Minutes of the Federal Open Market Committee
December 15–16, 2015

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 15, 2015, at 1:00 p.m. and continued on Wednesday, December 16, 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, Eric Rosengren, and Michael Strine, Alternate Members of the Federal Open Market Committee

Patrick Harker and Robert S. Kaplan, Presidents of the Federal Reserve Banks of Philadelphia and Dallas, respectively

James M. Lyon, First Vice President, Federal Reserve Bank of Minneapolis

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, Michael P. Leahy, William R. Nelson, and William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

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

Robert deV. Frierson, Secretary of the Board, Office of the Secretary, Board of Governors

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

Nellie Liang, Director, Office of Financial Stability Policy and Research, Board of Governors

James A. Clouse and Stephen A. Meyer, Deputy Directors, Division of Monetary Affairs, 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

Michael G. Palumbo, Senior Associate Director, Division of Research and Statistics, Board of Governors; Beth Anne Wilson, Senior Associate Director, Division of International Finance, Board of Governors

Ellen E. Meade and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors; Wayne Passmore, Senior Adviser, Division of Research and Statistics, Board of Governors

Joseph W. Gruber, Deputy Associate Director, Division of International Finance, Board of Governors

Francisco Covas, Christopher J. Gust, and Jason Wu, Assistant Directors, Division of Monetary Affairs, Board of Governors; John M. Roberts and Steven A. Sharpe, Assistant Directors, Division of Research and Statistics, Board of Governors

Patrick E. McCabe, Adviser, Division of Research and Statistics, Board of Governors

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

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

Katie Ross,[1] Manager, Office of the Secretary, Board of Governors

Valerie Hinojosa, Information Manager, Division of Monetary Affairs, Board of Governors

Mark L. Mullinix, First Vice President, Federal Reserve Bank of Richmond

James J. McAndrews, Executive Vice President, Federal Reserve Bank of New York

Troy Davig, Michael Dotsey, Evan F. Koenig, Spencer Krane, Samuel Schulhofer-Wohl, Ellis W. Tallman, Geoffrey Tootell, and Christopher J. Waller, Senior Vice Presidents, Federal Reserve Banks of Kansas City, Philadelphia, Dallas, Chicago, Minneapolis, Cleveland, Boston, and St. Louis, respectively

Douglas Tillett, Robert G. Valletta, and Alexander L. Wolman, Vice Presidents, Federal Reserve Banks of Chicago, San Francisco, and Richmond, respectively

William E. Riordan,[2] Markets Officer, Federal Reserve Bank of New York

[1] Attended Wednesday session only.
[2] Attended through the discussion of financial developments and open market operations.

Developments in Financial Markets and Open Market Operations
The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets, including expectations of market participants for monetary policy action by the Federal Open Market Committee (FOMC) at this meeting and in the future. The deputy manager followed with a briefing on money market developments and System open market operations conducted by the Open Market Desk during the period since the Committee met on October 27–28. It was noted that the System's reverse repurchase (RRP) agreement operations continued to provide a soft floor under short-term interest rates. The deputy manager also discussed plans to publish additional information on details of the Committee's current Treasury securities reinvestment policy. The manager then briefed the Committee on several other matters, including plans to begin publishing the effective federal funds rate and a broader overnight bank funding rate based on the Report of Selected Money Market Rates (FR 2420) in early March 2016; the possibility that the Federal Reserve, in cooperation with the Office of Financial Research, might publish a reference rate for overnight transactions collateralized by Treasury securities; and the staff's ongoing review of the readiness of various Desk operations and facilities.

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 over the intermeeting period.

Staff Review of the Economic Situation
The information reviewed for the December 15–16 meeting suggested that real gross domestic product (GDP) was increasing at a moderate pace and that labor market conditions had improved further. Consumer price inflation continued to run below the FOMC's longer-run objective of 2 percent, restrained in part by declines in both energy prices and the prices of non-energy imported goods. Some survey-based measures of longer-run inflation expectations edged down, while market-based measures of inflation compensation were still low.

Total nonfarm payroll employment expanded at a faster monthly rate in October and November than in the third quarter. The unemployment rate ticked down to 5.0 percent in October and remained at that level in November; over the 12 months ending in November, the unemployment rate fell ¾ percentage point. Both the labor force participation rate and the employment-to-population ratio increased slightly, on net, over October and November. The share of workers employed part time for economic reasons was flat, on balance, in recent months after declining considerably over the previous year. The rates of private-sector job openings, hires, and quits were little changed in October from their average levels in the third quarter. Recent measures of the gains in labor compensation were mixed: Over the four quarters ending in the third quarter, compensation per hour in the business sector advanced at a strong 3½ percent rate, while the employment cost index rose at a more moderate 2 percent pace. Average hourly earnings for all employees increased 2¼ percent over the 12 months ending in November.

Manufacturing production increased in October, although output in the mining sector continued to decrease. Automakers' assembly schedules and broader indicators of manufacturing production, such as the readings on new orders from national and regional manufacturing surveys, generally pointed to a slow pace of gains in factory output in the coming months. Information on crude oil and natural gas extraction through early December indicated further declines in mining output.

Real personal consumption expenditures (PCE) appeared to be rising at a solid rate in the fourth quarter. The components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE increased in October and moved up at a faster pace in November, while the rate of sales of light motor vehicles remained high. Household spending was supported by strong growth in real disposable income in September and October, and households' net worth was bolstered by recent gains in home values. In addition, consumer sentiment in the University of Michigan Surveys of Consumers improved a little in November and early December.

Recent information on activity in the housing sector was mixed. Starts of new single-family homes were somewhat lower in October than in the third quarter, although building permits moved up. Meanwhile, starts of multifamily units declined. Sales of new homes rose in October, while existing home sales decreased.

Real private expenditures for business equipment and intellectual property products increased at a solid pace in the third quarter, but business spending growth looked to be slowing somewhat in the fourth quarter. Nominal shipments of nondefense capital goods excluding aircraft edged down in October, although new orders for these capital goods continued to move up. Recent readings from national and regional surveys of business conditions were consistent with more modest increases in business equipment spending than in the third quarter. Firms' nominal spending for nonresidential structures excluding drilling and mining rose in October, although available indicators of drilling activity, such as the number of oil and gas rigs in operation, continued to fall through early December.

Total real government purchases appeared to be about flat in the fourth quarter. Federal government spending for defense moved roughly sideways, on balance, over recent months. State and local government payrolls were little changed, on net, in October and November, while the level of nominal construction spending of these governments in October was essentially the same as its average in the third quarter.

The U.S. international trade deficit widened in October after narrowing in September. Exports declined, on balance, to the lowest level in three years; lower prices for commodities, along with reduced shipments of capital and consumer goods, weighed on nominal exports. Imports decreased in September and October, partly reflecting further declines in the price of imported oil. The available trade data suggested that declines in real net exports would likely continue to be a drag on real GDP growth in the fourth quarter.

Total U.S. consumer prices, as measured by the PCE price index, rose only ¼ percent over the 12 months ending in October, held down by large declines in consumer energy prices. Core PCE inflation, which excludes changes in food and energy prices, was 1¼ percent over the same 12-month period, partly restrained by declines in the prices of non-energy imported goods. Over the 12 months ending in November, total consumer prices as measured by the consumer price index (CPI) rose ½ percent, while core CPI inflation was 2 percent. Survey measures of expected longer-run inflation were relatively stable, although they showed some hints of having edged slightly lower: In November and early December, the Michigan survey measure continued to run somewhat below its typical range of the past 15 years, though historical patterns suggest that these relatively low readings may have reflected softness in total inflation and energy prices. The measures from both the Survey of Professional Forecasters for the fourth quarter and the Survey of Primary Dealers in December moved down slightly.

Foreign real GDP growth improved in the third quarter after being weak in the first half, and recent indicators were consistent with a further moderate expansion in the fourth quarter. Economic activity in Canada rebounded in the third quarter, boosted by rising exports and a smaller drag from declines in oil-sector investment. The Japanese economy expanded in the third quarter following a small contraction in the previous quarter. In contrast, growth in the euro-area economy slowed in the third quarter. Recent indicators for economic activity in China were relatively favorable, and several other emerging Asian economies strengthened in the third quarter. Mexican economic growth also picked up in the third quarter, but the Brazilian economy continued to contract. Falling energy prices kept headline inflation very low in many foreign economies.

Staff Review of the Financial Situation

Federal Reserve communications and economic data releases over the intermeeting period appeared to have led investors to raise the odds they assigned to an increase in the target range for the federal funds rate at the December FOMC meeting. The October FOMC statement and the stronger-than-expected October employment report, in particular, boosted expectations of FOMC action at this meeting. Subsequent data releases and FOMC communications firmed those views, and in the weeks before the meeting, market participants came to attach high odds to the possibility of a December increase.

