Minutes of the Federal Open Market Committee
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
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

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

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.
[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.

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 fund-

ing 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 Dal-

las 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

[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.

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. 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 pol-

icy 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.

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James A. Clouse
Secretary

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. 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 long-run 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.

[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, June 2019

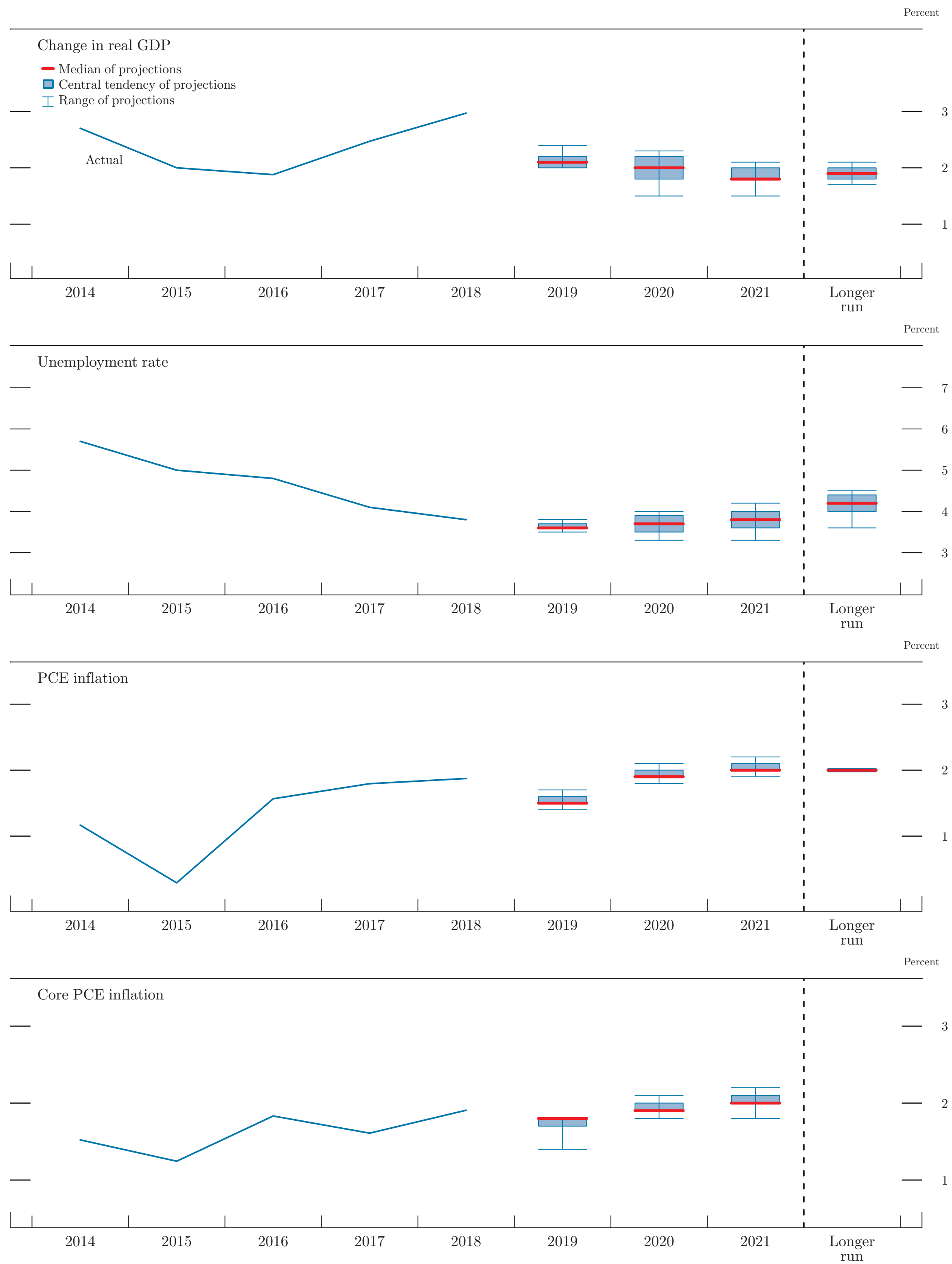
Percent

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.

