Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, September 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	2.3	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
June projection	1.9	2.5	2.3	n.a.	2.0	1.8 – 2.0	2.4 – 2.7	2.1 – 2.5	n.a.	2.0 – 2.3	1.7 – 2.3	2.3 – 3.0	2.0 – 2.5	n.a.	1.8 – 2.5
Unemployment rate	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
June projection	5.3	5.1	5.0	n.a.	5.0	5.2 – 5.3	4.9 – 5.1	4.9 – 5.1	n.a.	5.0 – 5.2	5.0 – 5.3	4.6 – 5.2	4.8 – 5.5	n.a.	5.0 – 5.8
PCE inflation	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
June projection	0.7	1.8	2.0	n.a.	2.0	0.6 – 0.8	1.6 – 1.9	1.9 – 2.0	n.a.	2.0	0.6 – 1.0	1.5 – 2.4	1.7 – 2.2	n.a.	2.0
Core PCE inflation[4]	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	
June projection	1.3	1.8	2.0	n.a.		1.3 – 1.4	1.6 – 1.9	1.9 – 2.0	n.a.		1.2 – 1.6	1.5 – 2.4	1.7 – 2.2	n.a.	
Memo: Projected appropriate policy path															
Federal funds rate	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
June projection	0.6	1.6	2.9	n.a.	3.8	0.4 – 0.9	1.4 – 2.4	2.4 – 3.8	n.a.	3.5 – 3.8	0.1 – 0.9	0.4 – 2.9	2.0 – 3.9	n.a.	3.3 – 4.3

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value (rounded to the nearest 1/8 percentage point) of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The June projections were made in conjunction with the meeting of the Federal Open Market Committee on June 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.

Table 1.A. Economic projections for the first half of 2015*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.2	2.2	2.2
June projection	1.3	1.2 – 1.3	0.8 – 1.4
PCE inflation	0.1	0.1	0.1
June projection	−0.1	-0.1 – 0.0	-0.3 – 0.1
Core PCE inflation	1.4	1.4	1.4
June projection	1.2	1.2	1.1 – 1.3

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.2	0.1	1.4
2	2.2	0.1	1.4
3	2.2	0.1	1.4
4	2.2	0.1	1.4
5	2.2	0.1	1.4
6	2.2	0.1	1.4
7	2.2	0.1	1.4
8	2.2	0.1	1.4
9	2.2	0.1	1.4
10	2.2	0.1	1.4
11	2.2	0.1	1.4
12	2.2	0.1	1.4
13	2.2	0.1	1.4
14	2.2	0.1	1.4
15	2.2	0.1	1.4
16	2.2	0.1	1.4
17	2.2	0.1	1.4

* Growth and inflation are reported at annualized rates.

Table 1.B. Economic projections for the second half of 2015*
(in percent)

Medians, central tendencies, and ranges

	Median	Central tendency	Range
Change in real GDP	2.0	1.8 – 2.4	1.6 – 2.8
June projection	2.5	2.4 – 3.0	2.1 – 3.2
PCE inflation	0.7	0.5 – 0.9	0.5 – 1.9
June projection	1.6	1.3 – 1.7	1.3 – 2.0
Core PCE inflation	1.4	1.2 – 1.4	1.0 – 2.0
June projection	1.5	1.4 – 1.6	1.2 – 2.0

Participants' projections

Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	1.8	0.5	1.2
2	2.0	0.5	1.0
3	2.8	1.9	2.0
4	2.0	0.9	1.4
5	2.6	0.9	1.4
6	2.2	0.7	1.4
7	2.0	0.5	1.0
8	1.8	0.9	1.0
9	1.8	0.5	1.2
10	2.6	1.5	1.4
11	2.4	0.7	1.6
12	2.4	0.9	1.4
13	2.2	0.5	1.2
14	2.0	0.7	1.4
15	2.0	0.5	1.4
16	1.6	0.9	1.4
17	2.4	0.7	1.2

* Projections for the second half of 2015 implied by participants' September projections for the first half of 2015 and for 2015 as a whole. Growth and inflation are reported at annualized rates.

Table 2. September economic projections, 2015–18 and over the longer run (in percent)

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2015	2.0	5.0	0.3	1.3	0.38
2	2015	2.1	4.9	0.3	1.2	0.38
3	2015	2.5	5.0	1.0	1.7	0.88
4	2015	2.1	5.1	0.5	1.4	0.63
5	2015	2.4	5.1	0.5	1.4	0.38
6	2015	2.2	4.9	0.4	1.4	0.63
7	2015	2.1	5.0	0.3	1.2	0.13
8	2015	2.0	5.1	0.5	1.2	0.13
9	2015	2.0	5.0	0.3	1.3	0.38
10	2015	2.4	5.0	0.8	1.4	0.63
11	2015	2.3	5.1	0.4	1.5	0.38
12	2015	2.3	5.0	0.5	1.4	0.63
13	2015	2.2	5.0	0.3	1.3	−0.13
14	2015	2.1	5.2	0.4	1.4	0.63
15	2015	2.1	4.9	0.3	1.4	0.38
16	2015	1.9	5.1	0.5	1.4	0.38
17	2015	2.3	5.0	0.4	1.3	0.13
1	2016	2.2	4.8	1.5	1.5	1.13
2	2016	2.2	4.6	1.7	1.7	1.38
3	2016	2.8	4.5	2.4	2.4	2.88
4	2016	2.5	5.0	1.9	1.9	1.63
5	2016	2.7	4.9	1.8	1.8	1.38
6	2016	2.1	4.7	1.6	1.7	1.63
7	2016	2.2	4.8	1.7	1.5	0.88
8	2016	2.3	5.0	1.7	1.5	1.13
9	2016	2.2	4.9	1.7	1.6	1.13
10	2016	2.8	4.8	1.8	1.7	1.88
11	2016	2.5	4.9	1.7	1.7	2.13
12	2016	2.4	4.7	1.7	1.7	2.13
13	2016	2.6	4.7	1.5	1.5	−0.13
14	2016	2.3	4.9	1.9	1.9	2.38
15	2016	2.3	4.7	1.5	1.7	1.63
16	2016	2.3	4.8	1.7	1.6	1.13
17	2016	2.6	4.8	1.5	1.5	0.88

