Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, March 2016

Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2016	2017	2018	Longer run	2016	2017	2018	Longer run	2016	2017	2018	Longer run
Change in real GDP	2.2	2.1	2.0	2.0	2.1 – 2.3	2.0 – 2.3	1.8 – 2.1	1.8 – 2.1	1.9 – 2.5	1.7 – 2.3	1.8 – 2.3	1.8 – 2.4
December projection	2.4	2.2	2.0	2.0	2.3 – 2.5	2.0 – 2.3	1.8 – 2.2	1.8 – 2.2	2.0 – 2.7	1.8 – 2.5	1.7 – 2.4	1.8 – 2.3
Unemployment rate	4.7	4.6	4.5	4.8	4.6 – 4.8	4.5 – 4.7	4.5 – 5.0	4.7 – 5.0	4.5 – 4.9	4.3 – 4.9	4.3 – 5.0	4.7 – 5.8
December projection	4.7	4.7	4.7	4.9	4.6 – 4.8	4.6 – 4.8	4.6 – 5.0	4.8 – 5.0	4.3 – 4.9	4.5 – 5.0	4.5 – 5.3	4.7 – 5.8
PCE inflation	1.2	1.9	2.0	2.0	1.0 – 1.6	1.7 – 2.0	1.9 – 2.0	2.0	1.0 – 1.6	1.6 – 2.0	1.8 – 2.0	2.0
December projection	1.6	1.9	2.0	2.0	1.2 – 1.7	1.8 – 2.0	1.9 – 2.0	2.0	1.2 – 2.1	1.7 – 2.0	1.7 – 2.1	2.0
Core PCE inflation[4]	1.6	1.8	2.0		1.4 – 1.7	1.7 – 2.0	1.9 – 2.0		1.4 – 2.1	1.6 – 2.0	1.8 – 2.0	
December projection	1.6	1.9	2.0		1.5 – 1.7	1.7 – 2.0	1.9 – 2.0		1.4 – 2.1	1.6 – 2.0	1.7 – 2.1	
Memo: Projected appropriate policy path												
Federal funds rate	0.9	1.9	3.0	3.3	0.9 – 1.4	1.6 – 2.4	2.5 – 3.3	3.0 – 3.5	0.6 – 1.4	1.6 – 2.8	2.1 – 3.9	3.0 – 4.0
December projection	1.4	2.4	3.3	3.5	0.9 – 1.4	1.9 – 3.0	2.9 – 3.5	3.3 – 3.5	0.9 – 2.1	1.9 – 3.4	2.1 – 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 December projections were made in conjunction with the meeting of the Federal Open Market Committee on December 15–16, 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.

Table 1.A. Economic projections for the first half of 2016*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.1	2.0 – 2.2	1.9 – 2.5
PCE inflation	0.7	0.7 – 1.1	0.4 – 1.2
Core PCE inflation	1.7	1.6 – 1.8	1.5 – 1.9

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.2	0.8	1.7
2	2.0	0.7	1.7
3	2.0	0.7	1.7
4	2.2	0.7	1.7
5	2.2	0.7	1.8
6	2.0	0.7	1.7
7	2.0	1.2	1.9
8	2.1	0.9	1.7
9	2.0	1.2	1.7
10	2.1	0.4	1.5
11	2.1	0.8	1.5
12	2.0	0.7	1.7
13	2.1	0.7	1.6
14	2.5	1.1	1.8
15	2.0	0.7	1.7
16	1.9	1.1	1.6
17	2.3	1.0	1.9

* Growth and inflation are reported at annualized rates.

Table 1.B. Economic projections for the second half of 2016*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.4	2.1 – 2.5	1.9 – 2.6
PCE inflation	1.6	1.5 – 2.0	1.3 – 2.2
Core PCE inflation	1.6	1.1 – 1.7	1.1 – 2.3

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.4	1.6	1.5
2	2.0	1.5	1.1
3	2.4	1.3	1.1
4	2.2	1.7	1.7
5	2.6	2.1	1.6
6	2.4	1.3	1.1
7	2.6	2.0	1.9
8	2.5	1.5	1.5
9	2.2	2.0	1.7
10	2.1	1.6	1.5
11	2.5	1.6	1.7
12	2.6	1.5	1.3
13	2.1	1.7	1.6
14	2.5	1.9	1.8
15	2.0	1.3	1.1
16	1.9	2.1	1.6
17	2.3	2.2	2.3

* Projections for the second half of 2016 implied by participants' March projections for the first half of 2016 and for 2016 as a whole. Growth and inflation are reported at annualized rates.

Table 2. March economic projections, 2016–18 and over the longer run (in percent)

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2016	2.3	4.8	1.2	1.6	0.88
2	2016	2.0	4.6	1.1	1.4	0.63
3	2016	2.2	4.7	1.0	1.4	0.88
4	2016	2.2	4.6	1.2	1.7	1.38
5	2016	2.4	4.7	1.4	1.7	1.38
6	2016	2.2	4.8	1.0	1.4	0.88
7	2016	2.3	4.7	1.6	1.9	1.38
8	2016	2.3	4.7	1.2	1.6	0.88
9	2016	2.1	4.9	1.6	1.7	1.38
10	2016	2.1	4.7	1.0	1.5	0.88
11	2016	2.3	4.7	1.2	1.6	1.13
12	2016	2.3	4.7	1.1	1.5	0.88
13	2016	2.1	4.7	1.2	1.6	1.13
14	2016	2.5	4.8	1.5	1.8	1.13
15	2016	2.0	4.5	1.0	1.4	0.88
16	2016	1.9	4.6	1.6	1.6	0.88
17	2016	2.3	4.5	1.6	2.1	0.88
1	2017	2.3	4.6	1.7	1.7	1.88
2	2017	2.1	4.6	1.7	1.6	1.63
3	2017	2.2	4.6	1.6	1.6	1.88
4	2017	1.8	4.8	1.8	1.8	2.63
5	2017	2.3	4.5	2.0	2.0	2.75
6	2017	2.1	4.7	1.6	1.6	1.88
7	2017	2.3	4.5	2.0	2.0	2.38
8	2017	2.3	4.6	1.7	1.7	1.88
9	2017	1.9	4.9	2.0	2.0	2.38
10	2017	1.7	4.7	1.9	1.8	1.63
11	2017	2.3	4.4	1.9	1.8	2.13
12	2017	2.1	4.5	1.7	1.7	1.63
13	2017	2.0	4.6	2.0	1.9	2.13
14	2017	2.3	4.7	2.0	2.0	2.13
15	2017	2.0	4.3	1.7	1.7	1.63
16	2017	2.0	4.5	2.0	1.9	1.88
17	2017	2.3	4.5	2.0	2.0	2.38

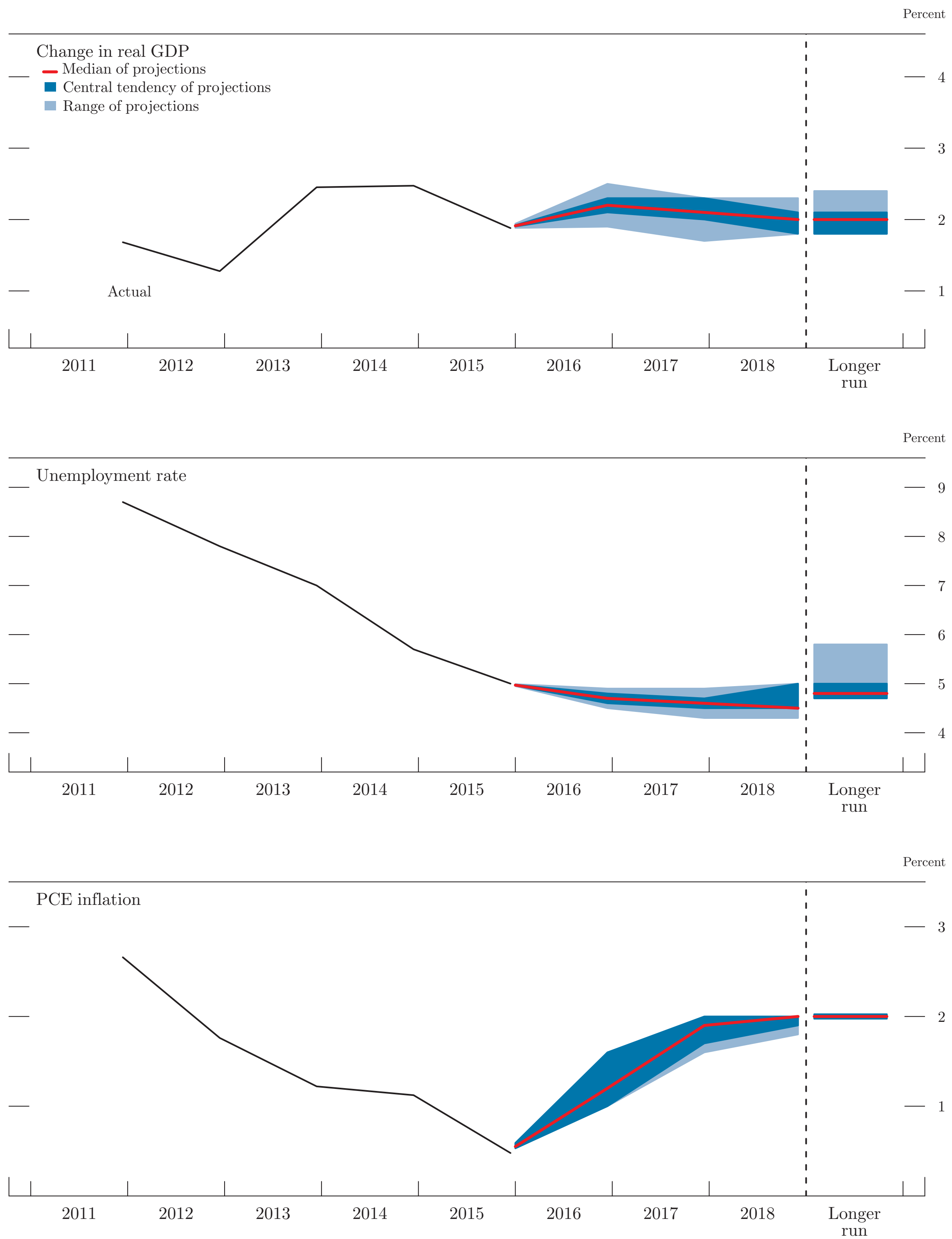
Table 2. *(continued)*

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2018	2.3	4.5	1.9	1.9	3.00
2	2018	2.1	4.6	1.8	1.8	2.88
3	2018	2.0	4.5	1.8	1.8	2.50
4	2018	1.8	5.0	2.0	2.0	3.25
5	2018	2.0	5.0	2.0	2.0	3.25
6	2018	1.8	4.8	1.8	1.8	2.13
7	2018	2.0	4.5	2.0	2.0	3.38
8	2018	2.1	4.5	1.9	1.9	2.88
9	2018	1.8	5.0	2.0	2.0	3.38
10	2018	1.8	4.8	2.0	2.0	2.38
11	2018	2.1	4.4	2.0	2.0	3.13
12	2018	1.8	4.5	1.9	1.9	2.38
13	2018	1.9	4.5	2.0	2.0	3.13
14	2018	2.1	4.8	2.0	2.0	3.13
15	2018	2.0	4.3	2.0	2.0	2.63
16	2018	1.8	4.5	2.0	1.9	2.88
17	2018	2.0	5.0	2.0	2.0	3.88
1	LR	2.1	4.8	2.0		3.25
2	LR	2.0	4.7	2.0		3.00
3	LR	2.0	4.7	2.0		3.00
4	LR	1.9	5.0	2.0		3.25
5	LR	2.0	5.0	2.0		3.25
6	LR	2.0	4.9	2.0		3.00
7	LR	1.8	5.0	2.0		3.75
8	LR	2.4	4.8	2.0		3.50
9	LR	1.8	5.0	2.0		3.75
10	LR	1.8	4.8	2.0		3.25
11	LR	2.2	4.7	2.0		3.25
12	LR	1.8	4.7	2.0		3.00
13	LR	1.9	4.7	2.0		3.25
14	LR	2.1	4.9	2.0		3.50
15	LR	2.0	4.8	2.0		3.00
16	LR	2.0	4.8	2.0		3.25
17	LR	2.0	5.8	2.0		4.00

Figure 1.A. Medians, central tendencies, and ranges of economic projections, 2016–18 and over the longer run