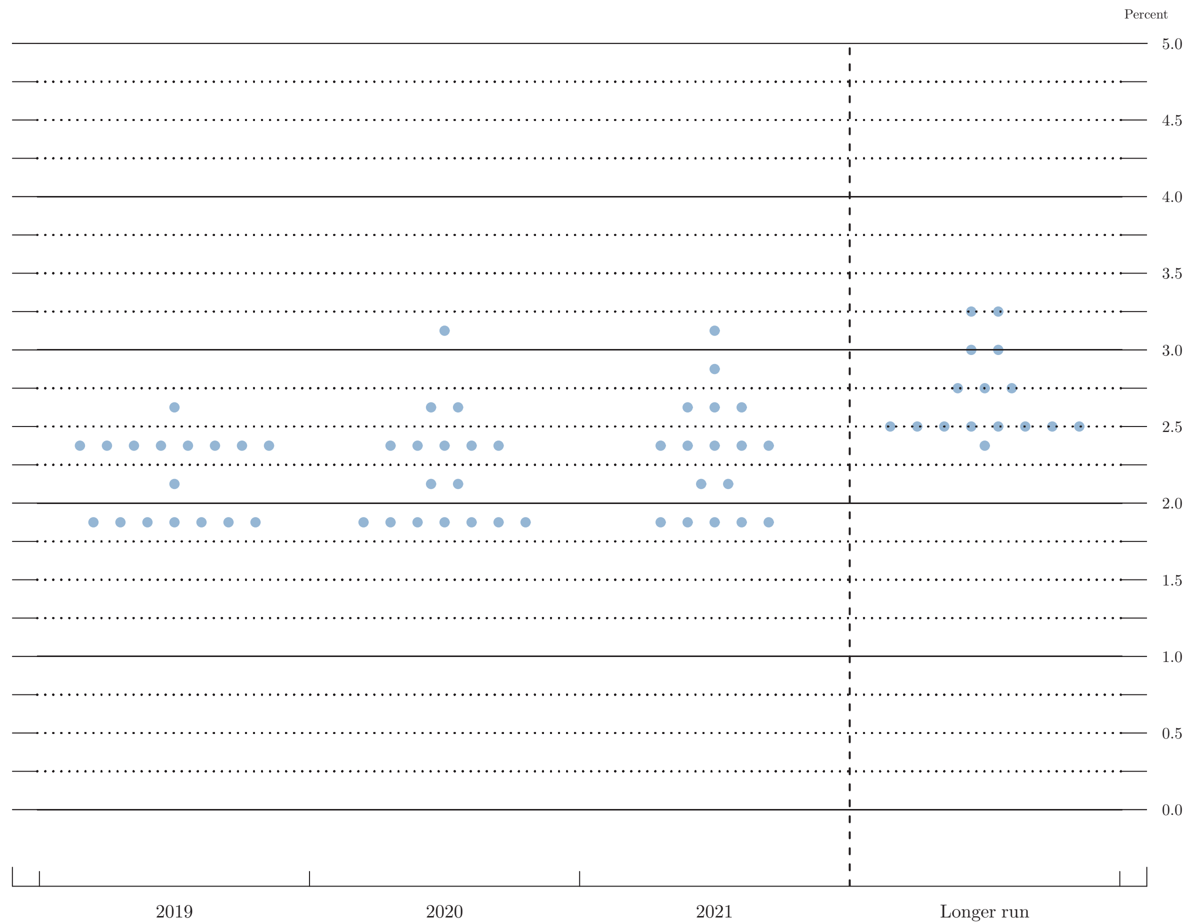
1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable 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 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

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 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.

