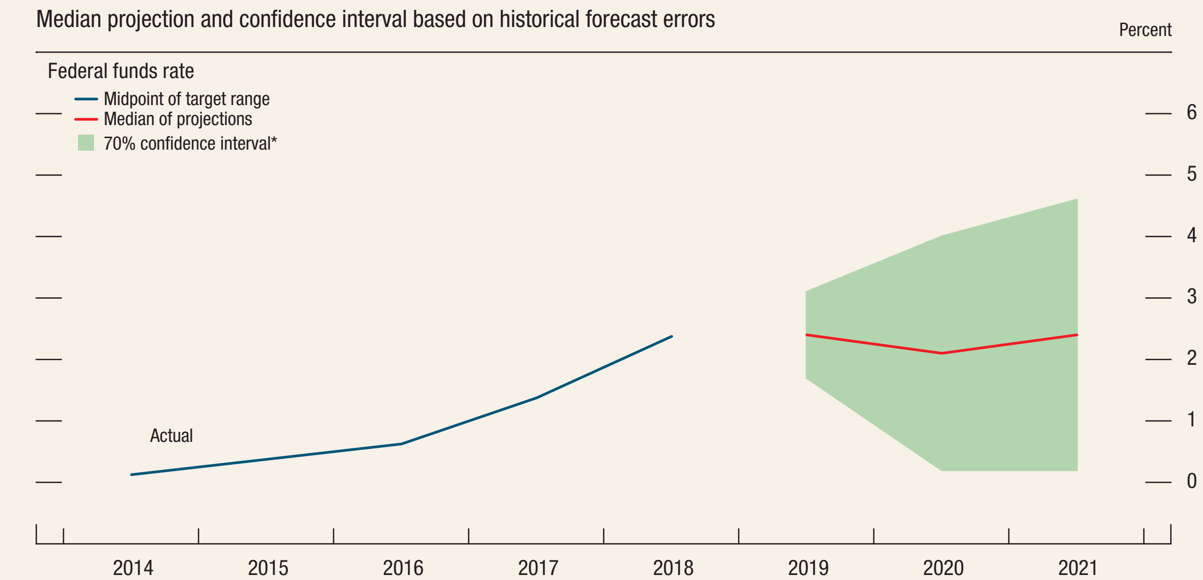




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval 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."

spective developments over time in key economic variables such as real GDP growth, the unemployment rate, and inflation, uncertainty surrounding the projected path for the federal funds rate importantly reflects the uncertainties about the paths for these economic variables along with other factors. Figure 5 provides a graphical representation of this uncertainty, plotting the SEP median for the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, the forecast uncertainty surrounding the appropriate path of the federal funds rate is substantial and increases for longer horizons.

Figure 5. Uncertainty 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.

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 Report*s 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 1.7 to 4.3 percent in the current year, 1.2 to 4.8 percent in the second year, and 1.0 to 5.0 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.3 to 2.7 percent in the current year and 1.0 to 3.0 percent in the second and third years. 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 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.

Meeting Held on July 30–31, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, July 30, 2019, at 10:00 a.m. and continued on Wednesday, July 31, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Beverly Hirtle, Christopher J. Waller, William Wascher, and Beth Anne Wilson
Associate Economists

Lorie K. Logan
Manager pro tem, System Open Market Account

Ann E. Misback[2]
Secretary, Office of the Secretary, Board of Governors

Eric Belsky[3]
Director, Division of Consumer and Community Affairs, Board of Governors

Matthew J. Eichner[4]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Margie Shanks[5]
Deputy Secretary, Office of the Secretary, Board of Governors

Arthur Lindo
Deputy Director, Division of Supervision and Regulation, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joshua Gallin
Special Adviser to the Chair, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of economic developments and outlook.

[3] Attended the discussion of the review of monetary policy framework.

[4] Attended through the discussion of developments in financial markets and open market operations.

[5] Attended the discussion of economic developments and outlook through discussion of monetary policy.

Brian M. Doyle,[6] Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

David E. Lebow and Michael G. Palumbo
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Don Kim, Edward Nelson, and Robert J. Tetlow
Senior Advisers, Division of Monetary Affairs, Board of Governors

S. Wayne Passmore
Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer and Min Wei
Associate Directors, Division of Monetary Affairs, Board of Governors

Elizabeth Klee
Associate Director, Division of Financial Stability, Board of Governors

John J. Stevens
Associate Director, Division of Research and Statistics, Board of Governors

Norman J. Morin
Deputy Associate Director, Division of Research and Statistics, Board of Governors

Andrea Raffo
Deputy Associate Director, Division of International Finance, Board of Governors

Jeffrey D. Walker[4]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Etienne Gagnon
Section Chief, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

[6] Attended Tuesday session only.

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Alyssa G. Anderson
Principal Economist, Division of Monetary Affairs, Board of Governors

Dario Caldara[3] and Albert Queralto[3]
Principal Economists, Division of International Finance, Board of Governors

Isabel Cairó[3]
Senior Economist, Division of Research and Statistics, Board of Governors

Randall A. Williams
Senior Information Manager, Division of Monetary Affairs, Board of Governors

Ellen J. Bromagen
First Vice President, Federal Reserve Bank of Chicago

David Altig, Michael Dotsey, and Jeffrey Fuhrer
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Philadelphia, and Boston, respectively

Marc Giannoni,[3] Spencer Krane, and Paula Tkac[3]
Senior Vice Presidents, Federal Reserve Banks of Dallas, Chicago, and Atlanta, respectively

Robert G. Valletta
Group Vice President, Federal Reserve Bank of San Francisco

Terry Fitzgerald, Christopher J. Neely,[3] and Patricia Zobel
Vice Presidents, Federal Reserve Banks of Minneapolis, St. Louis, and New York, respectively

Andreas L. Hornstein
Senior Advisor, Federal Reserve Bank of Richmond

Karel Mertens
Senior Economic Policy Advisor, Federal Reserve Bank of Dallas

Joseph G. Haubrich
Senior Economic and Policy Advisor, Federal Reserve Bank of Cleveland

Brent Bundick
Research and Policy Advisor, Federal Reserve Bank of Kansas City

Vasco Curdia[3]
Research Advisor, Federal Reserve Bank of San Francisco

Review of Monetary Policy Strategy, Tools, and Communication Practices

Committee participants began their discussions related to the ongoing review of the Federal Reserve's monetary policy strategy, tools, and communication practices. Staff briefings provided a retrospective on the Federal Reserve's monetary policy actions since the financial crisis, together with background and analysis regarding some key issues. In its policy response during the recession and the subsequent economic recovery, the Committee lowered the federal funds rate to its effective lower bound (ELB) and provided additional monetary policy accommodation through both forward guidance about the expected path of the policy rate and balance sheet policy. These actions eased financial conditions and provided substantial support to economic activity; they therefore figured importantly in helping promote the recovery in the labor market and in preventing inflation from falling substantially below the Committee's objective. The presentation noted, however, that over the past several years, inflation had tended to run modestly below the Committee's longer-run goal of 2 percent, while some indicators of longer-run inflation expectations currently stood at low levels. The staff also provided results from model simulations that illustrated possible challenges to the achievement of the Committee's dual-mandate goals over the medium term. These challenges included the proximity of the policy rate to the ELB, imprecise knowledge about the neutral value of the policy rate and the longer-run normal level of the unemployment rate, the diminished response of inflation to resource utilization, and uncertainty about the relationship between inflation expectations and inflation outcomes.

In their discussion, participants welcomed the review of the monetary policy framework. They noted that the inclusion of feedback from the public as part of the review, via the *Fed Listens* events, had improved the transparency of the review process, enhanced the Federal Reserve's public accountability, and provided insights into the positive implications of strong labor markets and high rates of employment for various communities. Furthermore, participants agreed that the review was timely and warranted, in light of the use over the past decade of new policy tools and the emergence of changes in the structure and operation of the U.S. economy. These changes included the long period during which the federal funds rate was at the ELB, the probable recurrence of ELB episodes if the neutral level of the policy rate remains at historically low levels, and the challenges that policymakers face in influencing inflation and inflation expectations when the response of inflation to resource utilization has diminished. Participants generally agreed that the Committee's consideration of possible modifications to its policy strategy, tools, and communication practices would take some time and that the process would be careful, deliberate, and patient.

With regard to the current monetary policy framework, participants agreed that this framework had served the Committee and the U.S. economy well over the past decade. They judged that forward guidance and balance sheet actions had provided policy accommodation during the ELB period and had supported economic activity and a return to strong labor market conditions while also bringing inflation closer to the Committee's longer-run goal of 2 percent than would otherwise have been the case. In addition, participants noted that the Committee's balanced approach to promoting its dual mandate of maximum employment and price stability had facilitated Committee policy actions aimed at supporting the labor market and economic activity even during times when the provision of accommodation was potentially associated with the risk of inflation running persistently above 2 percent. Participants further observed that such inflation risks—along with several of the other perceived risks of providing substantial accommodation through nontraditional policy tools, including possible adverse implications for financial stability—had not been realized. In particular, a number of participants commented that, as many of the potential costs of the Committee's asset purchases had failed to materialize, the Federal Reserve might have been able to make use of balance sheet tools even more aggressively over the past decade in providing appropriate levels of accommodation. However, several participants remarked that considerable uncertainties remained about the costs and efficacy of asset purchases, and a couple of participants suggested that, taking account of the uncertainties and the perceived constraints facing policymakers in the years following the recession, the Committee's decisions on the amount of policy accommodation to provide through asset purchases had been appropriate.

In their discussion of policy tools, participants noted that the experience acquired by the Committee with the use of forward guidance and asset purchases has led to an improved understanding of how these tools operate; as a result, the Committee could proceed

more confidently and preemptively in using these tools in the future if economic circumstances warranted. Participants discussed the extent to which forward guidance and balance sheet actions could substitute for reductions in the policy rate when the policy rate is constrained by the ELB. Overall, participants judged that the Federal Reserve's ability to provide monetary policy accommodation at the ELB through the use of forward guidance and balance sheet tools, while helpful in mitigating the effects of the constraint on monetary policy arising from the lower bound, did not eliminate the risk of protracted periods in which the ELB hinders the conduct of policy. If policymakers are not able to provide sufficient accommodation at the ELB through the use of forward guidance or balance sheet actions, the constraints posed by the ELB could be an impediment to the attainment of the Federal Reserve's dual-mandate objectives over time and put at risk the anchoring of inflation expectations at the Committee's longer-run inflation objective.

Participants looked forward to a detailed discussion over coming meetings of alternative strategies for monetary policy. Some participants offered remarks on general features of some of the monetary policy strategies that they would be discussing and on the relationship between those strategies and the current framework. A few of the options mentioned were "makeup strategies," in which the realization of inflation below the 2 percent objective would give rise to policy actions designed to deliver inflation above the objective for a time. In principle, such makeup strategies could be designed to promote a 2 percent inflation rate, on average, over some period. In such circumstances, market expectations that the central bank would seek to "make up" inflation shortfalls following periods during which the ELB was binding could help ease overall financial conditions and thus help support economic activity during ELB episodes. However, many participants noted that the benefits of makeup strategies in supporting economic activity and stabilizing inflation depended heavily on the private sector's understanding of those strategies and confidence that future policymakers would take actions consistent with those strategies. A few participants suggested that an alternative means of delivering average inflation equal to the Committee's longer-run objective might involve aiming for inflation somewhat in excess of 2 percent when the policy rate was away from the ELB, recognizing that inflation would tend to move lower when the policy rate was constrained by the ELB. Another possibility might be for the Committee to express the inflation goal as a range centered on 2 percent and aim to achieve inflation outcomes in the upper end of the range in periods when resource utilization was high. A couple of participants noted that an adoption of a target range would be consistent with the practice of some other central banks. A few other participants suggested that the adoption of a range could convey a message that small deviations of inflation from 2 percent were unlikely to give rise to sizable policy responses. A couple of participants expressed concern that if policymakers regularly failed to respond appropriately to persistent, relatively small shortfalls of inflation below the 2 percent longer-run objective, inflation expectations and average observed inflation could drift below that objective.

Participants also discussed the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy. Participants noted that this statement had been helpful in articulating and clarifying the Federal Reserve's approach to monetary policy. The Committee first released this document in January 2012 and had renewed it, with a few modifications, every year since then. On the basis of the monetary policy and economic experience of the past decade, participants cited a number of topics that they would likely discuss in detail in their deliberations during the review and that might motivate possible modifications to the statement. These topics included the conduct of monetary policy in the presence of the ELB constraint, the role of inflation expectations in monetary policy, the best means of conveying the Committee's balanced approach to monetary policy and the symmetry of its inflation goal, the relationship between the Committee's strategy and its decisions about the settings of its policy tools, the implications of the low value of the neutral policy rate and of uncertainty about the values of the neutral policy rate and the longer-run normal rate of unemployment, the potential benefits and costs of unemployment running below its longer-run normal rate in conditions of muted inflation pressures, and the time frame over which policymakers aimed to achieve their dual-mandate goals. A couple of participants emphasized the availability to policymakers of other communication tools through which the Committee could elaborate on its policy strategy and the challenges that monetary policy faced in the current environment, while also indicating that the Committee retains flexibility and optionality to achieve its objectives. Participants highlighted the importance of the Summary of Economic Projections (SEP) in conveying participants' modal outlooks, with several participants suggesting that modifications to the SEP's format might

enhance policy communications. Participants also commented on the importance of considering the connections between monetary policy and financial stability.

Participants expected that, at upcoming meetings, they would continue their deliberations on the review of the Federal Reserve's monetary policy strategy, tools, and communication practices. These additional discussions would consider various topics, such as alternative policy strategies, options for enhanced use of existing monetary policy tools, possible additions to the policy toolkit, potential changes to communication practices, the relationship between monetary policy and financial stability, and the distributional effects of monetary policy.

Developments in Financial Market Developments and Open Market Operations

The manager pro tem discussed developments in financial markets over the intermeeting period. Regarding market participants' views about the July FOMC meeting, nearly all respondents from the July Open Market Desk surveys of dealers and market participants expected a 25 basis point cut in the target range for the federal funds rate, a substantial shift from the June surveys when a significant majority had a modal forecast for no change. Survey responses also suggested that expectations had coalesced around a modal forecast for a total of two 25 basis point cuts in the target range in 2019 and no change thereafter through year-end 2021. Regarding balance sheet policy, survey respondents that expected a rate cut at this meeting were almost evenly split on whether the Committee would also choose to end balance runoff immediately after the meeting or to maintain the existing plan to halt runoff at the end of September. Market participants generally judged that a two-month change in the timing of the end of the balance sheet runoff would have only a small effect on the path of the balance sheet and thus very little, if any, economic effect.

Expectations for near-term domestic policy easing had occurred against the backdrop of a global shift toward more accommodative monetary policy. Several central banks had eased policy over the past month and a number of others shifted to an easing bias. Market participants were particularly attentive to a statement after the European Central Bank's Governing Council meeting that was perceived as affirming expectations for further easing and additional asset purchases. These changes to the policy outlook in the United States and across a number of countries appeared to play an important role in supporting financial conditions and offsetting some of the drag on growth from trade tensions and other risks.

Somewhat reduced concern among market participants about important risks to the global outlook also appeared to support risk asset prices. Following the G-20 (Group of Twenty) meeting in late June, fewer Desk contacts and respondents to the Desk surveys expected a significant escalation of U.S.-China trade tensions. In addition, investor sentiment was bolstered by news that the Administration and Congress had reached a budget and debt ceiling agreement that, if passed, would remove another source of risk later this year. That said, contacts recognized that some potentially sizeable downside risks remained. Many survey respondents still viewed U.S.-China trade risks as skewed to the downside, and many Desk contacts judged that the risks of a "no-deal" Brexit had increased.

The manager pro tem next discussed developments in money markets and open market operations. The spreads of the effective federal funds rate (EFFR) and the median Eurodollar rate relative to the interest on excess reserves (IOER) rate had increased some and become more variable over recent months, with a notable pickup in daily changes in these spreads since late March. Moreover, the range of rates in unsecured markets each day had widened. Market participants pointed to pressures in repurchase agreement (repo) markets as one factor contributing to the uptick in volatility in unsecured rates. These pressures, in turn, seemed to stem partly from elevated dealer inventories of Treasury securities and dealers' associated financing needs. Market participants also pointed to lower reserve balances as a factor affecting rates in unsecured money market rates. Over the intermeeting period, the level of reserves was little changed on net; however, some market participants noted the association between the gradual increase in unsecured rates relative to the IOER rate over recent months and the declining level of reserves since System Open Market Account (SOMA) redemptions began. The level of reserves was expected to decline appreciably over coming months, partly reflecting an anticipated sizable increase in the Treasury's balance at the Federal Reserve following the agreement on the federal budget and debt ceiling.

The manager pro tem updated the Committee on Desk plans to resume CUSIP (Committee on Uni-

form Securities Identification Procedures) aggregation of SOMA holdings of Fannie Mae and Freddie Mac agency mortgage-backed securities (MBS) to reduce administrative costs and operational complexity, and the Desk expects to release a statement in August with details on the aggregation strategy.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the July 30–31 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) increased at a moderate rate in the second quarter. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), was below 2 percent in June. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment expanded at a solid rate, on average, in recent months, supported by a brisk gain in June. The unemployment rate edged up to 3.7 percent in June but was still at a historically low level. The labor force participation rate also moved up somewhat but was close to its average over the previous few years, and the employment-to-population ratio stayed flat. The unemployment rates for African Americans and Asians declined in June, the rate for whites was unchanged, and the rate for Hispanics edged up; the unemployment rate for each group was below its level at the end of the previous economic expansion, though persistent differentials between these rates remained. The share of workers employed part time for economic reasons in June continued to be below the lows reached in late 2007. The rate of private-sector job openings held steady in May, while the rate of quits edged down but was still at a high level; the four-week moving average of initial claims for unemployment insurance benefits through mid-July was near historically low levels. Average hourly earnings for all employees rose 3.1 percent over the 12 months ending in June, somewhat faster than a year earlier. The employment cost index for private-sector workers increased 2.6 percent over the 12 months ending in June, the same as a year earlier. (Data on compensation per hour that reflected the recent annual update of the national income and product accounts by the Bureau of Economic Analysis (BEA) were not available at the time of the meeting.)

Total consumer prices, as measured by the PCE price index, increased 1.4 percent over the 12 months ending in June. This increase was slower than a year earlier, as core PCE price inflation (which excludes changes in consumer food and energy prices) moved down to 1.6 percent, consumer food price inflation remained below core inflation, and consumer energy prices declined. The average monthly change in the core PCE price index during the second quarter was faster than in the first quarter, suggesting that some of the soft inflation readings early in the year were transitory. The trimmed mean measure of 12-month PCE price inflation constructed by the Federal Reserve Bank of Dallas remained at or near 2 percent in recent months. The consumer price index (CPI) rose 1.6 percent over the 12 months ending in June, while core CPI inflation was 2.1 percent. Recent survey-based measures of longer-run inflation expectations were little changed on balance. The preliminary July reading from the University of Michigan Surveys of Consumers moved back up after dipping in June but was still at a relatively low level; the measures from the Desk's Survey of Primary Dealers and Survey of Market Participants were little changed.

Real consumer expenditures rose briskly in the second quarter after a sluggish gain in the first quarter, supported in part by a robust pace of light motor vehicle sales in May and June. However, real PCE rose more slowly in June than in the first five months of the year, suggesting some deceleration in consumer spending going into the third quarter. Key factors that influence consumer spending—including a low unemployment rate, further gains in real disposable income, and elevated measures of households' net worth—were supportive of solid real PCE growth in the near term. In addition, the preliminary July reading on the Michigan survey measure of consumer sentiment remained at an upbeat level.

Real residential investment declined again in the second quarter. Although starts of new single-family homes rose in June, the average in the second quarter was lower than in the first quarter; starts of multifamily units fell back in June but rose for the second quarter as a whole. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—

was at roughly the same level in June as its first-quarter average. On net in May and June, sales of new homes declined, while sales of existing homes rose.

Real nonresidential private fixed investment edged down in the second quarter, as a decline in expenditures on nonresidential structures more than offset an increase in expenditures for business equipment and intellectual property. Forward-looking indicators of fixed investment were mixed. Orders for nondefense capital goods excluding aircraft increased in June, and some measures of business sentiment improved. However, analysts' expectations of firms' longer-term profit growth remained soft, trade policy concerns appeared to be weighing on investment, and the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—continued to decrease in recent weeks.

Industrial production (IP) was unchanged in June, as a decrease in the output of utilities offset increases in the output of manufacturers and mines. For the second quarter as a whole, both total IP and manufacturing output declined, while mining output rose notably, supported by a strong gain in crude oil extraction. Automakers' assembly schedules suggested that production of light motor vehicles would move up somewhat in the third quarter. However, new orders indexes from national and regional manufacturing surveys pointed toward continued softness in manufacturing production in coming months.

Total real government purchases rose solidly in the second quarter. Federal defense spending increased, and nondefense purchases returned to more typical levels after the partial federal government shutdown in the first quarter. Real purchases by state and local governments rose moderately, boosted by a strong gain in spending on structures and an increase in the payrolls of those governments.

The nominal U.S. international trade deficit widened in May relative to April, as imports increased more than exports. In June, preliminary data indicated declining nominal goods exports and imports. Within exports, declines were particularly notable for exports of consumer goods and capital goods, the latter of which had already been depressed by the suspension of Boeing 737 MAX exports. All told, the BEA estimates that net exports, after adding moderately to first-quarter GDP growth, subtracted a similar amount from GDP growth in the second quarter on declining exports and flat imports.

Incoming data suggested that growth in the foreign economies remained subdued in the second quarter. In several key advanced foreign economies, including the euro area, recent indicators pointed to slowing economic growth amid continued weakness in manufacturing and persistent policy-related uncertainty. Similarly, in China, real GDP growth slowed notably in the second quarter after a first-quarter jump. In contrast, growth in Canada and, to a lesser extent, Latin America appeared to pick up from a weak first-quarter pace. Foreign inflation remained muted but rose a bit from lows earlier in the year, largely reflecting higher energy prices.

Staff Review of the Financial Situation

Over the intermeeting period, financial market developments reflected noticeable shifts in expectations for monetary policy in response to Federal Reserve communications, economic data releases, and trade policy developments. Federal Reserve communications were generally regarded as more accommodative than had been anticipated, exerting downward pressure on measures of the expected path for the federal funds rate. However, some better-than-expected economic data releases and a slight improvement in the outlook regarding trade partially offset these declines. Yields on nominal Treasury securities were little changed on net. Equity prices increased, corporate bond spreads narrowed, and inflation compensation rose modestly. Financing conditions for businesses and households were little changed over the intermeeting period and remained generally supportive of spending.

Measures of expectations for near-term domestic monetary policy exhibited notable shifts and reversals over the intermeeting period and ended the period little changed, on net, with market participants still attaching high odds to a 25 basis point reduction in the target range for the federal funds rate at the July FOMC meeting. Consistent with significant variation in near-term expectations for monetary policy, market-based indicators of interest rate uncertainty for shorter maturities over the near term remained somewhat elevated. Over the intermeeting period, market-based expectations for the federal funds rate for the end of this year and beyond moved down slightly on net. A straight read of OIS (overnight index swap) forward rates implied that the federal funds rate would decline about 60 basis points in 2019 and about 35 basis points in 2020.

The nominal U.S. Treasury yield curve was little changed, on net, over the intermeeting period. Both

the near-term forward spread and the spread between 10-year and 3-month Treasury yields are still in the bottom decile of their respective distributions since 1971. On net, in the weeks following the June FOMC meeting, 5-year and 5-to-10-year inflation compensation based on Treasury Inflation-Protected Securities (TIPS) moved up modestly. More-accommodative-than-expected Federal Reserve communications, stronger-than-expected inflation data releases, and rising oil prices—amid increased geopolitical tensions with Iran—contributed to the upward pressure on inflation compensation.

Broad stock price indexes increased, on net, over the intermeeting period, with notable increases following the June FOMC communications, the Chair's July *Monetary Policy Report* testimony, and announcements regarding trade negotiations following the G-20 meeting. Additionally, there was a slight positive reaction to news of an agreement on the federal budget and debt limit. Equity price increases were broad based across major sectors, with technology, financial, and communication services firms outperforming broad indexes. One-month option-implied volatility on the S&P 500 index—the VIX—decreased slightly, on net, and corporate credit spreads narrowed.

Conditions in domestic short-term funding markets remained fairly stable. Overnight interest rates in both unsecured and secured markets were somewhat elevated over the period. In particular, repo rates were elevated on and after the June quarter-end, with the SOFR (Secured Overnight Financing Rate) averaging 8 basis points above the IOER rate over the intermeeting period. However, the EFFR remained well within the target range, averaging 5 basis points above the IOER rate. Rates on commercial paper and negotiable certificates of deposit declined somewhat.

Accommodative central bank communications, both in the United States and abroad, and some easing of trade tensions generally supported foreign risky assets over the intermeeting period. Global equity indexes increased modestly, while emerging market sovereign spreads narrowed. On balance, the broad dollar index ended the period modestly lower. Notably, the British pound depreciated significantly against the U.S. dollar, reportedly as developments led investors to raise the probability they attached to a no-deal Brexit.

Most sovereign long-term bond yields edged lower, on net, reflecting firming expectations for further policy accommodation amid growing concerns about the global economic outlook. Italian yields declined notably, in part as the government passed some fiscal consolidation measures. The European Central Bank left its policy rate unchanged at its July meeting but signaled possible rate cuts at coming meetings and said it will explore options for additional asset purchases. Several emerging market central banks, including South Korea, Turkey, and Indonesia, lowered policy rates over the period.

Financing conditions for nonfinancial businesses remained accommodative. Gross issuance of corporate bonds remained robust in June, followed by a typical seasonal decline in July. Issuance of institutional leveraged loans increased notably in May but in June, it returned to the more moderate pace observed earlier this year. Respondents to the July 2019 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported that, on net, banks continued to ease standards and terms on commercial and industrial loans to large and middle-market firms in the second quarter, with many citing aggressive competition as the reason for doing so. Gross equity issuance has been strong in recent months. The credit quality of nonfinancial corporations continued to show signs of stabilization in June following some deterioration earlier in the year. Credit conditions for both small businesses and municipalities remained accommodative on balance.

In the commercial real estate (CRE) sector, financing conditions remained generally accommodative despite a modest deceleration in bank loan growth. Banks in the July SLOOS reported that standards were about unchanged, on net, in the second quarter for most CRE loan categories. Agency and non-agency commercial MBS issuance was strong in the second quarter, as yield spreads ticked down.

Financing conditions in the residential mortgage market remained accommodative over the intermeeting period. Mortgage rates were little changed since the June FOMC meeting but remained about 1 percentage point below their late-2018 level. These conditions have supported a modest increase in home-purchase origination volume in recent months. Refinance originations have risen as well but remain near historical lows.

In consumer credit markets, financing conditions were little changed in recent months and remained generally supportive of consumer spending. Growth in consumer credit in April and May was up a bit

from earlier in the year due to a pickup in credit card balances. Banks in the July SLOOS continued to report tightened standards for credit cards over the second quarter.

The staff provided an update on its assessments of potential risks to financial stability. On balance, the staff continued to view vulnerabilities as moderate. The staff judged asset valuation pressures to be notable in a number of markets, supported in part by the low level of Treasury yields. In assessing vulnerabilities stemming from leverage in the household and business sectors, the staff noted that business leverage was high while household leverage was moderate. The staff viewed the buildup in nonfinancial business-sector debt as a factor that could amplify adverse shocks to the business sector and the economy more generally. Within business debt, the staff also reported that in the leveraged loan market, the share of new loans to risky borrowers was at a record high, and credit extended by private equity firms had continued to grow. At the same time, financial institutions were viewed as resilient, as the risks associated with financial leverage and funding risk were still viewed as low despite some signs of rising leverage and continued inflows into run-prone funds. Separately, the staff noted that market liquidity was, overall, in good shape, although sudden price drops had become more frequent in some markets.

Staff Economic Outlook

The projection for U.S. economic activity prepared by the staff for the July FOMC meeting was revised up somewhat in the near term, as an upward revision to households' real disposable income in the first half of the year led to a slightly higher second-half forecast for consumer spending. Even so, real GDP growth was still forecast to rise more slowly in the second half of the year than in the first half, primarily reflecting continued soft business investment and a slower increase in government spending. The projection for real GDP growth over the medium term was a little stronger, supported by the effects of a higher projected path for equity prices and a lower trajectory for interest rates. Real GDP was forecast to expand at a rate a little above the staff's estimate of potential output growth in 2019 and 2020 and then slow to a pace slightly below potential output growth in 2021. The unemployment rate was projected to be roughly flat through 2021 and to remain below the staff's estimate of its longer-run natural rate. With labor market conditions judged to be tight, the staff continued to assume that projected employment gains would manifest in smaller-than-usual downward pressure on the unemployment rate and in larger-than-usual upward pressure on the labor force participation rate.

The staff's forecast of total PCE price inflation this year was revised up a touch, reflecting a slightly higher projected path for consumer energy prices, while the forecast for core PCE price inflation was unrevised at a level below 2 percent. Both total and core inflation were projected to move up slightly next year, as the low readings early this year were expected to be transitory, but nevertheless to continue to run below 2 percent.

The staff continued to view the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years. Moreover, the staff still judged that the risks to the forecast for real GDP growth were tilted to the downside, with a corresponding skew to the upside for the unemployment rate. Important factors in that assessment were that international trade tensions and foreign economic developments seemed more likely to move in directions that could have significant negative effects on the U.S. economy than to resolve more favorably than assumed. In addition, softness in business investment and manufacturing so far this year was seen as pointing to the possibility of a more substantial slowing in economic growth than the staff projected. With the risks to the forecast for economic activity tilted to the downside, the risks to the inflation projection were also viewed as having a downward skew.

Participants' Views on Current Conditions and the Economic Outlook

Participants agreed that the labor market had remained strong over the intermeeting period and that economic activity had risen at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Although growth of household spending had picked up from earlier in the year, growth of business fixed investment had been soft. On a 12-month basis, overall inflation and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed.

Participants continued to view a sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. This outlook was predicated on financial conditions that were more accommodative than earlier this year. More accommodative financial conditions, in turn, partly reflected market reaction to the downward adjustment through the course of the year in the Committee's assessment of the appropriate path for the target range of the federal funds rate in light of weak global economic growth, trade policy uncertainty, and muted inflation pressures.

Participants generally noted that incoming data over the intermeeting period had been largely positive and that the economy had been resilient in the face of ongoing global developments. The economy continued to expand at a moderate pace, and participants generally expected GDP growth to slow a bit to around its estimated potential rate in the second half of the year. However, participants also observed that global economic growth had been disappointing, especially in China and the euro area, and that trade policy uncertainty, although waning some over the intermeeting period, remained elevated and looked likely to persist. Furthermore, inflation pressures continued to be muted, notwithstanding the firming in the overall and core PCE price indexes in the three months ending in June relative to earlier in the year.

In their discussion of the business sector, participants generally saw uncertainty surrounding trade policy and concerns about global growth as continuing to weigh on business confidence and firms' capital expenditure plans. Participants generally judged that the risks associated with trade uncertainty would remain a persistent headwind for the outlook, with a number of participants reporting that their business contacts were making decisions based on their view that uncertainties around trade were not likely to dissipate anytime soon. Some participants observed that trade uncertainties had receded somewhat, especially with the easing of trade tensions with Mexico and China. Several participants noted that, over the intermeeting period, business sentiment seemed to improve a bit and commented that the data for new capital goods orders had improved. Some participants expressed the view that the effects of trade uncertainty had so far been modest and referenced reports from business contacts in their Districts that investment plans were continuing, though with a more cautious posture.

Participants also discussed developments across the manufacturing, agriculture, and energy sectors of the U.S. economy. Manufacturing production had declined so far this year, dragged down in part by weak real exports, the ongoing global slowdown, and trade uncertainties. Several participants noted ongoing challenges in the agricultural sector, including those associated with increased trade uncertainty, weak export demand, and the effects of wet weather and severe flooding. A couple of participants commented on the decline in energy prices since last fall and the associated reduction in economic activity in the energy sector.

Participants commented on the robust pace of consumer spending. Noting the important role that household spending was currently playing in supporting the expansion, participants judged that household spending would likely continue to be supported by strong labor market conditions, rising incomes, and upbeat consumer sentiment. A few participants noted that the continued softness in residential investment was a concern, and that the expected boost to housing activity from the decline in mortgage rates since last fall had not yet materialized. In contrast, a couple of participants reported that some recent indicators of housing activity in their Districts had been somewhat more positive of late.

In their discussion of the labor market, participants judged that conditions remained strong, with the unemployment rate near historical lows and continued solid job gains, on average, in recent months. Job gains in June were stronger than expected, following a weak reading in May. Looking ahead, participants expected the labor market to remain strong, with the pace of job gains slower than last year but above what is estimated to be necessary to hold labor utilization steady. Reports from business contacts pointed to continued strong labor demand, with many firms reporting difficulty finding workers to meet current demand. Several participants reported seeing notable wage pressures for lower-wage workers. However, participants viewed overall wage growth as broadly consistent with the modest average rates of labor productivity growth in recent years and, consequently, as not exerting much upward pressure on inflation. Several participants remarked that there seemed to be little sign of overheating in labor markets, citing the combination of muted inflation pressures and moderate wage growth.

Regarding inflation developments, some participants stressed that, even with the firming of readings for consumer prices in recent months, both overall and core PCE price inflation rates continued to run below the Committee's symmetric 2 percent objective; the latest reading on the 12-month change in the core PCE price index was 1.6 percent. Furthermore, continued weakness in global economic growth and ongoing trade tensions had the potential to slow U.S. economic activity and thus further delay a sustained return of inflation to the 2 percent objective. Many other participants, however, saw the recent inflation data as consistent with the view that the lower readings earlier this year were largely transitory, and noted that the trimmed mean measure of PCE price inflation constructed by the Federal Reserve Bank of Dallas was running around 2 percent. A few participants noted differences in the behavior of measures of cyclical and acyclical components of inflation. By some estimates, the cyclical component of inflation continued to firm; the acyclical component, which appeared to be influenced by sectoral and technological changes, was largely responsible for the low level of inflation and not likely to respond much to monetary policy actions.

In their discussion of the outlook for inflation, participants generally anticipated that with appropriate policy, inflation would move up to the Committee's 2 percent objective over the medium term. However, market-based measures of inflation compensation and some survey measures of consumers' inflation expectations remained low, although they had moved up some of late. A few participants remarked that inflation expectations appeared to be reasonably well anchored at levels consistent with the Committee's 2 percent inflation objective. However, some participants stressed that the prolonged shortfall in inflation from the long-run goal could cause inflation expectations to drift down—a development that might make it more difficult to achieve the Committee's mandated goals on a sustained basis, especially in the current environment of global disinflationary pressures. A couple of participants observed that, although some indicators of longer-term inflation expectations, like TIPS-based inflation compensation and the Michigan survey measure, had not changed substantially this year, on net, they were notably lower than their levels several years ago.

Participants generally judged that downside risks to the outlook for economic activity had diminished somewhat since their June meeting. The strong June employment report suggested that the weak May payroll figures were not a precursor to a more material slowdown in job growth. The agreement between the United States and China to resume negotiations appeared to ease trade tensions somewhat. In addition, many participants noted that the recent agreement on the federal debt ceiling and budget appropriations substantially reduced near-term fiscal policy uncertainty. Moreover, the possibility of favorable outcomes of trade negotiations could be a factor that would provide a boost to economic activity in the future. Still, important downside risks persisted. In particular, participants were mindful that trade tensions were far from settled and that trade uncertainties could intensify again. Continued weakness in global economic growth remained a significant downside risk, and some participants noted that the likelihood of a no-deal Brexit had increased.

In their discussion of financial market developments, participants observed that financial conditions remained supportive of economic growth, with borrowing rates low and stock prices near all-time highs. Participants observed that current financial conditions appeared to be premised importantly on expectations that the Federal Reserve would ease policy to help offset the drag on economic growth stemming from the weaker global outlook and uncertainties associated with international trade as well as to provide some insurance to address various downside risks. Participants also discussed the decline in yields on longer-term nominal Treasury securities in recent months. A few participants expressed the concern that the inversion of the Treasury yield curve, as evidenced by the 10-year yield falling below the 3-month yield, had persisted for about two months, which could indicate that market participants anticipated weaker economic conditions in the future and that the Federal Reserve would soon need to lower the federal funds rate substantially in response. The longer-horizon real forward rate implied by TIPS had also declined, suggesting that the longer-run normal level of the real federal funds rate implicit in market prices was lower.

Among those participants who commented on financial stability, most highlighted recent credit market developments, the elevated valuations in some asset markets, and the high level of nonfinancial corporate indebtedness. Several participants noted that high levels of corporate debt and leveraged lending posed some risks to the outlook. A few participants discussed the fast growth of private credit markets—a sector not subject to the same degree of regulatory scrutiny and requirements that applies in the banking

sector—and commented that it was important to monitor this market. Several participants observed that valuations in equity and corporate bond markets were near all-time highs and that CRE valuations were also elevated. A couple of participants noted that the low level of Treasury yields—a factor seen as supporting asset prices across a range of markets—was a potential source of risk if yields moved sharply higher. However, these participants judged that in the near term, such risks were small in light of the monetary policy outlooks in the United States and abroad and generally subdued inflation. A few participants expressed the concern that capital ratios at the largest banks had continued to fall at a time when they should ideally be rising and that capital ratios were expected to decline further. Another view was that financial stability risks at present are moderate and that the largest banks would continue to maintain very substantial capital cushions in light of a range of regulatory requirements, including rigorous stress tests.

In their discussion of monetary policy decisions at this meeting, those participants who favored a reduction in the target range for the federal funds rate pointed to three broad categories of reasons for supporting that action.

- First, while the overall outlook remained favorable, there had been signs of deceleration in economic activity in recent quarters, particularly in business fixed investment and manufacturing. A pronounced slowing in economic growth in overseas economies—perhaps related in part to developments in, and uncertainties surrounding, international trade—appeared to be an important factor in this deceleration. More generally, such developments were among those that had led most participants over recent quarters to revise down their estimates of the policy rate path that would be appropriate to promote maximum employment and stable prices.
- Second, a policy easing at this meeting would be a prudent step from a risk-management perspective. Despite some encouraging signs over the intermeeting period, many of the risks and uncertainties surrounding the economic outlook that had been a source of concern in June had remained elevated, particularly those associated with the global economic outlook and international trade. On this point, a number of participants observed that policy authorities in many foreign countries had only limited policy space to support aggregate demand should the downside risks to global economic growth be realized.
- Third, there were concerns about the outlook for inflation. A number of participants observed that overall inflation had continued to run below the Committee's 2 percent objective, as had inflation for items other than food and energy. Several of these participants commented that the fact that wage pressures had remained only moderate despite the low unemployment rate could be a sign that the longer-run normal level of the unemployment rate is appreciably lower than often assumed. Participants discussed indicators for longer-term inflation expectations and inflation compensation. A number of them concluded that the modest increase in market-based measures of inflation compensation over the intermeeting period likely reflected market participants' expectation of more accommodative monetary policy in the near future; others observed that, while survey measures of inflation expectations were little changed from June, the level of expectations by at least some measures was low. Most participants judged that long-term inflation expectations either were already below the Committee's 2 percent goal or could decline below the level consistent with that goal should there be a continuation of the pattern of inflation coming in persistently below 2 percent.

A couple of participants indicated that they would have preferred a 50 basis point cut in the federal funds rate at this meeting rather than a 25 basis point reduction. They favored a stronger action to better address the stubbornly low inflation rates of the past several years, recognizing that the apparent low sensitivity of inflation to levels of resource utilization meant that a notably stronger real economy might be required to speed the return of inflation to the Committee's inflation objective.

Several participants favored maintaining the same target range at this meeting, judging that the real economy continued to be in a good place, bolstered by confident consumers, a strong job market, and a low rate of unemployment. These participants acknowledged that there were lingering risks and uncertainties about the global economy in general, and about international trade in particular, but they viewed those risks as having diminished over the intermeeting period. In addition, they viewed the news on inflation over the intermeeting period as consistent with their forecasts that inflation would

move up to the Committee's 2 percent objective at an acceptable pace without an adjustment in policy at this meeting. Finally, a few participants expressed concerns that further monetary accommodation presented a risk to financial stability in certain sectors of the economy or that a reduction in the target range for the federal funds rate at this meeting could be misinterpreted as a negative signal about the state of the economy.

Participants also discussed the timing of ending the reduction in the Committee's aggregate securities holdings in the SOMA. Ending the reduction of securities holdings in August had the advantage of avoiding the appearance of inconsistency in continuing to allow the balance sheet to run off while simultaneously lowering the target range for the federal funds rate. But ending balance sheet reduction earlier than under its previous plan posed some risk of fostering the erroneous impression that the Committee viewed the balance sheet as an active tool of policy. Because the proposed change would end the reduction of its aggregate securities holdings only two months earlier than previously indicated, policymakers concluded that there were only small differences between the two options in their implications for the balance sheet and thus also in their economic effects.

In their discussion of the outlook for monetary policy beyond this meeting, participants generally favored an approach in which policy would be guided by incoming information and its implications for the economic outlook and that avoided any appearance of following a preset course. Most participants viewed a proposed quarter-point policy easing at this meeting as part of a recalibration of the stance of policy, or mid-cycle adjustment, in response to the evolution of the economic outlook over recent months. A number of participants suggested that the nature of many of the risks they judged to be weighing on the economy, and the absence of clarity regarding when those risks might be resolved, highlighted the need for policymakers to remain flexible and focused on the implications of incoming data for the outlook.

Committee Policy Action

In their discussion of monetary policy for this meeting, members noted that while there had been some improvement in economic conditions over the intermeeting period and the overall outlook remained favorable, significant risks and uncertainties attending the outlook remained. In particular, sluggish U.S. business fixed investment spending and manufacturing output had lingered, suggesting that risks and uncertainties associated with weak global economic growth and in international trade were weighing on the domestic economy. Strong labor markets and rising incomes continued to support the outlook for consumer spending, but modest growth in prices and wages suggested that inflation pressures remained muted. Inflation had continued to run below the Committee's 2 percent symmetric objective. Market-based measures of inflation compensation moved up modestly from the low levels recorded in June, but a portion of this change likely reflected the expectation by market participants of additional near-term monetary accommodation. Survey-based measures of longer-term inflation expectations were little changed. On this basis, all but two members agreed to lower the target range for the federal funds rate to 2 to 2¼ percent at this meeting.

With this adjustment to policy, those members who voted for the policy action sought to better position the overall stance of policy to help counter the effects on the outlook of weak global growth and trade policy uncertainty, insure against any further downside risks from those sources, and promote a faster return of inflation to the Committee's symmetric 2 percent objective than would otherwise be the case. Those members noted that the action taken at this meeting should be viewed as part of an ongoing reassessment of the appropriate path of the federal funds rate that began in late 2018. Two members preferred to maintain the current target range for the federal funds rate. In explaining their policy views, those members noted that economic data collected over the intermeeting period had been largely positive and that they anticipated continued strong labor markets and solid growth in activity, with inflation gradually moving up to the Committee's 2 percent target. One member also noted that a further easing in policy at a time when the economy is very strong and asset prices are elevated could have adverse implications for financial stability.

Members agreed that in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to the Committee's maximum-employment and symmetric 2 percent inflation objectives. They reiterated that this assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and

international developments. Members generally agreed that it was important to maintain optionality in setting the future target range for the federal funds rate and, more generally, that near-term adjustments of the stance of monetary policy would appropriately remain dependent on the implications of incoming information for the economic outlook.

With regard to the postmeeting statement, the Committee implemented several adjustments in the description of the economic situation, including a revision to recognize that market-based measures of inflation compensation "remain low." The Committee stated that the reduction in the target range for the federal funds rate supported its view that "sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective" remained the most likely outcomes, but "uncertainties about this outlook remain." The phrase "as the Committee contemplates the future path" of the target range for the federal funds rate was added to underscore the Committee's intention to carefully assess incoming information before deciding on future policy adjustments. The statement noted that the Committee would "continue to monitor the implications of incoming information for the economic outlook" and would "act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective." Finally, the Committee announced the conclusion of the reduction of securities holdings in the SOMA. Ending the runoff of securities holdings two months earlier than initially planned was seen as having only very small effects on the balance sheet, with negligible implications for the economic outlook, and was helpful in simplifying communications regarding the usage of the Committee's policy tools.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective August 1, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2 to 2¼ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.00 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> Effective August 1, 2019, the Committee directs the Desk to roll over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to reinvest all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in June indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although growth of household spending has picked up from earlier in the year, growth of business fixed investment has been soft. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Com-

mittee decided to lower the target range for the federal funds rate to 2 to 2¼ percent. This action supports the Committee's view that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. As the Committee contemplates the future path of the target range for the federal funds rate, it will continue to monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

The Committee will conclude the reduction of its aggregate securities holdings in the System Open Market Account in August, two months earlier than previously indicated."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Randal K. Quarles.

Voting against this action: Esther L. George and Eric Rosengren.

President George dissented because she believed that an unchanged setting of policy was appropriate based on the incoming data and the outlook for economic activity over the medium term. Recognizing risks to the outlook from the crosscurrents emanating from trade policy uncertainty and weaker global activity, President George would be prepared to adjust policy should incoming data point to a materially weaker outlook for the economy.

President Rosengren dissented because he did not see a clear and compelling case for additional accommodation at this time given that the unemployment rate stood near 50-year lows, inflation seemed likely to rise toward the Committee's 2 percent target, and financial stability concerns were elevated, as indicated by near-record equity prices and corporate leverage.

Consistent with the Committee's decision to lower the target range for the federal funds rate to 2 to 2¼ percent, the Board of Governors voted unanimously to lower the interest rate paid on required and excess reserve balances to 2.10 percent and voted unanimously to approve a ¼ percentage point decrease in the primary credit rate to 2.75 percent, effective August 1, 2019.[7]

Reinvestment Plans

The manager pro tem described the Desk's plans for reinvestments in light of the Committee's decision to conclude the reduction of aggregate securities holdings in the SOMA portfolio effective August 1. In accordance with the directive to the Desk, beginning on August 1, all principal payments from Treasury securities, agency debt, and agency MBS will be reinvested. Principal payments from Treasury securities held in the SOMA portfolio will be reinvested through rollovers in Treasury auctions. The Desk also will reinvest principal payments from agency debt and agency MBS securities of up to $20 billion per month in Treasury securities in a manner that roughly matches the maturity composition of Treasury securities outstanding. The Desk plans to purchase these Treasury securities in the secondary market across 11 sectors of different maturities and security types approximately in proportion to the 12-month average of the amount outstanding in each sector relative to the total amount outstanding across sectors, as measured at the end of July. The Desk will continue to reinvest agency debt and agency MBS principal payments in excess of $20 billion per month in agency MBS. Given the Committee's decision to bring forward the timing of these purchases to

[7] In taking this action, the Board approved requests to establish that rate submitted by the boards of directors of the Federal Reserve Banks of Philadelphia, Chicago, St. Louis, Dallas, and San Francisco. This vote also encompassed approval by the Board of Governors of the establishment of a 2.75 percent primary credit rate by the remaining Federal Reserve Banks, effective on the later of August 1, 2019, and the date such Reserve Banks informed the Secretary of the Board of such a request. (Secretary's note: Subsequently, the Federal Reserve Banks of Boston, New York, Cleveland, Richmond, Atlanta, Minneapolis, and Kansas City were informed of the Secretary of the Board's approval of their establishment of a primary credit rate of 2.75 percent, effective August 1, 2019.) A second vote of the Board encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

August, the Desk planned to release an operational statement to provide more details on the plans for reinvestment operations.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, September 17–18, 2019. The meeting adjourned at 11:15 a.m. on July 31, 2019.

Notation Vote

By notation vote completed on July 9, 2019, the Committee unanimously approved the minutes of the Committee meeting held on June 18–19, 2019.

James A. Clouse
Secretary

Meeting Held on September 17–18, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, September 17, 2019, at 10:15 a.m. and continued on Wednesday, September 18, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Eric M. Engen, William Wascher, Jonathan L. Willis, and Beth Anne Wilson
Associate Economists

Lorie K. Logan
Manager pro tem, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Eric Belsky[2]
Director, Division of Consumer and Community Affairs, Board of Governors

Matthew J. Eichner[3]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Daniel M. Covitz
Deputy Director, Division of Research and Statistics, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joshua Gallin
Special Adviser to the Chair, Office of Board Members, Board of Governors

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and Ivan Vidangos
Special Advisers to the Board, Office of Board Members, Board of Governors

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1 The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

2 Attended through the discussion of the review of the monetary policy framework.

3 Attended through the discussion of developments in financial markets and open market operations.

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

Antulio Bomfim, Jane E. Ihrig, and Edward Nelson
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

David López-Salido
Associate Director, Division of Monetary Affairs, Board of Governors

John J. Stevens
Associate Director, Division of Research and Statistics, Board of Governors

Andrew Figura and John M. Roberts
Deputy Associate Directors, Division of Research and Statistics, Board of Governors

Christopher J. Gust
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Matteo Iacoviello and Andrea Raffo[2]
Deputy Associate Directors, Division of International Finance, Board of Governors

Jeffrey D. Walker[3]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Zeynep Senyuz[4]
Assistant Director, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[5]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Martin Bodenstein[2]
Section Chief, Division of International Finance, Board of Governors

David H. Small[6]
Project Manager, Division of Monetary Affairs, Board of Governors

Hess T. Chung[2]
Group Manager, Division of Research and Statistics, Board of Governors

Jonathan E. Goldberg, Edward Herbst,[2] **and Benjamin K. Johannsen**
Principal Economists, Division of Monetary Affairs, Board of Governors

Fabian Winkler[2]
Senior Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams[2]
Senior Information Manager, Division of Monetary Affairs, Board of Governors

James Hebden[2]
Senior Technology Analyst, Division of Monetary Affairs, Board of Governors

Achilles Sangster II
Information Management Analyst, Division of Monetary Affairs, Board of Governors

Kenneth C. Montgomery
First Vice President, Federal Reserve Bank of Boston

David Altig,[2] **Kartik B. Athreya, Michael Dotsey, Jeffrey Fuhrer,**[2] **Sylvain Leduc, Simon Potter,**[7] **and Ellis W. Tallman**
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Philadelphia, Boston, San Francisco, New York, and Cleveland, respectively

David Andolfatto, Marc Giannoni, Evan F. Koenig,[2] **Paula Tkac, and Mark L. J. Wright**
Senior Vice Presidents, Federal Reserve Banks of St. Louis, Dallas, Dallas, Atlanta, and Minneapolis, respectively

Jonas Fisher, Giovanni Olivei, Giorgio Topa, and Patricia Zobel
Vice Presidents, Federal Reserve Banks of Chicago, Boston, New York, and New York, respectively

Jonas Arias,[2] **Thorsten Drautzburg,**[2] **and Leonardo Melosi**[2]
Senior Economists, Federal Reserve Banks of Philadelphia, Philadelphia, and Chicago, respectively

Fernando Duarte[2]
Financial Economist, Federal Reserve Bank of New York

4 Attended the discussion of developments in financial markets and open market operations.

5 Attended Tuesday's session only.

6 Attended the discussion of the review of the monetary policy framework through the end of the meeting.

7 Attended opening remarks for Tuesday session only.

Review of Monetary Policy Strategy, Tools, and Communication Practices

Committee participants continued their discussions related to the ongoing review of the Federal Reserve's monetary policy strategy, tools, and communication practices. Staff briefings provided an assessment of the risk that the federal funds rate could, in some future downturn, be constrained by the effective lower bound (ELB) and discussed options for mitigating the costs associated with this constraint. The staff's analysis suggested that the ELB would likely bind in most future recessions, which could make it more difficult for the FOMC to achieve its longer-run objectives of maximum employment and symmetric 2 percent inflation. The staff discussed several options for mitigating ELB risks, including using forward guidance and balance sheet policies earlier and more aggressively than in the past.

The staff also illustrated the properties of "makeup" strategies using model simulations. Under such strategies, policymakers would promise to make up for past inflation shortfalls with a sustained accommodative stance of policy that is intended to generate higher future inflation. These strategies are designed to provide accommodation at the ELB by keeping the policy rate low for an extended period in order to support an economic recovery. Because of their properties both at and away from the ELB, makeup strategies may also more firmly anchor inflation expectations at 2 percent than a policy strategy that does not compensate for past inflation misses. The staff analysis emphasized, however, that the benefits of makeup strategies depend importantly on the private sector's understanding of these strategies and their confidence that future policymakers would follow through on promises to keep policy accommodative.

Participants generally agreed with the staff's analysis that the risk of future ELB episodes had likely increased over time, and that future ELB episodes and the reduced effect of resource utilization on inflation could inhibit the Committee's ability to achieve its employment and inflation objectives. The increased ELB risk was attributed in part to structural changes in the U.S. economy that had lowered the longer-run real short-term interest rate and thus the neutral level of the policy rate. In this context, a couple of participants noted that uncertainty about the neutral rate made it especially challenging to determine any appropriate changes to the current framework. In light of a low neutral rate and shortfalls of inflation below the 2 percent objective for several years, some participants raised the concern that the policy space to reduce the federal funds rate in response to future recessions could be compressed further if inflation shortfalls continued and led to a decline in inflation expectations, a risk that was also discussed in the staff analysis. These participants pointed to long, ongoing ELB spells in other major foreign economies and suggested that, to avoid similar circumstances in the United States, it was important to be aggressive when confronted with forces holding inflation below objective. A couple of participants judged that the lack of monetary policy space abroad and the possibility that fiscal space in the United States might be limited reinforced the case for strengthening the FOMC's monetary policy framework as a matter of prudent planning.

With regard to the current monetary policy framework, participants agreed that this framework served the Committee well in the aftermath of the financial crisis. A number of participants noted that the Committee's experience with forward guidance and balance sheet policies would likely allow the Committee to deploy these tools earlier and more aggressively in the event that they were needed. A few indicated that the uncertainty about the effectiveness of these policies was smaller than the uncertainty surrounding the effectiveness of a makeup strategy.

Participants generally agreed that the current framework also served the Committee well by providing a strong commitment to achieving the Committee's maximum-employment and symmetric inflation objectives. Such a commitment was seen as flexible enough to allow the Committee to choose policy actions that best support its objectives in a wide array of economic circumstances. Because of the downside risk to inflation and employment associated with the ELB, most participants were open to the possibility that the dual-mandate objectives of maximum employment and stable prices could be best served by strategies that deliver inflation rates that over time are, on average, equal to the Committee's longer-run objective of 2 percent. Promoting such outcomes may require aiming for inflation somewhat above 2 percent when the policy rate was away from the ELB, recognizing that inflation would tend to be lower than 2 percent when the policy rate was constrained by the ELB. Participants suggested several alternatives for doing so, including strategies that make up for past inflation shortfalls and those that respond more aggressively to below-target inflation than to above-target inflation. In this context, several

participants suggested that the adoption of a target range for inflation could be helpful in achieving the Committee's objective of 2 percent inflation, on average, as it could help communicate to the public that periods in which the Committee judged inflation to be moderately away from its 2 percent objective were appropriate. A couple of participants suggested analyzing policies in which there was a target range for inflation whose midpoint was modestly higher than 2 percent or in which 2 percent was an inflation floor; these policies might enhance policymakers' scope to provide accommodation as appropriate when the neutral real interest rate was low.

Although ensuring inflation outcomes averaging 2 percent over time was seen as important, many participants noted that the illustrated makeup strategies delivered only modest benefits in the staff's model simulations. These modest benefits in part reflected that the responsiveness of inflation to resource slack had diminished, making it more difficult to provide sufficient accommodation to push inflation back to the Committee's objective in a timely manner. Some participants suggested that the modest effects were particularly pronounced using the FRB/US model and indicated the need for more robustness analysis of simulation results along several dimensions and for further comparison to other alternative strategies. In addition, several participants noted that the implementation of the makeup strategies in the form of either average inflation targeting or price-level targeting in the simulations was tied too rigidly to the details of particular rules. An advantage of the current framework over such alternative approaches is that it has provided the Committee with the flexibility to assess a broad range of factors and information in choosing its policy actions, and these actions can vary depending on economic circumstances in order to best achieve the Committee's dual mandate. Similarly, makeup strategies could be implemented more flexibly in order to deliver more accommodation during a future downturn and through the subsequent recovery than what could be achieved with a mechanical makeup rule.

Participants also discussed a number of challenges associated with makeup strategies. Many participants expressed reservations with the makeup strategies analyzed by the staff. Some participants raised the concern that the effective use of the makeup strategies in the form of the average inflation targeting and price-level targeting rules that the staff presented depended on future policy-makers following through on commitments to keep policy accommodative for a long time. Such commitments might be difficult for future policymakers to follow through on, especially in situations in which the labor market was strong and inflation was above target. A few participants acknowledged that credibly committing to makeup strategies posed challenges. However, they pointed to the commitments that central banks around the world made to inflation targeting as examples in which similar challenges had been overcome. A couple of participants raised the concern that keeping policy rates low for a long time could lead to excessive risk-taking in financial markets and threaten financial stability. However, a couple of other participants judged that macroprudential tools could be used to help ensure that any overleveraging of households and firms did not threaten the financial system, while monetary policy needed to be focused on achieving maximum employment and symmetric 2 percent inflation. A few participants viewed the communication challenges associated with average-inflation targeting strategies, including the difficulty of conveying the dangers of low inflation to the public, as greater than for some other strategies that use threshold-based forward guidance. Several participants noted that makeup strategies could unduly limit the policy response in situations in which inflation had been running above 2 percent amid signs of an impending economic downturn. Accordingly, these participants favored makeup strategies that only reversed past inflation shortfalls relative to makeup strategies that reversed both past inflation shortfalls and past overruns.

Participants continued to discuss the benefits of the Committee's review of the monetary policy framework as well as the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy, which articulates the Committee's approach to monetary policy. As they did at their meeting in July, participants mentioned several issues that this statement might possibly address. These issues included the conduct of monetary policy in the presence of the ELB constraint, the role of inflation expectations in the Committee's pursuit of its inflation goal, the best means of conveying the Committee's balanced approach to monetary policy, the symmetry of its inflation goal, and the time frame over which the Committee aimed to achieve it. Participants expected that they would continue their deliberations on these and other topics pertinent to the review at upcoming meetings. They also generally agreed that the Committee's consideration of possible modifications to its

policy strategy, tools, and communication practices would take some time, and that the process would be careful, deliberate, and patient.

Developments in Financial Markets and Open Market Operations

The manager pro tem first discussed developments in global financial markets over the intermeeting period. Global financial markets were volatile over the intermeeting period, with market participants reacting to incoming information about U.S.–China trade tensions and the global growth outlook. In the weeks following the July FOMC meeting, U.S. yields declined sharply and risk asset prices fell amid a spate of largely negative news about risks to the global economic outlook. These price moves reversed to some degree in September as developments on trade and economic data turned more positive. On net, Treasury yields remained substantially lower, while the S&P 500 and corporate credit spreads reversed most or all of their earlier losses to end the period little changed.

Even after the partial rebound in September, market- and survey-based indicators of policy rate expectations suggested that investors viewed it as very likely that the Committee would ease policy further at this meeting. All respondents from the Desk's Survey of Primary Dealers and Survey of Market Participants viewed a 25 basis point decrease in the target range as the most likely outcome at this meeting. Looking beyond September, most survey respondents expected another 25 basis point cut by year-end. Further out, while the median of respondents' modal forecasts for the end of 2020 pointed to no rate cuts next year, individual forecasts were much more dispersed, with nearly half of respondents expecting at least one additional 25 basis point cut in 2020, and about one-fourth expecting two or more cuts. Market participants remained attentive to a range of global risk factors that could affect the policy rate path, including trade tensions between the United States and China, developments in Europe, political tensions in Hong Kong, uncertainties related to Brexit, and escalating geopolitical tension in the Middle East following attacks on Saudi oil facilities.