Table 2. ***(continued)***

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2017	2.0	4.7	1.8	1.8	1.88
2	2017	2.2	4.5	2.0	2.0	2.38
3	2017	2.0	5.0	2.2	2.2	3.88
4	2017	2.3	4.9	2.0	2.0	2.63
5	2017	2.5	4.8	2.0	2.0	3.38
6	2017	1.9	5.0	2.0	2.0	3.00
7	2017	2.2	4.7	1.7	1.7	1.88
8	2017	2.2	4.9	1.8	1.7	2.38
9	2017	2.1	4.8	1.9	1.9	2.13
10	2017	2.3	5.0	2.0	2.0	3.50
11	2017	2.4	4.9	1.9	1.8	3.00
12	2017	2.1	4.7	1.9	1.9	3.13
13	2017	2.4	4.5	2.0	2.0	1.00
14	2017	2.0	4.8	2.0	2.0	3.38
15	2017	2.3	4.9	1.7	1.9	2.63
16	2017	1.9	4.8	1.9	1.9	2.63
17	2017	2.6	4.7	1.7	1.7	2.13
1	2018	1.8	4.7	2.0	2.0	2.88
2	2018	1.8	4.6	2.0	2.0	3.13
3	2018	2.0	5.2	2.0	2.0	3.88
4	2018	2.0	4.8	2.0	2.0	3.63
5	2018	2.1	4.9	2.0	2.0	3.63
6	2018	1.9	5.0	2.0	2.0	3.50
7	2018	2.1	4.8	1.8	1.8	2.88
8	2018	2.0	4.9	1.9	1.8	2.88
9	2018	1.9	4.8	2.0	2.0	3.13
10	2018	2.3	5.3	2.0	2.0	3.50
11	2018	2.3	5.0	2.0	1.9	3.50
12	2018	2.0	4.7	2.1	2.1	3.63
13	2018	1.6	4.7	2.0	2.0	3.25
14	2018	1.8	5.0	2.0	2.0	3.75
15	2018	2.2	5.0	2.0	2.0	3.38
16	2018	1.8	4.8	2.0	2.0	3.25
17	2018	2.4	4.7	1.9	1.9	3.00

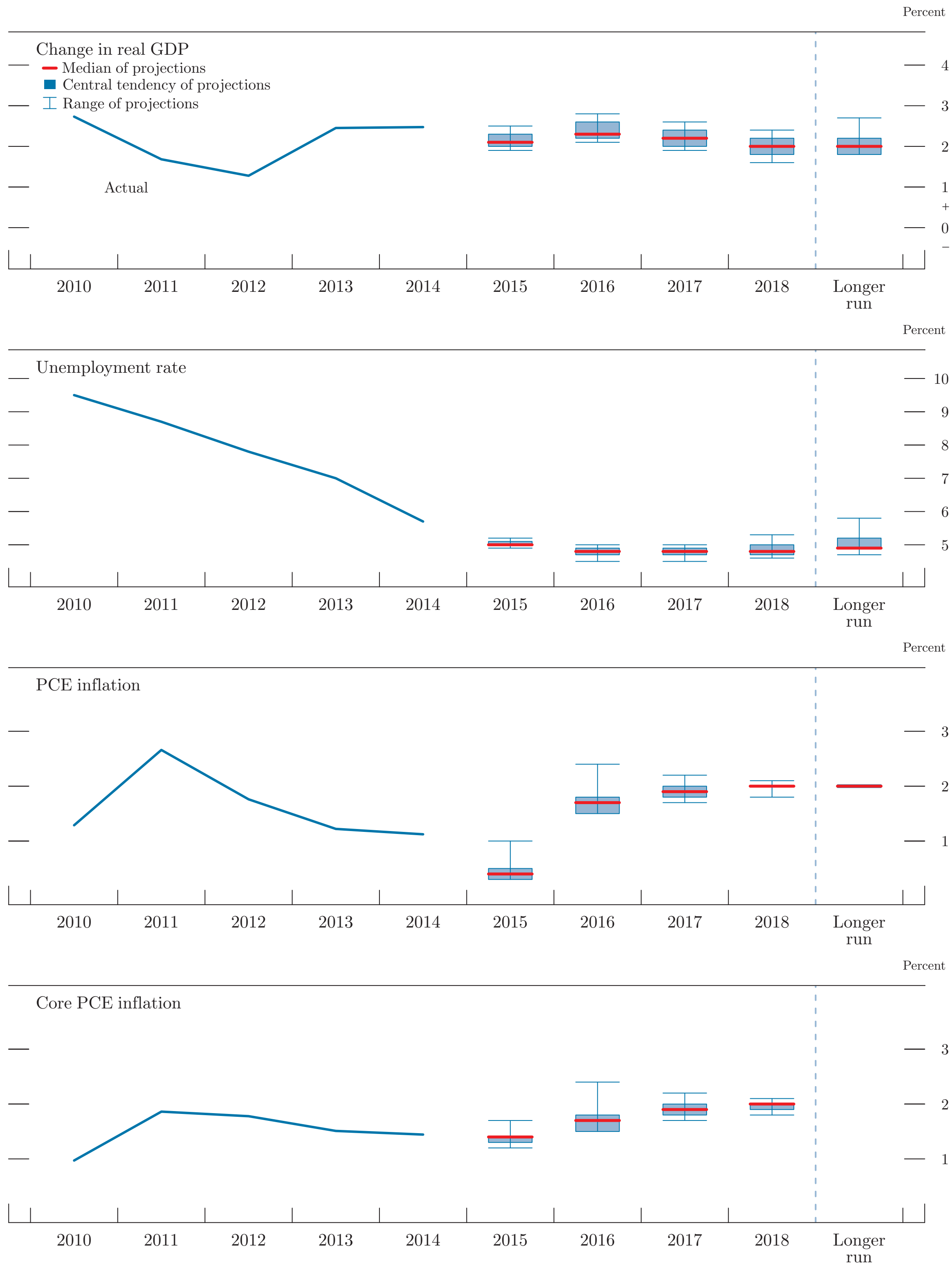
Table 2. ***(continued)***

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	LR	1.8	4.9	2.0		3.00
2	LR	2.0	4.9	2.0		3.25
3	LR	2.0	5.8	2.0		4.00
4	LR	1.8	5.2	2.0		3.75
5	LR	2.1	5.0	2.0		3.75
6	LR	1.9	5.0	2.0		3.50
7	LR	2.0	4.9	2.0		3.25
8	LR	2.0	4.9	2.0		3.25
9	LR	1.9	4.8	2.0		3.50
10	LR	2.3	5.3	2.0		3.50
11	LR	2.3	5.2	2.0		3.50
12	LR	2.1	5.0	2.0		3.63
13	LR	2.0	4.7	2.0		3.25
14	LR	1.8	5.0	2.0		3.75
15	LR	2.7	4.9	2.0		3.50
16	LR	1.8	4.8	2.0		3.25
17	LR	2.2	4.9	2.0		3.25

