Minutes of the Federal Open Market Committee
June 16–17, 2015

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, June 16, 2015, at 1:00 p.m. and continued on Wednesday, June 17, 2015, at 9:00 a.m.

PRESENT:
Janet L. Yellen, Chair
William C. Dudley, Vice Chairman
Lael Brainard
Charles L. Evans
Stanley Fischer
Jeffrey M. Lacker
Dennis P. Lockhart
Jerome H. Powell
Daniel K. Tarullo
John C. Williams

James Bullard, Esther L. George, Loretta J. Mester, and Eric Rosengren, Alternate Members of the Federal Open Market Committee

Narayana Kocherlakota, President of the Federal Reserve Bank of Minneapolis

Helen E. Holcomb and Blake Prichard, First Vice Presidents, Federal Reserve Banks of Dallas and Philadelphia, respectively

Brian F. Madigan, Secretary
Matthew M. Luecke, Deputy Secretary
David W. Skidmore, Assistant Secretary
Michelle A. Smith, Assistant Secretary
Scott G. Alvarez, General Counsel
Thomas C. Baxter, Deputy General Counsel
Steven B. Kamin, Economist
Thomas Laubach, Economist
David W. Wilcox, Economist

David Altig, Eric M. Engen,[1] Michael P. Leahy, Jonathan P. McCarthy, William R. Nelson, Glenn D. Rudebusch, and William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

Lorie K. Logan, Deputy Manager, System Open Market Account

Robert deV. Frierson,[2] Secretary of the Board, Office of the Secretary, Board of Governors

Michael S. Gibson, Director, Division of Banking Supervision and Regulation, Board of Governors

James A. Clouse and Stephen A. Meyer, Deputy Directors, Division of Monetary Affairs, Board of Governors; Daniel M. Covitz, Deputy Director, Division of Research and Statistics, Board of Governors

Andreas Lehnert, Deputy Director, Office of Financial Stability Policy and Research, Board of Governors

William B. English, Senior Special Adviser to the Board, Office of Board Members, Board of Governors

David Bowman, Andrew Figura, David Reifschneider, and Stacey Tevlin, Special Advisers to the Board, Office of Board Members, Board of Governors

Trevor A. Reeve, Special Adviser to the Chair, Office of Board Members, Board of Governors

Linda Robertson, Assistant to the Board, Office of Board Members, Board of Governors

Christopher J. Erceg and Beth Anne Wilson, Senior Associate Directors, Division of International Finance, Board of Governors; David E. Lebow and Michael G. Palumbo, Senior Associate Directors, Division of Research and Statistics, Board of Governors

Ellen E. Meade and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors

Gretchen C. Weinbach, Associate Director, Division of Monetary Affairs, Board of Governors

[1] Attended Wednesday's session only.
[2] Attended the joint session of the Federal Open Market Committee and the Board of Governors.

Jane E. Ihrig, Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Glenn Follette and Paul A. Smith, Assistant Directors, Division of Research and Statistics, Board of Governors

Robert J. Tetlow, Adviser, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie,[2] Assistant to the Secretary, Office of the Secretary, Board of Governors

Katie Ross,[2] Manager, Office of the Secretary, Board of Governors

David H. Small, Project Manager, Division of Monetary Affairs, Board of Governors

Stephen Lin, Senior Economist, Division of International Finance, Board of Governors; Deborah J. Lindner, Senior Economist, Division of Research and Statistics, Board of Governors

Benjamin K. Johannsen, Marcel A. Priebsch, and Francisco Vazquez-Grande,[3] Economists, Division of Monetary Affairs, Board of Governors

Randall A. Williams, Information Management Analyst, Division of Monetary Affairs, Board of Governors

Mark A. Gould, First Vice President, Federal Reserve Bank of San Francisco

Michael Strine, Executive Vice President, Federal Reserve Bank of New York

Kartik B. Athreya, Evan F. Koenig, Susan McLaughlin,[3] Samuel Schulhofer-Wohl, Ellis W. Tallman, Geoffrey Tootell, and Christopher J. Waller, Senior Vice Presidents, Federal Reserve Banks of Richmond, Dallas, New York, Minneapolis, Cleveland, Boston, and St. Louis, respectively

Roc Armenter, Deborah L. Leonard, Anna Paulson, Douglas Tillett, and Jonathan L. Willis, Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Chicago, Chicago, and Kansas City, respectively

[3] Attended Tuesday's session only.

Developments in Financial Markets and the Federal Reserve's Balance Sheet

In a joint session of the Federal Open Market Committee (FOMC) and the Board of Governors of the Federal Reserve System, the manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets. The manager also discussed System open market operations conducted by the Open Market Desk during the period since the Committee met on April 28–29. The Desk's overnight reverse repurchase agreement (RRP) operations continued to provide a soft floor for money market interest rates. The manager updated the Committee on plans for term RRP operations at the end of the second quarter and noted that testing of the Federal Reserve's Term Deposit Facility continued. The manager also reviewed the reinvestment policy for maturing Treasury securities. Specifically, at Treasury auctions, the Desk rolls over the maturing securities held in the SOMA into newly issued securities in proportion to the issue amounts of the new securities, and the Federal Reserve receives the interest rate determined competitively in the public auction of the newly issued securities.

The manager updated the Committee on tentative plans to improve the calculation of the effective federal funds rate published by the Federal Reserve Bank of New York. The effective federal funds rate, currently defined as the volume-weighted mean of interest rates on federal funds transactions, would be redefined as the volume-weighted median. Staff analysis suggested that the volume-weighted median would usually differ little from the volume-weighted mean, but that the median would be a more robust statistic when some trades occur at interest rates that are unrepresentative of general market conditions or when there are data problems such as reporting errors. The change in approach would be implemented next year in conjunction with the transition to the Report of Selected Money Market Rates (FR 2420) as the data source for the calculation of the effective federal funds rate. A volume-weighted median would also be used to construct a representative measure of conditions in the broader set of markets covered by the new overnight bank funding rate.[4] The manager noted that additional background information on these changes would be published by the Desk shortly following the release of the minutes from this meeting. Participants expressed no objections to the proposal.

The staff also provided an update to the Committee on a review of the current system of primary dealers and the Desk's overall framework for establishing, maintaining, and publishing information on the Federal Reserve's counterparty relationships for operations in both domestic and foreign financial markets. While the current sets of counterparties were performing well and meeting the Desk's needs, the staff noted that it would report back to the Committee in the future should potential enhancements to the counterparty framework be identified. The Desk anticipated that it would conduct regular reviews of the counterparty framework approximately every three years in the future.

By unanimous vote, the Committee ratified the Open Market Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account over the intermeeting period.

The Board meeting concluded at the end of the discussion of developments in financial markets and the Federal Reserve's balance sheet.

Staff Review of the Economic Situation

The information reviewed for the June 16–17 meeting suggested that real gross domestic product (GDP) was increasing moderately in the second quarter after edging down in the first quarter. Labor market conditions improved somewhat further in recent months. Consumer price inflation continued to run below the FOMC's longer-run objective of 2 percent and was restrained significantly by earlier declines in energy prices and decreases in prices of non-energy imports. Survey measures of longer-run inflation expectations remained stable, while market-based measures of inflation compensation were still low.

Total nonfarm payroll employment expanded at a faster pace in April and May than in the first quarter. The unemployment rate was 5.5 percent in May, about the same as its first-quarter average. The labor force participation rate and the employment-to-population ratio rose a bit over April and May, and the share of workers employed part time for economic reasons edged down on net. The rate of private-sector job openings moved up a little, on balance, in March and April, while the rates of hiring and quits were essentially unchanged.

Industrial production decreased during April and May after declining in the first quarter. The output of both the manufacturing and mining sectors fell over the past two months, likely reflecting the continuing effects of earlier increases in the foreign exchange value of the dollar and lower crude oil prices. Automakers' assembly schedules suggested that light motor vehicle production would increase at a solid pace in the near term, but broader indicators of manufacturing production, such as the readings on new orders from national and regional manufacturing surveys, generally pointed to modest gains in factory output in the coming months.

Growth in real personal consumption expenditures (PCE) appeared to pick up early in the second quarter from its modest pace in the previous quarter. The components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE increased in May, and the data for sales in the previous two months were revised up. Sales of light motor vehicles were much higher in May than in April. Among the factors that influence household spending, real disposable income rose in April and gains in households' net worth were supported by further advances in home values. Moreover, consumer sentiment in the University of Michigan Surveys of Consumers in early June remained near its highest level since prior to the most recent recession.

Activity in the housing sector improved somewhat in recent months but continued to be slow. Starts and building permits of both new single-family homes and multifamily units increased, on balance, in April and May. Sales of new homes rose in April; existing home sales moved down, although pending home sales increased.

[4] On February 2, 2015, in addition to announcing preliminary plans to improve the calculation of the effective federal funds rate, the Federal Reserve Bank of New York indicated that it planned to begin to publish an additional interest rate, the overnight bank funding rate, which will be based on both federal funds transactions and the Eurodollar transactions of U.S.-managed banking offices.

Growth in real private expenditures for business equipment and intellectual property products appeared to remain relatively slow in the second quarter. Nominal shipments of nondefense capital goods excluding aircraft rose in April. Forward-looking indicators, such as new orders for these capital goods along with national and regional surveys of business conditions, pointed to only modest increases in business equipment spending in the near term. Firms' nominal spending for nonresidential structures excluding drilling and mining rose in April. In contrast, the number of oil rigs in operation continued to fall through early June, suggesting a further decline in real business spending for drilling and mining structures in the second quarter.

Nominal federal spending data for April and May pointed toward a further decline in real federal government purchases in the second quarter. Real state and local government purchases appeared to be rising in the second quarter, with increases in both payrolls and nominal construction spending in recent months.

The U.S. international trade deficit widened substantially in March but narrowed in April, leaving the deficit modestly wider than in February. After decreasing for four straight months, exports increased in both March and April, as shipments to Asia picked up following the resolution in February of labor disputes at West Coast ports. Imports rebounded in March from the depressed levels in January and February but fell back in April, close to the first-quarter average. While real net exports made a large negative contribution to the change in real GDP in the first quarter of 2015, April data suggested that net exports might be a considerably smaller drag on GDP growth in the second quarter of the year.