The manager pro tem turned next to a discussion of money market conditions. Money markets were stable over most of the period, and the reduction in the interest on excess reserves (IOER) rate following the July FOMC meeting fully passed through to money market rates. However, money markets became highly volatile just before the September meeting, apparently spurred partly by large corporate tax payments and Treasury settlements, and remained so through the time of the meeting. In an environment of greater perceived uncertainty about potential outflows related to the corporate tax payment date, typical lenders in money markets were less willing to accommodate increased dealer demand for funding. Moreover, some banks maintained reserve levels significantly above those reported in the Senior Financial Officer Survey about their lowest comfortable level of reserves rather than lend in repo markets. Money market mutual funds reportedly also held back some liquidity in order to cushion against potential outflows. Rates on overnight Treasury repurchase agreements rose to over 5 percent on September 16 and above 8 percent on September 17.

Highly elevated repo rates passed through to rates in unsecured markets. Federal Home Loan Banks reportedly scaled back their lending in the federal funds market in order to maintain some liquidity in anticipation of higher demand for advances from their members and to shift more of their overnight funding into repo. In this environment, the effective federal funds rate (EFFR) rose to the top of the target range on September 16. The following morning, in accordance with the FOMC's directive to the Desk to foster conditions to maintain the EFFR in the target range, the Desk conducted overnight repurchase operations for up to $75 billion. After the operation, rates in secured and unsecured markets declined sharply. Rates in secured markets were trading around 2.5 percent after the operation. Market participants reportedly expected that additional temporary open market operations would be necessary both over subsequent days and around the end of the quarter. Many also reportedly expected another 5 basis point technical adjustment of the IOER rate.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the September 17–18 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) appeared to be increasing at a moderate rate in the third quarter. Consumer price inflation, as measured by the 12-month percentage change in the

price index for personal consumption expenditures (PCE), was below 2 percent in July. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment expanded at a solid pace in July and August, although at a slower rate than in the first half of the year. (Separately, the Bureau of Labor Statistics' preliminary estimate of the upcoming benchmark revision to payroll employment, which will be incorporated in the published data in February 2020, indicated that the revised pace of average monthly job gains from April 2018 to March 2019 would be notably slower than in the current published data.) The unemployment rate remained at 3.7 percent through August, and both the labor force participation rate and the employment-to-population ratio moved up. The unemployment rates for African Americans and Hispanics declined over July and August, while the rates for whites and Asians increased; the unemployment rate for each group was below its level at the end of the previous economic expansion, though persistent differentials between these rates remained. The average share of workers employed part time for economic reasons in July and August continued to be below its level in late 2007. Both the rate of private-sector job openings and the rate of quits moved roughly sideways in June and July and were still at relatively high levels; the four-week moving average of initial claims for unemployment insurance benefits through early September was near historically low levels. Total labor compensation per hour in the business sector increased 4.4 percent over the four quarters ending in the second quarter, a faster rate than a year earlier. Average hourly earnings for all employees rose 3.2 percent over the 12 months ending in August, the same pace as a year earlier.

Total consumer prices, as measured by the PCE price index, increased 1.4 percent over the 12 months ending in July. This increase was slower than a year earlier, as core PCE price inflation (which excludes changes in consumer food and energy prices) moved down to 1.6 percent, consumer food price inflation remained below core inflation, and consumer energy prices declined. The average monthly change in core PCE prices in recent months was faster than earlier this year, suggesting that the soft inflation readings during the earlier period were transitory. The trimmed mean measure of 12-month PCE price inflation constructed by the Federal Reserve Bank of Dallas remained at 2 percent in July. The consumer price index (CPI) rose 1.7 percent over the 12 months ending in August, while core CPI inflation was 2.4 percent. Recent survey-based measures of longer-run inflation expectations were little changed on balance. The preliminary September reading from the University of Michigan Surveys of Consumers dipped after edging up in August, but it remained within its recent range; the measures of longer-run inflation expectations from the Desk's Survey of Primary Dealers and Survey of Market Participants were little changed.

Real consumer expenditures appeared to be rising solidly in the third quarter after expanding strongly in the second quarter. Real PCE rose briskly in July, while the components of the nominal retail sales data used by the Bureau of Economic Analysis (BEA) to estimate PCE were flat in August and the rate of sales of light motor vehicles only edged up, suggesting some slowing in consumer spending growth in the third quarter from its strong second-quarter pace. Key factors that influence consumer spending—including a low unemployment rate, further gains in real disposable income, high levels of households' net worth, and generally low borrowing rates—were supportive of solid real PCE growth in the near term. The preliminary September reading on the Michigan survey measure of consumer sentiment picked up a little after weakening notably in August, although the Conference Board survey measure of consumer confidence did not show a similar decline in August.

Real residential investment seemed to be picking up a little in the third quarter after declining over the previous year and a half. Starts of new single-family homes were higher in July and August than the second-quarter average, and starts of multifamily units rose in August after falling back in July. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—was higher in July and August than its second-quarter average. Sales of existing homes rose modestly in July, while new home sales declined following an outsized increase in June.

Real nonresidential private fixed investment looked to be declining further in the third quarter. Nominal shipments of nondefense capital goods excluding aircraft decreased in July, and forward-looking indicators generally pointed to continued softness in business equipment spending. Orders for nondefense capital goods excluding aircraft increased in June but were still below the level of shipments, most measures of business sentiment deteriorated, analysts' expecta-

tions of firms' longer-term profit growth declined further, and trade policy concerns continued to weigh on firms' investment decisions. Nominal business expenditures for nonresidential structures outside the drilling and mining sector decreased in July, and the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—continued to decline through mid-September.

Industrial production increased modestly, on net, over July and August, but production remained notably lower than at the beginning of the year. Automakers' assembly schedules indicated that the production of light motor vehicles would be roughly flat in the near term (although the labor strike at General Motors was expected to temporarily disrupt vehicle production), while new orders indexes from national and regional manufacturing surveys and a persistent drag from trade tariffs pointed toward continued softness in factory output in coming months.

Total real government purchases appeared to be rising at a slower pace in the third quarter than in the second quarter. Federal defense spending over July and August decelerated, and federal hiring of temporary workers for next year's decennial census was modest in August. State and local government payrolls rose moderately over July and August, and nominal spending by these governments on structures in July was below its second-quarter average.

The nominal U.S. international trade deficit remained about unchanged in June before narrowing in July. Exports, which had been soft over most of the past year, declined sharply in June but partially rebounded in July. This pattern was particularly notable in exports of non-aircraft capital goods and consumer goods. Imports also declined sharply in June and then declined a little further in July. Imports of oil and consumer goods fell in June, while imports of capital goods dropped significantly in July. The BEA estimated that the change in net exports was a drag of about ¾ percentage point on real GDP growth in the second quarter.

Foreign economic growth remained subdued in the second quarter. Growth picked up in Canada as oil production rebounded, but growth slowed sharply in Europe amid a downturn in manufacturing activity and persistent policy-related uncertainty. Growth also slowed in China and India. Recent indicators suggested widespread weakness in manufacturing abroad even as services activity appeared to be holding up relatively well. Foreign inflation rose in the second quarter, pushed up by earlier increases in oil prices as well as by rising food prices in some emerging economies. However, data on foreign core consumer prices showed little sign of underlying inflationary pressures abroad. Late in the intermeeting period, an attack on a key oil facility in Saudi Arabia disrupted Saudi oil production and caused an initial spike in prices on near-dated oil futures contracts.

Staff Review of the Financial Situation

Financial market developments over the intermeeting period were driven by an escalation in international trade tensions, growing concerns about the global economic growth outlook, and the prospect of more policy accommodation by central banks. Nominal Treasury yields posted very large declines in August as investors reacted to the U.S. Administration's announcement of additional tariffs on Chinese goods, along with the depreciation of the Chinese renminbi through the perceived threshold of 7 renminbi per U.S. dollar and the associated implications of these actions for the global economic outlook. Treasury yields partially rebounded following better-than-expected incoming economic data in the United States and abroad, a perceived reduction in the probability of a no-deal Brexit, and some positive headlines about trade policy. The market-implied path of the federal funds rate shifted down on net. Broad equity price indexes were down as much as 6 percent in early August but almost fully recovered by the end of the intermeeting period. Spreads on investment-grade corporate bonds widened modestly, while those on speculative-grade corporate bonds were little changed on net. Financing conditions for businesses and households were largely unaffected by the intermeeting turbulence in financial markets and remained generally supportive of spending and economic activity.

Measures of expectations of the near- and medium-term path for the federal funds rate were particularly sensitive to news about U.S.–China trade tensions, while FOMC communications had only modest effects on market-based measures of policy rate expectations. A straight read of the option-implied probability distribution of the federal funds rate suggested that the odds investors attached to a 25 basis point reduction in the target range of the federal funds rate at the September FOMC meeting increased from about 50 percent at the time of the July FOMC meeting to 90 percent by the end of the intermeeting period. Respondents to the Desk's Sur-

vey of Primary Dealers and Survey of Market Participants assigned, on average, similarly high odds to a rate decrease at the September FOMC meeting. In addition, market-implied expectations for the federal funds rate at year-end and beyond moved down. A straight read of OIS (overnight index swap) forward rates suggested that investors expected the federal funds rate to decline about 45 basis points by year-end, to a level nearly 10 basis points lower than was expected at the time of the July FOMC meeting, and to decrease an additional roughly 45 basis points by the end of 2020.

Nominal Treasury yields decreased, on net, over the intermeeting period, with longer-term yields falling the most. The spread between 10-year and 3-month Treasury yields became a bit more negative, while the spread between 10-year and 2-year Treasury yields turned negative for the first time since 2007 and fluctuated around zero until the September FOMC meeting. Measures of inflation compensation derived from Treasury Inflation-Protected Securities declined on net.

Broad stock price indexes decreased slightly, on net, over the intermeeting period amid heightened volatility. The escalation of trade tensions between China and the United States weighed on equity prices, but investors' expectations that major central banks would shift toward more accommodative monetary policies provided some support. Equity prices were also boosted by better-than-anticipated corporate earnings and retail-sector data. Stock prices of firms with high exposure to China underperformed the broader market somewhat, as did bank stocks amid downward revisions to banks' earnings forecasts. Conversely, the stock prices of utilities and real estate firms increased noticeably, reportedly benefiting from demand by investors reaching for less cyclical and higher-yielding assets. One-month option-implied volatility on the S&P 500 index—the VIX—was little changed, on net, over the intermeeting period and remained at the lower end of its historical distribution after retracing a sharp increase in early August.

Despite the volatility in many domestic and global financial markets over the intermeeting period, conditions in domestic short-term funding markets remained stable until the Monday before the September FOMC meeting, when flows associated with a combination of corporate tax payments and Treasury coupon securities settlements led to significant tightening of conditions, particularly for overnight funding. The EFFR rose to the top of the target range on September 16 and exceeded it by 5 basis points on September 17, after which funding pressures eased somewhat following the Desk's open market operations. On net, the EFFR averaged 2.14 percent over the current intermeeting period, with the spread to the IOER rate down a bit relative to the previous intermeeting period.

Early in the intermeeting period, bond yields in the advanced foreign economies (AFEs) plunged and foreign equities declined notably following an increase in U.S.–China trade tensions. Some weakness in foreign economic data, growing concerns about global growth, and the prospect of more monetary policy accommodation abroad contributed to further declines in yields. Later in the period, AFE yields partially rebounded and foreign equity prices fully recovered on some easing of U.S.–China trade tensions, as well as perceptions of reduced political uncertainty in the United Kingdom and Italy. Financial market reactions were mixed after the European Central Bank (ECB) announced a package of policy easing measures, including a rate cut on deposits at the ECB, resumption of its asset purchase program, and more favorable terms for longer-term lending to banks.

The dollar appreciated against emerging market currencies but was little changed, on balance, against AFE currencies, leaving the broad dollar index slightly higher. Emerging market sovereign bond spreads widened notably. The Argentine peso depreciated sharply and Argentine sovereign yields soared following the defeat of the current pro-market president in the primary election and the subsequent announcement of plans for debt restructuring and the imposition of capital controls.

Financing conditions for nonfinancial businesses remained accommodative. Overall issuance of corporate bonds was solid in August, driven by resilient investment-grade issuance. While speculative-grade corporate bond issuance was somewhat subdued in August, it was comparable to that seen over the same period in 2018. Growth of commercial and industrial loans at banks ticked up, driven by faster growth at large domestic banks. There were no initial public equity offerings by domestic firms in August amid increased market volatility, but several deals were expected to be completed in the coming months. On balance, the credit quality of nonfinancial corporations weakened slightly, with the volume of nonfinancial corporate bond downgrades modestly outpacing that of upgrades in recent months. Credit

conditions for both small businesses and municipalities remained accommodative on balance.

In the commercial real estate (CRE) sector, financing conditions remained generally accommodative. Bank CRE loan growth slowed moderately since the second quarter, driven by slower growth in loans secured by nonfarm nonresidential properties. The volume of agency and non-agency commercial mortgage-backed securities issuance was slightly weaker in July and August than in the same period last year, though industry analysts reportedly anticipated that issuance would soon pick up in response to recent declines in interest rates.

Financing conditions in the residential mortgage market eased over the intermeeting period. Residential mortgage rates declined less than long-term Treasury yields, as the increase in prepayment risk and the rise in implied interest rate volatility reportedly reduced the demand for mortgage-backed securities. Home-purchase originations and refinancing originations both rose.

Financing conditions in consumer credit markets remained generally supportive of growth in consumer spending, although supply conditions continued to be tight for subprime credit card borrowers. Consumer credit expanded at a moderate pace in the second quarter overall, with bank credit data pointing to continued growth through July and August. In consumer asset-backed securities markets, issuance was solid, and spreads remained at relatively low levels, though somewhat above their post-crisis averages.

Staff Economic Outlook

The projection for U.S. economic activity prepared by the staff for the September FOMC meeting was little changed in the near term; real GDP growth was still forecast to be slower in the second half of the year than in the first half, mostly attributable to continued soft business investment and a slower increase in government spending. The projection for real GDP growth over the medium term was a bit weaker than the previous forecast, primarily reflecting the effects of a higher projected path for the foreign exchange value of the dollar and a lower trajectory for economic growth abroad, which were partially offset by a lower assumed path for interest rates. Real GDP was forecast to expand at a rate a little above the staff's estimate of potential output growth in 2019 and 2020 and then slow to a pace slightly below potential output growth in 2021 and 2022. The unemployment rate was projected to be roughly flat through 2022 and to remain below the staff's estimate of its longer-run natural rate, which was revised down a little. In addition, the staff revised up its estimate of the level of trend productivity in recent years after incorporating the BEA's recent annual revisions to the national income and product accounts. Both of these supply-side adjustments led to a somewhat higher projected path for potential output, implying that estimates of current and projected resource utilization were less tight than the staff previously assumed.

The staff's forecast of total PCE price inflation for this year was revised down somewhat, reflecting slightly lower projected paths for consumer food and energy prices, along with a little lower forecast for core PCE prices. The core PCE price inflation forecast for this year was revised down to reflect recent data as well as downward-revised data for earlier in the year from the BEA's annual revision. Both total and core inflation were projected to move up slightly next year, as the low readings early this year were expected to be transitory; nevertheless, both inflation measures were forecast to continue to run below 2 percent through 2022.

The staff continued to view the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years. Moreover, the staff still judged that the risks to the forecast for real GDP growth were tilted to the downside, with a corresponding skew to the upside for the unemployment rate. Important factors in that assessment were that international trade tensions and foreign economic developments seemed more likely to move in directions that could have significant negative effects on the U.S. economy than to resolve more favorably than assumed. In addition, softness in business investment and manufacturing so far this year was seen as pointing to the possibility of a more substantial slowing in economic growth than the staff projected. The risks to the inflation projection were also viewed as having a downward skew, in part because of the downside risks to the forecast for economic activity.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely

outcomes for real GDP growth, the unemployment rate, and inflation for each year from 2019 through 2022 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate. The longer-run projections represented each participant's assessment of the rate 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. These projections are described in the Summary of Economic Projections, which is an addendum to these minutes.

Participants agreed that the labor market had remained strong over the intermeeting period and that economic activity had risen at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Although household spending had risen at a strong pace, business fixed investment and exports had weakened. On a 12-month basis, overall inflation and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed.

Participants generally viewed the baseline economic outlook as positive and indicated that their views of the most likely outcomes for economic activity and inflation had changed little since the July meeting. However, for most participants, that economic outlook was premised on a somewhat more accommodative path for policy than in July. Participants generally had become more concerned about risks associated with trade tensions and adverse developments in the geopolitical and global economic spheres. In addition, inflation pressures continued to be muted. Many participants expected that real GDP growth would moderate to around its potential rate in the second half of the year. Participants agreed that consumer spending was increasing at a strong pace. They also expected that, in the period ahead, household spending would likely remain on a firm footing, supported by strong labor market conditions, rising incomes, and accommodative financial conditions. Several participants indicated that the housing sector was starting to rebound, stimulated by a significant decline in mortgage rates. With regard to the contrast between robust consumption growth and weak investment growth, several participants mentioned that uncertainties in the business outlook and sustained weak investment could eventually lead to slower hiring, which, in turn, could damp the growth of income and consumption.

In their discussion of the business sector, participants saw trade tensions and concerns about the global outlook as the main factors weighing on business investment, exports, and manufacturing production. Participants judged that trade uncertainty and global developments would continue to affect firms' investment spending, and that this uncertainty was discouraging them from investing in their businesses. A couple of participants noted that businesses had the capacity to adjust to ongoing uncertainty concerning trade, and some firms were reconfiguring supply chains and making logistical arrangements as part of contingency planning to mitigate the effects of trade tensions on their businesses.

Participants discussed developments in the manufacturing and the agricultural sectors of the U.S. economy. Manufacturing production remained lower than at the beginning of the year, and recent indicators suggested that conditions were unlikely to improve materially over the near term. Participants saw the ongoing global slowdown and trade uncertainty as contributing importantly to these declines. A few participants noted ongoing challenges in the agricultural sector, including those associated with tariffs, weak export demand, and more intense financial burdens arising from the increase in carryover debt in preceding years. Participants commented on the potential disruption to global oil production arising from the attack on Saudi Arabia's facilities.

Participants judged that conditions in the labor market remained strong, with the unemployment rate near historical lows and continued solid job gains, on average, in recent months. The labor force participation rate of prime-age individuals, especially of prime-age women, moved up in August, continuing its upward trajectory, and the unemployment rate of African Americans fell to its lowest rate on record. However, a number of participants noted that, although the labor market was clearly in a strong position, the preliminary benchmark revision by the Bureau of Labor Statistics indicated that payroll employment gains would likely show less momentum coming into this year when the revisions are incorporated in published data early next year. A few participants observed that it would be important to be vigilant in monitoring incoming data for any sign of softening in labor market conditions. That said, reports from business contacts in many Districts pointed to continued strong labor demand, with some firms still reporting difficulties finding qualified workers and others broadening their recruiting to include traditionally marginalized groups. In some

Districts, employers were also expanding training and provision of nonwage benefits, which could help sustain their expansion of hiring against a background of a very tight national labor market without spurring above-trend aggregate wage growth. Some firms were also reluctant to raise wages because of their limited pricing power, while others thought the wages they were offering were in line with the skill sets of the workers available to fill new positions. Participants generally viewed overall wage growth as broadly consistent with modest average rates of labor productivity growth in recent years and as exerting little upward pressure on inflation. A couple of participants noted that, with inflationary pressures remaining muted and wage growth moderate even as employment and spending expanded further, they had again adjusted downward their estimates of the longer-run normal unemployment rate.

In their discussion of inflation developments, participants noted that, despite a recent firming in the incoming data, readings on overall and core PCE inflation had continued to run below the Committee's symmetric 2 percent objective. Furthermore, in light of weakness in the global economy, perceptions of downside risks to growth, and subdued inflation pressures, some participants continued to view the risks to the outlook for inflation as weighted to the downside. Some participants, however, saw the recent inflation data as consistent with their previous assessment that much of the weakness seen early in the year was transitory. In this connection, several participants noted that recent monthly readings, notably for CPI inflation, seemed broadly consistent with the Committee's longer-run inflation objective of 2 percent, while the trimmed mean measure of PCE inflation, constructed by the Federal Reserve Bank of Dallas, remained at 2 percent in July.

In their discussion of the outlook for inflation, participants generally agreed that, under appropriate policy, inflation would move up to the Committee's 2 percent objective over the medium term. Participants saw inflation expectations as reasonably well anchored, but many participants observed that market-based measures of inflation compensation and some survey measures of consumers' inflation expectations were at historically low levels. Some of these participants further noted that longer-term inflation expectations could be somewhat below levels consistent with the Committee's 2 percent inflation objective, or that continued weakness in inflation could prompt expectations to drift lower.

Participants generally judged that downside risks to the outlook for economic activity had increased somewhat since their July meeting, particularly those stemming from trade policy uncertainty and conditions abroad. In addition, although readings on the labor market and the overall economy continued to be strong, a clearer picture of protracted weakness in investment spending, manufacturing production, and exports had emerged. Participants also noted that there continued to be a significant probability of a no-deal Brexit, and that geopolitical tensions had increased in Hong Kong and the Middle East. Several participants commented that, in the wake of this increase in downside risk, the weakness in business spending, manufacturing, and exports could give rise to slower hiring, a development that would likely weigh on consumption and the overall economic outlook. Several participants noted that statistical models designed to gauge the probability of recession, including those based on information from the yield curve, suggested that the likelihood of a recession occurring over the medium term had increased notably in recent months. However, a couple of these participants stressed the difficulty of extracting the right signal from these probability models, especially in the current period of unusually low levels of term premiums.

With regard to developments in financial markets, participants noted that longer-term U.S. Treasury rates had been volatile over the intermeeting period but, on net, had registered a sizable decline. Participants observed that a key source of downward pressure on Treasury rates arose from flight-to-safety flows, driven by downside risks to global growth, escalating trade tensions, and disappointing global data. Low interest rates abroad were also considered an important influence on U.S. longer-term rates. Participants expressed a range of views about the implications of low longer-term Treasury rates. Some participants judged that a prolonged inversion of the yield curve could be a matter of concern. Participants also noted that equity prices had exhibited volatility but had been largely flat, on balance, over the intermeeting period. Several participants cited considerations that led them to be concerned about financial stability, including low risk spreads and a buildup of corporate debt, corporate stock buybacks financed through low-cost leverage, and the pace of lending in the CRE market. However, several others pointed to signs that the financial system remained resilient.

In their consideration of the monetary policy options at this meeting, most participants believed that a reduction of 25 basis points in the target range for

the federal funds rate would be appropriate. In discussing the reasons for such a decision, these participants pointed to considerations related to the economic outlook, risk management, and the need to center inflation and inflation expectations on the Committee's longer-run objective of 2 percent.

Participants noted that there had been little change in their economic outlook since the July meeting and that incoming data had continued to suggest that the pace of economic expansion was consistent with the maintenance of strong labor market conditions. However, a couple of participants pointed out that data revisions announced in recent months implied that the economy had likely entered the year with somewhat less momentum than previously thought. In addition, data received since July had confirmed the weakening in business fixed investment and exports. One risk that the economy faced was that the softness recorded of late in firms' capital formation, manufacturing, and exporting activities might spread to their hiring decisions, with adverse implications for household income and spending. Participants observed that such an eventuality was not embedded in their baseline outlook; however, a couple of them indicated that this was partly because they assumed that an appropriate adjustment to the policy rate path would help forestall that eventuality. Several also noted that, because monetary policy actions affected economic activity with a lag, it was appropriate to provide the requisite policy accommodation now to support economic activity over coming quarters.

Participants favoring a modest adjustment to the stance of monetary policy at this juncture cited other risks to the economic outlook that further underscored the case for such a move. As their discussion of risks had highlighted, downside risks had become more pronounced since July: Trade uncertainty had increased, prospects for global growth had become more fragile, and various intermeeting developments had intensified geopolitical risks. Against this background, risk-management considerations implied that it would be prudent for the Committee to adopt a somewhat more accommodative stance of policy. In addition, a number of participants suggested that a reduction at this meeting in the target range for the federal funds rate would likely better align the target range with a variety of indicators of the appropriate policy stance, including those based on estimates of the neutral interest rate. A few participants observed that the considerations favoring easing were reinforced by the proximity of the federal funds rate to the ELB. If policymakers provided adequate accommodation while still away from the ELB, this course of action would help forestall the possibility of a prolonged ELB episode.

Many participants also cited the level of inflation or inflation expectations as justifying a reduction of 25 basis points in the federal funds rate at this meeting. Inflation had generally fallen short of the Committee's objective for several years and, notwithstanding some stronger recent monthly readings on inflation, the 12-month rate was still below 2 percent. Some estimates of trend inflation were also below 2 percent. Several participants additionally stressed that survey measures of longer-term inflation expectations and market-based measures of inflation compensation were near historical lows and that these values pointed to the possibility that inflation expectations were below levels consistent with the 2 percent objective or could soon fall below such levels. Against this backdrop, participants suggested that a policy easing would help underline policymakers' commitment to the symmetric 2 percent longer-run objective. With inflation pressures muted and U.S. inflation likely being weighed down by global disinflationary forces, policymakers saw little chance of an outsized increase in inflation in response to additional policy accommodation and argued that such an increase, should it occur, could be addressed in a straightforward manner using conventional monetary policy tools.

Several participants favored maintaining the existing target range for the federal funds rate at this meeting. These participants suggested that the baseline projection for the economy had changed very little since the Committee's previous meeting and that the state of the economy and the economic outlook did not justify a shift away from the current policy stance, which they felt was already adequately accommodative. They acknowledged the uncertainties that currently figured importantly in evaluations of the economic outlook, but they contended that the key uncertainties were unlikely to be resolved soon. Furthermore, as they did not believe that these uncertainties would derail the expansion, they did not see further policy accommodation as needed at this time. Changes in the stance of policy, they believed, should instead occur only when the macroeconomic data readily justified those moves. In this connection, a couple of participants suggested that, if it decided to provide more policy accommodation at the present juncture, the Committee might be taking out too much insurance against possible future shocks, leaving monetary policy with less scope to boost aggregate demand in

the event that such shocks materialized. A few of the participants favoring an unchanged target range for the federal funds rate also expressed concern that an easing of monetary policy at this meeting could exacerbate financial imbalances.

A couple of participants indicated their preference for a 50 basis point cut in the federal funds rate at this meeting. These participants suggested that a larger policy move would help reduce the risk of an economic downturn and would more appropriately recognize important recent developments, such as slowing job gains, weakening investment, and continued low values of market-based measures of inflation compensation. In addition, these participants stressed the need for a policy stance—possibly one using enhanced forward guidance—that was sufficiently accommodative to make it unlikely that the United States would experience a protracted period of the kind seen abroad in which the economy became mired in a combination of undesirably low inflation, weak economic activity, and near-zero policy rates. They also argued that it was desirable for the Committee to seek and maintain a level of accommodation sufficient to deliver inflation at 2 percent on a sustained basis and that such a policy would be consistent with inflation exceeding 2 percent for a time.

With regard to monetary policy beyond this meeting, participants agreed that policy was not on a preset course and would depend on the implications of incoming information for the evolution of the economic outlook. A few participants judged that the expectations regarding the path of the federal funds rate implied by prices in financial markets were currently suggesting greater provision of accommodation at coming meetings than they saw as appropriate and that it might become necessary for the Committee to seek a better alignment of market expectations regarding the policy rate path with policymakers' own expectations for that path. Several participants suggested that the Committee's postmeeting statement should provide more clarity about when the recalibration of the level of the policy rate in response to trade uncertainty would likely come to an end.

Participants' Discussion of Recent Money Market Developments

The manager pro tem provided a summary of the most recent developments in money markets. Open market operations conducted on the previous day had helped to ease strains in money markets, but the EFFR had nonetheless printed 5 basis points above the top of the target range. With significant pressures still evident in repo markets and the federal funds market, and in accordance with the FOMC's directive to maintain the federal funds rate within the target range, the Desk conducted another repo operation on the morning of the second day of the meeting. The staff presented a proposal to lower the IOER rate and the overnight reverse repurchase agreement rate by 5 basis points, relative to the target range for the federal funds rate, in order to foster trading of federal funds within the target range.

Participants agreed that developments in money markets over recent days implied that the Committee should soon discuss the appropriate level of reserve balances sufficient to support efficient and effective implementation of monetary policy in the context of the ample-reserves regime that the Committee had chosen. A few participants noted the possibility of resuming trend growth of the balance sheet to help stabilize the level of reserves in the banking system. Participants agreed that any Committee decision regarding the trend pace of balance sheet expansion necessary to maintain a level of reserve balances appropriate to facilitate policy implementation should be clearly distinguished from past large-scale asset purchase programs that were aimed at altering the size and composition of the Federal Reserve's asset holdings in order to provide monetary policy accommodation and ease overall financial conditions. Several participants suggested that such a discussion could benefit from also considering the merits of introducing a standing repurchase agreement facility as part of the framework for implementing monetary policy.

Committee Policy Action

In their discussion of monetary policy for this meeting, members noted that information received since the July meeting indicated that the labor market remained strong and that economic activity had been rising at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Household spending had been rising at a strong pace. However, business fixed investment and exports had weakened, and this outcome suggested that risks and uncertainty associated with international trade developments and with ongoing weakness in global economic growth were continuing to weigh on the domestic economy. On a 12-month basis, both the overall inflation rate and inflation for items other than food and energy were running below 2 percent. Market-based measures of

inflation compensation remained low. Survey-based measures of longer-term inflation expectations were little changed. In light of these developments, most members agreed to lower the target range for the federal funds rate to 1¾ to 2 percent at this meeting.

With this adjustment to policy, those members who supported the policy action sought to make the overall stance of monetary policy most consistent with helping to offset the effects on aggregate demand of weak global growth and trade policy uncertainty, insure against further downside risks arising from those sources and from geopolitical developments, and promote a more rapid return of inflation to the Committee's symmetric 2 percent objective than would otherwise occur. A couple of these members observed that, because monetary policy actions affected aggregate spending with a lag, the present meeting was an appropriate occasion for providing accommodation that would support economic activity in the period ahead. Two members preferred to maintain the current target range for the federal funds rate at this meeting. These members noted that economic data received over the intermeeting period had been largely positive and that they anticipated, under an unchanged policy stance, continued strong labor markets and solid growth in activity, with inflation gradually moving up to the Committee's 2 percent objective. These members also suggested that providing further accommodation during a period of high economic activity and elevated asset prices could have adverse consequences for financial stability. One member preferred a reduction in the target range of 50 basis points in the federal funds rate at this meeting. This member suggested that such a larger rate adjustment would be more consistent with the achievement of the Committee's objectives over time and, in particular, with helping preclude the possibility of a protracted period in which inflation and employment were below the Committee's objectives.

Members agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its maximum-employment objective and its symmetric 2 percent inflation objective. They also agreed that those assessments would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

With regard to the postmeeting statement, members agreed to update the language of the Committee's description of incoming data to acknowledge the weakening in investment spending and in U.S. exports, as well as the recent strong rate of increase of household spending.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective September 19, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1¾ to 2 percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.70 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to continue reinvesting all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will continue to be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in July indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although household spending has been rising at a strong pace, business fixed investment and exports have weakened. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Committee decided to lower the target range for the federal funds rate to 1¾ to 2 percent. This action supports the Committee's view that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. As the Committee contemplates the future path of the target range for the federal funds rate, it will continue to monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective.
>
> In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, Richard H. Clarida, Charles L. Evans, and Randal K. Quarles.

Voting against this action: James Bullard, Esther L. George, and Eric Rosengren.

President Bullard dissented because he believed that lowering the target range for the federal funds rate by 50 basis points at this time would provide insurance against further declines in expected inflation and a slowing economy subject to elevated downside risks. In addition, a 50 basis point cut at this time would help promote a more rapid return of inflation and inflation expectations to target. President George dissented because she believed that an unchanged setting of policy was appropriate based on incoming data and the outlook for economic activity over the medium term. Recognizing the risks to the outlook from the effects of trade policy and weaker global activity, President George would be prepared to adjust policy should incoming data point to a materially weaker outlook for the economy. President Rosengren dissented because he judged that monetary policy was already accommodative. In his view, additional accommodation was not needed for an economy in which labor markets are already tight and could pose risks of further inflating the prices of risky assets and encouraging households and firms to take on too much leverage.

Consistent with the Committee's decision to lower the target range for the federal funds rate to 1¾ to 2 percent, the Board of Governors voted unanimously to lower the interest rate paid on required and excess reserve balances to 1.80 percent and voted unanimously to approve a ¼ percentage point decrease in the primary credit rate to 2.50 percent, effective September 19, 2019.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, October 29–30, 2019. The meeting adjourned at 10:40 a.m. on September 18, 2019.

Notation Vote

By notation vote completed on August 20, 2019, the Committee unanimously approved the minutes of the Committee meeting held on July 30–31, 2019.

James A. Clouse
Secretary

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on September 17–18, 2019, 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 2019 to 2022 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with his or her 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.[1] "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.

Participants who submitted longer-run projections expected that, under appropriate monetary policy, growth of real GDP in 2019 would run slightly or somewhat above their individual estimates of its longer-run rate. Participants expected real GDP growth to edge down over the projection horizon, with all participants projecting growth in 2022 to be at or modestly below their estimates of its longer-run rate. Almost all participants who submitted longer-run projections expected that the unemployment rate through 2022 would run below their estimates of its longer-run level. All participants continued to project that total inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), would increase from 2019 to 2020, and many expected another slight increase in 2021. The vast majority of participants expected that inflation would be at or slightly above the Committee's 2 percent objective in 2021 and 2022. The median of participants' projections for core PCE price inflation increased over the projection period, rising to 2.0 percent in 2021. Table 1 and figure 1 provide summary statistics for the projections. Compared with the Summary of Economic Projections (SEP) from June 2019, some participants slightly revised down their estimates of the longer-run unemployment rate; the median estimate of the longer-run unemployment rate was unchanged. Participants' projections for total and core inflation were generally little changed compared with their projections in June.

As shown in figure 2, participants expected that the evolution of the economy, relative to their objectives of maximum employment and 2 percent inflation, would likely warrant a federal funds rate target by the end of this year at or below the target range that the Committee adopted at its July 30–31 meeting. Compared with the June SEP submissions, the median projection for the federal funds rate was 50 basis points lower for the end of 2019 and 25 basis points lower for the end of 2020 and 2021. In the September SEP submissions, the median for the federal funds rate for 2020 was equal to the median for 2019. The median of participants' assessments of the appropriate level for the federal funds rate in 2022 was slightly below the median of participants' estimates of its longer-run level. Some participants revised lower their assessments of the longer-run federal funds rate, but the median assessment of the longer-run federal funds rate was unchanged.

Most participants regarded the uncertainties around their forecasts for GDP growth, total inflation, and core inflation as broadly similar to the average over the past 20 years. Just over half of the participants viewed the level of uncertainty around their unemployment rate projections as being similar to the average of the past 20 years, while the rest of the participants viewed uncertainty as higher. Most participants assessed the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. Most participants judged the risks to the inflation outlook as broadly balanced; some participants viewed the risks to inflation as weighted to the downside, and no participant assessed risks to inflation as weighted to the upside. Participants' assessments of the uncertainties and risks around their forecasts for real GDP growth and the unemployment rate were little changed overall relative to June. The uncertainties around their projections for headline and core infla-

[1] One participant did not submit longer-run projections for real GDP growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, September 2019
Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run
Change in real GDP	2.2	2.0	1.9	1.8	1.9	2.1–2.3	1.8–2.1	1.8–2.0	1.7–2.0	1.8–2.0	2.1–2.4	1.7–2.3	1.7–2.1	1.6–2.1	1.7–2.1
June projection	2.1	2.0	1.8		1.9	2.0–2.2	1.8–2.2	1.8–2.0		1.8–2.0	2.0–2.4	1.5–2.3	1.5–2.1		1.7–2.1
Unemployment rate	3.7	3.7	3.8	3.9	4.2	3.6–3.7	3.6–3.8	3.6–3.9	3.7–4.0	4.0–4.3	3.5–3.8	3.3–4.0	3.3–4.1	3.3–4.2	3.6–4.5
June projection	3.6	3.7	3.8		4.2	3.6–3.7	3.5–3.9	3.6–4.0		4.0–4.4	3.5–3.8	3.3–4.0	3.3–4.2		3.6–4.5
PCE inflation	1.5	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.2	2.0	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
June projection	1.5	1.9	2.0		2.0	1.5–1.6	1.9–2.0	2.0–2.1		2.0	1.4–1.7	1.8–2.1	1.9–2.2		2.0
Core PCE inflation[4]	1.8	1.9	2.0	2.0		1.7–1.8	1.9–2.0	2.0	2.0–2.2		1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2	
June projection	1.8	1.9	2.0			1.7–1.8	1.9–2.0	2.0–2.1			1.4–1.8	1.8–2.1	1.8–2.2		
Memo: Projected appropriate policy path															
Federal funds rate	1.9	1.9	2.1	2.4	2.5	1.6–2.1	1.6–2.1	1.6–2.4	1.9–2.6	2.5–2.8	1.6–2.1	1.6–2.4	1.6–2.6	1.6–2.9	2.0–3.3
June projection	2.4	2.1	2.4		2.5	1.9–2.4	1.9–2.4	1.9–2.6		2.5–3.0	1.9–2.6	1.9–3.1	1.9–3.1		2.4–3.3

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 June projections were made in conjunction with the meeting of the Federal Open Market Committee on June 18–19, 2019. 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 June 18–19, 2019, meeting, and one participant did not submit such projections in conjunction with the September 17–18, 2019, meeting.

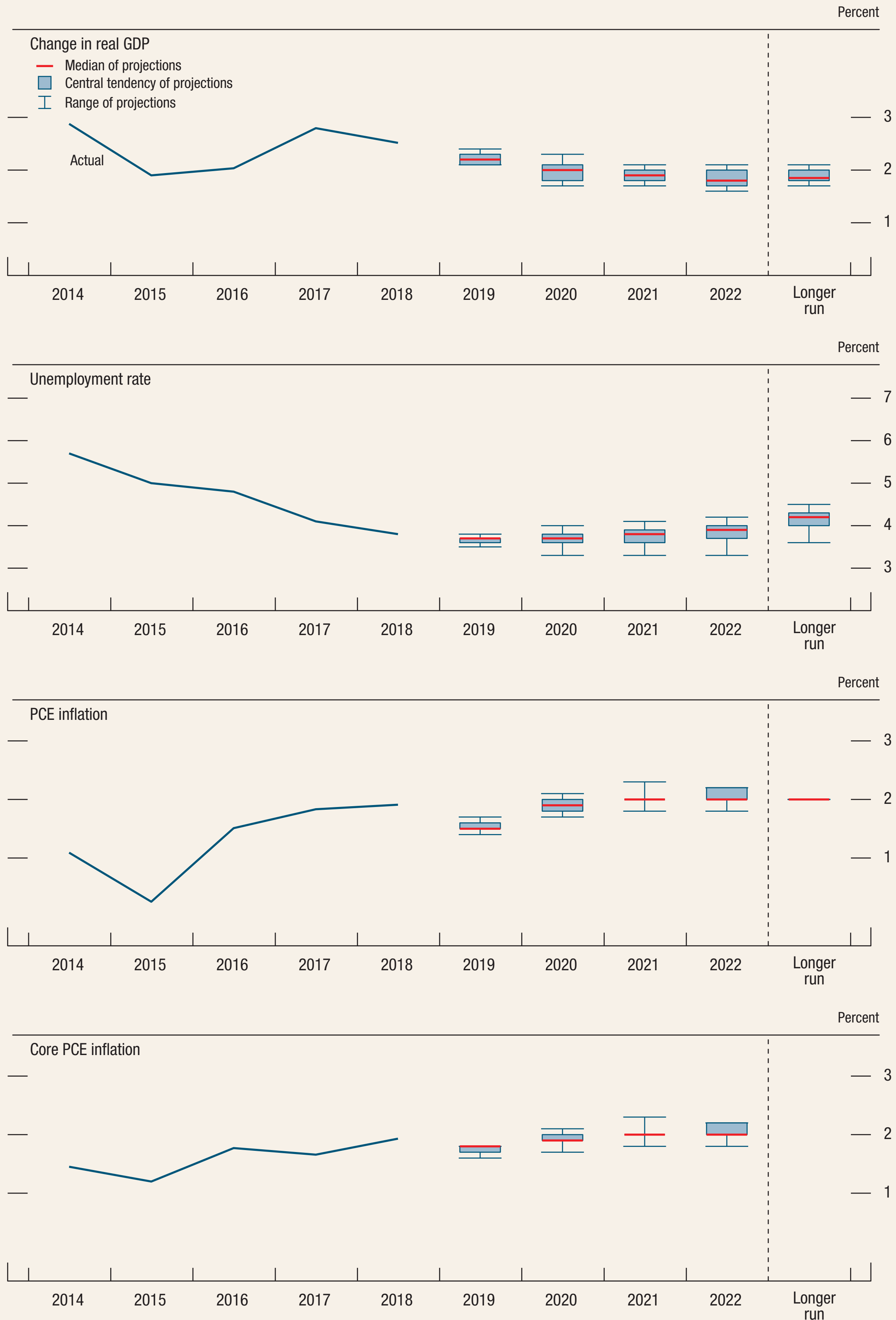
[1] For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

[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.

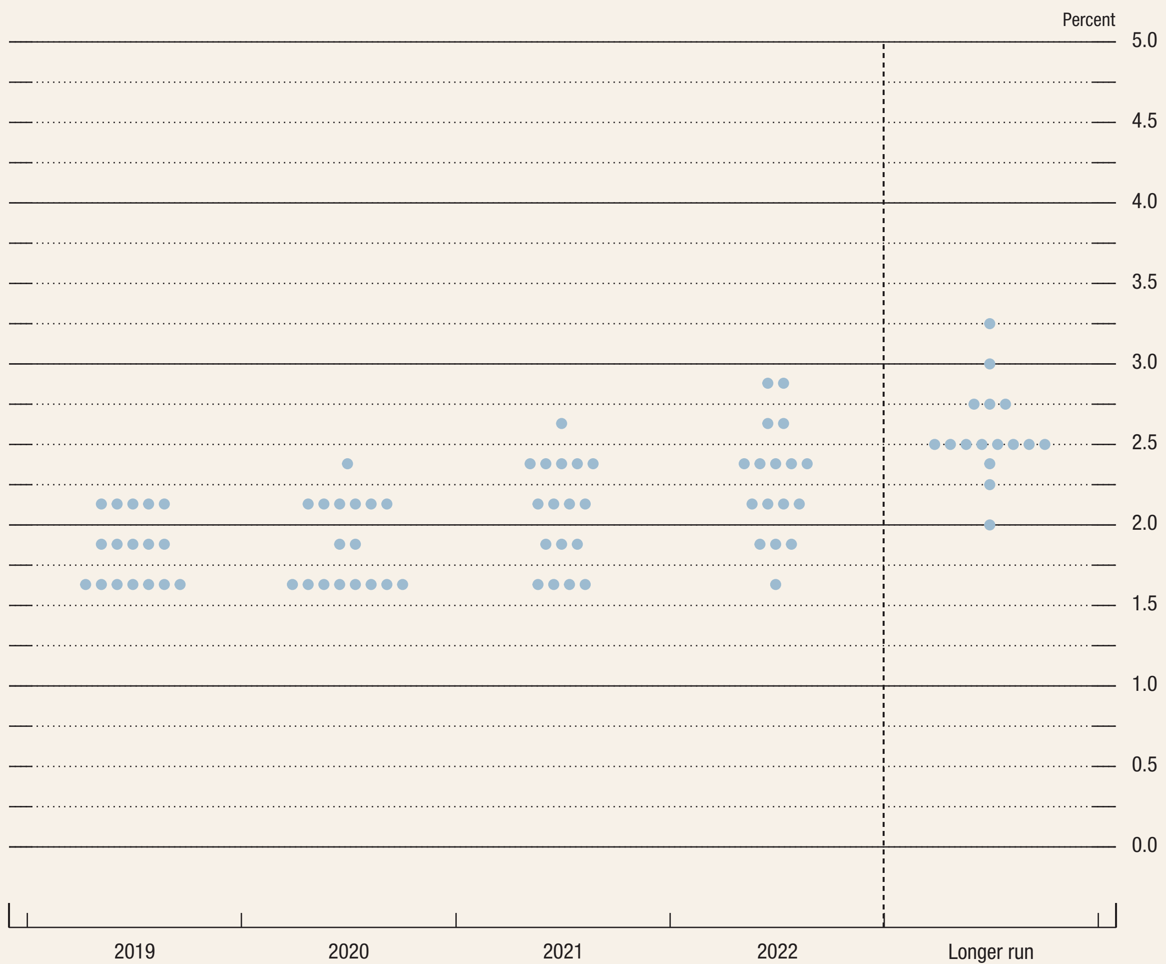
[4] Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2019–22 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 ⅛ 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. One participant did not submit longer-run projections for the federal funds rate.

tion were little changed as well, but more participants saw the inflation risks as broadly balanced than in June.

The Outlook for Real GDP Growth and Unemployment

As shown in table 1, the median of participants' projections for the growth rate of real GDP in 2019, conditional on their individual assessments of appropriate monetary policy, was 2.2 percent, a bit above the median estimate of its longer-run rate of 1.9 percent. Almost all participants continued to expect GDP growth to slow over the projection period, with the median projection at 2.0 percent in 2020, 1.9 percent in 2021, and 1.8 percent in 2022. Relative to the June SEP, the medians of the projections for real GDP growth in 2019, 2020, 2021, and the longer run were unchanged or revised slightly higher.

The median of projections for the unemployment rate in the fourth quarter of 2019 was 3.7 percent, ½ percentage point below the median assessment of its longer-run level of 4.2 percent. The medians of projections for 2020, 2021, and 2022 were 3.7 percent, 3.8 percent, and 3.9 percent, respectively. The median projected unemployment rate for 2019 was slightly higher than in the June SEP, while the median projected unemployment rates for 2020 and 2021 were unchanged relative to the June SEP. A vast majority of participants who submitted longer-run projections expected that the unemployment rate in 2022 would be below their estimates of its longer-run level, with some participants projecting a gap of ½ percentage point or more.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate, respectively, from 2019 to 2022 and in the longer run. The distribution of individual projections for real GDP growth for 2019 shifted up somewhat relative to that in the June SEP. The distributions of individual projections of real GDP growth for 2020 and 2021 and for the longer run were little changed overall. The distributions of individual projections for the unemployment rate for 2019 to 2021 and for the longer run were also little changed overall relative to those in June.

The Outlook for Inflation

As shown in table 1, the median of projections for total PCE price inflation was 1.5 percent in 2019, 1.9 percent in 2020, and 2.0 percent in 2021; these medians were unchanged from June. For 2022, the median projection for total PCE was 2.0 percent. The medians of projections for core PCE price inflation were 1.8 percent for 2019 and 1.9 percent for 2020. The median projections for core inflation for 2021 and 2022 were 2.0 percent. These medians were also unchanged from June for each year included in the June SEP.

Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for total and core PCE price inflation in 2019, 2020, and 2021 were little changed overall relative to those in June. For 2022, all participants projected total and core inflation between 1.8 and 2.2 percent.

Appropriate Monetary Policy

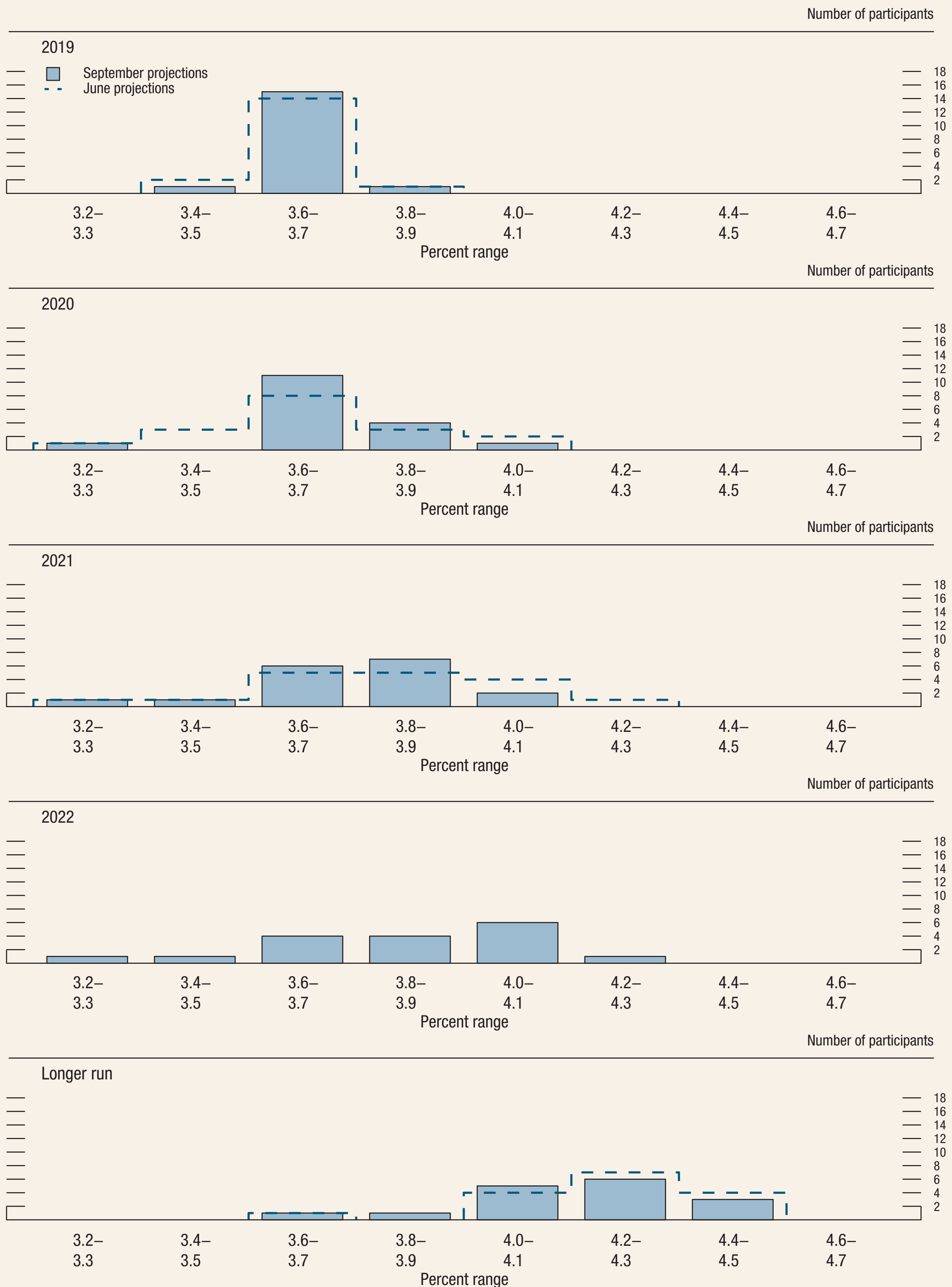
Figure 3.E shows distributions of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2019 to 2022 and over the longer run. Compared with the June projections, the range of projections for 2019, 2020, and 2021 shifted toward lower values and narrowed somewhat. The vast majority of participants viewed the appropriate levels of the federal funds rate at the end of 2019, 2020, and 2021 as lower than those that they deemed appropriate in June. All participants lowered their projections for the appropriate level of the federal funds rate, relative to June, at some point in the projection period, and none raised their projections for the federal funds rate for any year. Compared with the projections prepared for the June SEP, the median federal funds rate was 50 basis points lower in 2019 and 25 basis points lower in 2020 and 2021. Muted inflation pressures, slower global growth, and weak business fixed investment were cited as reasons for downward revisions to the appropriate path for the federal funds rate, as were trade tensions and risk-management considerations.

The median federal funds rate projection for the end of 2019 was 1.88 percent. Seven participants assessed that the most likely appropriate federal funds rate at the end of 2019 was 1.63 percent, while five assessed that the most likely appropriate rate at year-end was 2.13 percent. The median for 2020 was 1.88 percent, equal to the median for 2019. For subsequent years, the medians of the projections were 2.13 percent at the end of 2021 and 2.38 percent at the end of 2022. Some participants revised lower their estimates of the longer-run level of the federal funds rate, while a

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–22 and over the longer run

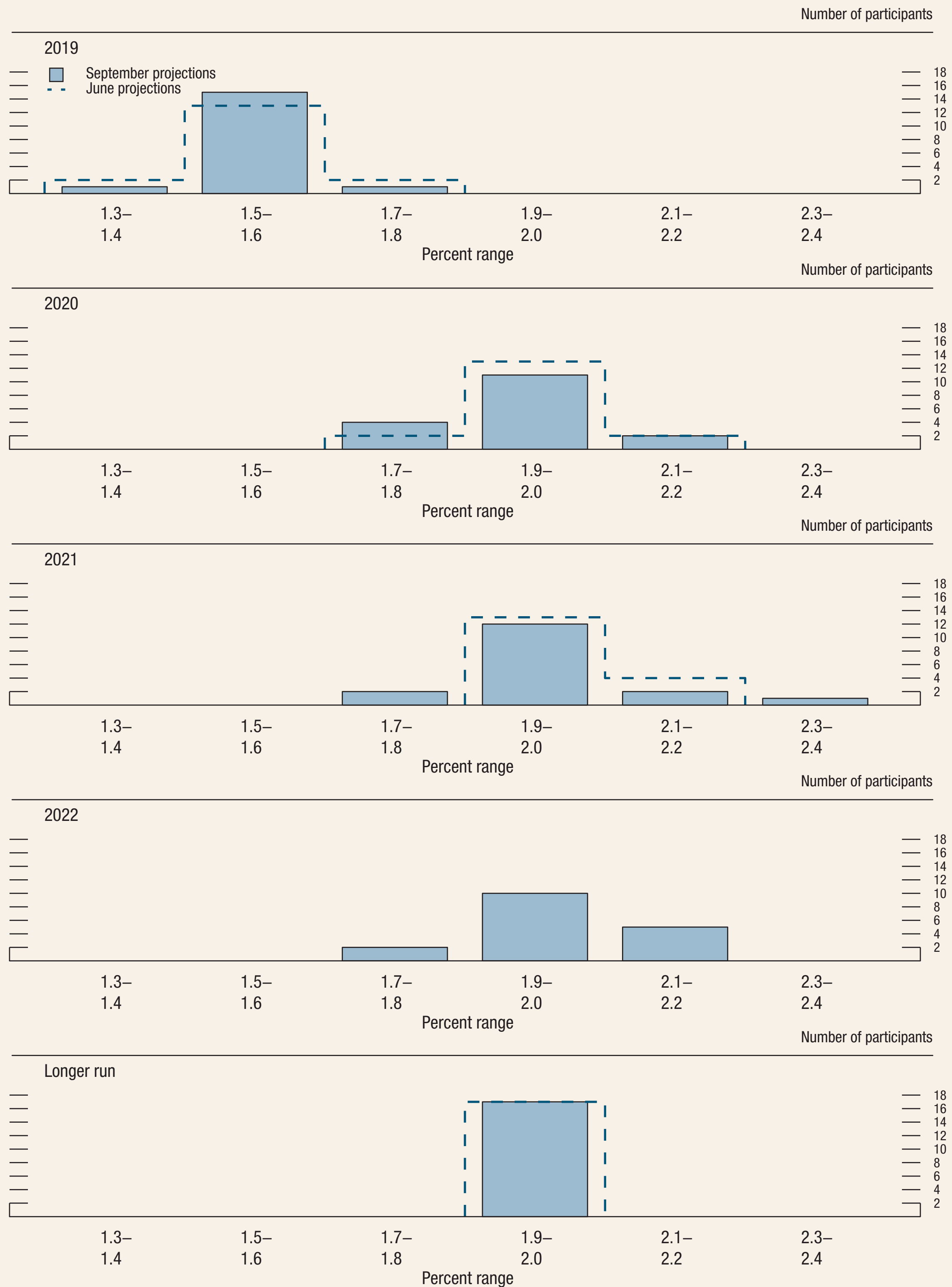
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–22 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, 2019–22 and over the longer run

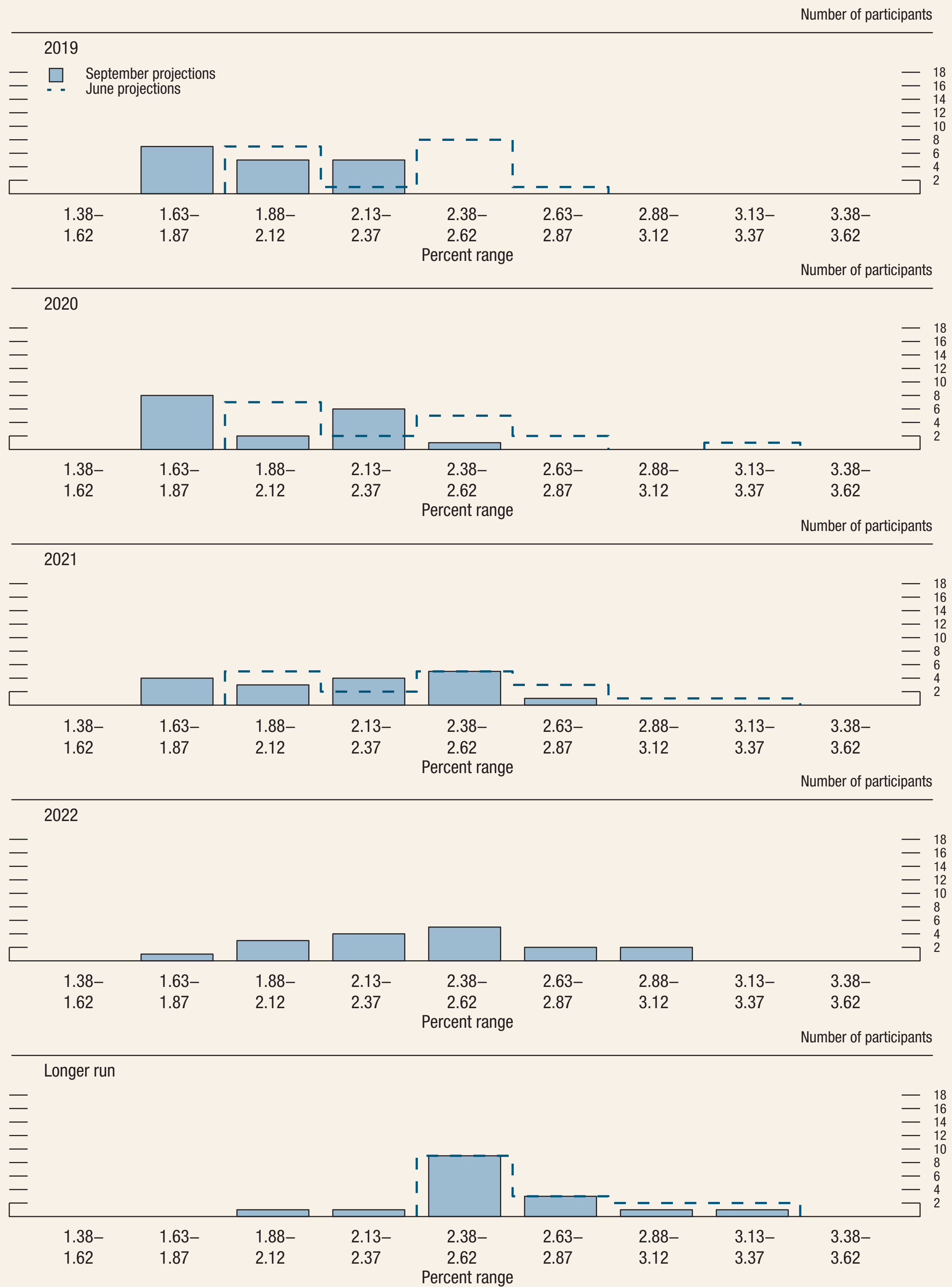


Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2019–22

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, 2019–22 and over the longer run



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

Table 2. Average historical projection error ranges
Percentage points

Variable	2019	2020	2021	2022
Change in real GDP[1]	±1.2	±1.8	±1.9	±2.0
Unemployment rate[1]	±0.3	±1.1	±1.6	±2.0
Total consumer prices[2]	±0.8	±1.0	±1.1	±1.0
Short-term interest rates[3]	±0.5	±1.7	±2.2	±2.7

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1999 through 2018 that were released in the fall 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.

majority of participants' estimates were unchanged. The median estimate of the longer-run federal funds rate was 2.50 percent, unchanged from the median estimate in June.