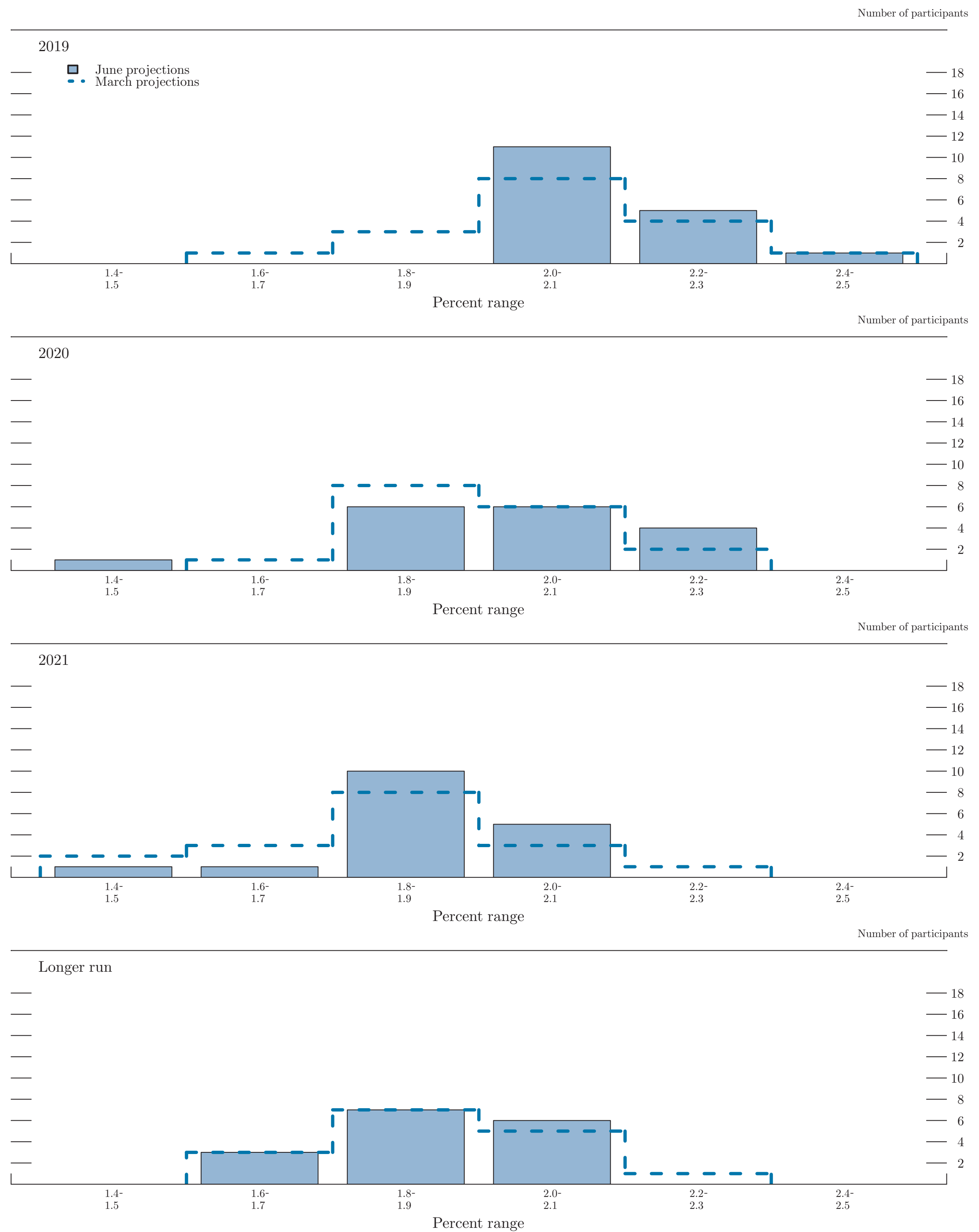
Appropriate Monetary Policy

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

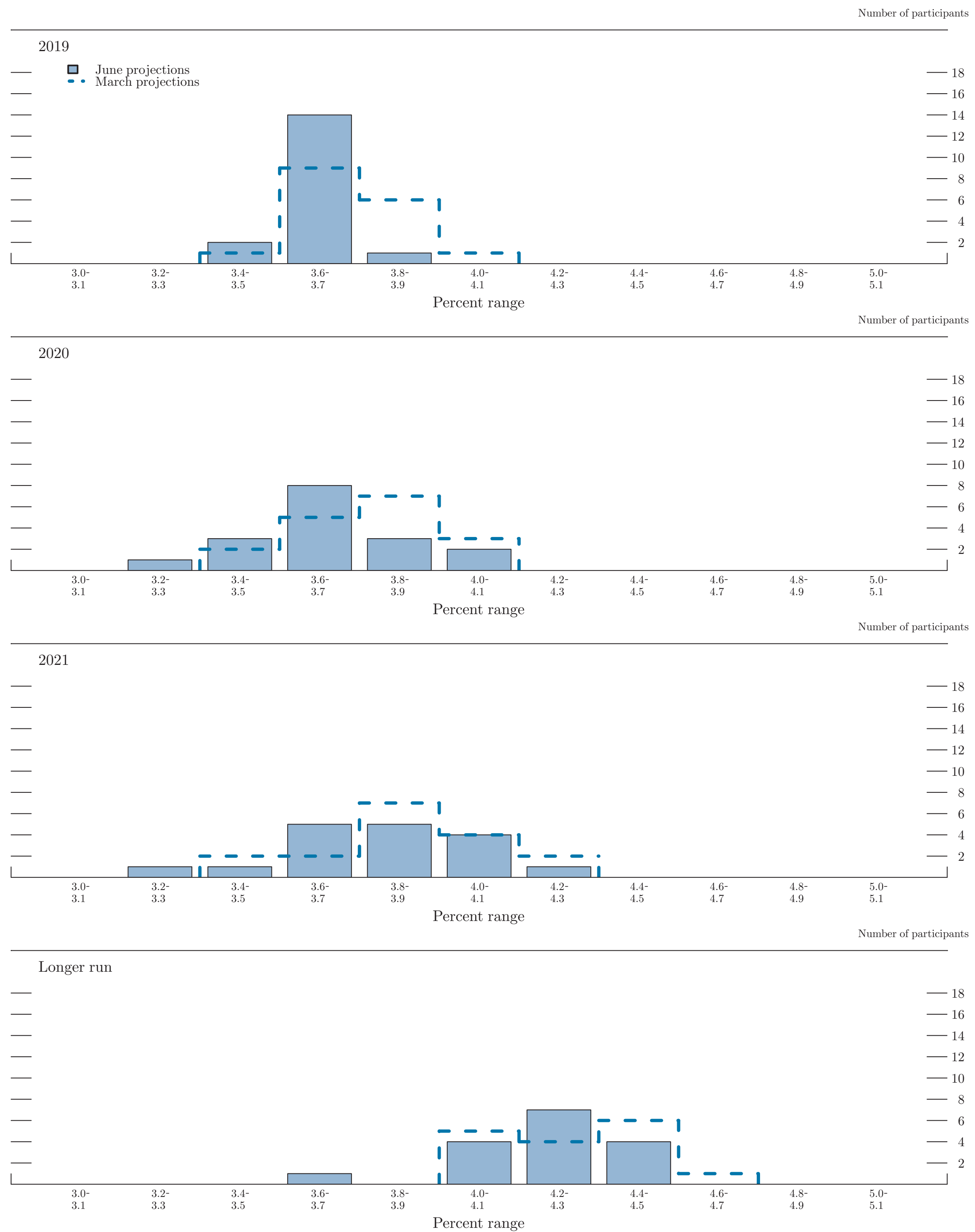
In assessing the appropriate path of the federal funds rate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides measures of forecast uncertainty—based on the forecast errors of various private and government forecasts over the past 20 years—for real GDP growth, the unemployment

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2019–21 and over the longer run