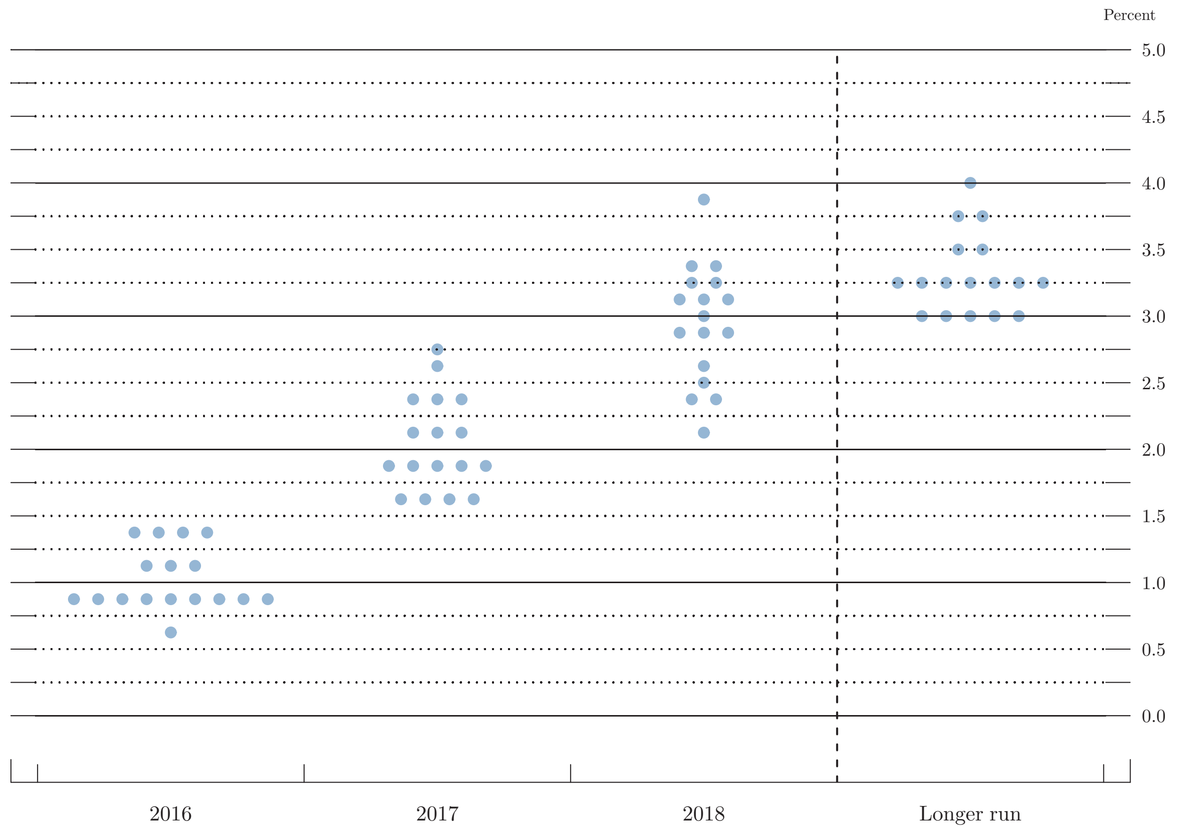
NOTE: Definitions of variables are in the general note to table 1. The data for the actual values of the variables are annual.

Figure 1.B. Medians, central tendencies, and ranges of economic projections, 2016–18 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.

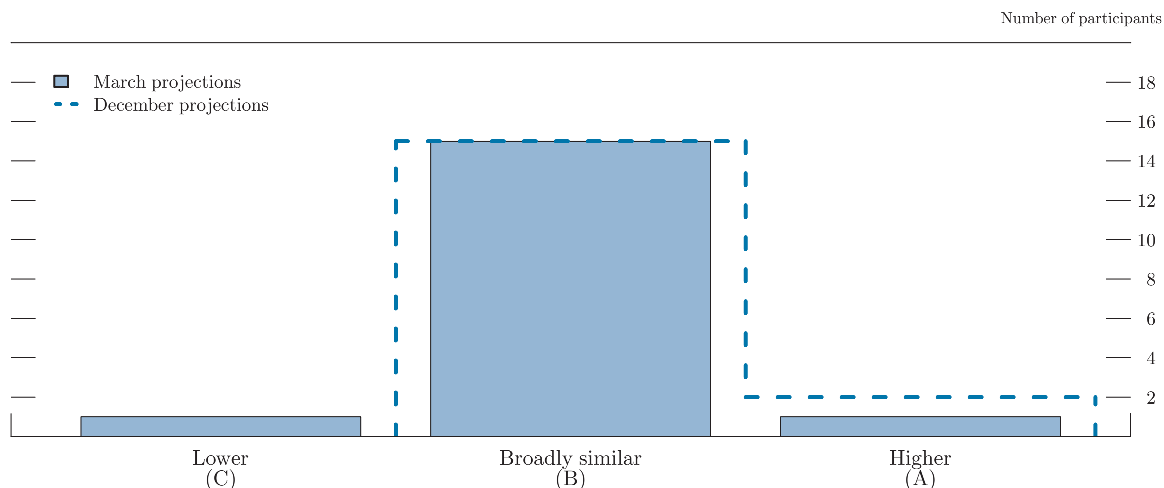
Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



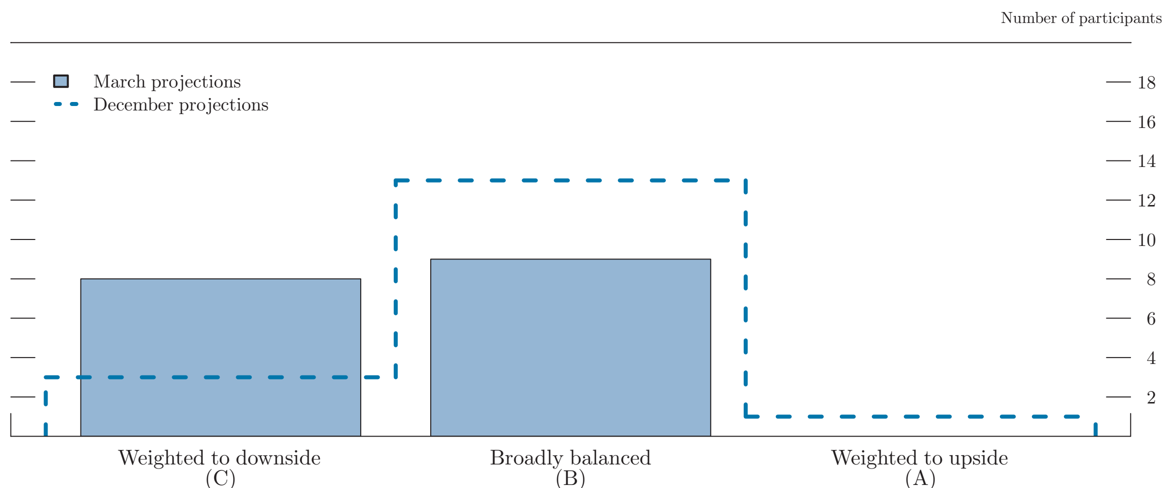
NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar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

Figure 4.A. Uncertainty and risks – GDP growth

2(a): Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years.



2(b): Please indicate your judgment of the risk weighting around your projections.

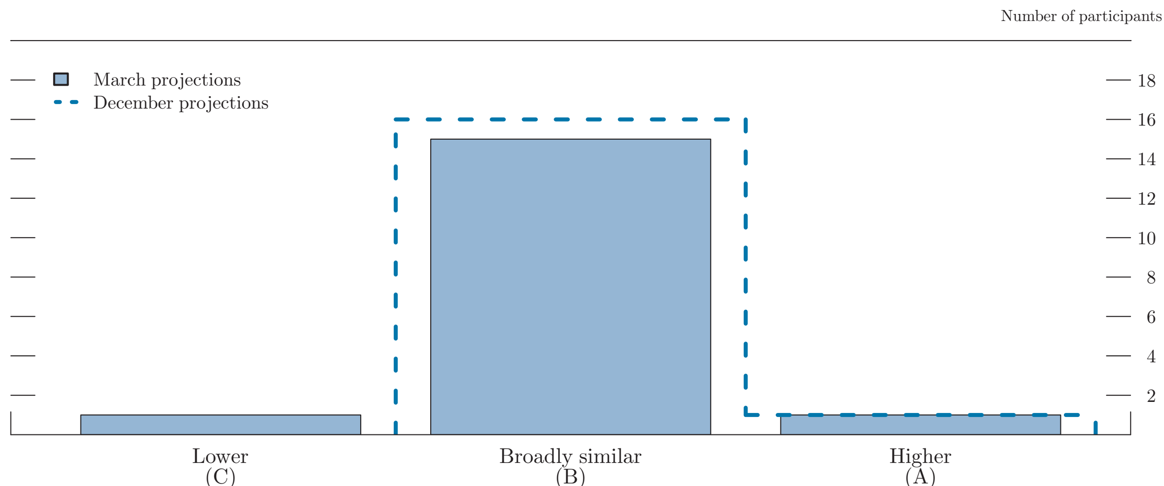


Individual responses

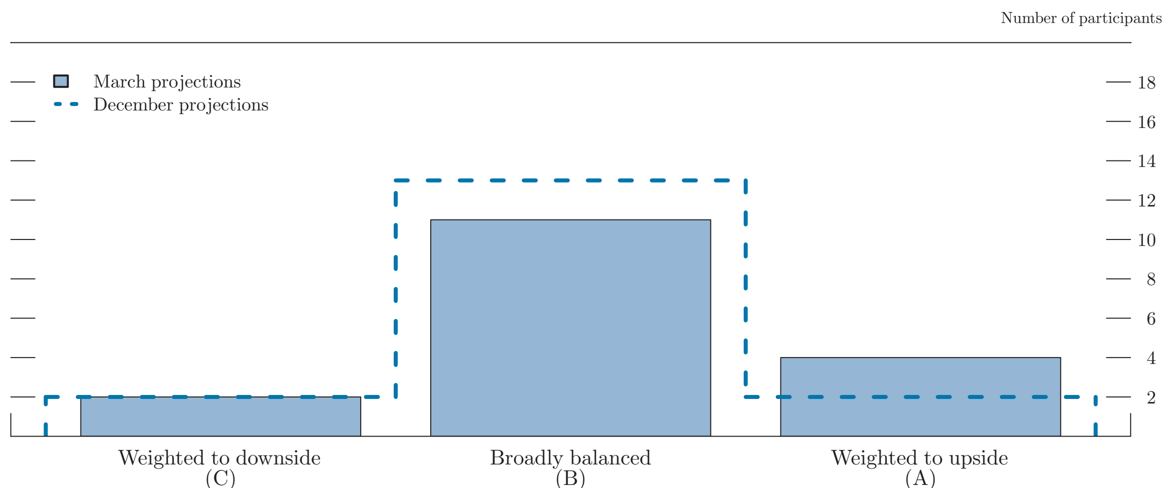
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	B	C	B	A	B	B	B	B	B	B	B
2(b)	C	C	C	B	B	C	B	C	B	C	B	C	B	C	B	B	B

Figure 4.B. Uncertainty and risks – Unemployment rate

2(a): Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years.



2(b): Please indicate your judgment of the risk weighting around your projections.

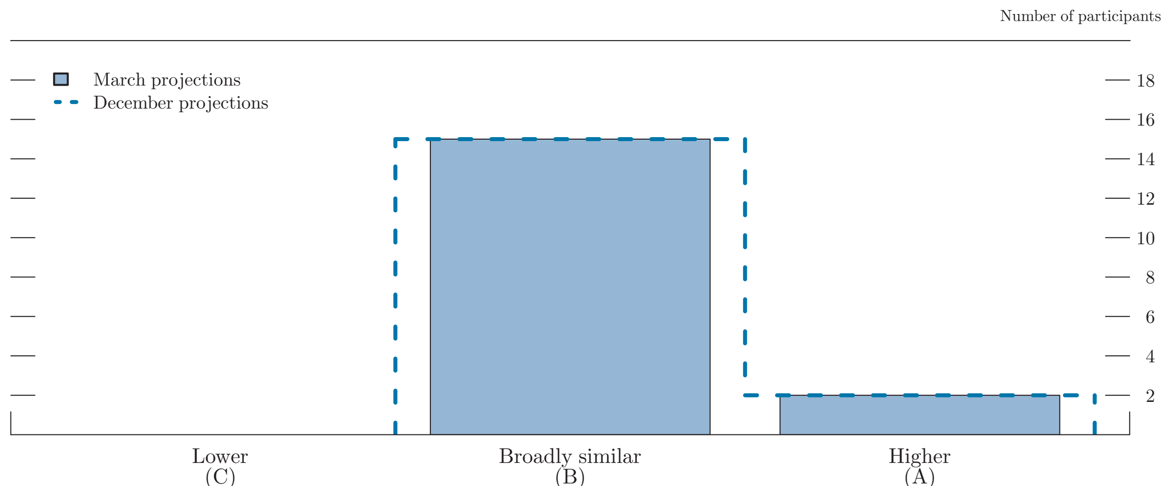


Individual responses

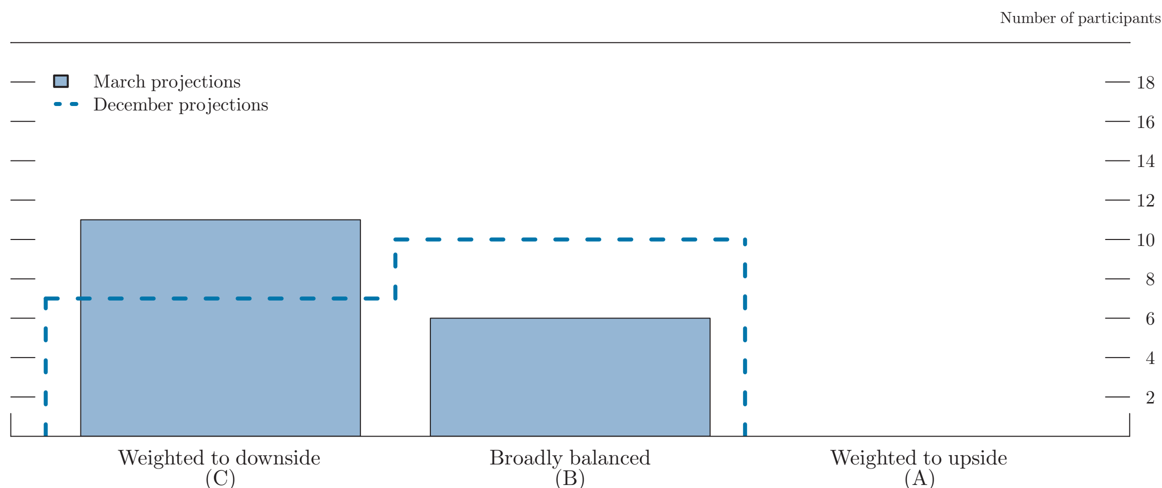
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	B	C	B	A	B	B	B	B	B	B	B
2(b)	A	A	B	B	B	B	B	B	B	A	C	A	C	B	B	B	B

Figure 4.C. Uncertainty and risks – PCE inflation

2(a): Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years.