Uncertainty and Risks

In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government forecasts over the past 20 years—for real GDP growth, the unemployment rate, and total PCE price inflation. Those measures are represented graphically in the "fan charts" shown in the top panels of figures 4.A, 4.B, and 4.C. The fan charts display the SEP medians for the three variables surrounded by symmetric confidence intervals derived from the forecast errors reported in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of being within these confidence intervals. For all three variables, this measure of uncertainty is substantial and generally increases as the forecast horizon lengthens.

Participants' assessments of the level of uncertainty surrounding their individual economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. Most participants continued to view the uncertainties around their forecasts for GDP growth, total inflation, and core inflation as broadly similar to the average over the past 20 years. Just over half of the participants viewed the level of uncertainty around their unemployment rate projections as being similar to the average of the past 20 years, while the rest of the participants viewed uncertainty as higher.[2]

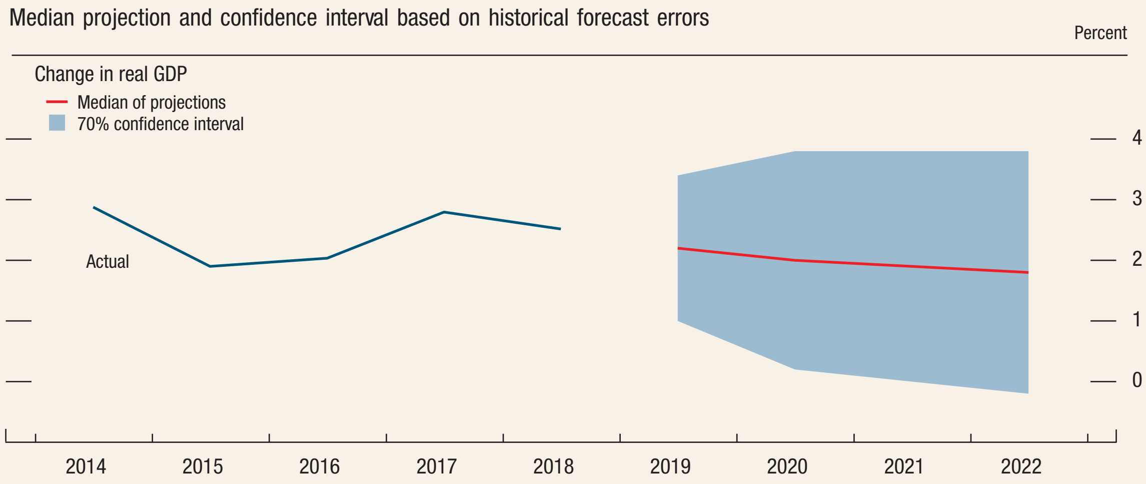
Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their current economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. Most participants continued to view the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. Most participants—four more than in the June SEP—judged the risks to the inflation outlook as broadly balanced; some participants viewed the risks to inflation as weighted to the downside, and no participants assessed risks to inflation as weighted to the upside.

In discussing the uncertainty and risks surrounding their economic projections, several participants mentioned trade developments, concerns about foreign economic growth, and weaker business fixed investment as sources of uncertainty or downside risk to the U.S. economic growth outlook. For the inflation outlook, the possibility that inflation expectations could be drifting below levels consistent with the FOMC's 2 percent inflation objective and the potential for weaker domestic demand to put downward pressure on inflation were viewed as downside risks. A few participants noted the possibility that higher tariffs could lead to aggregate price pressure as a source of upside risk to inflation. A number of participants mentioned that their assessments of risks remained roughly balanced, in part because the downward revisions to their appropriate path for the federal funds rate were offsetting factors that would otherwise contribute to asymmetric risks.

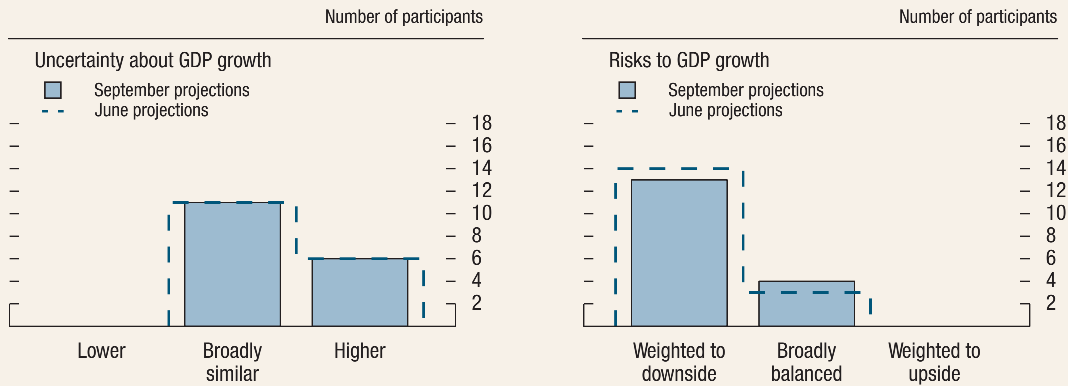
2 At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty surrounding the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

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

Median projection and confidence interval based on historical forecast errors



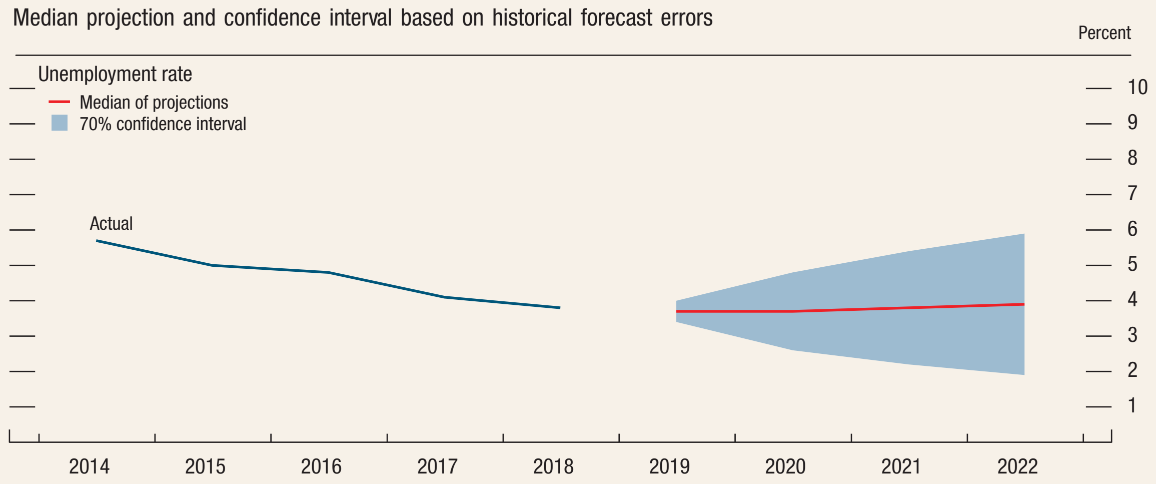
FOMC participants' assessments of uncertainty and risks around their economic projections



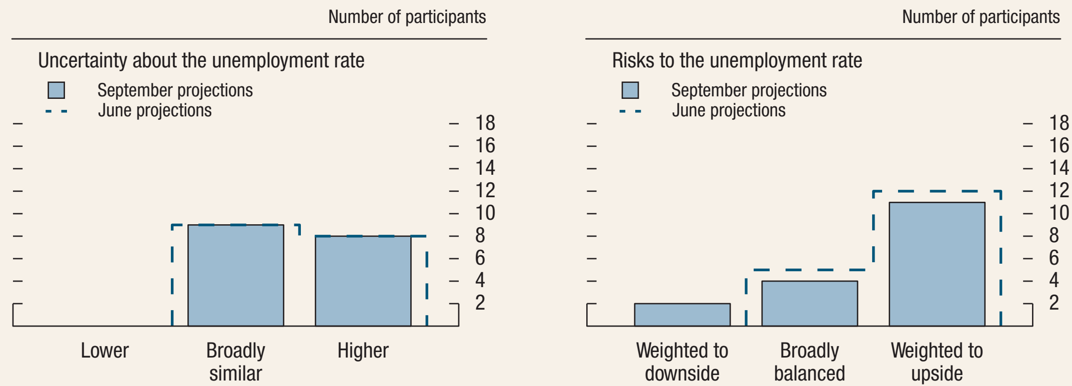
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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

Median projection and confidence interval based on historical forecast errors



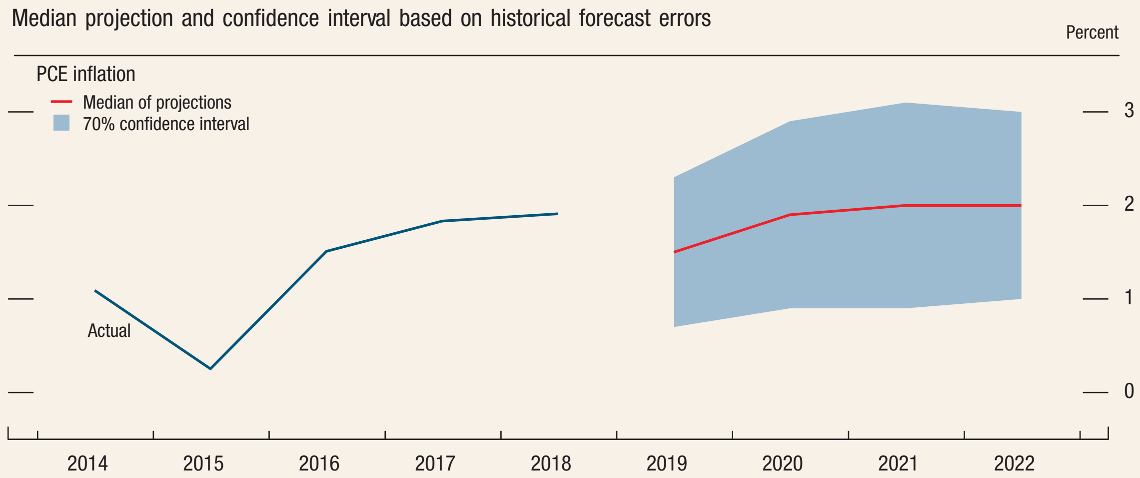
FOMC participants' assessments of uncertainty and risks around their economic projections



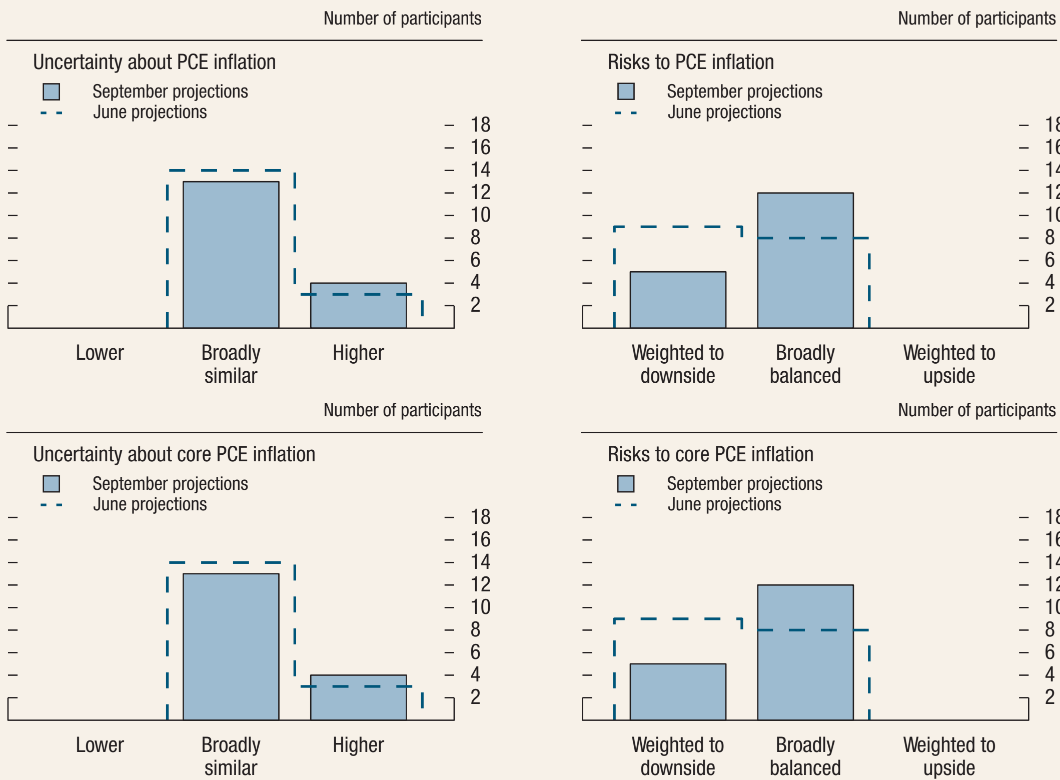
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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

Median projection and confidence interval based on historical forecast errors



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

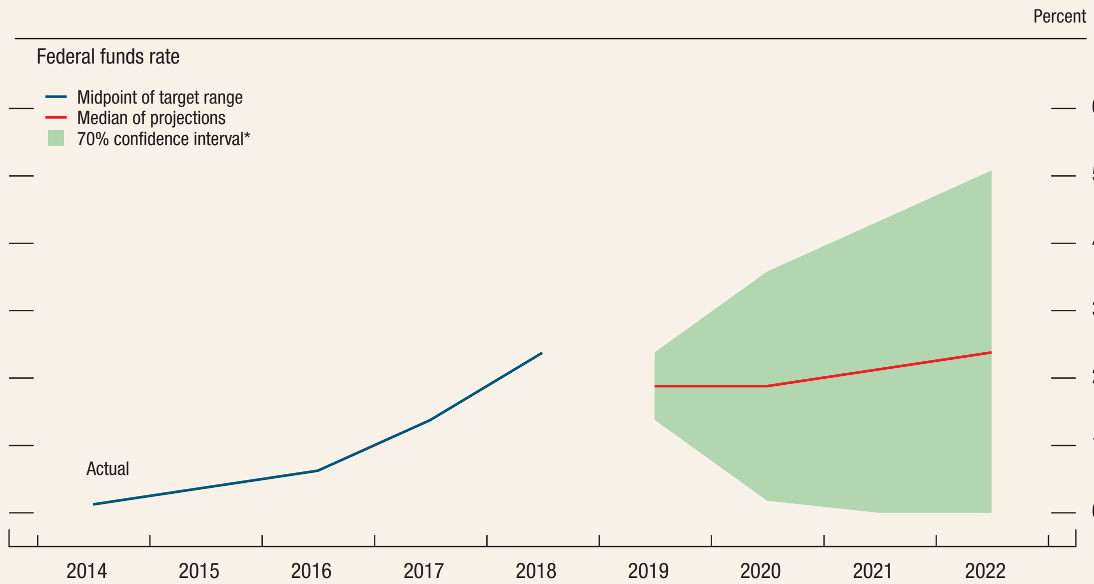


Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval 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."

Participants' assessments of the appropriate future path of the federal funds rate are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and prospective developments over time in key economic variables—such as real GDP growth, the unemployment rate, and inflation—uncertainty surrounding the projected path for the federal funds rate importantly reflects the uncertainties about the paths for these economic variables, along with other factors. Figure 5 provides a graphic representation of this uncertainty, plotting the SEP median for the federal funds rate surrounded by confidence intervals derived from the results presented in table 2.[3] As with the macroeconomic variables, the forecast uncertainty surrounding the appropriate path of the federal funds rate is substantial and increases for longer horizons.

3 The confidence interval for the federal funds rate is assumed to be symmetric except when it is truncated at zero, which is the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee.

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.

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 1.8 to 4.2 percent in the current year, 1.2 to 4.8 percent in the second year, 1.1 to 4.9 percent in the third year, and 1.0 to 5.0 percent in the fourth year. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year, 1.0 to 3.0 percent in the second year, 0.9 to 3.1 percent in the third year, and 1.0 to 3.0 percent in the fourth 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 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.

Meeting Held on October 29–30, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, October 29, 2019, at 9:00 a.m. and continued on Wednesday, October 30, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Eric M. Engen, Anna Paulson, Christopher J. Waller, William Wascher, and Beth Anne Wilson
Associate Economists

Lorie K. Logan
Manager pro tem, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Eric Belsky[2]
Director, Division of Consumer and Community Affairs, Board of Governors

Matthew J. Eichner[3]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Jennifer J. Burns
Deputy Director, Division of Supervision and Regulation, Board of Governors

Daniel M. Covitz
Deputy Director, Division of Research and Statistics, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended the discussion of the review of monetary policy strategy, tools, and communication practices.

[3] Attended through the discussion of the review of options for repo operations to support control of the federal funds rate.

Joshua Gallin
Special Adviser to the Chair, Office of Board Members, Board of Governors

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and Ivan Vidangos
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

David E. Lebow
Senior Associate Director, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim
Senior Adviser, Division of Monetary Affairs, Board of Governors

Michael Hsu[4]
Associate Director, Division of Supervision and Regulation, Board of Governors

David López-Salido and Min Wei
Associate Directors, Division of Monetary Affairs, Board of Governors

Glenn Follette
Deputy Associate Director, Division of Research and Statistics, Board of Governors

Christopher J. Gust
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Jeffrey D. Walker[3]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Paul R. Wood[2]
Deputy Associate Director, Division of International Finance, Board of Governors

Eric C. Engstrom
Senior Adviser, Division of Research and Statistics, and
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Stephanie E. Curcuru
Assistant Director, Division of International Finance, Board of Governors

Giovanni Favara, Laura Lipscomb,[4] Zeynep Senyuz,[4] and Rebecca Zarutskie[2]
Assistant Directors, Division of Monetary Affairs, Board of Governors

Shane M. Sherlund
Assistant Director, Division of Research and Statistics, Board of Governors

Penelope A. Beattie[5]
Section Chief, Office of the Secretary, Board of Governors

Matthew Malloy[4]
Section Chief, Division of Monetary Affairs, Board of Governors

Mark A. Carlson[3]
Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Alyssa G. Anderson,[4] Anna Orlik, and Bernd Schlusche[2]
Principal Economists, Division of Monetary Affairs, Board of Governors

Cristina Fuentes-Albero[2] and Christopher J. Nekarda[6]
Principal Economists, Division of Research and Statistics, Board of Governors

Valerie Hinojosa
Senior Information Manager, Division of Monetary Affairs, Board of Governors

Kelly J. Dubbert
First Vice President, Federal Reserve Bank of Kansas City

David Altig, Kartik B. Athreya, Jeffrey Fuhrer, and Glenn D. Rudebusch
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Boston, and San Francisco, respectively

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4 Attended the discussion of developments in financial markets and open market operations through the discussion of the review of options for repo operations to support control of the federal funds rate.

5 Attended through the discussion of developments in financial markets and open market operations.

6 Attended the discussion of economic developments and the outlook.

Angela O'Connor,[4] Marc Giannoni,[2] Paolo A. Pesenti, Samuel Schulhofer-Wohl,[4] Raymond Testa,[4] and Nathaniel Wuerffel[4]
Senior Vice Presidents, Federal Reserve Banks of New York, Dallas, New York, Chicago, New York, and New York, respectively

Satyajit Chatterjee, Richard K. Crump,[6] George A. Kahn, Rebecca McCaughrin,[4] and Patricia Zobel[7]
Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Kansas City, New York, and New York, respectively

Larry Wall[2]
Executive Director, Federal Reserve Bank of Atlanta

Edward S. Prescott
Senior Economic and Policy Advisor, Federal Reserve Bank of Cleveland

Nicolas Petrosky-Nadeau[6]
Senior Research Advisor, Federal Reserve Bank of San Francisco

Stefania D'Amico[2] and Thomas B. King[2]
Senior Economists and Research Advisors, Federal Reserve Bank of Chicago

Alex Richter
Senior Research Economist and Advisor, Federal Reserve Bank of Dallas

Benjamin Malin
Senior Research Economist, Federal Reserve Bank of Minneapolis

Review of Monetary Policy Strategy, Tools, and Communication Practices

Committee participants continued their discussions related to the ongoing review of the Federal Reserve's monetary policy strategy, tools, and communication practices. Staff briefings provided an assessment of a range of monetary policy tools that the Committee could employ to provide additional economic stimulus and bolster inflation outcomes, particularly in future episodes in which the policy rate would be constrained by the effective lower bound (ELB). The staff first discussed policy rate tools, focusing on three forms of forward guidance—qualitative, which provides a nonspecific indication of the expected duration of accommodation; date-based, which specifies a date beyond which accommodation could start to be reduced; and outcome-based, which ties the possible start of a reduction of accommodation to the achievement of certain macroeconomic outcomes. The briefing addressed communications challenges associated with each form of forward guidance, including the need to avoid conveying a more negative economic outlook than the FOMC expects. Nonetheless, the staff suggested that forward guidance generally had been effective in easing financial conditions and stimulating economic activity in circumstances when the policy rate was above the ELB and when it was at the ELB. The briefing also discussed negative interest rates, a policy option implemented by several foreign central banks. The staff noted that although the evidence so far suggested that this tool had provided accommodation in jurisdictions where it had been employed, there were also indications of possible adverse side effects. Moreover, differences between the U.S. financial system and the financial systems of those jurisdictions suggested that the foreign experience may not provide a useful guide in assessing whether negative rates would be effective in the United States.

The second part of the staff briefing focused on balance sheet policy tools. The staff discussed the benefits and costs associated with the large-scale asset purchase programs implemented by the Federal Reserve after the financial crisis. In general, the staff's review of the historical experience suggested that the benefits of large-scale asset purchase programs were significant and that many of the potential costs of such programs identified at the time either did not materialize or materialized to a smaller degree than initially feared. In addition, the staff presentation noted that—taking account of investor expectations ahead of the announcement of each new program—the effects of asset purchases did not appear to have diminished materially across consecutive programs. However, going forward, such policies might not be as effective because longer-term interest rates would likely be much lower at the onset of a future asset purchase program than they were before the financial crisis. The staff also compared the benefits and costs associated with asset purchase programs that are of a fixed cumulative size and those that are flow-based—where purchases continue at a specific pace until certain macroeconomic outcomes are achieved—and examined the potential effectiveness of using asset purchases to place ceilings on interest rates. The briefing also discussed lending programs that could facilitate the flow of credit to households or businesses.

Participants discussed the relative merits of qualitative, date-based, and outcome-based forward guid-

[7] Attended the discussion of developments in financial markets and open market operations through the end of the meeting.

ance. A number of participants noted that each of these three forms of forward guidance could be effective in providing accommodation, depending on circumstances both at and away from the ELB. They also suggested that different types of forward guidance would likely be needed to address varying economic conditions, and that the communications regarding forward guidance needed to be tailored to explain the Committee's evaluation of the economic outlook. In particular, several participants emphasized that to guard against the possibility of adverse feedback loops in which forward guidance is interpreted by the public as a sign of a sharply deteriorating economic outlook, thus leading households and businesses to become even more cautious in their spending decisions, the Committee would need to clearly communicate how its announced policy could help promote better economic outcomes. Participants saw both benefits and costs associated with outcome-based forward guidance relative to other forms of forward guidance. On the one hand, relative to qualitative or date-based forward guidance, outcome-based forward guidance has the advantage of creating an explicit link between future monetary policy actions and macroeconomic conditions, thereby helping to support economic stabilization efforts and foster transparency and accountability. On the other hand, outcome-based forward guidance could be complex and difficult to explain and, hence, could potentially be less effective than qualitative or date-based forward guidance if those hurdles could not be overcome. A few participants commented that outcome-based forward guidance, tied to inflation outcomes, could be a useful tool to reinforce the Committee's commitment to its symmetric 2 percent objective.

Participants also discussed the benefits and costs of using different types of balance sheet policy. Participants generally agreed that the balance sheet policies implemented by the Federal Reserve after the crisis had eased financial conditions and had contributed to the economic recovery, and that those tools had become an important part of the Committee's current toolkit. However, some participants pointed out that research had produced a sizable range of estimates of the magnitude of the economic effects of balance sheet actions. In addition, some participants noted that the effectiveness of these tools might be diminished in the future, as longer-term interest rates have declined to very low levels and would likely be even lower following an adverse shock that could lead to the resumption of large-scale asset purchases; as a result, there might be limited scope for balance sheet tools to provide accommodation. Several participants commented on the advantages and disadvantages of flow-based asset purchase programs tied to the achievement of economic outcomes. On the one hand, such programs adjusted automatically in response to the performance of the economy and, hence, were more straightforward to implement and communicate. On the other hand, flow-based asset purchase programs may result in the balance sheet rising to undesirable levels. A few participants also commented that, barring significant dislocations to particular segments of the markets, they would restrict asset purchases to Treasury securities to avoid perceptions that the Federal Reserve was engaging in credit allocation across sectors of the economy.

In considering policy tools that the Federal Reserve had not used in the recent past, participants discussed the benefits and costs of using balance sheet tools to cap rates on short- or long-maturity Treasury securities through open market operations as necessary. A few participants saw benefits to capping longer-term interest rates that more directly influence household and business spending. In addition, capping longer-maturity interest rates using balance sheet tools, if judged as credible by market participants, might require a smaller amount of asset purchases to provide a similar amount of accommodation as a quantity-based program purchasing longer-maturity securities. However, many participants raised concerns about capping long-term rates. Some of those participants noted that uncertainty regarding the neutral federal funds rate and regarding the effects of rate ceiling policies on future interest rates and inflation made it difficult to determine the appropriate level of the rate ceiling or when that ceiling should be removed; that maintaining a rate ceiling could result in an elevated level of the Federal Reserve's balance sheet or significant volatility in its size or maturity composition; or that managing longer-term interest rates might be seen as interacting with the federal debt management process. By contrast, a majority of participants saw greater benefits in using balance sheet tools to cap shorter-term interest rates and reinforce forward guidance about the near-term path of the policy rate.

All participants judged that negative interest rates currently did not appear to be an attractive monetary policy tool in the United States. Participants commented that there was limited scope to bring the policy rate into negative territory, that the evidence on the beneficial effects of negative interest rates abroad was mixed, and that it was unclear what

effects negative rates might have on the willingness of financial intermediaries to lend and on the spending plans of households and businesses. Participants noted that negative interest rates would entail risks of introducing significant complexity or distortions to the financial system. In particular, some participants cautioned that the financial system in the United States is considerably different from those in countries that implemented negative interest rate policies, and that negative rates could have more significant adverse effects on market functioning and financial stability here than abroad. Notwithstanding these considerations, participants did not rule out the possibility that circumstances could arise in which it might be appropriate to reassess the potential role of negative interest rates as a policy tool.

Overall, participants generally agreed that the forward guidance and balance sheet policies followed by the Federal Reserve after the financial crisis had been effective in providing stimulus at the ELB. With estimates of equilibrium real interest rates having declined notably over recent decades, policymakers saw less room to reduce the federal funds rate to support the economy in the event of a downturn. In addition, against a background of inflation undershooting the symmetric 2 percent objective for several years, some participants raised the concern that the scope to reduce the federal funds rate to provide support to economic activity in future recessions could be reduced further if inflation shortfalls continued and led to a decline in inflation expectations. Therefore, participants generally agreed it was important for the Committee to keep a wide range of tools available and employ them as appropriate to support the economy. Doing so would help ensure the anchoring of inflation expectations at a level consistent with the Committee's symmetric 2 percent inflation objective.

Some participants noted that the form of the policy response would depend critically on the circumstances the Committee faced at the time. Several participants suggested that communicating to the public clearly and convincingly in advance about how the Committee intended to provide accommodation at the ELB would enhance public confidence and support the effectiveness of whichever tool the Committee selected. Some participants thought it would be helpful for the Committee to evaluate how its tools could be utilized in different economic scenarios, such as when longer-term interest rates were significantly below current levels, and discuss which actions would best address the challenges posed by each scenario. Several participants noted that, particularly if monetary policy became severely constrained at the ELB, expansionary fiscal policy would be especially important in addressing an economic downturn.

Participants expected that, at upcoming meetings, they would continue their deliberations on the Committee's review of the monetary policy framework as well as the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy. They also generally agreed that the Committee's consideration of possible modifications to its policy strategy, tools, and communication practices would take some time and that the process would be careful, deliberate, and patient. A number of participants judged that the review could be completed around the middle of 2020.

Developments in Financial Markets and Open Market Operations

The manager pro tem first reviewed developments in financial markets over the intermeeting period. Early in the period, market participants focused on signs of weakness in U.S. economic data with some soft data from business surveys viewed as substantiating concerns that global headwinds were spilling over to the U.S. economy. Later in the period, markets responded to news suggesting favorable developments around Brexit and a partial U.S.–China trade deal. On balance, U.S. financial conditions ended the period little changed.

Regarding the outlook for U.S. monetary policy, the Open Market Desk's surveys and market-based indicators pointed to a high likelihood of a 25 basis point cut in the target range at the October meeting. The probability that survey respondents placed on this outcome was broadly similar to the probability of a 25 basis point cut ahead of the July and September meetings. Further ahead, the path implied by the medians of survey respondents' modal forecasts for the federal funds rate remained essentially flat after this meeting. Meanwhile, the market-implied path suggested that investors expected around 25 basis points of additional easing by the end of 2020, after the anticipated easing at this meeting.

The manager pro tem next turned to a review of money market developments since early October. On October 11, the Committee announced its decision to maintain reserves at or above the level that prevailed in early September through a program of Treasury bill purchases and repurchase agreement (repo)

operations. After the announcement, the Desk conducted regular operations that offered at least $75 billion in overnight repo funding and between $135 and $170 billion in term funding. These operations fostered conditions that helped maintain the federal funds rate within the target range through two channels. First, they provided funding in repo markets that dampened repo market pressure that would otherwise have passed through to the federal funds market, and second, they increased the supply of reserves in the banking system. In anticipation of another projected sharp decline in reserves and expected rate pressures around October 31, the Desk announced an increase in the size of overnight repos to $120 billion, and an increase in the size of the two term repo operations that crossed the October month-end to $45 billion.

With respect to purchases of Treasury bills for reserve management purposes, the Desk had purchased more than half of the initial $60 billion monthly amount for October, and propositions at the five operations conducted to date had been strong. Respondents to the Desk surveys expected reserve management purchases of Treasury bills to continue at the same pace for some time. The combination of repo operations and bill purchases lifted reserve levels above those observed in early September.

The manager pro tem noted that diminished willingness of some dealers to intermediate across money markets ahead of the year-end could result in upward pressure on short-term money market rates. Forward measures of market pricing continued to indicate expectations for such pressures around the year-end. The Desk planned to continue its close monitoring of reserves and money market conditions, as well as dealer participation in repo operations, particularly given balance sheet constraints heading into year-end. The Desk discussed its intentions to further adjust operations around year-end as needed to mitigate the risk of money market pressures that could adversely affect policy implementation, and to maintain over time a level of reserve balances at or above those that prevailed in early September.

The manager pro tem finished by noting that the Federal Reserve Bank of New York would soon release a request for public comment on a plan to publish a series of backward looking Secured Overnight Financing Rate (SOFR) averages and a daily SOFR index to support the transition away from instruments based on LIBOR (London interbank offered rate). Publication of these series was expected to begin in the first half of 2020.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Review of Options for Repo Operations to Support Control of the Federal Funds Rate

The staff briefed participants on the recent experience with using repo operations to support control of the federal funds rate and on possibly maintaining a role for repo operations in the monetary policy implementation framework over the longer run. Ongoing capacity for repo operations could be viewed as useful in an ample-reserves regime as a way of providing insurance against unexpected stresses in money markets that could drive the federal funds rate outside the Committee's target range over a sustained period. The staff presented two potential approaches for conducting repo operations if the Committee decided to maintain an ongoing role for such operations. Under the first approach, the Desk would conduct modestly sized, relatively frequent repo operations designed to provide a high degree of readiness should the need for larger operations arise; under the second approach, the FOMC would establish a standing fixed-rate facility that could serve as an automatic money market stabilizer.[8] Assessing these two approaches involved several considerations, including the degree of assurance of control over the federal funds rate, the likelihood that participation in the Federal Reserve's repo operations could become stigmatized, the possibility that the operations could encourage the Federal Reserve's counterparties to take on excessive liquidity risks in their portfolios, and the potential disintermediation of financial transactions currently undertaken by private counterparties. Regular, modestly sized repo operations likely would pose relatively little risk of stigma or moral hazard, but they may provide less assurance of control over the federal funds rate because it might be difficult for the Federal Reserve to anticipate money market pressures and scale up its repo operations accordingly. A standing fixed-rate repo facility would likely provide substantial assurance of control over the federal funds rate, but use of the facility

[8] The staff briefed the Committee in June 2019 on the possible role of a standing repo facility in the monetary policy implementation framework.

could become stigmatized, particularly if the rate was set at a relatively high level. Conversely, a standing facility with a rate set at a relatively low level could result in larger and more frequent repo operations than would be appropriate. And by effectively standing ready to provide a form of liquidity on an as-needed basis, such a facility could increase the risk that some institutions may take on an undesirably high amount of liquidity risk.

In their comments following the staff presentation, participants emphasized the importance of maintaining reserves at a level consistent with the Committee's choice of an ample-reserves monetary policy implementation framework, in which control over the level of the federal funds rate 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. Some participants indicated that, in such an environment, they would have some tolerance for allowing the federal funds rate to vary from day to day and to move occasionally outside its target range, especially in those instances associated with easily identifiable technical events; a couple of participants expressed discomfort with such misses.

Participants expressed a range of views on the relative merits of the two approaches described by the staff for conducting repo operations. Many participants noted that, once an ample supply of reserves is firmly established, there might be little need for a standing repo facility or for frequent repo operations. Some of these participants indicated that a basic principle in implementing an ample-reserves framework is to maintain reserves on an ongoing basis at levels that would obviate the need for open market operations to address pressures in funding markets in all but exceptional circumstances. Many participants remarked, however, that even in an environment with ample reserves, a standing facility could serve as a useful backstop to support control of the federal funds rate in the event of outsized shocks to the system. Several of these participants also suggested that, if a standing facility were created that allowed banks to monetize a portion of their securities holdings at times of market stress, banks could possibly reduce their demand for reserves in normal times, which could make it feasible for the monetary policy implementation framework to operate with a significantly smaller quantity of reserves than would otherwise be needed. A couple of participants pointed out that establishing a standing facility would be similar to the practice of some other major central banks. A number of participants noted that, before deciding whether to implement a standing repo facility, additional work would be necessary to assess the likely implications of different design choices for a standing repo facility, such as pricing, eligible counterparties, and the set of acceptable collateral. Echoing issues raised at the Committee's June 2019 meeting, various participants commented on the need to carefully evaluate these design choices to guard against the potential for moral hazard, stigma, disintermediation risk, or excessive volatility in the Federal Reserve's balance sheet. A couple of other participants suggested that an approach based on modestly sized, frequent repo operations that could be quickly and substantially ramped up in response to emerging market pressures would mitigate the moral hazard, disintermediation, and stigmatization risks associated with a standing repo facility.

Participants made no decisions at this meeting on the longer-run role of repo operations in the ample-reserves regime or on an approach for conducting repo operations over the longer run. They generally agreed that they should continue to monitor the market effects of the Federal Reserve's ongoing repo operations and Treasury bill purchases and that additional analysis of the recent period of money market dislocations or of fluctuations in the Federal Reserve's non-reserve liabilities was warranted. Some participants called for further research on the role that the financial regulatory environment or other factors may have played in the recent dislocations.

Staff Review of the Economic Situation

The information available for the October 29–30 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) increased at a moderate rate in the third quarter. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), remained below 2 percent in August. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment expanded at a slower pace in September than in the previous two months, but the average pace for the third quarter was similar to that for the first half of the year. However, the pace of job gains so far this year was slower than last year, even after accounting for the anticipated effects of the Bureau of Labor Statistics' benchmark revision to payroll employment, which will be incorporated in the published data in Febru-

ary 2020. The unemployment rate moved down to a 50-year low of 3.5 percent in September, while the labor force participation rate held steady and the employment-to-population ratio moved up. The unemployment rates for Asians, Hispanics, and whites each moved lower in September, but the rate for African Americans was unchanged; the unemployment rate for each group was below its level at the end of the previous economic expansion, though persistent differentials between these rates remained. The average share of workers employed part time for economic reasons in September continued to be below its level in late 2007. The rate of private-sector job openings declined in August, and the rate of quits also edged down, but both readings were still at relatively elevated levels. The four-week moving average of initial claims for unemployment insurance benefits through mid-October remained near historically low levels. Average hourly earnings for all employees rose 2.9 percent over the 12 months ending in September, roughly similar to the pace a year earlier.

Total consumer prices, as measured by the PCE price index, increased 1.4 percent over the 12 months ending in August. Core PCE price inflation (which excludes changes in consumer food and energy prices) was 1.8 percent over that same 12-month period, while consumer food price inflation was well below core inflation, and consumer energy prices declined. The trimmed mean measure of 12-month PCE price inflation constructed by the Federal Reserve Bank of Dallas remained at 2 percent in August. The consumer price index (CPI) rose 1.7 percent over the 12 months ending in September, while core CPI inflation was 2.4 percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the University of Michigan Surveys of Consumers, the Blue Chip Economic Indicators, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed, on balance, although the Michigan survey measure ticked down to the low end of its recent range.

Real PCE rose solidly in the third quarter following a stronger gain in the second quarter. Overall consumer spending rose steadily in recent months, and sales of light motor vehicles through September maintained their robust second-quarter pace. Key factors that influence consumer spending—including the low unemployment rate, further gains in real disposable income, high levels of households' net worth, and generally low borrowing rates—were supportive of solid real PCE growth in the near term. The Michigan survey measure of consumer sentiment rose again in October and had mostly recovered from its August slump, while the Conference Board survey measure of consumer confidence remained at a favorable level.

Real residential investment turned up solidly in the third quarter following six consecutive quarters of contraction. This upturn was consistent with the rise in single-family starts in the third quarter, and building permits for such units—which tend to be a good indicator for the underlying trend in the construction of such homes—also increased. Both new and existing home sales increased, on net, in August and September. Taken together, the data on construction and sales suggested that the decline in mortgage rates since late 2018 was starting to show through to housing activity.

Real nonresidential private fixed investment declined further in the third quarter. Nominal shipments of non-defense capital goods excluding aircraft decreased over August and September, and forward-looking indicators generally pointed to continued softness in business equipment spending. Orders for nondefense capital goods excluding aircraft decreased over those two months and were still below the level of shipments, most measures of business sentiment deteriorated, analysts' expectations of firms' longer-term profit growth declined somewhat further, and concerns about trade developments continued to weigh on firms' investment decisions. Business expenditures for nonresidential structures decreased markedly further in the third quarter, and the number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—continued to decline through mid-October.

Industrial production declined in September and was notably lower than at the beginning of the year. Production in September was held down by the strike at General Motors, and automakers' schedules indicated that assemblies of light motor vehicles would remain low in October before rebounding in November. Overall manufacturing production appeared likely to remain soft in coming months, reflecting generally weak readings on new orders from national and regional manufacturing surveys, declining domestic business investment, weak GDP growth abroad, and a persistent drag from trade developments.

Total real government purchases rose at a slower pace in the third quarter than in the second quarter. Real federal purchases decelerated, reflecting smaller

increases in both defense and nondefense spending. Federal hiring of temporary workers for next year's decennial census was quite modest during the quarter. Real purchases by state and local governments also rose at a slower pace, as the boost from a faster expansion in state and local payrolls was partially offset by a decrease in real construction spending by these governments.

The nominal U.S. international trade deficit widened in August, reflecting a subdued pace of export growth and a moderate pace of import growth. Export growth was subdued due to lackluster exports of services and capital goods. Advance estimates for September suggested that goods imports fell more than exports, pointing to a narrowing of the monthly trade deficit. The Bureau of Economic Analysis estimated that net exports made a slight negative contribution to real GDP growth in the third quarter.

Incoming data suggested that growth in the foreign economies remained subpar in the third quarter. In several advanced foreign economies (AFEs), indicators showed continued weakness in the manufacturing sector, especially in the euro area and the United Kingdom. Similarly, GDP growth remained subdued in China and several other emerging economies in Asia, and indicators suggested that growth in Latin America also remained weak. Foreign inflation appeared to have moderated a bit in the third quarter, reflecting declines in energy prices. Inflation remained relatively low in most foreign economies.

Staff Review of the Financial Situation

Investor sentiment weakened over the early part of the intermeeting period, reflecting a few weaker-than-expected domestic data releases, but later strengthened on increased optimism regarding ongoing trade negotiations between the United States and China and positive Brexit news. On net, equity prices and corporate bond spreads were little changed, and the Treasury yield curve steepened a bit. Financing conditions for businesses and households remained generally supportive of spending and economic activity.

September FOMC communications were viewed as slightly less accommodative than expected, with investors reportedly surprised by the Summary of Economic Projections showing that a majority of FOMC participants anticipated no further easing this year. Incoming data early in the intermeeting period—particularly the disappointing readings on business activity—prompted a decline in the market-implied path for the policy rate, but that decline was later partly reversed as market participants apparently grew more optimistic on the prospects for a U.S.–China trade deal and Brexit negotiations. Late in the period, quotes on federal funds futures options contracts indicated that market participants assigned a very high probability to a 25 basis point reduction in the target range of the federal funds rate at the October FOMC meeting. In addition, market-implied expectations for the federal funds rate at year-end and next year moved down.

Yields on nominal U.S. Treasury securities moved down in the early part of the intermeeting period but later retraced their declines. On net, the Treasury yield curve steepened a bit, mostly reflecting a modest decline in short-term yields. Measures of inflation compensation over the next 5 years and 5 to 10 years ahead based on Treasury Inflation-Protected Securities inched down and remained near multiyear low levels.

Broad stock price indexes fell by as much as 4 percent during the first half of the intermeeting period but recovered afterward, ending the period roughly unchanged. Option-implied volatility on the S&P 500 index declined slightly and ended the period below the middle of its historical distribution. On net, corporate credit spreads were little changed.

Domestic short-term funding markets were volatile in mid-September and exhibited additional, albeit modest, pressures around the September quarter-end and the mid-October Treasury settlement date. These pressures were alleviated in part by the Desk's overnight and term repo operations that began on September 17. After smoothing through rate volatility over the period, interest rates for overnight unsecured and secured funding declined roughly in line with the reduction in the target range for the federal funds rate at the September FOMC meeting and the associated 30 basis point decrease in the interest on excess reserves (IOER) rate. The effective federal funds rate (EFFR) was more volatile than usual over the intermeeting period, with the EFFR–IOER spread ranging between 2 basis points and 10 basis points. Rates on overnight commercial paper (CP) and short-term negotiable certificates of deposit declined fairly quickly following the announcement of Desk operations on September 17, although some CP rates remained elevated into October. The FOMC's October 11 announcement of Treasury bill purchases and repo operations to maintain reserves

at or above their early-September level appeared to improve expectations about funding market conditions through the remainder of the year. These communications reportedly did not materially affect yields on longer-term Treasury securities.

Financial markets in the AFEs followed a pattern similar to that seen in the United States. AFE financial conditions tightened early in the intermeeting period on disappointing activity data, both in the United States and abroad, and subsequently recovered on perceived better prospects for trade and Brexit negotiations. Movements in the exchange value of the dollar against most currencies were relatively modest, and the broad dollar index declined slightly. Relative to the dollar, the British pound appreciated on Brexit developments, and the Argentinian peso continued to depreciate amid the country's political developments.

The mid-September increases in U.S. Treasury repo rates spilled over to borrowing rates in the international dollar funding market. However, the measures taken by the Federal Reserve to keep the federal funds rate in the target range also calmed dollar funding conditions in the foreign exchange swap market.

Financing conditions for nonfinancial businesses remained generally accommodative during the intermeeting period. Gross issuance of corporate bonds, which was strong in September, experienced a typical seasonal decline in October. Gross issuance of institutional leveraged loans remained solid but slightly below 2019 monthly averages. Meanwhile, growth of commercial and industrial (C&I) loans at banks was modest in the third quarter as a whole. Respondents to the October 2019 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) reported that borrower demand weakened for C&I loans over the third quarter, while lending standards on such loans were about unchanged. Gross equity issuance through both initial and seasoned offerings picked up to a strong pace in September but moderated in October. The credit quality of nonfinancial corporations deteriorated slightly in recent months but remained solid on balance. Credit conditions for both small businesses and municipalities stayed accommodative on net.

In the commercial real estate (CRE) sector, financing conditions also remained generally accommodative. The volume of agency and non-agency commercial mortgage-backed securities issuance was strong in September, in part supported by recent declines in interest rates. Growth of CRE loans on banks' books was little changed in the third quarter. Banks in the October SLOOS reported tighter lending standards for all types of CRE loans; they also reported weaker demand for construction lending and stronger demand for the other CRE lending categories.

Financing conditions in the residential mortgage market remained accommodative on balance. Mortgage rates were little changed since the September FOMC meeting and stayed near their lowest level since mid-2016. In September, home-purchase originations remained around the relatively high level seen during the previous two months, while refinancing originations jumped to their highest level since late 2012. In the October SLOOS, banks left their lending standards basically unchanged for most residential real estate loan categories over the third quarter. However, for subprime loans, a moderate net percentage of banks reported tightening standards.

Financing conditions in consumer credit markets remained generally supportive of household spending, although conditions continued to be tight for credit card borrowers with nonprime credit scores. Interest rates on auto loans fell, on net, since the beginning of the year, and interest rates on credit card accounts leveled off through August. According to the October SLOOS, commercial banks tightened their standards on credit cards and other consumer loans over the third quarter. Additionally, banks reported that their standards on auto loans and their willingness to make consumer installment loans were about unchanged on balance.

The staff provided an update on its assessments of potential risks to financial stability. On balance, the staff characterized the financial vulnerabilities of the U.S. financial system as moderate. The staff judged that, for many asset classes, valuation pressures eased over the past year. Appetite for risk in the leveraged loan market remained elevated, but less so than last year, especially for lower-rated loans. In addition, CRE prices remained high relative to rental income. In assessing vulnerabilities stemming from borrowing in the household and business sectors, the staff noted that, while household borrowing continued to decline relative to nominal GDP, business leverage remained at or near record-high levels. The risks associated with leverage at financial institutions were viewed as being low, as they have been for some time, largely because of high capital ratios at large banks. Nonetheless, the staff noted that the resilience of financial

institutions could be undermined by low interest rates and banks' announced plans to increase payouts to shareholders. The staff assessed vulnerabilities stemming from funding risk as modest. In addition, the staff discussed the potential for liquidity transformation by open-ended mutual funds investing in bank loans to lead to market dislocations under stress scenarios, while noting that outflows from such funds have not often been associated with such dislocations.

Staff Economic Outlook

The projection for U.S. real GDP growth prepared by the staff for the October FOMC meeting was revised down a little for the second half of this year relative to the previous projection. This revision reflected the estimated effects of the strike at General Motors along with some other small factors. Even without this downward revision, real GDP was forecast to rise more slowly in the second half of the year than in the first half, mostly because of continued soft business investment and slower increases in government spending. The medium-term projection for real GDP growth was essentially unchanged, as revisions to the staff's assumptions about factors on which the forecast was conditioned, such as financial market variables, were small and offsetting. Real GDP was expected to decelerate modestly over the medium term, mostly because of a waning boost from fiscal policy. Output was forecast to expand at a rate a little above the staff's estimate of its potential rate of growth in 2019 and 2020 and then to slow to a pace slightly below potential output growth in 2021 and 2022. The unemployment rate was projected to be roughly flat through 2022 and to remain below the staff's estimate of its longer-run natural rate.

The staff's forecast for core PCE price inflation this year was revised down a little in response to recent data. Beyond this year, the projection for core inflation was unrevised, and the forecast for total inflation was a little lower in 2020 because of a downward revision in projected consumer energy prices. Both total inflation and core inflation were forecast to move up slightly next year, as the low inflation readings early this year were viewed as transitory; nevertheless, both inflation measures were forecast to continue to run somewhat below 2 percent through 2022.

The staff continued to view the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years. Moreover, the staff still judged that the risks to the forecast for real GDP growth were tilted to the downside, with a corresponding skew to the upside for the unemployment rate. Important factors in that assessment were that international trade tensions and foreign economic developments seemed more likely to move in directions that could have significant negative effects on the U.S. economy than to resolve more favorably than assumed. In addition, softness in business investment and manufacturing so far this year was seen as pointing to the possibility of a more substantial slowing in economic growth than the staff projected. The risks to the inflation projection were also viewed as having a downward skew, in part because of the downside risks to the forecast for economic activity.

Participants' Views on Current Conditions and the Economic Outlook

Participants agreed that the labor market had remained strong over the intermeeting period and that economic activity had risen at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Although household spending had risen at a strong pace, business fixed investment and exports had remained weak. On a 12-month basis, overall inflation and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed.

Participants generally viewed the economic outlook as positive. Participants judged that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective were the most likely outcomes, and they indicated that their views on these outcomes had changed little since the September meeting. Uncertainties associated with trade tensions as well as geopolitical risks had eased somewhat, though they remained elevated. In addition, inflation pressures remained muted. The risk that a global growth slowdown would further weigh on the domestic economy remained prominent.

In their discussion of the household sector, participants agreed that consumer spending was increasing at a strong pace. They also generally expected that, in the period ahead, household spending would likely remain on a firm footing, supported by strong labor market conditions, rising incomes, and favorable

financial conditions. In addition, survey measures of consumer confidence remained high, and a couple of participants commented that business contacts in consumer-facing industries reported strong demand. Many participants noted that components of household spending that are thought to be particularly sensitive to interest rates had improved, including purchases of consumer durables. In addition, residential investment had turned up. Most participants who reported on spending by households in their Districts also cited favorable conditions for consumer spending, although several participants reported mixed data on spending or an increase in precautionary savings in their Districts.

In their discussions of the business sector, participants saw trade tensions and concerns about the global growth outlook as the main factors contributing to weak business investment and exports and the associated restraint on domestic economic growth. Moreover, participants generally expected that trade uncertainty and sluggish global growth would continue to damp investment spending and exports. A number of participants judged that tight labor market conditions were also causing firms to forego investment expenditures, or invest in automation systems to reduce the need for additional hiring. However, business sentiment appeared to remain strong for some industries, particularly those most closely connected with consumer goods.

Participants discussed developments in the manufacturing, energy, and agricultural sectors of the U.S. economy. Manufacturing production remained weak, and continuing concerns about global growth and trade uncertainty suggested that conditions were unlikely to improve materially over the near term. In addition, the labor strike at General Motors had disrupted motor vehicle output, and ongoing issues at Boeing were slowing manufacturing in the commercial aircraft industry. A couple of participants noted that activity was particularly weak for the energy industry, in part because of low petroleum prices. In addition, a few participants noted ongoing challenges in the agricultural sector, including those associated with lower crop yields, tariffs, weak export demand, and difficult financial positions for many farmers. One bright spot for the agricultural sector was that some commodity prices had firmed recently.

Participants judged that conditions in the labor market remained strong, with the unemployment rate near historical lows and continued solid job gains, on average. In addition, some participants commented on the strength or improvement in labor force participation nationally or in their Districts. However, the pace of increases in employment had slowed some, on net, in recent months. On the one hand, the slowing could be interpreted as a natural consequence of the economy being near full employment. On the other hand, slowing job gains might also be indicative of some cooling in labor demand, which may be consistent with an observed decline in the rate of job openings and decreases in other measures of labor market tightness. Several participants commented that the preliminary benchmark revision released in August by the Bureau of Labor Statistics had indicated that payroll employment gains would likely show less momentum coming into this year once those revisions are incorporated in published data early next year. Growth of wages had also slowed this year by some measures. Consistent with strong national data on the labor market, business contacts in many Districts indicated continued strong labor demand, with firms still reporting difficulties finding qualified workers, or broadening their recruiting to include traditionally marginalized groups.

In their discussion of inflation developments, participants noted that readings on overall and core PCE inflation, measured on a 12-month change basis, had continued to run below the Committee's symmetric 2 percent objective. While survey-based measures of longer-term inflation expectations were generally little changed, some measures of households' inflation expectations had moved down to historically low levels. Market-based measures of inflation compensation remained low, with some longer-term measures being at or near multi-year lows. Weakness in the global economy, perceptions of downside risks to growth, and subdued global inflation pressures were cited as factors tilting inflation risk to the downside, and a few participants commented that they expected inflation to run below 2 percent for some time. Some other participants, however, saw the recent inflation data as consistent with their previous assessment that much of the weakness seen early in the year would be transitory, or that some recent monthly readings seemed broadly consistent with the Committee's longer-run inflation objective of 2 percent. A couple of participants noted that some measures of inflation could temporarily move above 2 percent early next year because of the transitory effects of tariffs.

Participants also discussed risks regarding the outlook for economic activity, which remained tilted to the downside. Some risks were seen to have eased a bit, although they remained elevated. There were

some tentative signs that trade tensions were easing, the probability of a no-deal Brexit was judged to have lessened, and some other geopolitical tensions had diminished. Several participants noted that statistical models designed to gauge the probability of recession, including those based on information from the yield curve, suggested that the likelihood of a recession occurring over the medium term had fallen somewhat over the intermeeting period. However, other downside risks had not diminished. In particular, some further signs of a global slowdown in economic growth emerged; weakening in the global economy could further restrain the domestic economy, and the risk that the weakness in domestic business spending, manufacturing, and exports could give rise to slower hiring and weigh on household spending remained prominent.

Among those participants who commented on financial stability, most highlighted the risks associated with high levels of corporate indebtedness and elevated valuation pressures for a variety of risky assets. Although financial stability risks overall were seen as moderate, several participants indicated that imbalances in the corporate debt market had grown over the economic expansion and raised the concern that deteriorating credit quality could lead to sharp increases in risk spreads in corporate bond markets; these developments could amplify the effects of an adverse shock to the economy. Several participants were concerned that some banks had reduced the sizes of their capital buffers at a time when they should be rising. A few participants observed that valuations in equity and bond markets were high by historical standards and that CRE valuations were also elevated. A couple of participants indicated that market participants may be overly optimistic in the pricing of risk for corporate debt. A couple of participants judged that the monitoring of financial stability vulnerabilities should also encompass risks related to climate change.

In their consideration of the monetary policy options at this meeting, most participants believed that a reduction of 25 basis points in the target range for the federal funds rate would be appropriate. In discussing the reasons for such a decision, these participants continued to point to global developments weighing on the economic outlook, the need to provide insurance against potential downside risks to the economic outlook, and the importance of returning inflation to the Committee's symmetric 2 percent objective on a sustained basis. A couple of participants who were supportive of a rate cut at this meeting indicated that the decision to reduce the federal funds rate by 25 basis points was a close call relative to the option of leaving the federal funds rate unchanged at this meeting.

Many participants judged that an additional modest easing at this meeting was appropriate in light of persistent weakness in global growth and elevated uncertainty regarding trade developments. Nonetheless, these participants noted that incoming data had continued to suggest that the economy had proven resilient in the face of continued headwinds from global developments and that previous adjustments to monetary policy would continue to help sustain economic growth. In addition, several participants suggested that a modest easing of policy at this meeting would likely better align the target range for the federal funds rate with a variety of indicators used to assess the appropriate policy stance, including estimates of the neutral interest rate and the slope of the yield curve. A couple of participants judged that there was more room for the labor market to improve. Accordingly, they saw further accommodation as best supporting both of the Committee's dual-mandate objectives.

Many participants continued to view the downside risks surrounding the economic outlook as elevated, further underscoring the case for a rate cut at this meeting. In particular, risks to the outlook associated with global economic growth and international trade were still seen as significant despite some encouraging geopolitical and trade-related developments over the intermeeting period. In light of these risks, a number of participants were concerned that weakness in business spending, manufacturing, and exports could spill over to labor markets and consumer spending and threaten the economic expansion. A few participants observed that the considerations favoring easing at this meeting were reinforced by the proximity of the federal funds rate to the ELB. In their view, providing adequate accommodation while still away from the ELB would best mitigate the possibility of a costly return to the ELB.

Many participants also cited the level of inflation or inflation expectations as justifying a reduction of 25 basis points in the federal funds rate at this meeting. Inflation continued to run below the Committee's symmetric 2 percent objective, and inflationary pressures remained muted. Several participants raised concerns that measures of inflation expectations remained low and could decline further without a more accommodative policy stance. A couple of

these participants, pointing to experiences in Japan and the euro area, were concerned that persistent inflation shortfalls could lead to a decline in longer-run inflation expectations and less room to reduce the federal funds rate in the event of a future recession. In general, the participants who justified further easing at this meeting based on considerations related to inflation viewed this action as helping to move inflation up to the Committee's 2 percent objective on a sustained basis and to anchor inflation expectations at levels consistent with that objective.

Some participants favored maintaining the existing target range for the federal funds rate at this meeting. These participants suggested that the baseline projection for the economy remained favorable, with inflation expected to move up and stay near the Committee's 2 percent objective. They also judged that policy accommodation was already adequate and, in light of lags in the transmission of monetary policy, preferred to take some time to assess the economic effects of the Committee's previous policy actions before easing policy further. Several participants noted that downside risks had diminished over the intermeeting period and saw little indication that weakness in business sentiment was spilling over into labor markets and consumer spending. A few participants raised the concern that a further easing of monetary policy at this meeting could encourage excessive risk-taking and exacerbate imbalances in the financial sector.

With regard to monetary policy beyond this meeting, most participants judged that the stance of policy, after a 25 basis point reduction at this meeting, would be well calibrated to support the outlook of moderate growth, a strong labor market, and inflation near the Committee's symmetric 2 percent objective and likely would remain so as long as incoming information about the economy did not result in a material reassessment of the economic outlook. However, participants noted that policy was not on a preset course and that they would be monitoring the effects of the Committee's recent policy actions, as well as other information bearing on the economic outlook, in assessing the appropriate path of the target range for the federal funds rate. A couple of participants expressed the view that the Committee should reinforce its postmeeting statement with additional communications indicating that another reduction in the federal funds rate was unlikely in the near term unless incoming information was consistent with a significant slowdown in the pace of economic activity.

Committee Policy Action

In their discussion of monetary policy for this meeting, members noted that information received since the September meeting indicated that the labor market remained strong and that economic activity had been rising at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Household spending had been rising at a strong pace. However, business fixed investment and exports remained weak, as softness in global growth and international trade developments continued to weigh on those sectors. On a 12-month basis, both the overall inflation rate and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low. Survey-based measures of longer-term inflation expectations were little changed.

In light of the implications of global developments for the economic outlook as well as muted inflation pressures, most members agreed to lower the target range for the federal funds rate to 1½ to 1¾ percent at this meeting. The members who supported this action viewed it as consistent with helping offset the effects on aggregate demand of weak global growth and trade developments, insuring against downside risks arising from those sources, and promoting a more rapid return of inflation to the Committee's symmetric 2 percent objective. Two members preferred to maintain the current target range for the federal funds rate at this meeting. These members indicated that the economic outlook remained positive and that they anticipated, under an unchanged policy stance, continued strong labor market conditions and solid growth in activity, with inflation gradually moving up to the Committee's 2 percent objective.

Members agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its maximum-employment objective and its symmetric 2 percent inflation objective. They also agreed that those assessments would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

With regard to the postmeeting statement, members agreed to update the language of the Committee's description of incoming data to acknowledge that investment spending and U.S. exports had remained weak. In describing the monetary policy outlook, they also agreed to remove the "act as appropriate" language and emphasize that the Committee would continue to monitor the implications of incoming information for the economic outlook as it assessed the appropriate path of the target range for the federal funds rate. This change was seen as consistent with the view that the current stance of monetary policy was likely to remain appropriate as long as the economy performed broadly in line with the Committee's expectations and that policy was not on a preset course and could change if developments emerged that led to a material reassessment of the economic outlook.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective October 31, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1½ to 1¾ percent. In light of recent and expected increases in the Federal Reserve's nonreserve liabilities, the Committee directs the Desk to purchase Treasury bills at least into the second quarter of next year to maintain over time ample reserve balances at or above the level that prevailed in early September 2019. The Committee also directs the Desk to conduct term and overnight repurchase agreement operations at least through January of next year to ensure that the supply of reserves remains ample even during periods of sharp increases in nonreserve liabilities, and to mitigate the risk of money market pressures that could adversely affect policy implementation. In addition, the Committee directs the Desk to conduct overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.45 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to continue reinvesting all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will continue to be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in September indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although household spending has been rising at a strong pace, business fixed investment and exports remain weak. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Committee decided to lower the target range for the federal funds rate to 1½ to 1¾ percent. This action supports the Committee's view that sus-

tained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. The Committee will continue to monitor the implications of incoming information for the economic outlook as it assesses the appropriate path of the target range for the federal funds rate.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, and Randal K. Quarles.