Table 2 Appendix. Timing (quarter) of liftoff and economic conditions in quarter of liftoff

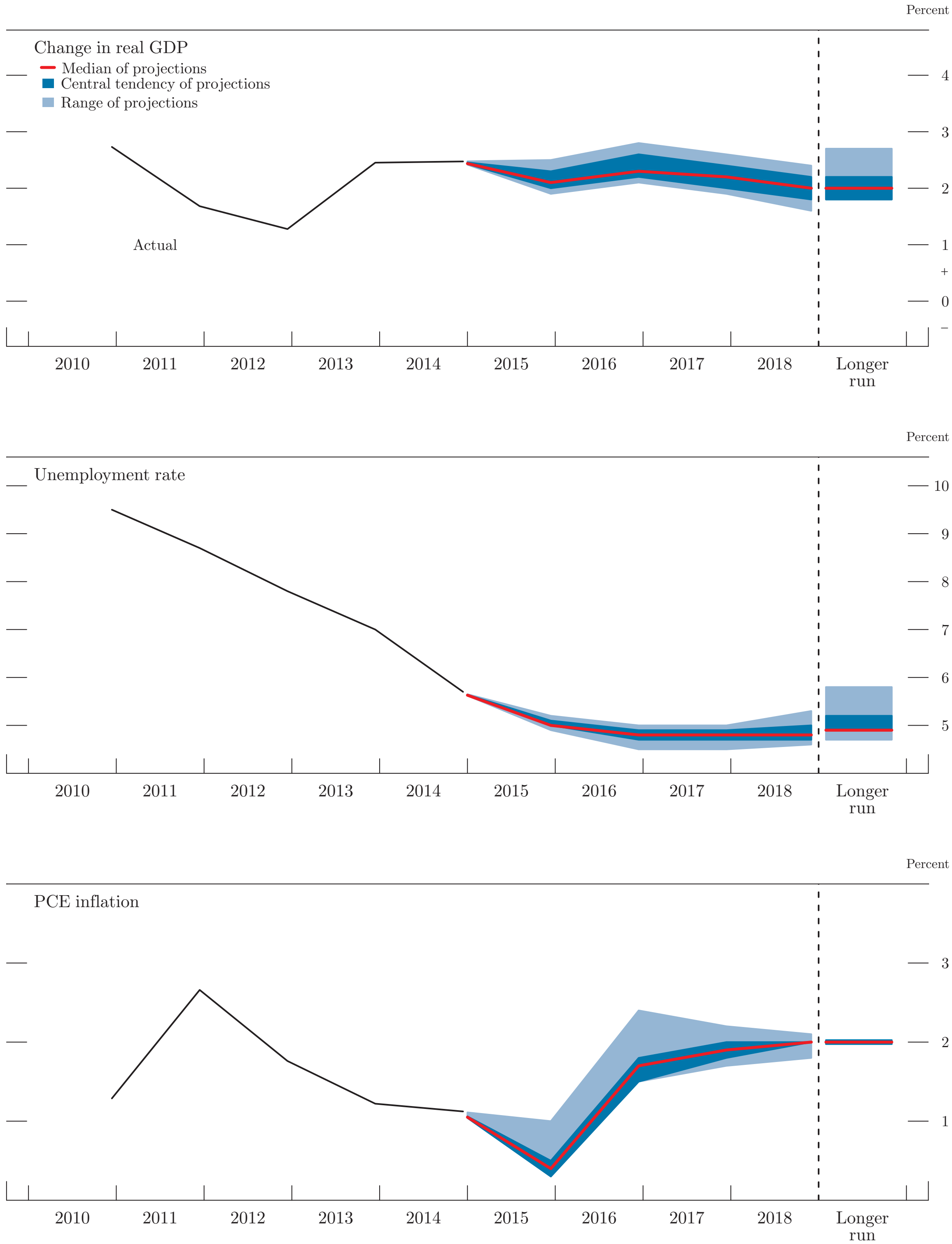
Projection	Year of first increase	Quarter of first increase	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation
1	2015	4	2.0	5.0	0.3	1.3
2	2015	4	2.1	5.0	0.3	1.2
3	2015	3	2.3	5.1	0.4	1.4
4	2015	3	2.0	5.2	0.3	1.3
5	2015	4	2.4	5.1	0.5	1.4
6	2015	3	2.1	5.1	0.2	1.3
7	2016	1	2.4	5.0	1.2	1.4
8	2016	1	2.2	5.1	0.6	1.2
9	2015	4	2.0	5.0	0.3	1.3
10	2015	3	2.1	5.2	0.3	1.3
11	2015	4	2.3	5.1	0.4	1.5
12	2015	3	2.2	5.2	0.3	1.3
13	2017	3	2.5	4.6	1.8	1.8
14	2015	3	2.1	5.2	0.2	1.2
15	2015	4	2.1	4.9	0.3	1.4
16	2015	4	1.9	5.1	0.5	1.4
17	2016	2	2.5	4.9	1.0	1.4

Figure 1.A. Medians, central tendencies, and ranges of economic projections, 2015–18 and over the longer run



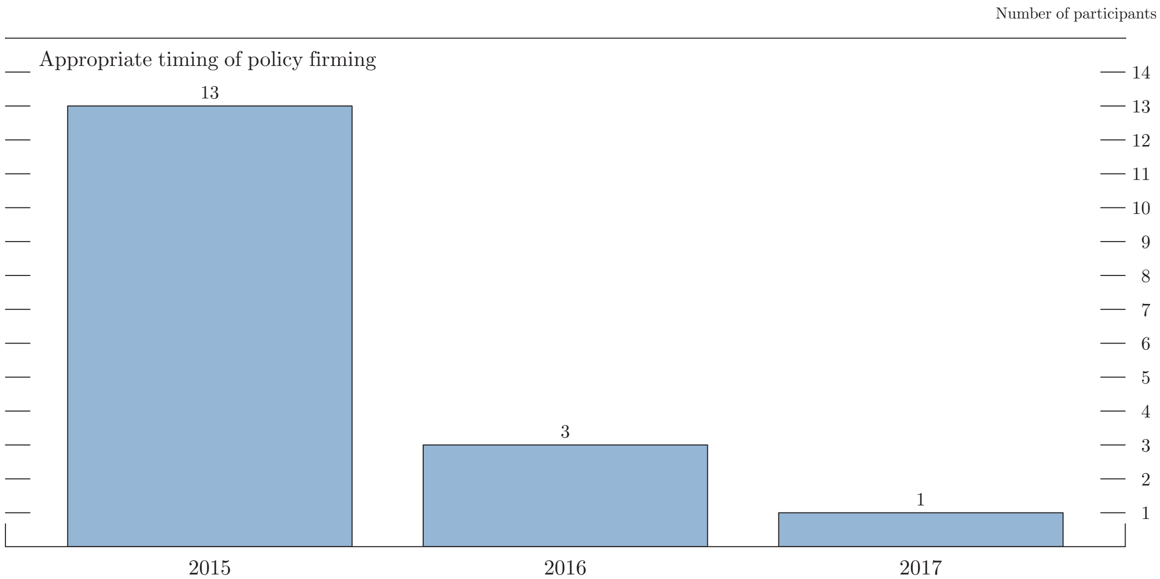
NOTE: Definitions of variables are in the general note to table 1. The data for the actual values of the variables are annual.