2(b): Please indicate your judgment of the risk weighting around your projections.

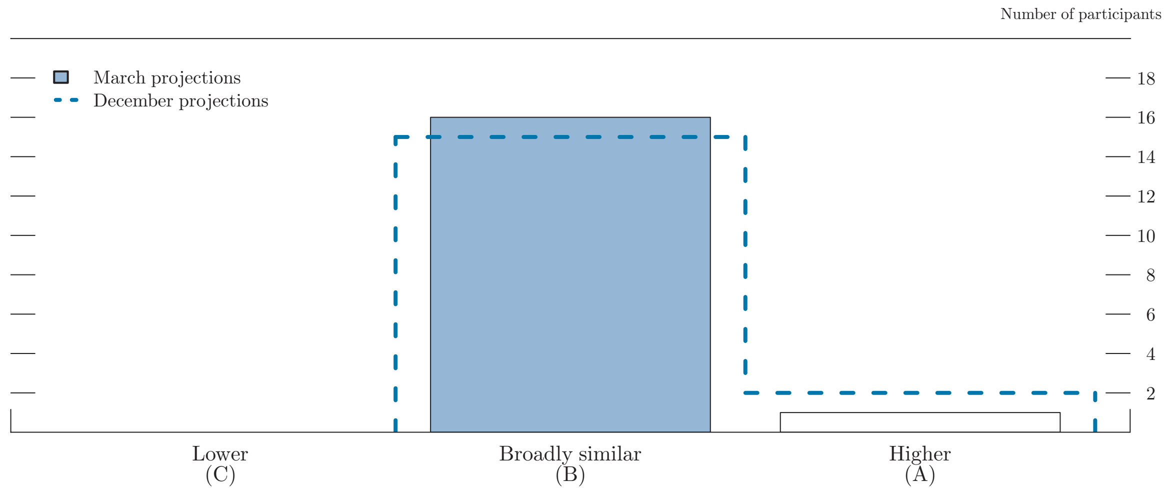


Individual responses

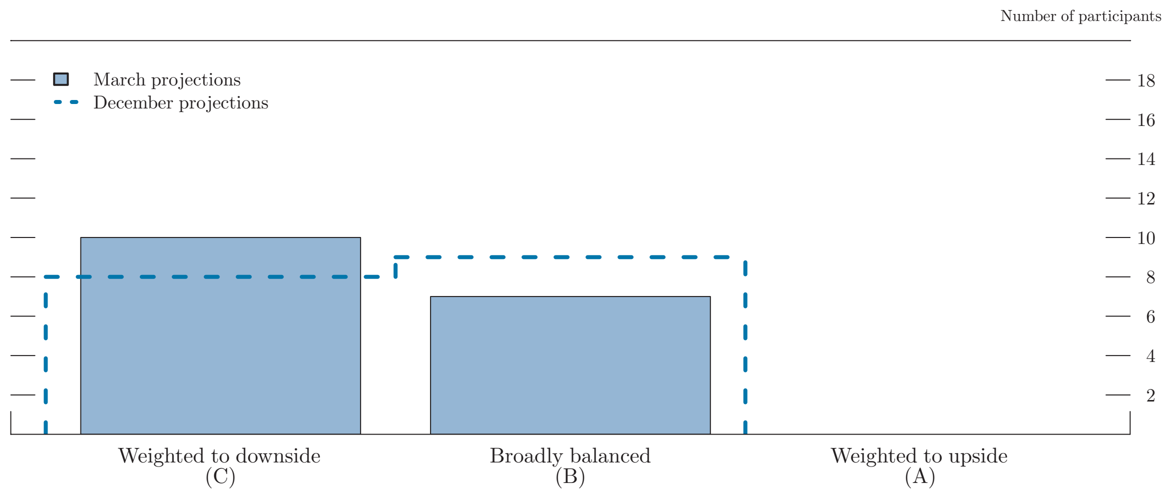
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B
2(b)	C	C	C	B	B	C	B	C	B	C	C	C	C	C	C	B	B

Figure 4.D. Uncertainty and risks – Core PCE inflation

2(a): Please indicate your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years.



2(b): Please indicate your judgment of the risk weighting around your projections.



Individual responses

Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B
2(b)	C	C	C	B	B	B	B	C	B	C	C	C	C	C	C	B	B

Longer-run Projections

1(c). If you anticipate that the convergence process will take SHORTER OR LONGER than about five or six years, please indicate below your best estimate of the duration of the convergence process. You may also include below any other explanatory comments that you think would be helpful.

Respondent 1: N/A

Respondent 2: N/A

Respondent 3: N/A

Respondent 4: Convergence completed by end of 2018.

Respondent 5: At this point, convergence is likely in two to three years.

Respondent 6: N/A

Respondent 7: I anticipate that the convergence of real GDP growth and inflation will takes less than 5 years. Specifically, I expect real GDP growth to slow to its longer-run rate after 2018 and inflation to rise to close to 2 percent by late 2016. The unemployment rate has already reached my estimate of its longer-run level, and I expect it will fall below its longer-run level in 2016, 2017, and 2018, before moving back to its longer-run level.

Respondent 8: N/A

Respondent 9: Inflation is projected to be 2 percent in 2017, with unemployment close to its natural rate.

Respondent 10: We project that the unemployment rate will reach its longer-run level by mid-2016, and that it will remain near that level over the rest of the forecast horizon. However, our scenario analysis of labor flows and the historical behavior of the unemployment rate in long expansions indicate that there is some probability of the unemployment rate falling below our point estimate of its longer-run normal level at some time over the forecast horizon.

We assume that long-term inflation expectations will continue to be anchored at levels consistent with the FOMC longer-run objective. Under these conditions and with the resource gap anticipated to dissipate over the forecast horizon, we expect inflation as measured by the PCE deflator (on a quarterly basis) to be about 2% by the end of 2017.

As indicated in our projections, we anticipate that under appropriate monetary policy and no further shocks, the convergence process should be largely completed at the end of 2017. Accordingly, the projections of the major economic variables for 2018 are at their longer-run values.

Respondent 11: I anticipate that the economy will converge to my longer-run projections in about five years.

Respondent 12: I anticipate that it will take five or six years to achieve full convergence, for two reasons. First, getting inflation back to 2 percent by 2019 will likely require pushing the unemployment rate below its longer-run value (U*) for several years. Thus, I don't expect the unemployment rate to settle down at U* until 2021 or later, especially as it would be inappropriate for monetary policy to tighten quickly to speed up the process, as that would risk triggering a recession. Second, I anticipate that it will be at least five or six years until the headwinds from abroad and elsewhere have fully faded, and thus for the federal funds rate to settle in at its longer-run value.

Respondent 13: Convergence to full employment is expected to occur by the end of this year. Convergence to the inflation target is projected to follow later in 2018, as inflation expectations gradually revert back to 2 percent.

Respondent 14: No comment

Respondent 15: I think that unemployment is close to mandate consistent levels today. I expect inflation to reach such levels in 2017 or 2018.

Respondent 16: I expect the unemployment rate to reach its longer-run sustainable level early this year, and then fall below that level. In 2017, with the labor market tight, and the restraining effects of oil-price declines and a stronger dollar having waned, I expect inflation to reach our 2 percent longer-run objective. In the absence of new shocks, the unemployment rate eventually converges to its longer-run sustainable level from below, and the inflation rate converges to 2 percent from above. Full convergence is likely to take 5-to-6 years.

Respondent 17: All measures converge in five or fewer years. GDP growth will converge in 2018, inflation will converge in 2017, and unemployment will converge in 2020.

Uncertainty and Risks

2(a). (Optional) If you have any explanatory comments regarding your judgment of the uncertainty attached to your projections relative to levels of uncertainty over the past 20 years, you may enter them below.

Respondent 1: N/A

Respondent 2: N/A

Respondent 3: The current level of uncertainty lies somewhere between the low levels experienced during the Great Moderation and the high levels experienced during the financial crisis and its immediate aftermath.

Respondent 4: Uncertainty about my projection for economic activity is similar to its average level over the past 20 years. Inflation remains anchored by stable longer-run inflation expectations at the FOMC's stated goal of 2 percent. Inflation expectations have been well anchored for the past two decades, so I see the magnitude of the uncertainty around the inflation outlook as broadly similar to past levels.

Respondent 5: N/A

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: I assume past 20 years includes the 2008 to date period.

Respondent 9: N/A

Respondent 10: Quantitative judgment based on the width of the probability intervals from the FRBNY forecast distribution for real GDP growth and core PCE inflation relative to the forecast errors over the last 20 years. The widths of these intervals are roughly the same as in our December SEP submission. The probability intervals for the real activity forecasts remain wider than the SEP standard, as was the case in December; the extraordinary economic and financial environment, including the prospective policy divergence across advanced economies, point to significant uncertainty about the real activity outlook. The forecast intervals for core PCE inflation still appear broadly consistent with the SEP standard, taking rough account of the differences between forecast errors for overall consumer inflation and core PCE inflation.

Respondent 11: N/A

Respondent 12: N/A

Respondent 13: N/A

Respondent 14: No comments.

Respondent 15: N/A

Respondent 16: N/A

Respondent 17: N/A

Uncertainty and Risks (continued)

2(b). (Optional) If you have any explanatory comments regarding your judgment of the risk weighting around your projections, you may enter them below.

Respondent 1: We regard to growth, there is a downside risk that structural issues in emerging market economies will continue to trigger recurrent "risk-off" episodes in financial markets, with negative consequences for domestic credit conditions, household and business sentiment, and domestic spending. On the upside, the solid labor market and continued low energy prices could lead to some stronger household spending than we are expecting, with attendant spillovers to other components of domestic demand. However, we do not see these upside developments being as likely or as potentially powerful as the downside risks to the outlook. Accordingly, we see the balance of risks to the GDP forecast as tilted to the downside and those to unemployment rate projection as tilted to the upside.

The incoming price data caused us to raise our forecasts for core inflation a tenth this year to 1.6 percent; we then see inflation slowly rising to near target by the end of the forecast period. We feel the risks to our inflation forecast are tilted to the downside. We built some persistence from the recent higher readings on core inflation into our forecast, but we recognize a strong case can be made for the Tealbook's view that the bump up in inflation will prove to be transitory. In addition, the persistently low readings on inflation breakevens and downward drift in some surveys suggest that longer-run inflation expectations may have already slipped below our inflation target; at a minimum, they point to fragility in inflation expectations. Any meaningful reduction in expectations would make it all that more difficult to reach our inflation target.

Respondent 2: Weak global growth (despite extraordinary monetary accommodation in many important global economies) threatens U.S. growth both directly via lower demand for exports and indirectly, by increasing the likelihood of further dollar appreciation and further bouts of financial market volatility and aversion to risk. In addition, the tools available for monetary and fiscal policy to address any adverse shocks are more constrained now than in the past. Persistently low inflation has increased the risks of a decline in inflation expectations (as shown by declines in household survey measures of inflation expectations and by very low readings on inflation compensation) and, hence, tilts the risks to inflation to the downside.

Respondent 3: Risks for output and inflation are weighted to the downside because the effective lower bound limits the ability of monetary policy to respond to adverse shocks. The strong dollar and the possibility that inflation expectations have drifted down present additional downside risks for inflation. For the unemployment rate, there is a countervailing risk that it will continue to fall more rapidly than expected for a given path of output, as it has over the past several years; therefore I see the risks to unemployment as broadly balanced.

Respondent 4: Risks to economic activity appear broadly balanced. GDP over the past year has grown faster than potential, and we have reached our objective of maximum sustainable employment according to a variety of labor market measures. Fiscal policy is set to be accommodative in the near term and, despite recent financial market volatility, consumer spending remains on track for moderate growth this year. There are upside risks to consumer and housing expenditure.

That said, with foreign economies continuing to experience weak growth, there is risk of a deterioration in the foreign outlook.

Although the effective lower bound constrains our ability to respond to adverse shocks, this constraint is becoming less important given that appropriate policy calls for steady increases in the target funds rate over the next two years.

Inflation risks are also balanced. Although some disinflationary pressures from abroad continue, the labor market continues to strengthen, increasing the likelihood of wage pressures mounting and feeding through to higher inflation.

Respondent 5: In this projection I have moved down my estimates of longer run growth, the unemployment rate, and the fed funds rate, each by 25 basis points. I have also made a small downward adjustment to my growth forecast for 2016 to incorporate some of the weakness seen at the end of last year and early this year. Notwithstanding recent market volatility, I view the risks around my projections as broadly balanced.

Recent financial market volatility poses a downside risk, although some of the recent tightening in credit conditions seen at the start of the year has already begun to subside. If volatility were sustained and intensified it could lead to a sustained pullback in risk appetites among investors, businesses, and consumers, but so far we have not seen this.