The expected path of the federal funds rate implied by market quotes on interest rate derivatives rose moderately over the intermeeting period. Nominal yields on 2- and 10-year Treasury securities rose about 40 basis points and 25 basis points, respectively. Measures of inflation compensation based on Treasury Inflation-Protected Securities remained low.

Over the first few weeks of the intermeeting period, the increase in the perceived likelihood of an increase in the target range for the federal funds rate at the December meeting was not accompanied by a rise in implied or realized volatility in domestic equity and fixed-income markets. However, later in the period, concerns among market participants about the implications of falling crude oil prices and the credit quality of high-yield bonds evidently increased. In reaction, broad measures of U.S. equity prices declined, with a steep selloff in energy-sector stocks, and the one-month-ahead option-implied volatility on the S&P 500 index, the VIX, climbed. In addition, strains in the high-yield bond market increased notably after a mutual fund that specialized in very low-rated and unrated bonds suspended investor redemptions and closed. Over the intermeeting period, high-yield bond spreads widened significantly, on net, particularly for bonds rated triple-C or below, with more pronounced increases for firms in the energy sector. In contrast, spreads on investment-grade corporate bonds were little changed on balance.

Nonfinancial businesses continued to tap financial markets at a brisk pace in the intermeeting period. Issuance of investment-grade corporate bonds and institutional leveraged loans remained solid, buoyed by demand to finance mergers and acquisitions. Growth of commercial and industrial loans on banks' books continued to be strong in October and November, driven mainly by the expansion of large loans at large banks. However, high-yield bond issuance slowed and refinancing-related leveraged loan issuance stayed weak during the intermeeting period.

Corporate earnings and credit quality continued to show some signs of weakening. Available reports and analysts' estimates suggested that aggregate earnings per share in the third quarter declined slightly compared with year-earlier levels, in line with expectations. Earnings were particularly weak in the energy and materials sectors because of declines in prices of crude oil and metals. The stronger dollar appeared to weigh on earnings growth across many sectors.

Conditions in the municipal bond market were generally stable. Gross issuance of municipal bonds was solid in recent months. Yields on municipal bonds declined a little, leaving their ratios to long-term Treasury yields somewhat lower but still near the high end of their historical range.

Financing conditions for commercial real estate tightened somewhat. Spreads on commercial mortgage-backed securities (CMBS) widened further, suggesting that investors in CMBS continued to reassess the risks in this sector following several years of robust demand for these securities. Nonetheless, underwriting standards continued to be relatively loose, and financing conditions appeared to remain quite accommodative overall. CMBS issuance stayed strong.

Residential mortgage market conditions were little changed, on net, over the intermeeting period. Credit remained tight for borrowers with low credit scores, hard-to-document income, or higher debt-to-income ratios. Interest rates on 30-year fixed-rate mortgages increased 30 basis points, in line with increases in yields on mortgage-backed securities and comparable-maturity Treasury securities. Nevertheless, mortgage rates continued to be quite low by historical standards.

Consumer credit markets remained accommodative for most borrowers. Consumer loan balances continued to rise at a robust pace through October because of sustained expansion in credit card balances and sizable increases in auto and student loans; growth of student loans continued to slow gradually. Student and auto loans remained broadly available, even to borrowers with subprime credit histories, but the availability of credit card loans for subprime borrowers was still tight.

Movements in foreign financial markets over the period reflected increased expectations that the FOMC would begin raising the target range for the federal funds rate in December, investors' views about monetary policies abroad, and substantial declines in commodity prices. The broad nominal index of the dollar rose appreciably. Equity indexes declined in many advanced and emerging market economies amid concerns about corporate earnings and falling oil and metals prices. Short-term sovereign yields changed little in the euro area and Japan but rose moderately in the United Kingdom. Longer-term sovereign yields moved higher in Europe along with U.S. Treasury yields.

Staff Economic Outlook

In the economic forecast prepared by the staff for the December FOMC meeting, real GDP growth in the second half of this year was little changed, on net, relative to the projection for the October meeting. The staff's medium-term projection for real GDP growth was revised up slightly, on balance, from the previous forecast, primarily because the recently passed Bipartisan Budget Act of 2015 was anticipated to lead to somewhat higher federal government purchases. The staff continued to project that real GDP would expand at a somewhat faster pace than potential output in 2016 through 2018, supported primarily by increases in consumer spending. The unemployment rate was expected to decline gradually and to run somewhat below the staff's estimate of its longer-run natural rate over this period.

The staff's forecast for inflation was revised down slightly in the near term in response to recent data for consumer prices and the further decline in the price of crude oil; over the medium term, the projection was little revised. Energy prices and prices of non-energy imported goods were expected to begin steadily rising next year. The staff projected that inflation would increase gradually over the next several years and reach the Committee's longer-run objective of 2 percent by the end of 2018.

The staff viewed the uncertainty around its December projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. The risks to the forecast for real GDP were seen as tilted somewhat to the downside, reflecting the staff's assessment that neither monetary nor fiscal policy was currently well positioned to help the economy withstand substantial adverse shocks. Consistent with this downside risk to aggregate demand, the staff viewed the risks to its outlook for the unemployment rate as skewed somewhat to the upside. The risks to the projection for inflation were seen as weighted to the downside, reflecting the possibility that longer-term inflation expectations may have edged down and that the foreign exchange value of the dollar could rise substantially further, which would put downward pressure on inflation.

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 2018 and over the longer run.[3] Each participant's projections were conditioned on his or her judgment of appropriate monetary policy. 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 and confirming that underutilization of labor resources had diminished appreciably since early in the year. Participants' outlook indicated that, with gradual adjustments in the stance of monetary policy, real GDP would continue to increase at a moderate rate over the medium term and that labor market indicators would continue to strengthen. They anticipated that the relative strength in domestic demand would be only partially offset by some further weakness in net exports. Participants generally saw the downside risks to U.S. economic activity from global economic and financial developments, although still material, as having diminished since late summer. In addition, new and revised information on employment

[3] The president of the Federal Reserve Bank of Minneapolis did not participate in this FOMC meeting, and the incoming president is scheduled to assume office on January 1, 2016. James M. Lyon, First Vice President of the Federal Reserve Bank of Minneapolis, submitted economic projections.

in recent months had reduced earlier concerns about a possible slowing of progress in the labor market. Accordingly, taking into account domestic and international developments, most participants judged the risks to the outlook for both economic activity and the labor market to be balanced.

Incoming data indicated that inflation continued to run below the Committee's 2 percent longer-run objective, partly reflecting declines in energy prices and prices of non-energy imports. The price of crude oil fell further over the intermeeting period, and many participants lowered their near-term forecasts for inflation somewhat while leaving their medium-term forecasts little changed. Nearly all continued to anticipate that inflation would rise to or very close to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipated and the labor market strengthened further. Over the intermeeting period, market-based measures of inflation compensation stayed low; some survey-based measures of longer-term inflation expectations edged down. Although many participants remained concerned about downside risks attending the outlook for inflation, a majority of participants saw the risks to the outlook for inflation as balanced.

Consumer spending continued to rise at a solid rate in recent months; retail sales picked up over the October–November period, and motor vehicle sales remained strong. The available information from District business contacts was generally consistent with the recent trend in data on spending, although a couple of reports noted that households were spending cautiously and that some price discounting was likely. Over the coming year, participants expected consumer outlays to be supported importantly by ongoing gains in jobs, rising income, and improved household balance sheets. In addition, several participants pointed out that low energy costs should help support consumer expenditures.

The housing market was recovering gradually, with single-family homebuilding continuing to trend up and multifamily construction remaining at a high level. The reports on the pace of construction and real estate activity across Districts varied. Nonetheless, several participants noted factors pointing to continued improvement in the housing sector, including ongoing house price appreciation, low levels of home inventories, the substantial gap between the rate of household formation and the relatively slow pace of construction, and the possibility that homebuyers may be entering the market in anticipation of higher mortgage rates. Outside of the residential sector, commercial building was highlighted as an area of relative strength in a few Districts.

As a result of the recently passed Bipartisan Budget Act, federal spending was expected to provide a modest boost to economic activity over the next few years. Contacts in one District with a relatively large amount of federal government activity reported that their businesses would also benefit from the reduced uncertainty about the federal fiscal outlook.

Business activity was solid outside of sectors adversely affected by low energy prices and weak exports. A number of participants commented on the strength in the services sector in their Districts, citing, in particular, activity in high-tech, transportation, leisure and hospitality, and health-related businesses. Some reported that the stronger manufacturing industries in their Districts included aerospace, power generation equipment, and medical equipment, and that the domestic auto industry was still a bright spot. However, manufacturing activity overall continued to be restrained by weakness in industries with significant international exposures, such as steel, agricultural and drilling equipment, and chemicals. In addition, domestic energy producers and their service suppliers remained under significant pressure from the excess supply of crude oil and declining prices. The cutbacks in drilling led to further reductions in capital spending and to layoffs; credit conditions for some firms continued to deteriorate. In the agricultural sector, high levels of domestic crop production and weak global demand had depressed commodity prices, and farm income was expected to decline.