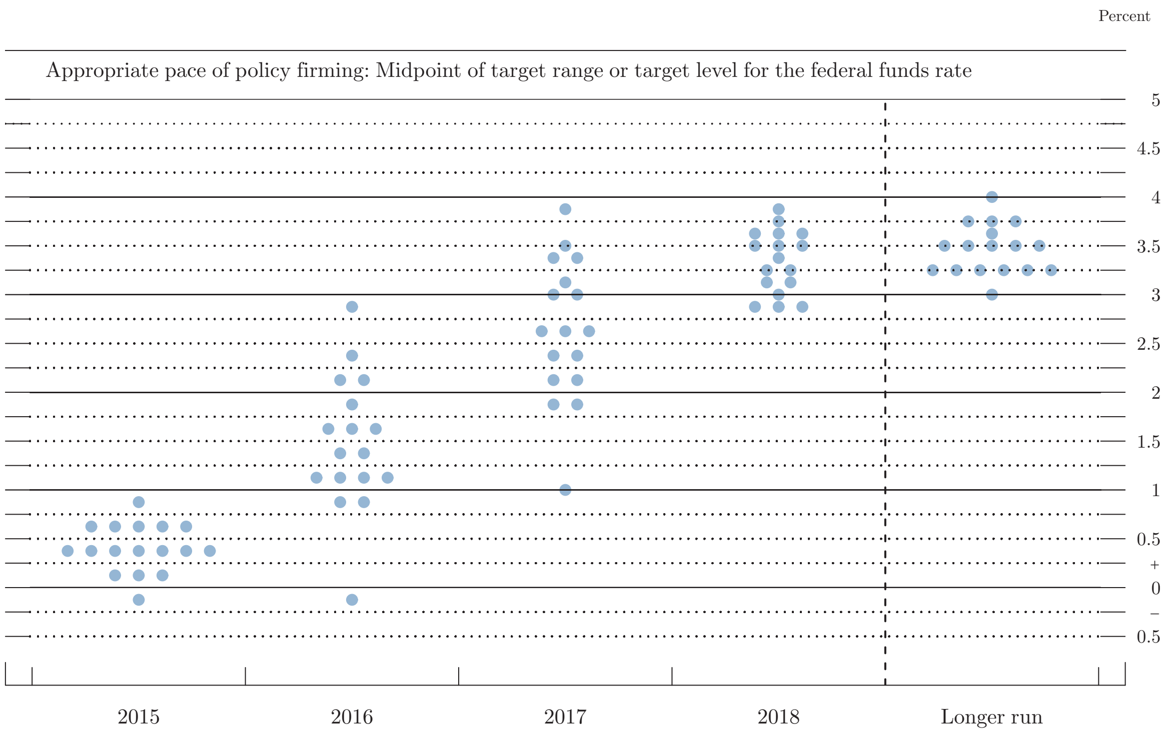
Figure 1.B. Medians, central tendencies, and ranges of economic projections, 2015–18 and over the longer run



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. Overview of FOMC participants' assessments of appropriate monetary policy