Moves by several foreign central banks to increase monetary accommodation to stimulate growth and inflation reduce risks to global growth but may increase upward pressure on the dollar to the extent the magnitudes of the actions were not fully anticipated. If the dollar appreciated more than anticipated it would pose further downside risk on firms exposed to the trade sector.

Low oil and gasoline prices are a positive for household and business spending outside of the energy sector. However, they pose a challenge for firms in that sector.

The labor market continues to improve. Recent payroll growth has been somewhat stronger than I anticipated and this, alongside highly accommodative monetary policy, could mean faster spending growth than I've incorporated into my growth outlook.

Inflation risks are balanced. Oil prices and the value of the dollar have stabilized since mid-January and if that continues the downward pressure on inflation from these factors will abate. The recent core inflation numbers have been higher and I view inflation expectations as being relatively stable, with recent moves being quite small. Should inflation expectations show a more significant downward move, this would pose a downside risk to my inflation projection. On the other hand, too slow a withdrawal of monetary policy accommodation and faster than expected growth have the potential to create upside risks to inflation over the medium run.

Risks to financial stability from very low interest rates appear to be contained and I expect them to remain so as we gradually normalize interest rates. As normalization continues and interest rates rise, I would expect some further bouts of volatility in financial markets but I do not anticipate they will be significant enough to materially change the outlook.

Respondent 6: N/A

Respondent 7: N/A

Respondent 8: N/A

Respondent 9: N/A

Respondent 10: Quantitative judgment based on the difference between the central projection and the expected value from the FRBNY forecast distribution. Given the continued fragility in domestic and foreign financial conditions and weakness in the foreign economic outlook, we see the risks to real activity and inflation as weighted to the downside. The near-term inflation risks are fairly balanced; however, the low levels of market-based longer-term inflation compensation in the U.S. and many advanced foreign economies, of survey measures of longer-term household inflation expectations, and of various measures of underlying inflation as well as the general decline in commodity and import prices over the past several months indicate significant downside risks in the medium term. Many

of these factors also contribute to our downside risk assessment for real activity. In addition, even though the immediate outlook in a number of emerging market economies, most prominently China, has stabilized somewhat, we still see a number of latent risks in the EMEs that could weigh on U.S. real activity more than anticipated in the modal forecast. Other downside risks include the continuing constraints that monetary policy faces at or near the effective lower bound in a number of major economies. One countervailing factor to these downside risks is the possibility that the economy has greater underlying strength than anticipated in our projection, which is consistent with the continued improvement in labor market conditions.

Respondent 11: The unemployment rate has fallen at a more rapid rate than expected given relatively modest real GDP growth. I am anticipating a continued decline in the labor force participation rate, though there is uncertainty surrounding the path and the implied growth of the labor force. I see a risk that the unemployment rate falls further below my estimate of its longer-run average. Inflation expectations appear to be moving down slightly, which raises the risk of a timely return to our target.

Respondent 12: Recent global economic and financial developments, which have been turbulent at times since the start of the year, indicate to me that the downside risks from abroad to the U.S. economy are greater than they appeared in December. In addition, low readings for both inflation compensation and some (albeit not all) survey measures of expected long-run inflation have increased my concern that "true" long-run inflation expectations may be beginning to slip. Accordingly, I see the risks to both real activity and inflation as tilted to the downside.

Respondent 13: Recent core inflation readings have been higher than expected. While this may signal that risks to the inflation outlook are becoming more balanced, additional data is needed before changing our assessment of the risks weighting around the inflation projection. So far, upside surprises have not been particularly broad based, and in the recent past surprises in the early part of the calendar year have proven transitory.

Respondent 14: N/A

Respondent 15: N/A

Respondent 16: N/A

Respondent 17: N/A

Key Factors Informing Your Judgments regarding the Appropriate Path of the Federal Funds Rate

3(b). Please describe the key factors informing your judgments regarding the appropriate path of the federal funds rate. If, in your projections for any year in the projection period, the unemployment rate for that year is close to or below your projection for its longer-run normal level and inflation for that year is close to or above 2 percent, and your assessment of the appropriate level of the federal funds rate for that year is still significantly below your assessment of its longer-run normal value, please describe the factor or factors that you anticipate will make the lower-than-normal funds rate appropriate. If you have reduced your estimate of the longer-run normal value of the federal funds rate since the previous SEP, please indicate the factor or factors accounting for the change. You may include any other comments on appropriate monetary policy as well.

Respondent 1: Our assumed appropriate policy path has the funds rate increasing 25 bps two times in 2016. This is the same path as in our December projection. In terms of data dependence, we feel any incentive to raise rates from the upside surprise to inflation is counteracted by the unanticipated tightening in broader financial conditions that has occurred since the December SEP. Furthermore, given the considerable uncertainty and downside risks emanating from international economic conditions, a risk management approach to policy continues to argue in favor of normalizing rates quite slowly in order to provide an extra boost to aggregate demand as a bu er against future downside shocks. A very gradual path of rate increases also is needed to help buoy inflation expectations, which, despite the recent higher readings on actual inflation, appear fragile and could be slipping lower. In our view, the appropriate policy path should provide a strong signal of our commitment to a symmetric 2 percent inflation target; importantly, it should show the Committee's willingness to accept more risk of a modest over-running of target to insure against the inflation path becoming stuck below 2 percent.

We assume such communication will be successful, and that by the turn of this year higher inflation readings will be more solidly entrenched in the data and that inflation breakevens and survey measures of inflation expectations will have firmed. Our baseline forecast also has economic growth running moderately above trend, which, if it occurs, will give us more confidence that the equilibrium real interest rate is moving up as well. Under this scenario, we think it will be appropriate to move the pace of rate increases up to about 100 bps per year in 2017 and 2018, putting the funds rate at 3 percent by the end of the projection period.

Respondent 2: Two factors are particularly important. First, the neutral federal funds rate is currently quite low relative to historical levels. As this rate is likely to increase only gradually going forward, policy must also adjust very gradually so as not to remove accommodation prematurely. Second, the risks to both inflation and real activity are tilted to the downside. As long as these downside risks remain prominent, policy should be skewed toward ensuring the continued strength of economy and the return of inflation toward our 2 percent target.

Respondent 3: The labor market, as measured by the unemployment rate, is nearly back to normal. But secondary measures of slack, such as the fraction of the labor force working part time for economic reasons, remain elevated, and wage growth remains subdued. In addition, the neutral federal funds

rate is expected to rise from its currently low level, but that adjustment is likely to take several years. As a result, it is appropriate to raise interest rates gradually.

Respondent 4: The labor market is essentially at full employment according to various measures of slack. On inflation, transitory factors are significantly damping current inflation readings but there seems to have been a firming in underlying price pressures. I expect inflation gradually to rise and reach our 2 percent objective in 2018. Underpinning this path is my view that the economy will continue to improve and transitory effects from dollar appreciation and lower oil prices will dissipate. My assessment of appropriate policy is generally informed by looking at simple rules that adjust for the zero lower bound, as well as by my expectations of, and uncertainty about, the costs and benefits of continuing unconventional actions.

My fed funds path through the end of 2016 remains flatter than some simple rules would suggest. My view is based on the following: The economy continues to face headwinds in 2016, including constraints on credit availability for some borrowers, weak growth abroad, and ongoing effects of the recent appreciation of the dollar. These continue to depress the shorter-term equilibrium real interest rate relative to its long-run value.

Respondent 5: In this projection I have moved down my estimates of longer run growth, the unemployment rate, and the fed funds rate, each by 25 basis points, and have slightly lowered my growth forecast to reflect the weaker growth seen at the end of 2015 and beginning of 2016.

The trajectory of my forecast and the associated appropriate policy path remains basically the same. I project that growth will be slightly above my estimate of the longer run trend. I believe that the economy is basically at our goal of full employment and that while certain measures of underemployment, like the number of part-time workers who would rather work full-time, remain at higher levels than before the recession, I believe that targeted programs rather than monetary policy would be more effective in addressing those issues. I expect growth to be strong enough to lead to further gains in employment and declines in the unemployment rate. In this scenario, labor compensation measures will eventually firm, in line with anecdotal reports of increasing wage pressures across a range of skill groups. I expect the effects on inflation of previous declines in oil prices and the strengthening of the dollar to fade over time. Reasonably stable inflation expectations, solid labor market readings, an uptick in recent inflation readings, and my forecast of ongoing economic growth make me reasonably confident that inflation will move back to our goal of 2 percent over the medium run. I project this to be by the end of 2017.

Given that monetary policy affects the economy with a lag, I believe appropriate monetary policy should reflect both actual and projected progress toward the Committee's goals. Given the outlook, I believe it will be appropriate for the FOMC to move rates up gradually throughout the forecast horizon, with the federal funds rate at the end of 2018 near, but not necessarily equal to, its longer-run level, which I now view as 3.25 percent. Forestalling rate increases for too long in light of financial market volatility has the potential to require sharper rate increases in the future, which would beget further volatility.

Respondent 6: At least so long as growth remains no better than slightly above trend and inflation is not fairly convincingly moving towards 2%, the dominant consideration in determining the appropriate path of monetary policy is the asymmetric nature of the Committee's range of policy instruments. The nearly certain need for resort to unconventional policy instruments in the event that an adverse shock were to threaten the continued moderate expansion argues strongly for maintaining accommodative policies so as to increase – even if only moderately – the strength of that expansion and, thereby, to increase the economy's resilience to such a shock. With a global environment that is still somewhat disinflationary, with many more downside than upside risks to growth abroad, with

extremely accommodative monetary policies in most other mature economies, and with the resulting continued strength of the dollar, caution in moving forward with further rate increases is warranted.

Respondent 7: My judgment regarding the appropriate path of the federal funds rate is predicated on promoting sustainable economic growth and price stability. My forecast calls for the unemployment rate to be below its longer-run level and inflation close to two percent by late 2016. Yet I view the appropriate level of the federal funds rate to be below my estimate of its longer-run level in 2016 and 2017. In my view a gradual path of the funds rate promotes economic and financial stability.

Respondent 8: I believe the economy is stronger than statement B implies.

Respondent 9: With the federal funds rate currently so far below benchmark values implied by policy rule formulas that embody our past behavior, even allowing for plausible time-variation in intercept terms, it would be unacceptably risky to leave the funds rate unchanged with the labor market at full employment, real activity continuing to advance and inflation rising. In order to being normalizing our balance sheet as soon as possible, we should end reinvestments in the very near future.

Respondent 10: The crucial factors behind our assessment of the appropriate path for monetary policy are the current state of the economy, our central economic outlook, and our balance of risks around the central outlook. The pace of normalization also will depend upon the response of overall financial conditions to our policy actions. As such, we believe it is important to communicate clearly to the public that these factors will dictate the path of the policy stance.

Currently, the still-low levels of inflation and longer-term inflation compensation, the continued significant uncertainty surrounding both the real activity and inflation outlooks, the downside risks to those outlooks, and the lower projected path of the short-term neutral rate (r*) all point to a more gradual pace of normalization than was our assessment in December. A further consideration is that the tightening of financial conditions since December requires a flatter policy path. Therefore, our current projection of the appropriate path has the target FFR ranges at the end of 2016, 2017, and 2018 at 3/4 - 1%, 1 1/2 - 1 3/4%, and 2 1/4 - 2 1/2% respectively; the projected ranges for 2017 and 2018 are 25 and 50bps respectively below the corresponding ranges in our December submission. We thus do not expect that the FFR will reach our estimate of its longer-run normal rate until after 2018. We believe that this gradual path is necessary to provide insurance against the various restraining forces still faced by the U.S. economy (including those stemming from global economic and financial developments) as well as uncertainty about r*. Our modal forecast has the unemployment rate falling to our 4 3/4% estimate of the longer-run normal rate by mid-2016, although there is some probability that it could fall further below the longer-run rate, which would provide additional insurance against the risk of being caught in a low inflation trap.

Another factor informing our assessment of the appropriate policy path is our estimate of the equilibrium real short-term interest rate over the longer run, which we maintain in the range of 1/2 - 3% that we had in December: this range is modestly below our assessment of 1% - 3% for "normal times." Adding the objective for inflation (2%) then gives our estimated range for the nominal equilibrium rate as 2 1/2 - 5%. We assess that the equilibrium rate is likely to be in the lower half of the latter range, leading to our point estimate of 3 1/4%, as seen in the response to question 3(a).

We assume that reinvestment continues until economic and financial conditions indicate that the exit from the effective lower bound appears to be sustainable and the risks of a reversion are deemed to be negligible. Based on our modal outlook, we expect those conditions to occur sometime in 2017.

Respondent 11: My projection for the appropriate path for the federal funds rate reflects my view that policy should adjust at a more gradual pace than has been typical in past liftoff scenarios given

low productivity growth, declining labor force participation, and inflation that has been running below target for some time.

Respondent 12: Several factors continue to inform my judgment that, given the conditions of my baseline forecast, the federal funds rate should rise only gradually and remain well below its longer-run value for a number of years. First, monetary policy needs to remain accommodative for some time longer in order to promote further labor market improvement, which is desirable not only because some slack still remains but also to speed the return to 2 percent inflation. Second, the neutral federal funds rate–the rate consistent with the economy expanding at its potential rate when it is near full employment–is quite low at the moment but I anticipate that it will rise over time as various headwinds, both foreign and domestic, slowly fade. And third, given that our ability to provide accommodation in the event of a downturn is currently so much less than our ability to tighten should conditions turn out to unexpectedly strong, it is appropriate to proceed cautiously when tightening. (Note–although I have not altered my estimate of the longer-run value of the federal funds rate this round, I now anticipate that convergence to that rate will take longer because headwinds will be slower to lift.)