Total U.S. consumer prices, as measured by the PCE price index, only edged up over the 12 months ending in April, held down primarily by earlier large declines in energy prices. Core PCE inflation, which excludes food and energy prices, was 1¼ percent over the same 12-month period, restrained in part by declines in the prices of non-energy imports. Measures of expected longer-run inflation from a number of surveys, including the Michigan survey, the Survey of Professional Forecasters, and the Desk's Survey of Primary Dealers, remained stable. However, market-based measures of inflation compensation were still low, although somewhat higher than early in the year. Measures of labor compensation rose at moderate rates, outpacing the rise in consumer prices over the past year. The employment cost index increased 2¾ percent over the four quarters ending in the first quarter, while compensation per hour in the nonfarm business sector rose 1¾ percent over the same period. Average hourly earnings for all employees increased 2¼ percent over the 12 months ending in May. There were some tentative signs that these labor compensation measures were accelerating a little in the first quarter.

Economic growth in many foreign economies slowed in the first quarter. Real GDP contracted in Canada, where lower oil prices depressed investment, and in Brazil, where business and consumer confidence weakened and high inflation prompted a significant tightening of monetary policy. In addition, real GDP growth slowed in China and Mexico. By contrast, the euro-area economy continued its recovery, and real GDP growth in Japan increased sharply. Inflation rates turned positive in recent months in many foreign economies following the trough in oil prices earlier this year.

Staff Review of the Financial Situation

Over the intermeeting period, longer-term Treasury yields increased notably amid heightened volatility, apparently boosted by a rise in yields on core euro-area sovereign bonds and, to a lesser extent, stronger-than-anticipated news about the U.S. labor market late in the period. The sharp rise in yields on core euro-area sovereign bonds seemed to reflect a notable rise in term premiums from significantly compressed levels as well as an increase in the path of expected future short-term rates following some positive data for the European economy.

The nominal Treasury yield curve steepened appreciably, on net, with 2-, 5-, and 10-year yields ending the intermeeting period about 15 to 35 basis points higher. Most of the increase in nominal yields was attributable to a rise in real yields, as measures of inflation compensation were relatively stable.

Various measures typically used to assess liquidity in Treasury and mortgage-backed securities (MBS) markets were little changed over the intermeeting period; they have generally pointed to relatively stable market functioning over the past several years. However, the majority of respondents to the June Senior Credit Officer Opinion Survey on Dealer Financing Terms indicated that, over the past five years, liquidity and functioning in these markets, especially in Treasury markets, have deteriorated. Respondents attributed the deterioration primarily to securities dealers' decreased willingness to provide balance sheet resources for market making as a result of both regulatory changes and changes in internal risk-management practices.

On balance, the expected path of the federal funds rate implied by futures contracts steepened noticeably beyond 2015, with a portion of this shift coming after the May employment report. Some evidence suggested that a significant part of the increase may have reflected higher term premiums. By contrast, Federal Reserve communications following the April FOMC meeting were characterized by investors as generally in line with expectations and elicited limited market reaction.

Results from the June Survey of Primary Dealers and the June Survey of Market Participants indicated little change since the April survey in modal forecasts of the federal funds rate through 2018. Respondents again saw the September 2015 FOMC meeting as the most likely time for the first increase in the target range for the federal funds rate. The expected pace of tightening after the initial increase in the target range for the federal funds rate, whenever that might occur, was similar to that reported in the April survey.

Over the intermeeting period, most broad U.S. equity price indexes moved down a bit, on net, amid mixed macroeconomic news and little information on earnings. Option-implied volatility on the S&P 500 index over the next month increased, on balance, but remained near the lower end of its historical range. Spreads on 10-year triple-B-rated corporate bonds over comparable-maturity Treasury securities widened somewhat, on net, while spreads on speculative-grade corporate bonds narrowed slightly.

Financing conditions for large nonfinancial businesses continued to be accommodative. Gross corporate bond issuance remained quite strong, and institutional leveraged loan issuance picked up significantly. Commercial and industrial loans on banks' balance sheets continued to increase at a solid pace. Meanwhile, financing conditions for small businesses continued to improve, though the growth of small business loans on banks' books remained subdued, partly reflecting still-tepid demand for credit from owners of small businesses.

Financing for commercial real estate remained broadly available, although the expansion of commercial real estate loans on banks' books slowed in April and May, reportedly because of sales of loans secured by nonfarm nonresidential properties into pools of commercial mortgage-backed securities. Measures of residential mortgage credit availability continued to improve gradually over the intermeeting period. Nevertheless, credit remained tight for borrowers with lower credit scores. Interest rates on 30-year fixed-rate mortgages increased about 30 basis points, broadly in line with MBS yields and other longer-term rates. Financing conditions in consumer credit markets stayed accommodative in March and April. Auto and student loans expanded at a robust pace through April, while revolving credit picked up in March and April after a slow start at the beginning of the year.

Sovereign bond yields in foreign economies rose notably during the intermeeting period, especially in the advanced economies, led by a substantial increase in German bund yields. A number of factors may have contributed to the increase in yields, including a reappraisal of term premiums, which appeared to have fallen to very low levels in April. The rise in yields was also supported by the release of some stronger-than-expected inflation data in the euro area and by European Central Bank communications that volatility in yields was to be expected. Against this backdrop and with a step-up in concerns about developments in Greece, equity prices declined in most countries. Stock prices in Japan and especially in China were the main exceptions. The foreign exchange value of the dollar increased a bit, on balance, during the intermeeting period against the currencies of major U.S. trading partners. While the dollar declined against the euro and other European currencies, it rose against the Canadian dollar, the yen, and many emerging market currencies, boosted in part by the strong U.S. employment report for May.

Staff Economic Outlook

In the economic forecast prepared by the staff for the June FOMC meeting, real GDP growth in the second half of this year was expected to step up from its pace in the first half. However, economic growth in the second half was projected to be a little lower than in the projection prepared for the April meeting, largely reflecting a small downward revision to the forecast for household spending. The staff's medium-term projection for real GDP growth was essentially unrevised from the previous forecast. The staff continued to project that real GDP would expand at a faster pace than potential output in 2016 and 2017, supported primarily by increases in consumer spending, even as the normalization of the stance of monetary policy was assumed to proceed. The expansion in economic output over the medium term was anticipated to trim resource slack; the unemployment rate was expected to decline gradually to the staff's estimate of its longer-run natural rate.

The staff's forecast for inflation in the near term was little changed, and it was unrevised over the medium term. Energy prices and non-oil import prices were expected to begin steadily rising next year, but the staff projected that inflation would continue to be below the Committee's longer-run objective of 2 percent over 2016 and 2017. However, inflation was anticipated to reach 2 percent thereafter, with inflation expectations in the longer run assumed to be consistent with the Committee's objective and slack in labor and product markets projected to have waned.

The staff viewed the extent of uncertainty around its June projections for real GDP growth, the unemployment rate, and inflation as similar to the average over the past 20 years. The risks to the forecasts for real GDP growth and inflation were seen as tilted a little to the downside, reflecting the staff's assessment that neither monetary policy nor fiscal policy was well positioned to help the economy withstand substantial adverse shocks. At the same time, the staff saw the risks around its outlook for the unemployment rate as roughly balanced.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real GDP growth, the unemployment rate, inflation, and the federal funds rate for each year from 2015 through 2017 and over the longer run, conditional on each participant's judgment of appropriate monetary policy.[5] The longer-run projections represent 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.

In their discussion of the economic situation and the outlook, meeting participants viewed the information received over the intermeeting period as indicating that economic activity was expanding moderately after little change in the first quarter of the year. Early in 2015, a number of factors—including unfavorable weather in parts of the country and labor disputes at West Coast ports—temporarily held down real GDP; several analyses also suggested that difficulties with seasonal adjustment likely contributed to an underestimate of first-quarter real GDP. The unemployment rate was unchanged over the period between the April and June meetings, but payroll employment posted solid gains, and, on balance, a range of labor market indicators suggested that underutilization of labor resources diminished somewhat. Although participants marked down their expectations for the rate of increase in real GDP over the first half of the year, their projections for economic growth in the second half of 2015 and over 2016 and 2017 were broadly similar to those prepared for the March meeting. Under their respective assumptions about appropriate monetary policy, participants generally expected real GDP to expand at a rate sufficient to continue to move labor market conditions toward levels judged consistent with the Committee's dual mandate. Inflation readings available since the April meeting continued to run below the Committee's longer-run objective, partly reflecting earlier declines in energy prices and continued decreases in prices of non-energy imports. However, energy prices appeared to have stabilized. Participants continued to project a gradual rise in inflation toward 2 percent over the medium term as the labor market improved further and the transitory effects of earlier declines in energy and import prices dissipated.

In discussing how to interpret the reported weakness in real GDP during the first quarter, participants considered alternative estimates of real economic activity based on various data-filtering models maintained by Board and Reserve Bank staff. These models yielded a range of estimates, but, overall, they suggested that real activity in the first quarter was likely stronger than the then-current official estimate of real GDP. Some participants indicated that the higher alternative estimates seemed more consistent with the increases in real gross domestic income and private domestic final purchases in the first quarter as well as the strength in employment and hours worked. However, the alternative estimates left open the question of when and to what extent the seasonal adjustment and other measurement issues associated with official estimates of GDP in the first quarter might unwind.

[5] The incoming president of the Federal Reserve Bank of Philadelphia assumed office after the June FOMC meeting, on July 1, and a new president of the Federal Reserve Bank of Dallas has yet to be selected. Blake Prichard and Helen E. Holcomb, first vice presidents of the Federal Reserve Banks of Philadelphia and Dallas, respectively, submitted economic projections.

While participants generally saw the risks to their projections of economic activity and the labor market as balanced, they gave a number of reasons to be cautious in assessing the outlook. Some pointed to the risk that the weaker-than-anticipated rise in economic activity over the first half of the year could reflect factors that might continue to restrain sales and production, and that economic activity might not have sufficient momentum to sustain progress toward the Committee's objectives. In particular, they were concerned that consumers could remain cautious or that the drag on sectors affected by lower energy prices and the higher dollar could persist. Others, however, viewed the strength in the labor market in recent months as potentially signaling a stronger-than-expected bounceback in economic activity. Several mentioned their uncertainty about whether Greece and its official creditors would reach an agreement and about the likely pace of economic growth abroad, particularly in China and other emerging market economies. Other concerns were related to whether the apparent weakness in productivity growth recently would be reversed or continue. On the one hand, a rebound in productivity growth in coming quarters might restrain hiring and slow the improvement in labor market conditions. On the other hand, if productivity growth remained weak, the labor market might tighten more quickly and inflation might rise more rapidly than anticipated.