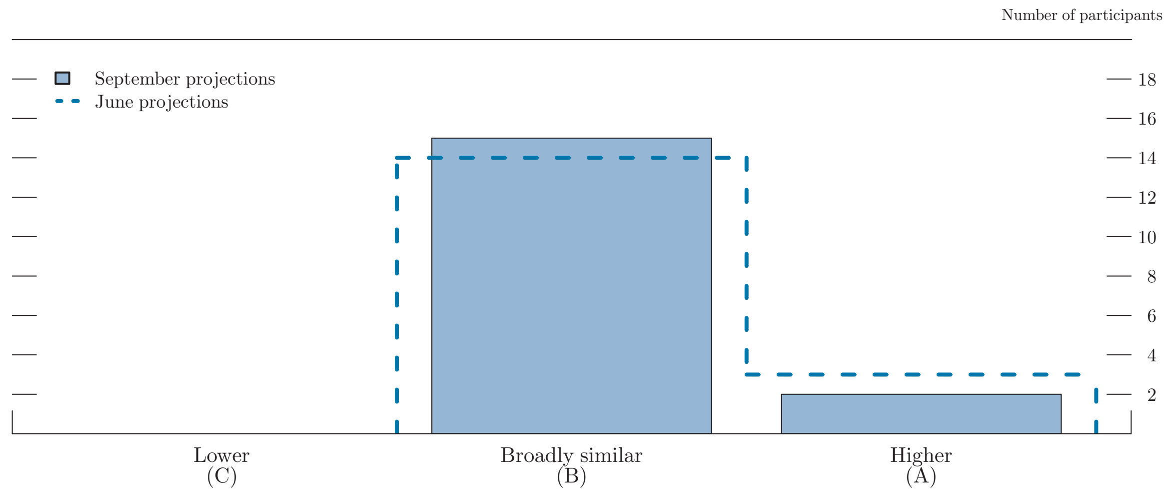




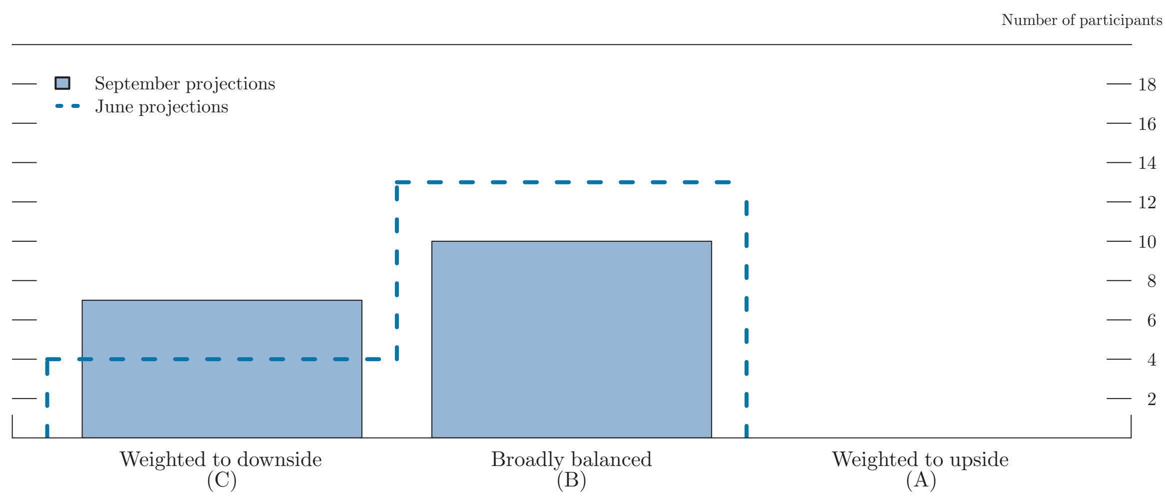
NOTE: In the upper panel, the height of each bar denotes the number of FOMC participants who judge that, under appropriate monetary policy, the first increase in the target range for the federal funds rate from its current range of 0 to 1/4 percent will occur in the specified calendar year. In June 2015, the numbers of FOMC participants who judged that the first increase in the target federal funds rate would occur in 2015, 2016, and 2017 were, respectively, 15, 2, and 0. In the lower panel, each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.

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.

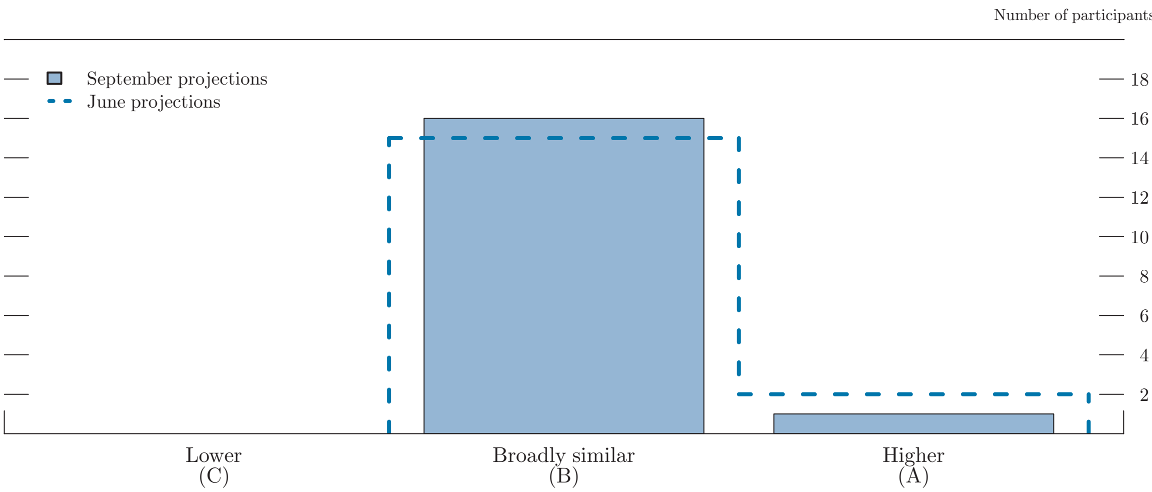


Individual responses

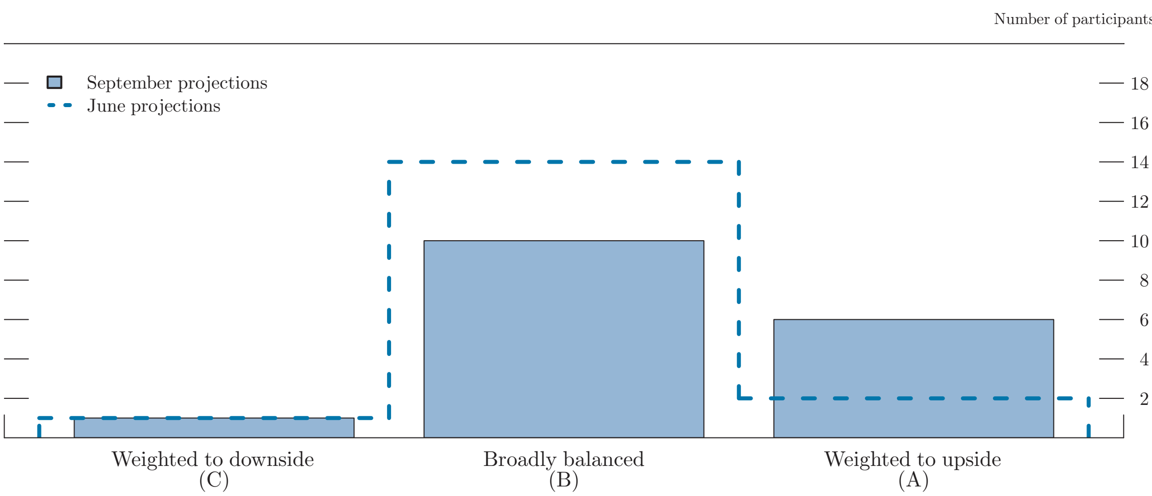
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	A	B
2(b)	C	B	B	B	C	B	C	C	C	B	B	B	C	B	B	C	B

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.