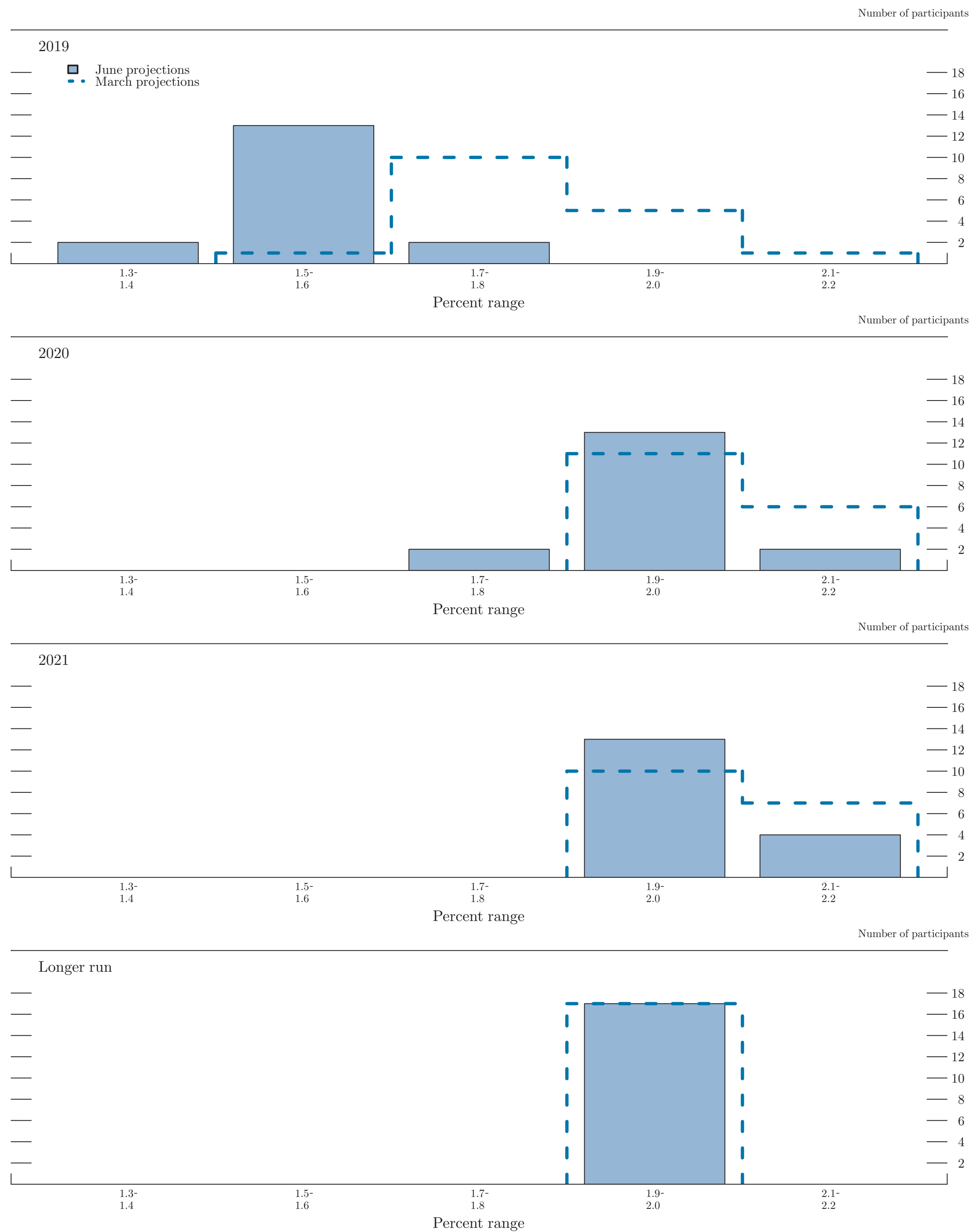
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2019–21 and over the longer run