At the time of the April meeting, the increase in consumer spending was estimated to have been unexpectedly weak in the first quarter following strong gains in the second half of 2014. The additional information that had become available since then, including more complete estimates of outlays for services and revised data on retail sales, indicated that consumer spending was somewhat better than previously reported, rising at a moderate pace in the first quarter. In addition, the strong rebound in motor vehicle sales and the solid gain in retail sales in May suggested that the pace of consumer spending was picking up in the current quarter. Moreover, a number of fundamental factors determining consumer spending remained positive, including the boost to real income from the earlier decline in energy prices, low interest rates, sustained moderate gains in wage and salary income, stronger household balance sheets, and the high levels of households' confidence about the economic outlook and about their income prospects. Many participants anticipated that these factors would support a solid pace of consumer spending going forward. However, others remained concerned that consumers had not increased their spending as much as expected in response to the drop in energy prices, and that the rise in the saving rate since last fall may signal more cautious behavior among households that might last for some time.

A number of participants noted that housing starts and permits rose considerably in recent months, and indicators of sales activity turned more positive. Nonetheless, home construction was still below the trend that would appear consistent with population growth, sales remained at low levels, and credit availability was still relatively tight.

Reports on manufacturing in a number of regions offered some signs that the sector was no longer weakening, with a couple of Districts' diffusion indexes turning up. Still, cutbacks in spending on drilling and mining equipment, slow demand for other business equipment, and the drag on exports from slow foreign demand and previous increases in the dollar continued to weigh on industrial production. Motor vehicle production was highlighted as a bright spot. In those Districts in which activity had been adversely affected by the drop in energy prices, drilling activity was either contracting less rapidly or was stabilizing. Higher oil production could continue to hold down energy prices in the near term, but industry contacts anticipated some recovery in prices over the coming year, which should stem layoffs and cuts in capital spending in the energy sector. Agricultural production in several Districts appeared likely to benefit from wet weather, but weak farm income continued to weigh on the sector. Several participants reported that the services sector was a relative source of strength in their Districts. In general, business contacts continued to express optimism about stronger sales and production in the second half of the year.

In their discussion of labor market conditions, participants offered their views on recent developments and the progress that had occurred in reducing underutilization of labor resources. They generally agreed that labor market conditions had improved somewhat over the intermeeting period, variously citing solid increases in payroll employment and job openings; low levels of unemployment insurance claims; and, despite an unchanged unemployment rate, some further reduction in broader measures of underutilization, particularly among those not actively searching for jobs, but available and interested in work. Several participants pointed to some favorable trends that had developed over a longer period, such as the flattening out of the labor force participation rate and a shift in the flow of workers into more stable and higher-skilled jobs. A number of participants noted that the outlook for continued job gains was evident in reports on hiring intentions from business contacts in their Districts who indicated that more firms planned additions to their payrolls over the coming year than a year earlier. While the cumulative improvements in labor market conditions over the past year had been substantial, most participants judged that further progress would be required to eliminate underutilization of labor resources; some of them anticipated that the utilization gap would close around the end of the year. Several other participants indicated that, in their view, labor market slack had already been largely eliminated.

The ongoing rise in labor demand appeared to have begun to result in a firming of wage increases. Recent readings on the employment cost index, hourly compensation, and average hourly earnings of employees suggested some acceleration in wages. According to business contacts in a number of Districts, many firms looking for new workers said they had been raising wages selectively to attract them; some had also begun to raise wages more generally. However, several participants pointed out that, even with the recent upturn, wage increases remain subdued.

Participants discussed how the incoming information regarding inflation influenced their expectations for reaching the FOMC's 2 percent inflation objective over the medium term. Total PCE inflation continued to run below the Committee's objective. However, participants noted that the apparent stabilization of crude oil prices and the foreign exchange value of the dollar would reduce the downward pressure on inflation from falling prices of energy and imported goods. Core PCE price inflation, as measured on a 12-month change basis, had slowed slightly from an already low rate. However, several participants pointed out that the 3-month change in that index had firmed recently, signaling some improvement in the inflation outlook. In addition, some cited alternative measures of inflation, such as the trimmed mean and median consumer price indexes (CPIs) and the trimmed mean PCE, which continued to run at higher levels than overall PCE inflation. Survey measures of longer-term inflation expectations remained stable, and market-based measures of inflation compensation, while still low, were higher than earlier in the year. Nonetheless, a couple of participants continued to be concerned that the extended period of low inflation might persist and feed through to inflation expectations, citing estimates from various inflation forecasting models and the downtrend in the 10-year CPI projections in the Survey of Professional Forecasters. Participants continued to anticipate that, with appropriate monetary policy, inflation would move up to or toward the Committee's objective over the medium term. Among the factors influencing the trajectories of their inflation forecasts were their outlooks for the pace of real activity, labor market conditions and wage developments, and inflation expectations.

In their discussion of financial market developments over the intermeeting period, several participants commented on the rise in the 10-year Treasury yield, which accompanied a steeper run-up in the 10-year German yield. The sharp rise in German yields appeared to reflect a retracing of the earlier decline in German rates to unsustainably low levels. It was noted that the increase in U.S. yields was not especially large in a historical context and that volatility in U.S. fixed-income markets was still somewhat below pre-crisis levels. However, many participants expressed concern that a failure of Greece and its official creditors to resolve their differences could result in disruptions in financial markets in the euro area, with possible spillover effects on the United States. And some participants reiterated the importance of effective Committee communications in reducing the likelihood of an outsized financial market reaction around the time that policy normalization begins.

During their discussion of economic conditions and monetary policy, participants commented on a number of considerations associated with the timing and pace of policy normalization. Most participants judged that the conditions for policy firming had not yet been achieved; a number of them cautioned against a premature decision. Many participants emphasized that, in order to determine that the criteria for beginning policy normalization had been met, they would need additional information indicating that economic growth was strengthening, that labor market conditions were continuing to improve, and that inflation was moving back toward the Committee's objective. Other concerns that were mentioned were the potential erosion of the Committee's credibility if inflation were to persist below 2 percent and the limited ability of monetary policy to offset downside shocks to inflation and economic activity when the federal funds rate was at its effective lower bound. Some participants viewed the economic conditions for increasing the target range for the federal funds rate as having been met or were confident that they would be met shortly. They identified several possible risks associated with delaying the start of policy firming. One such risk was the possibility that the Committee might need to tighten more rapidly than financial markets currently anticipate—an outcome that could be associated with a significant rise in longer-term interest rates or heightened financial market volatility. Another was that prolonging a high degree of monetary policy accommodation might result in an undesirable increase in inflation or might have adverse consequences for financial and macroeconomic stability. It was also pointed out that a prompt start to normalization would likely convey the Committee's confidence in prospects for the economy. During the discussion, a number of participants recommended that, around the time of the first increase in the target range, the Committee consider how it would update its communications regarding the likely path of the federal funds rate, with several indicating that the Committee should remain data dependent in making adjustments to the target range.

Participants also discussed plans for publishing operational details regarding the implementation of monetary policy around the time of the first increase in the target range. All participants supported a staff proposal for the Federal Reserve to issue an implementation note that would communicate separately from the Committee's postmeeting policy statement the specific measures to be employed to implement the FOMC's decision about the stance of policy. Following scheduled FOMC meetings, this implementation note would be released at the same time as the Committee's postmeeting statement; it would convey operational details regarding the settings of the policy tools and the changes in administered rates being employed to achieve the Committee's desired stance of policy, and it would include the FOMC's domestic policy directive to the Desk. If adjustments to policy tools or administered rates subsequently proved necessary to implement an unchanged policy stance, the implementation note could be revised without altering the Committee's policy statement. Participants agreed that this strategy provided a number of advantages, including focusing the Committee's postmeeting statement on information about economic conditions and the stance of monetary policy; communicating the details of policymakers' operational decisions, including the FOMC's domestic policy directive, in one place; reducing the risk that Federal Reserve communications regarding any technical adjustments to the operation of its policy tools after the commencement of policy firming might be mistaken as conveying information about the stance of policy; and emphasizing that operational decisions regarding the Federal Reserve's policy tools will be made in concert by the Federal Reserve Board and the FOMC with the aim of maintaining the federal funds rate in the range established by the FOMC. Participants also discussed how the language of the domestic policy directive could be revised when the first increase in the target range for the federal funds rate becomes appropriate. It was noted that the Committee might, in addition to providing specific instructions to the Desk regarding operations at that time, update other language in the directive.

Committee Policy Action

In its discussion of monetary policy for the period ahead, the Committee agreed that the weakness in the first quarter was at least in part the result of transitory factors, and members anticipated that economic growth would resume in the second quarter. Although they expressed some uncertainty about the extent of the likely near-term pickup, members expected moderate economic growth over the medium term. Labor market conditions had improved somewhat further, and members anticipated further progress in coming months. Ongoing gains in employment and wages along with a high level of consumer confidence were expected to provide support to household spending. Signs of stronger housing activity were encouraging. However, the outlook for business investment remained soft, and net exports were likely to continue to be restrained by the earlier appreciation of the dollar. Inflation had been well below the Committee's longer-run objective, but, with oil prices and the foreign exchange value of the dollar stabilizing, members expected that inflation would gradually rise toward 2 percent over the medium term. Members thus saw economic conditions as continuing to approach those consistent with warranting a start to the normalization of the stance of monetary policy. In these circumstances, members agreed to continue making decisions about the appropriate target range for the federal funds rate on a meeting-by-meeting basis, with their decisions depending on the implications of economic and financial developments for the prospects for labor markets and inflation.

With respect to its objective of maximum employment, the Committee judged that, on balance, a range of labor market indicators suggested that underutilization of labor resources had diminished somewhat over the intermeeting period. Most members saw room for additional progress in reducing labor market slack, while a couple of members indicated that they viewed the unemployment rate as very close or essentially identical to its mandate-consistent level. Many expected that labor market underutilization would be largely eliminated around year-end if economic activity strengthened as they expected. However, some members were more uncertain about the extent of progress in the labor market to date or were concerned that if the pace of economic growth remained slow, labor market conditions might improve only gradually. Most agreed that they would need more information on developments in the labor market to establish a solid basis for assessing whether labor market conditions had improved sufficiently to initiate tightening.