Voting against this action: Esther L. George and Eric Rosengren.

President George dissented at this meeting because she believed that an unchanged setting of monetary policy was appropriate based on incoming data and the outlook for economic activity over the medium term. Recognizing risks to the outlook from the effects of trade developments and weaker global activity, President George would be prepared to adjust policy should incoming data point to a materially weaker outlook for the economy. President Rosengren dissented because he judged that monetary policy was already accommodative and that additional accommodation was not needed for an economy in which labor markets are very tight. He judged that providing additional accommodation posed risks of further inflating the prices of risky assets and encouraging households and firms to take on too much leverage.

Consistent with the Committee's decision to lower the target range for the federal funds rate to 1½ to 1¾ percent, the Board of Governors voted unanimously to lower the interest rate paid on required and excess reserve balances to 1.55 percent and voted unanimously to approve a ¼ percentage point decrease in the primary credit rate to 2.25 percent, effective October 31, 2019.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, December 10–11, 2019. The meeting adjourned at 9:50 a.m. on October 30, 2019.

Notation Vote

By notation vote completed on October 8, 2019, the Committee unanimously approved the minutes of the Committee meeting held on September 17–18, 2019.

Videoconference meeting of October 4, 2019

The Committee met by videoconference on October 4, 2019, to review developments in money markets and to discuss steps the Committee could take to facilitate efficient and effective implementation of monetary policy.

The staff reviewed recent developments in money markets and the effect of the Desk's continued offering of overnight and term repo operations. Staff analysis and market commentary suggested that many factors contributed to the funding stresses that emerged in mid-September. In particular, financial institutions' internal risk limits and balance sheet costs may have slowed the distribution of liquidity across the system at a time when reserves had dropped sharply and Treasury issuance was elevated. Although money market conditions had since improved, market participants expressed uncertainty about how funding market conditions may evolve over coming months, especially around year-end. Further out, the April 2020 tax season, with associated reductions in reserves around that time, was viewed as another point at which money market pressures could emerge.

The manager pro tem reviewed options that the Committee could consider to boost the level of reserves in the banking system and to address temporary money market pressures that could adversely affect monetary policy implementation. These options included a program of Treasury bill purchases coupled with overnight and term repo operations to maintain reserves at or above their early September level.

During their discussion, all FOMC participants agreed that control over the federal funds rate was a

priority and that recent money market developments suggested it was appropriate to consider steps at this time to maintain a level of reserves consistent with the Committee's chosen ample-reserves regime. Given the projected decline in reserves around year-end and in the spring of 2020, they judged that it was important to reach consensus soon on a near-term plan and associated communications.

All participants expressed support for a plan to purchase Treasury bills into the second quarter of 2020 and to continue conducting overnight and term repo operations at least through January of next year. Many participants supported conducting operations to maintain reserve balances around the level that prevailed in early September. Some others suggested moving to an even higher level of reserves to provide an extra buffer and greater assurance of control over the federal funds rate. In discussing the pace of Treasury bill purchases, many participants supported a relatively rapid pace to boost reserve levels quickly, while others supported a more moderate pace of purchases. Participants generally judged that Treasury bill purchases and the associated increase in reserves would, over time, result in a gradual reduction in the need for repo operations. A few participants indicated that purchasing Treasury notes and bonds with limited remaining maturities could also be considered as a way to boost reserves, particularly if the Federal Reserve faced constraints on the pace at which it could purchase Treasury bills. Participants generally acknowledged some uncertainty over the efficient and effective level of reserves and noted it would be prudent to continue to monitor money market developments and stand ready to adjust the plan as necessary. Overall, participants agreed that the pace of purchases as well as the parameters of the repo operations were technical details of monetary policy implementation not intended to affect the stance of monetary policy and should be communicated as such.

Most participants preferred not to wait until the October 29–30 FOMC meeting to issue a public statement regarding the planned Treasury bill purchases and repo operations. They noted that releasing a statement before the October 29–30 FOMC meeting would help reinforce the point that these actions were technical and not intended to affect the stance of policy. In addition, a few participants remarked that an earlier release would allow the Desk to begin boosting the level of reserves sooner. A couple of participants, however, wanted to wait until the October 29–30 FOMC meeting to announce the plan so as not to surprise market participants or lead them to infer that the Committee regarded the situation as dire and thus requiring immediate action. The Chair proposed having the staff produce a draft statement that the Committee could comment on early in the following week. Formal approval could occur by notation vote with an anticipated release of a statement to the public on October 11, 2019.

Participants discussed longer-term issues that the Committee might want to study once the near-term plan was in place. In particular, many participants mentioned that the Committee may want to continue its previous discussion of a standing repo facility as a part of the long-run implementation framework. Almost all of these participants noted that such a facility was an option to provide a backstop to buffer shocks that could adversely affect policy implementation, and several of these participants mentioned the potential for the facility to support banks' liquidity risk management while reducing the demand for reserves. Other participants, instead, highlighted that policy implementation had worked well with larger quantities of reserves and focused their discussion on actions to firmly establish an ample supply of reserves over the longer run. A number of participants noted that a discussion of a broader range of factors that affect the level and volatility of reserves may be appropriate at a future meeting.

On October 11, 2019, the Committee approved by notation vote the following statement that outlines steps to ensure that the supply of reserves remains ample so 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.

Statement Regarding Monetary Policy Implementation (Adopted October 11, 2019)

Consistent with its January 2019 Statement Regarding Monetary Policy Implementation and Balance Sheet Normalization, the Committee reaffirms its intention to implement monetary policy in 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 that the supply of reserves remains ample, the Committee

approved by notation vote completed on October 11, 2019, the following steps:

- In light of recent and expected increases in the Federal Reserve's non-reserve liabilities, the Federal Reserve will purchase Treasury bills at least into the second quarter of next year in order to maintain over time ample reserve balances at or above the level that prevailed in early September 2019.
- In addition, the Federal Reserve will conduct term and overnight repurchase agreement operations at least through January of next year to ensure that the supply of reserves remains ample even during periods of sharp increases in non-reserve liabilities, and to mitigate the risk of money market pressures that could adversely affect policy implementation.

These actions are purely technical measures to support the effective implementation of the FOMC's monetary policy, and do not represent a change in the stance of monetary policy. The Committee will continue to monitor money market developments as it assesses the level of reserves most consistent with efficient and effective policy implementation. The Committee stands ready to adjust the details of these plans as necessary to foster efficient and effective implementation of monetary policy.

In connection with these plans, the Federal Open Market Committee voted unanimously to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the System Open Market Account in accordance with the following domestic policy directive:

> "Effective October 15, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1-3/4 to 2 percent. In light of recent and expected increases in the Federal Reserve's non-reserve liabilities, the Committee directs the Desk to purchase Treasury bills at least into the second quarter of next year to maintain over time ample reserve balances at or above the level that prevailed in early September 2019. The Committee also directs the Desk to conduct term and overnight repurchase agreement operations at least through January of next year to ensure that the supply of reserves remains ample even during periods of sharp increases in non-reserve liabilities, and to mitigate the risk of money market pressures that could adversely affect policy implementation. In addition, the Committee directs the Desk to conduct overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.70 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to continue reinvesting all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will continue to be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

James A. Clouse
Secretary

Meeting Held on December 10–11, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 10, 2019, at 10:00 a.m. and continued on Wednesday, December 11, 2019, at 9:00 a.m.[1]

Present

Jerome H. Powell
Chair

John C. Williams
Vice Chair

Michelle W. Bowman

Lael Brainard

James Bullard

Richard H. Clarida

Charles L. Evans

Esther L. George

Randal K. Quarles

Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine
Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly
Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

Stacey Tevlin
Economist

Rochelle M. Edge, Eric M. Engen, Christopher J. Waller, William Wascher, Jonathan L. Willis, and Beth Anne Wilson
Associate Economists

Lorie K. Logan
Manager, System Open Market Account[2]

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Eric Belsky[3]
Director, Division of Consumer and Community Affairs, Board of Governors

Matthew J. Eichner[4]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Deputy Director, Division of Monetary Affairs, Board of Governors

Jon Faust
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joshua Gallin
Special Adviser to the Chair, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] The Committee appointed Lorie K. Logan to serve as the manager of the System Open Market Account at the conclusion of the meeting.

[3] Attended through the discussion of the review of the monetary policy framework.

[4] Attended through the discussion of developments in financial markets and open market operations.

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and Ivan Vidangos
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Shaghil Ahmed
Senior Associate Director, Division of International Finance, Board of Governors

Diana Hancock
Senior Associate Director, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim and Robert J. Tetlow
Senior Advisers, Division of Monetary Affairs, Board of Governors

Eric C. Engstrom
Senior Adviser, Division of Research and Statistics, and
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Elizabeth K. Kiser
Associate Director, Division of Research and Statistics, Board of Governors

Elizabeth Klee
Associate Director, Division of Financial Stability, Board of Governors

David López-Salido
Associate Director, Division of Monetary Affairs, Board of Governors

Glenn Follette, Patrick E. McCabe,[5] and John M. Roberts
Deputy Associate Directors, Division of Research and Statistics, Board of Governors

Matteo Iacoviello and Andrea Raffo[6]
Deputy Associate Directors, Division of International Finance, Board of Governors

Jeffrey D. Walker[3]
Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Etienne Gagnon
Assistant Director, Division of Monetary Affairs, Board of Governors

5 Attended Tuesday's session only.

6 Attended through the discussion of developments in financial markets and open market operations, and from the discussion of current monetary policy through the end of the meeting.

Paul Lengermann
Assistant Director, Division of Research and Statistics, Board of Governors

Penelope A. Beattie[3]
Section Chief, Office of the Secretary, Board of Governors

Seung J. Lee[7]
Section Chief, Division of International Finance, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Michele Cavallo and Kurt F. Lewis
Principal Economists, Division of Monetary Affairs, Board of Governors

Laura J. Feiveson[3]
Principal Economist, Division of Research and Statistics, Board of Governors

Nils Goernemann[3]
Senior Economist, Division of International Finance, Board of Governors

Donielle A. Winford
Information Management Analyst, Division of Monetary Affairs, Board of Governors

Becky C. Bareford
First Vice President, Federal Reserve Bank of Richmond

David Altig, Michael Dotsey, Jeffrey Fuhrer,[3] and Sylvain Leduc
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Philadelphia, Boston, and San Francisco, respectively

Todd E. Clark, Marc Giannoni,[3] and Spencer Krane
Senior Vice Presidents, Federal Reserve Banks of Cleveland, Dallas, and Chicago, respectively

Jonathan P. McCarthy, Alexander L. Wolman, and Patricia Zobel
Vice Presidents, Federal Reserve Banks of New York, Richmond, and New York, respectively

Thomas D. Tallarini, Jr.
Assistant Vice President, Federal Reserve Bank of Minneapolis

Karel Mertens[3]
Senior Economic Policy Advisor, Federal Reserve Bank of Dallas

7 Attended the discussion of economic developments and the outlook.

Daniel Cooper
Senior Economist and Policy Advisor, Federal Reserve Bank of Boston

Scott Davis
Senior Research Economist and Advisor, Federal Reserve Bank of Dallas

Julie Hotchkiss[3]
Research Economist and Senior Advisor, Federal Reserve Bank of Atlanta

Review of Monetary Policy Strategy, Tools, and Communication Practices

Participants continued to discuss issues related to the ongoing review of the Federal Reserve's monetary policy strategy, tools, and communication practices. The staff summarized the feedback received through the *Fed Listens* initiative, a series of 14 public-facing events conducted around the country with a broad range of individuals and groups. These events engaged with the public directly on issues pertaining to the dual-mandate objectives of maximum employment and stable prices. Representatives from underserved communities who participated in the *Fed Listens* events generally saw the current strong labor market as providing significant benefits to their communities, most notably by creating greater opportunities for individuals who have experienced difficulty finding jobs in the past. Nevertheless, these representatives noted that the benefits from current labor market conditions flowing to people in their communities were less than those implied by national statistics, and they expressed concerns that the recent gains might not be sustained in the event of an economic downturn. Business representatives reported experiencing challenges finding qualified workers and described several initiatives to attract and retain workers, including training programs and a willingness to employ individuals who are unlikely to have been considered in less favorable labor market conditions. Inflation developments elicited fewer comments at these events and were generally seen as posing less of a challenge than labor market conditions. Representatives of retirees mentioned difficulties associated with the rising costs of health care and prescription drugs, whereas those representing low- and middle-income communities pointed to the rising costs of basic necessities such as housing, utilities, and food. Business representatives emphasized the importance of low and stable inflation for planning and decisionmaking. Event participants were concerned about rising costs of living and generally perceived low inflation as desirable from that perspective. Event participants were asked about monetary policymakers' concerns regarding overall inflation running persistently below 2 percent; they noted that the Federal Reserve could better communicate its reasons for these concerns. When asked about the effects of changes in interest rates, representatives of underserved communities said that such changes had little effect on many members of their communities who have limited or no access to credit. Representatives of retirees conveyed a more negative view of low interest rates, given the greater reliance of wealthier retirees on interest income. Business representatives generally found the low interest rate environment beneficial.

The staff briefing also included an analysis of distributional considerations for monetary policy. Consistent with the feedback received at the *Fed Listens* events, the evidence reviewed by the staff showed that workers who are young, less educated, African American, or Hispanic tend to face a greater-than-average risk of losing their jobs during recessions. The staff used simulations from a specific macroeconomic model to explore how heterogeneity of households might affect the transmission of economic shocks and changes in monetary policy to the economy. The staff's simulations embedded the assumption that households have limited ability to borrow, which makes some households' consumption spending more sensitive to changes in income. As a result, in these simulations, downturns lead to larger contractions in aggregate demand than would be the case if all households could borrow to support their consumption spending in response to a loss in income. The amplification of recessionary shocks was especially large when the monetary policy response was constrained by the effective lower bound (ELB) on the policy interest rate. Overall, the analysis suggested that the costs of recessions, as well as the benefits of economic stabilization, might be larger than suggested by models that did not account for differences across households regarding their access to credit.

Participants agreed that the *Fed Listens* outreach efforts had informed their understanding of the goals and tradeoffs associated with monetary policy and had provided highly useful input into their deliberations. Several participants voiced their desire to continue the conversations initiated at the *Fed Listens* events. Participants also shared their appreciation of the feedback they receive on a regular basis from members of the public, including through the Federal Reserve System's extensive networks of contacts and

community outreach efforts. A few participants emphasized that policymakers' engagement with the public helps build trust, fosters transparency, and reinforces the credibility of the Federal Reserve.

Participants generally saw the feedback from *Fed Listens* events as reinforcing the importance of sustaining the economic expansion so that the effects of a persistently strong job market reach more of those who, in the past, had experienced difficulty finding employment. Several participants mentioned that sustaining strong labor market conditions helps workers build skills and cement their attachment to the labor force in a manner that might reduce the scarring effects of future downturns and might increase the maximum sustainable level of employment over the longer run. A number of participants also emphasized that sustaining strong labor market conditions is helpful for meeting the Committee's symmetric 2 percent inflation goal.

Some participants spoke to some of the challenges associated with assessing the maximum level of employment. A few participants noted that aggregate statistics mask significant heterogeneity in labor market outcomes. A few others pointed to the continued absence of significant wage and price pressure—traditionally seen as a symptom of a tight labor market—even as the unemployment rate had moved below most estimates of its longer-run level. A few participants raised the possibility that the maximum sustainable level of employment had increased as the expansion continued to draw workers who would otherwise not be in the labor force.

Regarding inflation, participants recognized that segments of the public generally do not regard the fact that aggregate inflation is running modestly below the Committee's 2 percent goal as a problem. A few participants noted that the public's view on this issue was understandable from the perspective of households and businesses going about their daily lives in an economy with low and stable inflation. That said, a couple of participants cautioned that inflation could emerge as a concern among members of the public if it became more volatile or ran at levels substantially away from the Committee's goal. Many participants also warned about the macro-economic consequences of not achieving 2 percent on a sustained basis. In particular, if inflation ran persistently below the Committee's objective, longer-term inflation expectations could drift down, resulting in lower actual inflation. With lower inflation, nominal interest rates would be lower as well and therefore closer to the ELB. As a result, the scope for monetary policy to support the economy in a future downturn through interest rate cuts would be reduced, a situation that would likely worsen economic outcomes for households and businesses. In light of these considerations, participants generally agreed that they need to communicate more clearly to the public their rationale for, and commitment to, achieving 2 percent inflation on a sustained basis and of ensuring that longer-run inflation expectations are anchored at levels consistent with this objective. To ensure the effectiveness of these and other communications, several participants stressed that the Federal Reserve needs to adapt its communications to various audiences. A few participants emphasized that communications about the Committee's resolve to return inflation to 2 percent need to be backed with actions and results to ensure that the public sees these communications as credible.

With respect to the role of distributional considerations in the pursuit of the dual-mandate objectives, several participants noted that it was important for policymakers to be cognizant of how monetary policy affects different segments of the population. Most participants commented on the large costs that recessions and high unemployment impose on communities, notably on their most vulnerable constituents, and stressed the need for monetary policy to seek to avoid recessions in the first place or reduce their severity when they occur. A number of these participants emphasized that, while monetary policy actions can have different effects across groups, monetary policy actions that are driven by the pursuit of maximum employment and stable prices ultimately benefit all groups. Participants viewed the role of monetary policy as supporting a strong, stable economy that benefits all Americans. Various participants noted that monetary policy is a blunt instrument whose effects cannot be targeted to specific communities. Several participants remarked that while monetary policy actions can improve the conditions of vulnerable communities, notably by supporting a strong job market, these actions may not reduce inequality in wealth and income. For these and other reasons, many participants emphasized that policies other than monetary policy are appropriate to directly address inequality. In addition, a couple of participants cautioned that maintaining accommodative financial conditions could be counterproductive if doing so fueled financial imbalances and exacerbated the next economic downturn.

Participants agreed that their review of monetary policy strategy, tools, and communication practices would continue at future meetings and, as a result, that the Committee would not reaffirm its existing Statement on Longer-Run Goals and Monetary Policy Strategy at the January 2020 meeting. The Committee plans to revisit this statement closer to the conclusion of the review, likely around the middle of 2020.

Developments in Financial Markets and Open Market Operations

The System Open Market Account manager first reviewed developments in financial markets over the intermeeting period. Market prices appeared to respond mainly to signs of stabilization in the U.S. and global economies and to developments associated with trade policy. Market participants noted some risks to the outlook including Brexit and geopolitical factors.

Regarding expectations for U.S. monetary policy, the Open Market Trading Desk's surveys and market-based indicators pointed to a very high perceived likelihood of no change in the target range for the federal funds rate at this meeting. The expected path of the federal funds rate implied by the medians of survey respondents' modal forecasts remained essentially flat through 2020. Survey- and market-implied uncertainty about the near-term outlook for monetary policy declined, with market commentary attributing the decrease in part to the Committee's October communications. Survey respondents placed a higher probability on a reduction in the target range over 2020 than an increase.

The manager turned next to a review of money market developments since the October meeting, starting with an update on the implementation of the Committee's strategy to ensure ample reserves. Reserve management purchases of Treasury bills continued at a pace of $60 billion per month, with propositions remaining strong and little discernible effect on market functioning. While these purchases accumulated, the Desk continued to conduct regular repurchase agreement (repo) operations in order to maintain reserves at or above the level that prevailed in early September. Repos outstanding from these Desk operations totaled roughly $215 billion per day, consisting of both overnight and term operations.

As reserve levels increased, the distribution of reserves across bank types became comparable with where it was in early September. The federal funds rate and other overnight money market rates fell modestly and were close to the interest on excess reserves (IOER) rate for most of the period. The intraday dispersion of rates was also lower than when reserves were at similar levels before September. In addition to helping keep reserves ample, repo operations likely have reduced pressures in money markets and the dispersion in money market rates.

With respect to conditions around year-end, the manager noted that forward measures of market pricing continued to indicate expectations of temporary upward pressures on some secured rates. Money market rates are often volatile around year-end, and Federal Reserve operations are not intended to eliminate all year-end pressures but rather to ensure that reserve supply remains ample and to mitigate the risk that such pressures could adversely affect the implementation of monetary policy. The Desk had already conducted three longer-term repo operations spanning year-end—for a total of $75 billion—and planned to announce an additional longer-term operation, as well as increase the amount of overnight repo offered around the year-end date. The manager reported that the Desk is closely monitoring reserves and money market conditions and that it is prepared to adjust plans as needed.

The manager discussed two operational considerations around policy implementation. The first involved the risk that future Treasury bill purchases could have a larger effect on liquidity in the Treasury bill market in light of expected seasonal declines in bill issuance and the Federal Reserve's growing ownership share of outstanding bills. If this risk were to materialize, the Federal Reserve could consider expanding the universe of securities purchased for reserve management purposes to include coupon-bearing Treasury securities with a short time to maturity. Purchases of these short-dated securities would not affect broader financial conditions or the stance of monetary policy. The manager also discussed expectations to gradually transition away from active repo operations next year as Treasury bill purchases supply a larger base of reserves. The calendar of repo operations starting in mid-January could reflect a gradual reduction in active repo operations. The manager indicated that some repos might be needed at least through April, when tax payments will sharply reduce reserve levels.

As reserves remain ample, the manager noted that it may become appropriate at some point to implement

a technical adjustment to the IOER rate and the offered rate on overnight reverse repurchase (ON RRP) agreements. Should conditions warrant this adjustment, the IOER rate could move closer to the middle of the target range for the federal funds rate, and the ON RRP rate could be realigned with the bottom of the target range.

The manager also noted that the Federal Reserve Bank of New York communicated to its customers that the remuneration rate on the foreign repo pool will be revised to be generally equivalent to the overnight reverse repo rate. This action may reduce activity in the pool to some extent and increase the level of reserves.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information available for the December 10–11 meeting indicated that labor market conditions remained strong and that real gross domestic product (GDP) was increasing at a moderate rate in the second half of 2019. Consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), remained below 2 percent in October. Survey-based measures of longer-run inflation expectations were little changed.

Total nonfarm payroll employment surged in November, boosted in part by the return of auto workers who had previously been on strike in October. The average pace of job gains over the three months ending in November, which is unaffected by the strike, was stronger than earlier in 2019. However, the rate of increase in payrolls so far this year was slower than last year, even accounting for the anticipated effects of the Bureau of Labor Statistics' benchmark revision to payroll employment, which will be incorporated in the published data in February 2020. The unemployment rate ticked up in October but then moved back down to its 50-year low of 3.5 percent in November; the labor force participation rate and the employment-to-population ratio held steady, on balance, over those two months. The unemployment rates for African Americans, Asians, Hispanics, and whites were little changed, on net, over the past two months; the unemployment rate for each group was below its level at the end of the previous economic expansion, though persistent differentials between these rates remained. The average share of workers employed part time for economic reasons in November stayed below its level in late 2007. Both the rate of private-sector job openings and the rate of quits edged down in September, but these readings were still at fairly elevated levels. The four-week moving average of initial claims for unemployment insurance benefits through late November remained near historically low levels. In general, recent measures of nominal wage growth continued to be moderate. Total labor compensation per hour in the business sector increased 3.7 percent over the four quarters ending in the third quarter. The employment cost index for private-sector workers rose 2.7 percent over the 12 months ending in September, while average hourly earnings for all employees increased 3.1 percent over the 12 months ending in November.

Total consumer prices, as measured by the PCE price index, increased 1.3 percent over the 12 months ending in October. Core PCE price inflation (which excludes changes in consumer food and energy prices) was 1.6 percent over that same 12-month period, while consumer food price inflation was lower than core inflation and consumer energy prices declined. The trimmed mean measure of 12-month PCE price inflation constructed by the Federal Reserve Bank of Dallas remained at 2 percent in October. The consumer price index (CPI) rose 2.1 percent over the 12 months ending in November, while core CPI inflation was 2.3 percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the University of Michigan Surveys of Consumers, the Survey of Professional Forecasters, the Survey of Consumer Expectations from the Federal Reserve Bank of New York, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed, on balance; the Michigan survey measure ticked back down in early December to the bottom of its recent range after ticking up in November.

Real PCE continued to expand in October following a strong gain in the third quarter. Sales of light motor vehicles rose markedly in November. Key factors that influence consumer spending—including the low unemployment rate, the upward trend in real disposable income, high levels of households' net worth, and generally low interest rates—were supportive of solid real PCE growth in the near term. The Michigan survey measure of consumer senti-

ment rose again in early December to an upbeat level and had more than recovered from its drop in August; the Conference Board survey measure of consumer confidence remained at a favorable level in November.

Real residential investment appeared to be increasing further after rising solidly in the third quarter. Both starts and building permit issuance for single-family homes increased in October, and starts of multifamily units also rose. Existing home sales continued to increase in October, although new home sales edged down following a solid gain in the third quarter. All told, the data on construction and sales continued to suggest that the decline in mortgage rates since late 2018 has been boosting housing activity.

Real nonresidential private fixed investment remained weak overall after declining in the second and third quarters. Nominal shipments and new orders of nondefense capital goods excluding aircraft increased solidly in October following a string of decreases, although many forward-looking indicators pointed to continued softness in business equipment spending. Most measures of business sentiment were still downbeat, analysts' expectations of firms' longer-term profit growth edged down further, and concerns about trade developments continued to weigh on firms' investment decisions. Nominal business expenditures for nonresidential structures outside of the drilling and mining sector continued to decline in October, and the total number of crude oil and natural gas rigs in operation—an indicator of business spending for structures in the drilling and mining sector—fell further through early December.

Industrial production decreased in October and remained notably lower than at the beginning of the year. Production in October continued to be held down by the strike at General Motors, although the end of the strike and automakers' schedules suggested that assemblies of light motor vehicles would rebound in November. Overall manufacturing production appeared likely to remain soft in coming months, reflecting generally weak readings on new orders from national and regional manufacturing surveys, declining domestic business investment, slow economic growth abroad, and a persistent drag from trade developments.

Total real government purchases were increasing slowly in the fourth quarter. Nominal defense spending in October pointed to only a modest rise in real federal government purchases. Real purchases by state and local governments looked to be moving roughly sideways; state and local payrolls expanded modestly, on net, over October and November, and nominal construction spending by these governments was about flat in October.

The nominal U.S. international trade deficit narrowed in October. Exports fell a little, with declines in all export categories except for services and industrial supplies. Imports fell much more, and the declines were broad based, with the largest contributions coming from imports of consumer goods and automotive products. Available trade data suggested that the contribution of net exports to real GDP growth, which was slightly negative in the third quarter, would turn somewhat positive in the fourth quarter.

Foreign economic growth slowed further in the third quarter amid continued weakness in the global manufacturing sector. Recent monthly indicators pointed to a stabilization in the pace of economic growth in China and several advanced foreign economies. However, other indicators suggested that social unrest weighed heavily on economic activity in several countries, most notably in Hong Kong, and that weakness persisted in parts of Latin America. Foreign inflation picked up somewhat as energy prices stabilized, although inflation remained relatively low in most foreign economies.

Staff Review of the Financial Situation

Investor sentiment fluctuated over the intermeeting period largely in response to ongoing trade negotiations between the United States and China. On net, equity prices increased moderately while corporate bond spreads narrowed slightly. Yields on nominal Treasury securities were little changed. Financing conditions for businesses and households remained supportive of spending and economic activity.

Federal Reserve communications over the intermeeting period were viewed as suggesting that additional near-term changes to the target range for the federal funds rate were less likely than had previously been expected. A straight read of the probability distribution for the federal funds rate implied by options prices suggested that investors assigned a high probability to the target range remaining unchanged at the December FOMC meeting. Forward rates implied by overnight index swap quotes declined slightly, on net, and implied about a 25 basis point decline in the federal funds rate by the end of 2020.

Nominal Treasury yields fluctuated over the intermeeting period but, on net, the Treasury curve was little changed. Measures of inflation compensation over the next 5 years and 5 to 10 years ahead based on Treasury Inflation-Protected Securities increased slightly from near multiyear low levels.

Broad stock price indexes increased moderately over the intermeeting period amid movements largely attributed to trade-related developments and stronger-than-expected U.S. employment reports. Option-implied volatility on the S&P 500 index increased modestly but remained near the low end of its historical distribution. On net, corporate credit spreads narrowed slightly.

Conditions in short-term funding markets were stable over the intermeeting period. Interest rates for overnight secured and unsecured loans fell in line with the 25 basis point decrease in the target range for the federal funds rate at the October FOMC meeting. Trading in money markets was orderly, with volumes in normal ranges and spreads narrower relative to the IOER rate. Pressures on rates at October month-end and November mid-month—both days with sizable settlements of Treasury auctions—were muted compared with other recent Treasury issuance days. The Desk's open market operations aimed at maintaining ample reserves proceeded smoothly.

As in U.S. markets, sentiment in foreign financial markets fluctuated in response to news on U.S.–China trade negotiations. Most foreign equity price indexes and long-term sovereign yields in Germany, the United Kingdom, and Japan increased modestly on net. The broad dollar index ended the period little changed. Political unrest in Hong Kong and Latin America garnered some financial market attention and led to a weakening of some Latin American currencies, notably the Chilean peso, but the imprint on broader financial markets was limited.

Financing conditions for nonfinancial businesses remained accommodative. Gross issuance of corporate bonds was robust, on average, in October and November. Gross issuance of institutional leveraged loans remained near recent monthly averages. Meanwhile, commercial and industrial loans held by banks contracted in October but increased modestly in November. The credit quality of nonfinancial corporations deteriorated slightly in recent months but remained solid overall. After particularly strong gross equity issuance in September, initial public offerings declined and seasoned offerings remained solid in October and November. Credit conditions for both small businesses and municipalities stayed accommodative.

In the commercial real estate (CRE) sector, financing conditions also remained generally accommodative. Commercial mortgage-backed securities (CMBS) spreads widened slightly over the intermeeting period but remained near the low end of their post-crisis range. Agency and non-agency CMBS issuance increased in October to a post-crisis high. CRE loan growth at banks also increased in October relative to recent quarters.

Financing conditions in the residential mortgage market remained accommodative over the intermeeting period. Mortgage rates were little changed since the October FOMC meeting. Consistent with this year's decline in mortgage rates, home-purchase originations and refinancing originations both rose. Mortgage credit standards were little changed.

Financing conditions in consumer credit markets remained generally supportive of growth in consumer spending, although conditions continued to be tight for nonprime borrowers. Auto loans increased, consistent with significant declines in auto loan interest rates this year. Credit card debt grew at a solid pace, and interest rates on credit card debt began to fall. Consumer asset-backed securities issuance was strong through October as spreads stabilized at levels that were somewhat above their post-crisis averages.

Staff Economic Outlook

The projection for U.S. real GDP growth prepared by the staff for the December FOMC meeting was revised up a little for the second half of 2019 relative to the previous projection. This revision primarily reflected incoming data for household spending and business investment that were somewhat stronger than expected. Even with this upward revision, real GDP was forecast to rise more slowly in the second half of the year than in the first half, mostly because of continued soft business investment and slower increases in government spending. The forecast for real GDP growth over the medium term was also revised up a bit, on balance, primarily in response to a somewhat higher projected path for equity prices. Nevertheless, real GDP growth was still expected to slow modestly in the coming years, largely because of a fading boost from fiscal policy. Output was forecast to expand at a rate a little above the staff's estimate of its potential rate of growth in 2019 through 2021

and then to slow to a pace slightly below potential output growth in 2022. The unemployment rate was projected to be roughly flat at around its current level through 2022 and to remain below the staff's estimate of its longer-run natural rate.

The staff's forecast for total PCE price inflation in 2019 was revised down a bit, as a downward revision to core PCE prices in response to recent data was partly offset by an upward revision to consumer energy prices. Beyond 2019, core inflation was expected to be above its pace this year, and this projection was revised up a touch because of the slightly tighter resource utilization in the current forecast. The projection for total inflation in 2020 was a little lower than for core inflation due to a projected decline in consumer energy prices. Over the remainder of the medium-term projection, total inflation was expected to be about the same as core inflation, although both inflation measures were forecast to continue to run a bit below 2 percent through 2022.

The staff continued to view the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as generally similar to the average of the past 20 years. The staff viewed the downside risks to economic activity as having eased a bit since the previous forecast but still judged that the risks to the forecast for real GDP growth were tilted to the downside, with a corresponding skew to the upside for the unemployment rate. Important factors influencing this assessment were that international trade tensions and foreign economic developments seemed more likely to move in directions that could have significant negative effects on the U.S. economy than to resolve more favorably than assumed. In addition, softness in business investment and manufacturing production so far this year were seen as pointing to the possibility of a more substantial slowing in economic growth than the staff projected. The risks to the inflation projection were also viewed as having a downward skew, in part because of the downside risks to the forecast for economic activity.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real GDP growth, the unemployment rate, and inflation for each year from 2019 through 2022 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate. The longer-run projections represented each participant's assessment of the rate 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. These projections are described in the Summary of Economic Projections (SEP), which is an addendum to these minutes.

Participants agreed that the labor market had remained strong over the intermeeting period and that economic activity had risen at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Although household spending had risen at a strong pace, business fixed investment and exports had remained weak. On a 12-month basis, overall inflation and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed.

Participants generally expected sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. This outlook reflected, at least in part, the support provided by the current stance of monetary policy. Nevertheless, global developments, related to both persistent uncertainty regarding international trade and weakness in economic growth abroad, continued to pose some risks to the outlook, and inflation pressures remained muted.

In their discussion of the household sector, participants agreed that spending had increased at a strong pace. They generally expected that consumption spending would likely remain on a firm footing, supported by strong labor market conditions, rising incomes, and solid consumer confidence. In addition, residential investment had continued to pick up, reflecting, in part, the effects of lower mortgage rates. Many participants commented that business contacts in consumer-related industries reported strong demand or that contacts were optimistic about the holiday retail spending season. However, some participants observed that recent data on retail sales or motor vehicle spending had decelerated slightly.

With respect to the business sector, participants saw trade developments and concerns about the global economic growth outlook as the main factors contributing to weak business investment and exports.

Participants generally expected these factors to continue to damp business investment and exports. They expressed similar concerns about activity in manufacturing industries. A few participants noted that the current weakness in capital expenditures could lead to a slower pace of productivity growth in future years. A few others observed that businesses were diversifying their supply chains or investing in technology to adapt to persistent uncertainty regarding international trade, which might mitigate the effects of such uncertainty on future business spending.

A number of participants commented on challenges facing the energy and agriculture sectors. A few participants remarked that activity in the energy sector was especially weak, reflecting low petroleum prices, low profitability, and tight financing conditions for energy-producing firms. Several participants noted that the agricultural sector also faced a number of difficulties, including those associated with trade developments, weak export demand, and challenging financial positions for many farmers. A couple of participants noted that farm subsidies from the federal government were offsetting a portion of the financial strain on farmers.

Participants judged that conditions in the labor market remained strong, with the unemployment rate at a 50-year low, job gains remaining solid, and some measures of labor force participation increasing further. The unemployment rate was likely to remain low going forward, and various participants remarked that there were some indications that further strengthening in overall labor market conditions was possible without creating undesirable pressures on resources. In particular, a number of participants noted that the labor force participation rate could rise further still. Moreover, measures of wage growth had generally remained moderate. However, a few participants commented that increases in the labor force would likely moderate as slack in the labor market diminished. In addition, a couple of participants remarked that the preliminary benchmark revision released in August by the Bureau of Labor Statistics had indicated that payroll employment gains would likely show less momentum coming into this year once those revisions are incorporated in published data early next year. A couple of other participants thought it was important to better understand the quality of jobs being created. Business contacts in many Districts indicated continued strong labor demand, with firms reporting difficulties in finding qualified workers or broadening their recruiting to include traditionally marginalized groups. A number of participants noted that wage pressures were evident for some industries in their Districts, and a couple of participants commented that firms were responding to those pressures in a variety of ways, including investing in technology that could serve as a substitute for labor.

In their discussion of inflation developments, participants noted that recent readings on overall and core PCE inflation, measured on a 12-month change basis, had continued to run below 2 percent. Survey-based measures of longer-term inflation expectations were little changed, and market-based measures of inflation compensation remained low. A few participants commented on factors that may temporarily exert upward pressure on some measures of inflation in the coming months. Assessing all these factors, participants generally expected that inflation would return to the 2 percent objective as the economic expansion continued and resource utilization remained high. However, weakness abroad and subdued global inflation pressures were cited as sources of risk to this assessment. Participants who expressed less confidence that inflation would return promptly to the 2 percent objective commented that inflation had averaged less than 2 percent over the past several years even as resource utilization had increased or that global or technology-related factors were exerting downward pressure on inflation that could be difficult to overcome.

Participants also discussed risks regarding the outlook for economic activity. While many saw the risks as tilted somewhat to the downside, some risks were seen to have eased over recent months. In particular, there were some tentative signs that trade tensions with China were easing, and the probability of a no-deal Brexit was judged to have lessened further. In addition, there were indications that the prospects for global economic growth may be stabilizing. A number of participants observed that the domestic economy was showing resilience in the face of headwinds from global developments. Moreover, statistical models designed to gauge the probability of recession using financial market data, including those based on information from the Treasury yield curve, suggested that the likelihood of a recession occurring over the medium term had fallen noticeably in recent months. However, new uncertainties had emerged regarding trade policy with Argentina, Brazil, and France, and political tensions in Hong Kong persisted.

In their consideration of monetary policy at this meeting, participants judged that it would be appropriate to maintain the target range for the federal funds rate at 1½ to 1¾ percent to support sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective. As reflected in their SEP projections, participants regarded the current stance of monetary policy as likely to remain appropriate for a time as long as incoming information about the economy remained broadly consistent with the economic outlook. Of course, if developments emerged that led to a material reassessment of the outlook, the stance of policy would need to adjust in a way that fostered the Committee's dual-mandate objectives.

A number of participants agreed that maintaining the current stance of monetary policy would give the Committee some time to assess the full effects on the economy of its policy decisions and communications over the course of this year along with other information bearing on the economic outlook. Participants also discussed how maintaining the current stance of policy for a time could be helpful for cushioning the economy from the global developments that have been weighing on economic activity and for returning inflation to the Committee's symmetric objective of 2 percent. Participants generally expressed concerns regarding inflation continuing to fall short of 2 percent. Although a number of participants noted that some of the factors currently holding down inflation were likely to prove transitory, various participants were concerned that indicators were suggesting that the level of longer-term inflation expectations was too low.

A few participants raised the concern that keeping interest rates low over a long period might encourage excessive risk-taking, which could exacerbate imbalances in the financial sector. These participants offered various perspectives on the relationship between financial stability and policies that keep interest rates persistently low. They remarked that such policies could be inconsistent with sustaining maximum employment, could make the next recession more severe than otherwise, or could strengthen the case for the active use of macroprudential tools to guard against emerging imbalances.

Various participants remarked on issues related to the implementation of monetary policy, highlighting topics for further discussion at future meetings. Among the topics mentioned were the potential role of a standing repo facility in an ample-reserves regime, the setting of administered rates, and the composition of the Federal Reserve's holdings of Treasury securities over the longer run.

Committee Policy Action

In their discussion of monetary policy for this meeting, members noted that information received since the FOMC met in October indicated that the labor market remained strong and that economic activity had been rising at a moderate rate. Job gains had been solid, on average, in recent months, and the unemployment rate had remained low. Although household spending had been rising at a strong pace, business fixed investment and exports remained weak. On a 12-month basis, overall inflation and inflation for items other than food and energy were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed.

Members agreed to maintain the target range for the federal funds rate at 1½ to 1¾ percent. Members judged that the current stance of monetary policy is appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective.

Members also agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. And they concurred that this assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

With regard to the postmeeting statement, members agreed to state that they judged that "the current stance of monetary policy is appropriate" to support the achievement of the Committee's policy objectives. Members discussed their options regarding references to global developments and muted inflation pressures in the statement. In their judgment, these factors, cited in previous postmeeting statements as part of the rationale for adjusting the stance of policy, remained salient features of the outlook. Accordingly, they agreed to cite them in the sentence

indicating that "the Committee will continue to monitor the implications of incoming information for the economic outlook." With the retention of these references to global developments and muted inflation pressures, members agreed that the text on uncertainties about the outlook could be removed. A few members suggested that the language stating that monetary policy would support inflation "near" 2 percent could be misinterpreted as suggesting that policymakers were comfortable with inflation running below that level; they preferred language that referred to returning inflation to the Committee's symmetric 2 percent objective. Other members thought that the reference to "near" 2 percent was intended to encompass modest deviations of inflation above and below 2 percent.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective December 12, 2019, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1½ to 1¾ percent. In light of recent and expected increases in the Federal Reserve's non-reserve liabilities, the Committee directs the Desk to continue purchasing Treasury bills at least into the second quarter of 2020 to maintain over time ample reserve balances at or above the level that prevailed in early September 2019. The Committee also directs the Desk to continue conducting term and overnight repurchase agreement operations at least through January 2020 to ensure that the supply of reserves remains ample even during periods of sharp increases in non-reserve liabilities, and to mitigate the risk of money market pressures that could adversely affect policy implementation. In addition, the Committee directs the Desk to conduct overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.45 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to continue reinvesting all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will continue to be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in October indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although household spending has been rising at a strong pace, business fixed investment and exports remain weak. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee decided to maintain the target range for the federal funds rate at 1½ to 1¾ percent. The Committee judges that the current stance of monetary policy is appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective. The Committee will continue to monitor the implications of incom-

> ing information for the economic outlook, including global developments and muted inflation pressures, as it assesses the appropriate path of the target range for the federal funds rate.
>
> In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."

Voting for this action: Jerome H. Powell, John C. Williams, Michelle W. Bowman, Lael Brainard, James Bullard, Richard H. Clarida, Charles L. Evans, Esther L. George, Randal K. Quarles, and Eric S. Rosengren.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 1.55 percent and voted unanimously to approve establishment of the primary credit rate at the existing level of 2.25 percent, effective December 12, 2019.

Organizational Matters

By unanimous vote, Lorie K. Logan was selected to serve at the pleasure of the Committee as manager, System Open Market Account, on the understanding that her selection was subject to being satisfactory to the Federal Reserve Bank of New York.

> Secretary's note: Advice subsequently was received that the selection of Ms. Logan as manager was satisfactory to the Federal Reserve Bank of New York.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, January 28–29, 2020. The meeting adjourned at 10:00 a.m. on December 11, 2019.

Notation Vote

By notation vote completed on November 19, 2019, the Committee unanimously approved the minutes of the Committee meeting held on October 29–30, 2019.

James A. Clouse
Secretary

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 10–11, 2019, 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 2019 to 2022 and over the longer run. Each participant's projections were based on information available at the time of the meeting, together with his or her 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.[1] "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.

Almost all participants expected that, under appropriate monetary policy, growth of real GDP in 2020 would run at or slightly above 1.9 percent, the median of current estimates of its longer-run rate. The median of the projections for the growth rate of real GDP edges down each year over the projection horizon and, for 2022, is modestly below the median of the current estimates of its longer-run rate. The median of the current projections for the unemployment rate was lower than that in the September Summary of Economic Projections (SEP) for each year of the projection period, and some participants reduced their estimates of the longer-run normal rate of unemployment, resulting in a slight decline in the median estimate. The medians of the projections for both total and core inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), increase significantly from 2019 to 2020 and more modestly in 2021 to reach 2 percent that year. Almost all participants expected that inflation would be at or slightly above the Committee's 2 percent objective in 2021 and 2022. A couple more participants, relative to the September SEP, projected inflation to exceed 2 percent at some point during the projection period. The medians of the projections for both total and core inflation were unchanged for 2020 through 2022, compared with the September SEP. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, a substantial majority of participants indicated that their expectations regarding the evolution of the economy, relative to the Committee's objectives of maximum employment and 2 percent inflation, would likely warrant keeping the federal funds at its current level through the end of 2020. Compared with the September SEP submissions, the median projection for the federal funds rate was 25 basis points lower in each year over the projection period and retained its modest upward tilt in 2021 and 2022. The median of participants' assessments of the appropriate level for the federal funds rate in 2022 was slightly below the median of estimates of its longer-run level; the median estimate of the longer-run level was unchanged from its value in the September SEP.

Most participants regarded the uncertainties around their projections as broadly similar to the average over the past 20 years. The majority of participants continued to assess the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. However, compared with the September submissions, several participants shifted their assessments of the balance of risks around these projections to being broadly balanced. Most participants judged the risks to their inflation outlook as broadly balanced, though one-third of participants viewed the risks to their inflation projections as weighted to the downside; no participant assessed the risks to his or her inflation outlook as weighted to the upside. The uncertainties and risks around participants' projections for headline and core inflation were little changed from the September SEP.

The Outlook for Real GDP Growth and Unemployment

As shown in table 1, the medians of participants' projections for real GDP growth in 2019 and 2020, conditional on their individual assessments of appropriate monetary policy, were 2.2 percent and 2.0 percent, respectively, a touch above the median estimate of the longer-run growth rate of 1.9 percent. The median of the projections for the growth rate of real

[1] One participant did not submit longer-run projections for real GDP growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, December 2019

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run	2019	2020	2021	2022	Longer run
Change in real GDP	2.2	2.0	1.9	1.8	1.9	2.1–2.2	2.0–2.2	1.8–2.0	1.8–2.0	1.8–2.0	2.1–2.3	1.8–2.3	1.7–2.2	1.5–2.2	1.7–2.2
September projection	2.2	2.0	1.9	1.8	1.9	2.1–2.3	1.8–2.1	1.8–2.0	1.7–2.0	1.8–2.0	2.1–2.4	1.7–2.3	1.7–2.1	1.6–2.1	1.7–2.1
Unemployment rate	3.6	3.5	3.6	3.7	4.1	3.5–3.6	3.5–3.7	3.5–3.9	3.5–4.0	3.9–4.3	3.5–3.6	3.3–3.8	3.3–4.0	3.3–4.1	3.5–4.5
September projection	3.7	3.7	3.8	3.9	4.2	3.6–3.7	3.6–3.8	3.6–3.9	3.7–4.0	4.0–4.3	3.5–3.8	3.3–4.0	3.3–4.1	3.3–4.2	3.6–4.5
PCE inflation	1.5	1.9	2.0	2.0	2.0	1.4–1.5	1.8–1.9	2.0–2.1	2.0–2.2	2.0	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
September projection	1.5	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.2	2.0	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
Core PCE inflation[4]	1.6	1.9	2.0	2.0		1.6–1.7	1.9–2.0	2.0–2.1	2.0–2.2		1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2	
September projection	1.8	1.9	2.0	2.0		1.7–1.8	1.9–2.0	2.0	2.0–2.2		1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2	
Memo: Projected appropriate policy path															
Federal funds rate	1.6	1.6	1.9	2.1	2.5	1.6	1.6–1.9	1.6–2.1	1.9–2.6	2.4–2.8	1.6	1.6–1.9	1.6–2.4	1.6–2.9	2.0–3.3
September projection	1.9	1.9	2.1	2.4	2.5	1.6–2.1	1.6–2.1	1.6–2.4	1.9–2.6	2.5–2.8	1.6–2.1	1.6–2.4	1.6–2.6	1.6–2.9	2.0–3.3

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 September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 17–18, 2019. 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 September 17–18, 2019, meeting, and one participant did not submit such projections in conjunction with the December 10–11, 2019, meeting.

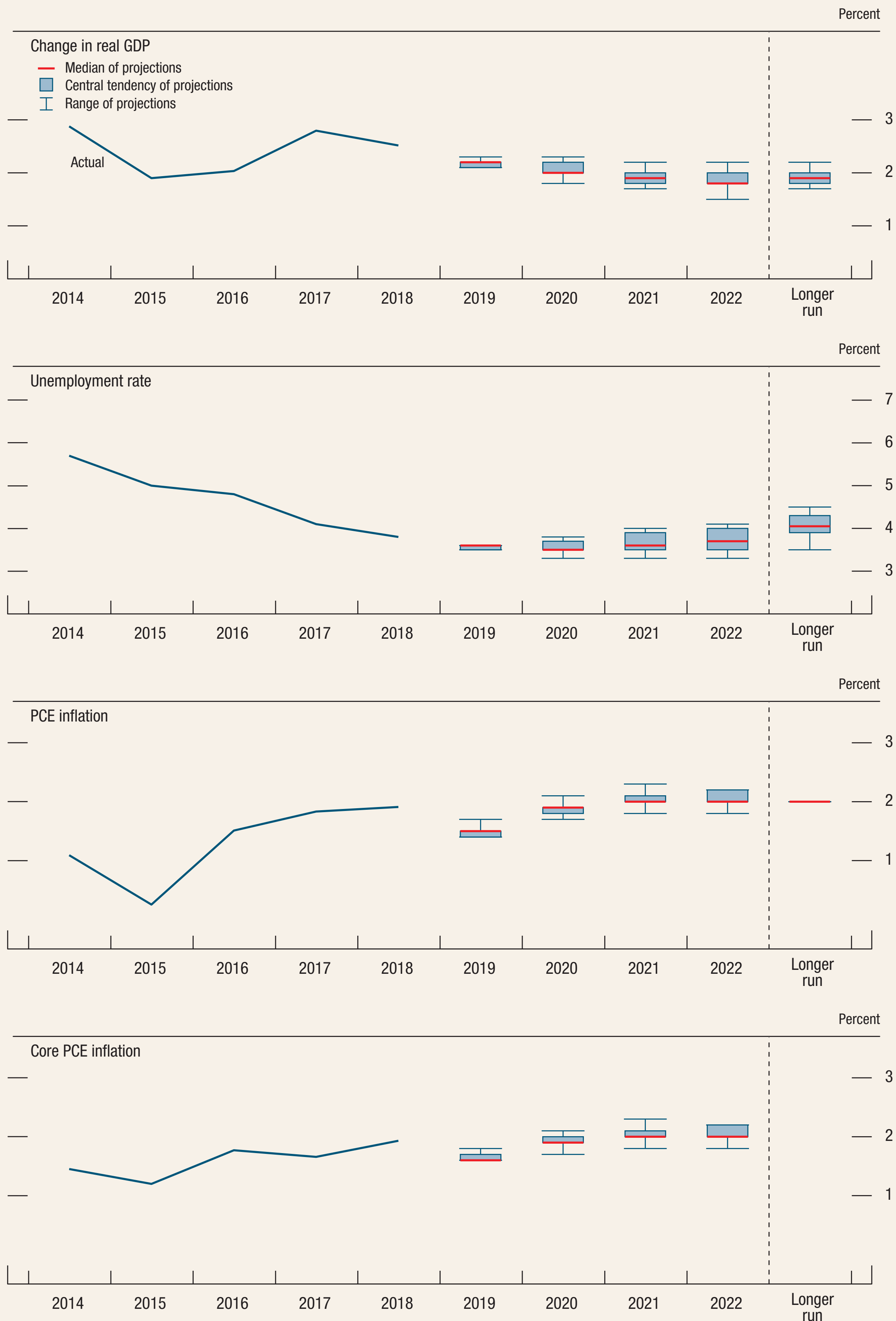
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

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, 2019–22 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

Percent

5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

2019 2020 2021 2022 Longer run

Note: Each shaded circle indicates the value (rounded to the nearest ⅛ 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. One participant did not submit longer-run projections for the federal funds rate.

GDP declines slowly over the projection horizon and, in 2022, is modestly below the median of the current estimates of its longer-run rate. The medians of the projections for real GDP growth in all four years of the projection period, as well as in the longer run, were unchanged from the September SEP.

A majority of participants marked down their projections of the unemployment rate in each year of the projection period, and some participants lowered their estimates of the longer-run normal rate of unemployment. As a result, the medians of the projections for the unemployment rate in the fourth quarter of 2020 through 2022 were 3.5 percent, 3.6 percent, and 3.7 percent, respectively, each 0.2 percentage point lower than in the September projections. The median estimate of the longer-run normal rate of unemployment was 4.1 percent, 0.1 percentage point lower than in September.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate, respectively, from 2019 to 2022 and in the longer run. The distribution of individual projections for real GDP growth for 2020 tilted slightly higher, as many participants upgraded their projections a bit relative to those in the September SEP, although the median projection was unchanged. The distributions of individual projections of real GDP growth in 2021 and 2022 and in the longer run were little changed overall. The distributions of individual projections for the unemployment rate from 2020 to 2022 and in the longer run shifted lower relative to those in September.

The Outlook for Inflation

As shown in table 1, the median projection for core PCE price inflation was 1.6 percent for 2019, a modest decrease from the September projections. The medians of the projections for both total and core PCE price inflation were each 1.9 percent in 2020 and 2.0 percent in both 2021 and 2022—all unchanged from September. Figures 3.C and 3.D show the distributions of participants' views about their outlooks for inflation. Although the medians of the projections for total and core PCE price inflation from 2020 through 2022 were unchanged from the September SEP, a couple more participants projected inflation to be slightly above the Committee's 2 percent objective in 2022.

Appropriate Monetary Policy

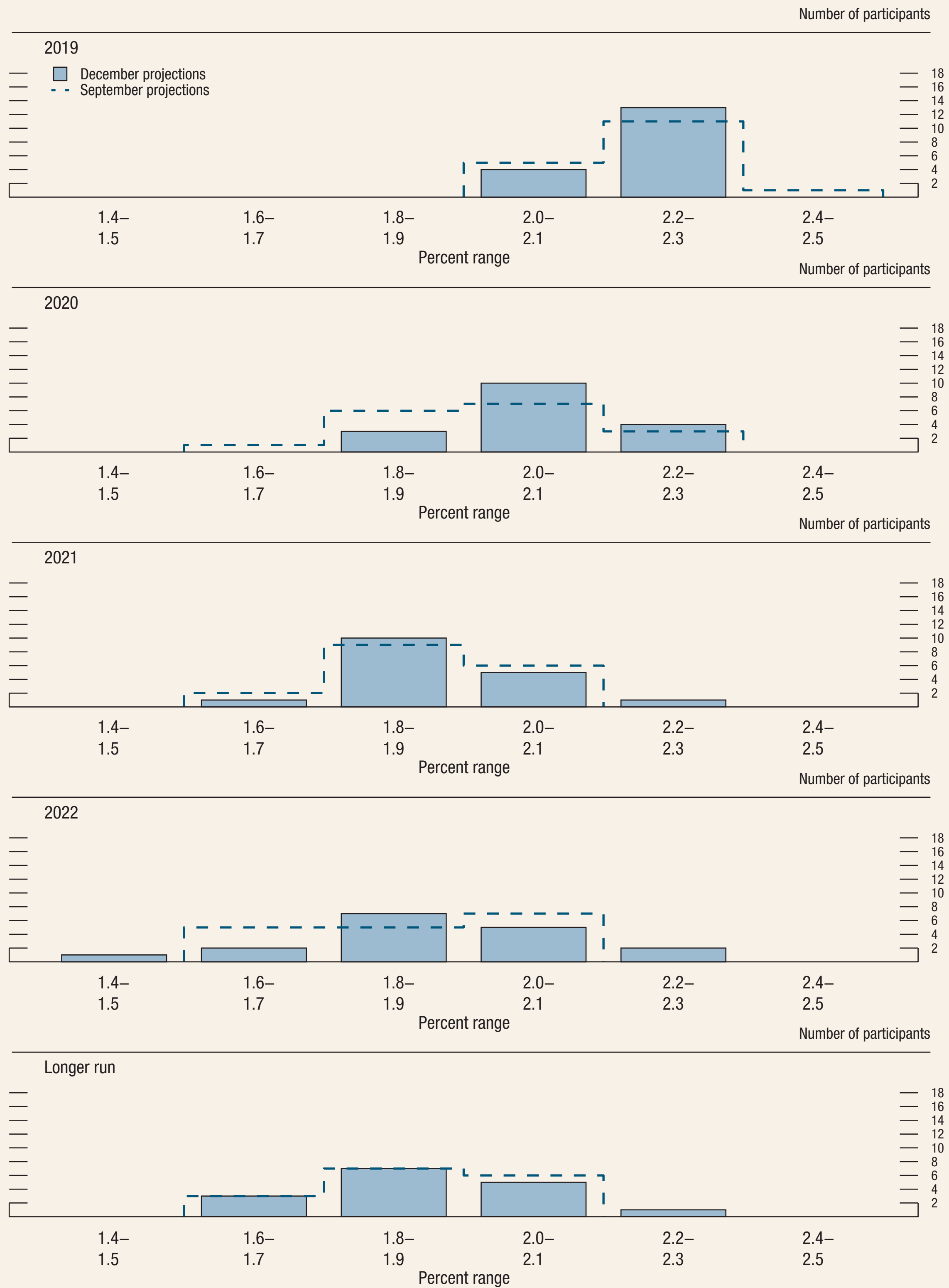
Figure 3.E shows the distributions of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2019 to 2022 and over the longer run. A substantial majority of participants projected a federal funds rate of 1.63 percent for the end of 2020. Four participants assessed that the most likely appropriate rate at year-end for 2020 would be 1.88 percent. For subsequent years, the medians of the projections were 1.88 percent at the end of 2021 and 2.13 percent at the end of 2022. The distribution of participants' estimates of the longer-run level of the federal funds rate was little changed, and the median estimate was unchanged from September at 2.50 percent.

Compared with the projections prepared for the September SEP, a number of participants marked down their assessments of the appropriate level of the federal funds rate at the end of 2020, reflecting in part the reduction in the target range at the October meeting and causing both the range and central tendency of projections for 2020 to narrow considerably. Some participants lowered their projections for the appropriate level in 2021 and 2022. The median projection for the federal funds rate was 25 basis points lower in each year in the projection period. Realized inflation running persistently below target and risks associated with trade policy and foreign economic growth were cited as key factors informing participants' judgments about the appropriate path for the federal funds rate.