Participants generally agreed that the drag on U.S. economic activity from the appreciation of the dollar since the summer of 2014 and the slowdown in foreign economic growth, particularly in emerging market economies, was likely to continue to depress U.S. net exports for some time. Many expressed the view that the risks to the global economy that emerged late this summer had receded and anticipated moderate improvement in economic growth abroad in the coming year as currency and commodity markets stabilized. However, participants cited a number of lingering concerns, including the possibility that further dollar appreciation and persistent weakness in commodity prices could increase the stress on emerging market economies and that China could find it difficult to navigate the cyclical and structural changes under way in its economy. Several upside risks to the U.S. outlook also were noted, including the possibility that declining energy prices could spur consumer spending more than currently anticipated.

Consumer prices, as measured by the PCE index, were little changed, on net, in September and October, held down importantly by declines in energy prices; core PCE prices posted only small increases. Over the intermeeting period, crude oil prices dropped notably, other commodity prices declined, and the dollar appreciated further. The 12-month change in the core PCE price index was 1.3 percent in October and had been running at about that rate since the beginning of the year, despite the declines in prices of non-energy imported goods over the period. Several participants noted that alternative indicators of underlying inflation, such as the core CPI, the trimmed mean PCE, and the sticky price CPI, showed somewhat higher year-over-year increases, close to or above 2 percent. Inflation by these measures, however, had typically run higher than PCE price inflation, and a range of views was expressed about their implications for the outlook for PCE inflation.

Almost all participants continued to expect that once energy prices and prices of non-energy commodities stabilized, the effects of the declines in those prices on headline and core PCE inflation would fade. Moreover, with margins of resource underutilization having already diminished appreciably and longer-run inflation expectations reasonably stable, most anticipated that tightening resource utilization over the next year would contribute to higher inflation. Nearly all participants were now reasonably confident that inflation would move back to 2 percent over the medium term. However, because of the recent further decline in crude oil prices, many participants judged that falling energy prices would depress headline inflation somewhat longer than previously anticipated. Also, several observed that the additional appreciation of the dollar would continue to hold down the prices of imported goods. Although almost all still expected that the downward pressure on inflation from energy and commodity prices would be transitory, many viewed the persistent weakness in those prices as adding uncertainty or posing important downside risks to the inflation outlook.

Participants also discussed readings from various market- and survey-based measures of longer-run inflation expectations. Recently, some of the available surveys had reported softer longer-run inflation expectations, while others suggested still-stable expectations. In addition, the market-based measures of inflation compensation that had declined earlier were still at low levels. A number of participants noted, based on historical patterns, that some of the survey-based measures could be overly sensitive to energy price fluctuations rather than indicating shifts in perceptions of underlying inflation trends and that the declines in the market-based measures could reflect changes in risk and liquidity premiums. Many concluded that longer-run inflation expectations remained reasonably stable. However, some expressed concerns that inflation expectations may have already moved lower, or that they might do so if inflation persisted for much longer at a rate below the Committee's objective.

Labor market conditions improved further in recent months: Monthly gains in nonfarm payroll employment averaged more than 200,000 over the period from September to November, and the unemployment rate edged lower. The cumulative reduction in the underutilization of labor resources since early in the year was appreciable. The unemployment rate, at 5.0 percent in November, was 0.7 percentage point lower than in January and close to most participants' estimates of its longer-run normal level. Broader measures of underemployment that include marginally attached workers and those employed part time for economic reasons also fell substantially since January. However, the labor force participation rate moved down since January as well, with some FOMC participants attributing part of the decline to demographic trends or a structural rise in detachment among prime-age men. A number of participants observed that wage increases had begun to pick up, or that they appeared likely to do so over the coming year. Although many participants judged that the improvement in labor market conditions had been substantial, some others indicated that further progress in reducing labor market slack would be required before conditions would be consistent with the Committee's objective of maximum employment. In particular, some participants stressed the importance of the pace of economic growth staying above that of potential output in order to reduce remaining labor underutilization across broader dimensions—for example, by lowering the still-elevated numbers of workers employed part time for economic reasons and by encouraging additional workers who are currently outside the labor force but want a job to reenter the labor force.

Most participants expected that the unemployment rate would edge below their estimates of its longer-run level in the coming year and then stabilize for a time, with the further strengthening of the labor market helping move inflation higher. Because labor compensation was still increasing at a subdued rate and inflation remained well below 2 percent, some participants judged that a moderate further decline in unemployment would be unlikely to lead to a buildup of unduly strong inflation pressures.

A few commented that a sustained period of labor market activity above levels consistent with maximum employment should speed the rise in inflation to the Committee's objective.

Financial conditions tightened modestly over the intermeeting period. Quotes in financial markets and survey results suggested that investors were quite confident that the Committee would raise the federal funds target range 25 basis points at the current meeting. Concerns among investors about the high-yield bond market increased notably in the days before the meeting after an open-ended mutual fund specializing in junk bonds suspended redemptions and closed. In their discussion, several participants commented that markets for leveraged finance had been correcting since midyear—particularly for the most risky assets, including those associated with energy firms—and noted that the widening of credit spreads in corporate bond markets appeared to be largely due to the repricing of riskier assets.

During their consideration of economic conditions and monetary policy, almost all participants agreed that the improvements that had occurred in the labor market and their confidence in a return of inflation to 2 percent over the medium term now satisfied the Committee's criteria for beginning the policy normalization process. Participants also discussed the implications of economic conditions going forward for the likely future path of the target range for the federal funds rate. Even after the initial increase in the target range, the stance of policy would remain accommodative. Participants saw several reasons why a gradual removal of policy accommodation would likely be appropriate. Normalizing policy gradually would keep the stance of monetary policy sufficiently accommodative to support further improvement in labor market conditions and to exert upward pressure on inflation. Also, a number of participants pointed out that because inflation was still running well below the Committee's objective and the outlook for inflation was subject to considerable uncertainty, it would probably take some time for the data to confirm that inflation was on a trajectory to return to 2 percent over the medium term. Gradual adjustments in the federal funds rate would also allow policymakers to assess how the economy was responding to increases in interest rates. In addition, by several estimates, the neutral short-term real interest rate was currently close to zero and was expected to rise only slowly as headwinds restraining the expansion receded. Moreover, the ability of monetary policy to offset the economic effects of an unanticipated economic shock remained asymmetric, and a cautious approach to normalizing policy could help minimize the risk of having to respond to a negative economic shock while the policy rate remained near its effective lower bound.

While viewing a gradual approach to policy normalization as likely to be appropriate given their economic outlook, participants emphasized the need to adjust the policy path as economic conditions evolved and to avoid appearing to commit to any specific pace of adjustments. They stressed the importance of communicating clearly that the future policy path could become shallower if the economic expansion weakened and inflation rose more slowly than currently anticipated, and that it could become steeper if real activity and inflation surprised to the upside. A few participants also indicated that significant risks to financial stability, should they emerge, could alter their view of the appropriate policy path.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the FOMC met in October indicated that economic activity had been expanding at a moderate pace. Although net exports remained soft, consumer and business spending remained solid, and the housing sector improved further. Overall, taking into account domestic and foreign developments, members saw the risks to the outlook for both economic activity and the labor market as balanced, and they expected that, with gradual adjustments in the stance of monetary policy, economic activity would most likely continue to expand at a moderate pace.

Members agreed that a range of recent labor market indicators, including ongoing job gains and declining unemployment, showed further improvement and confirmed that underutilization of labor resources had diminished appreciably since early this year. Members anticipated that economic activity was likely to continue to expand at a pace sufficient to lead to a further increase in the utilization of labor resources, and many members judged that additional progress would be required to reach the Committee's maximum-employment objective.

Inflation continued to run below the Committee's longer-run objective, held down in part by the effects of declines in energy and non-energy import prices. Market-based measures of inflation compensation remained low; some survey-based measures of longer-term inflation expectations had edged down. Members anticipated that the further decline in crude oil prices over the intermeeting period was likely to exert some additional transitory downward pressure on inflation in the near term.

Regarding the medium-term outlook, inflation was projected to increase gradually as energy prices and prices of non-energy imports stabilized and the labor market strengthened. Overall, taking into account economic developments and the outlook for economic activity and the labor market, the Committee was now reasonably confident in its expectation that inflation would rise, over the medium term, to its 2 percent objective. However, for some members, the risks attending their inflation forecasts remained considerable. Among those risks was the possibility that additional downward shocks to prices of oil and other commodities or a sustained rise in the exchange value of the dollar could delay or diminish the expected upturn in inflation. A couple also worried that a further strengthening of the labor market might not prove sufficient to offset the downward pressures from global disinflationary forces. And several expressed unease with indications that inflation expectations may have moved down slightly. In view of these risks and the shortfall of inflation from 2 percent, members expressed their intention to carefully monitor actual and expected progress toward the Committee's inflation goal.