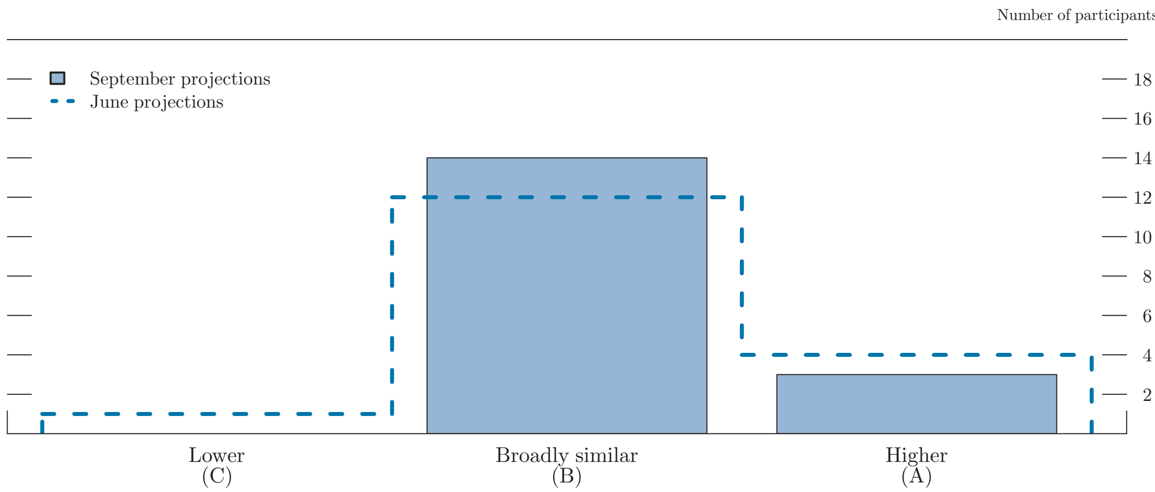


Individual responses

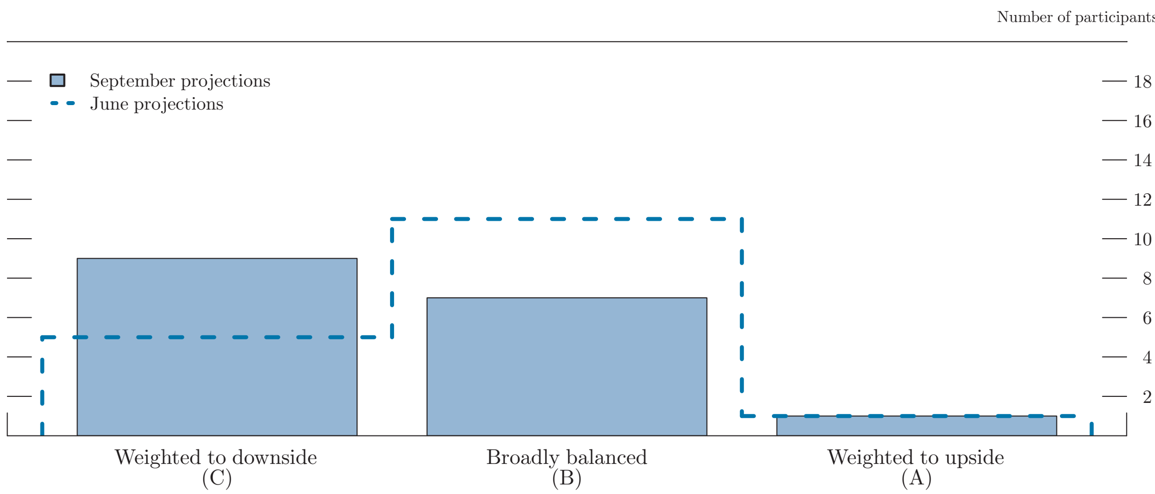
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
2(b)	A	B	B	B	B	B	A	B	A	B	C	B	A	B	A	A	B

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.

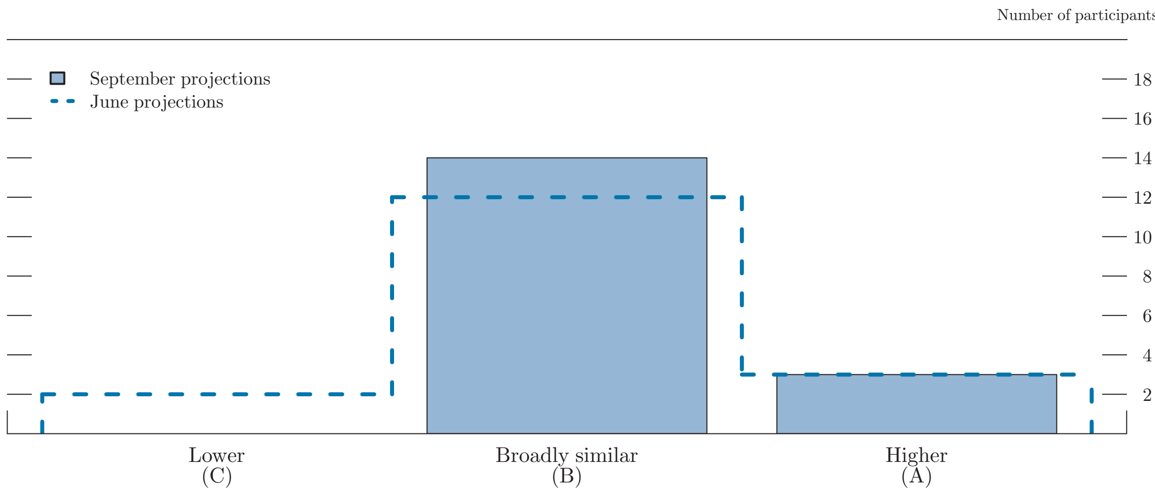


Individual responses

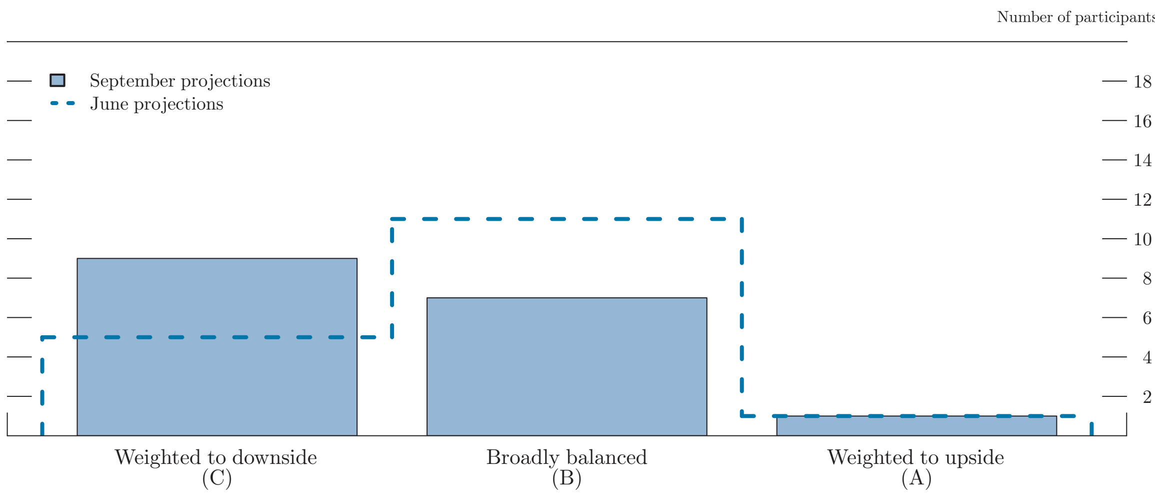
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2(a)	B	B	B	B	A	B	A	B	B	B	B	B	A	B	B	B	B
2(b)	C	C	B	B	C	B	C	B	C	B	C	B	C	B	A	C	C

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	A	B	A	B	B	B	B	B	A	B	B	B	B
2(b)	C	C	B	B	C	B	C	B	C	B	C	B	C	B	A	C	C

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: By 2018, I expect inflation to be back to 2 percent but the unemployment rate to be somewhat below its longer-run normal level (a necessary condition for getting inflation back to our objective over the medium term). As a result, I anticipate that it will take roughly five or six years for the economy to fully return to equilibrium.