Uncertainty and Risks

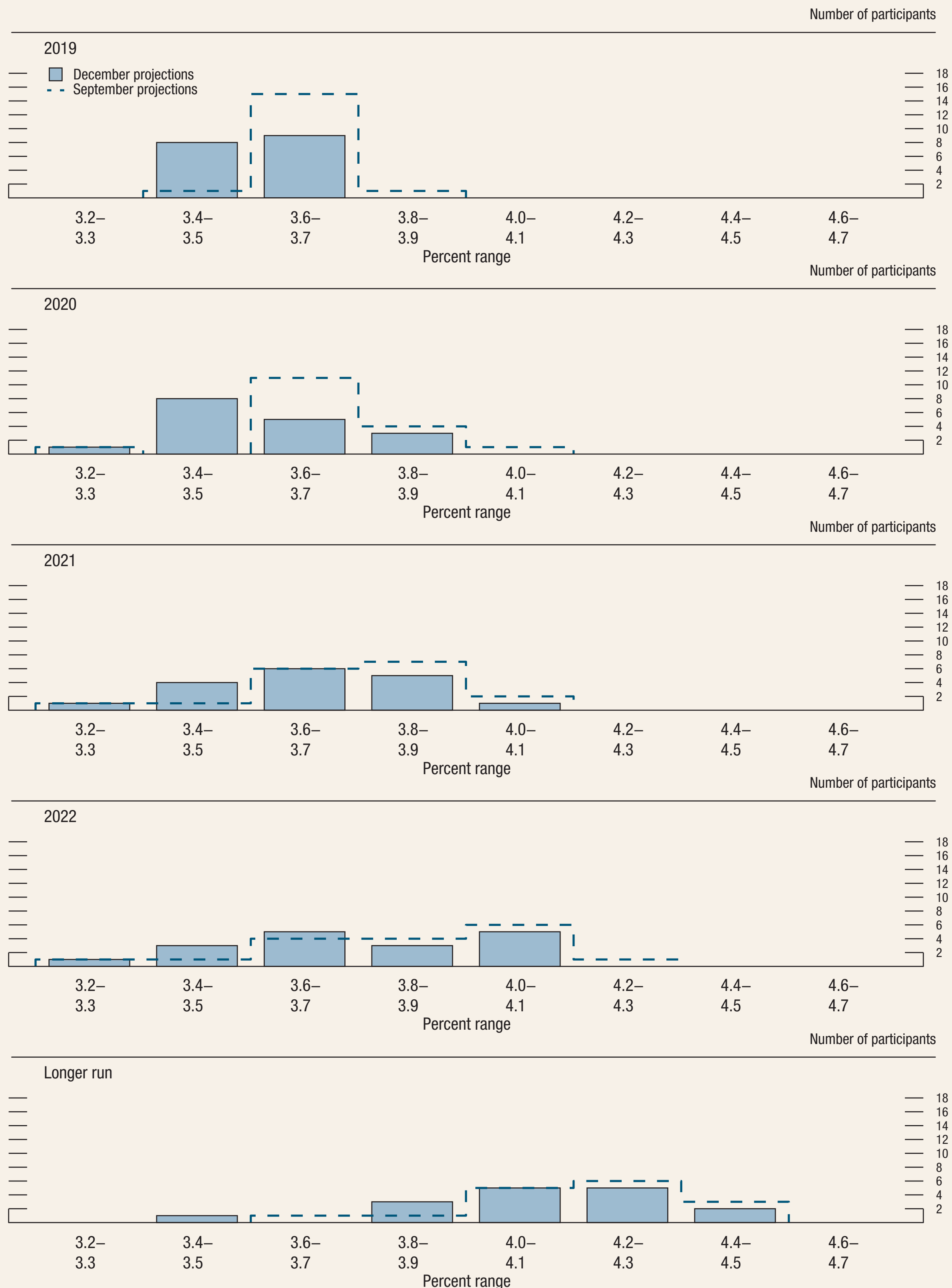
In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government forecasts over the past 20 years—for real GDP growth, the unemployment rate, and total PCE price inflation. Those measures are represented graphically in the "fan charts" shown in the top panels of figures 4.A, 4.B, and 4.C. The fan charts display the SEP medians for the three variables surrounded by symmetric confidence intervals derived from the forecast

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–22 and over the longer run



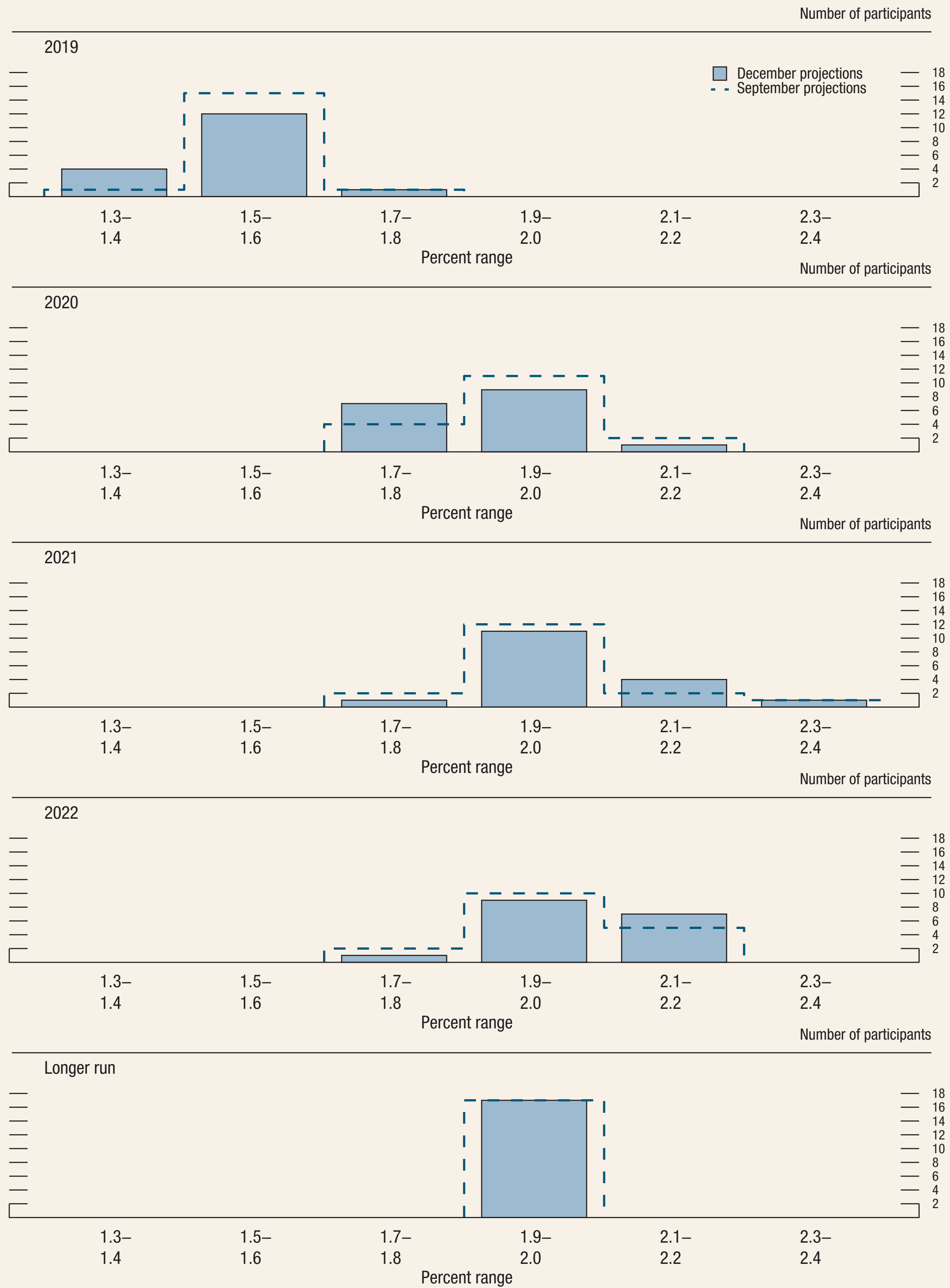
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–22 and over the longer run



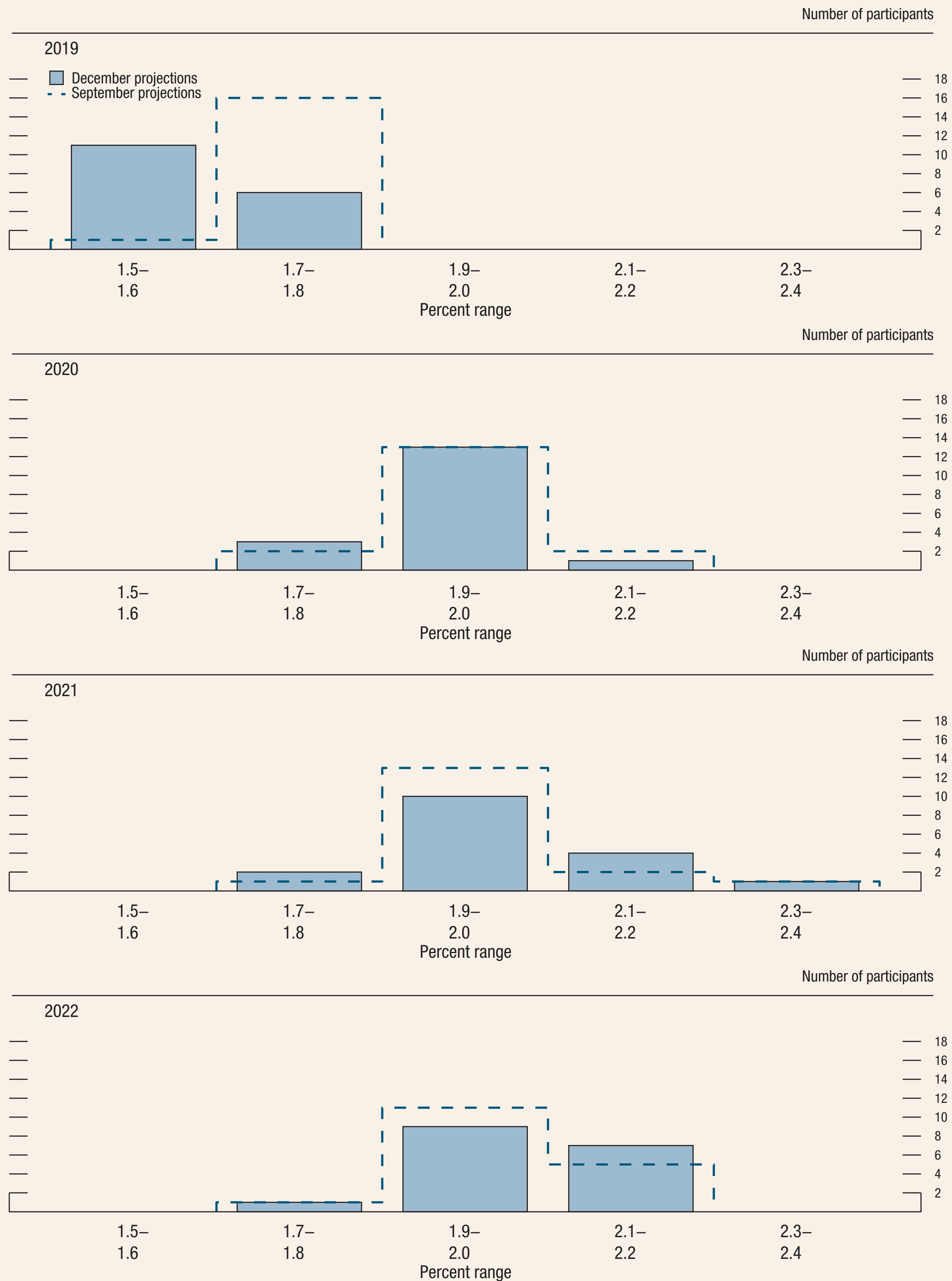
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2019–22 and over the longer run



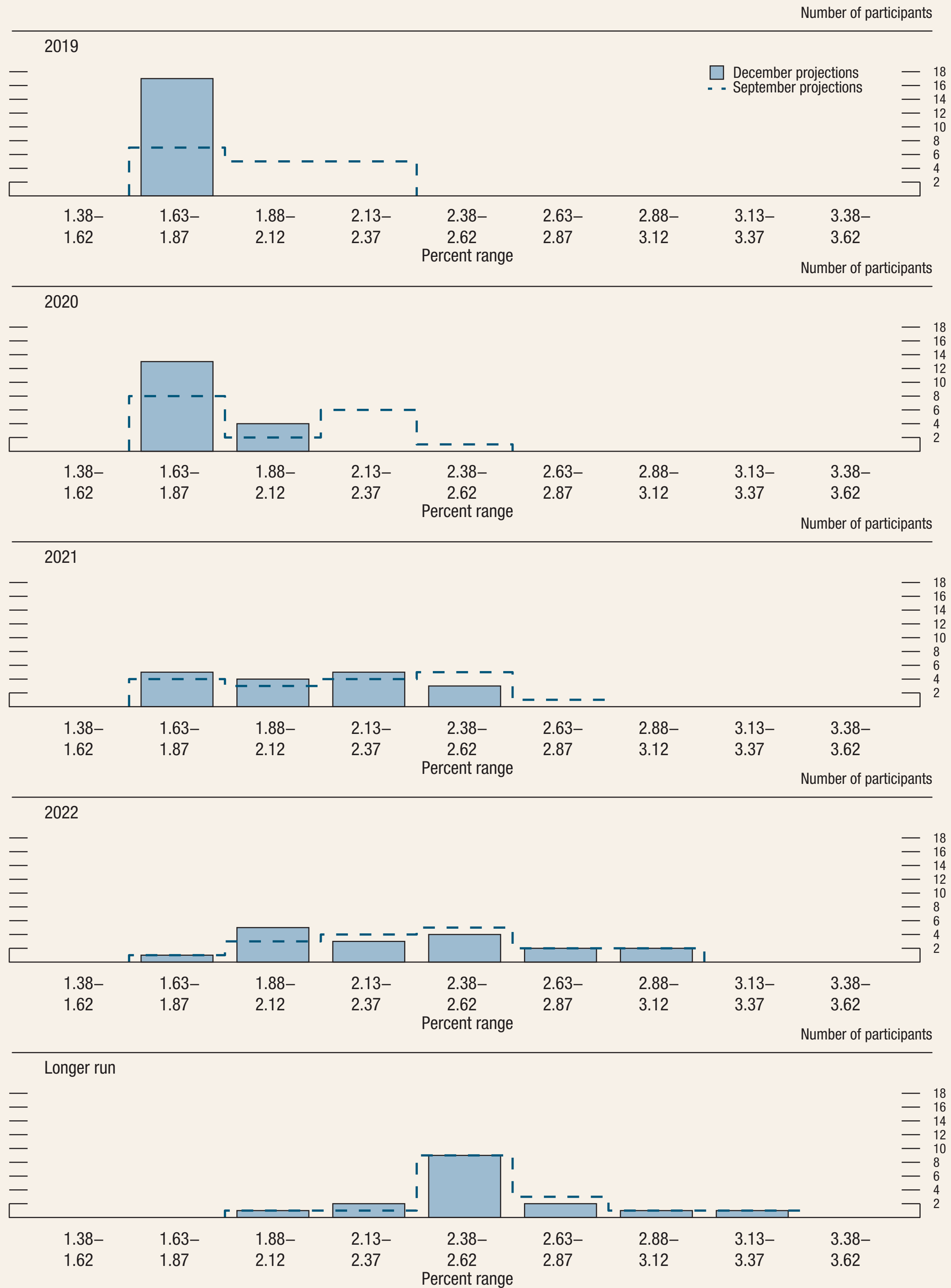
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2019–22



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, 2019–22 and over the longer run



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

Table 2. Average historical projection error ranges
Percentage points

Variable	2019	2020	2021	2022
Change in real GDP[1]	±0.8	±1.6	±2.0	±2.0
Unemployment rate[1]	±0.1	±0.8	±1.5	±1.9
Total consumer prices[2]	±0.2	±0.9	±1.0	±0.9
Short-term interest rates[3]	±0.1	±1.4	±2.0	±2.4

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1999 through 2018 that were released in the winter 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.

errors reported in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of being within these confidence intervals. For all three variables, this measure of uncertainty is substantial and generally increases as the forecast horizon lengthens.

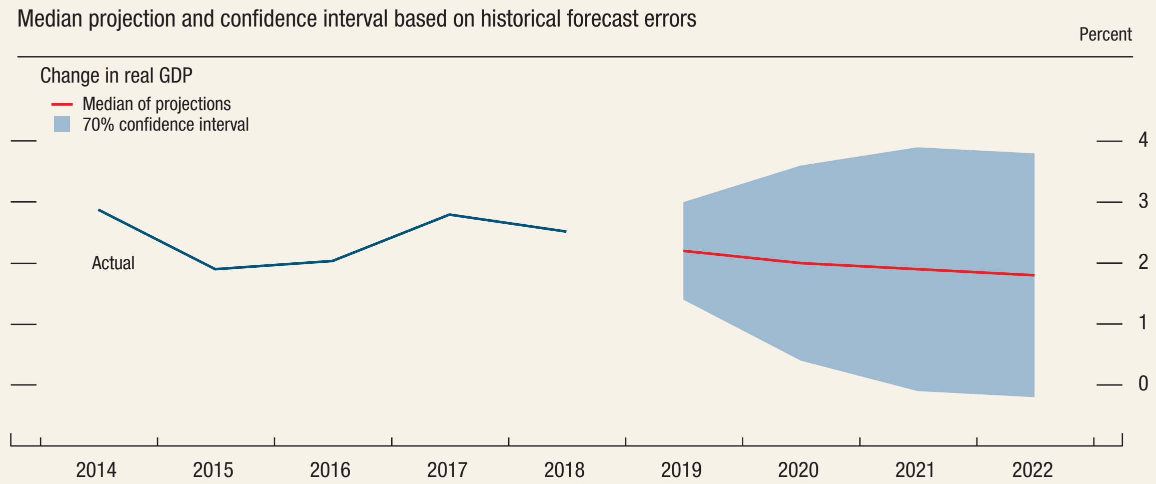
Participants' assessments of the level of uncertainty surrounding their individual economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. A substantial majority of participants viewed the uncertainty surrounding each of the four economic variables as being broadly similar to the average over the past 20 years.

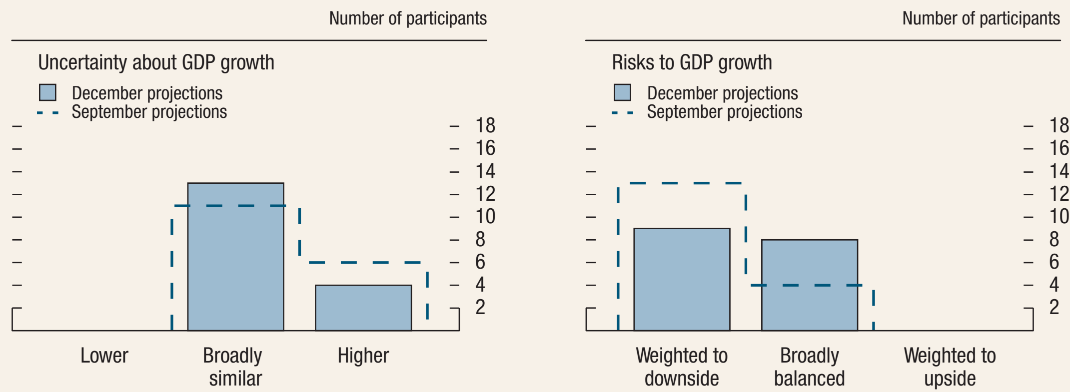
Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their current economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. Relative to the September SEP, more participants saw the risks to the outlook for real GDP growth and the unemployment rate as broadly balanced, although a small majority continued to view the risks to their outlooks for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside. Most participants continued to judge the risks to their inflation outlook as broadly balanced, while some participants viewed the risks to their inflation outlook as weighted to the downside. No participant assessed the risks to his or her inflation outlook as weighted to the upside.

In discussing the uncertainty and risks surrounding their economic projections, some participants mentioned trade developments and concerns about foreign economic growth as sources of uncertainty or downside risk to the U.S. economic growth outlook. In contrast, the underlying strength of both consumer spending and the labor market was cited as balancing the risks around the growth outlook. In addition, most of the participants who shifted their balance of risks for output growth to "broadly balanced" cited more accommodative monetary policy as a contributing factor. For the inflation outlook, the possibility that inflation expectations could be drifting below levels consistent with the FOMC's 2 percent inflation objective was viewed as a downside risk. A couple of participants mentioned higher tariffs as a source of upside risk to their inflation outlook.

Participants' assessments of the appropriate future path of the federal funds rate are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and prospective developments over time in key economic variables—such as real GDP growth, the unemployment rate, and inflation—uncertainty surrounding the projected path for the federal funds rate importantly reflects the uncertainties about the paths for these economic variables, along with other factors. Figure 5 provides a graphic representation of this uncertainty, plotting the SEP median for the federal funds rate surrounded by symmetric confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, the forecast uncertainty surrounding the appropriate path of the federal funds rate is substantial and increases for longer horizons.

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

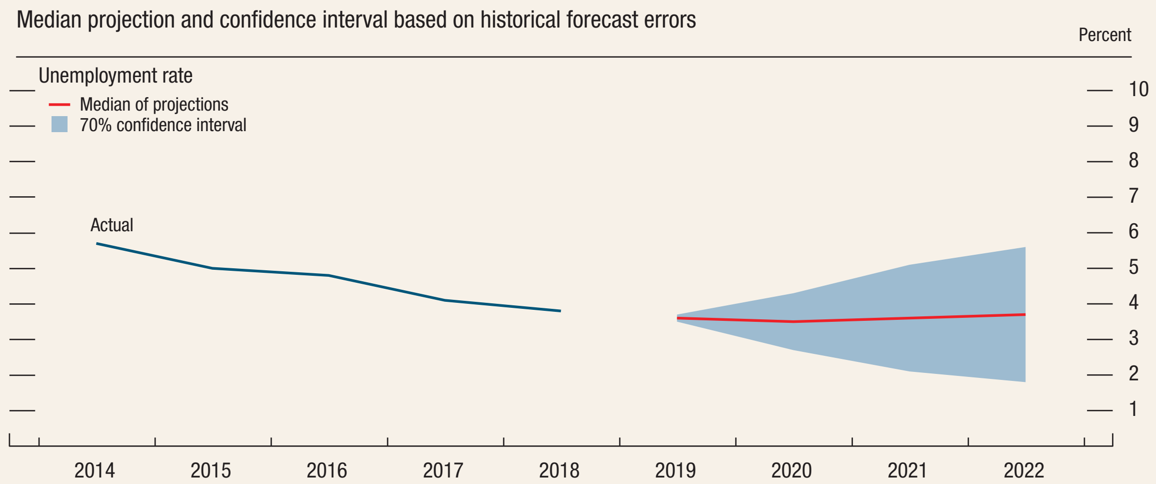




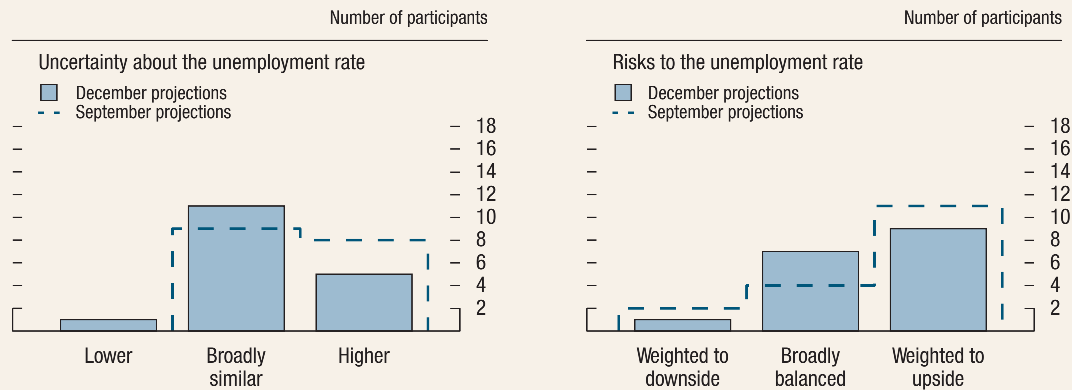
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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

Median projection and confidence interval based on historical forecast errors



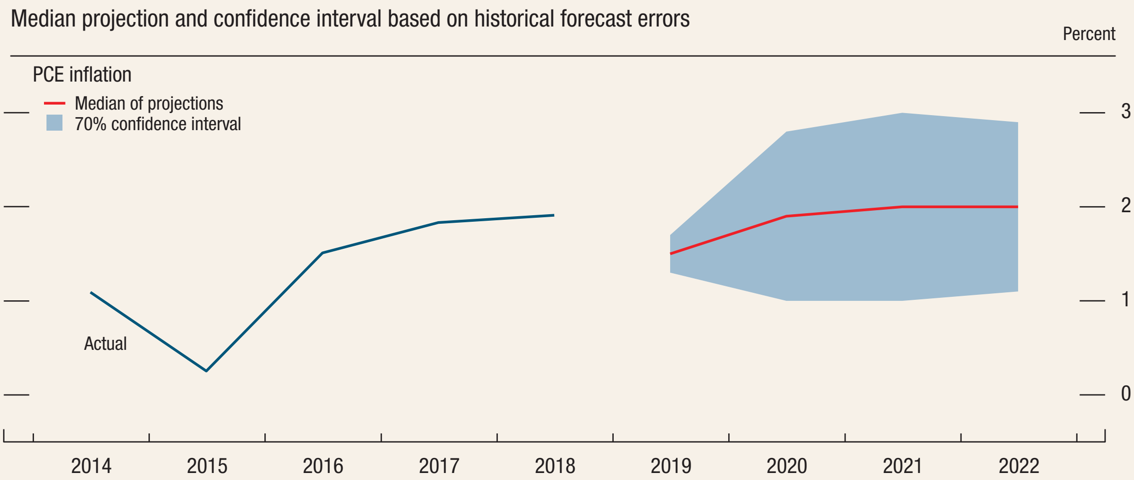
FOMC participants' assessments of uncertainty and risks around their economic projections



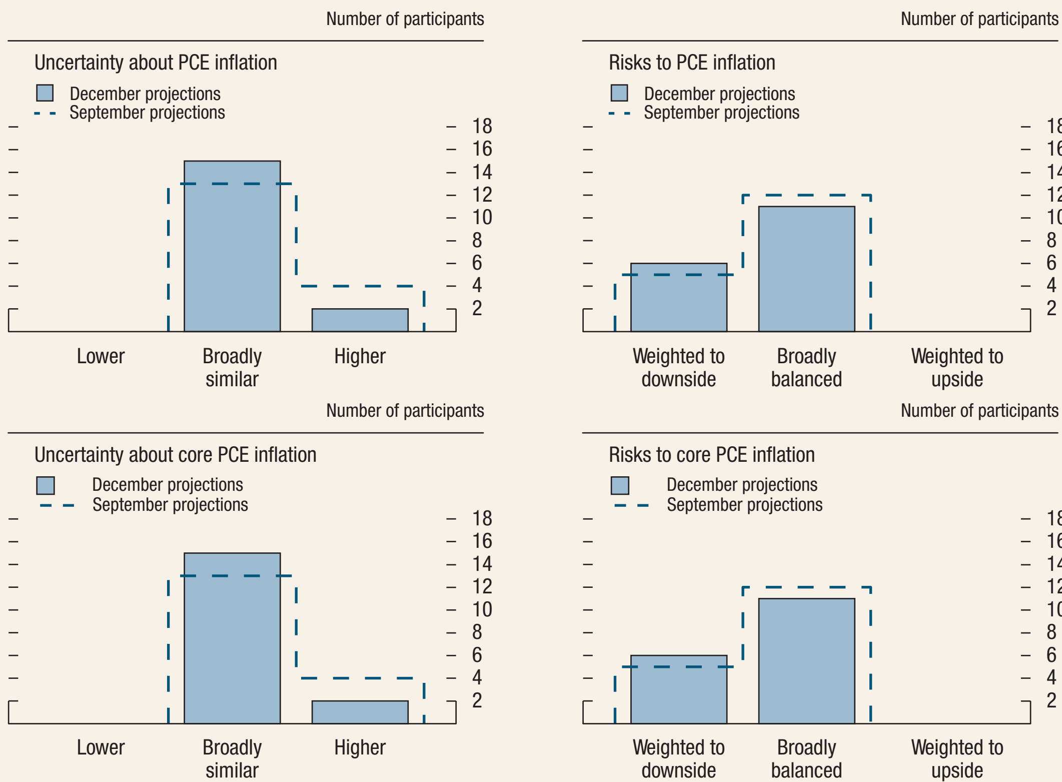
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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

Median projection and confidence interval based on historical forecast errors

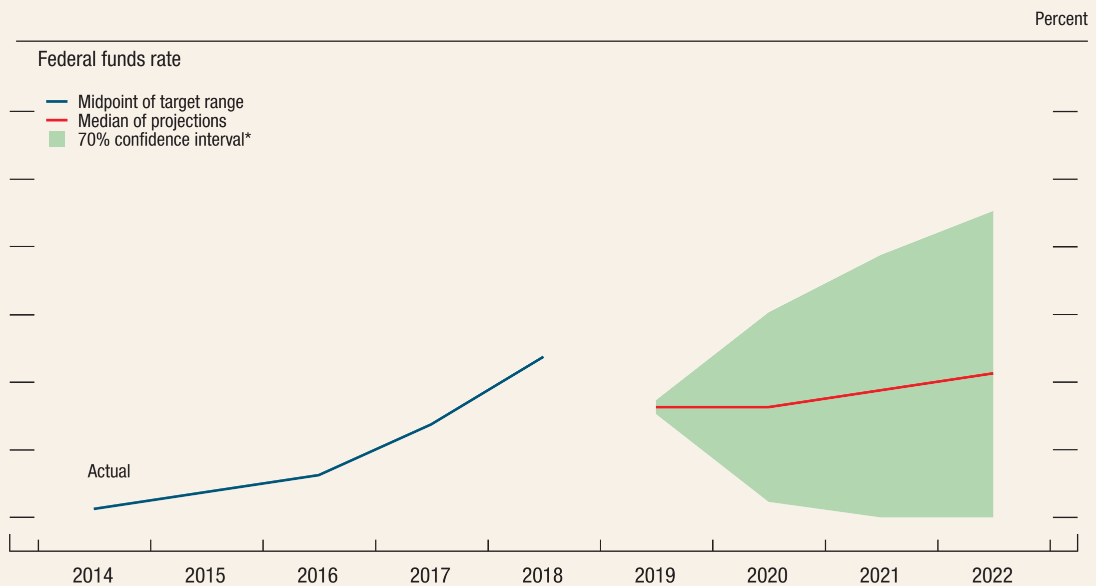


FOMC participants' assessments of uncertainty and risks around their economic projections



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 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 onset 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.

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 2.2 to 3.8 percent in the current year, 1.4 to 4.6 percent in the second year, and 1.0 to 5.0 percent in the third and fourth years. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, 1.1 to 2.9 percent in the second year, 1.0 to 3.0 percent in the third year, and 1.1 to 2.9 percent in the fourth 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 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.

Federal Reserve System Audits

The Board of Governors, the Federal Reserve Banks, and the Federal Reserve System as a whole are all subject to several levels of audit and review.

The Board's financial statements and internal controls over financial reporting are audited annually by an independent outside auditor retained by the Board's Office of Inspector General (OIG). The outside auditor also tests the Board's compliance with certain provisions of laws, regulations, and contracts affecting those statements.

The Reserve Banks' financial statements are audited annually by an independent outside auditor retained by the Board of Governors. In addition, the Reserve Banks are subject to annual examination by the Board. As discussed in section 5, "Payment and Settlement Systems," the Board's examination includes a wide range of ongoing oversight activities conducted on site and off site by staff of the Board's Division of Reserve Bank Operations and Payment Systems.

The audited annual financial statements of the Board of Governors, the Reserve Banks, and the Federal Reserve System as a whole are available on the Board's website at https://www.federalreserve.gov/aboutthefed/audited-annual-financial-statements.htm.

In addition, the OIG conducts audits, evaluations, investigations, and other reviews relating to the Board's programs and operations as well as to Board functions delegated to the Reserve Banks. Certain aspects of Federal Reserve operations are also subject to review by the Government Accountability Office.

Office of Inspector General Activities

The Office of Inspector General (OIG) for the Federal Reserve Board, which is also the OIG for the Consumer Financial Protection Bureau (CFPB), operates in accordance with the Inspector General Act of 1978, as amended. The OIG plans and conducts audits, inspections, evaluations, investigations, and other reviews relating to Board and CFPB programs and operations, including functions that the Board has delegated to the Federal Reserve Banks. It also retains an independent public accounting firm to annually audit the Board's and the Federal Financial Institutions Examination Council's financial statements. These activities promote economy and efficiency; enhance policies and procedures; and prevent and detect waste, fraud, and abuse. In addition, the OIG keeps the Congress, the Board of Governors, and the CFPB director fully informed about serious abuses and deficiencies.

During 2019, the OIG issued 14 reports (table 1) and 6 information technology-related memorandums to the Board and the CFPB. Because of the sensitive nature of some of the material, four of the six memorandums are nonpublic. The OIG also conducted follow-up reviews to evaluate actions taken on prior recommendations. Regarding the OIG's investigative work related to the Board and the CFPB, 34 investigations were opened and 33 investigations were closed during the year. OIG investigative work resulted in three arrests, two criminal complaints, five criminal informations, one indictment, six convictions, and one prohibition from the banking industry, as well as $417,838 in criminal fines and restitution. The OIG also issued its listings of major management challenges facing the Board and the CFPB, an OIG Insights paper on organizational governance, and two semiannual reports to Congress. The OIG performed approximately 33 reviews of legislation and regulations related to the operations of the Board, the CFPB, or the OIG.

For more information and to view the OIG's publications, visit the OIG's website at https://oig.federalreserve.gov. Specific details about the OIG's body of work also may be found in the OIG's *Work Plan* and semiannual reports to Congress.

Table 1. OIG reports issued in 2019

Report title	Month issued
The Bureau Can Improve Its Follow-Up Process for Matters Requiring Attention at Supervised Institutions	January
Federal Financial Institutions Examination Council Financial Statements as of and for the Years Ended December 31, 2018 and 2017, and Independent Auditors' Reports	February
Board of Governors of the Federal Reserve System Financial Statements as of and for the Years Ended December 31, 2018 and 2017, and Independent Auditors' Reports	March
The Board Can Take Additional Steps to Advance Workforce Planning	March
The Bureau Can Improve Its Risk Assessment Framework for Prioritizing and Scheduling Examination Activities	March
Independent Accountants' Report on the Bureau Civil Penalty Fund's 2018 Compliance with the Improper Payments Information Act of 2002, as Amended	April
Bureau Efforts to Share Consumer Complaint Data Internally Are Generally Effective; Improvements Can Be Made to Enhance Training and Strengthen Access Approval	June
The Bureau Can Improve the Effectiveness of Its Life Cycle Processes for FedRAMP	July
The Board Can Enhance Its Internal Enforcement Action Issuance and Termination Processes by Clarifying the Processes, Addressing Inefficiencies, and Improving Transparency	September
Independent Accountants' Report on the Bureau's 2019 Compliance with the Digital Accountability and Transparency Act of 2014	September
Leveraging Certain Strategies May Help the Board Timely Implement and Sustain Enterprisewide Workforce Planning	September
The Board's Law Enforcement Operations Bureau Can Improve Internal Processes	September
2019 Audit of the Bureau's Information Security Program	October
2019 Audit of the Board's Information Security Program	October

Government Accountability Office Reviews

The Federal Banking Agency Audit Act (Pub. L. No. 95–320) authorizes the Government Accountability Office (GAO) to audit certain aspects of Federal Reserve System operations. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 directs the GAO to conduct additional audits with respect to these operations. In 2019, the GAO completed 16 projects that involved the Federal Reserve (table 1). Twelve projects were ongoing as of December 31, 2019 (table 2).

For more information and to view GAO reports, visit the GAO's website at https://www.gao.gov.

Table 1. Reports completed during 2019

Report title	Report number	Month issued (2019)
Financial Services Regulations: Status of GAO Recommendations to Enhance Regulatory Analyses and Interagency Coordination	GAO-20-114R	December
Federal Debt Management: Treasury Should Strengthen Policies for Market Outreach and Analysis to Maintain Broad-Based Demand for Securities	GAO-20-131	December
Bank Secrecy Act: Examiners Need More Information on How to Assess Banks' Compliance Controls for Money Transmitter Accounts	GAO-20-46	December
Financial Audit: Bureau of the Fiscal Service's FY 2019 and FY 2018 Schedules of Federal Debt	GAO-20-117	November
Bank Secrecy Act: Agencies and Financial Institutions Share Information but Metrics and Feedback Not Regularly Provided	GAO-19-582	September
Reverse Mortgages: FHA Needs to Improve Monitoring and Oversight of Loan Outcomes and Servicing	GAO-19-702	September
Federal Rulemaking: Selected Agencies Should Clearly Communicate Practices Associated with Identity Information in the Public Comment Process	GAO-19-483	July
Consumer Reporting Agencies: CFPB Should Define Its Supervisory Expectations	GAO-19-459	July
Agricultural Lending: Information on Credit and Outreach to Socially Disadvantaged Farmers and Ranchers Is Limited	GAO-19-539	July
Private Student Loans: Clarification from CFPB Could Help Ensure More Consistent Opportunities and Treatment for Borrowers	GAO-19-430	May
Bank Supervision: Regulators Improved Supervision of Management Activities but Additional Steps Needed	GAO-19-352	May
Tax Refund Products: Product Mix Has Evolved and IRS Should Improve Data Quality	GAO-19-269	April
Consumer Data Protection: Actions Needed to Strengthen Oversight of Consumer Reporting Agencies	GAO-19-196	March
Management Report: Areas for Improvement in the Federal Reserve Banks' Information System Controls	GAO-19-304R	March
DATA Act: OMB Needs to Formalize Data Governance for Reporting Federal Spending	GAO-19-284	March
U.S. Currency: Financial Benefit of Switching to a $1 Coin Is Unlikely, but Changing Coin Metal Content Could Result in Cost Savings	GAO-19-300	March

Table 2. Projects active at year-end 2019

Subject of project	Month initiated	Status
Bank Secrecy Act costs and benefits	October 2018	Open
The Foreign Narcotics Kingpin Designation Act	January 2019	Closed 1/15/2020
U.S. efforts to combat trade-based money laundering	February 2019	Closed 1/29/2020
International trade-based money laundering	February 2019	Open
U.S. economic sanctions programs	April 2019	Closed 3/11/2020
Collection and use of consumer personally identifiable information	June 2019	Open
Review of financial services sector cybersecurity	July 2019	Open
Macroprudential regulation	August 2019	Open
Pensions divided by divorce	August 2019	Open
Leveraged lending	August 2019	Open
Compliance with the National Flood Insurance Program mandatory purchase requirement	September 2019	Open
Debt held by older Americans	September 2019	Open

D Federal Reserve System Budgets

The Federal Reserve Board of Governors and the Federal Reserve Banks prepare annual budgets as part of their efforts to ensure appropriate stewardship and accountability.[1] This section presents information on the 2019 budget performance of the Board and Reserve Banks and on their 2020 budgets, budgeting processes, and trends in expenses and employment. This section also presents information on the costs of new currency.

[1] Before 2013, information about the budgeted expenses of the Board and Reserve Banks was presented in a separate report titled *Annual Report: Budget Review*. Copies of that report are available at https://www.federalreserve.gov/publications/budget-review/default.htm.

Each budget covers one calendar year.

System Budgets Overview

Tables 1 and 2 summarize the Federal Reserve Board of Governors' and Federal Reserve Banks' 2019 budgeted, 2019 actual, and 2020 budgeted operating expenses and employment.[2]

[2] Substantially all employees of the Board and Reserve Banks participate in the Retirement Plan for Employees of the Federal Reserve System (System Plan). Reserve Bank employees at certain compensation levels participate in the Benefit Equalization Plan, and certain Reserve Bank officers participate in the Supplemental Retirement Plan for Select Officers of the Reserve Banks. The operating expenses of the Reserve Banks presented in this section do not include expenses related to the retirement plans; however, the 2019 claims for reimbursement include the allocated portion of the pension. Additional information about these expenses can be found in appendix G, "Statistical Tables."

Table 1. Total operating expenses of the Federal Reserve System, net of receipts and claims for reimbursement, 2019–20

Millions of dollars, except as noted

Item	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Board	793.6	788.5	-5.2	-0.7	814.4	25.9	3.3
Office of Inspector General	35.4	35.1	-0.3	-0.8	28.9	-6.2	-17.7
Reserve Banks[1]	4,573.8	4,543.1	-30.6	-0.7	4,771.2	228.1	5.0
Currency	955.8	837.1	-118.7	-12.4	877.2	40.1	4.8
Total System operating expenses[2]	6,358.5	6,203.7	-154.8	-2.4	6,491.6	287.9	4.6
Revenue from priced services	440.3	444.0	3.7	0.8	443.8	-0.2	0.0
Claims for reimbursement[3]	709.2	728.5	19.3	2.7	722.5	-5.9	-0.8
Other income[4]	2.9	3.5	0.7	22.8	2.8	-0.7	-20.6
Revenue and claims for reimbursement[5]	1,152.4	1,176.0	23.7	2.1	1,169.2	-6.9	-0.6
Total System operating expenses, net of revenue and claims for reimbursement	**5,206.1**	**5,027.7**	**-178.4**	**-3.4**	**5,322.4**	**294.7**	**5.9**

Note: Here and in subsequent tables, components may not sum to totals and may not yield percentages shown because of rounding.

[1] Excludes Reserve Bank assessments by the Board of Governors for costs related to currency and the operations of the Board of Governors, Office of Inspector General, and the Consumer Financial Protection Bureau (CFPB).

[2] Includes total operating expenses of the Federal Reserve Information Technology (FRIT) support function and the System's Office of Employee Benefits (OEB), the majority of which are in the Reserve Banks.

[3] Reimbursable claims include the expenses of fiscal agency. In 2019 actual, the fiscal agency allocated portion of the pension is also included but is not included for the budget. The fiscal agency budgeted pension expense is $57.4 million in 2019 and $48.0 million in 2020.

[4] Fees that depository institutions pay for the settlement component of the Fedwire Securities Service transactions for Treasury securities transfers.

[5] Excludes annual assessments for the supervision of large financial companies pursuant to Regulation TT, which are not recognized as revenue or used to fund Board expenses. (See section 4, "Supervision and Regulation," for more information.)

Table 2. Employment in the Federal Reserve System, 2019–20

Item	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Board[1]	2,891	2,843	-48	-1.7	2,903	60	2.1
Office of Inspector General	132	128	-4	-3.2	131	4	3.1
Currency[1]	0	0	0	n/a	15	14	n/a
Reserve Banks[2]	19,856	19,754	-102	-0.5	19,898	144	0.7
Total System employment	**22,879**	**22,725**	**-154**	**-0.7**	**22,947**	**222**	**1.0**

Note: Employment numbers are average number of personnel (ANP). ANP is the average number of employees expressed in terms of full-time positions for the period and includes outside agency help. In prior Annual Reports, the Board reported authorized position counts.

n/a Not applicable.

1 For 2020, includes the transfer of staff from the Board budget to the Currency budget that support currency education, technology and banknote development processes, new design concepts, security feature developments, adversarial analysis of proposed security features and design concepts, and new technology developments.

2 Includes employment of the FRIT support function and the OEB.

2019 Budget Performance

In carrying out its responsibilities in 2019, the Federal Reserve System incurred $5,027.7 million in net expenses. Total System operating expenses of $6,203.7 million were offset by $1,176.0 million in revenue from priced services, claims for reimbursement, and other income. Total 2019 System operating expenses were $178.4 million, or 3.4 percent, less than the amount budgeted for 2019.

2020 Operating Expense Budget

Budgeted 2020 System operating expenses of $5,322.4 million, net of revenue and reimbursements, are $294.7 million, or 5.9 percent, higher than 2019 actual expenses. The Reserve Bank budgets comprise almost three-quarters of the System budget (figure 1). Budgeted 2020 revenue from priced services is 0.05 percent lower than 2019 actual revenue, reflecting a continual decline in check volume, offset by steadily increasing automated clearinghouse (ACH) volume.

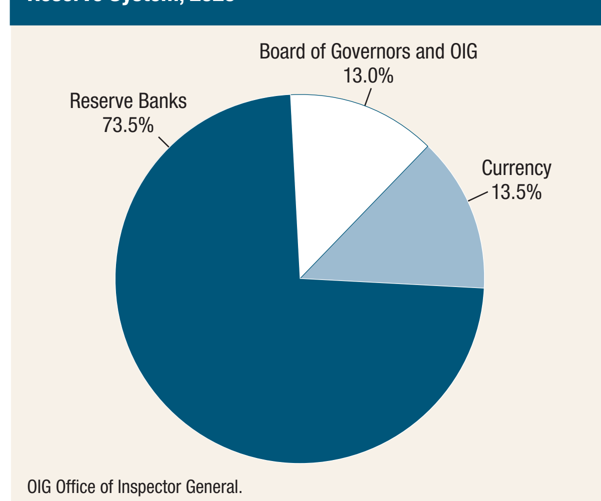
Trends in Expenses and Employment

From the actual 2010 amount to the budgeted 2020 amount, the total operating expenses of the Federal Reserve System have increased an average of 4.3 percent annually (figure 2). This rate is down 0.3 percent from the previous 10-year growth rate, as some expenses began to moderate following the increases from the financial crisis, offset by technology investments. The total rate of growth in Federal Reserve System expenses reflects the staffing increases in information technology (IT) to support large application development projects, information security efforts, end-user services, and the central computing environment. Supervision resource levels were augmented to meet requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) and to support portfolio growth (figure 3).

Growth in supervision expenses over the past 10 years has been driven by implementation of expanded responsibilities mandated by the Dodd-Frank Act, changes in the state member bank portfo-

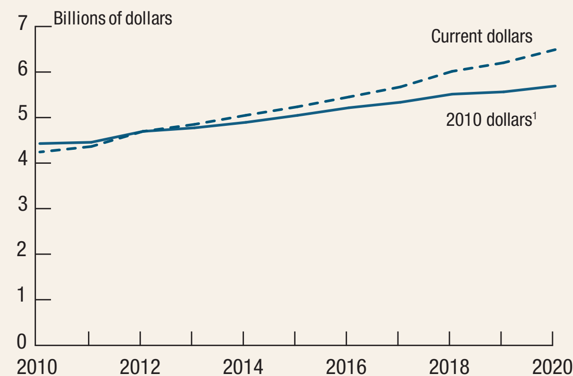
Board employees also participate in the Benefit Equalization Plan, and Board officers participate in the Pension Enhancement Plan for Officers of the Board of Governors of the Federal Reserve System (PEP). The operating expenses of the Board presented in this section include expenses related to Board participants in the Benefit Equalization Plan and PEP but do not include expenses related to the System Plan.

Figure 1. Distribution of budgeted expenses of the Federal Reserve System, 2020



OIG Office of Inspector General.

Figure 2. Total expenses of the Federal Reserve System, 2010–20

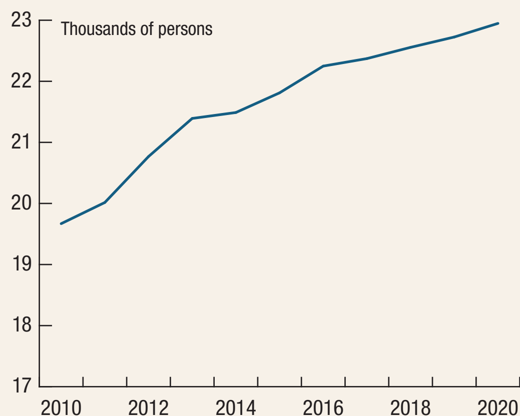


Note: For 2020, budgeted. Includes expenses of the OIG.

[1] Calculated with the GDP price deflator.

lio, building out the cybersecurity supervision program, and supporting other strategic national initiatives. However, supervision growth has moderated because of the Economic Growth, Regulatory Reform and Consumer Protection Act, and as supervisory conditions improved, efficiencies were found and resources were shifted toward higher-risk activities and emerging risks. Expense growth in the monetary policy area during the financial crisis has been followed more recently by increased investment in financial stability monitoring and the dedication of additional resources to regional economic research.

Figure 3. Employment in the Federal Reserve System, 2010–20



Note: For 2020, budgeted. From 2010 to 2018, employment numbers presented include position counts for the Board and the OIG and average number of personnel (ANP) for the Reserve Banks. For 2019 and 2020, employment numbers for all entities are represented in ANP.

Federal Reserve Bank expenses in the cash function continue to increase as a result of a multiyear investment program to modernize the cash-processing and inventory-tracking infrastructure. These increases have been offset partially by lower expenses associated with efficiency improvements in cash operations. Treasury services expenses have increased to meet expanding scope and evolving needs, including the modernization of the Treasury's collection and payment services, the addition of Treasury applications to the Federal Reserve Treasury infrastructure portfolio, and other projects requested by the Treasury.

2020 Capital Budgets

The capital budgets for the Board and Reserve Banks total $180.8 million and $530.9 million, respectively.[3] As in previous years, the 2020 capital budgets include funding for projects that support the strategic direction outlined by the Board, System leadership, and each Reserve Bank. These strategic goals emphasize investments that continue to improve operational efficiencies, enhance services to Bank customers, and ensure a safe and productive work environment.

Board of Governors Budgets

Board of Governors

The Board's budget is based on the principles established by the *Strategic Plan 2020–23* and provides funding to advance the Plan's goals and objectives.[4] This functional alignment helps ensure that organizational resources are used to advance the Board's mission and to provide a structure to fund strategic priorities over the four-year time horizon.

The Board's budget process is as follows:

- At the start of the budget process, the chief operating officer and chief financial officer meet with the Committee on Board Affairs (CBA) to recommend a specific growth target for the Board's operating budget. For 2020, the recommended growth target included known changes in the run-rate of the

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[3] The capital budget reported for the Board includes single-year capital expenditures and 2020 expected capital expenditures from multiyear projects of the Board and the Office of Inspector General. The capital budget reported for the Reserve Banks includes the amounts budgeted for the Federal Reserve Information Technology support function and the Office of Employee Benefits.

[4] The Board approved the Plan published in December 2019, available at https://www.federalreserve.gov/publications/files/2020-2023-gpra-strategic-plan.pdf.

Board's ongoing operations, projected increases to retirement and insurance benefits, and strategic priorities for 2020. After endorsement by the CBA, Division of Financial Management (DFM) staff communicates the target to the Executive Committee, which comprises the directors of each division.

- To manage growth across the Board, the CBA identifies specific growth rates for each functional area: Monetary Policy and Financial Stability, Supervision, Payment System and Reserve Bank Oversight, Public Engagement and Community Development, and Mission Enablement (Support and Overhead).
- To achieve the CBA's growth target, divisions allocate resources to their highest priorities and seek tradeoffs and efficiencies.
- DFM staff reviews initial budget requests submitted by divisions and works collaboratively with all divisions and functional areas to achieve the growth target.
- The chief operating officer and chief financial officer subsequently brief the CBA on the budget submissions. Once the budget is finalized, the administrative governor submits the budget to the full Board for review and final approval.
- DFM staff monitor expenses throughout the year. Quarterly financial forecasts provide insight into budgetary pressures. Staff analyzes variances and reports the variances to senior management.

Tables 3, 4, and 5 summarize the Board's 2019 budgeted and actual expenses and its 2020 budgeted expenses by operating area; division, office, or special account; and account classification, respectively. Table 6 summarizes the Board's 2019 budgeted and actual authorized positions and its budgeted positions for 2020. Each table includes a line item for the Office of Inspector General (OIG), which is discussed later in this section.

2019 Budget Performance

Total expenses for Board operations were $788.5 million, which was $5.2 million, or 0.7 percent, less than the approved 2019 budget of $793.6 million.

Personnel services expenses were $5.0 million, or 0.9 percent, less than the budget primarily because of lower employment levels, which caused higher-than-budgeted vacancy rates. Goods and services expenses were $0.1 million, or 0.1 percent, less than the budget primarily because of lower use of contractual professional services and data. The underrun was offset partially by an overrun in depreciation expenses due to the acceleration of the depreciation schedule for facilities assets.

The Board's 2019 single-year capital spending was less than budgeted by $2.8 million, or 14.4 percent. Multiyear capital projects remained within their overall project budgets; however, actual spending in 2019 was less than budgeted by $37.8 million, or 22.8 percent, due to delays in building improvement projects. Table 7 summarizes the Board's budgeted and actual capital expenditures for 2019 and 2020.

2020 Operating Expense Budget

The 2020 budget for Board operations is $814.4 million, which is $25.9 million, or 3.3 percent, higher than 2019 actual expenses. Staff formulated the operating budget to advance the Board's strategic priorities, which include initiatives that support policy deliberations; promote safety, soundness, and stability of financial institutions; foster safe, efficient, and accessible payment and settlement systems; promote broader, ongoing engagement with the public; and optimize operations.

In addition, the 2020 budget includes employment growth expected to occur in 2020; funding for the Board's compensation and benefit programs; and projected increases to centrally managed retirement and postretirement benefits, which fluctuate with changes in actuarial assumptions and demographics.

Risks in the 2020 Budget

The budget process required all divisions to make tradeoffs and prioritize resources to fund mission-critical activities. DFM staff incorporated centralized adjustments into the budget to reflect historical under-execution.

DFM staff will monitor spending and work closely with all divisions throughout the year to mitigate potential budget overruns.

2020 Capital Budgets

The Board's 2020 single-year capital budget totals $19.2 million, which is $2.5 million higher than 2019 actual capital expenditures. The increase reflects continued investments in data center infrastructure

Table 3. Operating expenses of the Board of Governors, by operating area, 2019–20
Millions of dollars, except as noted

Operating area	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Monetary policy and financial stability[1]	332.0	329.3	-2.7	-0.8	335.3	6.0	1.8
Supervision	362.3	360.3	-2.0	-0.5	368.3	8.0	2.2
Payment system and Reserve Bank oversight	55.2	54.8	-0.4	-0.7	62.5	7.7	14.0
Public engagement and community development	44.2	44.1	-0.1	-0.2	48.3	4.2	9.6
Total, Board operations	**793.6**	**788.5**	**-5.2**	**-0.7**	**814.4**	**25.9**	**3.3**
Office of Inspector General	35.4	35.1	-0.3	-0.8	28.9	-6.2	-17.7

Note: This new table presents financial performance for the Board's operating areas, which aligns with the Reserve Banks. Monetary policy and financial stability aligns with monetary and economic policy within the Reserve Banks. Supervision aligns with supervision and regulation within the Reserve Banks. Public engagement and community development aligns with services to financial institutions and the public within the Reserve Banks; growth in 2020 is driven by technology initiatives and support. Payment system and Reserve Bank oversight is an operating area unique to the Board; growth in 2020 is driven by FedNow Service oversight.

1 Includes the Survey of Consumer Finances.

Table 4. Operating expenses of the Board of Governors, by division, office, or special account, 2019–20
Millions of dollars, except as noted

Division, office, or special account	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Research and Statistics	85.3	83.4	-1.9	-2.2	89.0	5.6	6.7
International Finance	34.7	33.3	-1.4	-3.9	36.4	3.1	9.2
Monetary Affairs	38.2	37.9	-0.3	-0.8	40.0	2.2	5.7
Financial Stability	13.4	13.1	-0.3	-2.2	14.3	1.3	9.8
Supervision and Regulation	123.6	120.7	-2.8	-2.3	122.6	1.9	1.6
Consumer and Community Affairs	34.0	33.1	-0.8	-2.5	34.4	1.3	3.9
Reserve Bank Operations and Payment Systems	44.2	42.9	-1.3	-2.9	45.0	2.0	4.7
Board Members	26.2	25.7	-0.5	-2.1	26.4	0.7	2.8
Secretary	9.0	8.9	-0.1	-1.4	9.4	0.5	5.2
Legal	31.6	30.2	-1.4	-4.3	33.3	3.1	10.3
Chief Operating Officer	13.7	13.7	-0.1	-0.6	14.8	1.1	8.0
Financial Management	13.7	13.5	-0.3	-1.8	14.2	0.8	5.6
Information Technology	117.2	119.2	2.0	1.7	127.6	8.4	7.1
IT income	-0.6	-0.6	0.0	-5.9	0.0	0.6	-100.0
Management	137.3	137.5	0.2	0.2	163.6	26.1	19.0
Special projects[1]	12.9	14.9	2.1	16.0	13.0	-1.9	-12.6
Centrally managed benefits[2]	21.1	20.0	-1.0	-5.0	24.7	4.7	23.5
Extraordinary items[3]	29.7	25.0	-4.7	-15.8	25.9	0.9	3.5
Savings and reallocations[4]	-7.4	0.0	7.4	-100.0	-21.0	-21.0	n/a
Survey of Consumer Finances[5]	16.0	16.0	0.0	0.0	0.7	-15.3	-95.6
Total, Board operations	**793.6**	**788.5**	**-5.2**	**-0.7**	**814.4**	**25.9**	**3.3**
Office of Inspector General	35.4	35.1	-0.3	-0.8	28.9	-6.2	-17.7

Note: Division figures for the Board exclude the IT user charge and income accounts since this methodology was retired with the 2020 budget.

n/a Not applicable.

1 Includes centralized Boardwide benefit programs.

2 Includes retirement and post-retirement benefits, which fluctuate due to changes in actuarial assumptions and demographics.

3 Includes several strategic projects, including the Martin Building renovation and a centralized position pool.

4 Includes negative centralized budget execution and forecast adjustments and Board support and overhead allocations to the OIG.

5 The survey collects information about family incomes, net worth, balance sheet components, credit use, and other financial outcomes, and is conducted every three years.

Table 5. Operating expenses of the Board of Governors, by account classification, 2019–20
Millions of dollars, except as noted

Account classification	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Personnel services							
Salaries	461.3	455.7	-5.5	-1.2	477.4	21.6	4.7
Retirement/Thrift plans	58.4	58.9	0.5	0.8	62.8	3.9	6.6
Employee insurance and other benefits	41.1	41.2	0.2	0.4	42.3	1.1	2.6
Net periodic benefits costs[1]	9.0	8.8	-0.2	-1.8	11.1	2.3	25.7
Subtotal, personnel services	**569.7**	**564.7**	**-5.0**	**-0.9**	**593.6**	**28.9**	**5.1**
Goods and services							
Postage and shipping	0.2	0.3	0.1	34.4	0.4	0.1	50.8
Travel	15.0	14.6	-0.4	-2.6	15.7	1.0	7.2
Telecommunications	6.1	6.3	0.2	2.9	7.3	0.9	15.0
Printing and binding	0.5	0.8	0.3	65.4	0.6	-0.2	-21.8
Publications	0.6	0.3	-0.2	-38.8	0.4	0.0	11.4
Stationery and supplies	1.4	1.2	-0.2	-12.2	1.3	0.1	4.5
Software	19.4	19.0	-0.4	-2.3	21.7	2.7	14.5
Furniture and equipment (F&E)	6.5	5.9	-0.6	-9.4	6.2	0.3	4.8
Rentals	33.9	34.0	0.1	0.3	38.0	4.0	11.7
Data, news, and research	32.0	31.1	-1.0	-3.0	15.9	-15.2	-49.0
Utilities	2.0	1.7	-0.4	-17.6	1.7	0.0	0.8
Repairs and alterations—building	3.4	4.7	1.3	37.7	4.2	-0.4	-9.1
Repairs and maintenance—F&E	4.5	4.9	0.4	9.7	5.0	0.1	2.0
Contractual professional services	52.8	50.2	-2.7	-5.1	64.7	14.5	29.0
Interest	0.0	0.0	0.0	438.6	0.0	0.0	-85.3
Training and dues	4.9	4.4	-0.5	-10.1	5.2	0.7	16.4
Subsidies and contributions	3.1	2.7	-0.4	-13.2	3.1	0.4	15.2
All other	3.3	4.3	1.0	30.1	3.5	-0.8	-17.6
Depreciation/amortization	39.8	42.5	2.7	6.9	44.2	1.7	4.0
Support and overhead allocations[2,3]	55.2	55.1	-0.1	-0.1	-14.0	-69.1	-125.3
IT income[4]	-55.8	-55.8	0.0	0.0	-0.3	55.5	-99.4
Income	-4.9	-4.3	0.6	-12.7	-3.9	0.4	-10.1
Subtotal, goods and services	**223.9**	**223.8**	**-0.1**	**-0.1**	**220.8**	**-3.0**	**-1.3**
Total, Board operations	**793.6**	**788.5**	**-5.2**	**-0.7**	**814.4**	**25.9**	**3.3**
Office of Inspector General							
Personnel services	27.4	27.4	0.0	0.1	28.5	1.0	3.7
Goods and services	7.9	7.6	-0.3	-3.8	4.1	-3.5	-45.9
Operating income[5]	0.0	0.0	0.0	n/a	-17.7	-17.7	n/a
Support and overhead allocations[3]	0.0	0.0	0.0	n/a	14.0	14.0	n/a
Total, OIG operations	**35.4**	**35.1**	**-0.3**	**-0.8**	**28.9**	**-6.2**	**-17.7**

n/a Not applicable.

[1] Net periodic benefits costs other than services costs related to pension and post-retirement benefits.

[2] Previously, this account was named IT user charge. The IT user charge and income methodology was retired with the 2020 budget.

[3] Starting with the 2020 budget, this account includes a net zero transfer of costs from the Board operating budget to the OIG operating budget for Board support and overhead expenses attributable to the OIG.

[4] IT user charge and income methodology was retired with the 2020 budget. The amount shown for 2020 is earned income from the Currency budget.

[5] Starting with the 2020 budget, the OIG operating budget will incorporate earned income from the Consumer Financial Protection Bureau.

purchases and routine life-cycle replacements of equipment and building components.

The Board's multiyear capital budget is driven by facilities projects. Expected capital expenditures in 2020 total $160.8 million and reflect the Board's commitment to provide a secure, modern environment that meets the needs of the workforce and takes advantage of opportunities to increase collaboration, efficiency, productivity, and sustainability. Table 7 summarizes the Board's budgeted and actual capital expenditures for 2019 and 2020.