After assessing the outlook for economic activity, the labor market, and inflation and weighing the uncertainties associated with the outlook, members agreed to raise the target range for the federal funds rate to ¼ to ½ percent at this meeting. A number of members commented that it was appropriate to begin policy normalization in response to the substantial progress in the labor market toward achieving the Committee's objective of maximum employment and their reasonable confidence that inflation would move to 2 percent over the medium term. Members agreed that the postmeeting statement should report that the Committee's decision reflected both the economic outlook and the time it takes for policy actions to affect future economic outcomes. If the Committee waited to begin removing accommodation until it was closer to achieving its dual-mandate objectives, it might need to tighten policy abruptly, which could risk disrupting economic activity. Members observed that after this initial increase in the federal funds rate, the stance of monetary policy would remain accommodative. However, some members said that their decision to raise the target range was a close call, particularly given the uncertainty about inflation dynamics, and emphasized the need to monitor the progress of inflation closely.

Members also discussed their expectations for the size and timing of adjustments in the target range for the federal funds rate going forward. Based on their current forecasts for economic activity, the labor market, and inflation, as well as their expectation that the neutral short-term real interest rate will rise slowly over the next few years, members expected economic conditions would evolve in a manner that would warrant only gradual increases in the federal funds rate. However, they also recognized that the appropriate path for the federal funds rate would depend on the economic outlook as informed by incoming data. Members stressed the potential need to accelerate or slow the pace of normalization as the economic outlook evolved. In the current situation, because of their significant concern about still-low readings on actual inflation and the uncertainty and risks present in the inflation outlook, they agreed to indicate that the Committee would carefully monitor actual and expected progress toward its inflation goal. In determining the size and timing of further adjustments to monetary policy, some members emphasized the importance of confirming that inflation would rise as projected and of maintaining the credibility of the Committee's inflation objective. Based on their current economic outlook, they continued to anticipate that the federal funds rate was likely to remain, for some time, below levels that the Committee expected to prevail in the longer run.

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. In view of members' outlook for moderate growth in economic activity, inflation moving toward its target only gradually, and the asymmetric risks posed by the continued proximity of short-term interest rates to their effective lower bound, the Committee anticipated retaining this policy until normalization of the level of the federal funds rate was well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

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, to be released at 2:00 p.m.:

> "Effective December 17, 2015, 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 ¼ to ½ percent, including: (1) 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 0.25 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; and (2) term reverse repurchase operations to the extent approved in the resolution on term RRP operations approved by the Committee at its March 17–18, 2015, meeting.

The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue 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 vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in October suggests that economic activity has been expanding at a moderate pace. Household spending and business fixed investment have been increasing at solid rates in recent months, and the housing sector has improved further; however, net exports have been soft. A range of recent labor market indicators, including ongoing job gains and declining unemployment, shows further improvement and confirms that underutilization of labor resources has diminished appreciably since early this year. Inflation has continued to run below the Committee's 2 percent longer-run objective, partly reflecting declines in energy prices and in prices of non-energy imports. Market-based measures of inflation compensation remain low; some survey-based measures of longer-term inflation expectations have edged down.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee currently expects that, with gradual adjustments in the stance of monetary policy, economic activity will continue to expand at a moderate pace and labor market indicators will continue to strengthen. Overall, taking into account domestic and international developments, the Committee sees the risks to the outlook for both economic activity and the labor market as balanced. Inflation is expected to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further. The Committee continues to monitor inflation developments closely.

The Committee judges that there has been considerable improvement in labor market conditions this year, and it is reasonably confident that inflation will rise, over the medium term, to its 2 percent objective. Given the economic outlook, and recognizing the time it takes for policy actions to affect future economic outcomes, the Committee decided to raise the target range for the federal funds rate to ¼ to ½ percent. The stance of monetary policy remains accommodative after this increase, thereby supporting further improvement in labor market conditions and a return to 2 percent inflation.

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 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. In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

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, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions."

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.

To support the Committee's decision to raise the target range for the federal funds rate, the Board of Governors voted unanimously to raise the interest rates on required and excess reserve balances by ¼ percentage point, to ½ percent, effective December 17, 2015. The Board of Governors also voted unanimously to approve a ¼ percentage point increase in the primary credit rate (discount rate) to 1 percent, effective December 17, 2015.[4]

After these policy decisions, the deputy manager of the System Open Market Account briefed the Committee on plans for term RRPs over year-end.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, January 26–27, 2016. The meeting adjourned at 10:30 a.m. on December 16, 2015.

Notation Vote

By notation vote completed on November 17, 2015, the Committee unanimously approved the minutes of the Committee meeting held on October 27–28, 2015.

Brian F. Madigan
Secretary

[4] In taking this action, the Board approved requests submitted by the boards of directors of the Federal Reserve Banks of Boston, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, Dallas, and San Francisco. This vote also encompassed approval by the Board of Governors of the establishment of a 1 percent primary credit rate by the remaining Federal Reserve Banks, effective on the later of December 17, 2015, and the date such Reserve Banks informed the Secretary of the Board of such a request. (Secretary's note: Subsequently, the Federal Reserve Banks of New York and Minneapolis were informed by the Secretary of the Board of the Board's approval of their establishment of a primary credit rate of 1 percent, effective December 17, 2015.) This vote of the Board of Governors also encompassed approval of the renewal by all 12 Federal Reserve Banks of the existing formulas for calculating the rates applicable to discounts and advances under the secondary and seasonal credit programs.

Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 15–16, 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 2018 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.

FOMC participants generally expected that, under appropriate monetary policy, real gross domestic product (GDP) growth in 2016 and 2017 would be at or somewhat above their individual estimates of the longer-run growth rate and would converge toward its longer-run rate in 2018 (table 1 and figure 1). All participants projected that the unemployment rate would decline further in 2016. Most participants expected that in 2018 the unemployment rate would remain somewhat below their individual judgments of its longer-run normal rate. Participants projected that inflation, as measured by the four-quarter change in the price index for personal consumption expenditures (PCE), would pick up in 2016 and 2017 from the very low rate seen in 2015. Almost all participants projected inflation in 2018 to be at or very near the Committee's 2 percent objective.

As shown in figure 2, all but two participants thought that it would be appropriate to raise the target range for the federal funds rate before the end of 2015. Most participants expected that it would be appropriate to raise the target range for the federal funds rate gradually over the projection period as headwinds to economic growth dissipate slowly over time and as inflation rises toward the Committee's goal of 2 percent. Consistent with this outlook, most participants projected that the appropriate level of the federal funds rate would be below its longer-run level through 2018.

Almost all participants viewed the levels of uncertainty associated with their outlooks for economic growth and the unemployment rate as broadly similar to the norms of the previous 20 years. Nearly all also viewed the levels of uncertainty associated with their inflation forecasts as broadly similar to historical norms. Most participants saw the risks to their outlooks for real GDP growth and the unemployment rate as broadly balanced. A majority viewed the risks attending their projections for both PCE and core PCE inflation as broadly balanced, but many saw these risks as weighted to the downside. Among those who saw the risks to their inflation outlook as tilted to the downside, several highlighted the continued strength of the dollar and some recent indications that inflation expectations had declined as contributing to those risks.

The Outlook for Economic Activity

Participants generally projected that, conditional on their individual assumptions about appropriate monetary policy, real GDP would increase in 2016 and 2017 at a pace somewhat above their estimates of its longer-run rate. Real GDP growth would then slow in 2018 to a rate at or near their individual estimates of the longer-run normal rate. Participants pointed to a number of factors that they expect will contribute to moderate output growth over the next few years, including labor market conditions that are supportive of economic expansion, household and business balance sheets that had improved significantly since the financial crisis, and a stance of monetary policy that was expected to remain accommodative.