Respondent 13: We have revised our estimate of the longer-run normal value of the federal funds rate down, from 3.50 to 3.25 percent. The revision has been driven by the observation that current estimates of the natural real rate of interest continue to remain at very low levels.

Respondent 14: I lowered my federal funds rate projection for the end of 2016 by 25 basis points to 1.13 percent, as I feel some further caution is warranted in light of the uncertain implications from earlier financial market volatility.

My projection for the federal funds rate beyond 2016 is informed by a simple policy rule with a gradual rise in the short-run equilibrium rate (r*).

Respondent 15: My forecast is for 2 rate increases in 2016, 3 in 2017, and 4 in 2018. My view is that a rate path that is lower than that in the Teal Book will be necessary to support the U.S. economy through an extended period of slow global growth.

Respondent 16: Our policy goals are the same as in December: reaching full-employment with the expectation of an unemployment rate that ultimately begins to level off, and the reasonable expectation that inflation will reach our 2-percent longer-run objective within the next couple of years.

What's different now? The dollar is stronger. Oil is lower. Other countries have cut policy rates or are expected to do so. The 10 year treasury rate has declined, so that the yield curve has flattened. Credit spreads have widened and stock prices are down. The outlook for the foreign economies has marginally deteriorated. China's ability to manage its multiple challenges has been called into some question——particularly its ability to manage currency fluctuations in an orderly manner.

The implication of all of these developments is that financial conditions are tighter and the appropriate path for the funds rate has likely flattened. That keeps us closer to the zero bound for longer. Downside risks to the outlook may, therefore, have increased–especially since there is very low likelihood of fiscal stimulus, particularly in this election year.

On the other hand, labor-market slack has diminished over the past three months, and inflation has moved upward. If international uncertainties and commodity-market turmoil were to suddenly abate, we could find ourselves very quickly overshooting our full-employment and price-stability objectives. I view the risk of this sort of positive demand shock as somewhat less likely; I think international weakness and uncertainties will be with us for an extended period of time.

We are now very near full employment and price stability, but haven't put much distance between ourselves and the zero bound. There is an elevated risk of error on both sides—-although I assess the risks here as weighted marginally to the downside.

I've assumed a slower path of funds-rate increases, reflecting my view of the fragility of the current recovery in light of slowing global growth and the risk of a further tightening in financial conditions. I see the risks of a much flatter yield curve as significant if we raise rates too quickly.

The pace of rate increases picks up in 2017 as we seek to limit overshoot of our employment and inflation objectives. I've again shifted my estimate of the longer-run normal policy rate downward––now to 3.25 percent–based on my sense that longer-run real growth prospects have been adversely affected by aging demographics in developed countries, high levels of debt to GDP in these countries, and sluggish trend productivity growth. In this context, I believe that global demand for safe assets will remain elevated for some extended period of time.

Respondent 17: The key factors informing my judgments regarding the appropriate path of the federal funds rate are the likely undershooting of the unemployment rate combined with a forecast of inflation converging to 2% in 2017.

Forecast Narratives

4(a). Please describe the key factors shaping your central economic outlook and the uncertainty and risks around that outlook.

Respondent 1: Accommodative monetary policy, a healthy labor market, improved household and business balance sheets, and continued low energy prices should allow for solid consumer-led growth in domestic demand. Indeed, we would be expecting more of a cyclical pop in the near term if not for the more restrictive financial conditions that have developed since December. With appropriately accommodative policy, these financial factors should not leave a lasting imprint on growth beyond the near term. In addition, we assume little change in the dollar going forward, and so project that the drag from net exports will wane later in the projection period.

The factors supporting activity are sufficient to generate growth moderately above potential over the next 3 years. We assume that resource gaps will be closed in 2017; although the unemployment rate has already reached our estimate of the current natural rate, we think it will take a bit longer to close the gaps we still see remaining in some other labor market indicators. We expect demographic forces will lower the natural rate of unemployment to 4.8 percent by the end of the projection period. (We also note that these demographic factors will likely push the natural rate of unemployment down for some time beyond the end of the current projection period.) We think growth will be strong enough to push the actual unemployment rate down to 4.5 percent by the end of 2018.

We believe that some of the recent bump up in core inflation will prove to be transitory; nonetheless, the data were somewhat heartening, and better support our projection that inflation will end 2018 close to target. As it has for some time, our forecast for rising inflation relies on reductions in resource slack, stabilization of the dollar, some upward movement in energy prices, and, eventually, a lift from inflationary expectations. As noted above, we assume a quite shallow path for policy normalization and that the Committee strongly communicates its commitment to a symmetric 2 percent inflation target; we see these as necessary conditions to prevent inflation expectations from deteriorating to a degree that they would exert a meaningful downdraft on actual inflation. Indeed, if inflation expectations become de-anchored to the down-side, then we do not see upward force from other factors as being adequate to bring inflation close to target over the forecast period.

As to sources of uncertainty, international developments, their influence on financial markets, and the spillovers to household and business confidence are likely to cloud the forecast for growth for some time to come. With regard to inflation, in the near term, the difficulty in extracting the signal from the recent inflation data is an important source of uncertainty, while over the medium and longer term discerning the linkages between Fed policy (including communications), inflation expectations, and actual inflation are key forecast concerns.

Respondent 2: N/A

Respondent 3: We continue to see gradual improvement in secondary measures of labor market slack as job creation continues and labor force participation picks up. In part because room remains to further reduce slack, inflation continues to run low and it is likely to be several years before it returns to target. The continued low level of inflation, the benefits to the economy of allowing further improvement in the labor market, the elevated risks from financial markets and weakness in foreign economies, and the potential risks to the U.S. economy from international policy divergence all suggest a gradual approach to normalizing the stance of monetary policy.

Respondent 4: The economy has recovered from the severe housing collapse and financial crisis. Recoveries from these types of episodes are associated with sustained weakness in aggregate demand through a variety of channels, for which policy has only partially compensated. However, many of the associated remaining headwinds are easing and are offset by important sources of domestic strength.

- The pace of housing construction starts has been and continues to be sub-par. However, given improved household balance sheets and consumer credit conditions, I expect improvement in this sector;
- The relatively strong performance of the U.S. economy over the past year compared with that of the rest of the world, the subsequent monetary easing in Europe and elsewhere, and the recent depreciation of the renminbi resulted in a sharp appreciation of the dollar. This appreciation has been a drag on net exports and GDP growth.
- Despite recent financial market volatility, consumer spending continues to grow at a healthy pace. Ongoing declines in unemployment, undershooting its longer-run rate, and broader strength in the labor market should also help to underpin solid consumption growth going forward.

In this environment, I expect the economic recovery will proceed at a moderate pace. Output and unemployment gaps were essentially closed by the end of 2015 and, with substantial monetary stimulus still at play, I expect them to overshoot in the coming year, before closing towards the end of 2018. In terms of inflation, the lagged effects of remaining slack in labor and goods markets, combined with subdued commodity and import prices, should keep inflation below the FOMC's 2 percent inflation target over the next year and a half. Well-anchored inflation expectations and above-trend growth eventually pull inflation back to our objective.

Respondent 5: The fundamentals supporting the expansion remain favorable, including highly accommodative monetary policy, household balance sheets that have improved greatly since the recession, sustained strengthening in labor markets, and low oil prices. Consistent with the data, business contacts report further tightening in labor markets and some increased wage pressures across a range of skill groups and occupations. While global growth prospects remain subdued, several foreign central banks have added accommodation to promote stronger growth and higher inflation rates abroad. Overall, I expect growth to be slightly above trend in the U.S., which will support further improvement in labor markets. By the end of 2018, I project that the economy will essentially be at its steady state.

Inflation rates have been gradually moving up as the effects of past declines in oil and commodity prices, and appreciation of the dollar, work themselves through. This path is consistent with what the FOMC has been expecting. In my judgment, inflation expectations remain reasonably anchored. Anchored inflation expectations along with an improving economy, and stabilizing oil prices and the dollar, are consistent with inflation moving back to the 2 percent longer-run objective by the end of 2017. As the expansion continues and labor markets continue to improve, I expect wage growth will pick up as well.

I view overall uncertainty as roughly comparable to historical norms of the last 20 years. As described above, while there are a number of risks to my outlook, I view them as broadly balanced for both the real economy and inflation.

Respondent 6: My baseline expectations have changed very little over the course of the last several SEPs – modestly above trend growth supported by continued recovery of the labor market (though still not of wages) and generally improved household balance sheets. I do regard risks to that outlook as more to the downside than in December. (though a bit less than they appeared for a good part of the inter-meeting period) While the January-February risk-off volatility in markets has stabilized, the conditions that gave rise to that volatility – particularly foreign economic conditions could yet produce another negative market reaction, one that would have more impact on the real economy.

Respondent 7: My forecast for real GDP growth is characterized by above-trend growth in the period from 2016 to 2018. Real GDP growth is supported by income growth from rising employment and wages, past gains in household wealth, accommodative financing conditions, and increased purchasing power from lower energy prices. Real GDP growth is likely to slow over time as the economy

operates at full capacity. I see the unemployment gap as essentially closed after the rapid reduction in economic slack in the past few years. My inflation outlook projects a gradual rise in inflation reflecting improving labor market conditions and the dissipating effects of dollar appreciation and lower energy prices.

I view uncertainty surrounding my projection of PCE inflation as higher than levels of uncertainty over the past 20 years, reflecting the heightened volatility in crude oil prices.

I see the risks to economic growth, inflation, and unemployment as broadly balanced. Downside risks for real GDP growth, stemming from the recent weakness in global economic and financial conditions, are roughly offset by the strength of households' balance sheets, which presents upside risk for consumer spending and housing activity. Regarding inflation risks, while the potential for further dollar appreciation could delay the projected increase in inflation, inflation could rise faster than expected given the rapid improvement in labor market conditions and the potential for faster growth in unit labor costs. Risks for the unemployment rate are largely tied to the continued growth in aggregate demand, the uncertain pace of productivity growth, and the trajectory of the labor force participation rate.

Respondent 8: The exchange rate response to interest rate changes will be critical to my interest rate path as events unfold.

Respondent 9: Real GDP per worker has risen by somewhat less than 1 percent per year over the last 10 years. I expect roughly the rate of growth through 2018. Population ages 16 to 64 is projected to grow by 0.5 percent per year. These supply-side factors suggest longer-run growth in real GDP of 1 3/4 percent. My projection for 2016 is slightly higher, reflecting robust consumer spending growth and a pickup in investment spending later this year.

Respondent 10: From 1.9% (Q4/Q4) in 2015, we expect growth to pick up modestly to just over 2% in 2016. The firming in growth reflects an end of the current inventory correction by mid-2016, continued solid growth of consumer spending, some pickup in business fixed investment, and somewhat stronger growth of federal spending. These positive developments are offset to a large extent by further drag from net exports. By 2017 we expect growth to slow to about 1 3/4% due to a combination of aging of the business cycle and gradual tightening of financial conditions generated by policy normalization. The unemployment rate is projected to decline to 4.7% by the end of 2016 and then level out at 4.8%–our estimate of the longer-run normal rate–in 2018. This path of the unemployment rate assumes that the labor force participation rate will be roughly flat at 62.8% and productivity growth will revert to its longer-run trend. Inflation moves gradually up to 2% in 2018 as slack continues to decline and the effects of previous dollar appreciation subside. Despite the significant financial volatility since December, the broad parameters of this forecast are in line with the December SEP.

Real consumer spending is expected to grow 2.9% (Q4/Q4) in 2016, up from 2.6% in 2015. A couple of factors underlie this projection. First, after tightening in January, overall financial conditions have improved since mid-February, making it less likely that we will see negative wealth effects weigh significantly on consumer spending. Second, with the labor market continuing to improve, real disposable income growth is expected to remain relatively strong, helping to maintain solid real PCE growth. For 2017, we expect consumer spending to slow to 2.2% as real disposable income growth slows and the consumer durable goods cycle ages. With this consumer spending path, the personal saving rate is expected to be around 5 1/2% in 2016 and 2017.

We expect residential investment to increase around 10% in 2016 and 2017, reflecting some tightness in the housing market that is pushing rents and home prices higher. Supporting housing starts is a higher pace of household formations, spurred by the ongoing improvement in the labor market, and the anticipated easing in mortgage underwriting standards.

Given our assumptions for the exchange value of the dollar and for foreign growth, we expect exports to be weak in 2016 and to begin growing only at the end of 2016. Along with the end of the current inventory correction by mid-2016, this development is expected to result in a gradual improvement in manufacturing output and a rising capacity utilization rate. The anticipated rise in capacity utilization should in turn increase incentives for business investment in new capacity.

However, the net export growth contribution in 2016 is projected to be -1.1 percentage points versus the -0.6 percentage points of 2015. Growth of real imports is expected to increase from around 3% in 2015 to about 6 1/2% in 2016. Recent import growth has been weaker than expected despite the appreciation of the dollar, possibly reflecting the relatively elevated level of domestic inventories. For 2017 we project the net export growth contribution to improve to -0.7 percentage points as exports begin to grow while import growth slows modestly.

The unemployment rate is expected to stabilize near our estimate of the longer-term normal rate of 4 3/4% from mid-2016 through the end of the forecast horizon. Monthly gains in nonfarm payroll employment are expected to slow to around 200,000 in 2016 and then to 120,000 in 2017.