Table 6. Positions authorized by the Board of Governors, by division, office, or special account, 2019–20

Division, office, or special account	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Research and Statistics	356	356	0	0.0	356	0	0.0
International Finance	156	156	0	0.0	158	2	1.3
Monetary Affairs	171	172	1	0.6	171	-1	-0.6
Financial Stability	55	55	0	0.0	55	0	0.0
Supervision and Regulation	493	493	0	0.0	489	-4	-0.8
Consumer and Community Affairs	131	131	0	0.0	131	0	0.0
Reserve Bank Operations and Payment Systems	183	183	0	0.0	182	-1	-0.5
Board Members	121	121	0	0.0	121	0	0.0
Secretary	53	53	0	0.0	53	0	0.0
Legal	125	125	0	0.0	129	4	3.2
Chief Operating Officer	62	62	0	0.0	62	0	0.0
Financial Management	69	69	0	0.0	69	0	0.0
Information Technology	413	413	0	0.0	413	0	0.0
Management[1]	459	459	0	0.0	477	18	3.9
Extraordinary items[2]	14	13	-1	-7.1	13	0	0.0
Total, Board operations	**2,861**	**2,861**	**0**	**0.0**	**2,879**	**18**	**0.6**
Office of Inspector General	132	133	1	0.8	133	0	0.0

Note: Budget represents authorized position count at the beginning of the year and actual represents authorized position count at year-end.

1 Reflects the resolution of positions within the law enforcement unit in which two employees occupy the same position.

2 Centralized position pool used for strategic areas of growth.

Table 7. Capital expenditures of the Board of Governors, by capital type, 2019–20

Millions of dollars, except as noted

Item	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Board							
Single-year capital expenditures	19.5	16.7	-2.8	-14.4	19.2	2.5	15.0
Multiyear capital expenditures	165.8	128.0	-37.8	-22.8	160.8	32.8	25.7
Total capital expenditures	**185.3**	**144.7**	**-40.7**	**-21.9**	**180.0**	**35.3**	**24.4**
Office of Inspector General							
Single-year capital expenditures	0.2	0.1	-0.1	-28.0	0.8	0.6	441.0
Multiyear capital expenditures	0.0	0.0	0.0	n/a	0.0	0.0	n/a
Total capital expenditures	**0.2**	**0.1**	**-0.1**	**-28.0**	**0.8**	**0.6**	**441.0**
Board and OIG total capital expenditures	**185.6**	**144.8**	**-40.7**	**-21.9**	**180.8**	**36.0**	**24.8**

Note: The amount reported for the multiyear capital budget represents the expected expenditure for the budget year.

n/a Not applicable.

Office of Inspector General

The budget for the Board's OIG is grounded in the goals established in its strategic plan.[5] The goals are to deliver results that promote agency excellence; promote a diverse, skilled, and engaged workforce and foster an inclusive and collaborative environment; optimize external stakeholder engagement; and

5 The plan is located at https://oig.federalreserve.gov/strategic-plan.htm.

advance organizational effectiveness and model a culture of continuous improvement.

In keeping with its statutory independence, the OIG prepares its proposed budget apart from the Board's budget. The OIG presents its budget directly to the Board for approval.

2019 Budget Performance

Total expenses for OIG operations were $35.1 million, which was $0.3 million, or 0.8 percent, less than the approved 2019 budget of $35.4 million. Personnel services expenses exceeded the budget by less than $0.1 million, or 0.1 percent; this over-expenditure was driven by the correction of an error related to contributions to a special retirement plan and was offset mostly by higher-than-budgeted vacancy rates. Goods and services expenses were $0.3 million, or 3.8 percent, less than the budget. The OIG's single-year capital spending was less than budgeted by $0.1 million, or 28.0 percent.

2020 Operating Expense Budget

The 2020 budget for OIG operations is $28.9 million, which is $6.2 million, or 17.7 percent, less than 2019 actual expenses because of one-time adjustments, including a net zero transfer of support and overhead costs from the Board's operating budget to the OIG's operating budget and earned income from the Consumer Financial Protection Bureau. The 2020 budget also includes employment growth expected to occur in 2020, funding for the Board's compensation and benefit programs, and escalations for goods and services.

2020 Capital Budget

The OIG's 2020 single-year capital budget totals $0.8 million, which is $0.6 million higher than 2019 actual capital expenditures. The increase is driven by vehicle and equipment replacements as well as a software enhancement project. Table 7 summarizes the OIG's budgeted and actual capital expenditures for 2019 and 2020.

Federal Reserve Banks Budgets

Each Reserve Bank establishes major operating goals for the coming year that are aligned with the System's key strategic objectives, devises strategies for attaining those goals, estimates required resources, and monitors results. The Reserve Banks structure their budgets around specific functional areas reflecting the core responsibilities of the Federal Reserve:

- contributing to the formulation of monetary policy and enhancing monetary policy implementation to become more effective, flexible, and resilient, including through public communication, outreach, and economic education
- promoting financial stability through effective monitoring, analysis, and policy development
- promoting safety and soundness of financial institutions through effective supervision

The Reserve Bank budget process is as follows:

- The Conference of Presidents, operating through its Committee on Spend Stewardship, defines, in close consultation with the Board's Committee on Federal Reserve Bank Affairs (BAC), key strategic objectives for the System. Considering longer-term environmental trends and historical growth rates of expense, these governance bodies articulate an aggregate System-level growth expectation for a multiyear period.
- The Reserve Banks develop budgets that reflect this direction, importantly through framing and making appropriate tradeoffs, and senior leadership in the Reserve Banks reviews the budgets for alignment with Reserve Bank and System priorities.
- The Reserve Banks submit for Board review preliminary budget information, including documentation to support the budget request.
- Board staff analyzes the Banks' budgets, both individually and in the context of System initiatives.
- The BAC reviews the Bank budgets.
- The Reserve Banks make any needed changes, and the BAC chair submits the revised budgets to Board members for review and final action.
- Throughout the year, Reserve Bank and Board staffs monitor actual performance and compare it with approved budgets and forecasts.

In addition to the budget approval process, the Reserve Banks must submit proposals for certain capital expenditures to the Board for further review and approval.

Tables 8, 9, and 10 summarize the Reserve Banks' 2019 budgeted and actual expenses and 2020 budgeted expenses by Reserve Bank, functional area, and

Table 8. Operating expenses of the Federal Reserve Banks, by District, 2019–20
Millions of dollars, except as noted

District	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Boston	231.6	226.8	-4.7	-2.1	239.6	12.8	5.6
New York	1,043.5	1,039.2	-4.2	-0.4	1,076.9	37.6	3.6
Philadelphia	194.8	193.6	-1.3	-0.6	199.4	5.8	3.0
Cleveland	209.4	210.7	1.3	0.6	230.2	19.5	9.3
Richmond	503.6	493.8	-9.8	-1.9	517.7	23.9	4.8
Atlanta	415.5	411.4	-4.1	-1.0	414.1	2.7	0.7
Chicago	396.1	396.5	0.4	0.1	423.7	27.2	6.9
St. Louis	431.2	415.5	-15.7	-3.6	437.3	21.9	5.3
Minneapolis	180.0	180.7	0.8	0.4	183.1	2.4	1.3
Kansas City	332.7	337.6	4.9	1.5	364.4	26.9	8.0
Dallas	239.1	241.1	2.1	0.9	243.3	2.2	0.9
San Francisco	396.5	396.3	-0.2	0.0	441.4	45.1	11.4
Total Reserve Bank operating expenses	**4,573.8**	**4,543.1**	**-30.6**	**-0.7**	**4,771.2**	**228.1**	**5.0**

Note: Includes expenses of the FRIT support function and the OEB and reflects all redistributions for support and allocation for overhead. Excludes Reserve Bank capital expenditures as well as assessments by the Board of Governors for costs related to currency and the operations of the Board of Governors and the CFPB.

Table 9. Operating expenses of the Federal Reserve Banks, by operating area, 2019–20
Millions of dollars, except as noted

Operating area	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Monetary and economic policy	756.7	751.9	-4.8	-0.6	786.3	34.4	4.6
Services to the U.S. Treasury and other government agencies	657.0	617.1	-39.9	-6.1	668.2	51.1	8.3
Services to financial institutions and the public	1,245.2	1,238.1	-7.1	-0.6	1,296.4	58.3	4.7
Supervision and regulation	1,473.6	1,473.0	-0.6	0.0	1,518.0	45.0	3.1
Fee-based services to financial institutions[1]	441.2	463.0	21.8	4.9	502.3	39.2	8.5
Total Reserve Bank operating expenses[2]	**4,573.8**	**4,543.1**	**-30.6**	**-0.7**	**4,771.2**	**228.1**	**5.0**

1 Includes operating expenses related to development of the FedNow Service.

2 Operating expenses exclude pension costs, reimbursements, and operating expense of the Board of Governors (see table 4).

account classification.[6] Table 11 shows the Reserve Banks' budgeted and actual employment for 2019 and budgeted employment for 2020. In addition, table 12 shows the Reserve Banks' budgeted and actual capital expenditures for 2019 and budgeted capital for 2020.

6 Additional information about the operating expenses of each of the Reserve Banks can be found in appendix G, "Statistical Tables" (see table 10, "Income and expenses of the Federal Reserve Banks, by Bank").

2019 Budget Performance

Total 2019 operating expenses for the Reserve Banks were $4,543.1 million, which is $30.6 million, or 0.7 percent, less than the approved 2019 budget of $4,573.8 million. The actual average number of personnel (ANP) was 19,754, an underrun of 102 ANP, or 0.5 percent, from 2019 budgeted staffing levels, largely because of greater-than-anticipated lag in filling open positions in the Treasury and IT functions. The Reserve Banks' 2019 capital expenditures were

Table 10. Operating expenses of the Federal Reserve Banks, by account classification, 2019–20
Millions of dollars, except as noted

Account classification	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Salaries and other benefits[1]	3,394.5	3,360.0	-34.5	-1.0	3,504.5	144.5	4.3
Building	343.8	348.7	4.8	1.4	354.0	5.3	1.5
Software costs	275.3	281.2	5.8	2.1	329.4	48.3	17.2
Equipment	197.9	193.7	-4.3	-2.2	194.5	0.9	0.5
Recoveries[2]	-384.1	-369.0	15.0	-3.9	-383.6	-14.5	3.9
Expenses capitalized	-87.2	-75.1	12.1	-13.9	-90.0	-14.9	19.8
All other[3]	833.4	803.8	-29.6	-3.6	862.3	58.5	7.3
Total Reserve Bank operating expenses	**4,573.8**	**4,543.1**	**-30.6**	**-0.7**	**4,771.2**	**228.1**	**5.0**

1 Includes salaries, other personnel expense, and retirement and other employment benefit expenses. It does not include pension expenses related to all the participants in the Retirement Plan for Employees of the Federal Reserve System and the Reserve Bank participants in the Benefit Equalization Plan and the Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks. These expenses are recorded as a separate line item in the financial statements; see “Table 10. Income and expenses of the Federal Reserve Banks, by Bank” in appendix G, “Statistical Tables.”

2 Includes tenant rent recoveries.

3 Includes fees, materials and supplies, travel, communications, and shipping.

Table 11. Employment at the Federal Reserve Banks, by District, and at FRIT and OEB, 2019–20

District	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Boston	1,037	1,008	-29	-2.8	1,055	47	4.7
New York	3,232	3,223	-10	-0.3	3,223	1	0.0
Philadelphia	859	884	25	2.9	864	-19	-2.2
Cleveland	988	990	2	0.2	1,030	40	4.1
Richmond	1,481	1,458	-23	-1.6	1,460	1	0.1
Atlanta	1,737	1,755	18	1.1	1,730	-25	-1.4
Chicago	1,599	1,580	-18	-1.1	1,606	26	1.6
St. Louis	1,435	1,415	-20	-1.4	1,415	0	0.0
Minneapolis	1,060	1,035	-25	-2.4	1,054	20	1.9
Kansas City	2,006	2,037	32	1.6	2,064	27	1.3
Dallas	1,278	1,294	16	1.2	1,278	-16	-1.2
San Francisco	1,765	1,733	-32	-1.8	1,762	29	1.7
Total, all Districts	**18,477**	**18,412**	**-65**	**-0.4**	**18,542**	**131**	**0.7**
Federal Reserve Information Technology	1,321	1,285	-36	-2.8	1,295	10	0.8
Office of Employee Benefits	59	58	-1	-1.6	61	4	6.1
Total	**19,856**	**19,754**	**-102**	**-0.5**	**19,898**	**144**	**0.7**

less than budgeted by $153.2 million, or 31.7 percent, primarily due to plan changes, including timing and scope for numerous building-related initiatives.

Revised project plans, benefits assumptions, and less-than-planned personnel expenses driven by delays in hiring contributed to the 2019 operating expense budget underrun, and improving forecasting to avoid such outcomes in the future remains a focus for the System and its leadership. The underrun is offset partially by resources attributable to the extension of the ACH modernization program into 2020 and investments in support of FedNow Service.[7]

7 The Federal Reserve is developing a new round-the-clock, real-time payment and settlement service, called the FedNow Service, to support faster payments in the United States.

Table 12. Capital expenditures of the Federal Reserve Banks, by District, and of FRIT and OEB, 2019–20
Millions of dollars, except as noted

District*	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Boston	15.1	10.1	-5.0	-32.9	21.7	11.5	113.9
New York	125.6	66.5	-59.1	-47.1	87.6	21.1	31.6
Philadelphia	36.2	24.5	-11.6	-32.2	75.3	50.8	207.1
Cleveland	23.1	18.0	-5.1	-22.2	25.9	7.9	43.9
Richmond	15.2	13.7	-1.5	-10.0	20.8	7.1	52.2
Atlanta	23.2	11.4	-11.7	-50.6	26.9	15.4	134.7
Chicago	26.7	23.1	-3.6	-13.4	21.4	-1.7	-7.4
St. Louis	6.7	4.1	-2.6	-38.6	15.2	11.1	271.8
Minneapolis	26.0	6.6	-19.4	-74.8	12.6	6.0	92.0
Kansas City	32.9	26.3	-6.6	-20.2	44.6	18.4	70.0
Dallas	24.2	19.3	-4.9	-20.1	27.0	7.7	40.0
San Francisco	53.1	37.5	-15.6	-29.4	63.8	26.2	69.9
Total, all Districts	**407.9**	**261.1**	**-146.8**	**-36.0**	**442.7**	**181.6**	**69.6**
Federal Reserve Information Technology	75.3	69.0	-6.3	-8.3	84.8	15.8	22.9
Office of Employee Benefits	0.2	*	-0.2	-93.5	3.4	3.4	22,666.6
Total	**483.4**	**330.1**	**-153.2**	**-31.7**	**530.9**	**200.8**	**60.8**

* Less than $50,000.

2020 Operating Expense Budget

The 2020 operating budgets of the Reserve Banks total $4,771.2 million, which is $228.1 million, or 5.0 percent, higher than 2019 actual expenses.[8] Supervision growth has moderated with a shift from implementing significant regulatory reforms of the post-crisis era to providing more-efficient oversight by focusing on areas of risk and allocating resources to the highest priorities. Treasury expenses are increasing primarily to support new and ongoing technology development, including Transforming Tax Collections (T2C), Pay.gov, Do Not Pay (DNP) analytics, and Treasury Retail Investment Manager (TRIM) initiatives.[9] Additionally, increases in cash expenses are driven by the first phase of the next-generation currency-processing program (NextGen).[10] Growth in monetary policy reflects increased resources dedicated to regional economic research, including new studies on inflation and low- and moderate-income communities.

Total 2020 budgeted employment for the Reserve Banks, Federal Reserve Information Technology (FRIT), and the Office of Employee Benefits (OEB) is 19,898 ANP, an increase of 144 ANP, or 0.7 percent, from 2019 actual employment levels. In

[8] On December 18, 2019, the Board approved the 2020 Reserve Bank operating budgets totaling $4,771.2 million, including $668.2 million in Treasury services. Because the U.S. Department of the Treasury's Bureau of the Fiscal Service (Fiscal Service) had not fully determined the level of funding for fiscal services provided by the Federal Reserve Banks in time for a sufficient review, the portion of the 2020 Banks' budgets associated with services to the Treasury was not considered final. The subsequent reductions identified by Fiscal Service constituted less than the 1 percent threshold for such adjustments explicitly specified in the Board's approval, and consequently the final budgets were approved by the director of the Division of Reserve Bank Operations and Payment Systems under limited delegated authority. Additional information is available at https://www.federalreserve.gov/foia/files/2020ReserveBankBudgets.pdf.

In addition, the chair of the BAC designated a portion of the 2020 operating expense budgets ($268.3 million) associated with selected Treasury, Priced Services, and Cash initiatives for conditional approval, requiring additional review and approval by the director of the Division of Reserve Bank Operations and Payment Systems.

[9] The T2C program will develop and implement a modern tax collection system for electronically collecting federal tax payments. Pay.gov is an application that allows the public to use the internet to authorize and initiate payments to federal agencies. DNP is an analytics tool, which helps federal agencies detect and prevent improper payments made to vendors, grantees, loan recipients, and beneficiaries. TRIM is a multiyear development program that introduces new business functionality and infrastructure to Treasury's retail securities program.

[10] The Cash Product Office is implementing on a strategy to transition the current fleet of high-speed currency processing machines and the associated sensor suite from the Banknote Processing System platform to the future next-generation (NextGen) processing technologies (machines and sensor technologies).

national support functions, additional resources are planned to enhance product offerings and ensure the security and resiliency of the FedLine Solutions, as well as to support System strategic initiatives in procurement, finance, and human resource management.[11] In IT, resource additions will support application development projects and information security initiatives for Treasury, and will develop cloud computing foundational services and infrastructure for the System.

Further contributing to the growth are resources to support community development initiatives, regional economic research and outreach initiatives, FedNow Service, and the NextGen program. Increases are offset by reductions in the check function in recognition of operational efficiencies; in ACH following the planned implementation of the multiyear ACH Modernization initiative; and in supervision related to efficiency efforts, changes in supervisory responsibilities, and legislative changes.[12]

Reserve Bank officer and staff personnel expenses for 2020 total $2,742.9 million, an increase of $116.4 million, or 4.4 percent, from 2019 actual expenses. The increase reflects expenses associated with additional staff and budgeted salary administration adjustments.[13]

The 2020 Reserve Bank budgets include a salary administration program for eligible officers, senior professionals, and staff totaling $103.6 million and a variable pay program totaling $225.2 million.

2020 Capital Budgets

The 2020 capital budgets for the Reserve Banks, FRIT, and OEB total $530.9 million.[14] The increase in the 2020 capital budget is $200.8 million, or 60.8 percent, greater than the 2019 actual levels of $330.1 million, largely because of ongoing multiyear building and information technology strategic initiatives. Initiatives in the 2020 capital budget support major workspace renovations, address aging building infrastructure in several Reserve Banks, improve IT infrastructure, and provide application upgrades and releases.

Capital Expenditures Designated for Conditional Approval

The BAC chair designated projects with an aggregate cost of $42.2 million in 2020 for conditional approval, requiring additional review and approval by the Board's director of the Division of Reserve Bank Operations and Payment Systems before the funds are committed.[15] The expenditures designated for conditional approval by the chair of the BAC include large-scale building projects to renovate office space and update building infrastructure. Technology projects include support for services performed on behalf of the Treasury, upgrades to existing cash services' applications, and Fedwire and FedLine initiatives.[16]

Other Capital Expenditures

Significant capital expenditures (typically expenditures exceeding $1 million) that are not designated for conditional approval include total multiyear budgeted expenditures of $798.9 million for 2020 and future years, of which the single-year 2020 budgeted expenditures are $391.3 million. This category includes building expenditures for office space renovations, mechanical and electrical infrastructure upgrades, building automation, and security enhancements. IT projects include ongoing infrastructure investments; initiatives that enable better access to data and enhance cybersecurity and cyber-resiliency; and applications to support fee-based services, supervision, cash, and open market operations.

Capital initiatives that are individually less than $1 million are budgeted at an aggregate amount of

[11] Enhancements to the FedLine Solutions include a multiyear transformational effort focused on evolving the FedLine network, authentication, and hosting infrastructure to meet customer, industry, and Federal Reserve System needs.

[12] The ACH Modernization program is a multiyear technology initiative designed to replace the Federal Reserve's current core ACH processing system with a new, modern technology solution. The Economic Growth, Regulatory Relief, and Consumer Protection Act, enacted in May 2018, aims to right-size the regulatory system for smaller financial institutions, allowing community banks and credit unions to succeed and invest further in their local areas.

[13] The salary administration program includes a budgeted pool for merit increases, equity adjustments, and promotions.

[14] The Board delegated the approval of the resources for services provided to the Treasury to the director of the Division of Reserve Bank Operations and Payment Systems pending final authorization from the Bureau of the Fiscal Service. The 2020 capital budget, including those capital expenditures designated for conditional approval, reflect the final authorization from Fiscal Service.

[15] Generally, capital expenditures that are designated for conditional approval include certain building projects, District expenditures that substantially affect or influence future System direction or the manner in which significant services are performed, expenditures that may be inconsistent with System direction or vary from previously negotiated purchasing agreements, and local expenditures that duplicate national efforts.

[16] The Reserve Banks operate two key payment and settlement systems—the Fedwire Funds Service and the Fedwire Securities Service (collectively, "Fedwire Services"), among other services.

$97.5 million for 2020 and include building maintenance expenditures, scheduled software and equipment upgrades, and equipment and furniture replacements.

Currency Budget

The currency budget provides funds to reimburse the Treasury's Bureau of Engraving and Printing (BEP) for expenses related to the production of banknotes, and the Board's activities related to its role as issuing authority of the nation's currency in the form of Federal Reserve notes.[17] As issuing authority, the Board works closely with its strategic partners, such as the Reserve Banks, the Department of the Treasury, the BEP, and the U.S. Secret Service to help maintain the integrity of and public confidence in our nation's currency.

The Board works to ensure that the notes meet quality standards from production through destruction, monitors counterfeiting risks and threats for each denomination, contributes to the development of security features and new design concepts, and conducts adversarial analysis to ensure the security features and designs are robust against counterfeiting. The budget includes activities that support its issuing authority role, the cost of shipping new currency from the BEP to Reserve Banks and fit currency between Reserve Banks, and funds the Currency Education Program (CEP). The CEP aims to protect and maintain confidence in U.S. currency worldwide, working closely with other agencies and departments of the U.S. government, to provide information and conduct outreach through a variety of channels.

The annual currency budget process is as follows:

1. Each year, under authority delegated by the Board, the director of the Division of Reserve Bank Operations and Payment Systems submits a fiscal year print order for notes to the director of the BEP.[18]
2. The BEP forecasts expenses for the calendar-year currency budget, including fixed and variable costs for printing Federal Reserve notes, facility costs, and support costs. Board staff develop budgets for Board expenses in relation to strategic guidance set by Cash leadership.
3. The BAC reviews the proposed currency budget.
4. The BAC chair submits the proposed currency budget to Board members for review and final action.

2019 Budget Performance

The Board's 2019 actual operating expenses for new currency were $837.1 million, $118.7 million, or 12.4 percent, below the budgeted amount for 2019. The budget underrun is attributable primarily to a delay in design work for a new production facility in the Washington, D.C., area, and lower variable printing expenses because of the revised print order.[19]

Currency transportation expenses were lower than budgeted primarily because the print order was reduced at midyear, resulting in fewer currency shipments than originally planned. The 2019 research and development budget underrun is primarily the result of the design consulting work ramping up more slowly than planned and fewer requirements for Board IT support of (externally developed) prototype equipment that would be used for an inspection system for notes, sheets, and plates, as well as a counterfeit analysis tool.

2020 Budget

Table 13 summarizes the 2020 currency operating budget of $877.2 million.[20] The proposed 2020 operating budget represents an increase of $40.1 million, or 4.8 percent, from 2019 actual expenses. BEP costs associated with the printing of Federal Reserve notes are 94.4 percent of the operating budget. Board expenses for currency transportation, research and development, annual contributions and management support, currency education, and depreciation com-

[17] As mandated by the Federal Reserve Act, section 16, the Board reimburses the BEP for all costs related to the production of Federal Reserve notes. Section 16 of the Federal Reserve Act also requires that all costs incurred for the issuing of notes shall be paid for by the Board and included in its assessments to the Reserve Banks. All operations and capital investments of the BEP are financed by a revolving fund that is reimbursed through product sales, nearly all of which are sales of Federal Reserve notes to the Board to fulfill its annual print order.

[18] The Board delivers the annual print order to the BEP director in August of each year, and copies are available on the Board's public website at https://www.federalreserve.gov/paymentsystems/coin_currency_orders.htm.

[19] In 2019, the Board approved $210 million to reimburse the BEP for the Ft. Worth facility expansion and for preliminary design studies and contractor expenses in support of a replacement of its Washington, D.C., facility.

[20] In 2019, the Board approved a $3.2 million multicycle capital budget for counterfeit inspection information technology equipment. In 2020, no additional capital funds are budgeted.

Table 13. Federal Reserve currency budget, 2019–20
Thousands of dollars, except as noted

Item	2019 budget	2019 actual	Variance 2019 actual to 2019 budget		2020 budget	Variance 2020 budget to 2019 actual	
			Amount	Percent		Amount	Percent
Printing Federal Reserve notes							
BEP fixed printing costs	401,938	401,940	2	0.0	499,836	97,896	24.4
BEP variable printing costs	288,822	239,488	-49,333	-17.1	233,099	-6,389	-2.7
BEP facility reimbursements							
Fort Worth facility expansion	150,000	150,000	0	0.0	60,000	-90,000	-60.0
D.C. facility design work	60,000	0	-60,000	-100.0	30,000	30,000	n/a
BEP support costs							
Currency reader	956	818	-138	-14.5	955	136	16.7
Other[1]	3,672	3,615	-57	-1.6	3,776	161	4.5
Board expenses							
Currency transportation	22,496	18,668	-3,828	-17.0	19,042	374	2.0
Research and development	11,767	7,148	-4,619	-39.3	15,893	8,744	122.3
Annual contributions and management support	7,100	6,959	-140	-2.0	8,865	1,905	27.4
Currency quality assurance	6,500	6,457	-42	-0.7	0	-6,457	-100.0
Currency education	2,430	1,898	-532	-21.9	2,425	527	27.8
Personnel	0	0	0	n/a	2,893	2,893	n/a
Travel	0	0	0	n/a	278	278	n/a
Training	0	0	0	n/a	27	27	n/a
Depreciation	74	62	-11	-15.6	63	0	0.2
Operating budget	**955,759**	**837,056**	**-118,703**	**-12.4**	**877,153**	**40,097**	**4.8**

n/a Not applicable. The percentage change is greater than 100 percent and based on comparison to a de minimis value in the prior year.

[1] Other BEP expenses include costs to reimburse the BEP for expenses incurred by its Destruction Standards and Compliance Division of the Office of Compliance and Mutilated Currency Division of the Office of Financial Management.

prise the remaining 5.6 percent of the operating budget.

BEP costs include $90.0 million to fund two facility improvement projects: an expansion of the Fort Worth, Texas, facility and new design and engineering studies in support of a new facility to replace the BEP's existing Washington, D.C., facility.[21]

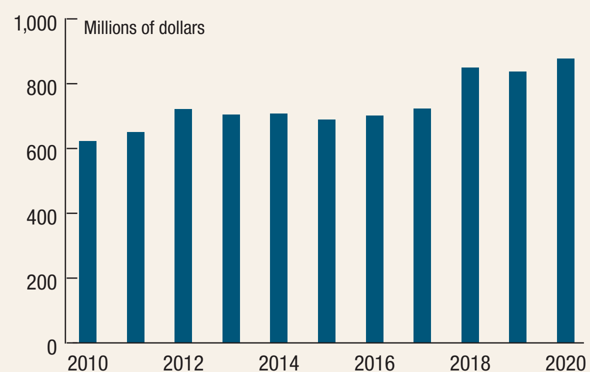
BEP Costs

The proposed 2020 budget to fund the BEP expenses associated with the printing of Federal Reserve notes is $827.7 million, which is $31.8 million, or 4.0 percent, greater than 2019 actual expenses. The primary driver of this increase is higher fixed costs to fund capital investments and research and development projects.

The proposed budget for fixed printing costs is $499.8 million, which is $97.9 million, or 24.4 percent, greater than 2019 actual expenses. The increase is attributed to investments in manufacturing equipment, information technology projects, and physical security upgrades. Additional increases are for research and development efforts to support the design and security of the next family of notes.

Fixed cost increases are offset partially by a reduction in variable costs associated with the Board's

Figure 4. Federal Reserve costs for currency, 2010–20



Note: For 2020 budgeted.

[21] Excluding reimbursements for improvements to the BEP facilities, the proposed 2020 operating budget is $737.7 million, which is $91.8 million, or 14.2 percent, less than 2019 actual expenses.

lower FY2020 print order and BEP facility reimbursements. While total variable costs are expected to decrease this year, the BEP estimates an increase in cost for paper, ink, direct labor, and other variable manufacturing expenses. The decrease associated with the Ft. Worth facility expansion reflects the final year of the total $220.0 million multiyear project.

Board Costs

Board costs are estimated to be $49.5 million, or 20.1 percent, more than 2019 actual expenses. The primary drivers of the 2020 budget increase are due to research and development and annual contributions and management consultations to assist in implementing all phases of the Cash strategic plan.

In 2020, Board staff will continue to work with contract staff to develop prototype equipment that would assess quality at the BEP by performing plate, sheet, and note inspection. The Board will continue to contract services to develop security features for possible inclusion in the next family of notes.

Board staff will conduct market research on and expand outreach to banknote equipment manufacturers to identify trends in the market for equipment that accepts and dispenses banknotes. Contract resources are included to perform financial analysis supporting Board oversight of reimbursements to Treasury in support of the new D.C. currency production facility.

To support counterfeit deterrence activities, funds are included for the Counterfeit Currency Processing Facility (CCPF) initiative. The 2020 increase supports development of prototype technology to identify, analyze, and classify suspect counterfeit notes.

The 2020 currency budget includes $3.2 million for personnel services, travel, and training costs for 15 ANP, or 18 positions.[22]

2020 Capital Budget

In 2019, the Board approved a $3.2 million multicycle capital budget for information technology equipment in support of counterfeit inspection technology. As the program is in the developmental stage, no additional capital funds have been budgeted.

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[22] Additional information related to currency positions can be found at https://www.federalreserve.gov/foia/files/2020currency.pdf.

E Record of Policy Actions of the Board of Governors

Policy actions of the Board of Governors are presented pursuant to section 10 of the Federal Reserve Act. That section provides that the Board shall keep a record of all questions of policy determined by the Board and shall include in its annual report to Congress a full account of such actions. This appendix provides a summary of policy actions in 2019, as implemented through (1) rules and regulations, (2) policy statements and other actions, and (3) interest rates for depository institutions. Policy actions were approved by all Board members in office, unless indicated otherwise. More information on the actions is available from the relevant *Federal Register* notices or other documents (see links in footnotes) or on request from the Board's Freedom of Information Office.

In addition, this appendix elaborates on regulatory developments under the Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA) and the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act). It also provides information on the Board and the Government Performance and Results Act.

For information on the Federal Open Market Committee's policy actions relating to open market operations, see appendix B, "Minutes of Federal Open Market Committee Meetings."

Rules and Regulations

Regulation H (Membership of State Banking Institutions in the Federal Reserve System)

On February 7, 2019, the Board approved a final rule (Docket No. R-1498) to amend its regulation regarding loans in areas having special flood hazards to implement the private flood insurance provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 (the act).[1] The final rule requires regulated lending institutions to accept policies that meet the definition of "private flood insurance" in the act. The final rule also permits regulated lending institutions to exercise discretion in accepting flood insurance policies issued by private insurers and mutual aid societies that do not meet the statutory definition of private flood insurance, subject to certain restrictions. The final rule was issued jointly with the Federal Deposit Insurance Corporation (FDIC), Office of the Comptroller of the Currency (OCC), National Credit Union Administration, and Farm Credit Administration (FCA). The final rule became effective July 1, 2019.

> **Voting for this action:** Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On June 11, 2019, the Board approved a final rule (Docket No. R-1618) to streamline Call Report requirements for small institutions.[2] All institutions, regardless of size, submit a quarterly Call Report that includes data used by regulators to monitor the condition, performance, and risk profiles of individual institutions and the industry as a whole. The final rule, issued jointly with the FDIC and OCC (together with the Board, "the agencies"), expands the number of institutions eligible for the agencies' most streamlined Call Report (the FFIEC 051 Call Report) to include certain insured depository institutions with less than $5 billion in total consolidated assets, in accordance with EGRRCPA. The final rule also establishes reduced reporting on the FFIEC 051 Call Report for the first and third calendar quarters. The final rule became effective July 22, 2019.

> **Voting for this action:** Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

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1 See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-02-20/html/2019-02650.htm.

2 See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-06-21/html/2019-12985.htm.

Regulations H (Membership of State Banking Institutions in the Federal Reserve System) and K (International Banking Operations)

On May 7, 2019, the Board approved a final rule (Docket No. R-1622) to repeal its regulations incorporating the Secure and Fair Enforcement for Mortgage Licensing Act (the SAFE Act).[3] The Dodd-Frank Act transferred rulemaking authority for the SAFE Act from the Board to the Consumer Financial Protection Bureau (the bureau), which has issued a final rule that is substantially identical to the Board's regulations. Entities that were subject to the Board's regulations are now subject to the bureau's regulations. The Board's final rule became effective June 14, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulations L (Management Official Interlocks) and LL (Savings and Loan Holding Companies)

On September 25, 2019, the Board approved a final rule (Docket No. R-1641) that raised to $10 billion both asset thresholds under the major assets prohibition of the Board's rules prohibiting management interlocks (Interlocks Rules).[4] The adjustment to the thresholds was made to account for changes in the U.S. banking market since the Interlocks Rules were implemented. The final rule was issued jointly with the FDIC and OCC. Prior to enactment of the final rule, a management official of a depository institution or holding company with total assets exceeding $2.5 billion was prohibited from simultaneously working at an unaffiliated depository organization with total assets exceeding $1.5 billion. The final rule became effective October 10, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulation Q (Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks)

On July 8, 2019, the Board approved a final rule (Docket No. R-1576), issued jointly with the FDIC and OCC, to reduce regulatory capital requirements for banking organizations that do not use the "advanced approaches" capital framework—generally firms that have less than $250 billion in total consolidated assets and less than $10 billion in total foreign exposure.[5] Under the final rule, qualifying banking organizations are subject to simplified regulatory capital requirements for mortgage-servicing assets, certain deferred tax assets, investments in the capital instruments of unconsolidated financial institutions, and minority interest. In addition, the final rule allows bank holding companies and savings and loan holding companies to redeem common stock without prior approval unless otherwise required. The final rule is consistent with the March 2017 report that the Board, FDIC, and OCC submitted to Congress pursuant to the EGRRCPA, in which the three agencies committed to reduce regulatory burden, especially for community banking organizations. The final rule became effective April 1, 2020. Banking organizations had the option to adopt the rule earlier, on January 1, 2020 (see the following summary for October 7, 2019, Docket No. R-1576). Amendments on the pre-approval requirements for common stock, as well as other technical amendments, became effective October 1, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On October 7, 2019, the Board approved final rules, issued jointly with the FDIC and OCC, to (1) establish a simple measure of capital adequacy for community banks (the community bank leverage ratio, or CBLR), as required by EGRRCPA (Docket No. R-1638), and (2) provide insured depository institutions and depository institution holding companies not subject to the advanced approaches capital framework with the option to adopt at an earlier date simplifying changes to the Board's capital rule

[3] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-05-15/html/2019-09948.htm.

[4] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-10-10/html/2019-21840.htm.

[5] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-07-22/html/2019-15131.htm.

(Docket No. R-1576).[6] (The Board had previously approved the simplifying changes on July 8, 2019. See the above summary.) The CBLR framework removes requirements for calculating and reporting risk-based capital ratios for qualifying community banks that opt into the framework. To qualify for the CBLR framework, a community bank must have less than $10 billion in total consolidated assets, limited amounts of off-balance-sheet exposures and trading assets and liabilities, and a leverage ratio greater than 9 percent. For purposes of the framework, a bank's leverage ratio is calculated as tier 1 capital divided by average total consolidated assets. The final rules became effective January 1, 2020.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On November 15, 2019, the Board approved a final rule (Docket No. R-1659), issued jointly with the FDIC and OCC (together with the Board, "the agencies"), to exclude from the supplementary leverage ratio certain funds of banking organizations deposited with central banks if the banking organization is predominantly engaged in custody, safekeeping, and asset-servicing activities.[7] The final rule implements an EGRRCPA requirement that the agencies amend their respective capital rules to incorporate this exclusion. The supplementary leverage ratio is one of many tools the federal banking agencies use to determine minimum required capital levels for large, internationally active banking organizations. The final rule became effective April 1, 2020.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On November 15, 2019, the Board approved a final rule (Docket No. R-1621), issued jointly with the FDIC and OCC, to revise the definition of "high-volatility commercial real estate (HVCRE) exposure" in its capital rule to conform with the statutory definition of HVCRE acquisition, development, or construction (ADC) exposure introduced by the EGRRCPA.[8] The final rule became effective April 1, 2020. Banking organizations have the option to maintain the earlier capital treatment of ADC loans originated between January 1, 2015, and April 1, 2020.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On November 18, 2019, the Board approved a final rule (Docket No. R-1629), issued jointly with the FDIC and OCC, to implement the standardized approach for measuring counterparty credit risk (SA-CCR), a new methodology for calculating the amount of regulatory capital a banking organization must hold to support potential losses associated with its derivative contracts.[9] SA-CCR replaces the "current exposure methodology" (CEM) for advanced approaches banking organizations. Under the final rule, an advanced approaches banking organization (1) may use SA-CCR or the internal models methodology to calculate its advanced approaches total risk-weighted assets and (2) must use SA-CCR instead of the CEM to calculate its standardized total risk-weighted assets. A non-advanced approaches banking organization may voluntarily use SA-CCR to calculate its standardized total risk-weighted assets. The final rule also implements SA-CCR in other aspects of the capital rule. The final rule became effective April 1, 2020. Compliance is mandatory for advanced approaches banking organizations on January 1, 2022. (Note: On March 27, 2020, the Board announced that banking organizations will be permitted to early adopt SA-CCR for the reporting period ending March 31, 2020.)

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulations Q (Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks), Y (Bank Holding Companies and Change in Bank Control), LL (Savings and Loan Holding Companies), WW (Liquidity Risk Measurement Standards), and YY (Enhanced Prudential Standards)

On October 10, 2019, the Board approved two final rules to establish (1) a revised framework of prudential standards (Docket No. R-1658) and (2) a revised

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6 See *Federal Register* notices at https://www.govinfo.gov/content/pkg/FR-2019-11-13/html/2019-23472.htm and https://www.govinfo.gov/content/pkg/FR-2019-11-13/html/2019-23467.htm.

7 See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2020-01-27/html/2019-28293.htm.

8 See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-12-13/html/2019-26544.htm.

9 See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2020-01-24/html/2019-27249.htm.

framework of capital and liquidity requirements (Docket No. R-1628).[10] The final rule on capital and liquidity requirements was issued jointly with the FDIC and OCC. Both final rules are consistent with the EGRRCPA and build on ongoing work to tailor the risk sensitivity of the Board's regulatory framework. Under the final rules, U.S. banking organizations that have $100 billion or more in total consolidated assets and foreign banking organizations that have $100 billion or more in combined U.S. assets are sorted into four categories of increasingly stringent standards based on risk-based indicators. U.S. global systemically important bank holding companies remain subject to the most stringent capital, stress testing, liquidity, and other requirements (Category I), followed by firms that are very large or have significant international activity, measured as $700 billion or more in total assets or $75 billion or more in cross-jurisdictional activity (Category II). Category III standards apply to firms that have heightened risk profiles, measured as $250 billion or more in total assets or $100 billion or more in total assets and $75 billion or more in weighted short-term wholesale funding, nonbank assets, or off-balance-sheet exposure. Firms with at least $100 billion, but less than $250 billion, in total assets that do not meet other risk-based indicators are subject to Category IV standards. Under the final rules, domestic and foreign firms are subject to largely the same framework of standards. However, the measure of cross-jurisdictional activity for foreign banks excludes certain transactions with non-U.S. affiliates. In addition, the final rule issued solely by the Board applies certain prudential standards to certain large savings and loan holding companies and revises the Board's stress testing framework consistent with EGRRCPA. Both final rules became effective December 31, 2019. (Note: The Board also amended Regulation PP (Definitions Relating to Title I of the Dodd-Frank Act) to change the Board's implementation of certain definitions in the Dodd-Frank Act.)

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governor Bowman.
Voting against this action: Governor Brainard.

[10] See *Federal Register* notices at https://www.govinfo.gov/content/pkg/FR-2019-11-01/html/2019-23662.htm and https://www.govinfo.gov/content/pkg/FR-2019-11-01/html/2019-23800.htm.

Regulation Y (Bank Holding Companies and Change in Bank Control)

On March 5, 2019, the Board approved a final rule (Docket No. R-1653) to limit the scope of potential objections to a firm's capital plan on the basis of qualitative deficiencies in the firm's capital planning process, effective for the 2019 cycle of the Comprehensive Capital Analysis and Review (CCAR).[11] For the largest, most complex firms, CCAR includes a quantitative evaluation of the firms' capital adequacy under stress and a qualitative evaluation of their ability to determine capital needs on a forward-looking basis. Under the final rule, the Board will no longer issue a qualitative objection to a firm if the firm had been subject to a potential qualitative objection for four consecutive years and did not receive a qualitative objection in the fourth year of that period. In addition, except for certain firms that received a qualitative objection in the immediate prior year, the Board will no longer issue a qualitative objection to any firm, effective January 1, 2021. The final rule became effective March 13, 2019, and the removal of the qualitative objection under the capital plan was applicable on March 6, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governor Bowman.
Voting against this action: Governor Brainard.

On September 20, 2019, the Board approved a final rule (Docket No. R-1639), issued jointly with the FDIC and OCC, to increase the threshold at or below which residential real estate transactions require an appraisal from $250,000 to $400,000.[12] The final rule defines "residential real estate transaction" as a real estate-related financial transaction secured by a single one- to four-family residential property. For transactions exempted from the appraisal requirement, the final rule requires institutions to obtain an evaluation providing an estimate of the market value of real estate collateral. In addition, the final rule incorporates the appraisal exemption for rural residential properties provided by the EGRRCPA and requires institutions to review appraisals for compliance with the Uniform Standards of Professional Appraisal Practice (USPAP). The final rule became effective October 9, 2019, except for the requirements pertaining to evaluations

[11] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-03-13/html/2019-04515.htm.

[12] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-10-08/html/2019-21376.htm.

of rural residential properties and the USPAP compliance review, which both became effective January 1, 2020.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulation CC (Availability of Funds and Collection of Checks)

On June 20, 2019, the Board approved a final rule (Docket No. R-1637), issued jointly with the bureau, to implement a statutory requirement to adjust for inflation the amount of funds depository institutions must make available to their customers, consistent with the Expedited Funds Availability Act (the EFA Act), as required by the Dodd-Frank Act.[13] The final rule applies in circumstances ranging from next-business-day withdrawal of certain check deposits to setting the threshold amount for determining whether an account has been repeatedly withdrawn. The Dodd-Frank Act requires that the dollar amounts in the EFA Act be adjusted for inflation every five years. The final rule also expands the geographic application of the EFA Act to American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam, as required by the EGRRCPA. The final rule became effective September 3, 2019, except for certain amendments that are effective July 1, 2020.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulation KK (Margin and Capital Requirements for Covered Swap Entities)

On March 11, 2019, the Board approved an interim final rule and request for comment (Docket No. R-1654) to amend its swap margin regulation to ensure that certain legacy swaps may be transferred from a United Kingdom (UK) entity to an affiliate in the European Union (EU) or the United States without triggering new margin requirements in the event of a non-negotiated UK withdrawal from the EU (a so-called hard Brexit).[14] Because of the phased compliance schedule for the swap margin regulation, dealers covered by the regulation continue to hold grandfathered legacy swaps in their portfolios. The interim final rule was issued jointly with the FDIC, OCC, FCA, and Federal Housing Finance Agency. The interim final rule became effective March 19, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulation QQ (Resolution Plans)

On October 10, 2019, the Board approved a final rule (Docket No. R-1660), issued jointly with the FDIC, to tailor requirements for domestic and foreign banking organizations to submit resolution plans, also known as living wills, commensurate with a firm's size, complexity, and scope of operations, consistent with the Dodd-Frank Act, as amended by the EGRRCPA.[15] Resolution plans describe a firm's strategy for orderly resolution under bankruptcy in the event of material financial distress or failure of the firm. The final rule generally retains current resolution plan requirements for the largest firms, while tailoring requirements for firms that are relatively smaller or less complex. For the largest, most complex firms, the final rule requires resolution plans to be submitted on a two-year cycle. For firms that are relatively smaller or less complex, resolution plans must be submitted on a three-year cycle. Domestic firms and the largest, most complex foreign firms are to alternate between submitting full resolution plans and targeted resolution plans. Foreign firms with relatively limited U.S. operations are to submit reduced resolution plans. The final rule became effective December 31, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governor Bowman.
Voting against this action: Governor Brainard.

Regulation VV (Proprietary Trading and Relationships with Covered Funds)

On July 8, 2019, the Board approved a final rule (Docket No. R-1643) to amend its regulation implementing section 13 of the Bank Holding Company Act (commonly known as the Volcker rule) to exclude qualifying small depository institutions from the Volcker rule's restrictions on engaging in propri-

[13] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-07-03/html/2019-13668.htm.

[14] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-03-19/html/2019-05012.htm.

[15] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-11-01/html/2019-23967.htm.

etary trading or owning, sponsoring, or having certain relationships with hedge funds or private equity funds, consistent with the EGRRCPA.[16] Under the final rule, community banks that have $10 billion or less in total consolidated assets and total trading assets and liabilities of 5 percent or less of total consolidated assets are excluded from the Volcker rule. The final rule was issued jointly with the FDIC, OCC, Commodity Futures Trading Commission (CFTC), and Securities and Exchange Commission (SEC). The final rule became effective July 22, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On October 3, 2019, the Board approved a final rule (Docket No. R-1608) to amend its regulation implementing the Volcker rule.[17] The final rule established three categories of banking entities based on the size of their trading assets and liabilities; these categories are used to tailor certain requirements of the regulation. Under the final rule, firms that do not have significant trading activities are subject to simplified and streamlined compliance requirements, while firms with significant trading activity are subject to more stringent requirements. The final rule was issued jointly with the FDIC, OCC, CFTC, and SEC and became effective January 1, 2020. Banking entities have until January 1, 2021, to comply with the final rule.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governor Bowman.
Voting against this action: Governor Brainard.

Regulation WW (Liquidity Risk Measurement Standards)

On May 23, 2019, the Board approved a final rule (Docket No. R-1616), issued jointly with the FDIC and OCC, to amend the liquidity coverage ratio rule.[18] Under the final rule, "liquid and readily-marketable" "investment-grade" municipal obligations are treated as high-quality liquid assets, as required by the EGRRCPA. The final rule became effective July 5, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulation YY (Enhanced Prudential Standards)

On February 4, 2019, the Board approved a set of changes to increase the transparency of its stress testing program for the nation's largest and most complex banks: (1) a final notice (Docket No. OP-1651) of an enhanced disclosure of the models used in the Federal Reserve's supervisory stress tests; (2) a final Stress Testing Policy Statement (Docket No. R-1649) describing the Board's principles that guide the development, implementation, and validation of the supervisory stress test models (Regulation YY, Appendix B); and (3) final amendments (Docket No. R-1650) to the Board's Policy Statement on the Scenario Design Framework for Stress Testing (Regulation YY, Appendix A).[19] These changes became effective April 1, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Procedures for Debt Collection

On April 8, 2019, the Board approved a final rule (Docket No. R-1657) to improve the effectiveness of its debt collection efforts, primarily by allowing it to refer debts for collection to the U.S. Department of the Treasury.[20] The regulations provide for the collection of debts owed to the United States arising from the Board's operations or its enforcement and other regulatory activities, under the Debt Collection Improvement Act of 1996. The final rule became effective April 16, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Rule Regarding Equal Opportunity

On May 23, 2019, the Board approved a final rule (Docket No. R-1630) to revise and expand its equal

[16] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-07-22/html/2019-15019.htm.

[17] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-11-14/html/2019-22695.htm.

[18] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-06-05/html/2019-11715.htm.

[19] See *Federal Register* notices at https://www.govinfo.gov/content/pkg/FR-2019-02-28/html/2019-03505.htm, https://www.govinfo.gov/content/pkg/FR-2019-02-28/html/2019-03503.htm, and https://www.govinfo.gov/content/pkg/FR-2019-02-28/html/2019-03504.htm.

[20] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-04-16/html/2019-07537.htm.

employment opportunity regulation to adopt recent changes the Equal Employment Opportunity Commission made to its parallel regulation and to clarify other provisions of the regulation, including those related to a Board employee's right to bring a claim before the Merit System Protection Board and the Federal Labor Relations Board.[21] The final rule became effective July 11, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Rules Regarding Delegation of Authority

On June 24, 2019, the Board approved a final rule (Docket No. R-1667) amending the Board's Rules Regarding Delegation of Authority to (1) delegate to the Federal Reserve Banks authority to approve merger or acquisition proposals that satisfy the Board's competition delegation criteria when the market deposits of commercially active thrifts and qualifying credit unions are included in the initial competitive analysis at 100 percent and 50 percent weights, respectively, and to act on certain other types of applications, notices, and requests; and (2) revise or rescind certain existing delegations of authority to conform to the new delegations.[22] The final rule became effective July 3, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Policy Statements and Other Actions

Countercyclical Capital Buffer

On March 5, 2019, the Board approved affirmation of the Countercyclical Capital Buffer (CCyB) for private-sector credit exposures located in the United States at the current level of 0 percent.[23] In making this determination, the Board followed the framework detailed in the Board's policy statement for setting the CCyB.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governor Bowman.
Voting against this action: Governor Brainard.

Policy on Payment System Risk

On March 21, 2019, the Board approved amendments to part II of its Policy on Payment System Risk (PSR Policy) (Docket No. OP-1589) concerning the provision of intraday credit by Federal Reserve Banks to U.S. branches and agencies of foreign banking organizations (FBOs).[24] Specifically, the amendments (1) remove references to the Strength of Support Assessment ranking and to FBOs' financial holding company status and (2) adopt alternative methods for determining an FBO's eligibility for a positive net debit cap, the size of its net debit cap, and its eligibility to request a streamlined procedure to obtain maximum daylight overdraft capacity. The amendments became effective April 1, 2020. (Note: On March 24, 2020, the Board announced that the effective date of the amendments was delayed to October 1, 2020.)

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On December 19, 2019, the Board approved a notice (Docket No. OP-1692) implementing modifications to the Federal Reserve Banks' payment services to facilitate adoption of a later same-day automated clearinghouse (ACH) processing and settlement window.[25] The notice extends the daily operating hours of the National Settlement Service and the Fedwire Funds Service and makes corresponding changes to the PSR Policy related to a new posting time for transactions and an increased daylight overdraft fee. The modifications will be implemented on March 19, 2021.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

[21] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-06-11/html/2019-11569.htm.

[22] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-07-03/html/2019-13970.htm.

[23] See press release at https://www.federalreserve.gov/newsevents/pressreleases/bcreg20190306c.htm.

[24] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-04-01/html/2019-06063.htm.

[25] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-12-30/html/2019-28002.htm.

Federal Reserve Actions to Support Interbank Settlement of Faster Payments

On August, 2, 2019, the Board approved a notice and request for comment (Docket No. OP-1670) on a new round-the-clock, real-time payment and settlement service to be developed by the Federal Reserve Banks.[26] The interbank settlement service, to be known as the FedNow^{SM} Service, would support depository institutions' provision of end-to-end faster payment service and would provide infrastructure to promote ubiquitous, safe, and efficient faster payments in the United States. The Board also announced its intent to explore expanded hours for the Fedwire Funds Service and the National Settlement Service, up to 24x7x365, to support a wide range of payment activities.

Voting for this action: Chair Powell, Vice Chair Clarida, and Governors Brainard and Bowman. **Voting against this action:** Vice Chair for Supervision Quarles.

Interest on Reserves

On May 1, 2019, the Board approved lowering the interest rate paid on required and excess reserve balances from 2.40 percent to 2.35 percent, effective May 2, 2019.[27] This action set the interest rate paid on required and excess reserve balances 15 basis points below the top of the target range for the federal funds rate and was intended to foster trading in the federal funds market at rates well within the FOMC's target range of 2¼ percent to 2½ percent.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On July 31, 2019, the Board approved lowering the interest rate paid on required and excess reserve balances from 2.35 percent to 2.10 percent, effective August 1, 2019.[28] This action was taken to support the FOMC's decision on July 31 to lower the target range for the federal funds rate by 25 basis points, to a range of 2 percent to 2¼ percent.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On September 18, 2019, the Board approved lowering the interest rate paid on required and excess reserve balances from 2.10 percent to 1.80 percent, effective September 19, 2019.[29] This action was taken to support the FOMC's decision on September 18 to lower the target range for the federal funds rate by 25 basis points, to a range of 1¾ percent to 2 percent. Setting the interest rate paid on required and excess reserve balances 20 basis points below the top of the target range for the federal funds rate was intended to foster trading in the federal funds market at rates well within the FOMC's target range.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

On October 30, 2019, the Board approved lowering the interest rate paid on required and excess reserve balances from 1.80 percent to 1.55 percent, effective October 31, 2019.[30] This action was taken to support the FOMC's decision on October 30 to lower the target range for the federal funds rate by 25 basis points, to a range of 1½ percent to 1¾ percent.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Discount Rates for Depository Institutions in 2019

Under the Federal Reserve Act, the boards of directors of the Federal Reserve Banks must establish rates on discount window loans to depository institutions at least every 14 days, subject to review and determination by the Board of Governors. Periodically, the Board considers proposals by the 12 Reserve Banks to establish the primary credit rate and approves proposals to maintain the formulas for computing the secondary and seasonal credit rates.

[26] See *Federal Register* notice at https://www.govinfo.gov/content/pkg/FR-2019-08-09/html/2019-17027.htm.

[27] See press release at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190501a1.htm.

[28] See press release at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190731a1.htm.

[29] See press release at https://www.federalreserve.gov/newsevents/pressreleases/monetary20190918a1.htm.

[30] See press release https://www.federalreserve.gov/newsevents/pressreleases/monetary20191030a1.htm.

Primary, Secondary, and Seasonal Credit

Primary credit, the Federal Reserve's main lending program for depository institutions, is extended at the primary credit rate. It is made available, with minimal administration, as a source of liquidity to depository institutions that, in the judgment of the lending Federal Reserve Bank, are in generally sound financial condition. During 2019, the Board approved three decreases in the primary credit rate, bringing the rate from 3 percent to 2¼ percent. The Board reached these determinations on the primary credit rate recommendations of the Reserve Bank boards of directors. The Board's actions were taken in conjunction with the FOMC's decisions to lower the target range for the federal funds rate by 75 basis points, to 1½ percent to 1¾ percent. Monetary policy developments are reviewed more fully in other parts of this report (see section 2, "Monetary Policy and Economic Developments").

Secondary credit is available in appropriate circumstances to depository institutions that do not qualify for primary credit. The secondary credit rate is set at a spread above the primary credit rate. Throughout 2019, the spread was set at 50 basis points. At year-end, the secondary credit rate was 2¾ percent.

Seasonal credit is available to smaller depository institutions to meet liquidity needs that arise from regular swings in their loans and deposits. The rate on seasonal credit is calculated every two weeks as an average of selected money market yields, typically resulting in a rate close to the target range for the federal funds rate. At year-end, the seasonal credit rate was 1.70 percent.[31]

Votes on Changes to Discount Rates for Depository Institutions

Details on the three actions by the Board to approve decreases in the primary credit rate are provided below.

July 31, 2019. Effective August 1, 2019, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Philadelphia, Chicago, St. Louis, Dallas, and San Francisco to decrease the primary credit rate from 3 percent to 2¾ percent. On August 1, 2019, the Board approved identical actions subsequently taken by the boards of directors of the Federal Reserve Banks of Boston, New York, Cleveland, Richmond, Atlanta, Minneapolis, and Kansas City, effective immediately.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

September 18, 2019. Effective September 19, 2019, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Chicago, Minneapolis, Dallas, and San Francisco to decrease the primary credit rate from 2¾ percent to 2½ percent. On September 19, 2019, the Board approved identical actions subsequently taken by the boards of directors of the Federal Reserve Banks of Boston, New York, Cleveland, Richmond, Atlanta, St. Louis, and Kansas City, effective immediately, and by the board of directors of the Federal Reserve Bank of Philadelphia, effective September 20, 2019.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

October 30, 2019. Effective October 31, 2019, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Minneapolis and San Francisco to decrease the primary credit rate from 2½ percent to 2¼ percent. On October 31, 2019, the Board approved identical actions subsequently taken by the boards of directors of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, and Dallas, effective immediately.

Voting for this action: Chair Powell, Vice Chair Clarida, Vice Chair for Supervision Quarles, and Governors Brainard and Bowman.

Regulatory Developments

Continued Implementation of the Economic Growth, Regulatory Relief, and Consumer Protection Act

On May 24, 2018, the Economic Growth, Regulatory Relief, and Consumer Protection Act was signed into law.[32] In addition to a number of standalone provisions, EGRRCPA amended the Dodd-Frank Act as well as other statutes administered by the Board. For example, EGRRCPA provides for additional tailor-

[31] For current and historical discount rates, see https://www.frbdiscountwindow.org/.

[32] Pub. L. No. 115-174, 132 Stat. 1296 (2018).

ing of various provisions of federal banking law while maintaining the authority of the federal banking agencies to apply enhanced prudential standards to address financial stability and ensure the safety and soundness of depository institutions and their holding companies.

In 2019, the Board continued to make substantial progress in implementing EGRRCPA and has only one remaining required rulemaking, which is an amendment to the Board's assessment rule discussed below. The following is a summary of the regulatory initiatives undertaken in response to EGRRCPA that took effect in 2019, as well as initiatives that were proposed but were not yet effective in 2019. Interim final rules are effective immediately upon publication.

Effective EGRRCPA Initiatives

Regulatory Capital Treatment for High Volatility Commercial Real Estate Exposures (Regulation Q)

In November 2019, the Board, FDIC, and OCC issued a final rule that amended the regulatory capital rule to revise the definition of "high volatility commercial real estate exposure" (HVCRE) to conform to the statutory definition of "high volatility commercial real estate acquisition, development, or construction (HVCRE ADC) loan," in accordance with section 214 of EGRRCPA.[33] Section 214 amended the Federal Deposit Insurance Act by adding a new section 51 to provide a statutory definition of an HVCRE ADC loan. The statute stated that the agencies may only require a depository institution to assign a heightened risk weight to an HVCRE exposure, as defined under the capital rule, if such exposure is an HVCRE ADC loan under EGRRCPA.

In accordance with section 214 of EGRRCPA, the agencies revised the HVCRE exposure definition in section 2 of the agencies' capital rule to conform to the statutory definition of an HVCRE ADC loan. Loans that meet the revised definition of an HVCRE exposure will receive a 150 percent risk weight under the capital rule's standardized approach.

Although not required by EGRRCPA, the final rule also applies the revised definition of an HVCRE exposure to all Board-regulated institutions that are subject to the Board's capital rule, including bank holding companies, savings and loan holding companies, and intermediate holding companies of foreign banking organizations.

Regulatory Capital Rule: Revisions to the Supplementary Leverage Ratio to Exclude Certain Central Bank Deposits of Banking Organizations Predominantly Engaged in Custody, Safekeeping, and Asset Servicing Activities (Regulation Q)

In November 2019, the agencies issued a final rule changing a capital requirement for banking organizations predominantly engaged in custodial activities.[34] The final rule was unchanged from the proposal issued for public comment in April 2019.

EGRRCPA required the agencies to permit certain banking organizations—those predominantly engaged in custody, safekeeping, and asset servicing activities—to exclude qualifying deposits at certain central banks from their supplementary leverage ratio. The supplementary leverage ratio is one of many tools used by the federal bank regulatory agencies to determine minimum required capital levels and ensure financial stability in the event of stress in the banking system. The supplementary leverage ratio applies only to banking organizations subject to Category I, II, or III standards.