Compared with their contributions to the Summary of Economic Projections (SEP) in September, participants' projections of real GDP growth from 2016 to 2018 were generally little changed. The median value of participants' projections for real GDP growth in 2016 was revised up slightly to 2.4 percent; some participants cited the Bipartisan Budget Act of 2015, which was passed in

[1] The president of the Federal Reserve Bank of Minneapolis did not participate in this FOMC meeting, and the incoming president is scheduled to assume office on January 1, 2016. James M. Lyon, First Vice President of the Federal Reserve Bank of Minneapolis, submitted economic projections.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, December 2015

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2015	2016	2017	2018	Longer run	2015	2016	2017	2018	Longer run	2015	2016	2017	2018	Longer run
Change in real GDP	2.1	2.4	2.2	2.0	2.0	2.1	2.3 – 2.5	2.0 – 2.3	1.8 – 2.2	1.8 – 2.2	2.0 – 2.2	2.0 – 2.7	1.8 – 2.5	1.7 – 2.4	1.8 – 2.3
September projection	2.1	2.3	2.2	2.0	2.0	2.0 – 2.3	2.2 – 2.6	2.0 – 2.4	1.8 – 2.2	1.8 – 2.2	1.9 – 2.5	2.1 – 2.8	1.9 – 2.6	1.6 – 2.4	1.8 – 2.7
Unemployment rate	5.0	4.7	4.7	4.7	4.9	5.0	4.6 – 4.8	4.6 – 4.8	4.6 – 5.0	4.8 – 5.0	5.0	4.3 – 4.9	4.5 – 5.0	4.5 – 5.3	4.7 – 5.8
September projection	5.0	4.8	4.8	4.8	4.9	5.0 – 5.1	4.7 – 4.9	4.7 – 4.9	4.7 – 5.0	4.9 – 5.2	4.9 – 5.2	4.5 – 5.0	4.5 – 5.0	4.6 – 5.3	4.7 – 5.8
PCE inflation	0.4	1.6	1.9	2.0	2.0	0.4	1.2 – 1.7	1.8 – 2.0	1.9 – 2.0	2.0	0.3 – 0.5	1.2 – 2.1	1.7 – 2.0	1.7 – 2.1	2.0
September projection	0.4	1.7	1.9	2.0	2.0	0.3 – 0.5	1.5 – 1.8	1.8 – 2.0	2.0	2.0	0.3 – 1.0	1.5 – 2.4	1.7 – 2.2	1.8 – 2.1	2.0
Core PCE inflation[4]	1.3	1.6	1.9	2.0		1.3	1.5 – 1.7	1.7 – 2.0	1.9 – 2.0		1.2 – 1.4	1.4 – 2.1	1.6 – 2.0	1.7 – 2.1	
September projection	1.4	1.7	1.9	2.0		1.3 – 1.4	1.5 – 1.8	1.8 – 2.0	1.9 – 2.0		1.2 – 1.7	1.5 – 2.4	1.7 – 2.2	1.8 – 2.1	
Memo: Projected appropriate policy path															
Federal funds rate	0.4	1.4	2.4	3.3	3.5	0.4	0.9 – 1.4	1.9 – 3.0	2.9 – 3.5	3.3 – 3.5	0.1 – 0.4	0.9 – 2.1	1.9 – 3.4	2.1 – 3.9	3.0 – 4.0
September projection	0.4	1.4	2.6	3.4	3.5	0.1 – 0.6	1.1 – 2.1	2.1 – 3.4	3.0 – 3.6	3.3 – 3.8	-0.1 – 0.9	-0.1 – 2.9	1.0 – 3.9	2.9 – 3.9	3.0 – 4.0

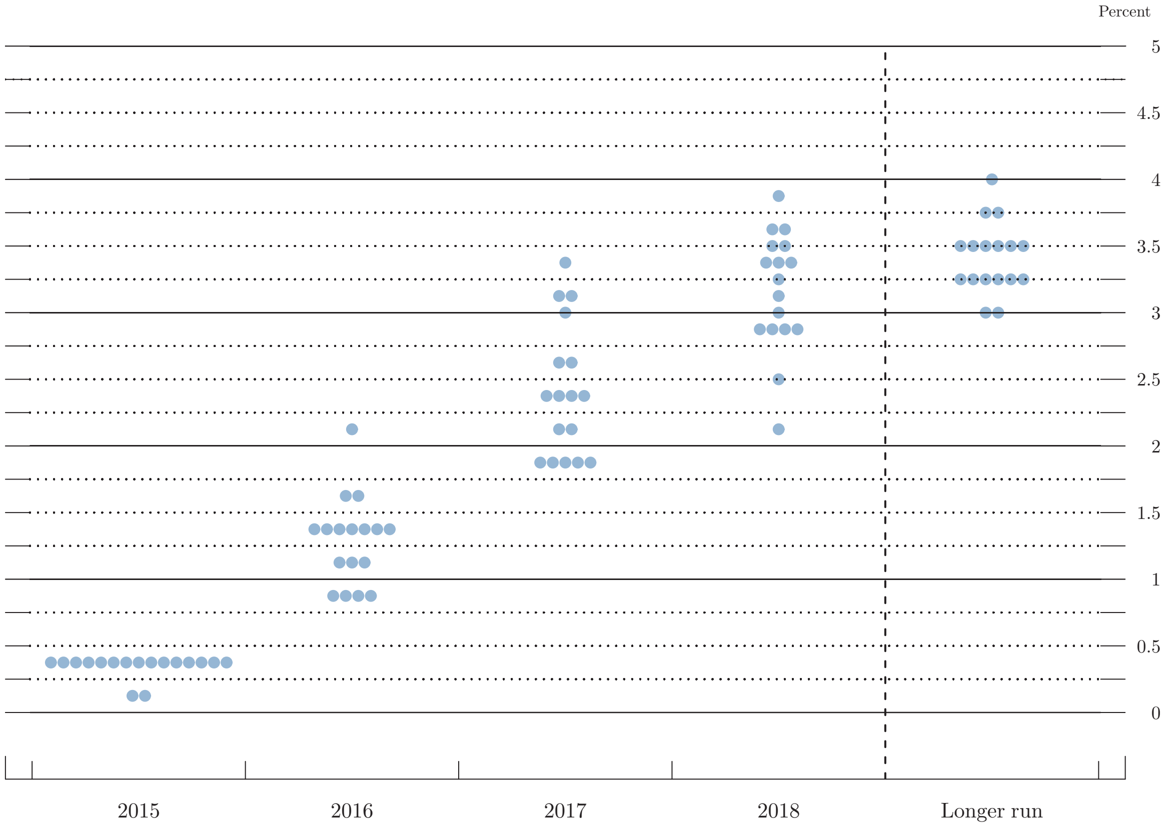
NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 16–17, 2015.

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, 2015–18 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. 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.

late October, as adding support to economic growth in the near term. Very few participants changed their forecasts for real GDP growth in the longer run, resulting in an unchanged median.

All participants projected that the unemployment rate would be at or below their individual judgments of its longer-run normal level from 2016 through 2018. Compared with the September SEP, most participants' projected paths for the unemployment rate were revised down a little over those three years, with the median of the projections in the fourth quarter of each year at 4.7 percent. Many also revised down slightly their estimates of the longer-run normal rate of unemployment, although the median forecast of 4.9 percent was unchanged since September. Participants generally cited stronger-than-expected labor market data in recent months as a factor explaining the downward revisions to their unemployment rate forecasts.

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 2018 and in the longer run. The distributions of the projections for real GDP growth over the next several years and in the longer run narrowed some since the September SEP. The diversity of views across participants on the outlook for GDP growth reflected, in part, differences in their individual assessments of the size and persistence of the effects of lower energy prices and a stronger dollar on real activity; the time it would take for the headwinds that have been restraining the pace of the economic expansion, such as financial and economic conditions abroad, to dissipate; and the appropriate path of monetary policy. With regard to the unemployment rate, the distributions of projections over the next three years shifted modestly to lower values since September.

The Outlook for Inflation

Nearly all participants saw PCE price inflation picking up in 2016, rising further in 2017, and then reaching a rate in 2018 at or very close to the Committee's 2 percent longer-run objective. However, relative to the September SEP, almost all participants marked down their projections for PCE price inflation in 2016, observing that recent declines in energy prices and the continued strength in the dollar could exert additional downward pressure on inflation in the near term. Revisions to participants' inflation forecasts in 2017 were more mixed, while the projections for inflation in 2018 were little changed. Most participants also marked down their projections for core PCE price inflation in 2016, although almost all still expected core inflation to rise gradually over the projection period and to be at or very close to 2 percent by 2018. Factors cited by participants as contributing to their outlook that inflation will rise over the medium term included recent signs of a pickup in wage growth, their expectation of tighter resource utilization, their expectation that the effects of recent appreciation in the dollar and declines in oil prices on inflation will fade, their anticipation that inflation expectations will remain at levels consistent with the FOMC's longer-run objective, and still-accommodative monetary policy.