With our estimate of potential growth and NAIRU unchanged, our projections of real growth and the unemployment rate would imply that the path of the output gap is also little changed. With that, our models of inflation continue to predict gradual firming of inflation over the forecast horizon. Our forecast for core PCE inflation of 1.5% in 2016 and 1.8% in 2017 is little different from that in December, as we see the recent firming of core inflation as largely transitory. It remains to be seen if health care inflation and goods prices, which have firmed recently, have truly turned the corner.

Respondent 11: I expect the pace of output growth over the medium term to be somewhat above my longer term trend of 2.2 percent as the headwinds that have been depressing growth recede. I have lowered my estimated future path for the labor force participation rate and labor force growth, which has led to a slight downward revision to my estimate of longer-run growth and the natural rate of unemployment. With a strong labor market and declining participation rate, I anticipate that the unemployment rate will edge down further from its current level of 4.9 percent even as output growth remains modest. Headline inflation has been held down by falling energy prices. As energy prices stabilize and dollar appreciation wanes, I anticipate that inflation will begin to rebound in 2016 and rise toward the Committee's 2 percent target over the remainder of the forecast horizon.

Respondent 12: My outlook for real activity assumes that increases in the underlying strength of the economy will enable real GDP to grow at a pace slightly faster than potential on average even as the federal funds rate rises gradually, thereby generating further improvements in the labor market. This increasing strength partly reflects a gradual diminution of the drag on net exports from the dollar and foreign growth, continuing recovery of the housing market, somewhat easier fiscal policy, modestly faster productivity growth, and a bottoming out of the contraction in oil drilling. A tighter labor market (including a modest undershooting of the longer-run sustainable rate of unemployment), combined with a fading of the transitory inflation effects of dollar appreciation and lower oil prices, should enable headline inflation to move back to 2 percent by 2019..

The key risk to this forecast is that the headwinds currently restraining real activity will fail to dissipate as rapidly or by as much as I anticipate; I am particularly concerned by risks emanating from abroad. I am also concerned that the return to 2 percent inflation may prove to be slower than I anticipate, reflecting several risks–the potential for further dollar appreciation and declines in oil prices if global growth worsens; the possibility that long-run inflation expectations may be starting to slip; and the possibility that labor market slack is somewhat greater than I estimate.

Respondent 13: The tightening of financial market conditions since December has been largely retraced, and the pace of economic growth appears to be roughly in line with expectations. Labor market conditions as measured by payroll growth and the unemployment rate have continued to

improve, with the fall in the unemployment rate being cushioned by an increase in the rate of labor force participation. Private domestic final demand appears to be growing well above potential early this year, with consumer spending supported by high net worth relative to disposable income, and by a decline in energy prices. Past dollar appreciation and relatively weak demand abroad are a significant offset to the strength in domestic demand. The modest downward revision to the real outlook for this year relative to the December projections largely reflects a deteriorating outlook for our trading partners. An elevated level of corporate bond spreads is also expected to dampen growth in business fixed investment.

The projected pace of GDP growth should lower the unemployment rate to 4.7 percent – our estimate of the natural level – over the course of this year. Over the forecast horizon, the decline in the unemployment rate relative to the pace of GDP growth is attenuated by more individuals reentering the labor force. We continue to view the share of people not in the labor force but wanting a job as somewhat elevated at this stage of the cycle, suggesting that slightly more slack remains than what is conveyed by the U3 measure. With the unemployment rate projected to stay close to its natural level, inflation eventually reaches 2 percent. The gradual removal of policy accommodation provides monetary policy with the opportunity to probe for a lower equilibrium real rate of interest than we are currently assuming. It also provides room for a faster but disciplined pace of tightening should inflationary pressures occur more rapidly than expected.

The risks to the growth outlook are roughly balanced. On the downside, data abroad have been disappointing and, despite some improvement in financial conditions, the risk of a more pronounced slowdown possibly coupled with a financial crisis remains an important concern. The expected tightening of U.S. monetary policy could also entail a stronger dollar than what we are currently envisioning. On the upside, the increase in the pace of growth of final sales to domestic purchasers could signal a stronger-than-expected acceleration in activity. Risks to the unemployment rate outlook remain somewhat tilted to the downside, even if recent readings have been consistent with a cyclical rebound in labor force participation.

While January inflation numbers have surprised to the upside, we continue to perceive some downside risks to the outlook for inflation beyond this year. In particular, we see risks associated with the possibility that long-run inflation expectations are anchored at a level below the 2 percent target.

Respondent 14: My outlook consists of above-trend growth over the next several quarters, a further reduction of labor market slack, and inflation that gradually converges to target.

Growth over the medium term is primarily driven by a sustained pace of consumption growth and a strengthening in investment growth. This growth of domestic demand is supported by continued firming in the labor market and of household incomes. Past declines in energy prices provide a modest boost to near-term consumption growth. Ongoing global weakness and past increases in the dollar exchange rate are moderate headwinds in my outlook, continuing to restrain export growth and domestic industrial activity.

The risks to my growth outlook are weighted modestly to the downside. It appears that the domestic economy has bounced back from a soft patch in the fourth quarter. However, uncertainty has increased somewhat. My staff has collected survey evidence that indicates some businesses' hiring and capital investment plans were affected by the recent bout of financial market volatility that could result in a slower pace of hiring and lower business investment than I have marked in my baseline forecast. Also, we are still dealing with restraints to industrial activity in the form of weaker foreign growth and a strong dollar that could prove more persistent than I currently expect.

The risks to my inflation outlook are tilted to the downside. In the near term, the magnitude of pass-through from the recent declines in commodity and import prices into core inflation could be greater than I expect. Also, while I assume longer-run inflation expectations are anchored at a policy-consistent level, it is possible that inflation expectations are moving lower as a result of the prolonged period of below target inflation we've experienced during the current expansion.

Respondent 15: My outlook calls for continued 2% growth. Weakness around the globe means that U.S. rates will need to remain lower than the Teal Book forecast to get inflation back to 2% and provide adequate support for demand.

Respondent 16: Although sharp changes in the relative price of traded goods (related to weakness in the overseas outlook) and in the price of oil (mostly supply driven), have created challenges for some sectors of the U.S. economy, these challenges have so far not substantially altered the trajectories of aggregate output and employment. Risks to the modal outlook are significant on both sides: Growth could well be sufficient to cause us to overshoot our objectives; or tightening financial conditions in emerging-market economies (particularly China) and other, secular trends could cause growth to slow. Secular influences on the outlook include aging demographic changes in the U.S. and other developed countries, and the impact of high ratios of debt to GDP in these countries.

Respondent 17: The absence of robust growth in conjunction with declining unemployment during this recovery are the key factors shaping my outlook. Whether weak productivity growth will continue is a major uncertainty for my growth forecasts. Changes in oil and commodity prices have made near-term inflation forecasting especially challenging.

Forecast Narratives (continued)

4(b). Please describe the key factors causing your forecasts to change since the previous SEP.

Respondent 1: The data on spending for late 2015 were somewhat weaker than we anticipated in December, but the early 2016 expenditure data have been broadly in line with expectations. The labor market has improved somewhat faster than we had assumed, while financial conditions are moderately more restrictive. Balancing these factors, we left our forecast for growth in 2016 unchanged at 2.3 percent. Looking ahead, we lowered our forecast for U.S. GDP growth in 2017 and 2018 a touch, reflecting a somewhat lower assumption for potential output growth.

The incoming data on core inflation were above our expectations in the December SEP. However, inflation breakevens have moved down even further since December and survey measures of inflation expectations also appear to be faltering on the downside. Energy prices have surprised us to the downside. Putting it all together, we revised our projection for total inflation in 2016 down 0.4 percentage point to 1.2 percent, and raised our core inflation forecast 0.1 percentage point to 1.6 percent. We left our projections for both total and core inflation in 2017 and 2018 unchanged from December.

Respondent 2: N/A

Respondent 3: N/A

Respondent 4: Since December, I have made few changes to my forecast. My forecast for GDP growth is unchanged. Given slower than expected declines in the unemployment rate and labor force participation rate in recent months, I have raised slightly my forecast of the unemployment rate at the end of 2016, which is now 4.6 percent.

My near-term inflation forecast is slightly lower owing to lagged effects of import and energy price declines. My forecast for core inflation in 2016 is one-tenth of a percentage point higher, reflecting firming in observed data.

Respondent 5: In this projection I have moved down my estimates of longer run growth, the unemployment rate, and the fed funds rate, each by 25 basis points, and have slightly lowered my growth forecast to reflect the weaker growth seen at the end of 2015 and beginning of 2016. I've lowered my forecast of headline inflation to reflect the weaker readings on energy prices at the end of last year and the beginning of this year.

The trajectory of my forecast and the associated appropriate policy path remain basically the same as in December. My path of the federal funds rate is slightly flatter to reflect the downward revision to my estimate of the longer-run federal funds rate to 3.25 percent.

Respondent 6: As explained above, not much has changed in the bottom line of my forecast.

Respondent 7: I have revised down my forecasts for real GDP growth and headline PCE inflation in the first half of 2016 based on the incoming spending and price data, with no ramifications for the medium-term projections. Stronger than expected employment growth since December has led me to revise down my forecast of the unemployment rate in the period from 2016 to 2018.

Respondent 8: I believe the resilience of the economy, as seen following the Jan 1 - Feb 11 volatility, is greater than I had previously assumed; also the unexpected rise in Q1 core inflation has influenced my 2016 forecast but, of course, I had to take account of current levels of interest rates and asset prices.

Respondent 9: Weakness in the fourth quarter of 2015 led me to reduce my projection for real GDP growth in 2016. Energy price declines led me to mark down my projection for overall PCE inflation for 2016 as well. A lower projected path for real GDP per worker contributed to a higher projected path for the unemployment rate.

Respondent 10: Our macroeconomic projections relative to those of December have changed somewhat. Real GDP growth in 2016-17 is anticipated to be a little lower than in the December SEP projections, reflecting mostly the impact of some weaker data between the December and January FOMC meetings as well as the tightening of financial conditions. Overall inflation at near-term horizons is lower because of the further decline in oil prices since the December FOMC meeting; however, core inflation and overall inflation projections at medium-term horizons are unchanged. As noted and explained in the response to 3(b), we judge that a lower path of the policy rate is necessary to support these projections.

Respondent 11: I have revised down my estimated path for the labor force participation rate and the unemployment rate. I have assumed that the funds rate rises at a slightly more gradual pace than in my December projection.

Respondent 12: My forecasts for real activity and inflation are little changed from December despite weaker foreign growth and higher risk premiums, because I now assume that the federal funds rate will rise less steeply over the next few years.

Respondent 13: Changes to the real outlook have been minor, with only a modest downward revision to GDP growth stemming from a less favorable outlook for our trading partners. The projected path for the unemployment rate is roughly unchanged. Interest rates have been lower than expected, but their impact on activity is being offset by a downward revision to the natural real rate of interest. Such a revision also implies that the projected path of the federal funds rate is on a somewhat lower trajectory than previously envisioned. The inflation outlook has not changed materially.

Respondent 14: I left my forecasts for real GDP growth, the unemployment rate and core inflation unchanged.

I've lowered my headline PCE inflation forecast for 2016 by 0.1 percentage points to 1.5 percent, as oil prices are lower than what I forecasted in December.

Respondent 15: N/A

Respondent 16: While the labor market and inflation have evolved consistent with my December projections, GDP growth has (again) been sluggish. I've taken CBO estimates of potential GDP growth to heart and revised downward my GDP-growth estimates over the entire projections horizon. Again, my views are shaped by the backdrop of secular concerns regarding overcapacity outside the U.S., high ratios of debt to GDP, the long-term nature and difficulty of China's transition to a more service and consumer-based economy, and aging demographics in advanced economies. I have somewhat hardened my view that these issues will continue to be transmitted through bouts of tighter financial conditions which have the potential to create negative headwinds for GDP, unemployment, and inflation.

Respondent 17: My forecasts have changed little since the previous SEP. I have reduced my GDP growth forecast for 2016 to reflect recent growth performance.

Forecast Narratives (continued)

4(c). Please describe any important differences between your current economic forecast and the Tealbook.

Respondent 1: We assume fewer increases in the funds rate during 2016 than the Tealbook does––our end-of-2016 rate is 65 bps lower. We incorporate a slightly faster pace of increase in 2017 and 2018, and at the end 2018 our funds rate is just 25 bps lower than the Tealbook's.

Our projection for GDP growth is close to the Tealbook in 2016 and 2017 and 1/4 percentage point faster in 2018. However, our assumptions about potential output growth are somewhat above the Tealbook's. We see the natural rate of unemployment trending down from 5 percent today to 4.8 percent by the end of the projection period, in contrast to the Tealbook's constant 5 percent assumption. We also think that the gap today between actual and trend labor force participation is somewhat larger and that it does not close until the unemployment rate is further below the natural rate. Taken together, this means our forecast for activity does not overshoot potential output to as great of a degree as in the Tealbook. Nonetheless, our outlook for inflation is similar. One reason is that we assume more of the recent increase in core inflation will prove to be persistent than the Tealbook does. A second reason is that we feel our more accommodative path for monetary policy will be successful at buoying inflationary expectations, firming the inflationary attractor, and therefore providing a larger boost to actual inflation.

Respondent 2: N/A

Respondent 3: My forecast for economic activity and inflation is broadly similar to the Tealbook except that I believe the improving labor market will continue to draw workers back into the labor force, leading to more progress on the labor force participation rate than the unemployment rate. This would lead to less upward movement for wages and prices if monetary policy were to follow the path assumed in the Tealbook. Removing monetary accommodation more gradually, as in my projection, would produce a path for inflation similar to the Tealbook.