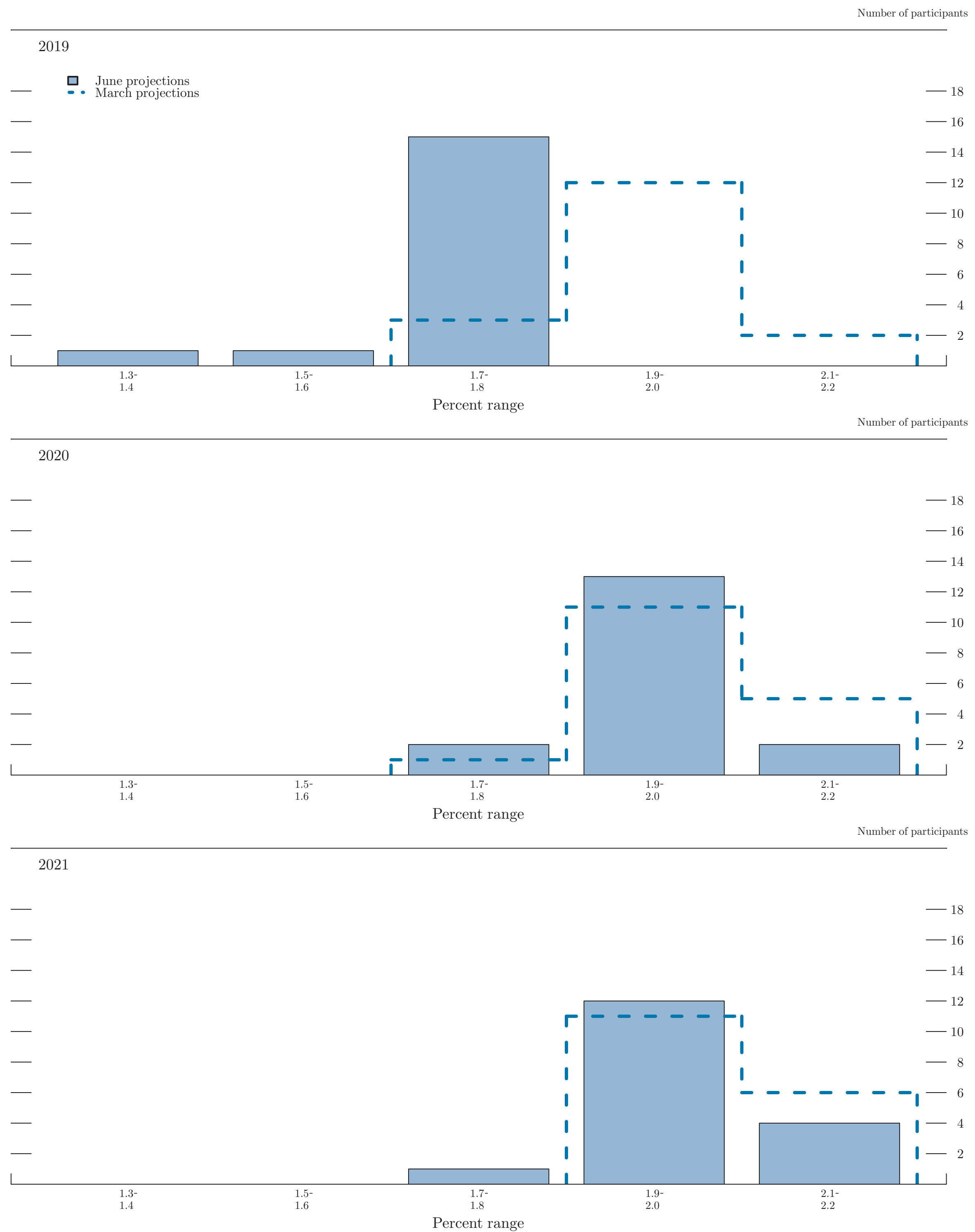
NOTE: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2019–21 and over the longer run



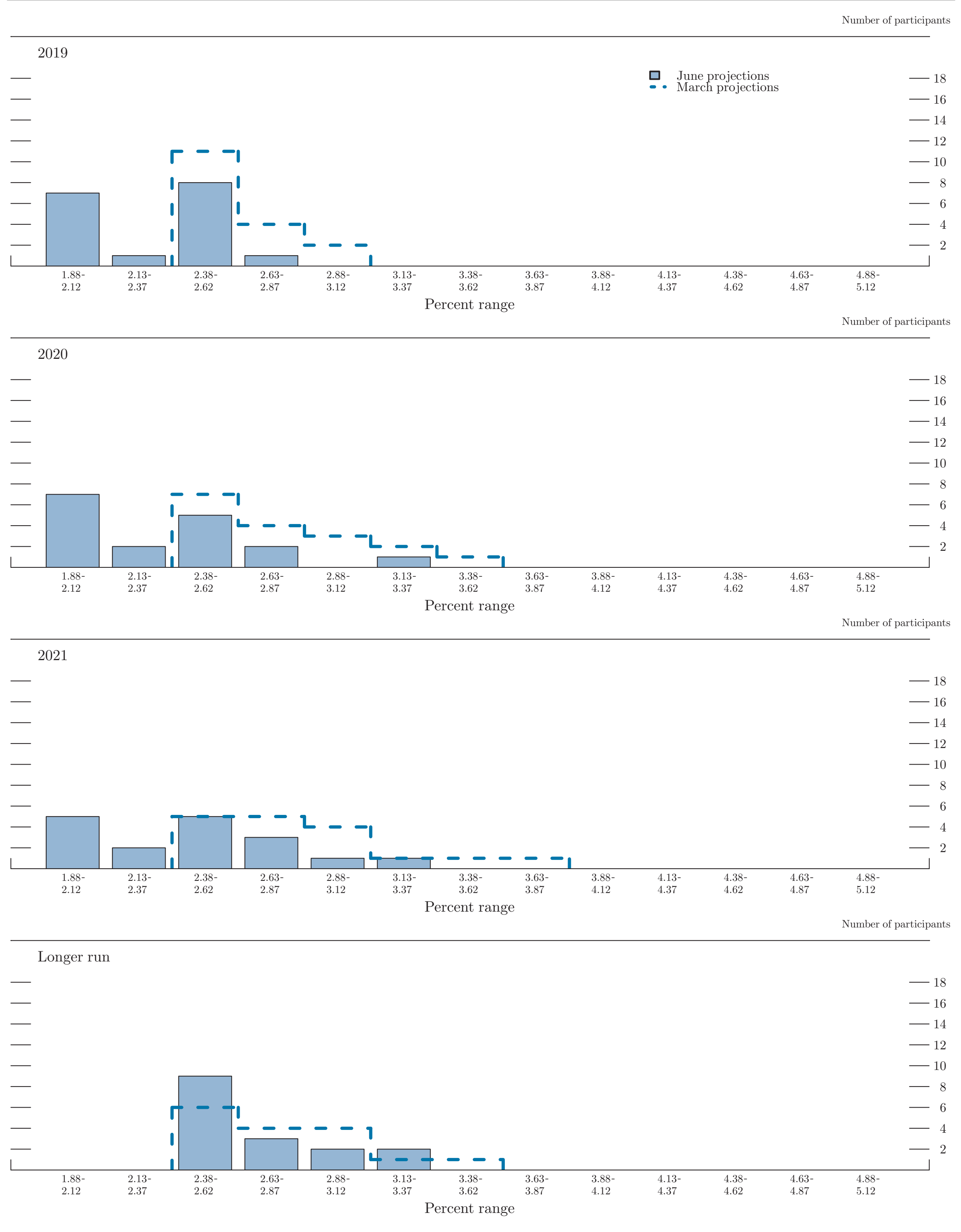
Note: Definitions of variables and other explanations are in the notes to table 1.