Regulatory Capital Rule: Capital Simplification for Qualifying Community Banking Organizations (Regulation Q)

In October 2019, the agencies issued a final rule that provides for a simple measure of capital adequacy for certain community banking organizations, consistent with section 201 of EGRRCPA.[35] Section 201 directed the agencies to develop a community bank leverage ratio of not less than 8 percent and not more than 10 percent for qualifying community banking organizations, which are depository institutions or depository institution holding companies with total consolidated assets of less than $10 billion that the agencies have not determined are ineligible based on the banking organization's risk profile.

Under the final rule, depository institutions and depository institution holding companies that have less than $10 billion in total consolidated assets, meet

[33] Regulatory Capital Treatment for High Volatility Commercial Real Estate (HVCRE) Exposures, 84 Fed. Reg. 68,019 (December 13, 2019).

[34] Regulatory Capital Rule: Revisions to the Supplementary Leverage Ratio to Exclude Certain Central Bank Deposits of Banking Organizations Predominantly Engaged in Custody, Safekeeping, and Asset Servicing Activities, 85 Fed. Reg. 4569 (January 27, 2020).

[35] Regulatory Capital Rule: Capital Simplification for Qualifying Community Banking Organizations, 84 Fed. Reg. 3062 (February 8, 2019).

qualifying criteria, and have a community bank leverage ratio (as defined in the final rule) of greater than 9 percent are eligible to opt in to a community bank leverage ratio framework. Such banking organizations that elect to use the community bank leverage ratio and maintain a community bank leverage ratio of greater than 9 percent are not subject to other risk-based and leverage capital requirements. In addition, these banking organizations are considered to be "well-capitalized" for purposes of section 38 of the Federal Deposit Insurance Act and regulations implementing that section, as applicable, and the generally applicable capital requirements under the agencies' capital rule.

In response to public feedback, the final rule was modified from the November 2018 proposal to reduce compliance burden while maintaining safety and soundness for qualifying community banks. In particular, the community bank leverage ratio incorporates tier 1 capital as the numerator. In addition, a community bank that falls out of compliance with the framework will have a two-quarter grace period to come back into full compliance, provided its leverage ratio remains above 8 percent. A bank will be deemed well-capitalized during the grace period.

Prudential Standards for Large Bank Holding Companies and Savings and Loan Holding Companies (Regulations Y, LL, PP, and YY) and Changes to Applicability Thresholds for Regulatory Capital and Liquidity Requirements (Regulations Q and WW)

In October 2019, the Board issued a Board-only final rule that establishes risk-based categories for determining prudential standards for large domestic and foreign banking organizations, consistent with section 401 of EGRRCPA.[36] At the same time, and in connection with the Board-only final rule, the agencies also issued an interagency final rule that establishes risk-based categories for determining liquidity and capital standards for large domestic and foreign banking organizations, again consistent with section 401 of EGRRCPA.[37]

Section 401 raised the minimum asset threshold from $50 billion to $250 billion for general application of enhanced prudential standards under section 165 of the Dodd-Frank Act. In addition, section 401 authorized the Board to apply such standards to bank holding companies with total consolidated assets of $100 billion or more but less than $250 billion, provided that the Board take into consideration certain statutory factors—capital structure, riskiness, complexity, financial activities (including financial activities of subsidiaries), size, and any other risk-related factors that the Board deems appropriate—when doing so. EGRRCPA also raised the threshold from $10 billion to $50 billion in total consolidated assets for application of risk committee and risk-management standards to publicly traded bank holding companies and required the Board to implement periodic supervisory stress testing for bank holding companies with $100 billion or more but less than $250 billion in total consolidated assets.

The Board-only final rule established four categories of prudential standards for large domestic and foreign banking organizations, including certain domestic savings and loan holding companies. Banking organizations are sorted into categories based on several factors, including asset size, cross-jurisdictional activity, reliance on short-term wholesale funding, nonbank assets, and off-balance-sheet exposure. The Board-only final rule tailors standards relating to capital stress testing; risk management; liquidity risk management, liquidity stress testing, and liquidity buffer requirements; and single-counterparty credit limits. The Board-only final rule also includes final changes to related reporting forms, as well as definitional changes in the Board's Regulation PP. The interagency final rule utilizes the categories introduced in the Board-only final rule and applies tailored capital and liquidity requirements for banking organizations subject to each category.

Resolution Plans Required (Regulation QQ)

In October 2019, the Board and FDIC issued a final rule that modifies their resolution plan requirements for large firms.[38] The rule retains resolution plan elements in place for the largest firms, while reducing requirements for smaller firms that pose less risk to the financial system. The final rule was substantially the same as the proposal from earlier in 2019. It uses a separate framework developed by the banking agencies for application of prudential requirements and establishes resolution planning requirements tailored to the level of risk a firm poses to the financial system. The final rule affects domestic and foreign

[36] Prudential Standards for Large Bank Holding Companies, Savings and Loan Holding Companies, and Foreign Banking Organizations, 84 Fed. Reg. 59,032 (November 1, 2019).

[37] Changes to Applicability Thresholds for Regulatory Capital and Liquidity Requirements, 84 Fed. Reg. 66,024 (November 1, 2019).

[38] Resolution Plans Required, 84 Fed. Reg. 59,194 (November 1, 2019).

firms with more than $100 billion in total consolidated assets.

For the most systemically important firms, the final rule adopts the current practice of requiring resolution plans to be submitted on a two-year cycle. The final rule tailors the rule's requirements for firms that do not pose the same systemic risk as the largest institutions, requiring resolution plans to be submitted on a three-year cycle. Both groups of firms will alternate between submitting full resolution plans and targeted resolution plans. Foreign firms with relatively limited U.S. operations will be required to submit reduced resolution plans.

A targeted resolution plan includes core elements related to capital, liquidity, and plans for recapitalization, as well as material changes to the firm and areas of interest identified by the Board and FDIC. Targeted resolution plans will not include certain areas if they are materially unchanged from one cycle to another, such as descriptions of management information systems and corporate governance systems. As a result, targeted resolution plans will give the Board and FDIC meaningful insight into the key vulnerabilities in a firm's resolution strategy.

Firms with less than $250 billion in total consolidated assets that do not meet certain risk criteria are no longer be subject to the rule. These firms have simpler structures, engage more exclusively in traditional banking activity, and present less risk.

Real Estate Appraisals (Regulation Y)

In September 2019, the agencies issued a final rule that raises the transaction value threshold for residential real estate transactions requiring an appraisal from $250,000 to $400,000, as well as aligns the agencies' appraisal regulations with section 103 of EGRRCPA.[39] Section 103 provided an exemption to the appraisal requirement for certain transactions with values of less than $400,000 involving real property or an interest in real property that is located in a rural area.

The final rule eliminates the requirement under the agencies' appraisal regulations for regulated financial institutions to obtain an appraisal for real estate-related financial transactions with a transaction value of $400,000 or less, or that are exempted by the rural residential exemption in section 103 of EGRRCPA. Instead, the final rule requires evaluations for such transactions that are consistent with safe and sound banking practices.

Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds (Regulation VV)

In July 2019, the agencies, along with the Securities and Exchange Commission (SEC) and Commodities Futures Trading Commission (CFTC), issued a final rule that amends Regulation VV (known as the Volcker rule) to align with amendments in sections 203 and 204 of EGRRCPA.[40] Section 203 amended section 13 of the Bank Holding Company Act by narrowing the definition of banking entity, and section 204 revised the statutory provisions related to the naming of hedge funds and private equity funds.

The Volcker rule generally restricts banking entities from engaging in proprietary trading and from owning or sponsoring hedge funds or private equity funds. The final rule excludes community banks with $10 billion or less in total consolidated assets, and total trading assets and liabilities of 5 percent or less of total consolidated assets, from the restrictions of the Volcker rule. Additionally, the final rule will, under certain circumstances, permit a hedge fund or private equity fund to share the same name or a variation of the same name with an investment adviser that is not an insured depository institution, company that controls an insured depository institution, or bank holding company.

Reduced Reporting for Covered Depository Institutions (Regulation H)

In June 2019, the agencies issued a final rule to implement section 205 of EGRRCPA.[41] Section 205 amended section 7(a) of the Federal Deposit Insurance Act and required the agencies to issue regulations that allow for a reduced reporting requirement by "covered depository institutions" for the first and third reports of condition in a year. "Covered depository institution" is defined in section 205 as an insured depository institution "that—(i) has less than $5,000,000,000 in total consolidated assets; and (ii) satisfies such other criteria as the [agencies] determine appropriate."

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[39] Real Estate Appraisals, 84 Fed. Reg. 53,579 (October 8, 2019).

[40] Revisions to Prohibitions and Restrictions on Proprietary Trading and Certain Interests In, and Relationships With, Hedge Funds and Private Equity Funds, 84 Fed. Reg. 35,008 (July 22, 2019).

[41] Reduced Reporting for Covered Depository Institutions, 84 Fed. Reg. 29,039 (June 21, 2019).

The final rule implements section 205 by (1) authorizing covered depository institutions to file the Federal Financial Institutions Examinations Council (FFIEC) 051 Call Report—the most streamlined version of the Call Report—and (2) reducing the information required to be reported on the FFIEC 051 Call Report by covered depository institutions in the first and third calendar quarters. The final rule defines "covered depository institution" to include certain insured depository institutions that have less than $5 billion in total consolidated assets and satisfy certain other criteria. The OCC and the Board also established reduced reporting for certain uninsured institutions under their supervision that have less than $5 billion in total consolidated assets and meet the proposed criteria. In addition, the Board finalized a technical amendment to Regulation H to implement the requirement in section 9 of the Federal Reserve Act pursuant to which state member banks are required to file Call Reports.

Treatment of Certain Municipal Securities as High-Quality Liquid Assets (Regulation WW)

In May 2019, the agencies issued a final rule to implement section 403 of EGRRCPA.[42] Section 403 amended section 18 of the Federal Deposit Insurance Act and required the agencies, for purposes of their liquidity coverage ratio (LCR) rules and any other regulation that incorporates a definition of the term "high-quality liquid asset" (HQLA) or another substantially similar term, to treat a municipal obligation as an HQLA if the obligation is "liquid and readily marketable" and "investment grade," as those terms were defined in EGRRCPA.

Previously, in August 2018, the agencies adopted an interim final rule to implement section 403 of EGRRCPA. The final rule made no changes to the interim final rule. Consistent with the interim final rule, the final rule amended each agency's LCR rule to include a definition of "municipal obligation" that is consistent with the definition in section 403. The final rule also amends the HQLA criteria by adding municipal obligations that are both liquid and readily marketable as well as investment grade to the list of assets eligible for treatment as level 2B liquid assets. In addition, the final rule conforms certain amendments the Board made to its LCR rule in 2016, relating to the treatment of certain U.S. municipal securities as HQLA, with section 403.

[42] Liquidity Coverage Ratio Rule: Treatment of Certain Municipal Obligations as High-Quality Liquid Assets, 84 Fed. Reg. 25,975 (June 5, 2019).

Proposed EGRRCPA Initiatives

Supervision and Regulation Assessments of Fees for Bank Holding Companies and Savings and Loan Holding Companies with Total Consolidated Assets of $100 Billion or More (Regulation TT)

In October 2019, the Board issued a proposed rule to amend the Board's assessment rule (Regulation TT), pursuant to the Dodd-Frank Act, to address amendments made by EGRRCPA.[43] The proposed amendments to Regulation TT would raise the minimum threshold for being considered an assessed company from $50 billion to $100 billion in total consolidated assets for bank holding companies and savings and loan holding companies and adjust the amount charged to assessed companies with total consolidated assets between $100 billion and $250 billion to reflect changes in supervisory and regulatory responsibilities resulting from EGRRCPA. The comment period ended on January 9, 2020.

Other Dodd-Frank Implementation

Throughout 2019, in addition to implementing EGRRCPA, the Federal Reserve continued to implement the Dodd-Frank Act, which gives the Federal Reserve important responsibilities to issue rules and supervise financial companies to enhance financial stability and preserve the safety and soundness of the banking system.

The following is a summary of the key Dodd-Frank Act regulatory initiatives that were finalized and proposed during 2019 that were not related to EGRRCPA.

Final Dodd-Frank Act Rules

Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds (Regulation VV)

In October 2019, the agencies, CFTC, and SEC issued a final rule to simplify compliance requirements relating to the Volcker rule.[44] By statute, the Volcker rule generally prohibits banking entities from engaging in proprietary trading or investing in or sponsoring hedge funds or private equity funds.

[43] Supervision and Regulation Assessments of Fees for Bank Holding Companies and Savings and Loan Holding Companies With Total Consolidated Assets of $100 Billion or More, 84 Fed. Reg. 63,820 (November 19, 2019).

[44] Prohibitions and Restrictions on Proprietary Trading and Certain Interests In, and Relationships With, Hedge Funds and Private Equity Funds, 84 Fed. Reg. 61,974 (November 14, 2019).

Under the revised rule, firms that do not have significant trading activities will have simplified and streamlined compliance requirements, while firms with significant trading activity will have more stringent compliance requirements. Community banks generally are exempt from the Volcker rule by statute. The revisions continue to prohibit proprietary trading, while providing greater clarity and certainty for activities allowed under the law.

Capital Planning and Stress Testing Requirements (Regulations Y and YY)

In February 2019, the Board finalized a package that increases the transparency of its stress testing program through enhanced model disclosures regarding the Federal Reserve's supervisory stress testing,[45] a Stress Testing Policy Statement,[46] and amendments to the Board's Policy Statement on the Scenario Design Framework for Stress Testing[47] (together, the transparency proposals). The enhanced model disclosures, which began for the 2019 stress test cycle and will expand in subsequent years, will provide significantly more information about the stress testing models used in the Board's annual Comprehensive Capital Analysis and Review (CCAR), including ranges of loss rates, estimated using the Board's models, for actual loans held by CCAR firms; portfolios of hypothetical loans with loss rates estimated by the Board's models; and more detailed descriptions of the Board's models, such as certain equations and key variables that influence the results of the models.

The final stress testing policy statement elaborates on prior disclosures by describing the Board's approach to model development, implementation, and validation. The statement describes seven principles that have guided supervisory stress test modeling in the past and will continue to do so. Finally, the Board modified its framework for the design of the annual hypothetical economic scenarios. The modifications will provide more information on the hypothetical path of the unemployment rate and will introduce a quantitative guide for the hypothetical path of house prices, both of which are key variables for the scenarios.

In March 2019, the Board also announced that it will limit the use of the "qualitative objection" in its CCAR exercise, effective for the 2019 cycle.[48] The changes eliminate the qualitative objection for most firms because of the improvements in capital planning made by the largest firms.

For the largest and most complex firms, CCAR includes both a quantitative evaluation of a firm's capital adequacy under stress and a qualitative evaluation of its abilities to determine its capital needs on a forward-looking basis. As applicable, a firm must pass both the quantitative and qualitative evaluation or the Board may object and restrict the firm's capital distributions.

Firms that are newer to the CCAR exercise and as a result may have capital planning capabilities that are less established will remain subject to a possible objection on qualitative grounds. Specifically, a firm must participate in four CCAR exercises and successfully pass the qualitative evaluation in the fourth year to no longer be subject to a potential qualitative objection. If a firm does not pass in its fourth year, it will continue to be subject to a possible qualitative objection until it passes. For firms still subject to the qualitative objection, their fourth year will generally be the 2020 CCAR cycle.

While the qualitative objection will no longer apply to certain firms, all firms will continue to be subject to a rigorous evaluation of their capital planning processes as part of CCAR. Firms with weak practices may be subject to a deficient supervisory rating, and potentially an enforcement action, for failing to meet supervisory expectations.

Proposed Dodd-Frank Rules

Swap Margin Rule (Regulation KK)

In October 2019, the agencies, Farm Credit Administration, and Federal Housing Finance Agency requested comment on a proposed rule to change the swap margin rules to facilitate the implementation of prudent risk-management strategies at certain banks and swap entities.[49]

Under the proposal, the swap margin rule would no longer require swap entities to hold initial margin for uncleared swaps with affiliates. However, interaffiliate

[45] Enhanced Disclosure of the Models Used in the Federal Reserve's Supervisory Stress Test, 84 Fed. Reg. 6784 (February 28, 2019).

[46] Stress Testing Policy Statement, 84 Fed. Reg. 6664 (February 28, 2019).

[47] Amendments to Policy Statement on the Scenario Design Framework for Stress Testing, 84 Fed. Reg. 6651 (February 28, 2019).

[48] Amendments to the Capital Plan Rule, 84 Fed. Reg. 8953 (March 13, 2019).

[49] Margin and Capital Requirements for Covered Swap Entities, 84 Fed. Reg. 59,970 (November 7, 2019).

transactions would still be subject to variation margin requirements. Swap entities regulated by the FDIC, the OCC, and the Board also would be subject to requirements under sections 23A and 23B of the Federal Reserve Act.

Interaffiliate swaps typically are used for internal risk-management purposes, by transferring risk to a centralized risk-management function within the firm. The proposal would give firms additional flexibility to allocate collateral internally, supporting prudent risk-management strategies that support safety and soundness. The proposal would not change the capital standards for swap entities supervised by the five agencies.

Furthermore, to aid in the transition away from LIBOR, the agencies proposed to allow certain technical amendments to legacy swaps without altering their status under the swap margin rules. The comment period ended on December 9, 2019.

Capital Standards for Supervised Institutions Significantly Engaged in Insurance Activities (Regulations Q and YY)

In September 2019, the Board requested comment on a proposal to establish capital requirements for certain insurance companies supervised by the Board.[50] The Board supervises depository institution holding companies, including those significantly engaged in insurance activities, and the Board currently oversees eight firms. Their insurance activities include life, title, and property and casualty, and the firms range in size from less than $10 billion in total assets to more than $250 billion.

The proposal leverages existing state-based insurance standards, while also establishing minimum capital requirements that are specific to the business of insurance. The proposal takes into account comments received on a conceptual proposal from June 2016 that described the proposed framework, known as the Building Block Approach (BBA).[51]

Under the BBA, holding companies significantly engaged in insurance activities would be required to aggregate their state-based capital requirements into a consolidated requirement. The proposal would establish both minimum requirements and a buffer on top of the minimum.

The BBA accounts for risks that are specific to the business of insurance and is different from the calculations used for bank capital requirements. However, the minimum standard under the BBA would be comparable to one of the key measures of banks' health, the minimum total capital ratio, which is set at 8 percent for banks.

As part of the proposal, the Board is conducting a quantitative impact study of the BBA to better inform the framework. The Board also published a white paper that explains the methodology the Board proposes to use to adjust for the differences between different state-based insurance capital requirements and bank capital requirements. The comment period ended January 22, 2020.

Long-Term Debt and Total Loss-Absorbing Capacity Requirement (Regulation Y)

In April 2019, the agencies requested comment on a proposal to limit the interconnectedness of large banking organizations and reduce the impact from failure of the largest banking organizations.[52] The proposal would complement other measures that the banking agencies have taken to limit interconnectedness among large banking organizations.

Global systemically important bank holding companies, or G-SIBs, are the largest and most complex banking organizations and are required to issue debt with certain features under the Board's "total loss-absorbing capacity," or TLAC, rule. That debt would be used to recapitalize the holding company during bankruptcy or resolution if it were to fail.

To discourage G-SIBs and other large banking organizations from purchasing large amounts of TLAC debt, the proposal would require such banking organizations to hold additional capital against substantial holdings of TLAC debt. This restriction would reduce interconnectedness between large banking organizations and, if a G-SIB were to fail, reduce the impact on the financial system from that failure.

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[50] Regulatory Capital Rules: Risk-Based Capital Requirements for Depository Institution Holding Companies Significantly Engaged in Insurance Activities, 84 Fed. Reg. 57,240 (October 24, 2019).

[51] Capital Requirements for Supervised Institutions Significantly Engaged in Insurance Activities, 81 Fed. Reg. 38,631 (June 14, 2016).

[52] Regulatory Capital Treatment for Investments in Certain Unsecured Debt Instruments of Global Systemically Important U.S. Bank Holding Companies, Certain Intermediate Holding Companies, and Global Systemically Important Foreign Banking Organizations, 84 Fed. Reg. 13,814 (April 8, 2019).

The proposal would also require the holding companies of G-SIBs to report publicly their TLAC debt outstanding. The comment period ended on June 7, 2019.

The Board of Governors and the Government Performance and Results Act

Overview

The Government Performance and Results Act (GPRA) of 1993 requires federal agencies to prepare a strategic plan covering a multiyear period and requires each agency to submit an annual performance plan and an annual performance report. Although the Board is not covered by GPRA, the Board follows the spirit of the act by, like other federal agencies, preparing a public multiyear strategic plan, an annual performance plan, and an annual performance report. These reports are publicly available among the Board's publications.

Strategic Plan, Performance Plan, and Performance Report

On July 7, 2015, the Board approved the *Strategic Plan 2016–19*, which identifies and frames the strategic priorities of the Board. In addition to investing in ongoing operations, the Board identified and prioritized investments and dedicated sufficient resources to six pillars over the 2016–19 period, which will allow the Board to advance its mission and respond to continuing and evolving challenges.

The annual performance plan outlines the planned initiatives and activities that support the framework's long-term objectives and resources necessary to achieve those objectives. The annual performance report summarizes the Board's accomplishments that contributed toward achieving the strategic goals and objectives identified in the annual plan.

The strategic plan, performance plan, and performance report are available on the Federal Reserve Board's website at https://www.federalreserve.gov/publications/gpra.htm.

F Litigation

During 2019, the Board of Governors was a party in 7 lawsuits or appeals filed that year and was a party in 6 other cases pending from previous years, for a total of 13 cases. The Board intervened in or initiated one additional case relating to privileged documents or testimony. In 2018, the Board had been a party in a total of 19 cases. As of December 31, 2019, eight cases were pending.

Pending

Baylor v. Powell, No. 17-cv-02647 (D. District of Columbia, filed December 11, 2017), is an employment discrimination case.

BBX v. Board of Governors, No. 19-11172 (11th Circuit, filed March 25, 2019), is an appeal of an order granting summary judgment to the Board and the Federal Deposit Insurance Corporation in an action relating to golden parachute payments.

Center for Popular Democracy v. Board of Governors, No. 16-cv-05829 (E.D. New York, filed October 19, 2016), is an action under the Freedom of Information Act.

FDIC v. Bank of America, No. 17-cv-00036 (D. District of Columbia, motion to intervene filed December 12, 2019), is an action relating to deposit insurance. On December 19, 2019, the district court granted the Board's motion to intervene for the limited purpose of protecting its confidential supervisory information.

Gilberti v. Board of Governors et al., No. 19-5264 (D.C. Circuit, filed November 6, 2019), is an appeal of an order dismissing the Board and various other defendants from a pro se action alleging conspiracy.

Junk v. Board of Governors, No. 19-3125 (2d Circuit, filed September 27, 2019), is an appeal under the Freedom of Information Act.

Morley v. Board of Governors, No. 19-cv-00797 (D. District of Columbia, filed March 21, 2019), is an action under the Freedom of Information Act.

Richardson v. Powell, No. 19-5119 (D.C. Circuit, filed April 22, 2019), is an appeal of an order granting summary judgment to the Board in an employment discrimination case.

Resolved

Bondick v. Board of Governors, No. 19-cv-00520 (D. Oregon, filed April 9, 2019), was a pro se action alleging general economic harm. On December 2, 2019, the district court dismissed the case.

Burford v. Powell, No. 15-cv-02074 (D. District of Columbia, filed December 1, 2015), was an employment discrimination case. On February 26, 2019, the district court granted the Board's motion for summary judgment.

Garrett v. PennyMac Loan Services et al., No. 18-cv-00718 (M.D. Pennsylvania, filed April 11, 2018), was an action arising out of mortgage foreclosure. On September 26, 2019, the district court adopted the magistrate judge's report and recommendation dismissing claims against the Board.

Jiampietro v. Board of Governors, No. 18-2806 (2d Circuit, filed September 21, 2018), was a petition for review of a Board order remanding an enforcement action for further proceedings before an administrative law judge. On January 30, 2019, the court of appeals granted the Board's motion to dismiss the petition.

Mitchell v. Powell, No. 17-cv-00182 (D. District of Columbia, filed January 27, 2017), was an employment discrimination case. On February 27, 2019, the action was dismissed by stipulation of the parties.

Passmore v. Federal Reserve, No. 19-cv-00074 (S.D. Ohio, filed December 26, 2018, removed to federal court January 28, 2019), was a pro se lawsuit alleging general economic harm. On August 30, 2019, the district court adopted the magistrate judge's report and recommendation dismissing the case.

G Statistical Tables

This appendix includes 14 statistical tables that provide updated historical data concerning Board and System operations and activities.

Table 1. Federal Reserve open market transactions, 2019

Millions of dollars

Type of security and transaction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
U.S. Treasury securities[1]													
Outright transactions[2]													
Treasury bills													
Gross purchases	0	0	0	100	0	0	0	3,001	3,001	45,006	55,508	63,009	169,625
Gross sales	0	0	0	0	50	0	0	0	0	0	0	0	50
Exchanges	0	0	0	0	0	5	0	0	50	181	3,110	18,429	21,775
For new bills	0	0	0	0	0	5	0	0	50	181	3,110	18,429	21,775
Redemptions	0	0	0	0	0	45	3	2	0	0	0	0	50
Others up to 1 year													
Gross purchases	0	0	0	0	0	0	25	3,402	1,601	1,978	2,076	2,360	11,442
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Exchanges	0	-26,052	0	-1,926	-43,532	-6,463	-6,504	-69,488	-12,985	-15,683	-48,746	-12,047	-243,425
Redemptions	15,966	30,000	22,379	30,000	15,000	15,000	15,000	0	0	0	0	0	143,407
Over 1 to 5 years													
Gross purchases	0	0	0	0	0	0	25	5,903	8,241	7,538	8,020	7,093	36,820
Gross sales	0	0	0	0	0	0	0	0	0	0	0	50	50
Exchanges	0	13,049	0	1,512	23,345	4,632	4,336	35,315	8,414	12,337	24,424	9,035	136,400
Over 5 to 10 years													
Gross purchases	0	0	0	0	0	0	0	2,101	2,217	3,725	4,645	3,765	16,453
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Exchanges	0	8,042	0	412	13,715	1,830	2,032	21,774	4,571	3,346	15,325	3,012	74,058
More than 10 years													
Gross purchases	0	0	0	0	0	0	0	0	2,548	3,769	2,269	3,792	12,378
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Exchanges	0	4,961	0	2	6,472	0	136	12,398	0	0	8,997	0	32,967
All maturities													
Gross purchases	0	0	0	100	0	0	50	14,407	17,608	62,016	72,518	80,019	246,718
Gross sales	0	0	0	0	50	0	0	0	0	0	0	50	100
Redemptions	15,966	30,000	22,441	30,000	15,000	15,045	15,003	2	0	0	0	0	143,457
Net change in U.S. Treasury securities	-15,966	-30,000	-22,441	-29,900	-15,050	-15,045	-14,953	14,405	17,608	62,016	72,518	79,969	103,161
Federal agency obligations													
Outright transactions[2]													
Gross purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Redemptions	0	0	62	0	0	0	0	0	0	0	0	0	62
Net change in federal agency obligations	0	0	-62	0	0	0	0	0	0	0	0	0	-62
Mortgage-backed securities[3]													
Net settlements[2]													
Net change in mortgage-backed securities	-15,315	-14200	-14,886	-17,289	-20,028	-22,679	-20,951	-22,170	-22,346	-21,490	-22,045	-15,047	-228,447
Total net change in securities holdings[4]	**-31,281**	**-44,200**	**-37,389**	**-47,189**	**-35,078**	**-37,724**	**-35,904**	**-7,765**	**-4,738**	**40,526**	**50,473**	**64,922**	**-125,348**

(continued on next page)

Table 1.—*continued*

Type of security and transaction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Temporary transactions													
Repurchase agreements[5]	0	0	0	0	9	0	0	0	52,910	193,348	209,486	229,380	n/a
Reverse repurchase agreements[5]	257,615	252,115	242,351	255,882	265,654	277,127	290,113	296,086	296,214	296,158	288,379	268,273	n/a
Foreign official and international accounts	252,602	249,680	241,169	254,776	263,488	267,352	282,602	289,537	292,111	290,908	281,801	262,240	n/a
Others	5,013	2,434	1,182	1,106	2,165	9,775	7,511	6,548	4,103	5,250	6,577	6,033	n/a

Note: Purchases of Treasury securities and federal agency obligations increase securities holdings; sales and redemptions of these securities decrease securities holdings. Exchanges occur when the Federal Reserve rolls the proceeds of maturing securities into newly issued securities, and so exchanges do not affect total securities holdings. Positive net settlements of mortgage-backed securities increase securities holdings, while negative net settlements of these securities decrease securities holdings. Components may not sum to totals because of rounding. See table 2 of the H.4.1 release (https://www.federalreserve.gov/releases/h41/) for the maturity distribution of the securities.

1 Transactions exclude changes in compensation for the effects of inflation on the principal of inflation-indexed securities. Transactions include the rollover of inflation compensation into new securities. The maturity distributions of exchanged Treasury securities are based on the announced maturity of new securities rather than actual day counts.

2 Excludes the effect of temporary transactions—repurchase agreements and reverse repurchase agreements.

3 Guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae. Monthly net change in the remaining principal balance of the securities reported at face value.

4 The net change in securities holdings reflects the settlements of purchases, reinvestments, sales, and maturities of portfolio securities.

5 Averages of daily business cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities. For additional details on temporary transactions, see the temporary open market operations historical search available at https://apps.newyorkfed.org/markets/autorates/tomo-search-page.

n/a Not applicable.

Table 2. Federal Reserve Bank holdings of U.S. Treasury and federal agency securities, December 31, 2017–19
Millions of dollars

Description	December 31			Change	
	2019	2018	2017	2018–19	2017–18
U.S. Treasury securities[1]					
Held outright[2]	**2,328,933**	**2,222,547**	**2,454,208**	**106,386**	**-231,661**
By remaining maturity					
Bills					
1–90 days	51,763	0	0	51,763	0
91 days to 1 year	117,762	0	0	117,762	0
Notes and bonds					
1 year or less	303,438	384,936	443,679	-81,498	-58,743
More than 1 year through 5 years	893,832	958,065	1,077,270	-64,233	-119,205
More than 5 years through 10 years	321,591	260,898	310,375	60,693	-49,477
More than 10 years	640,547	618,648	622,884	21,899	-4,236
By type					
Bills	169,525	0	0	169,525	0
Notes	1,290,107	1,382,654	1,624,620	-92,547	-241,966
Bonds	869,301	839,893	829,588	29,408	10,305
Federal agency securities[1]					
Held outright[2]	**2,347**	**2,409**	**4,391**	**-62**	**-1,982**
By remaining maturity					
Discount notes					
1–90 days	0	0	0	0	0
91 days to 1 year	0	0	0	0	0
Coupons					
1 year or less	0	62	1,982	-62	-1,920
More than 1 year through 5 years	0	0	62	0	-62
More than 5 years through 10 years	486	0	0	486	0
More than 10 years	1,861	2,347	2,347	-486	0
By type					
Discount notes	0	0	0	0	0
Coupons	2,347	2,409	4,391	-62	-1,982
By issuer					
Federal Home Loan Mortgage Corporation	529	591	2,573	-62	-1,982
Federal National Mortgage Association	1,818	1,818	1,818	0	0
Federal Home Loan Banks	0	0	0	0	0
Mortgage-backed securities[3,4]					
Held outright[2]	**1,408,677**	**1,637,123**	**1,764,929**	**-228,446**	**-127,806**
By remaining maturity					
1 year or less	12	4	1	8	3
More than 1 year through 5 years	1,135	214	173	921	41
More than 5 years through 10 years	73,528	62,706	20,013	10,822	42,693
More than 10 years	1,334,002	1,574,199	1,744,742	-240,197	-170,543
By issuer					
Federal Home Loan Mortgage Corporation	422,087	481,436	515,025	-59,349	-33,589
Federal National Mortgage Association	652,729	761,166	826,306	-108,437	-65,140
Government National Mortgage Association	333,861	394,521	423,598	-60,660	-29,077
Temporary transactions[5]					
Repurchase agreements[6]	**255,619**	**0**	**0**	**255,619**	**0**
Reverse repurchase agreements[6]	**336,649**	**304,012**	**563,958**	**32,637**	**-259,946**
Foreign official and international accounts	272,562	262,164	244,363	10,398	17,801
Primary dealers and expanded counterparties	64,087	41,848	319,595	22,239	-277,747

Note: Components may not sum to totals because of rounding.
1 Par value.
2 Excludes the effect of temporary transactions—repurchase agreements and reverse repurchase agreements.
3 Guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae.
4 The par amount shown is the remaining principal balance of the securities.
5 Contract amount of agreements.
6 Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities.

Table 3. Federal Reserve Bank interest rates on loans to depository institutions, December 31, 2019

Percent

Reserve Bank	Primary credit	Secondary credit	Seasonal credit
All banks	2.25	2.75	1.70

Note: For details on rate changes over the course of 2019, see “Discount Rates for Depository Institutions in 2019” in appendix E of this annual report (“Record of Policy Actions of the Board of Governors”). Primary credit is available for very short terms as a backup source of liquidity to depository institutions that are in generally sound financial condition in the judgment of the lending Federal Reserve Bank. Secondary credit is available in appropriate circumstances to depository institutions that do not qualify for primary credit. Seasonal credit is available to help relatively small depository institutions meet regular seasonal needs for funds that arise from a clear pattern of intra-yearly movements in their deposits and loans. The discount rate on seasonal credit takes into account rates charged by market sources of funds and is reestablished on the first business day of each two-week reserve maintenance period.

Table 4. Reserve requirements of depository institutions, December 31, 2019

Liability type	Requirements	
	Percentage of liabilities	Effective date
Net transaction accounts[1]		
$0 million–$16.3 million[2]	0	1/17/2019
More than $16.3 million–$124.2 million[3]	3	1/17/2019
More than $124.2 million	10	1/17/2019
Nonpersonal time deposits	0	12/27/1990
Eurocurrency liabilities	0	12/27/1990

Note: The table reflects the liability types and percentages of those liabilities subject to requirements for the maintenance period that contains the year end. Required reserves must be held in the form of vault cash and, if vault cash is insufficient, also in the form of a deposit with a Federal Reserve Bank. An institution must hold that deposit directly with a Reserve Bank or with another institution in a pass-through relationship. Reserve requirements are imposed on commercial banks, savings banks, savings and loan associations, credit unions, U.S. branches and agencies of foreign banks, Edge corporations, and agreement corporations.

[1] Total transaction accounts consist of demand deposits, automatic transfer service (ATS) accounts, NOW accounts, share draft accounts, telephone or preauthorized transfer accounts, ineligible acceptances, and affiliate-issued obligations maturing in seven days or less. Net transaction accounts are total transaction accounts less amounts due from other depository institutions and less cash items in the process of collection.

For a more detailed description of these deposit types, see Form FR 2900.

[2] The amount of net transaction accounts subject to a reserve requirement ratio of 0 percent (the “exemption amount”) is adjusted each year by statute. The exemption amount is adjusted upward by 80 percent of the previous year’s (June 30 to June 30) rate of increase in total reservable liabilities at all depository institutions. No adjustment is made in the event of a decrease in such liabilities.

[3] The amount of net transaction accounts subject to a reserve requirement ratio of 3 percent is the “low reserve tranche.” By statute, the upper limit of the low reserve tranche is adjusted each year by 80 percent of the previous year’s (June 30 to June 30) rate of increase or decrease in net transaction accounts held by all depository institutions.

Table 5. Banking offices and banks affiliated with bank holding companies in the United States, December 31, 2018 and 2019

Type of office	Total	Commercial banks[1]					Savings banks
		Total	Member			Nonmember	
			Total	National	State		
All banking offices							
Banks							
Number, Dec. 31, 2018	**4,964**	**4,714**	**1,577**	**808**	**769**	**3,137**	**250**
Changes during 2019							
New banks	20	19	4	3	1	15	1
Banks converted into branches	-200	-192	-60	-24	-36	-132	-8
Ceased banking operations[2]	-31	-28	-8	-7	-1	-20	-3
Other[3]	0	2	-4	-2	-2	6	-2
Net change	-211	-199	-68	-30	-38	-131	-12
Number, Dec. 31, 2019	**4,753**	**4,515**	**1,509**	**778**	**731**	**3,006**	**238**
Branches and additional offices							
Number, Dec. 31, 2018	**79,155**	**76,236**	**53,234**	**38,757**	**14,477**	**23,002**	**2,919**
Changes during 2019							
New branches	1,111	1,071	653	477	176	418	40
Banks converted to branches	200	195	77	42	35	118	5
Discontinued[2]	-2,493	-2,379	-1,869	-1,484	-385	-510	-114
Other[3]	0	429	-832	1,444	-2,276	-1,261	-429
Net change	-1,182	-684	-1,971	479	-2,450	1,287	-498
Number, Dec. 31, 2019	**77,973**	**75,552**	**51,263**	**39,236**	**12,027**	**24,289**	**2,421**
Banks affiliated with bank holding companies							
Number, Dec. 31, 2018	**4,198**	**4,071**	**1,426**	**715**	**711**	**2,645**	**127**
Changes during 2019							
BHC-affiliated new banks	28	24	10	5	5	14	4
Banks converted into branches	-170	-164	-55	-22	-33	-109	-6
Ceased banking operations[2]	-27	-25	-7	-6	-1	-18	-2
Other[3]	0	2	-4	-2	-2	6	-2
Net change	-169	-163	-56	-25	-31	-107	-6
Number, Dec. 31, 2019	**4,029**	**3,908**	**1,370**	**690**	**680**	**2,538**	**121**

Note: Includes banks, banking offices, and bank holding companies in U.S. territories and possessions (affiliated insular areas).

1 For purposes of this table, banks are entities that are defined as banks in the Bank Holding Company Act, as amended, which is implemented by Federal Reserve Regulation Y. Generally, a bank is any institution that accepts demand deposits and is engaged in the business of making commercial loans or any institution that is defined as an insured bank in section 3(h) of the Federal Deposit Insurance Corporation Act.

2 Institutions that no longer meet the Regulation Y definition of a bank.

3 Interclass changes and sales of branches.

Table 6A. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1984–2019 and month-end 2019

Millions of dollars

Period	Factors supplying reserve funds								
	Federal Reserve Bank credit outstanding						Gold stock	Special drawing rights certificate account	Treasury currency outstanding[5]
	Securities held outright[1]	Repurchase agreements[2]	Loans and other credit extensions[3]	Float	Other Federal Reserve assets[4]	Total[4]			
1984	167,612	2,015	3,577	833	12,347	186,384	11,096	4,618	16,418
1985	186,025	5,223	3,060	988	15,302	210,598	11,090	4,718	17,075
1986	205,454	16,005	1,565	1,261	17,475	241,760	11,084	5,018	17,567
1987	226,459	4,961	3,815	811	15,837	251,883	11,078	5,018	18,177
1988	240,628	6,861	2,170	1,286	18,803	269,748	11,060	5,018	18,799
1989	233,300	2,117	481	1,093	39,631	276,622	11,059	8,518	19,628
1990	241,431	18,354	190	2,222	39,897	302,091	11,058	10,018	20,402
1991	272,531	15,898	218	731	34,567	323,945	11,059	10,018	21,014
1992	300,423	8,094	675	3,253	30,020	342,464	11,056	8,018	21,447
1993	336,654	13,212	94	909	33,035	383,904	11,053	8,018	22,095
1994	368,156	10,590	223	-716	33,634	411,887	11,051	8,018	22,994
1995	380,831	13,862	135	107	33,303	428,239	11,050	10,168	24,003
1996	393,132	21,583	85	4,296	32,896	451,992	11,048	9,718	24,966
1997	431,420	23,840	2,035	719	31,452	489,466	11,047	9,200	25,543
1998	452,478	30,376	17	1,636	36,966	521,475	11,046	9,200	26,270
1999	478,144	140,640	233	-237	35,321	654,100	11,048	6,200	28,013
2000	511,833	43,375	110	901	36,467	592,686	11,046	2,200	31,643
2001	551,685	50,250	34	-23	37,658	639,604	11,045	2,200	33,017
2002	629,416	39,500	40	418	39,083	708,457	11,043	2,200	34,597
2003	666,665	43,750	62	-319	40,847	751,005	11,043	2,200	35,468
2004	717,819	33,000	43	925	42,219	794,007	11,045	2,200	36,434
2005	744,215	46,750	72	885	39,611	831,532	11,043	2,200	36,540
2006	778,915	40,750	67	-333	39,895	859,294	11,041	2,200	38,206
2007	740,611	46,500	72,636	-19	41,799	901,528	11,041	2,200	38,681
2008	495,629	80,000	1,605,848	-1,494	43,553	2,223,537	11,041	2,200	38,674
2009	1,844,838	0	281,095	-2,097	92,811	2,216,647	11,041	5,200	42,691
2010	2,161,094	0	138,311	-1,421	110,255	2,408,240	11,041	5,200	43,542
2011	2,605,124	0	144,098	-631	152,568	2,901,159	11,041	5,200	44,198
2012	2,669,589	0	11,867	-486	218,296	2,899,266	11,041	5,200	44,751
2013	3,756,158	0	2,177	-962	246,947	4,004,320	11,041	5,200	45,493
2014	4,236,873	0	3,351	-555	239,238	4,478,908	11,041	5,200	46,301
2015	4,241,958	0	2,830	-36	221,448	4,466,199	11,041	5,200	47,567
2016	4,221,187	0	7,325	-804	206,551	4,434,259	11,041	5,200	48,536
2017	4,223,528	0	13,914	-920	194,288	4,430,809	11,041	5,200	49,381
2018	3,862,079	0	4,269	-770	173,324	4,038,902	11,041	5,200	49,801
2019	3,739,957	255,619	3,770	-643	156,304	4,155,007	11,041	5,200	50,138

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Table 6A.—*continued*

Period	Factors supplying reserve funds								
	Federal Reserve Bank credit outstanding						Gold stock	Special drawing rights certificate account	Treasury currency outstanding[5]
	Securities held outright[1]	Repurchase agreements[2]	Loans and other credit extensions[3]	Float	Other Federal Reserve assets[4]	Total[4]			
2019, month-end									
Jan	3,830,024	0	90	-861	176,630	4,005,883	11,041	5,200	49,871
Feb	3,785,388	0	87	-752	163,911	3,948,634	11,041	5,200	49,888
Mar	3,770,700	0	1,376	-789	167,790	3,939,077	11,041	5,200	49,909
Apr	3,701,709	0	91	-827	169,535	3,870,508	11,041	5,200	49,942
May	3,667,413	0	211	-564	160,482	3,827,542	11,041	5,200	49,991
Jun	3,645,427	0	132	-821	164,411	3,809,149	11,041	5,200	50,023
Jul	3,594,822	0	143	-818	166,149	3,760,296	11,041	5,200	50,020
Aug	3,587,084	0	972	-528	155,285	3,742,813	11,041	5,200	50,025
Sep	3,582,935	202,500	1,080	-744	157,979	3,943,750	11,041	5,200	50,081
Oct	3,623,607	228,183	77	-718	162,165	4,013,314	11,041	5,200	50,064
Nov	3,674,577	207,743	65	-419	153,581	4,035,547	11,041	5,200	50,120
Dec	3,739,957	255,619	3,770	-643	156,304	4,155,007	11,041	5,200	50,138

Note: Components may not sum to totals because of rounding.

[1] Includes U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities. U.S. Treasury securities and federal agency debt securities include securities lent to dealers, which are fully collateralized by U.S. Treasury securities, federal agency securities, and other highly rated debt securities.

[2] Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and agency mortgage-backed securities.

[3] As of 2015, includes only central bank liquidity swaps; primary, seasonal, and secondary credit; and net portfolio holdings of Maiden Lane LLC. For disaggregated loans and other credit extensions from 1984 to 2014, refer to "Table 6B. Loans and other credit extensions, by type, year-end 1984–2014 and month-end 2014" of the *2014 Annual Report*.

[4] As of 2013, unamortized discounts on securities held outright are included as a component of Other Federal Reserve assets. Previously, they were included in Other Federal Reserve liabilities and capital.

[5] Includes currency and coin (other than gold) issued directly by the U.S. Treasury. The largest components are fractional and dollar coins. For details, refer to "U.S. Currency and Coin Outstanding and in Circulation," *Treasury Bulletin*.

Table 6A. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1984–2019 and month-end 2019—*continued*

Period	Factors absorbing reserve funds										Reserve balances with Federal Reserve Banks
	Currency in circulation	Reverse repurchase agreements[6]	Treasury cash holdings[7]	Deposits with Federal Reserve Banks, other than reserve balances					Required clearing balances[9]	Other Federal Reserve liabilities and capital[4,10]	
				Term deposits	Treasury general account	Treasury supplementary financing account	Foreign	Other[8]			
1984	183,796	0	513	n/a	5,316	n/a	253	867	1,126	5,952	20,693
1985	197,488	0	550	n/a	9,351	n/a	480	1,041	1,490	5,940	27,141
1986	211,995	0	447	n/a	7,588	n/a	287	917	1,812	6,088	46,295
1987	230,205	0	454	n/a	5,313	n/a	244	1,027	1,687	7,129	40,097
1988	247,649	0	395	n/a	8,656	n/a	347	548	1,605	7,683	37,742
1989	260,456	0	450	n/a	6,217	n/a	589	1,298	1,618	8,486	36,713
1990	286,963	0	561	n/a	8,960	n/a	369	528	1,960	8,147	36,081
1991	307,756	0	636	n/a	17,697	n/a	968	1,869	3,946	8,113	25,051
1992	334,701	0	508	n/a	7,492	n/a	206	653	5,897	7,984	25,544
1993	365,271	0	377	n/a	14,809	n/a	386	636	6,332	9,292	27,967
1994	403,843	0	335	n/a	7,161	n/a	250	1,143	4,196	11,959	25,061
1995	424,244	0	270	n/a	5,979	n/a	386	2,113	5,167	12,342	22,960
1996	450,648	0	249	n/a	7,742	n/a	167	1,178	6,601	13,829	17,310
1997	482,327	0	225	n/a	5,444	n/a	457	1,171	6,684	15,500	23,447
1998	517,484	0	85	n/a	6,086	n/a	167	1,869	6,780	16,354	19,164
1999	628,359	0	109	n/a	28,402	n/a	71	1,644	7,481	17,256	16,039
2000	593,694	0	450	n/a	5,149	n/a	216	2,478	6,332	17,962	11,295
2001	643,301	0	425	n/a	6,645	n/a	61	1,356	8,525	17,083	8,469
2002	687,518	21,091	367	n/a	4,420	n/a	136	1,266	10,534	18,977	11,988
2003	724,187	25,652	321	n/a	5,723	n/a	162	995	11,829	19,793	11,054
2004	754,877	30,783	270	n/a	5,912	n/a	80	1,285	9,963	26,378	14,137
2005	794,014	30,505	202	n/a	4,573	n/a	83	2,144	8,651	30,466	10,678
2006	820,176	29,615	252	n/a	4,708	n/a	98	972	6,842	36,231	11,847
2007	828,938	43,985	259	n/a	16,120	n/a	96	1,830	6,614	41,622	13,986
2008	889,898	88,352	259	n/a	106,123	259,325	1,365	21,221	4,387	48,921	855,599
2009	928,249	77,732	239	n/a	186,632	5,001	2,411	35,262	3,020	63,219	973,814
2010	982,750	59,703	177	0	140,773	199,964	3,337	13,631	2,374	99,602	965,712
2011	1,075,820	99,900	128	0	85,737	0	125	64,909	2,480	72,766	1,559,731
2012	1,169,159	107,188	150	0	92,720	0	6,427	27,476	n/a	66,093	1,491,044
2013	1,241,228	315,924	234	0	162,399	0	7,970	26,181	n/a	63,049	2,249,070
2014	1,342,957	509,837	201	0	223,452	0	5,242	20,320	n/a	61,447	2,377,995
2015	1,424,967	712,401	266	0	333,447	0	5,231	31,212	n/a	45,320	1,977,163
2016	1,509,440	725,210	166	0	399,190	0	5,165	53,248	n/a	46,943	1,759,675
2017	1,618,006	563,958	214	0	228,933	0	5,257	77,762	n/a	47,876	1,954,426
2018	1,719,302	304,012	214	0	402,138	0	5,245	73,073	n/a	45,007	1,555,954
2019	1,807,740	336,649	171	0	403,853	0	5,182	74,075	n/a	44,867	1,548,849

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Table 6A.—*continued*

Period	Factors absorbing reserve funds										Reserve balances with Federal Reserve Banks
	Currency in circulation	Reverse repurchase agreements[6]	Treasury cash holdings[7]	Deposits with Federal Reserve Banks, other than reserve balances					Required clearing balances[9]	Other Federal Reserve liabilities and capital[4,10]	
				Term deposits	Treasury general account	Treasury supplementary financing account	Foreign	Other[8]			
2019, month-end											
Jan	1,703,088	257,122	259	0	403,597	0	5,244	58,609	n/a	42,939	1,601,137
Feb	1,712,531	264,433	312	0	290,665	0	5,244	56,029	n/a	43,555	1,641,993
Mar	1,723,662	255,345	336	0	334,012	0	5,243	61,355	n/a	44,484	1,580,789
Apr	1,729,791	269,767	332	0	422,586	0	5,245	52,806	n/a	45,161	1,411,002
May	1,738,428	289,429	247	2,700	232,874	0	5,245	62,083	n/a	44,922	1,517,849
Jun	1,743,133	335,372	184	0	263,709	0	5,245	60,976	n/a	45,345	1,421,452
Jul	1,747,776	308,710	176	0	176,662	0	5,254	52,854	n/a	44,578	1,490,546
Aug	1,759,939	308,890	157	0	133,091	0	5,280	60,290	n/a	44,027	1,497,406
Sep	1,762,514	313,368	180	0	382,483	0	5,186	74,318	n/a	44,768	1,427,255
Oct	1,781,164	302,284	196	0	434,942	0	5,185	59,580	n/a	44,679	1,451,591
Nov	1,793,165	287,729	185	0	342,618	0	5,185	57,849	n/a	44,868	1,570,310
Dec	1,807,740	336,649	171	0	403,853	0	5,182	74,075	n/a	44,867	1,548,849

[6] Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and agency mortgage-backed securities.

[7] Coin and paper currency held by the Treasury.

[8] As of 2014, includes deposits of designated financial market utilities.

[9] Required clearing balances were discontinued in July 2012.

[10] In 2010, includes funds from American International Group, Inc. asset dispositions, held as agent.

n/a Not applicable.

Table 6B. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1918–1983
Millions of dollars

Period	Factors supplying reserve funds									
	Federal Reserve Bank credit outstanding							Gold stock[6]	Special drawing rights certificate account	Treasury currency outstanding[7]
	Securities held outright[1]	Repurchase agreements[2]	Loans	Float[3]	All other[4]	Other Federal Reserve assets[5]	Total			
1918	239	0	1,766	199	294	0	2,498	2,873	n/a	1,795
1919	300	0	2,215	201	575	0	3,292	2,707	n/a	1,707
1920	287	0	2,687	119	262	0	3,355	2,639	n/a	1,709
1921	234	0	1,144	40	146	0	1,563	3,373	n/a	1,842
1922	436	0	618	78	273	0	1,405	3,642	n/a	1,958
1923	80	54	723	27	355	0	1,238	3,957	n/a	2,009
1924	536	4	320	52	390	0	1,302	4,212	n/a	2,025
1925	367	8	643	63	378	0	1,459	4,112	n/a	1,977
1926	312	3	637	45	384	0	1,381	4,205	n/a	1,991
1927	560	57	582	63	393	0	1,655	4,092	n/a	2,006
1928	197	31	1,056	24	500	0	1,809	3,854	n/a	2,012
1929	488	23	632	34	405	0	1,583	3,997	n/a	2,022
1930	686	43	251	21	372	0	1,373	4,306	n/a	2,027
1931	775	42	638	20	378	0	1,853	4,173	n/a	2,035
1932	1,851	4	235	14	41	0	2,145	4,226	n/a	2,204
1933	2,435	2	98	15	137	0	2,688	4,036	n/a	2,303
1934	2,430	0	7	5	21	0	2,463	8,238	n/a	2,511
1935	2,430	1	5	12	38	0	2,486	10,125	n/a	2,476
1936	2,430	0	3	39	28	0	2,500	11,258	n/a	2,532
1937	2,564	0	10	19	19	0	2,612	12,760	n/a	2,637
1938	2,564	0	4	17	16	0	2,601	14,512	n/a	2,798
1939	2,484	0	7	91	11	0	2,593	17,644	n/a	2,963
1940	2,184	0	3	80	8	0	2,274	21,995	n/a	3,087
1941	2,254	0	3	94	10	0	2,361	22,737	n/a	3,247
1942	6,189	0	6	471	14	0	6,679	22,726	n/a	3,648
1943	11,543	0	5	681	10	0	12,239	21,938	n/a	4,094
1944	18,846	0	80	815	4	0	19,745	20,619	n/a	4,131
1945	24,262	0	249	578	2	0	25,091	20,065	n/a	4,339
1946	23,350	0	163	580	1	0	24,093	20,529	n/a	4,562
1947	22,559	0	85	535	1	0	23,181	22,754	n/a	4,562
1948	23,333	0	223	541	1	0	24,097	24,244	n/a	4,589
1949	18,885	0	78	534	2	0	19,499	24,427	n/a	4,598
1950	20,725	53	67	1,368	3	0	22,216	22,706	n/a	4,636
1951	23,605	196	19	1,184	5	0	25,009	22,695	n/a	4,709
1952	24,034	663	156	967	4	0	25,825	23,187	n/a	4,812
1953	25,318	598	28	935	2	0	26,880	22,030	n/a	4,894
1954	24,888	44	143	808	1	0	25,885	21,713	n/a	4,985
1955	24,391	394	108	1,585	29	0	26,507	21,690	n/a	5,008
1956	24,610	305	50	1,665	70	0	26,699	21,949	n/a	5,066
1957	23,719	519	55	1,424	66	0	25,784	22,781	n/a	5,146
1958	26,252	95	64	1,296	49	0	27,755	20,534	n/a	5,234
1959	26,607	41	458	1,590	75	0	28,771	19,456	n/a	5,311
1960	26,984	400	33	1,847	74	0	29,338	17,767	n/a	5,398
1961	28,722	159	130	2,300	51	0	31,362	16,889	n/a	5,585
1962	30,478	342	38	2,903	110	0	33,871	15,978	n/a	5,567
1963	33,582	11	63	2,600	162	0	36,418	15,513	n/a	5,578
1964	36,506	538	186	2,606	94	0	39,930	15,388	n/a	5,405
1965	40,478	290	137	2,248	187	0	43,340	13,733	n/a	5,575
1966	43,655	661	173	2,495	193	0	47,177	13,159	n/a	6,317
1967	48,980	170	141	2,576	164	0	52,031	11,982	n/a	6,784

(continued on next page)

Table 6B.—*continued*

Period	Factors supplying reserve funds									
	Federal Reserve Bank credit outstanding							Gold stock[6]	Special drawing rights certificate account	Treasury currency outstanding[7]
	Securities held outright[1]	Repurchase agreements[2]	Loans	Float[3]	All other[4]	Other Federal Reserve assets[5]	Total			
1968	52,937	0	186	3,443	58	0	56,624	10,367	n/a	6,795
1969	57,154	0	183	3,440	64	2,743	63,584	10,367	n/a	6,852
1970	62,142	0	335	4,261	57	1,123	67,918	10,732	400	7,147
1971	69,481	1,323	39	4,343	261	1,068	76,515	10,132	400	7,710
1972	71,119	111	1,981	3,974	106	1,260	78,551	10,410	400	8,313
1973	80,395	100	1,258	3,099	68	1,152	86,072	11,567	400	8,716
1974	84,760	954	299	2,001	999	3,195	92,208	11,652	400	9,253
1975	92,789	1,335	211	3,688	1,126	3,312	102,461	11,599	500	10,218
1976	100,062	4,031	25	2,601	991	3,182	110,892	11,598	1,200	10,810
1977	108,922	2,352	265	3,810	954	2,442	118,745	11,718	1,250	11,331
1978	117,374	1,217	1,174	6,432	587	4,543	131,327	11,671	1,300	11,831
1979	124,507	1,660	1,454	6,767	704	5,613	140,705	11,172	1,800	13,083
1980	128,038	2,554	1,809	4,467	776	8,739	146,383	11,160	2,518	13,427
1981	136,863	3,485	1,601	1,762	195	9,230	153,136	11,151	3,318	13,687
1982	144,544	4,293	717	2,735	1,480	9,890	163,659	11,148	4,618	13,786
1983	159,203	1,592	918	1,605	418	8,728	172,464	11,121	4,618	15,732

Note: For a description of figures and discussion of their significance, see *Banking and Monetary Statistics*, 1941–1970 (Board of Governors of the Federal Reserve System, 1976), pp. 507–23. Components may not sum to totals because of rounding.

1 In 1969 and thereafter, includes securities loaned—fully guaranteed by U.S. government securities pledged with Federal Reserve Banks—and excludes securities sold and scheduled to be bought back under matched sale–purchase transactions. On September 29, 1971, and thereafter, includes federal agency issues bought outright.

2 On December 1, 1966, and thereafter, includes federal agency obligations held under repurchase agreements.

3 In 1960 and thereafter, figures reflect a minor change in concept; refer to *Federal Reserve Bulletin*, vol. 47 (February 1961), p. 164.

4 Principally acceptances and, until August 21, 1959, industrial loans, the authority for which expired on that date.

5 For the period before April 16, 1969, includes the total of Federal Reserve capital paid in, surplus, other capital accounts, and other liabilities and accrued dividends, less the sum of bank premises and other assets, and is reported as "Other Federal Reserve accounts"; thereafter, "Other Federal Reserve assets" and "Other Federal Reserve liabilities and capital" are shown separately.

6 Before January 30, 1934, includes gold held in Federal Reserve Banks and in circulation.

7 Includes currency and coin (other than gold) issued directly by the Treasury. The largest components are fractional and dollar coins. For details refer to "U.S. Currency and Coin Outstanding and in Circulation,'' *Treasury Bulletin*.

n/a Not applicable.