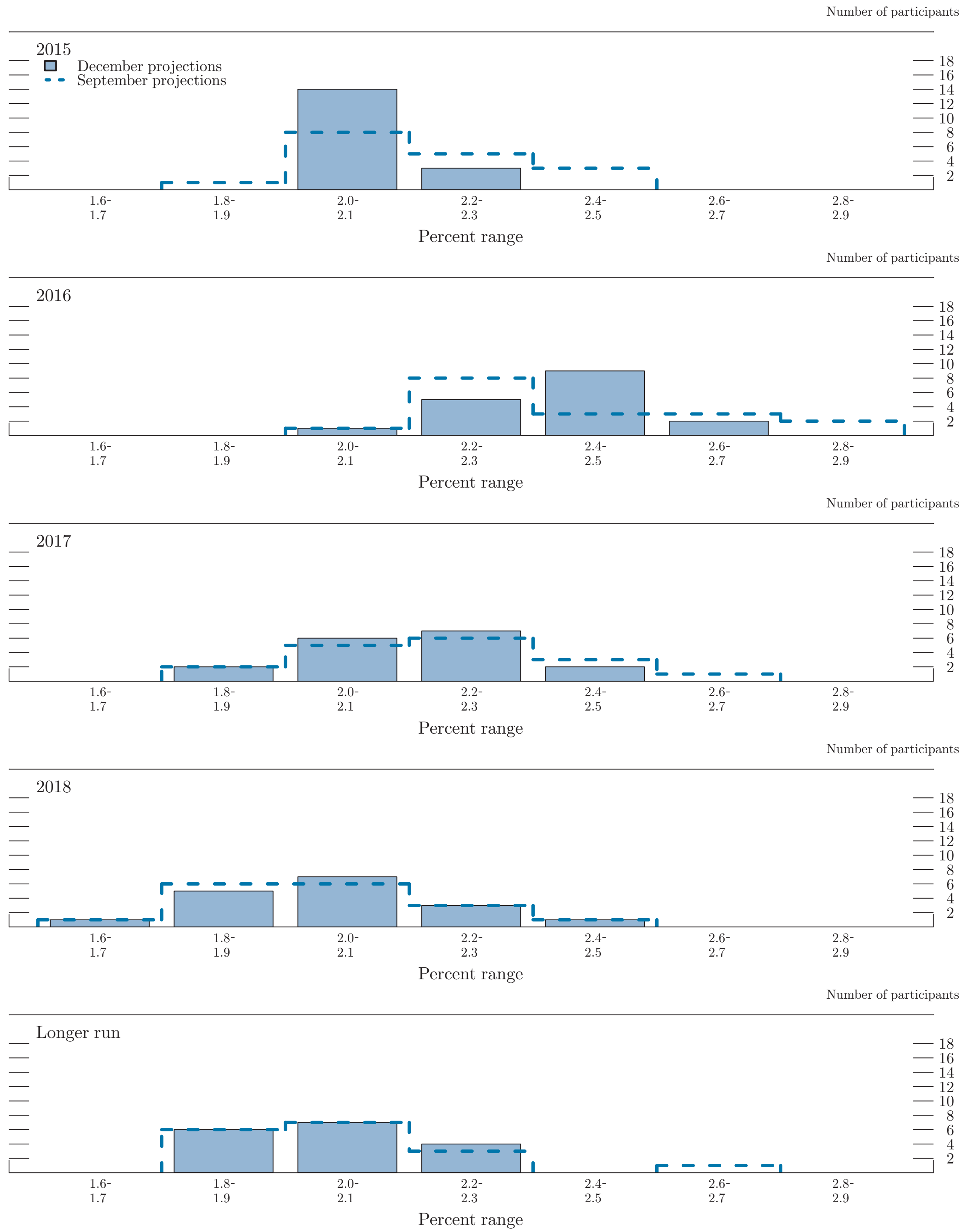
Figures 3.C and 3.D provide information on the distribution of participants' views about the outlook for inflation. The distribution of participants' projections for PCE price inflation in 2016 and 2017 shifted to the left compared with the September SEP, while the distributions of projections for 2018 and in the longer run were little changed. The distributions of projections for core PCE price inflation moved lower for 2016 and 2017 compared with September but did not change for 2018.

Appropriate Monetary Policy

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 2018 and over the longer run. Relative to September, the projections of the appropriate levels of the federal funds rate over the next three years generally shifted to lower values. The median projection for next year was unchanged, but the medians for 2017 and 2018 declined slightly. The median projection now stands at 1.4 percent at the end of 2016, 2.4 percent at the end of 2017, and 3.3 percent at the end of 2018. Given their expectations that economic headwinds will persist and that inflation will rise gradually to 2 percent over the next three years, most participants judged that it would be appropriate for the federal funds rate to remain below its longer-run normal level from 2016 to 2018. Participants projected that a gradual rise in the federal funds rate over that period would be appropriate as some of those headwinds, such as sluggish foreign economic growth, diminish and the temporary factors holding down inflation dissipate. Some participants noted that a gradual increase in the federal funds rate would be consistent with their expectation that the neutral short-term real interest rate will rise slowly over the next few years.

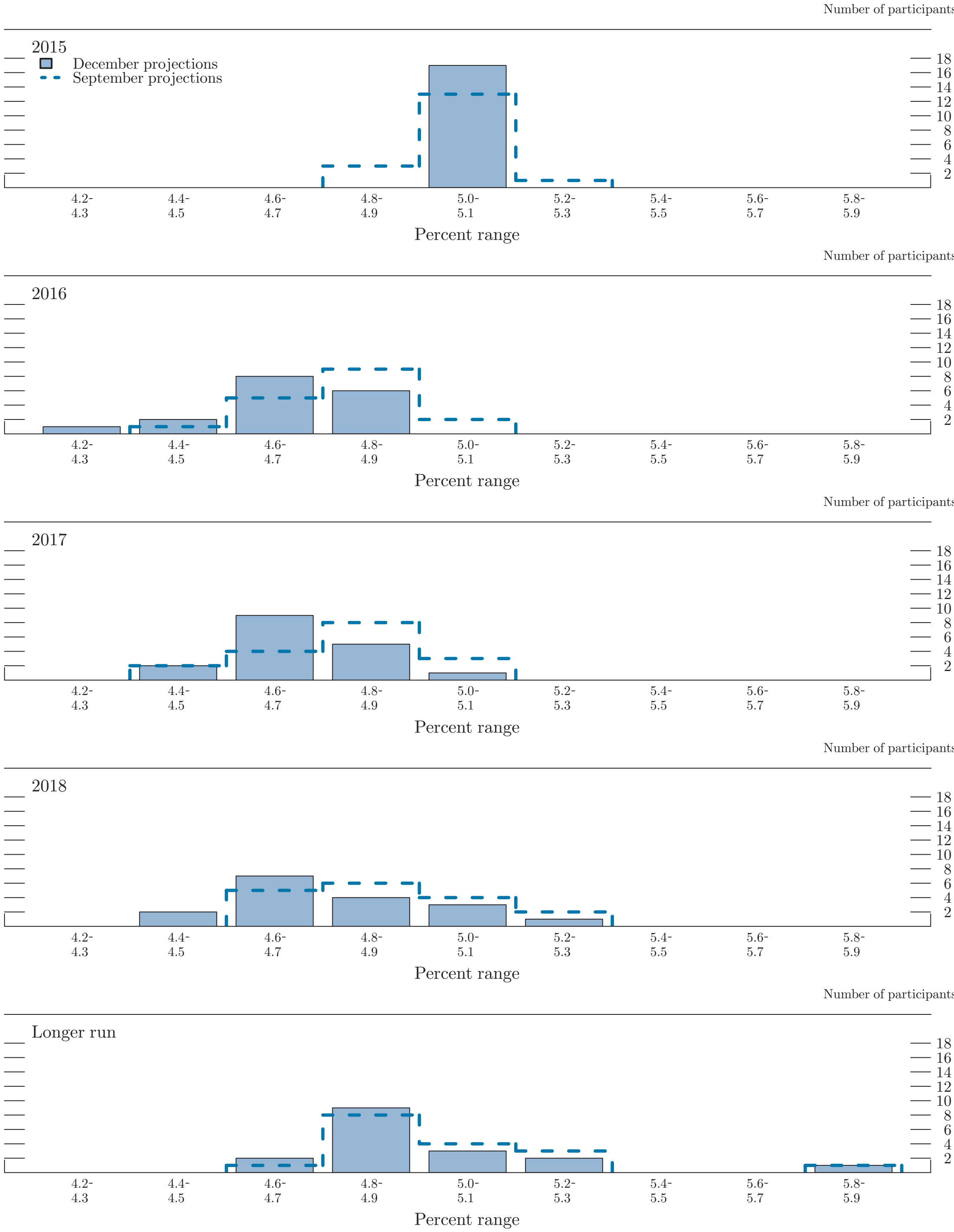
Both the median and the range of participants' projections of the federal funds rate in the longer run, at 3.5 percent and 3 to 4 percent, respectively, were unchanged since September. However, several participants revised their projections for the longer-run federal funds rate slightly lower. All participants judged that inflation

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2015–18 and over the longer run