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.

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]

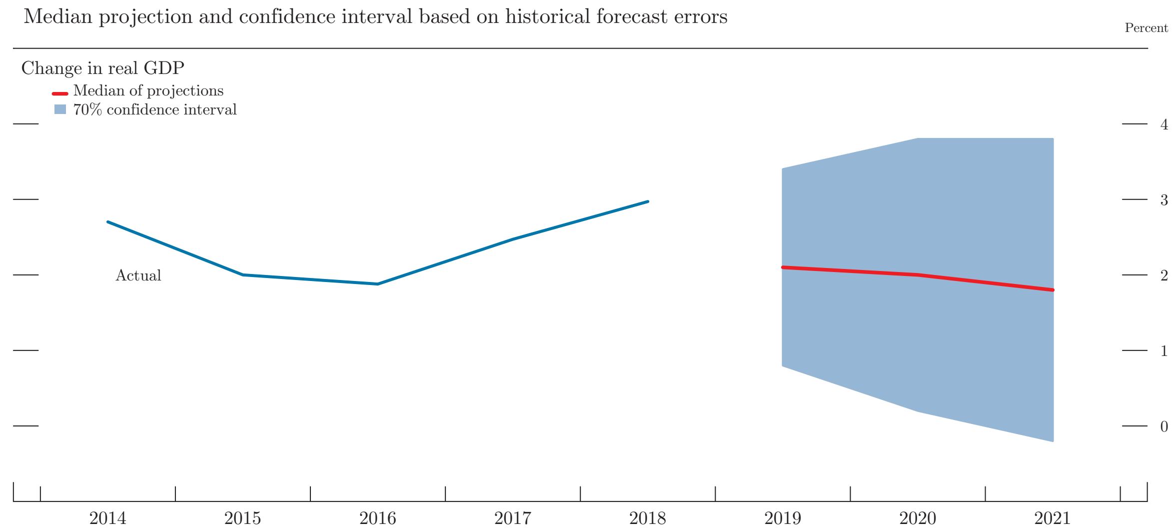
Because the fan charts are constructed to be symmetric around the median projections, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Participants' assessments of the balance of risks to their current economic projections are shown 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.

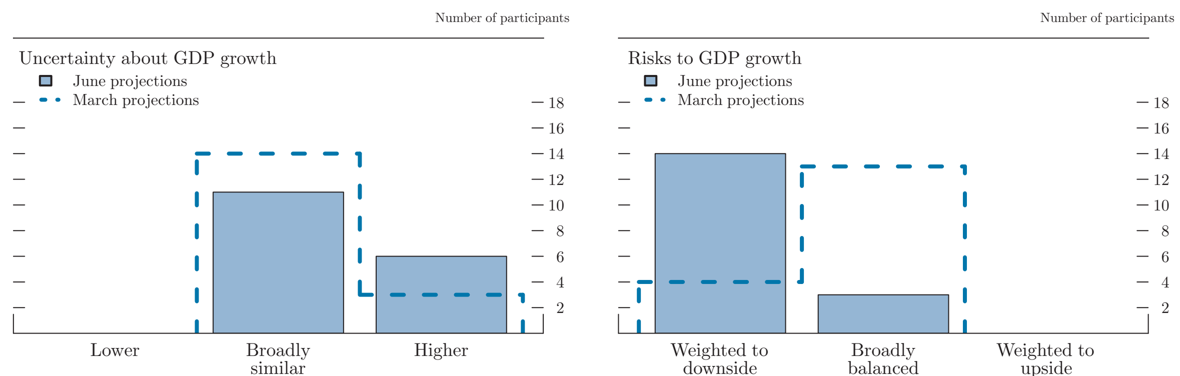
In discussing the uncertainty and risks surrounding their economic projections, trade developments, concerns about global economic growth, and weaker business fixed investment were mentioned by participants as sources of uncertainty or downside risk to the U.S. economic growth outlook. For the inflation 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 prospective developments over time in key economic variables such as real GDP growth, the unemployment rate, and inflation,

[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.