Respondent 4: The Tealbook projects a protracted overshooting of full employment, with the unemployment rate declining to 4.3 percent at the end of 2018. In my forecast, the economy almost returns to steady state (closing all gaps for the real interest rate, unemployment, output, and inflation) by the end of 2018. I see the unemployment bottoming out at 4.6 percent in late 2016.The gradual removal of policy accommodation tightens financial conditions over time and slows growth to below potential in 2017 and 2018, respectively. This pushes up the unemployment rate to its 5 percent natural rate by the end of 2018. Finally, the persistent overshoot of full employment, combined with firmer price pressures, pushes inflation back to 2 percent by the second half of 2018.

Respondent 5: As in the Tealbook, I expect that the economy will grow at a moderate pace, the labor market will continue to improve, and inflation will gradually return to our 2 percent longer-term objective. My outlook for the real economy is generally similar to Tealbook's forecast. I see somewhat greater inflationary pressures than in the Tealbook, with inflation returning to 2 percent by the end of 2017 compared with 2020 in the Tealbook. My funds rate path is similar to the Tealbook's but my projection has a slightly shallower path in 2016 and slightly steeper path in 2017 compared to the Tealbook .

Respondent 6: No significant differences for this year or next. For 2018, however, I build in an expectation of some cyclical slowing in 2018, a development not projected in the Tealbook forecast. Of

course, as with all projections several years out, the conviction behind that expectation is necessarily not too strong.

Respondent 7: My projected paths for real GDP growth and the unemployment rate in 2016-2018 are close to those of Tealbook. While the projections for headline GDP growth are similar, the contributions to growth are different as my forecast calls for somewhat softer growth in consumer spending and somewhat less weakness in net exports. My forecasts for PCE inflation and core PCE inflation are approximately 1/2 percentage point higher than Tealbook's projection in 2016 and 2017 and 1/4 percentage point higher in 2018. With inflation expectations well anchored, I view inflation as less inertial than Tealbook, and therefore expect the effects of past dollar appreciation and oil price declines to wane sooner than in the Tealbook projection.

Respondent 8: N/A

Respondent 9: Unlike the Tealbook, I am not willing to completely dismiss recent inflation readings. I believe that inflation will reach 2 percent in 2017, three years earlier than the Tealbook.

Respondent 10: Unlike the December SEP, there are some notable differences between the Tealbook forecast and our projections for the key SEP variables. In part, these differences reflect divergences in some of the underlying assumptions in the two forecasts that influence the dynamics in the projections.

The two forecasts for real GDP growth in 2016 are similar, but the Tealbook projects moderately faster growth in 2017 and 2018 than in our outlook. Furthermore, based on its assessment of potential GDP growth, which is below our assumption for potential growth in 2016-18, the Tealbook path of real GDP leads to a notable positive output gap by 2017-18. Even though we do not calculate precise estimates of the output gap, our assessment is that there is not a significantly positive output gap at that time.

The major component behind the differences in real GDP growth is consumption. The Tealbook forecast has faster real PCE growth in 2017-18 than in our projection, even though the 2016 real PCE projections are similar. Real PCE has been a long-standing difference between the two forecasts; it appears in part to reflect the stronger wealth effects in the Tealbook forecast. As a partial offset, the Tealbook projects somewhat slower growth in business fixed investment in 2016-17 than in our forecast. This difference is also a longstanding one that partly reflects the Tealbook assessment that the capital stock is closer to steady-state levels than in our assessment.

Another notable difference in the underlying assumptions continues to be the longer-run natural rate of unemployment: although the Tealbook has lowered its assumption to 5.0%, it is still above our assumption of 4.8%. Consequently, unemployment in our projection falls only to around the natural rate, consistent with our assessment that slack dissipates by the end of the forecast horizon. In contrast, the Tealbook path means that unemployment significantly undershoots the longer-run natural rate; this pattern is the counterpart of the positive output gap that arises in the Tealbook forecast.

One other difference in the labor market projections concerns the paths for labor force participation: our projection has the participation rate flat through 2017 at 62.8% while the Tealbook has it declining gradually to 62.5% at end-2017. This difference reflects our assumption of some positive cyclical effects on participation.

For inflation, the two forecasts differ on how quickly inflation reaches the 2% objective: our projection has inflation near 2% at end-2017 whereas the Tealbook projects that inflation will not reach that level until 2020. The Tealbook has this slower rise even though there are a positive output gap and undershooting of unemployment in its projection. This difference between the Tealbook and our projections reflects differing views about inflation dynamics. In the Tealbook, with the

underlying inflation rate below the FOMC longer-run objective and considerable persistence in the inflation process, a prolonged period of above-potential growth (and a positive output gap) appears to be necessary to induce inflation to rise toward the longer-run inflation goal. The faster return of inflation to its goal in our forecast reflects our assumptions of less inflation persistence and of a stronger attraction provided by anchored inflation expectations.

In terms of the uncertainty and risk assessment, we see a few differences between the two projections. On the real side, we continue to see higher uncertainty than normal whereas the Tealbook sees uncertainty at near normal levels. This assessment reflects our view that the unusual nature of the current expansion, the atypical policy environment in the U.S. and many foreign economies, and foreign risks leave uncertainty about real activity above the SEP standard. However, we agree with the Tealbook that the risks to real growth are tilted to the downside for many of the same reasons cited in the Tealbook. As for inflation, our uncertainty and risk assessments are similar to those in the Tealbook, with uncertainty near the SEP standard and risks tilted to the downside.

Finally, our monetary policy path lies further below that in the Tealbook projection. As discussed earlier in our submission, we believe a very gradual path of normalization is necessary to achieve the FOMC objectives as well as provide insurance against forces restraining the U.S. economy. This path is shallower than that implied by the inertial Taylor 1999 rule used in the Tealbook.

Respondent 11: My forecast calls for a somewhat more gradual pace of policy normalization over the forecast horizon than the Tealbook.

Respondent 12: The Tealbook implicitly assumes that the underlying strength of the economy will improve noticeably faster than I anticipate, resulting in a steeper trajectory for the real funds rate; the reason for their greater optimism is unclear. In addition, the Tealbook sees a somewhat greater need for the unemployment rate to undershoot its longer-run value than I do, probably because their projection incorporates a higher estimate of the natural rate of unemployment and a lower estimate of long-run inflation expectations.

Respondent 13: The Tealbook's estimate of the natural rate of unemployment, at 5.0 percent, is higher than our estimate, which currently stands at 4.7 percent. The Tealbook forecast implies a more pronounced overshooting of full employment than our forecast. As a result, the Tealbook outlook is conditioned on somewhat tighter monetary policy.

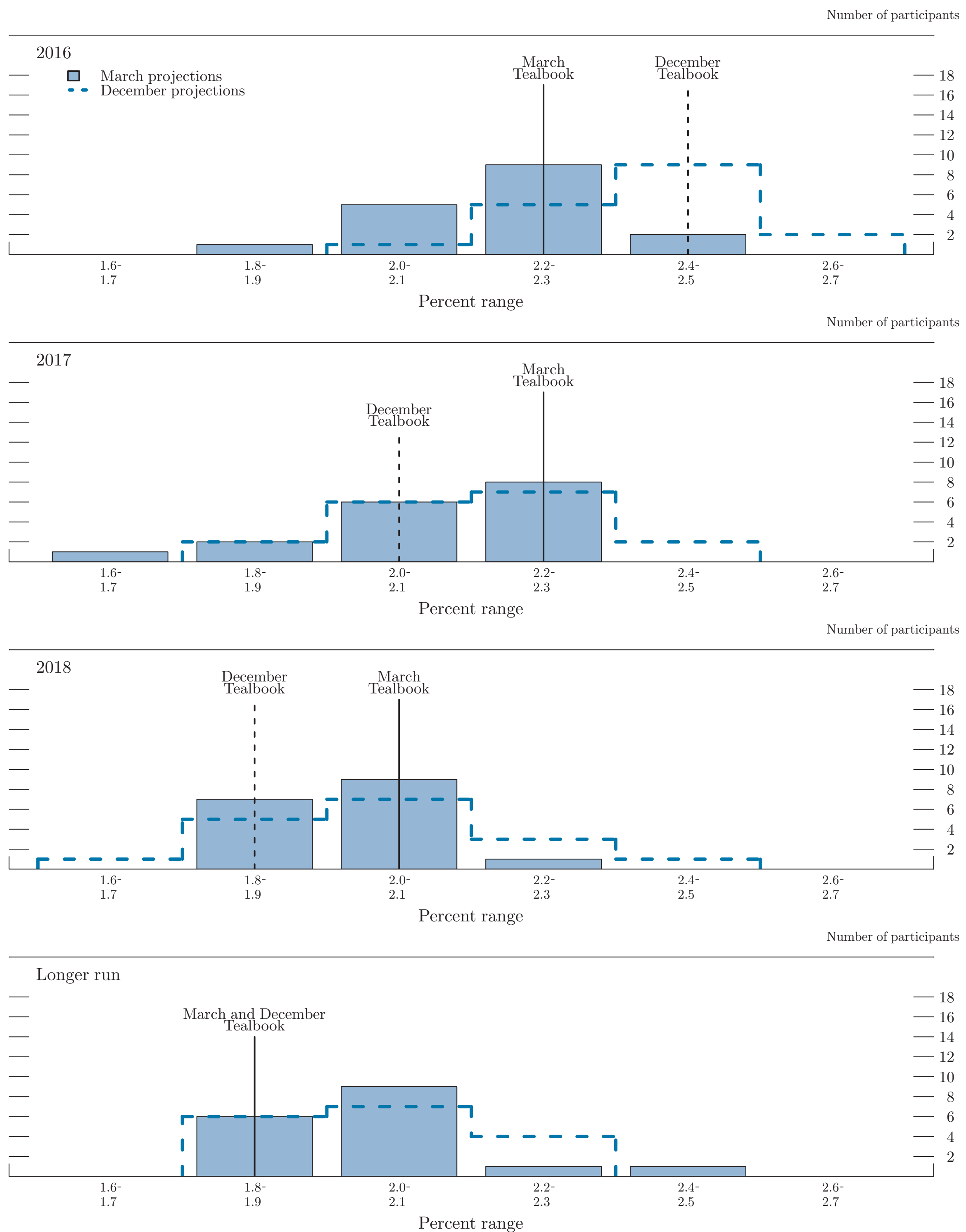
Respondent 14: My growth forecast is similar to that in the Tealbook throughout the projection period. However, my headline and core inflation forecasts run 0.3-0.4 percentage points above the Tealbook over the medium-term horizon. A large part of this difference is due to a divergence of views on inflation expectations. It is my view that inflation expectations are anchored at policy-consistent levels.

Respondent 15: N/A

Respondent 16: There are several notable differences. First, I see the unemployment rate as falling a bit faster than is projected in the Tealbook, but not quite as far. Allowing the unemployment rate to drop 0.7 percentage points or more below the natural rate might create real and financial imbalances that would be difficult to unwind. Second, I see a more rapid return to our 2-percent inflation objective than does the Tealbook. In my view, the longer-term inflation expectations relevant to wage and price setting remain anchored at 2 percent. Finally, I see financial conditions as having tightened relatively more than is allowed for in the Tealbook, with the result that the appropriate path for the funds rate is shallower than the Tealbook baseline assumption. The neutral real rate is quite low, at present, and is likely to return only gradually to normal levels.

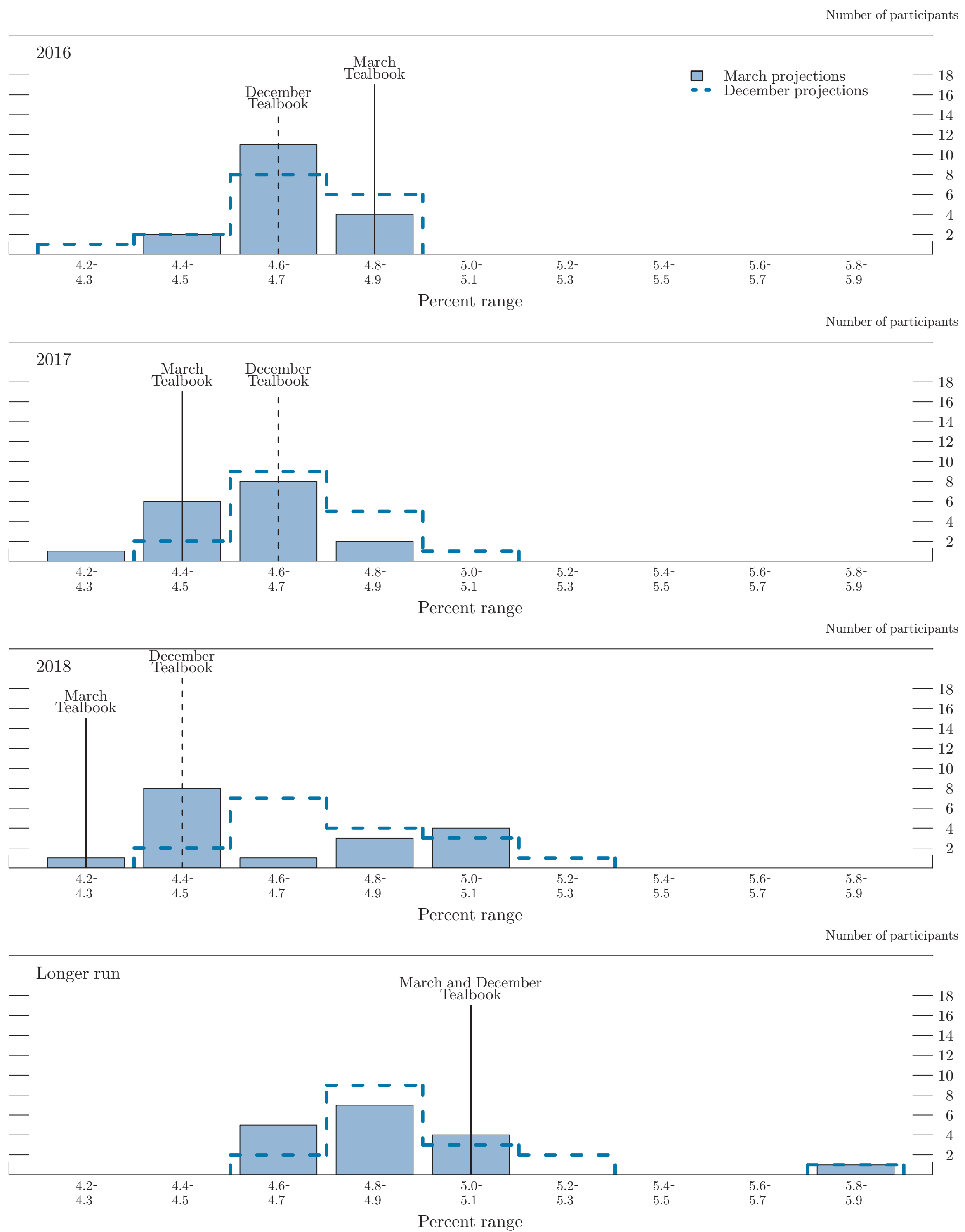
Respondent 17: The primary difference involves inflation. My forecasts for 2016 and 2017 exceed the Tealbook forecasts. Relative to the Tealbook, I expect a relatively shorter time for inflation to converge to 2%.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2016–18 and over the longer run