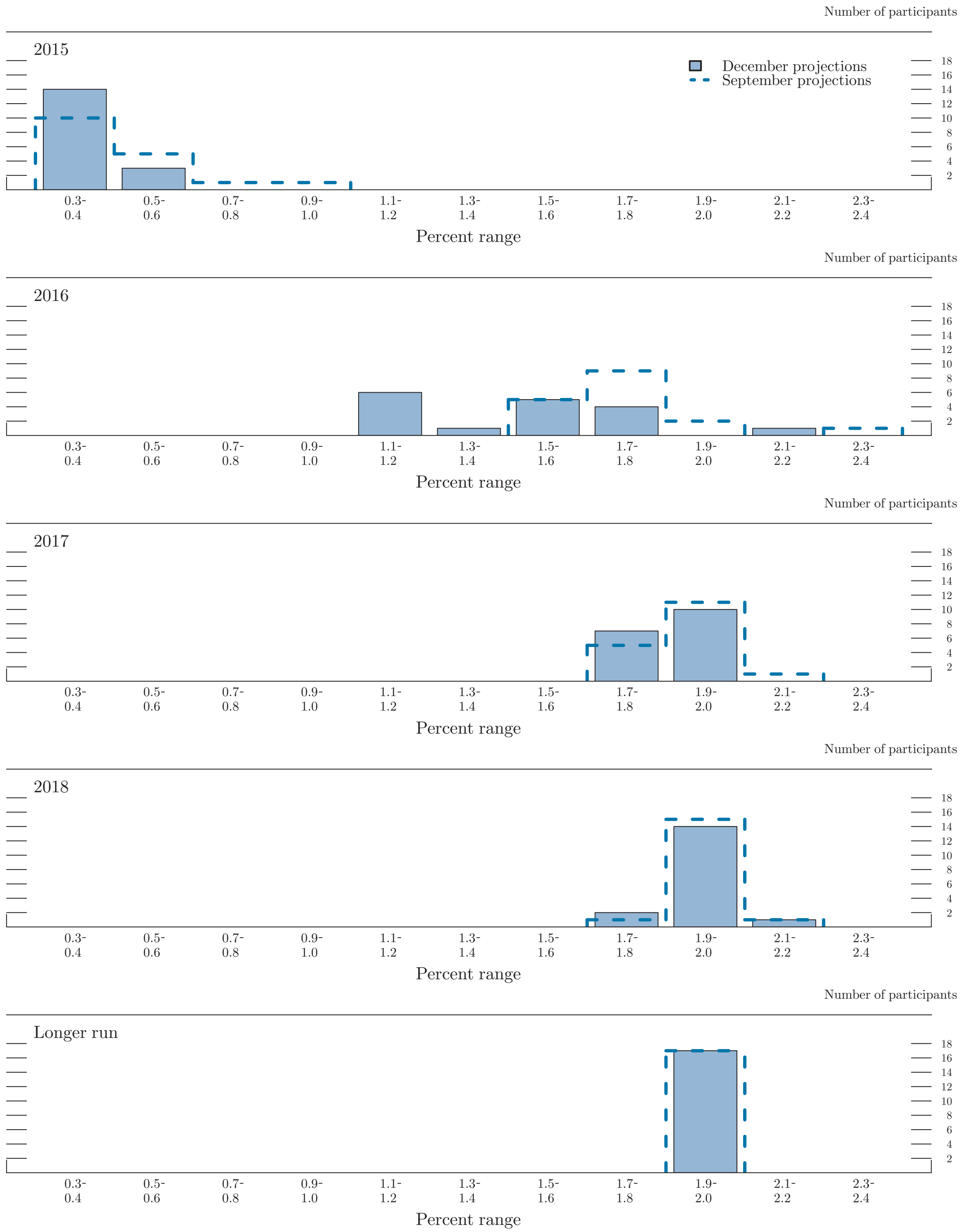
NOTE: Definitions of variables are in the general note to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2015–18 and over the longer run



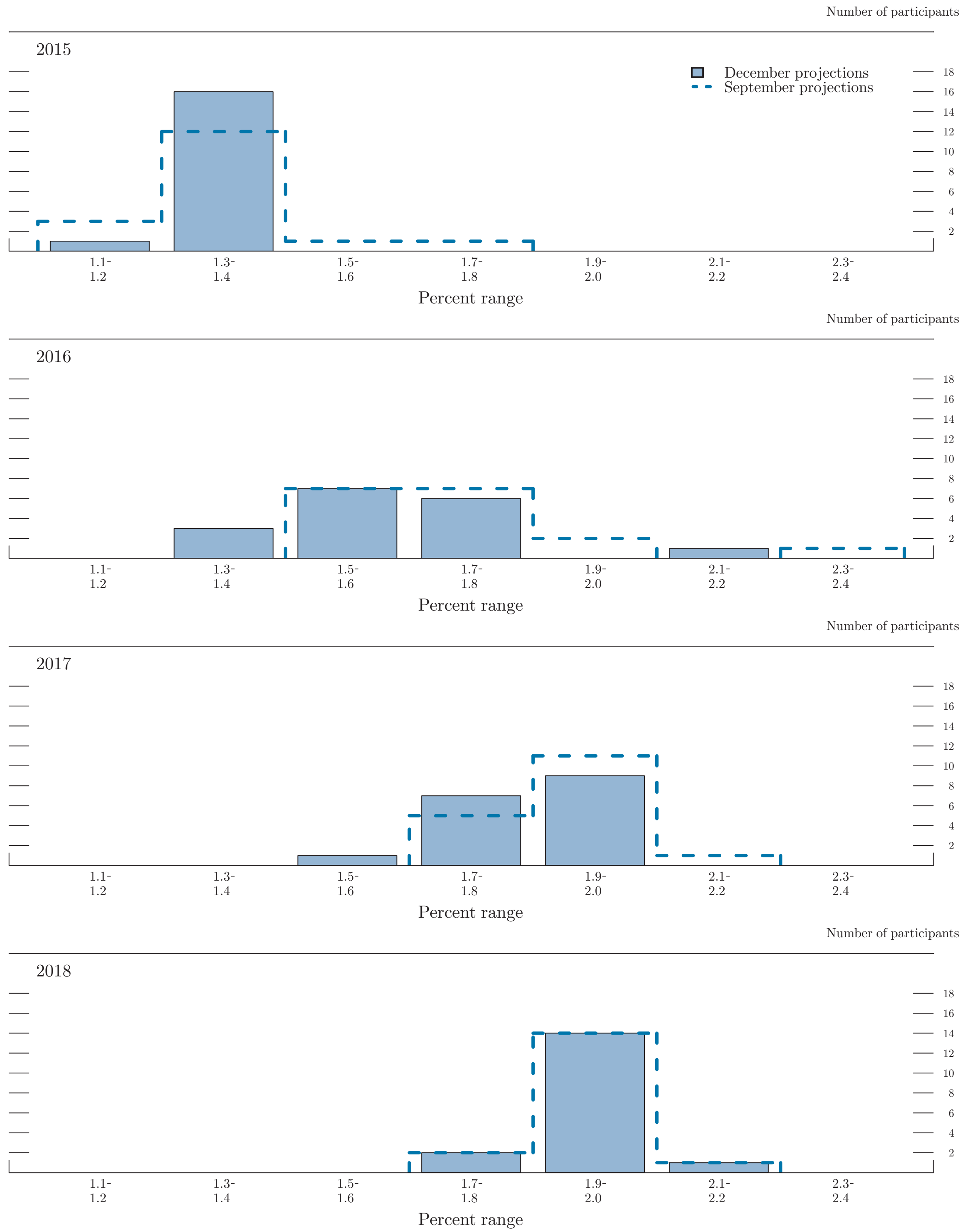
NOTE: Definitions of variables are in the general note to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2015–18 and over the longer run