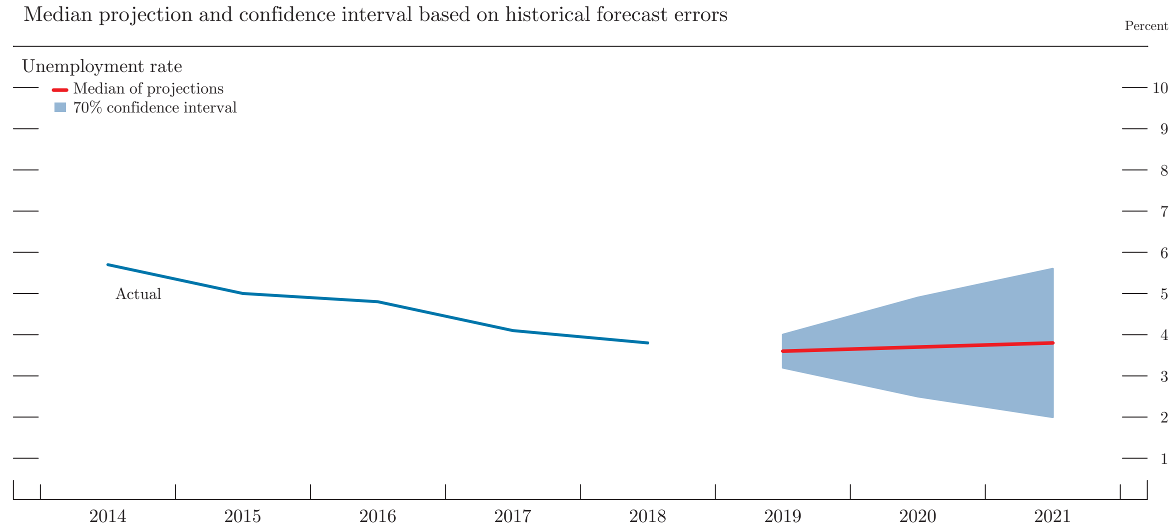
Figure 4.A. Uncertainty and risks in projections of GDP growth

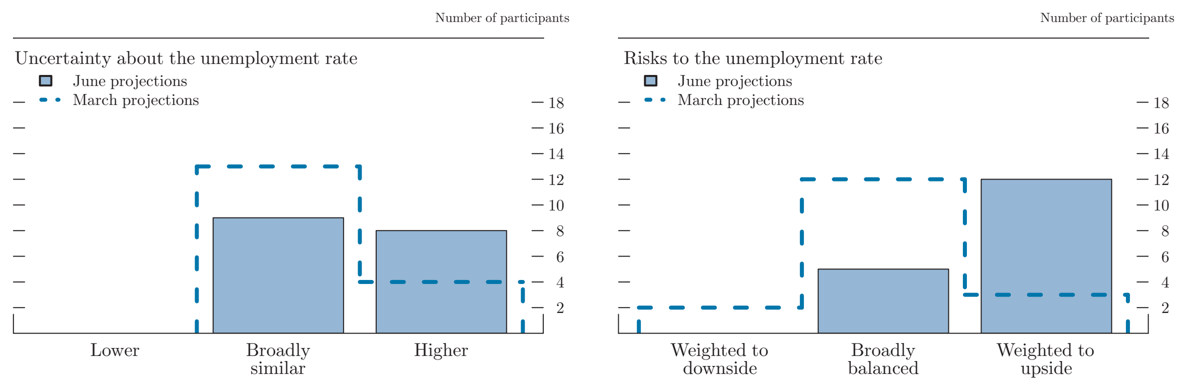




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected 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."

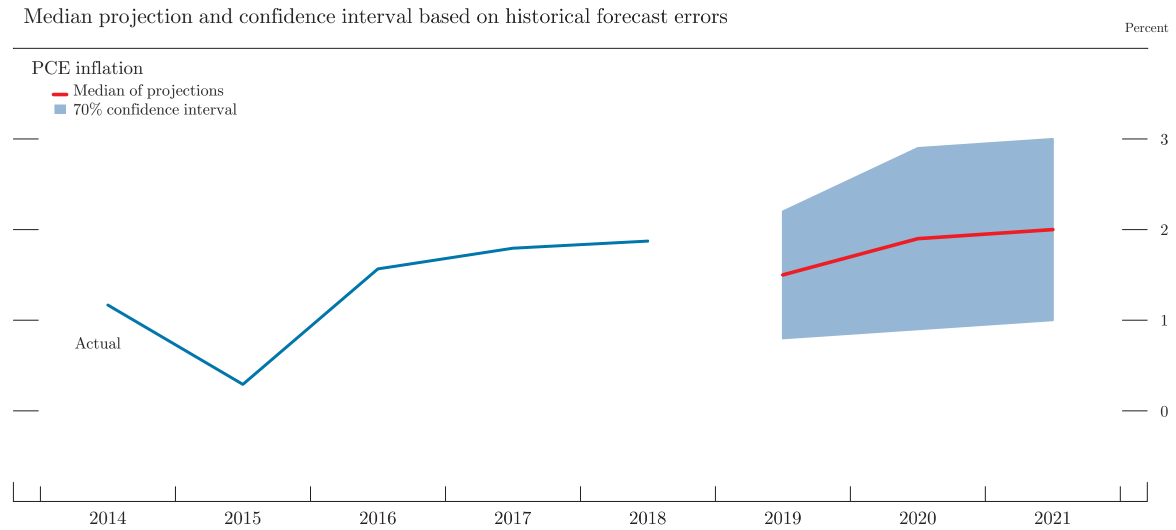
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