Inflation had continued to run below the Committee's 2 percent objective. Most members agreed that the recent stability in crude oil prices had increased their confidence that the downward pressure on inflation from earlier declines in energy prices was abating, and some noted the recent stability of the foreign exchange value of the dollar, which could eventually stem the decline in prices of imports. Market-based measures of inflation compensation remained low, but they had risen some from their levels earlier in the year, and survey measures of inflation expectations continued to be stable. However, core inflation was still well below 2 percent. The Committee agreed to continue to monitor inflation developments closely. In considering the Committee's criteria for beginning policy normalization, all members but one indicated that they would need to see more evidence that economic growth was sufficiently strong and labor market conditions had firmed enough to return inflation to the Committee's longer-run objective over the medium term; one member was already reasonably confident of such an outcome.

The Committee concluded that, although it had seen some progress, the conditions warranting an increase in the target range for the federal funds rate had not yet been met, and that additional information on the outlook, particularly for labor markets and inflation, would be necessary before deciding to implement such an increase. One member, however, indicated a readiness to take that step at this meeting but also expressed a willingness to wait another meeting or two for additional data before raising the target range.

In considering how to communicate the rationale for the Committee's policy decision, members discussed the importance of adjusting the language in the postmeeting statement to acknowledge the evolution of progress toward the Committee's objectives. The Committee judged it appropriate to communicate that it had seen some further improvement in labor market conditions over the intermeeting period, stating that a range of labor market indicators suggested that underutilization of labor resources diminished somewhat. It also decided to indicate the likelihood that energy prices might soon exert less downward influence on inflation, saying that energy prices appeared to have stabilized, and to restate its expectation that inflation would rise gradually toward 2 percent over the medium term as the labor market improves further and the transitory effects of earlier declines in energy and import prices dissipate.

The Committee agreed to maintain the target range for the federal funds rate at 0 to ¼ percent and to reaffirm in the statement that the Committee's decision about how long to maintain the current target range for the federal funds rate would depend on its assessment of actual and expected progress toward its objectives of maximum employment and 2 percent inflation. Members continued to judge that their evaluation of progress on their objectives would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Members agreed to retain the indication that the Committee anticipates that it will be appropriate to raise the target range for the federal funds rate when it has seen further improvement in the labor market and is reasonably confident that inflation will move back to its 2 percent objective over the medium term.

The Committee also maintained its policy of reinvesting principal payments from agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions. The Committee agreed to reiterate its expectation that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive:

> "Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury

securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. 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 System Open Market Account manager and the secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability."

The vote encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in April suggests that economic activity has been expanding moderately after having changed little during the first quarter. The pace of job gains picked up while the unemployment rate remained steady. On balance, a range of labor market indicators suggests that underutilization of labor resources diminished somewhat. Growth in household spending has been moderate and the housing sector has shown some improvement; however, business fixed investment and net exports stayed soft. Inflation continued to run below the Committee's longer-run objective, partly reflecting earlier declines in energy prices and decreasing prices of non-energy imports; energy prices appear to have stabilized. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations have remained stable.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with appropriate policy accommodation, economic activity will expand at a moderate pace, with labor market indicators continuing to move toward levels the Committee judges consistent with its dual mandate. The Committee continues to see the risks to the outlook for economic activity and the labor market as nearly balanced. Inflation is anticipated to remain near its recent low level in the near term, but the Committee expects inflation to rise gradually toward 2 percent over the medium term as the labor market improves further and the transitory effects of earlier declines in energy and import prices dissipate. The Committee continues to monitor inflation developments closely.

To support continued progress toward maximum employment and price stability, the Committee today reaffirmed its view that the current 0 to ¼ percent target range for the federal funds rate remains appropriate. In determining how long to maintain this target range, the Committee will assess progress—both realized and expected—toward its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee anticipates that it will be appropriate to raise the target range for the federal funds rate when it has seen further improvement in the labor market and is reasonably confident that inflation will move back to its 2 percent objective over the medium term.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

When the Committee decides to begin to remove policy accommodation, it will take a balanced approach consistent with its longer-run goals of maximum employment and inflation of 2 percent. The Committee currently anticipates that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Jeffrey M. Lacker, Dennis P. Lockhart, Jerome H. Powell, Daniel K. Tarullo, and John C. Williams.

Voting against this action: None.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, July 28–29, 2015. The meeting adjourned at 10:40 a.m. on June 17, 2015.

Notation Votes

By notation vote completed on May 19, 2015, the Committee unanimously approved the minutes of the Committee meeting held on April 28–29, 2015.

By notation vote completed on June 3, 2015, the Committee unanimously approved the selection of Brian F. Madigan to serve as secretary, effective June 4, 2015, until the selection of a successor at the first regularly scheduled meeting of the Committee in 2016.

Brian F. Madigan
Secretary

Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 16–17, 2015, meeting participants submitted their projections of the most likely outcomes for real output growth, the unemployment rate, inflation, and the federal funds rate for each year from 2015 to 2017 and over the longer run.[1] Each participant's projection was based on information available at the time of the meeting together with his or her assessment of appropriate monetary policy and assumptions about the factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

[1] The incoming president of the Federal Reserve Bank of Philadelphia assumed office after the June FOMC meeting, on July 1, and a new president of the Federal Reserve Bank of Dallas has yet to be selected. Blake Prichard and Helen E. Holcomb, first vice presidents of the Federal Reserve Banks of Philadelphia and Dallas, respectively, submitted economic projections.

FOMC participants generally expected that, under appropriate monetary policy, growth of real gross domestic product (GDP) in 2015 would be somewhat below their individual estimates of the U.S. economy's longer-run normal growth rate but would increase in 2016 before slowing to or toward its longer-run rate in 2017 (table 1 and figure 1). Participants generally expected that the unemployment rate would continue to decline in 2015 and 2016, and that the unemployment rate would be at or below their individual judgments of its longer-run normal level by the end of 2017. Participants anticipated that inflation, as measured by the four-quarter percent change in the price index for personal consumption expenditures (PCE), would be appreciably below 2 percent this year but expected it to step up next year, and a substantial majority of participants projected that inflation would be at or close to the Committee's goal of 2 percent in 2017.

As shown in figure 2, all but two participants anticipated that further improvement in economic conditions and the economic outlook would make it appropriate to begin raising the target range for the federal funds rate in 2015. The economic outlooks of individual participants implied that it likely would be appropriate to raise the target federal funds rate fairly gradually over the projection period in order to promote labor market conditions and inflation the Committee judges most con-

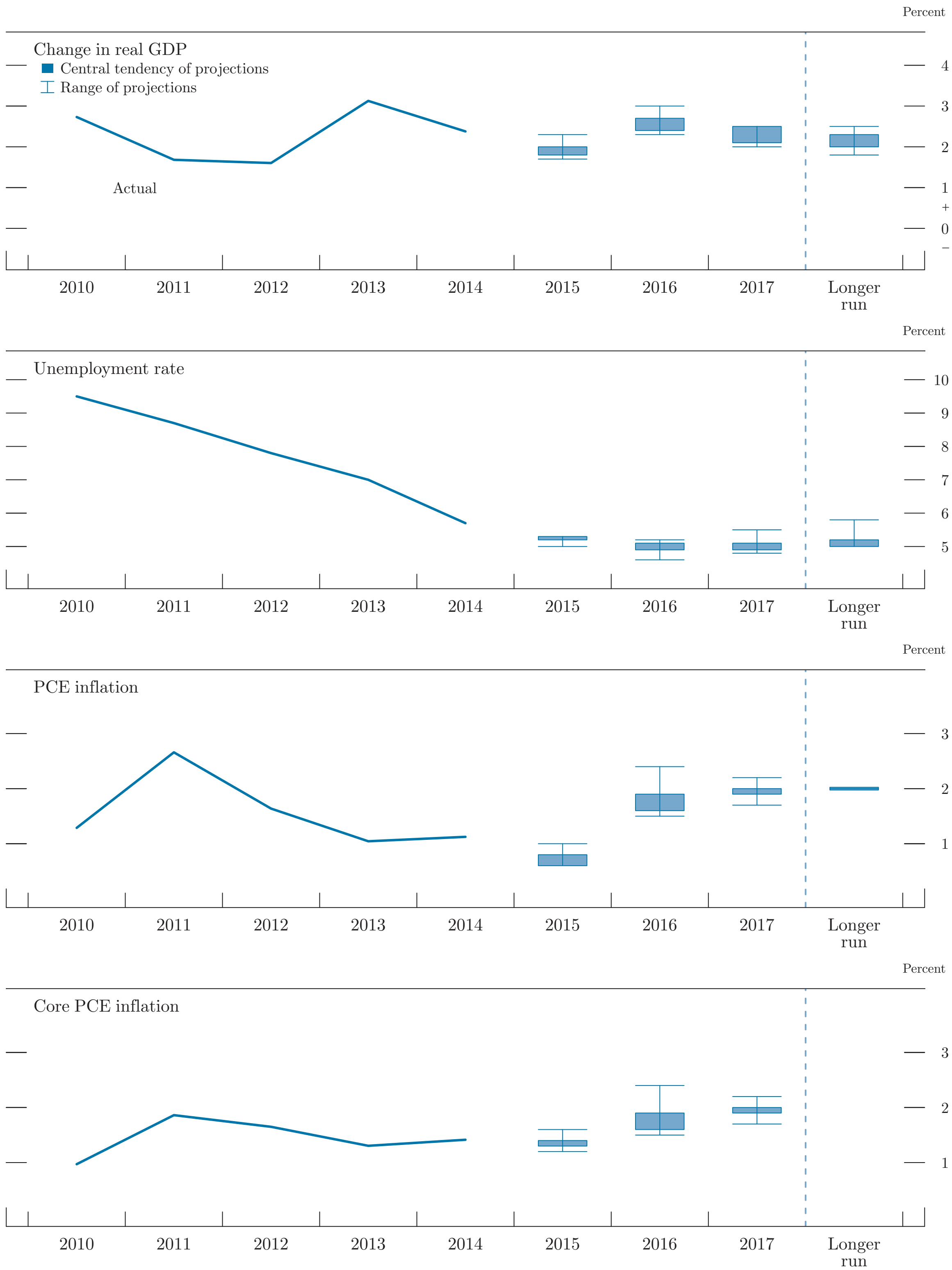
Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, June 2015
Percent