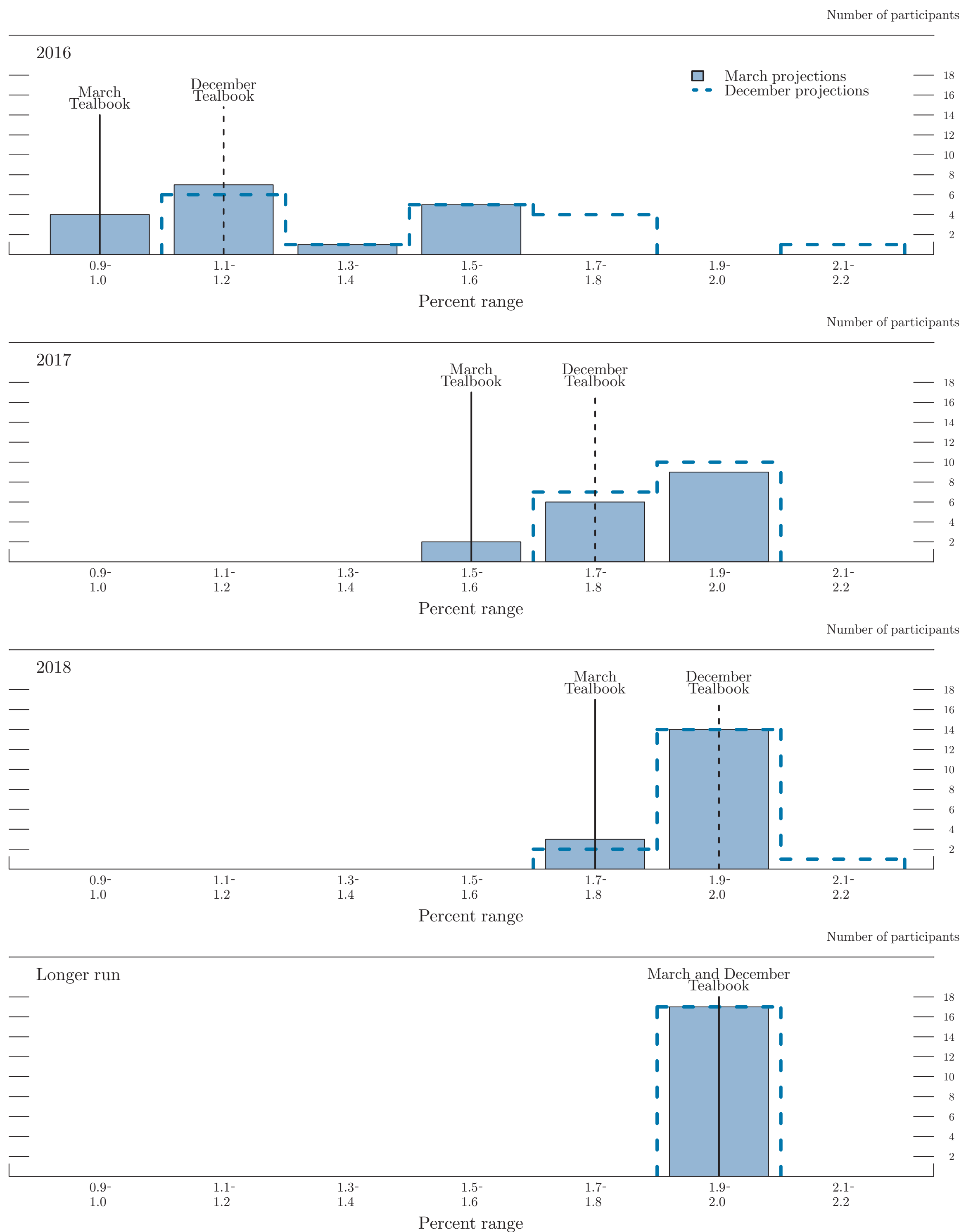
NOTE: Definitions of variables are in the general note to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2016–18 and over the longer run



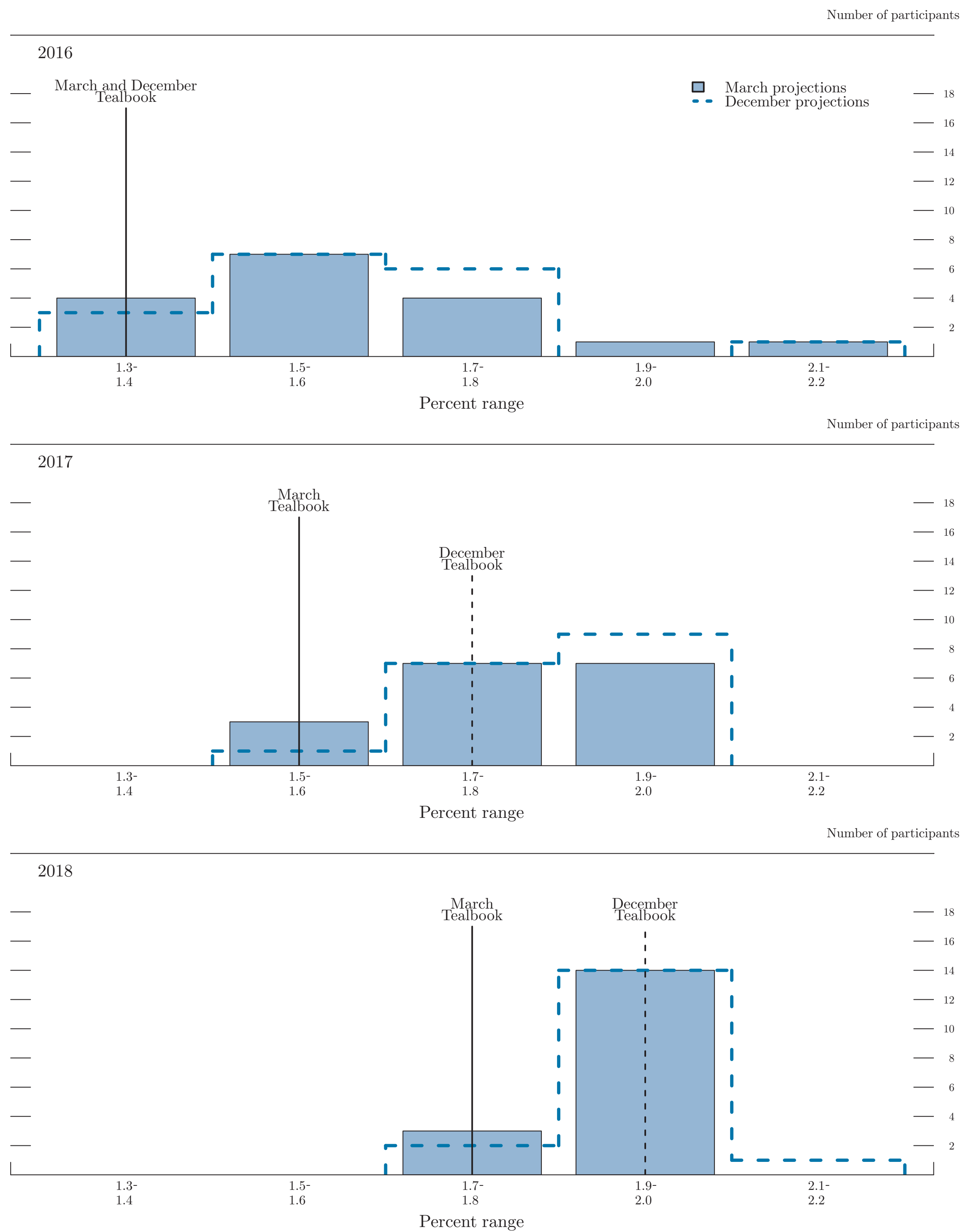
NOTE: Definitions of variables are in the general note to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2016–18 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, 2016–18

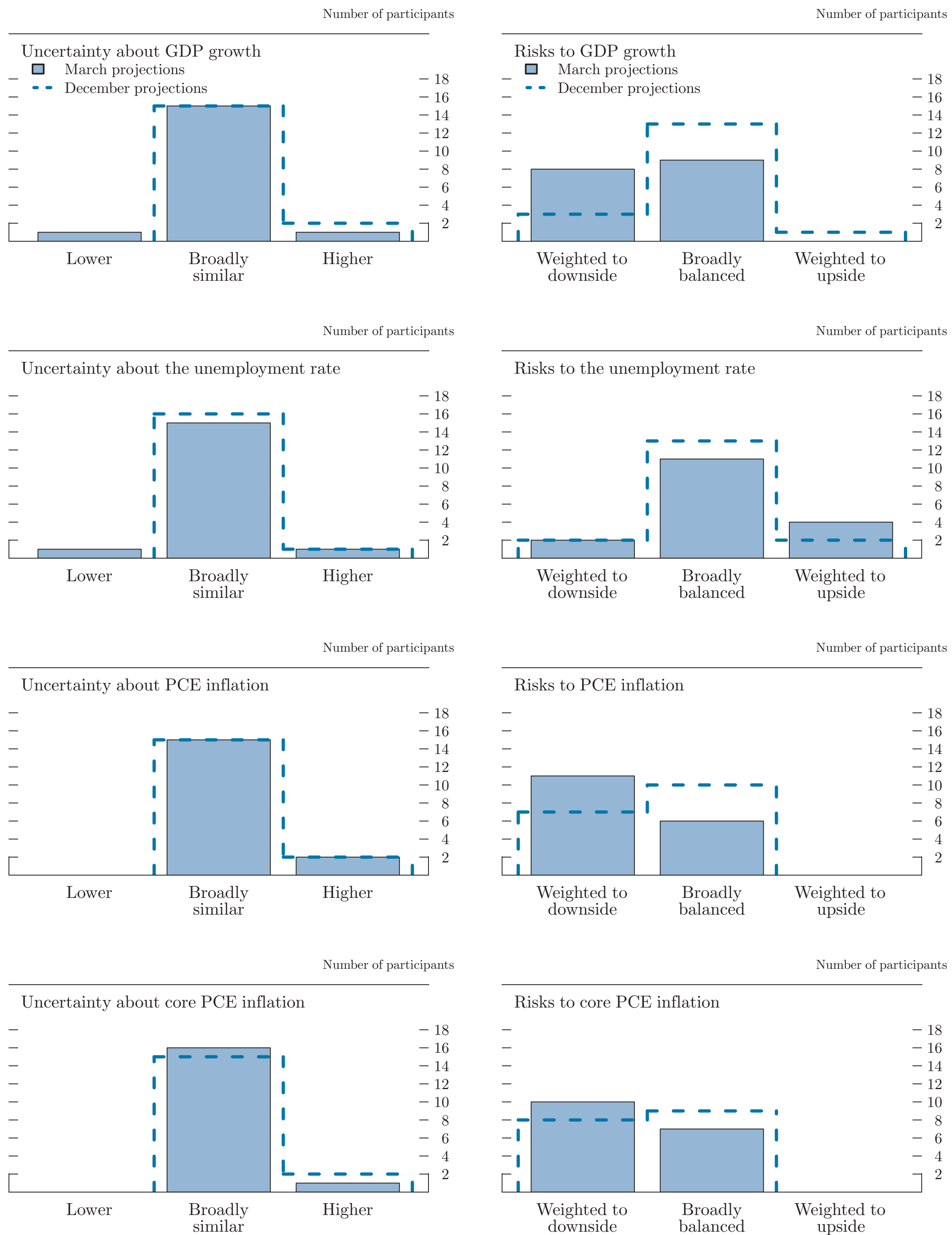


Note: Definitions of variables are in the general note to table 1.

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, 2016–18 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.

Figure 4. Uncertainty and risks in economic projections



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