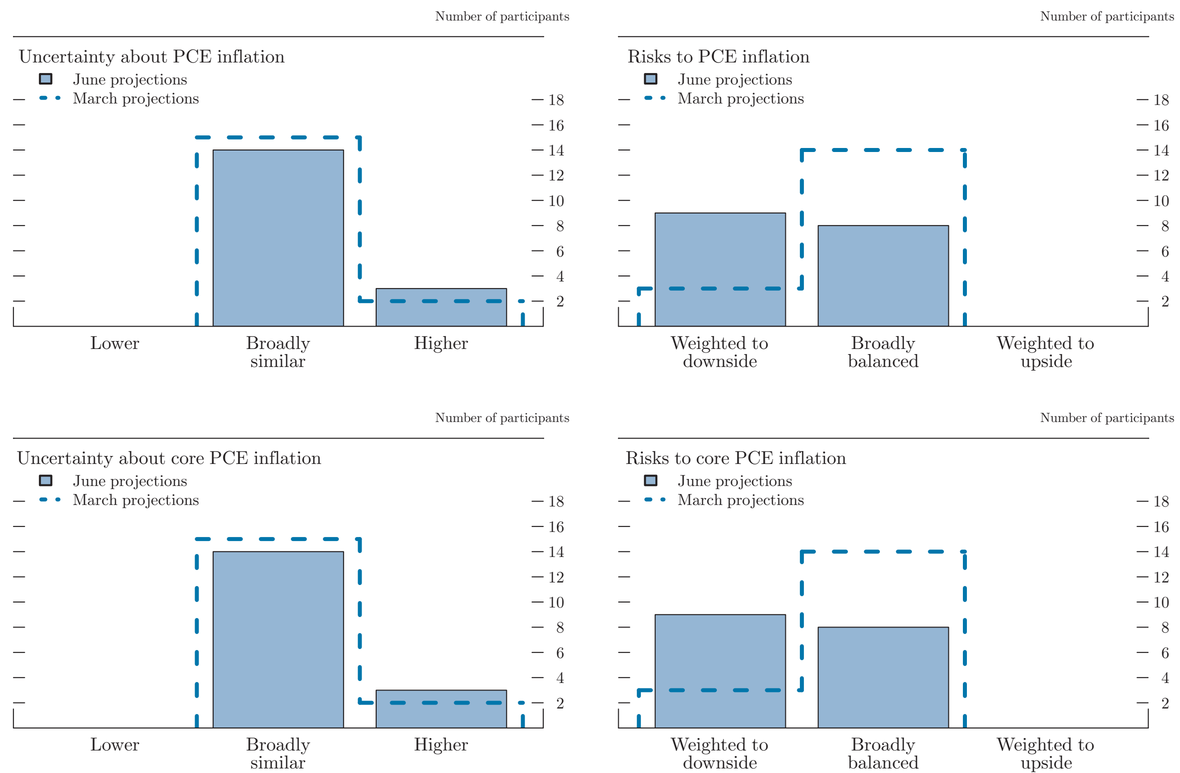




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root 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

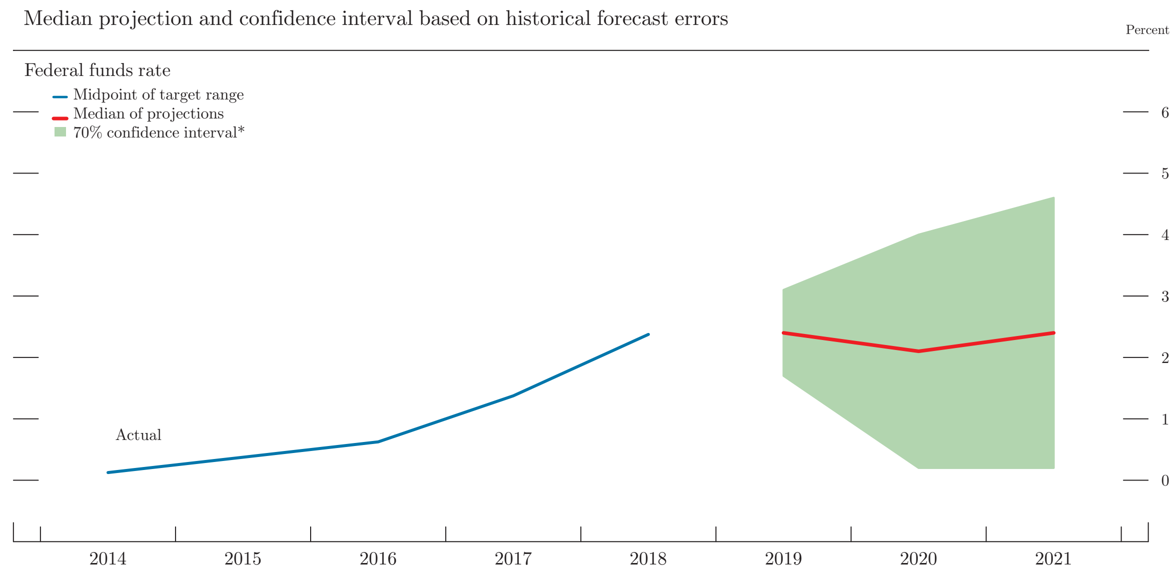




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval 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."

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.