Variable	Central tendency[1]				Range[2]			
	2015	2016	2017	Longer run	2015	2016	2017	Longer run
Change in real GDP	1.8 to 2.0	2.4 to 2.7	2.1 to 2.5	2.0 to 2.3	1.7 to 2.3	2.3 to 3.0	2.0 to 2.5	1.8 to 2.5
March projection	2.3 to 2.7	2.3 to 2.7	2.0 to 2.4	2.0 to 2.3	2.1 to 3.1	2.2 to 3.0	1.8 to 2.5	1.8 to 2.5
Unemployment rate	5.2 to 5.3	4.9 to 5.1	4.9 to 5.1	5.0 to 5.2	5.0 to 5.3	4.6 to 5.2	4.8 to 5.5	5.0 to 5.8
March projection	5.0 to 5.2	4.9 to 5.1	4.8 to 5.1	5.0 to 5.2	4.8 to 5.3	4.5 to 5.2	4.8 to 5.5	4.9 to 5.8
PCE inflation	0.6 to 0.8	1.6 to 1.9	1.9 to 2.0	2.0	0.6 to 1.0	1.5 to 2.4	1.7 to 2.2	2.0
March projection	0.6 to 0.8	1.7 to 1.9	1.9 to 2.0	2.0	0.6 to 1.5	1.6 to 2.4	1.7 to 2.2	2.0
Core PCE inflation[3]	1.3 to 1.4	1.6 to 1.9	1.9 to 2.0		1.2 to 1.6	1.5 to 2.4	1.7 to 2.2	
March projection	1.3 to 1.4	1.5 to 1.9	1.8 to 2.0		1.2 to 1.6	1.5 to 2.4	1.7 to 2.2	

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are 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 March projections were made in conjunction with the meeting of the Federal Open Market Committee on March 17–18, 2015.

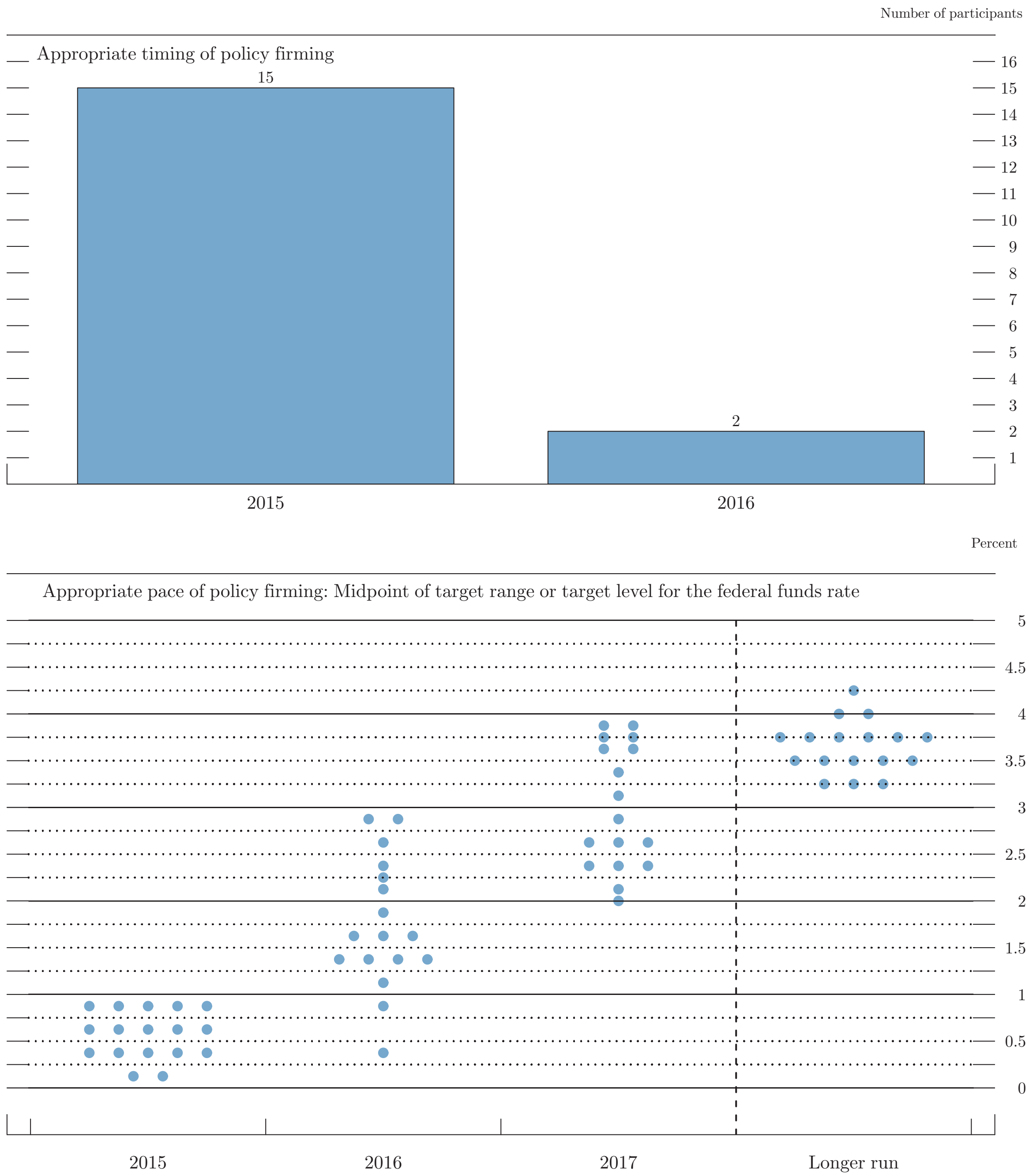
1. The central tendency excludes the three highest and three lowest projections for each variable in each year.
2. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
3. Longer-run projections for core PCE inflation are not collected.

Figure 1. Central tendencies and ranges of economic projections, 2015–17 and over the longer run



NOTE: Definitions of variables are in the general note to table 1. The data for the actual values of the variables are annual.

Figure 2. Overview of FOMC participants' assessments of appropriate monetary policy



Note: In the upper panel, the height of each bar denotes the number of FOMC participants who judge that, under appropriate monetary policy, the first increase in the target range for the federal funds rate from its current range of 0 to 1/4 percent will occur in the specified calendar year. In March 2015, the numbers of FOMC participants who judged that the first increase in the target federal funds rate would occur in 2015 and 2016 were, respectively, 15 and 2. In the lower panel, 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.

sistent with attaining its mandated objectives of maximum employment and stable prices. Most participants continued to expect that it would be appropriate for the federal funds rate to stay appreciably below its longer-run level for some time after inflation and unemployment are near mandate-consistent levels, reflecting the effects of remaining headwinds holding back the economic expansion, and other factors.

Most participants viewed the uncertainty associated with their outlooks for economic growth and the unemployment rate as broadly similar to the average level of the past 20 years. Most participants also judged the level of uncertainty about inflation to be broadly similar to the average level of the past 20 years, although some participants viewed it as higher. In addition, most participants continued to see the risks to the outlook for economic growth and for the unemployment rate as broadly balanced, though some viewed the risks to economic growth as weighted to the downside. A majority of participants saw the risks to inflation as balanced; of the five who did not see inflation risks as balanced, four saw risks as tilted to the downside.

The Outlook for Economic Activity

Participants generally projected that, conditional on their individual assumptions about appropriate monetary policy, real GDP would grow slowly in the first half of 2015, but that this near-term weakness would give way to growth in 2016 that exceeds their estimates of its longer-run normal rate; most participants expected real GDP growth to slow in 2017 to rates at or near their individual estimates of the longer-run rate. Participants generally regarded the weakness in economic activity in the first half of this year to be temporary and pointed to a number of factors that they expected would contribute to solid output growth through 2016, including improving labor market conditions, strengthened household and business balance sheets, waning effects of the earlier increases in the exchange value of the dollar, a boost to consumer spending from low energy prices, diminishing restraint from fiscal policy, and still-accommodative monetary policy.

Compared with their Summary of Economic Projections (SEP) contributions in March, all participants revised down their projections of real GDP growth for 2015, but many expected the economy to make up at least some of the shortfall over the remainder of the forecast period. Beyond the near term, changes in participants' forecasts were small. The central tendencies of participants' current projections for real GDP growth were 1.8 to 2.0 percent in 2015, 2.4 to 2.7 percent in 2016, and 2.1 to 2.5 percent in 2017. The central tendency of the projections of GDP growth in the longer run was unchanged from March at 2.0 to 2.3 percent.