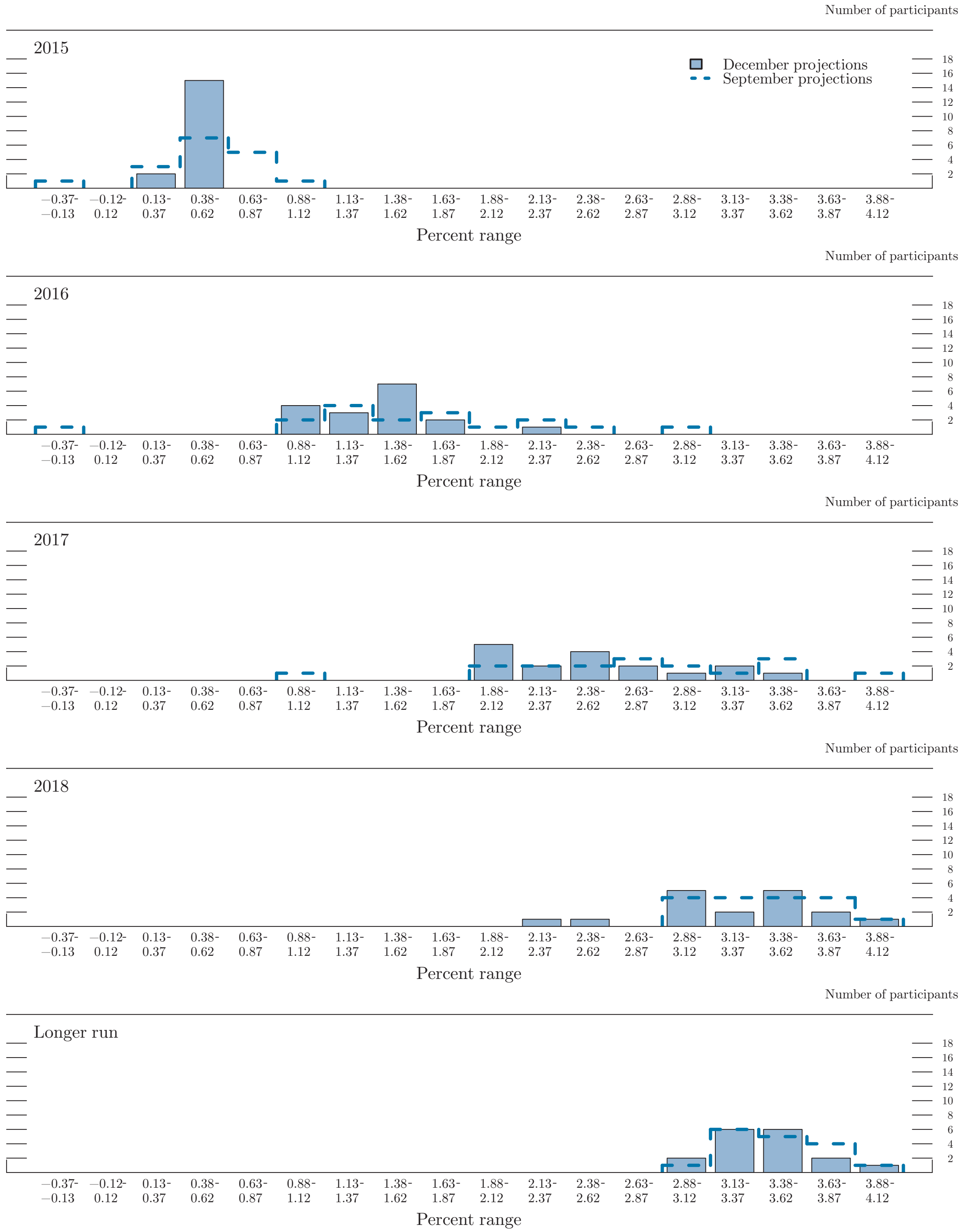
Note: Definitions of variables are in the general note to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2015–18



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, 2015–18 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.

in the longer run would be equal to the Committee's objective of 2 percent, implying that their individual judgments regarding the appropriate longer-run level of the real federal funds rate, in the absence of further shocks to the economy, ranged from 1 to 2 percent, the same as in September.

Participants' views of the appropriate path for monetary policy were informed by their judgments about the state of the economy and the outlook for labor markets and inflation. One important consideration for many participants was their estimate of the extent of slack remaining in the labor market, as informed by the incoming data on various labor market indicators. Another was prospects for inflation to return to the Committee's objective of 2 percent; in making such assessments, participants considered a range of factors, including measures of inflation compensation and longer-run inflation expectations as well as the likely persistence and size of the effects from low energy prices and the strong dollar. Participants also emphasized the potential for international developments to continue to have important implications for domestic economic activity and inflation and thus for appropriate monetary policy. Several participants discussed potential interactions between policy normalization and risks to financial stability. In addition, given the continued proximity of short-term interest rates to their effective lower bound, asymmetric risks around the outlook for employment and inflation were noted as one reason why a gradual approach to raising the federal funds rate may be appropriate.

Uncertainty and Risks

As in the September SEP, nearly all participants continued to judge the levels of uncertainty around their projections for real GDP growth and the unemployment rate as broadly similar to the average level of the past 20 years (figure 4).[2] Most participants saw the risks to their outlooks for real GDP growth and unemployment as broadly balanced, as the number of participants who viewed the risks to economic growth as weighted to the downside and the risks to the unemployment rate as weighted to the upside fell appreciably since September. Diminished risks to domestic economic activity from developments abroad and the strength of recent labor market data were among the reasons noted for the more upbeat assessment of risks.

Table 2. Average historical projection error ranges
Percentage points

Variable	2015	2016	2017	2018
Change in real GDP[1]	±0.9	±1.8	±2.1	±2.1
Unemployment rate[1]	±0.1	±0.8	±1.4	±1.8
Total consumer prices[2]	±0.2	±1.0	±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 winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, 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.

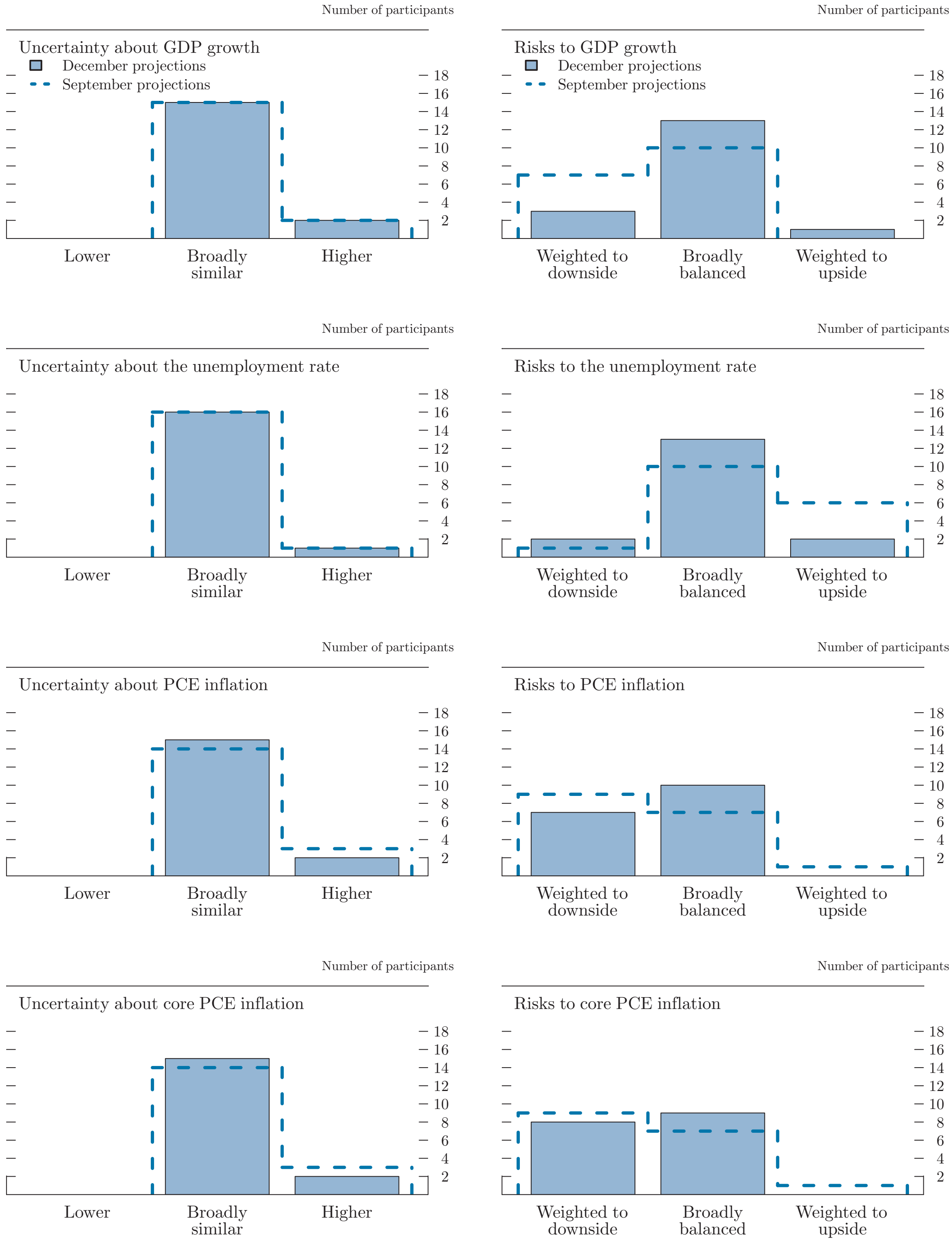
1. Definitions of variables are in the general note to table 1.

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.

As in the September SEP, participants generally agreed that the levels of uncertainty associated with their inflation forecasts were broadly similar to the average level over the past 20 years. The number of participants who viewed the risks to their inflation forecasts as weighted to the downside declined slightly since September, and a majority now viewed the risks to both PCE and core PCE inflation as broadly balanced. Among those who saw risks to inflation as tilted to the downside, several highlighted the continued strength of the dollar and some recent indications that inflation expectations had declined as contributing to their perception of those risks.

[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 2.1 to 3.9 percent in the current year, 1.2 to 4.8 percent in the second year, and 0.9 to 5.1 percent in the third and fourth years. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, and 1.0 to 3.0 percent in the second, third, and fourth 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.