Respondent 2: N/A

Respondent 3: All measure converge in less than 6 years. GDP growth will converge in 2017, inflation will converge in 2018, and unemployment will converge in 2020. Prior to convergence, I expect the unemployment rate to decline further below its long-run value of 5.8% and the inflation measures to overshoot 2%.

Respondent 4: 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 in 2016. The unemployment rate has reached my estimate of its longer-run level in the third quarter of 2015, 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 5: No comment

Respondent 6: NA

Respondent 7: N/A

Respondent 8: N/A

Respondent 9: Convergence to the mandated goals is expected to occur over the 2017-18 period.

Respondent 10: At this point, convergence is likely in two to three years.

Respondent 11: N/A

Respondent 12: I expect the unemployment rate to reach its longer-run sustainable rate by the end of 2015 and then fall past that level. The unemployment rate is likely to stay below the sustainable rate through 2018. To avoid creating significant economic imbalances, it is important that a prolonged overshoot of the sustainable rate be avoided. I expect inflation to near our 2-percent objective in 2017 and to surpass it in 2018. Inflation is unlikely to return to target until 2019 or later.

Respondent 13: N/A

Respondent 14: I expect the unemployment rate to be close to 5 percent, its longer-run value, through 2018. I expect real GDP per worker to grow at about a 1.3 percent annual rate over time. I expect the working age population to grow at a 1.0 percent annual rate, and I expect the labor force participation rate to decline by 0.2 percent per year. Accordingly I see the trend in real GDP growth at 1.8 percent, which is my projection for 2018.

Respondent 15: N/A

Respondent 16: As is usual following the annual revisions of GDP and productivity, we have re-assessed our longer-run assumptions and have made some changes to those assumptions. First, we now see the economy's potential growth rate as within a range centered somewhat below 2%; consequently, we have lowered our point estimate to 1 3/4% (rounded to 1.8% in this submission). We discuss our reasoning for this change in 4(b).

Second, we continue to assess that a reasonable range for the longer-run unemployment rate is 4% to 6%; however, we have lowered our point estimate to 4 3/4% (rounded to 4.8% in this submission). This change is based on staff analysis that has been conducted in recent months that we discuss in 4(b).

We project that the unemployment rate will reach its longer-run level by the end of 2016, and that it will remain near that level over the rest of the forecast horizon. However, our scenario analysis of labor flows as well as the historical behavior of the unemployment rate in long expansions indicate that there is a notable probability of the unemployment rate falling below 4 3/4% during some period of the forecast horizon.

We assume that long-term inflation expectations will continue to be anchored at levels consistent with the FOMC longer-run objective (2% for the PCE deflator and around 2.5% for the CPI, based on the longer-term average of the difference between CPI and PCE inflation). Under these conditions and with the resource gap anticipated to dissipate over the forecast horizon (the unemployment gap still may not provide an accurate measure of the resource gap), we expect inflation as measured by the PCE deflator (on a quarterly basis) to be about 2% in late 2017 and thereafter.

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, all of the major economic projections for 2018 are at their longer-run values.

Respondent 17: N/A

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: N/A

Respondent 4: N/A

Respondent 5: In the wake of the market turmoil of the past few weeks, oil price futures have remained particularly volatile, raising the uncertainty around my headline PCE projection above its 20 year average. I also judge the uncertainty surrounding my core PCE inflation projection as "higher." This is due to recent disparate readings on underlying inflation coming from various measures, and uncertainty regarding how inflation expectations are reacting to a prolonged period of below-target core inflation readings, especially in light of inflation compensation measures that remain well below year-ago levels.

Respondent 6: Uncertainty about my projection for economic activity is similar to its average level over the past 20 years. Inflation remains anchored by quite stable longer-run inflation expectations at the FOMC's stated goal of 2 percent. Inflation expectations have now been well anchored for about 20 years, so I see the magnitude of the uncertainty around the inflation outlook as consistent with that over the past 20 years.

Respondent 7: It is difficult to explain the persistently low levels of core inflation with the standard empirical methods. In addition, developments in international markets contribute to an elevated degree of uncertainty around oil prices and commodity prices.

Respondent 8: N/A

Respondent 9: N/A

Respondent 10: N/A

Respondent 11: N/A

Respondent 12: N/A

Respondent 13: N/A

Respondent 14: Inflation has been fairly well behaved over the last 25 years, and I believe that uncertainty has probably not changed much in recent years.

Respondent 15: N/A

Respondent 16: 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 width of these intervals have widened some since the June SEP, as the recent financial market and international developments point to a more uncertain global economic environment. Consequently, the probability intervals for the real activity forecasts remain wider than the SEP standard, as was the case in June; beyond the more recent developments, the extraordinary economic and financial environment, including the policy rate in most advanced economies remaining constrained by its effective lower bound, point to significant uncertainty about the real activity outlook. The net impact on real activity of the dollar appreciation we have seen over the past year is still unclear, contributing to the uncertainty. In contrast, even though uncertainty has increased to some degree, 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 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: I view the risks to GDP growth as skewed to the downside in light of increased uncertainty about the foreign economic outlook (particularly EME growth), a limited ability of monetary and fiscal policy to offset adverse shocks to the economy, and a greater-than-even chance that productivity growth will be slower than anticipated in my modal forecast. ZLB concerns and a more uncertain foreign outlook also cause the risks to the unemployment rate to be skewed to the upside, although this skew is tempered by the downside risks to productivity growth. Finally, I view the risks to inflation to be skewed to the downside, reflecting not only the upside risks to the unemployment rate but also a (small) chance that long-run inflation expectations may have slipped given the renewed decline in inflation compensation; moreover, I worry that I have underestimated the actual amount of slack that still persists, and thus the amount of stimulus needed to push inflation back to 2 percent.

Respondent 2: The risks of a significant slowing in global growth have increased in the last month or so. Because it is unclear whether those risks will persist or dissipate, I have continued for this round to see the risks as broadly balanced..