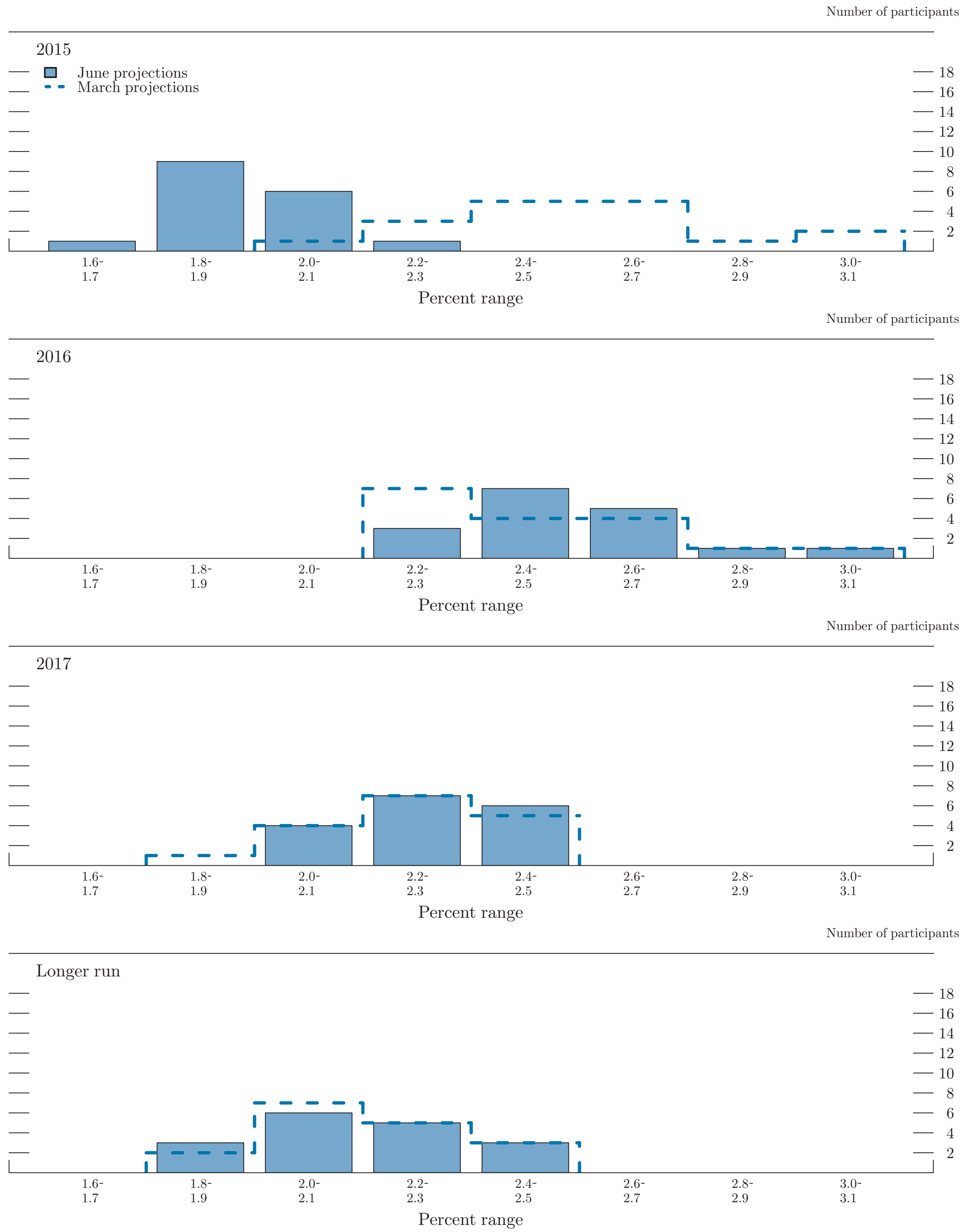
Most participants projected that the unemployment rate would continue to decline through 2016, and nearly all projected that by the fourth quarter of 2017, the unemployment rate would be at or below their individual judgments of its longer-run normal level. The central tendencies of participants' forecasts for the unemployment rate in the fourth quarter of each year were 5.2 to 5.3 percent in 2015, and 4.9 to 5.1 percent in both 2016 and 2017. Compared with the March SEP, participants' projections for the unemployment rate edged up in 2015 but were little different over the medium term. Several participants indicated that the differences from their March projections for the unemployment rate over the medium term were modest in part because of the monetary policy response that they incorporated into their forecasts to mitigate an otherwise weaker trajectory for expenditures.

Figures 3.A and 3.B show the distribution of participants' views regarding the likely outcomes for real GDP growth and the unemployment rate through 2017 and in the longer run. Some of the diversity of views reflected participants' individual assessments of a number of factors, including the effects of lower oil prices on consumer spending and business investment, the extent to which dollar appreciation would affect real activity, the rate at which the forces that have been restraining the pace of the economic recovery would continue to abate, the trajectory for growth in consumption as labor market slack diminishes, and the appropriate path of monetary policy. Relative to the March SEP, the dispersion of participants' projections for real GDP growth in 2015 narrowed considerably, reflecting in part the release of the national income and product accounts data for the first quarter of this year, which were not available when the FOMC met in March.

The Outlook for Inflation

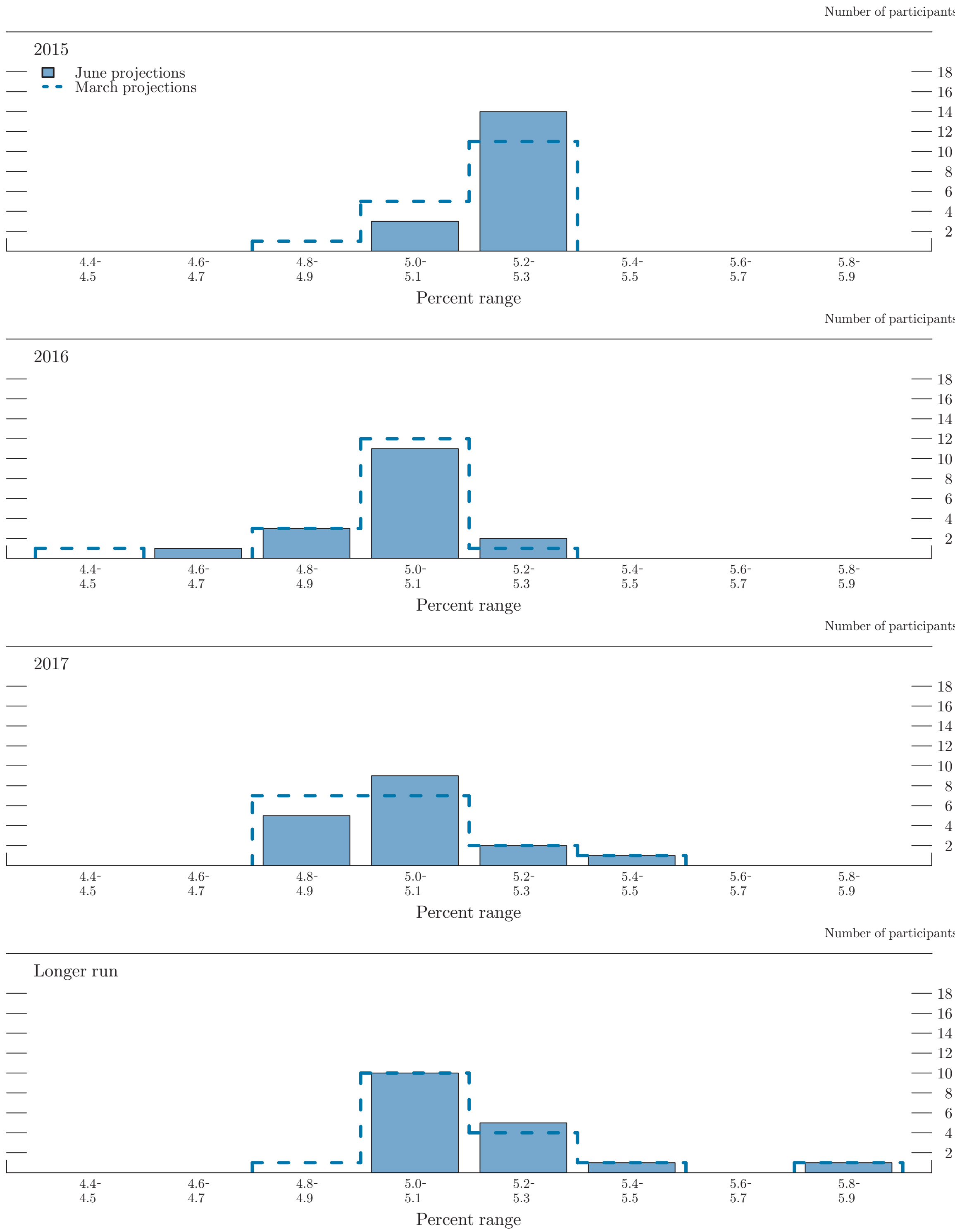
All participants projected headline PCE inflation to come in at or below 1 percent this year—mostly due to the temporary effects of earlier declines in energy prices and decreases in non-energy import prices—but to climb to 1½ percent or more in 2016. A sizable majority of participants expected that headline inflation would be at or close to the Committee's goal in 2017. Most participants projected only a slight decline in core PCE inflation this year and anticipated a gradual rise over the remainder of the forecast period. Relative to the March SEP, participants' projections for PCE inflation changed

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2015–17 and over the longer run



NOTE: Definitions of variables are in the general note to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2015–17 and over the longer run



Note: Definitions of variables are in the general note to table 1.

very little. The central tendencies for PCE inflation were 0.6 to 0.8 percent in 2015, 1.6 to 1.9 percent in 2016, and 1.9 to 2.0 percent in 2017; for core PCE inflation, the central tendencies were 1.3 to 1.4 percent in 2015, 1.6 to 1.9 percent in 2016, and 1.9 to 2.0 percent in 2017. Factors cited by participants as likely to contribute to inflation rising toward 2 percent included stable longer-term inflation expectations, steadily diminishing resource slack, a pickup in wage growth, the waning effects of declines in energy prices, and still-accommodative monetary policy.

Figures 3.C and 3.D provide information on the distribution of participants' views about the outlook for inflation. The range of projections for PCE inflation in 2015 narrowed, albeit mostly on the basis of the lowering of just one projection; otherwise, the ranges of participants' projections for both headline and core PCE inflation were nearly identical to what was reported in March.

Appropriate Monetary Policy

Participants judged that it would be appropriate to begin normalization of monetary policy as labor market indicators and inflation moved to or toward values the Committee regards as consistent with the attainment of its mandated objectives of maximum employment and price stability. As shown in figure 2, all but two participants anticipated that it would be appropriate to begin raising the target range for the federal funds rate during 2015. However, a sizable majority projected that the appropriate level of the federal funds rate would remain below their individual estimates of its longer-run normal level through 2017.

All but a few participants projected that the unemployment rate would be at or somewhat above their estimates of its longer-run normal level at the end of the year in which they judged the initial increase in the target range for the federal funds rate would be warranted, and all participants projected that unemployment would decline further after the commencement of normalization. All participants projected that inflation would be below the Committee's 2 percent objective that year, but they also saw inflation rising notably closer to 2 percent in the following year.