Table 6B. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1918–1983—*continued*
Millions of dollars

Period	Factors absorbing reserve funds								Member bank reserves[9]			
	Currency in circulation	Treasury cash holdings[8]	Deposits with Federal Reserve Banks, other than reserve balances			Other Federal Reserve accounts[5]	Required clearing balances	Other Federal Reserve liabilities and capital[5]	With Federal Reserve Banks	Currency and coin[10]	Required[11]	Excess[11,12]
			Treasury	Foreign	Other							
1918	4,951	288	51	96	25	118	0	0	1,636	n/a	1,585	51
1919	5,091	385	31	73	28	208	0	0	1,890	n/a	1,822	68
1920	5,325	218	57	5	18	298	0	0	1,781	n/a	n/a	n/a
1921	4,403	214	96	12	15	285	0	0	1,753	n/a	1,654	99
1922	4,530	225	11	3	26	276	0	0	1,934	n/a	n/a	n/a
1923	4,757	213	38	4	19	275	0	0	1,898	n/a	1,884	14
1924	4,760	211	51	19	20	258	0	0	2,220	n/a	2,161	59
1925	4,817	203	16	8	21	272	0	0	2,212	n/a	2,256	-44
1926	4,808	201	17	46	19	293	0	0	2,194	n/a	2,250	-56
1927	4,716	208	18	5	21	301	0	0	2,487	n/a	2,424	63
1928	4,686	202	23	6	21	348	0	0	2,389	n/a	2,430	-41
1929	4,578	216	29	6	24	393	0	0	2,355	n/a	2,428	-73
1930	4,603	211	19	6	22	375	0	0	2,471	n/a	2,375	96
1931	5,360	222	54	79	31	354	0	0	1,961	n/a	1,994	-33
1932	5,388	272	8	19	24	355	0	0	2,509	n/a	1,933	576
1933	5,519	284	3	4	128	360	0	0	2,729	n/a	1,870	859
1934	5,536	3,029	121	20	169	241	0	0	4,096	n/a	2,282	1,814
1935	5,882	2,566	544	29	226	253	0	0	5,587	n/a	2,743	2,844
1936	6,543	2,376	244	99	160	261	0	0	6,606	n/a	4,622	1,984
1937	6,550	3,619	142	172	235	263	0	0	7,027	n/a	5,815	1,212
1938	6,856	2,706	923	199	242	260	0	0	8,724	n/a	5,519	3,205
1939	7,598	2,409	634	397	256	251	0	0	11,653	n/a	6,444	5,209
1940	8,732	2,213	368	1,133	599	284	0	0	14,026	n/a	7,411	6,615
1941	11,160	2,215	867	774	586	291	0	0	12,450	n/a	9,365	3,085
1942	15,410	2,193	799	793	485	256	0	0	13,117	n/a	11,129	1,988
1943	20,449	2,303	579	1,360	356	339	0	0	12,886	n/a	11,650	1,236
1944	25,307	2,375	440	1,204	394	402	0	0	14,373	n/a	12,748	1,625
1945	28,515	2,287	977	862	446	495	0	0	15,915	n/a	14,457	1,458
1946	28,952	2,272	393	508	314	607	0	0	16,139	n/a	15,577	562
1947	28,868	1,336	870	392	569	563	0	0	17,899	n/a	16,400	1,499
1948	28,224	1,325	1123	642	547	590	0	0	20,479	n/a	19,277	1,202
1949	27,600	1,312	821	767	750	706	0	0	16,568	n/a	15,550	1,018
1950	27,741	1,293	668	895	565	714	0	0	17,681	n/a	16,509	1,172
1951	29,206	1,270	247	526	363	746	0	0	20,056	n/a	19,667	389
1952	30,433	1,270	389	550	455	777	0	0	19,950	n/a	20,520	-570
1953	30,781	761	346	423	493	839	0	0	20,160	n/a	19,397	763
1954	30,509	796	563	490	441	907	0	0	18,876	n/a	18,618	258
1955	31,158	767	394	402	554	925	0	0	19,005	n/a	18,903	102
1956	31,790	775	441	322	426	901	0	0	19,059	n/a	19,089	-30
1957	31,834	761	481	356	246	998	0	0	19,034	n/a	19,091	-57
1958	32,193	683	358	272	391	1,122	0	0	18,504	n/a	18,574	-70
1959	32,591	391	504	345	694	841	0	0	18,174	310	18,619	-135
1960	32,869	377	485	217	533	941	0	0	17,081	2,544	18,988	637
1961	33,918	422	465	279	320	1,044	0	0	17,387	2,823	20,114	96
1962	35,338	380	597	247	393	1,007	0	0	17,454	3,262	20,071	645
1963	37,692	361	880	171	291	1,065	0	0	17,049	4,099	20,677	471
1964	39,619	612	820	229	321	1,036	0	0	18,086	4,151	21,663	574
1965	42,056	760	668	150	355	211	0	0	18,447	4,163	22,848	-238
1966	44,663	1,176	416	174	588	-147	0	0	19,779	4,310	24,321	-232
1967	47,226	1,344	1,123	135	653	-773	0	0	21,092	4,631	25,905	-182

(continued on next page)

Table 6B.—*continued*

Period	Factors absorbing reserve funds								Member bank reserves[9]			
	Currency in circulation	Treasury cash holdings[8]	Deposits with Federal Reserve Banks, other than reserve balances			Other Federal Reserve accounts[5]	Required clearing balances	Other Federal Reserve liabilities and capital[5]	With Federal Reserve Banks	Currency and coin[10]	Required[11]	Excess[11,12]
			Treasury	Foreign	Other							
1968	50,961	695	703	216	747	-1,353	0	0	21,818	4,921	27,439	-700
1969	53,950	596	1,312	134	807	0	0	1,919	22,085	5,187	28,173	-901
1970	57,093	431	1,156	148	1,233	0	0	1,986	24,150	5,423	30,033	-460
1971	61,068	460	2,020	294	999	0	0	2,131	27,788	5,743	32,496	1,035
1972	66,516	345	1,855	325	840	0	0	2,143	25,647	6,216	32,044	98
1973	72,497	317	2,542	251	1,149[13]	0	0	2,669	27,060	6,781	35,268	-1,360
1974	79,743	185	3,113	418	1,275[13]	0	0	2,935	25,843	7,370	37,011	-3,798
1975	86,547	483	7,285	353	1,090	0	0	2,968	26,052	8,036	35,197	-1,103[14]
1976	93,717	460	10,393	352	1,357	0	0	3,063	25,158	8,628	35,461	-1,535
1977	103,811	392	7,114	379	1,187	0	0	3,292	26,870	9,421	37,615	-1,265
1978	114,645	240	4,196	368	1,256	0	0	4,275	31,152	10,538	42,694	-893
1979	125,600	494	4,075	429	1,412	0	0	4,957	29,792	11,429	44,217	-2,835
1980	136,829	441	3,062	411	617	0	0	4,671	27,456	13,654	40,558	675
1981	144,774	443	4,301	505	781	0	117	5,261	25,111	15,576	42,145	-1,442
1982	154,908	429	5,033	328	1,033	0	436	4,990	26,053	16,666	41,391	1,328
1983	171,935	479	3,661	191	851	0	1,013	5,392	20,413	17,821	39,179	-945

8 Coin and paper currency held by the Treasury, as well as any gold in excess of the gold certificates issued to the Reserve Bank.

9 In November 1979 and thereafter, includes reserves of member banks, Edge Act corporations, and U.S. agencies and branches of foreign banks. On November 13, 1980, and thereafter, includes reserves of all depository institutions.

10 Between December 1, 1959, and November 23, 1960, part was allowed as reserves; thereafter, all was allowed.

11 Estimated through 1958. Before 1929, data were available only on call dates (in 1920 and 1922 the call date was December 29). Since September 12, 1968, the amount has been based on close-of-business figures for the reserve period two weeks before the report date.

12 For the week ending November 15, 1972, and thereafter, includes $450 million of reserve deficiencies on which Federal Reserve Banks are allowed to waive penalties for a transition period in connection with bank adaptation to Regulation J as amended, effective November 9, 1972. Allowable deficiencies are as follows (beginning with first statement week of quarter, in millions): 1973—Q1, $279; Q2, $172; Q3, $112; Q4, $84; 1974—Q1, $67; Q2, $58. The transition period ended with the second quarter of 1974.

13 For the period before July 1973, includes certain deposits of domestic nonmember banks and foreign-owned banking institutions held with member banks and redeposited in full with Federal Reserve Banks in connection with voluntary participation by nonmember institutions in the Federal Reserve System program of credit restraint. As of December 12, 1974, the amount of voluntary nonmember bank and foreign-agency and branch deposits at Federal Reserve Banks that are associated with marginal reserves is no longer reported. However, two amounts are reported: (1) deposits voluntarily held as reserves by agencies and branches of foreign banks operating in the United States and (2) Eurodollar liabilities.

14 Adjusted to include waivers of penalties for reserve deficiencies, in accordance with change in Board policy, effective November 19, 1975.

n/a Not applicable.

Table 7. Principal assets and liabilities of insured commercial banks, June 30, 2019 and 2018
Millions of dollars, except as noted

Item	Total	Member banks			Nonmember banks
		Total	National	State	
2019					
Assets					
Loans and investments	12,443,509	10,118,248	7,977,652	2,140,595	2,325,261
Loans, gross	9,068,412	7,171,573	5,640,139	1,531,434	1,896,840
Net	9,066,365	7,170,232	5,639,086	1,531,147	1,896,133
Investments	3,375,097	2,946,675	2,337,514	609,161	428,422
U.S. government securities	517,970	490,846	421,415	69,430	27,125
Other	2,857,127	2,455,830	1,916,098	539,731	401,297
Cash assets, total	1,044,605	894,894	708,430	186,464	149,711
Liabilities					
Deposits, total	11,764,419	9,668,697	7,666,782	2,001,915	2,095,722
Interbank	257,171	234,836	191,275	43,561	22,335
Other transactions	1,923,551	1,577,691	1,196,523	381,168	345,860
Other nontransactions	9,583,697	7,856,170	6,278,984	1,577,186	1,727,527
Equity capital	1,955,665	1,627,674	1,287,905	339,769	327,991
Number of banks	4,621	1,542	798	744	3,079
2018					
Assets					
Loans and investments	5,907,809	5,241,536	4,234,375	1,007,161	666,273
Loans, gross	2,675,200	2,429,625	2,010,677	418,948	245,575
Net	8,644,535	6,865,766	5,447,506	1,418,260	1,778,769
Investments	3,232,609	2,811,910	2,223,698	588,212	420,699
U.S. government securities	459,324	437,362	361,754	75,608	21,962
Other	2,773,285	2,374,548	1,861,944	512,604	398,737
Cash assets, total	1,316,967	1,175,060	949,841	225,219	141,907
Liabilities					
Deposits, total	11,255,144	9,273,433	7,396,328	1,877,105	1,981,711
Interbank	276,635	254,325	216,231	38,093	22,311
Other transactions	1,870,726	1,527,427	1,148,234	379,193	343,299
Other nontransactions	9,107,783	7,491,681	6,031,862	1,459,819	1,616,102
Equity capital	1,846,258	1,547,855	1,237,179	310,676	298,402
Number of banks	4,824	1,613	850	763	3,211

Note: Includes U.S.-insured commercial banks located in the United States but not U.S.-insured commercial banks operating in U.S. territories or possessions. Data are domestic assets and liabilities (except for those components reported on a consolidated basis only). Components may not sum to totals because of rounding. Data for 2018 have been revised.

Table 8. Initial margin requirements under Regulations T, U, and X
Percent of market value

Effective date	Margin stocks	Convertible bonds	Short sales, T only[1]
1934, Oct. 1	25–45	n/a	n/a
1936, Feb. 1	25–55	n/a	n/a
1936, Apr. 1	55	n/a	n/a
1937, Nov. 1	40	n/a	50
1945, Feb. 5	50	n/a	50
1945, July 5	75	n/a	75
1946, Jan. 21	100	n/a	100
1947, Feb. 1	75	n/a	75
1949, Mar. 3	50	n/a	50
1951, Jan. 17	75	n/a	75
1953, Feb. 20	50	n/a	50
1955, Jan. 4	60	n/a	60
1955, Apr. 23	70	n/a	70
1958, Jan. 16	50	n/a	50
1958, Aug. 5	70	n/a	70
1958, Oct. 16	90	n/a	90
1960, July 28	70	n/a	70
1962, July 10	50	n/a	50
1963, Nov. 6	70	n/a	70
1968, Mar. 11	70	50	70
1968, June 8	80	60	80
1970, May 6	65	50	65
1971, Dec. 6	55	50	55
1972, Nov. 24	65	50	65
1974, Jan. 3	50	50	50

Note: These regulations, adopted by the Board of Governors pursuant to the Securities Exchange Act of 1934, limit the amount of credit that may be extended for the purpose of purchasing or carrying margin securities (as defined in the regulations) when the loan is collateralized by such securities. The margin requirement, expressed as a percentage, is the difference between the market value of the securities being purchased or carried (100 percent) and the maximum loan value of the collateral as prescribed by the Board. Regulation T was adopted effective October 1, 1934; Regulation U, effective May 1, 1936; and Regulation X, effective November 1, 1971. The former Regulation G, which was adopted effective March 11, 1968, was merged into Regulation U, effective April 1, 1998.

[1] From October 1, 1934, to October 31, 1937, the requirement was the margin "customarily required" by the brokers and dealers.

n/a Not applicable.

Table 9A. Statement of condition of the Federal Reserve Banks, by Bank, December 31, 2019 and 2018
Millions of dollars

Item	Total		Boston		New York		Philadelphia		Cleveland		Richmond	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Assets												
Gold certificates	11,037	11,037	351	364	3,707	3,626	327	350	531	544	754	773
Special drawing rights certificates	5,200	5,200	196	196	1,818	1,818	210	210	237	237	412	412
Coin	1,657	1,726	40	41	41	39	146	148	100	124	220	236
Loans and securities												
Primary, secondary, and seasonal loans	42	61	*	8	10	*	0	*	0	*	0	*
Securities purchased under agreements to resell[1]	255,619	0	5,303	0	139,458	0	6,190	0	7,479	0	15,643	0
Treasury securities, bought outright[2]	2,328,933	2,222,547	48,316	42,448	1,270,598	1,227,018	56,399	56,115	68,139	63,010	142,522	131,522
Government-sponsored enterprise debt securities, bought outright[2]	2,347	2,409	49	46	1,280	1,330	57	61	69	68	144	142
Federal agency and government-sponsored enterprise mortgage-backed securities, bought outright[3]	1,408,677	1,637,123	29,225	31,267	768,533	903,819	34,113	41,334	41,214	46,413	86,206	96,879
Unamortized premiums on securities held outright[4]	124,577	140,083	2,584	2,676	67,965	77,336	3,017	3,536	3,645	3,972	7,624	8,290
Unamortized discounts on securities held outright[4]	-13,284	-13,427	-276	-256	-7,247	-7,413	-322	-339	-389	-380	-813	-795
Total loans and securities	4,106,911	3,988,796	85,201	76,189	2,240,597	2,202,090	99,454	100,707	120,157	113,083	251,326	236,038
Accrued interest receivable - System Open Market Account	20,746	22,236	432	426	11,303	12,258	505	564	610	634	1,280	1,328
Foreign currency denominated investments[5]	20,711	20,906	892	890	6,572	6,590	1,197	1,188	1,653	1,687	4,416	4,517
Central bank liquidity swaps[6]	3,728	4,207	161	179	1,183	1,326	215	239	298	340	795	909
Other SOMA assets	*	*	*	*	*	*	*	*	*	*	*	*
Other assets												
Items in process of collection	82	236	0	*	*	*	1	*	*	0	*	0
Bank premises	2,211	2,218	105	109	463	468	92	82	119	118	193	195
All other assets[7]	1,358	1,318	43	50	335	324	29	29	56	55	307	283
Interdistrict settlement account	0	0	22,285	27,157	-164,555	-165,634	-16,586	-670	17,803	8,181	17,982	25,831
Total assets	**4,173,641**	**4,057,880**	**109,706**	**105,601**	**2,101,464**	**2,062,905**	**85,590**	**102,847**	**141,564**	**125,003**	**277,685**	**270,522**

(continued on next page)

Table 9A.—*continued*

Item	Total		Boston		New York		Philadelphia		Cleveland		Richmond	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Liabilities												
Federal Reserve notes outstanding	1,955,848	1,861,768	60,820	57,940	639,066	615,087	57,605	54,893	94,047	88,686	133,974	125,630
Less: Notes held by Federal Reserve Bank	196,421	190,331	5,475	5,686	51,623	55,968	7,978	6,600	8,280	7,740	15,317	12,341
Federal Reserve notes outstanding, net	1,759,427	1,671,437	55,345	52,254	587,443	559,119	49,627	48,293	85,767	80,946	118,657	113,289
Securities sold under agreements to repurchase[1]	336,649	304,012	6,984	5,806	183,666	167,838	8,152	7,676	9,849	8,619	20,602	17,990
Deposits												
Depository institutions	1,548,849	1,555,954	45,313	45,654	884,120	891,753	26,040	44,391	42,395	32,030	129,285	129,765
Treasury, general account	403,853	402,138	n/a	n/a	403,853	402,138	n/a	n/a	n/a	n/a	n/a	n/a
Foreign, official accounts	5,182	5,245	2	2	5,154	5,217	2	2	3	3	9	9
Other[8]	74,074	73,072	65	18	21,584	22,013	0	1	37	20	346	478
Total deposits	**2,031,958**	**2,036,409**	**45,380**	**45,665**	**1,314,711**	**1,321,121**	**26,042**	**44,394**	**42,435**	**32,053**	**129,640**	**130,252**
Other liabilities												
Accrued remittances to the Treasury[9]	2,114	1,597	14	33	947	612	221	47	40	86	155	174
Deferred credit items	725	1,006	0	*	0	*	0	*	0	*	0	*
All other liabilities[10]	4,245	4,259	154	157	1,751	1,789	162	174	181	173	500	467
Total liabilities	**4,135,118**	**4,018,720**	**107,877**	**103,915**	**2,088,518**	**2,050,479**	**84,204**	**100,584**	**138,272**	**121,877**	**269,554**	**262,172**
Capital accounts												
Capital paid-in	31,698	32,335	1,505	1,393	10,653	10,260	1,141	1,869	2,709	2,581	6,690	6,895
Surplus (including accumulated other comprehensive loss)	6,825	6,825	324	293	2,294	2,166	246	394	583	545	1,441	1,455
Total liabilities and capital accounts	**4,173,641**	**4,057,880**	**109,706**	**105,601**	**2,101,465**	**2,062,905**	**85,591**	**102,847**	**141,564**	**125,003**	**277,685**	**270,522**

Note: Components may not sum to totals because of rounding.

1 Contract amount of agreements.

2 Par value. Includes securities loaned—fully collateralized by U.S. Treasury securities, other investment-grade securities, and collateral eligible for tri-party repurchase agreements pledged with Federal Reserve Banks.

3 The par amount shown is the remaining principal balance of the securities.

4 Reflects the premium or discount, which is the difference between the purchase price and the face value of the securities that has not been amortized.

5 Valued daily at market exchange rates.

6 Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.

7 Includes furniture and equipment, depository institution overdrafts, and net portfolio holdings of the consolidated variable interest entity.

8 Includes deposits of government-sponsored enterprises (GSEs), the Consumer Financial Protection Bureau, international organizations, and designated financial market utilities.

9 Represents the estimated weekly remittances to the U.S. Treasury.

10 Includes accrued benefit costs and cash collateral posted by counterparties under commitments to purchase and sell federal agency and GSE MBS.

* Less than $500,000.

n/a Not applicable.

Table 9A. Statement of condition of the Federal Reserve Banks, by Bank, December 31, 2019 and 2018—*continued*
Millions of dollars

Item	Atlanta		Chicago		St. Louis		Minneapolis		Kansas City		Dallas		San Francisco	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Assets														
Gold certificates	1,560	1,491	711	739	328	334	186	199	292	307	890	905	1,400	1,405
Special drawing rights certificates	654	654	424	424	150	150	90	90	153	153	282	282	574	574
Coin	169	180	276	285	31	27	48	46	113	111	192	197	282	293
Loans and securities														
Primary, secondary, and seasonal loans	1	6	19	33	1	1	9	13	1	*	*	*	1	*
Securities purchased under agreements to resell[1]	17,477	0	13,418	0	3,674	0	2,212	0	3,790	0	11,099	0	29,875	0
Treasury securities, bought outright[2]	159,236	133,413	122,249	119,035	33,473	29,589	20,153	18,547	34,534	34,988	101,125	91,902	272,189	274,961
Government-sponsored enterprise debt securities, bought outright[2]	160	145	123	129	34	32	20	20	35	38	102	100	274	298
Federal agency and government-sponsored enterprise mortgage-backed securities, bought outright[3]	96,316	98,271	73,943	87,681	20,246	21,796	12,190	13,662	20,888	25,772	61,166	67,695	164,636	202,535
Unamortized premiums on securities held outright[4]	8,518	8,409	6,539	7,503	1,790	1,865	1,078	1,169	1,847	2,205	5,409	5,792	14,560	17,331
Unamortized discounts on securities held outright[4]	-908	-807	-697	-720	-191	-179	-115	-112	-197	-211	-577	-556	-1,553	-1,662
Total loans and securities	280,800	239,437	215,594	213,661	59,027	53,104	35,547	33,299	60,898	62,792	178,324	164,933	479,982	493,463
Accrued interest receivable - System Open Market Account	1,418	1,335	1,088	1,190	298	296	179	185	307	350	899	917	2,427	2,753
Foreign currency denominated investments[5]	1,204	1,208	865	886	316	302	98	96	201	207	256	259	3,041	3,077
Central bank liquidity swaps[6]	217	243	156	178	57	61	18	19	36	42	46	52	547	619
Other assets														
Items in process of collection	81	236	*	0	0	0	*	*	*	*	0	0	*	0
Bank premises	203	206	194	194	102	107	93	95	228	232	224	221	196	192
All other assets[7]	80	84	46	47	107	105	66	62	103	84	57	55	130	136
Interdistrict settlement account	32,067	46,747	32,779	15,866	10,206	10,352	4,961	3,559	12,287	1,277	23,822	18,270	6,951	9,064
Total assets	**318,453**	**291,821**	**252,133**	**233,470**	**70,622**	**64,838**	**41,286**	**37,650**	**74,618**	**65,555**	**204,992**	**186,091**	**495,530**	**511,576**

(continued on next page)

Table 9A.—*continued*

Item	Atlanta		Chicago		St. Louis		Minneapolis		Kansas City		Dallas		San Francisco	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Liabilities														
Federal Reserve notes outstanding	273,526	262,457	126,522	121,764	59,561	56,057	31,925	31,497	54,132	49,969	164,272	150,909	260,398	246,879
Less: Notes held by Federal Reserve Bank	29,567	28,508	11,593	13,680	4,775	5,129	2,837	2,561	6,680	5,440	18,681	17,032	33,616	29,646
Federal Reserve notes outstanding, net	243,959	233,949	114,929	108,084	54,786	50,928	29,088	28,936	47,452	44,529	145,591	133,877	226,782	217,233
Securities sold under agreements to repurchase[1]	23,018	18,249	17,671	16,282	4,839	4,047	2,913	2,537	4,992	4,786	14,618	12,571	39,345	37,611
Deposits														
Depository institutions	47,428	35,885	69,052	57,527	10,200	9,099	8,744	5,767	19,336	15,020	43,935	38,673	223,003	250,400
Treasury, general account	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Foreign, official accounts	2	3	2	2	1	1	*	*	*	*	*	*	6	6
Other[8]	913	30	48,592	49,569	3	6	103	72	2,256	675	74	187	102	1
Total deposits	**48,343**	**35,918**	**117,646**	**107,098**	**10,204**	**9,106**	**8,847**	**5,839**	**21,592**	**15,695**	**44,009**	**38,860**	**223,111**	**250,407**
Other liabilities														
Accrued remittances to the Treasury[9]	256	170	90	75	41	35	3	20	13	43	123	96	212	207
Deferred credit items	713	1,006	0	0	0	0	*	0	12	*	0	0	0	0
All other liabilities[10]	254	252	301	296	120	125	134	132	151	123	194	202	344	369
Total liabilities	**316,543**	**289,544**	**250,637**	**231,835**	**69,990**	**64,241**	**40,985**	**37,464**	**74,212**	**65,176**	**204,535**	**185,606**	**489,794**	**505,827**
Capital accounts														
Capital paid-in	1,572	1,880	1,231	1,350	520	493	248	154	334	313	376	400	4,720	4,747
Surplus (including accumulated other comprehensive loss)	338	397	265	285	112	104	53	32	72	66	81	85	1,016	1,002
Total liabilities and capital accounts	**318,453**	**291,821**	**252,133**	**233,470**	**70,622**	**64,838**	**41,286**	**37,650**	**74,618**	**65,555**	**204,992**	**186,091**	**495,530**	**511,576**

Note: Components may not sum to totals because of rounding.

1 Contract amount of agreements.

2 Par value. Includes securities loaned—fully collateralized by U.S. Treasury securities, other investment-grade securities, and collateral eligible for tri-party repurchase agreements pledged with Federal Reserve Banks.

3 The par amount shown is the remaining principal balance of the securities.

4 Reflects the premium or discount, which is the difference between the purchase price and the face value of the securities that has not been amortized.

5 Valued daily at market exchange rates.

6 Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.

7 Includes furniture and equipment and depository institution overdrafts.

8 Includes deposits of government-sponsored enterprises (GSEs), the Consumer Financial Protection Bureau, international organizations, and designated financial market utilities.

9 Represents the estimated weekly remittances to the U.S. Treasury.

10 Includes accrued benefit costs and cash collateral posted by counterparties under commitments to purchase and sell federal agency and GSE MBS.

* Less than $500,000.

Table 9B. Statement of condition of the Federal Reserve Banks, December 31, 2019 and 2018
Supplemental information—collateral held against Federal Reserve notes: Federal Reserve agents' accounts
Millions of dollars

Item	2019	2018
Federal Reserve notes outstanding	1,955,848	1,861,768
Less: Notes held by Federal Reserve Banks not subject to collateralization	196,421	190,331
Collateralized Federal Reserve notes	**1,759,427**	**1,671,437**
Collateral for Federal Reserve notes		
Gold certificates	11,037	11,037
Special drawing rights certificates	5,200	5,200
U.S. Treasury securities[1]	1,743,190	1,655,200
Total collateral	**1,759,427**	**1,671,437**

[1] Face value. Includes compensation to adjust for the effect of inflation on the original face value of inflation-indexed securities.

Table 10. Income and expenses of the Federal Reserve Banks, by Bank, 2019
Thousands of dollars

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Current income													
Interest income													
Primary, secondary, and seasonal loans	1,325	60	49	5	4	12	130	191	125	607	14	40	87
Interest income on securities purchased under agreements to resell	970,663	20,138	529,566	23,506	28,399	59,401	66,367	50,951	13,951	8,399	14,393	42,147	113,444
Treasury securities	58,532,028	1,189,126	32,032,863	1,433,217	1,698,627	3,551,057	3,874,383	3,088,735	825,060	501,777	881,912	2,509,855	6,945,416
Government-sponsored enterprise debt securities, net	136,891	2,776	74,937	3,355	3,970	8,299	9,035	7,227	1,926	1,173	2,065	5,863	16,265
Federal agency and government-sponsored enterprise mortgage-backed securities, net	43,123,881	872,008	23,616,587	1,058,493	1,249,223	2,611,251	2,833,761	2,278,294	605,239	368,923	652,023	1,844,011	5,134,066
Foreign currency denominated investments, net	-33,041	-1,419	-10,469	-1,902	-2,644	-7,066	-1,919	-1,384	-498	-156	-322	-409	-4,854
Central bank liquidity swaps[1]	6,629	285	2,099	381	531	1,419	385	278	99	31	65	82	974
Total interest income	102,738,376	2,082,974	56,245,632	2,517,055	2,978,110	6,224,373	6,782,142	5,424,292	1,445,902	880,754	1,550,150	4,401,589	12,205,398
Income from priced services	443,562	0	119,974	0	0	0	234,278	89,311	0	0	0	0	0
Securities lending fees	34,058	693	18,636	834	989	2,067	2,258	1,797	481	292	513	1,461	4,038
Other income	4,439	56	3,744	22	12	42	40	195	42	92	64	56	73
Total other income	482,059	749	142,354	856	1,001	2,109	236,576	91,303	523	384	577	1,517	4,111
Total current income	**103,220,435**	**2,083,723**	**56,387,986**	**2,517,911**	**2,979,111**	**6,226,482**	**7,018,718**	**5,515,595**	**1,446,425**	**881,138**	**1,550,727**	**4,403,106**	**12,209,509**
Net expenses													
Personnel													
Salaries and other personnel expenses	2,615,082	142,397	582,265	111,220	118,245	360,493	209,522	215,535	166,510	114,599	208,689	140,072	245,535
Retirement and other benefits	904,830	45,420	214,301	35,810	40,204	117,732	71,042	74,148	53,518	41,309	70,541	54,111	86,696
Administrative													
Fees	441,629	15,237	48,841	13,111	6,561	291,298	15,524	7,783	10,003	5,450	17,294	2,733	7,796
Travel	109,826	5,253	15,465	3,672	5,825	14,993	10,604	12,223	6,253	4,058	10,194	6,647	14,639
Postage and other shipping costs	14,033	350	1,536	172	1,429	429	2,401	189	614	243	1,051	2,291	3,328
Communications	40,549	886	4,000	661	552	26,592	1,295	1,982	1,064	390	1,003	947	1,177
Materials and supplies	76,511	4,748	22,241	9,976	3,429	6,294	5,032	5,444	2,736	1,851	5,248	3,616	5,897
Building													
Taxes on real estate	55,583	8,433	15,366	1,629	1,724	2,774	2,831	4,680	1,444	4,198	4,129	3,420	4,956
Property depreciation	145,742	12,499	30,249	8,759	8,538	14,402	11,785	15,507	8,223	3,922	8,762	9,649	13,446
Utilities	34,926	3,823	8,107	1,589	1,352	3,952	2,623	2,082	1,662	1,935	2,651	2,371	2,779
Rent	33,034	599	1,880	197	1,038	22,135	293	1,196	3,612	191	713	736	443
Other building	78,054	8,573	15,506	4,090	5,289	7,816	4,888	8,781	2,386	3,176	3,586	6,104	7,858
Equipment/software													
Purchases	39,611	2,307	5,900	1,620	2,370	8,390	2,969	2,560	1,368	1,923	4,935	1,785	3,484
Rentals	3,234	302	1,050	234	295	349	283	537	39	58	10	43	33
Depreciation	80,866	1,671	6,282	1,958	1,972	49,026	3,232	3,435	1,693	1,101	3,001	2,981	4,513
Repairs and maintenance	69,599	2,269	4,905	1,969	2,353	32,550	5,868	3,663	1,549	1,295	2,551	3,824	6,805
Software	280,978	5,716	48,255	3,876	9,287	126,024	10,672	7,627	8,530	4,192	25,257	8,255	23,284

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Table 10.—*continued*

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Other expenses													
Other expenses	101,322	7,443	172,546	18,348	18,362	-547,915	152,344	53,775	162,235	2,451	-4,976	24,810	41,901
Recoveries	-364,817	-45,139	-41,519	-19,456	-8,673	-54,903	-10,279	-26,197	-12,370	-16,731	-44,932	-30,239	-54,379
Expenses capitalized[2]	-70,967	-127	-18,875	-1,967	-6,816	-3,838	-2,361	-2,080	-196	-2,185	-17,459	-2,311	-12,753
Total operating expenses before pension expense and reimbursements	**4,689,625**	**222,660**	**1,138,301**	**197,468**	**213,336**	**478,593**	**500,568**	**392,870**	**420,873**	**173,426**	**302,248**	**241,845**	**407,438**
System pension service costs[3]	510,402	0	510,402	0	0	0	0	0	0	0	0	0	0
Reimbursements	-728,453	-24,149	-158,882	-5,094	-49,770	-37,333	-25,127	-4,433	-255,695	-42,443	-101,913	-21,459	-2,156
Operating expenses	4,471,574	198,511	1,489,821	192,374	163,566	441,260	475,441	388,437	165,178	130,983	200,335	220,386	405,282
Interest expense on securities sold under agreements to repurchase	6,011,580	121,904	3,290,856	147,341	174,334	364,436	396,774	317,378	84,593	51,493	90,703	257,492	714,275
Interest on reserves	34,937,271	632,552	20,482,509	798,034	730,943	2,391,847	893,367	2,017,340	191,610	152,521	339,338	891,868	5,415,342
Interest on term deposits	1,923	32	717	217	117	115	41	352	0	0	0	0	332
Other expenses	1,477	31	806	36	43	90	101	78	21	13	22	64	173
Net expenses	45,423,825	953,030	25,264,709	1,138,002	1,069,003	3,197,748	1,765,724	2,723,585	441,402	335,010	630,398	1,369,810	6,535,404
Current net income	57,796,610	1,130,693	31,123,277	1,379,909	1,910,108	3,028,734	5,252,994	2,792,010	1,005,023	546,128	920,329	3,033,296	5,674,105
Additions to (+) and deductions from (-) current net income													
Profit on sales of Treasury securities	34	1	19	1	1	2	2	2	0	0	1	1	4
Profit on sales of federal agency and government-sponsored enterprise mortgage-backed securities	9,325	194	5,087	226	273	571	638	489	134	81	138	405	1,090
Foreign currency translation gains (losses)	-168,438	-7,088	-52,768	-9,416	-13,733	-36,823	-9,677	-7,241	-2,304	-747	-1,704	-2,086	-24,851
Other components of net benefit cost	-9,829	-3,607	27,359	-3,079	-4,067	-7,363	-2,610	-4,750	481	-4,102	-3,508	-44	-4,538
Other additions[4]	328	4	60	15	4	11	188	20	2	1	2	14	7
Other deductions[4]	-878	-4	-682	13	-4	-92	-19	-110	9	9	14	25	-37
Net additions or deductions to current net income	-169,458	-10,500	-20,925	-12,240	-17,526	-43,694	-11,478	-11,590	-1,678	-4,758	-5,057	-1,685	-28,325
Cost of unreimbursed Treasury services	0	0	0	0	0	0	0	0	0	0	0	0	0
Assessments by Board													
Board expenditures[5]	814,000	36,161	267,083	38,220	65,999	171,454	47,355	33,257	12,570	3,892	8,063	10,109	119,836
Cost of currency	836,975	33,505	171,617	34,949	52,487	71,344	125,939	71,209	27,453	16,493	24,946	70,843	136,191
Consumer Financial Protection Bureau[6]	518,600	22,830	169,963	24,731	41,962	109,275	30,053	21,201	8,053	2,454	5,133	6,436	76,508
Assessments by the Board of Governors	2,169,575	92,496	608,663	97,900	160,448	352,073	203,347	125,667	48,076	22,839	38,142	87,388	332,535
Net income before providing for remittances to the Treasury	55,457,577	1,027,697	30,493,689	1,269,769	1,732,134	2,632,967	5,038,169	2,654,753	955,269	518,531	877,130	2,944,223	5,313,245
Earnings remittances to the Treasury, as required by the Federal Reserve Act	54,892,569	974,035	30,268,621	1,392,325	1,644,146	2,497,641	5,064,391	2,635,949	940,104	501,447	846,862	2,947,298	5,179,750
Net income after providing for remittances to the Treasury	565,008	53,662	225,068	-122,556	87,988	135,326	-26,222	18,804	15,165	17,084	30,268	-3,075	133,495

(continued on next page)

Table 10.—*continued*

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Other comprehensive income (loss)	148,923	8,185	122,490	7,911	5,604	-10,829	12,142	-4,292	8,187	10,230	-11,330	17,182	-16,555
Comprehensive income	713,931	61,847	347,558	-114,645	93,592	124,497	-14,080	14,512	23,352	27,314	18,938	14,107	116,940
Distribution of comprehensive income													
Dividends on capital stock	713,931	31,831	219,534	34,093	55,216	139,286	44,332	34,416	15,546	6,321	13,046	17,528	102,781
Transferred to/from surplus and change in accumulated other comprehensive income	0	30,013	128,024	-148,739	38,371	-14,790	-58,411	-19,903	7,807	20,991	5,893	-3,417	14,161
Earnings remittances to the Treasury	54,892,569	974,035	30,268,621	1,392,325	1,644,146	2,497,641	5,064,391	2,635,949	940,104	501,447	846,862	2,947,298	5,179,750
Total distribution of net income	**55,606,500**	**1,035,879**	**30,616,179**	**1,277,679**	**1,737,733**	**2,622,137**	**5,050,312**	**2,650,462**	**963,457**	**528,759**	**865,801**	**2,961,409**	**5,296,692**

Note: Components may not sum to totals because of rounding.

[1] Represents interest income recognized on swap agreements with foreign central banks.

[2] Includes expenses for labor and materials capitalized and depreciated or amortized as charges to activities in the periods benefited.

[3] Reflects the effect of the Financial Accounting Standards Board's Codification Topic (ASC 715) Compensation-Retirement Benefits. Pension service costs for the System Retirement Plan is recorded on behalf of the System in the books of the FRBNY.

[4] Includes the portion of the consolidated variable interest entity's net income recorded by the FRBNY. The amount includes interest income, realized and unrealized gains and losses, and professional fees.

[5] For additional details, see the "Board of Governors Financial Statements."

[6] The Board of Governors assesses the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau. These assessments are allocated to each Reserve Bank based on each Reserve Bank's capital and surplus balances as of the most recent quarter.

Table 11. Income and expenses of the Federal Reserve Banks, 1914–2019

Thousands of dollars

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other comprehensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Transferred to/from surplus[4]	Transferred to/from surplus and change in accumulated other comprehensive income[5]
				Board expenditures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
All banks												
1914–15	2,173	2,018	6	302	n/a	n/a	n/a	217	n/a	n/a	n/a	n/a
1916	5,218	2,082	-193	192	n/a	n/a	n/a	1,743	n/a	n/a	n/a	n/a
1917	16,128	4,922	-1,387	238	n/a	n/a	n/a	6,804	1,134	n/a	n/a	1,134
1918	67,584	10,577	-3,909	383	n/a	n/a	n/a	5,541	n/a	n/a	n/a	48,334
1919	102,381	18,745	-4,673	595	n/a	n/a	n/a	5,012	2,704	n/a	n/a	70,652
1920	181,297	27,549	-3,744	710	n/a	n/a	n/a	5,654	60,725	n/a	n/a	82,916
1921	122,866	33,722	-6,315	741	n/a	n/a	n/a	6,120	59,974	n/a	n/a	15,993
1922	50,499	28,837	-4,442	723	n/a	n/a	n/a	6,307	10,851	n/a	n/a	-660
1923	50,709	29,062	-8,233	703	n/a	n/a	n/a	6,553	3,613	n/a	n/a	2,546
1924	38,340	27,768	-6,191	663	n/a	n/a	n/a	6,682	114	n/a	n/a	-3,078
1925	41,801	26,819	-4,823	709	n/a	n/a	n/a	6,916	59	n/a	n/a	2,474
1926	47,600	24,914	-3,638	722	1,714	n/a	n/a	7,329	818	n/a	n/a	8,464
1927	43,024	24,894	-2,457	779	1,845	n/a	n/a	7,755	250	n/a	n/a	5,044
1928	64,053	25,401	-5,026	698	806	n/a	n/a	8,458	2,585	n/a	n/a	21,079
1929	70,955	25,810	-4,862	782	3,099	n/a	n/a	9,584	4,283	n/a	n/a	22,536
1930	36,424	25,358	-93	810	2,176	n/a	n/a	10,269	17	n/a	n/a	-2,298
1931	29,701	24,843	311	719	1,479	n/a	n/a	10,030	n/a	n/a	n/a	-7,058
1932	50,019	24,457	-1,413	729	1,106	n/a	n/a	9,282	2,011	n/a	n/a	11,021
1933	49,487	25,918	-12,307	800	2,505	n/a	n/a	8,874	n/a	n/a	n/a	-917
1934	48,903	26,844	-4,430	1,372	1,026	n/a	n/a	8,782	n/a	n/a	-60	6,510
1935	42,752	28,695	-1,737	1,406	1,477	n/a	n/a	8,505	298	n/a	28	607
1936	37,901	26,016	486	1,680	2,178	n/a	n/a	7,830	227	n/a	103	353
1937	41,233	25,295	-1,631	1,748	1,757	n/a	n/a	7,941	177	n/a	67	2,616
1938	36,261	25,557	2,232	1,725	1,630	n/a	n/a	8,019	120	n/a	-419	1,862
1939	38,501	25,669	2,390	1,621	1,356	n/a	n/a	8,110	25	n/a	-426	4,534
1940	43,538	25,951	11,488	1,704	1,511	n/a	n/a	8,215	82	n/a	-54	17,617
1941	41,380	28,536	721	1,840	2,588	n/a	n/a	8,430	141	n/a	-4	571
1942	52,663	32,051	-1,568	1,746	4,826	n/a	n/a	8,669	198	n/a	50	3,554
1943	69,306	35,794	23,768	2,416	5,336	n/a	n/a	8,911	245	n/a	135	40,327
1944	104,392	39,659	3,222	2,296	7,220	n/a	n/a	9,500	327	n/a	201	48,410
1945	142,210	41,666	-830	2,341	4,710	n/a	n/a	10,183	248	n/a	262	81,970
1946	150,385	50,493	-626	2,260	4,482	n/a	n/a	10,962	67	n/a	28	81,467
1947	158,656	58,191	1,973	2,640	4,562	n/a	n/a	11,523	36	75,284	87	8,366
1948	304,161	64,280	-34,318	3,244	5,186	n/a	n/a	11,920	n/a	166,690	n/a	18,523
1949	316,537	67,931	-12,122	3,243	6,304	n/a	n/a	12,329	n/a	193,146	n/a	21,462
1950	275,839	69,822	36,294	3,434	7,316	n/a	n/a	13,083	n/a	196,629	n/a	21,849
1951	394,656	83,793	-2,128	4,095	7,581	n/a	n/a	13,865	n/a	254,874	n/a	28,321
1952	456,060	92,051	1,584	4,122	8,521	n/a	n/a	14,682	n/a	291,935	n/a	46,334
1953	513,037	98,493	-1,059	4,100	10,922	n/a	n/a	15,558	n/a	342,568	n/a	40,337
1954	438,486	99,068	-134	4,175	6,490	n/a	n/a	16,442	n/a	276,289	n/a	35,888
1955	412,488	101,159	-265	4,194	4,707	n/a	n/a	17,712	n/a	251,741	n/a	32,710
1956	595,649	110,240	-23	5,340	5,603	n/a	n/a	18,905	n/a	401,556	n/a	53,983
1957	763,348	117,932	-7,141	7,508	6,374	n/a	n/a	20,081	n/a	542,708	n/a	61,604
1958	742,068	125,831	124	5,917	5,973	n/a	n/a	21,197	n/a	524,059	n/a	59,215
1959	886,226	131,848	98,247	6,471	6,384	n/a	n/a	22,722	n/a	910,650	n/a	-93,601
1960	1,103,385	139,894	13,875	6,534	7,455	n/a	n/a	23,948	n/a	896,816	n/a	42,613
1961	941,648	148,254	3,482	6,265	6,756	n/a	n/a	25,570	n/a	687,393	n/a	70,892

(continued on next page)

Table 11.—*continued*

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other compre-hensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Trans-ferred to/from surplus[4]	Transferred to/from surplus and change in accu-mulated other compre-hensive income[5]
				Board expend-itures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
1962	1,048,508	161,451	-56	6,655	8,030	n/a	n/a	27,412	n/a	799,366	n/a	45,538
1963	1,151,120	169,638	615	7,573	10,063	n/a	n/a	28,912	n/a	879,685	n/a	55,864
1964	1,343,747	171,511	726	8,655	17,230	n/a	n/a	30,782	n/a	1,582,119	n/a	-465,823
1965	1,559,484	172,111	1,022	8,576	23,603	n/a	n/a	32,352	n/a	1,296,810	n/a	27,054
1966	1,908,500	178,212	996	9,022	20,167	n/a	n/a	33,696	n/a	1,649,455	n/a	18,944
1967	2,190,404	190,561	2,094	10,770	18,790	n/a	n/a	35,027	n/a	1,907,498	n/a	29,851
1968	2,764,446	207,678	8,520	14,198	20,474	n/a	n/a	36,959	n/a	2,463,629	n/a	30,027
1969	3,373,361	237,828	-558	15,020	22,126	n/a	n/a	39,237	n/a	3,019,161	n/a	39,432
1970	3,877,218	276,572	11,442	21,228	23,574	n/a	n/a	41,137	n/a	3,493,571	n/a	32,580
1971	3,723,370	319,608	94,266	32,634	24,943	n/a	n/a	43,488	n/a	3,356,560	n/a	40,403
1972	3,792,335	347,917	-49,616	35,234	31,455	n/a	n/a	46,184	n/a	3,231,268	n/a	50,661
1973	5,016,769	416,879	-80,653	44,412	33,826	n/a	n/a	49,140	n/a	4,340,680	n/a	51,178
1974	6,280,091	476,235	-78,487	41,117	30,190	n/a	n/a	52,580	n/a	5,549,999	n/a	51,483
1975	6,257,937	514,359	-202,370	33,577	37,130	n/a	n/a	54,610	n/a	5,382,064	n/a	33,828
1976	6,623,220	558,129	7,311	41,828	48,819	n/a	n/a	57,351	n/a	5,870,463	n/a	53,940
1977	6,891,317	568,851	-177,033	47,366	55,008	n/a	n/a	60,182	n/a	5,937,148	n/a	45,728
1978	8,455,309	592,558	-633,123	53,322	60,059	n/a	n/a	63,280	n/a	7,005,779	n/a	47,268
1979	10,310,148	625,168	-151,148	50,530	68,391	n/a	n/a	67,194	n/a	9,278,576	n/a	69,141
1980	12,802,319	718,033	-115,386	62,231	73,124	n/a	n/a	70,355	n/a	11,706,370	n/a	56,821
1981	15,508,350	814,190	-372,879	63,163	82,924	n/a	n/a	74,574	n/a	14,023,723	n/a	76,897
1982	16,517,385	926,034	-68,833	61,813	98,441	n/a	n/a	79,352	n/a	15,204,591	n/a	78,320
1983	16,068,362	1,023,678	-400,366	71,551	152,135	n/a	n/a	85,152	n/a	14,228,816	n/a	106,663
1984	18,068,821	1,102,444	-412,943	82,116	162,606	n/a	n/a	92,620	n/a	16,054,095	n/a	161,996
1985	18,131,983	1,127,744	1,301,624	77,378	173,739	n/a	n/a	103,029	n/a	17,796,464	n/a	155,253
1986	17,464,528	1,156,868	1,975,893	97,338	180,780	n/a	n/a	109,588	n/a	17,803,895	n/a	91,954
1987	17,633,012	1,146,911	1,796,594	81,870	170,675	n/a	n/a	117,499	n/a	17,738,880	n/a	173,771
1988	19,526,431	1,205,960	-516,910	84,411	164,245	n/a	n/a	125,616	n/a	17,364,319	n/a	64,971
1989	22,249,276	1,332,161	1,254,613	89,580	175,044	n/a	n/a	129,885	n/a	21,646,417	n/a	130,802
1990	23,476,604	1,349,726	2,099,328	103,752	193,007	n/a	n/a	140,758	n/a	23,608,398	n/a	180,292
1991	22,553,002	1,429,322	405,729	109,631	261,316	n/a	n/a	152,553	n/a	20,777,552	n/a	228,356
1992	20,235,028	1,474,531	-987,788	128,955	295,401	n/a	n/a	171,763	n/a	16,774,477	n/a	402,114
1993	18,914,251	1,657,800	-230,268	140,466	355,947	n/a	n/a	195,422	n/a	15,986,765	n/a	347,583
1994	20,910,742	1,795,328	2,363,862	146,866	368,187	n/a	n/a	212,090	n/a	20,470,011	n/a	282,122
1995	25,395,148	1,818,416	857,788	161,348	370,203	n/a	n/a	230,527	n/a	23,389,367	n/a	283,075
1996	25,164,303	1,947,861	-1,676,716	162,642	402,517	n/a	n/a	255,884	5,517,716	14,565,624	n/a	635,343
1997	26,917,213	1,976,453	-2,611,570	174,407	364,454	n/a	n/a	299,652	20,658,972	0	n/a	831,705
1998	28,149,477	1,833,436	1,906,037	178,009	408,544	n/a	n/a	343,014	17,785,942	8,774,994	n/a	731,575
1999	29,346,836	1,852,162	-533,557	213,790	484,959	n/a	n/a	373,579	n/a	25,409,736	n/a	479,053
2000	33,963,992	1,971,688	-1,500,027	188,067	435,838	n/a	n/a	409,614	n/a	25,343,892	n/a	4,114,865
2001	31,870,721	2,084,708	-1,117,435	295,056	338,537	n/a	n/a	428,183	n/a	27,089,222	n/a	517,580
2002	26,760,113	2,227,078	2,149,328	205,111	429,568	n/a	n/a	483,596	n/a	24,495,490	n/a	1,068,598
2003	23,792,725	2,462,658	2,481,127	297,020	508,144	n/a	n/a	517,705	n/a	22,021,528	n/a	466,796
2004	23,539,942	2,238,705	917,870	272,331	503,784	n/a	n/a	582,402	n/a	18,078,003	n/a	2,782,587
2005	30,729,357	2,889,544	-3,576,903	265,742	477,087	n/a	n/a	780,863	n/a	21,467,545	n/a	1,271,672
2006	38,410,427	3,263,844	-158,846	301,014	491,962	n/a	n/a	871,255	n/a	29,051,678	n/a	4,271,828
2007	42,576,025	3,510,206	198,417	296,125	576,306	n/a	324,481	992,353	n/a	34,598,401	n/a	3,125,533
2008	41,045,582	4,870,374	3,340,628	352,291	500,372	n/a	-3,158,808	1,189,626	n/a	31,688,688	n/a	2,626,053
2009	54,463,121	5,978,795	4,820,204	386,400	502,044	n/a	1,006,813	1,428,202	n/a	47,430,237	n/a	4,564,460
2010	79,300,937	6,270,420	9,745,562	422,200	622,846	42,286	45,881	1,582,785	n/a	79,268,124	n/a	883,724

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Table 11.—*continued*

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other compre-hensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Trans-ferred to/from surplus[4]	Transferred to/from surplus and change in accu-mulated other compre-hensive income[5]
				Board expend-itures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
2011	85,241,366	7,316,643	2,015,991	472,300	648,798	281,712	-1,161,848	1,577,284	n/a	75,423,597	n/a	375,175
2012	81,586,102	7,798,353	18,380,835	490,001	722,301	387,279	-52,611	1,637,934	n/a	88,417,936	n/a	460,528
2013	91,149,953	9,134,656	-1,029,750	580,000	701,522	563,200	2,288,811	1,649,277	n/a	79,633,271	n/a	147,088
2014	116,561,512	10,714,872	-2,718,283	590,000	710,807	563,000	-1,611,569	1,685,826	n/a	96,901,695	n/a	1,064,952
2015	114,233,676	11,139,956	-1,305,513	705,000	689,288	489,700	366,145	1,742,745	25,955,921	91,143,493	n/a	-18,571,798
2016	111,743,998	17,262,620	-114,255	709,000	700,728	596,200	-183,232	711,423	91,466,545	n/a	n/a	0
2017	114,193,573	33,397,138	1,932,579	740,000	723,534	573,000	650,808	783,599	80,559,689	n/a	n/a	0
2018	112,861,657	47,353,636	-382,959	838,000	848,807	337,100	41,831	998,703	65,319,280	n/a	n/a	-3,175,000
2019	103,220,435	45,423,825	-169,458	814,000	836,975	518,600	148,923	713,931	54,892,569	n/a	n/a	0
Total 1914–2019	**1,859,067,579**	**263,518,750**	**38,755,794**	**12,100,117**	**17,616,339**	**4,352,077**	**-1,294,375**	**25,432,465**	**362,307,962**	**1,198,433,402**	**-4**	**12,767,389**[6]
Aggregate for each Bank, 1914–2019												
Boston	65,973,589	8,219,667	340,881	521,521	929,677	191,745	10,102	1,113,181	9,988,048	44,842,511	135	518,083
New York	856,418,690	125,175,009[7]	26,384,879	3,462,097	4,572,887	1,396,927	-1,538,626	7,208,088	189,648,198	545,077,826	-433	4,724,342
Philadelphia	57,968,288	8,588,603	798,154	735,853	804,373	282,117	24,733	1,755,905	9,904,334	36,308,189	291	411,507
Cleveland	75,575,047	8,181,718	709,814	913,714	1,015,321	341,535	19,311	1,901,116	13,446,504	49,612,575	-10	891,692
Richmond	134,046,547	19,104,403	2,312,256	2,328,855	1,511,424	929,152	44,164	5,136,994	23,575,455	81,295,580	-72	2,521,180
Atlanta	122,416,296	17,428,190	1,739,784	796,118	1,951,989	248,373	44,585	1,650,852	25,849,672	75,616,315	5	659,155
Chicago	148,534,529	18,294,511	1,902,122	781,847	1,797,643	143,960	31,218	1,495,804	17,463,545	109,806,844	12	683,716
St. Louis	43,723,479	5,218,366	433,135	194,439	607,382	46,021	34,361	391,245	6,348,165	31,149,772	-27	235,623
Minneapolis	24,189,485	5,018,028	425,506	209,741	344,712	24,127	16,417	457,657	2,929,517	15,436,029	65	211,534
Kansas City	48,675,144	7,467,982	587,939	220,280	619,636	43,683	-14,468	435,806	5,790,171	34,476,668	-9	194,396
Dallas	75,866,715	9,599,380	1,099,942	323,209	1,105,103	62,361	31,456	627,570	15,141,636	49,889,286	55	249,026
San Francisco	205,679,759	31,222,895	2,021,380	1,612,448	2,356,190	642,081	2,374	3,258,246	42,222,720	124,921,807	-17	1,467,138
Total	**1,859,067,579**	**263,518,750**	**38,755,794**	**12,100,117**	**17,616,339**	**4,352,077**	**-1,294,375**	**25,432,465**	**362,307,962**	**1,198,433,402**	**-4**	**12,767,389**

Note: Components may not sum to totals because of rounding.

1 For 1987 and subsequent years, includes the cost of services provided to the Treasury by Federal Reserve Banks for which reimbursement was not received.

2 Starting in 2010, as required under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the Board of Governors began assessing the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau and, for a two-year period beginning July 21, 2010, the Office of Financial Research. These assessments are allocated to the Reserve Banks based on each Reserve Bank's capital and surplus balances as of the most recent quarter.

3 Represents transfers made as a franchise tax from 1917 through 1932; transfers made under section 13b of the Federal Reserve Act from 1935 through 1947; transfers made under section 7 of the Federal Reserve Act for 1996, 1997, and 2015–19.

4 Transfers made under section 13b of the Federal Reserve Act.

5 Transfers made under section 7 of the Federal Reserve Act. Beginning in 2006, accumulated other comprehensive income is reported as a component of surplus.

6 The $12,767,389 thousand transferred to surplus was reduced by direct charges of $500 thousand for charge-off on Bank premises (1927); $139,300 thousand for contributions to capital of the Federal Deposit Insurance Corporation (1934); $4 thousand net upon elimination of section 13b surplus (1958); $106,000 thousand (1996), $107,000 thousand (1997), $3,752,000 thousand (2000) transferred to the Treasury as statutorily required; and $1,848,716 thousand related to the implementation of SFAS No. 158 (2006) and was increased by a transfer of $11,131 thousand from reserves for contingencies (1955), leaving a balance of $6,825,000 thousand on December 31, 2019.

7 This amount includes $8,515,396 thousands for expenses of the System Retirement Plan. See note 3, "Table 10. Income and expenses of the Federal Reserve Banks, by Bank, 2019."

n/a Not applicable.

Table 12. Operations in principal departments of the Federal Reserve Banks, 2016–19

Operation	2019	2018	2017	2016
Millions of pieces				
Currency processed	32,736	34,312	32,942	31,504
Currency destroyed	5,101	4,819	4,571	4,837
Coin received	56,101	58,249	58,221	58,223
Checks handled				
U.S. government checks[1]	52	53	56	58
Postal money orders	80	83	85	88
Commercial	4,389	4,740	5,153	5,241
Securities transfers[2]	19	17	16	17
Funds transfers[3]	168	158	153	148
Automated clearinghouse transactions				
Commercial	15,584	14,692	13,749	12,960
Government	1,704	1,668	1,629	1,594
Millions of dollars				
Currency processed	657,833	659,126	644,395	596,053
Currency destroyed	83,366	98,590	112,202	118,199
Coin received	5,408	5,387	5,585	5,563
Checks handled				
U.S. government checks[1]	149,337	148,149	145,599	152,392
Postal money orders	21,412	21,033	20,682	20,672
Commercial	8,317,894	8,485,159	8,438,008	8,088,569
Securities transfers[2]	345,813,248	296,335,209	299,334,719	286,671,689
Funds transfers[3]	695,835,129	716,211,759	740,096,838	766,961,537
Automated clearinghouse transactions				
Commercial	28,081,631	25,860,072	23,398,576	21,772,168
Government	5,787,018	5,515,114	5,370,695	5,192,786

1 Includes government checks handled electronically (electronic checks).

2 Data on securities transfers do not include reversals.

3 Data on funds transfers do not include non-value transfers.

Table 13. Number and annual salaries of officers and employees of the Federal Reserve Banks, December 31, 2019

Federal Reserve Bank (including branches)	President	Other officers		Employees				Total	
	Annual salary (dollars)[1]	Number	Annual salaries (dollars)[1]	Number			Annual salaries (dollars)[1]	Number	Annual salaries (dollars)[1]
				Full time	Part time	Temporary/ hourly[2]			
Boston	437,400	89	23,595,216	867	19	11	104,034,710	987	128,067,326
New York	497,800	600	158,399,214	2,485	26	0	330,478,226	3,112	489,375,240
Philadelphia	422,400	71	15,969,000	776	14	19	82,292,979	881	98,684,379
Cleveland	416,000	69	15,867,877	884	17	17	87,369,505	988	103,653,382
Richmond	394,000	88	19,299,000	1,349	14	14	133,954,743	1,466	153,647,743
Atlanta	405,500	102	23,468,758	1,588	22	31	160,286,518	1,744	184,160,776
Chicago	437,400	136	33,344,751	1,392	34	0	159,925,960	1,563	193,708,111
St. Louis	392,400	105	24,615,800	1,268	20	10	124,267,334	1,404	149,275,534
Minneapolis	422,500	64	15,029,572	949	46	8	89,767,022	1,068	105,219,094
Kansas City	392,600	109	22,515,200	1,898	14	7	161,246,895	2,029	184,154,695
Dallas	427,900	78	17,980,112	1,164	13	11	104,359,445	1,267	122,767,457
San Francisco	468,800	109	29,338,465	1,580	14	14	184,373,241	1,718	214,180,506
Federal Reserve Information Technology	n/a	72	17,071,300	1,216	0	5	151,910,024	1,293	168,981,324
Office of Employee Benefits	n/a	15	4,261,400	45	1	0	5,961,970	61	10,223,370
Total	**5,114,700**	**1,707**	**420,755,665**	**17,461**	**254**	**147**	**1,880,228,572**	**19,581**	**2,306,098,937**

Note: Components may not sum to totals because of rounding.

[1] Annualized salary liability (excluding outside agency costs) based on salaries in effect on December 31, 2019.

[2] Temporary/hourly employees are paid by the Bank, generally work less than 780 hours, and are employed on a temporary basis (such as interns). The number of hourly employees at the Federal Reserve Bank of Chicago and Federal Reserve Bank of Cleveland was incorrectly reported for 2018.

n/a Not applicable.

Table 14. Acquisition costs and net book value of the premises of the Federal Reserve Banks and Branches, December 31, 2019
Thousands of dollars

Federal Reserve Bank or Branch	Acquisition costs				Net book value	Other real estate
	Land	Buildings (including vaults)[1]	Building machinery and equipment	Total[2]		
Boston	27,293	208,090	48,299	283,682	105,250	n/a
New York	68,972	621,494	141,598	832,065	462,571	n/a
Philadelphia	8,146	150,074	30,116	188,336	92,433	n/a
Cleveland	4,219	157,011	36,665	197,895	103,795	n/a
Cincinnati	5,128	31,554	16,802	53,484	15,566	n/a
Richmond	32,483	184,866	67,400	284,750	133,725	n/a
Baltimore	7,917	42,332	15,204	65,453	27,050	n/a
Charlotte	7,884	46,588	15,546	70,019	32,180	n/a
Atlanta	23,559	164,437	24,980	212,976	129,913	n/a
Birmingham	5,347	13,246	2,387	20,979	10,750	n/a
Jacksonville	2,185	28,227	14,215	44,628	24,160	n/a
New Orleans	3,789	16,592	7,491	27,872	11,338	n/a
Miami	4,554	35,705	14,512	54,771	26,476	n/a
Chicago	7,460	265,024	42,569	315,053	122,445	n/a
Detroit	13,223	75,659	14,929	103,811	71,146	n/a
St. Louis	9,942	147,545	18,390	175,878	93,924	n/a
Memphis	2,472	18,542	6,734	27,748	7,966	n/a
Minneapolis	22,873	113,104	21,060	157,036	85,138	n/a
Helena	3,316	10,359	2,015	15,690	7,786	n/a
Kansas City	38,691	214,142	26,344	279,176	208,550	n/a
Denver	3,700	11,127	6,119	20,945	6,833	n/a
Omaha	4,537	12,706	3,000	20,244	12,127	n/a
Dallas	38,100	148,273	38,623	224,996	118,079	n/a
El Paso	262	6,206	3,163	9,632	3,944	n/a
Houston	32,323	104,574	9,604	146,501	101,816	n/a
San Francisco	20,988	146,183	35,920	203,091	85,222	n/a
Los Angeles	6,306	89,748	27,877	123,930	57,009	n/a
Salt Lake City	1,294	6,415	2,910	10,619	3,952	n/a
Seattle	13,101	50,282	5,829	69,212	50,011	n/a
Total	**420,064**	**3,120,104**	**700,304**	**4,240,472**	**2,211,153**	**n/a**

[1] Includes expenditures for construction at some offices, pending allocation to appropriate accounts.
[2] Excludes charge-offs of $17,699 thousand before 1952.
n/a Not applicable.

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