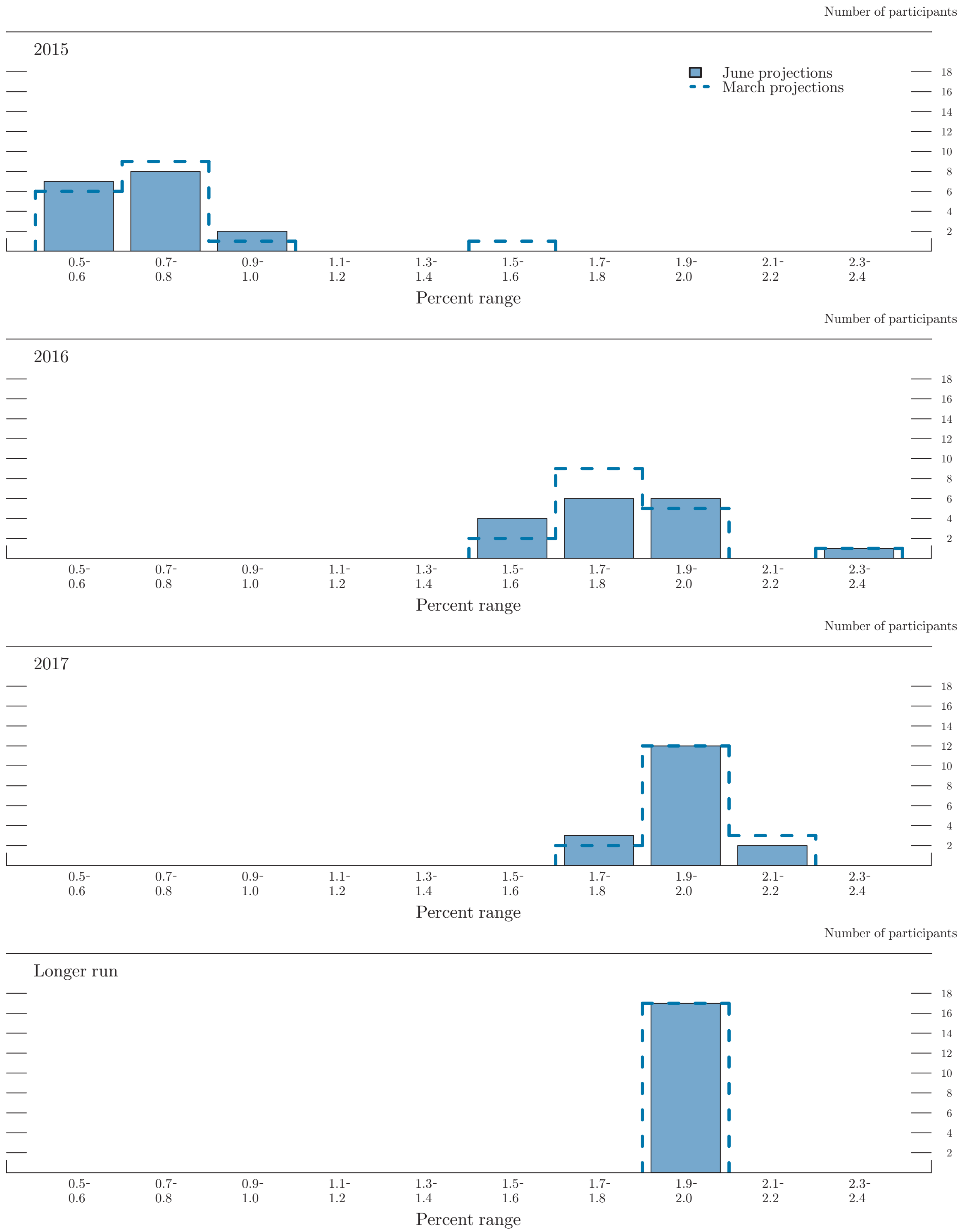
Figure 3.E provides the distribution of participants' judgments regarding the appropriate level of the target federal funds rate at the end of each calendar year from 2015 to 2017 and over the longer run. Relative to their March projections, most participants considered a lower level of the federal funds rate to be appropriate over some part of the projection period. The median projection for the federal funds rate at the end of 2015 was unchanged from March at 0.63 percent; however, the mean federal funds rate projection of 0.58 percent for that date was 19 basis points lower than in March. The median projections for the ends of 2016 and 2017 were 1.63 percent and 2.88 percent, respectively—both 25 basis points lower than in March. Compared with the March SEP, the dispersion of the projections for the appropriate level of the federal funds rate was a bit narrower over 2015 and 2016, and about the same as in March for 2017.

A sizable majority of participants judged that it would be appropriate for the federal funds rate at the end of 2017 to remain below its longer-run normal level, with about half of all participants projecting the federal funds rate at that time to be more than ½ percentage point lower than their estimates of its longer-run value. Participants provided a number of reasons why they thought it would be appropriate for the federal funds rate to remain below its longer-run normal level for some time after inflation and the unemployment rate were near mandate-consistent levels. These reasons included the expectation that headwinds that have been holding back the recovery would continue to exert some restraint on economic activity, that weak real activity abroad and the recent appreciation of the dollar were likely to persist and temper spending and production in the United States, that residual slack in the labor market would still be evident in some measures of labor utilization other than the unemployment rate, and that the risks to the economic outlook were asymmetric in part because of the constraints on monetary policy associated with the effective lower bound on the federal funds rate.

Relative to the March SEP, participants made at most modest adjustments to their estimates of the longer-run level of the federal funds rate. These changes left the median estimate of the longer-run normal federal funds rate unchanged from March at 3.75 percent; the central tendency for the federal funds rate in the longer run was 3.5 to 3.75 percent, also the same as in March.

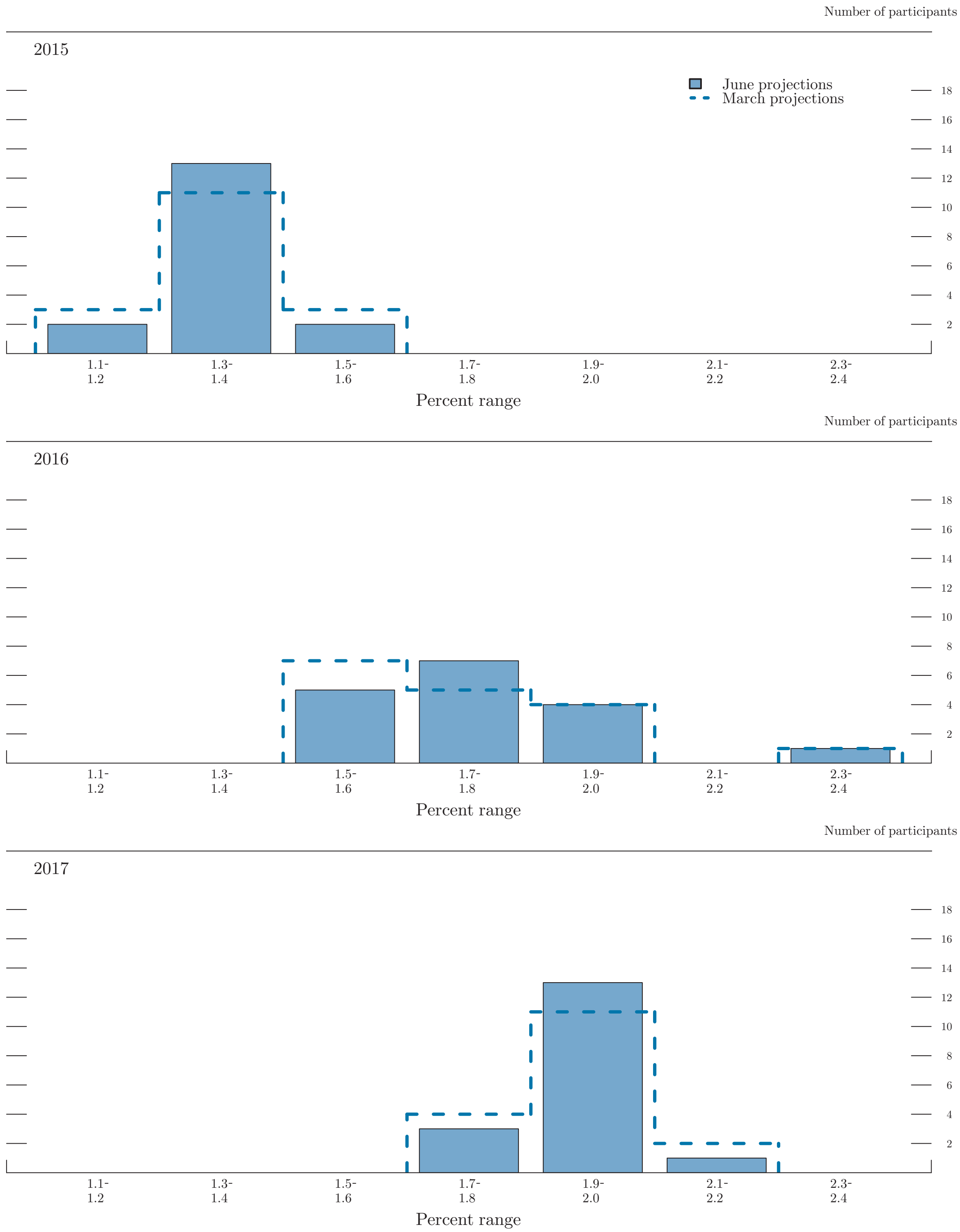
Participants' views of the appropriate path for monetary policy were informed by their judgments about the state of the economy, including their estimates of the values of the unemployment rate and other labor market indicators that would be consistent with maximum employment, the extent to which labor market conditions were currently perceived to be falling short of maximum employment, and the prospects for inflation to return to the Committee's longer-term objective of 2 percent over the medium term. Also noted by participants were the implications of international developments for the domes-

Figure 3.C. Distribution of participants' projections for PCE inflation, 2015–17 and over the longer run



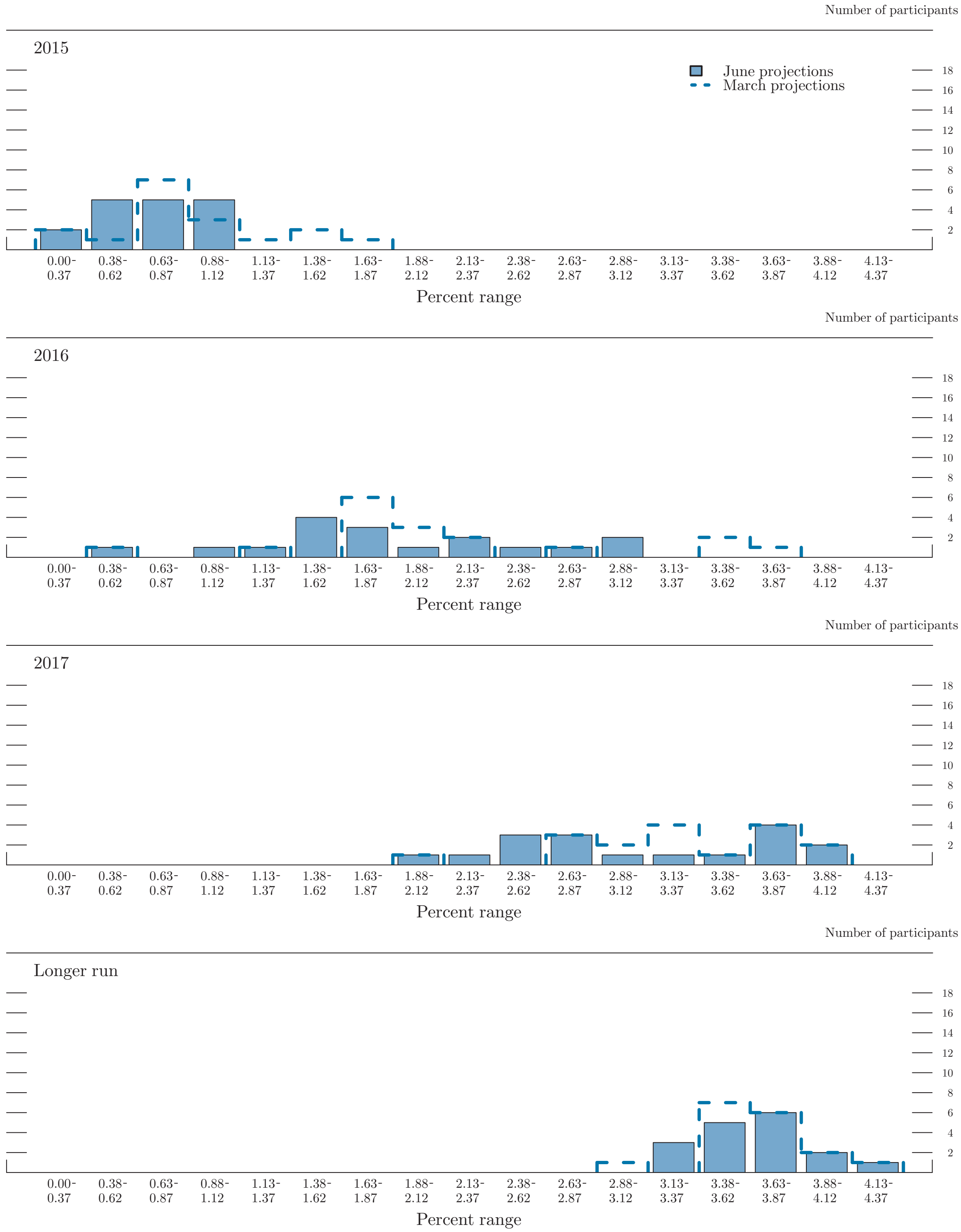
NOTE: Definitions of variables are in the general note to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2015–17



Note: Definitions of variables are in the general note 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, 2015–17 and over the longer run



Note: The midpoints of the target ranges for the federal funds rate and the target levels for the federal funds rate are measured at the end of the specified calendar year or over the longer run.

Table 2. Average historical projection error ranges
Percentage points

Variable	2015	2016	2017
Change in real GDP[1]	±1.4	±2.0	±2.1
Unemployment rate[1]	±0.4	±1.2	±1.8
Total consumer prices[2]	±0.8	±1.0	±1.0

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1995 through 2014 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, and consumer prices 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 (2007), "Gauging the Uncertainty of the Economic Outlook from Historical Forecasting Errors," Finance and Economics Discussion Series 2007-60 (Washington: Board of Governors of the Federal Reserve System, November), available at www.federalreserve.gov/pubs/feds/2007/200760/200760abs.html; and Board of Governors of the Federal Reserve System, Division of Research and Statistics (2014), "Updated Historical Forecast Errors," memorandum, April 9, www.federalreserve.gov/foia/files/20140409-historical-forecast-errors.pdf.

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. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated.

tic economy, the uncertainty regarding the reaction by economic decisionmakers to the beginning of policy normalization after a lengthy period with the federal funds rate at the effective lower bound, the economic benefits of limiting any associated disruptions in financial markets, and a general desire to practice risk management in setting monetary policy. In addition, some participants mentioned the prescriptions of various monetary policy rules as factors they considered in judging the appropriate path for the federal funds rate.

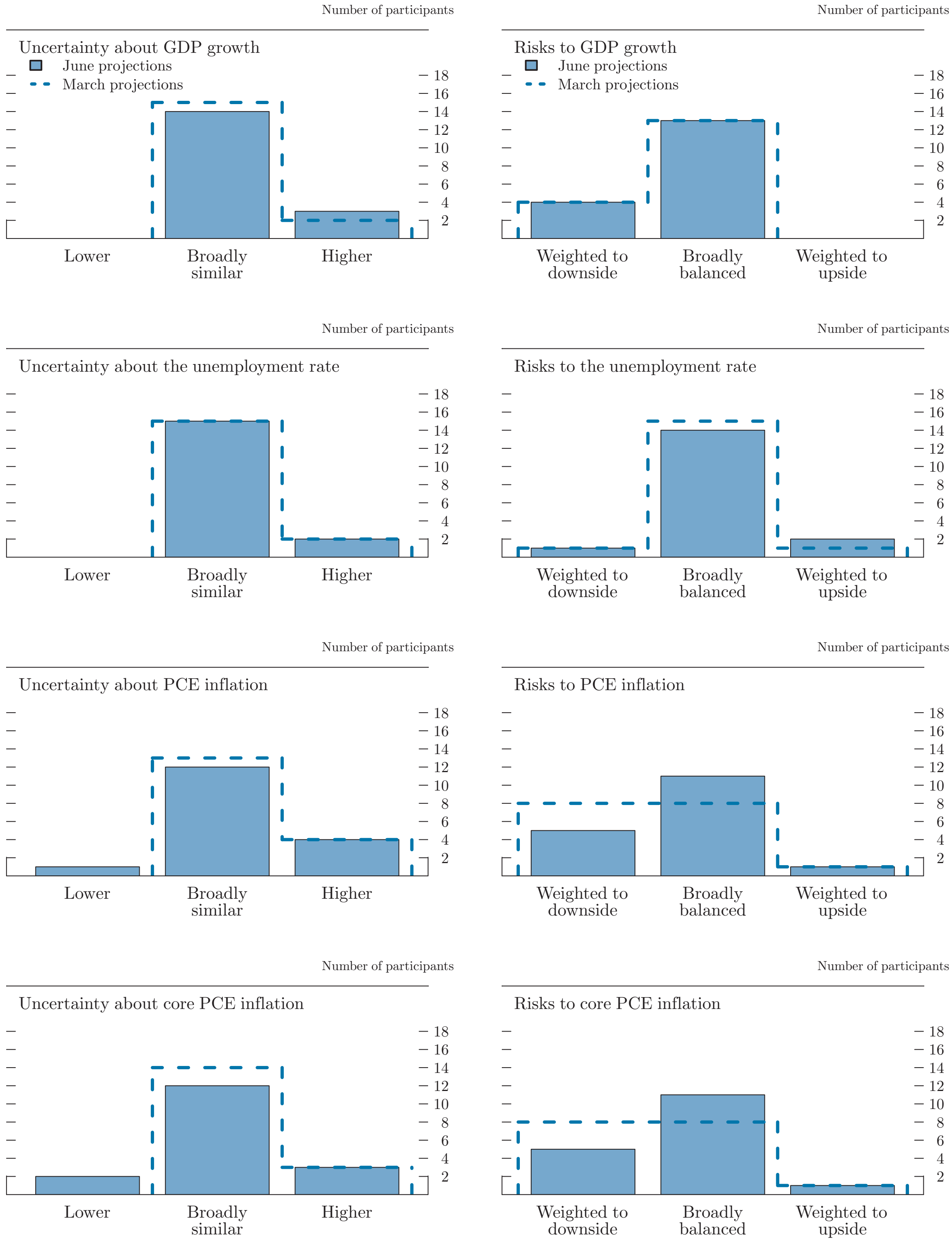
Uncertainty and Risks

A large majority of participants continued to judge the levels of uncertainty attending their projections for real GDP growth and the unemployment rate as broadly similar to the norms of the previous 20 years (figure 4).[2] As in March, most participants saw the risks to their outlooks for real GDP growth as broadly balanced, although some participants again viewed the risks to real GDP growth as weighted to the downside. Those participants who viewed the risks as weighted to the downside cited, for example, concern about the limited ability of monetary policy to respond to negative shocks to the economy when the federal funds rate is at its effective lower bound, a fragile foreign economic outlook, and weak readings on productivity growth. A large majority of participants judged the risks to the outlook for the unemployment rate to be broadly balanced.

Participants generally agreed that the levels of uncertainty associated with their inflation forecasts were broadly similar to historical norms. A few policymakers indicated that their confidence in the likelihood of inflation moving toward the policy objective of 2 percent inflation had increased. In all, 11 participants viewed the risks to their inflation forecast as balanced, up from 8 in the March SEP. The risks were still seen as tilted to the downside by 5 participants who cited the possibility that the effects of the high exchange value of the dollar on domestic inflation could persist for longer than anticipated, that longer-term inflation expectations might coalesce on a lower level of inflation than assumed, or that, in current circumstances, it could be difficult for the Committee to respond effectively to low-inflation outcomes. Conversely, 1 participant saw risks to inflation as weighted to the upside, citing uncertainty about the timing and efficacy of the Committee's withdrawal of monetary policy accommodation.

[2] Table 2 provides estimates of the forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation over the period from 1995 through 2014. At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 4. Uncertainty and risks in economic projections



NOTE: For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty." Definitions of variables are in the general note to table 1.

Forecast Uncertainty

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

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee. The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.6 to 4.4 percent in the current year, 1.0 to 5.0 percent in the second year, and 0.9 to 5.1 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year and 1.0 to 3.0 percent in the second and third years.

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 variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty in the past, as shown in table 2. 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, participants judge whether each variable is more likely to be above or below their projections of the most likely outcome. These judgments about the uncertainty and the risks attending each participant's projections are distinct from the diversity of participants' views about the most likely outcomes. Forecast uncertainty is concerned with the risks associated with a particular projection rather than with divergences across a number of different projections.

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.