Respondent 3: N/A

Respondent 4: N/A

Respondent 5: My judgment of 'balanced' on the unemployment rate projection acknowledges both the downside risk to GDP and the recent spate of positive forecasting errors on my unemployment rate projection.

Respondent 6: Risks to economic activity appear balanced. Recent data point to a strong rebound in GDP growth from the weak first quarter. In addition, recent employment data point toward continued labor market improvements. On the other side, while many economic headwinds have abated, some significant ones remain. In particular, foreign growth has slowed further and financial conditions have tightened. On balance, most U.S. economic indicators suggest steady improvements in conditions going forward.

The zero lower bound does somewhat constrain our ability to respond to adverse shocks. However, this constraint no longer appears quantitatively important, especially in light of the apparent effectiveness of forward guidance and LSAPs. Moreover, normalization of monetary policy means that the zero lower bound will be less relevant over the forecast horizon.

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

Respondent 7: Although there are good reasons to expect the effects of currency appreciation and commodity price declines on PCE inflation to wane over time, there are also risks of a renewed bout of currency appreciation and commodity price declines.

In addition, the recent deterioration in market-based measures of inflation compensation from already low levels along with the movement of survey based measures into the lower end of their historical range introduce some risk that inflation expectations could drift lower.

Respondent 8: N/A

Respondent 9: N/A

Respondent 10: The risks to my projections are broadly balanced. I have made only modest adjustments to my modal forecast in light of signs that growth abroad is slowing somewhat more than anticipated. However, slower growth abroad has increased the downside risk to my forecast a bit. A number of foreign central banks have been increasing the level of monetary accommodation, which should help stimulate global demand.

Looking through the recent volatility, the low level of oil and gasoline prices is providing some support for consumer spending. The U.S. labor market continues to show solid gains, and tightening labor markets should eventually put upward pressure on labor compensation, which will support household spending. While businesses tied to the energy sector are struggling, indicators point to a pick-up in activity at businesses outside of energy-related sectors. The combination of these factors alongside highly accommodative monetary policy raises the possibility that the U.S. economy may be poised for faster growth than I am currently projecting.

Inflation risks are balanced. The most recent declines in oil and gasoline prices and the strengthening of the dollar will mean inflation measures will be low in the near-term; however, these effects should dissipate as the decline in oil prices and appreciation of the dollar slow, as we saw earlier in the year. Survey-based measures of inflation expectations have been relatively stable. While inflation compensation measures based on asset prices have fallen again, models that separate changes in inflation expectations from inflation risk and liquidity premia suggest we should take little signal about inflation expectations from these movements. A broad-based downward drift in inflation expectations would pose a downside risk to my inflation projection. On the other hand, too slow a withdrawal of monetary policy accommodation has the potential to create upside risks to inflation over the medium run.

Risks to financial stability from zero interest rates appear to be contained, but those risks are likely to be increasing over time. We cannot rule out the possibility that the recent volatility in financial markets may have been exacerbated by investors having taken on risks they were ill-equipped to manage.

Respondent 11: The unemployment rate has continued to fall at a more rapid rate than expected given relatively modest real GDP growth. In addition, projections for the path of the labor force participation rate remain highly uncertain. This raises the risk that the unemployment rate may undershoot 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: N/A

Respondent 13: Because of the zero lower bound and the perceived costs associated with asset purchases, it is hard for the FOMC to respond effectively to low inflation and low growth outcomes. This means that these outcomes are more likely to occur.

Respondent 14: N/A

Respondent 15: N/A

Respondent 16: Quantitative judgment based on the difference between the central projection and the expected value from the FRBNY forecast distribution. We have interpreted the recent financial market and international developments as indicating some deterioration in the risk assessment. Consequently, we now see the risks to real activity and inflation as weighted to the downside, a downgrade from the balanced risks in June. Regarding risks to the inflation outlook, although the near-term risks are fairly balanced, the decline in market-based inflation compensation to near historical lows, the general decline in commodity and import prices, and some softness and continued low levels in various measures of underlying inflation (including our signal component [SiCo] measure of PCE inflation) all indicate significant downside risks in the medium term. Our overall assessment then is that the inflation risks are to the downside. The deterioration of the risk assessment of the real activity outlook also has been influenced by the factors discussed in the inflation risk assessment. In addition, the indication of slowing growth in a number of emerging market economies, most prominently China, is another development that could weigh on U.S. real activity more than anticipated in the modal forecast. Other downside risks include the possibility that stalemates concerning the federal budget and/or debt ceiling could weigh upon the U.S. economy and the continuing constraints that monetary policy faces under the effective lower bound in a number of major economies. One countervailing factor that limits the amount of downside risk we have in our outlook 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 17: We think the risks to our GDP and unemployment rate forecasts are roughly in balance. On the downside, less global demand, especially in emerging markets, may trigger further dollar appreciation and financial market disruptions, negatively impacting net exports and private domestic spending. On the upside, positive household sector fundamentals (the better job market and low energy prices) and ample business access to credit could lead to stronger-than-expected growth.

While we still believe accommodative monetary policy will eventually prevail and put inflation on a gradual uptrend, we have yet to see any evidence of a pick-up in inflation, wages, or the planned prices of our business contacts. And the additional recent appreciation of the dollar and decline in oil prices highlight the potential persistence of downside risks.

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

3(c). 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: I continue to anticipate that economic conditions will likely warrent a quite gradual rise in the federal funds rate over the next few years, reflecting several considerations. First, I do not expect the various foreign and domestic headwinds still restraining US real activity to fade rapidly, so I therefore anticipate only a slow rise in the equilbirium real interest rate. Second, because the unemployment rate likely understates the true amount of slack in current labor markets, policy needs to be sufficiently accommodative to enable the unemployment rate to undershoot its longer-run normal level for a time in order to eliminate slack along these other dimensions. Third, a gradual policy tightening that allowed the unemployment rate to temporarily fall below its longer-run level would speed the return to 2 percent inflation. And finally, a cautious approach to tightening is appropriate in light of the asymmetric risks implied by the ZLB.

Respondent 2: In my forecast, unemployment runs below my estimate of the natural rate (4.9%) through the end of the forecast period, and the FFR does not reach my estimate of the long run neutral rate (3.25%) until 2018. In my view, it will be necessary to allow unemployment to decline below the natural rate and remain there for some time to get trend inflation back up to 2% on a sustainable basis.

Based on my forecast and assumptions about global risks, it will be appropriate to raise the FFR at the December 2015 meeting.

The Committee has articulated a two part test for liftoff: 1) some further improvement in the labor market and 2) reasonable confidence that inflation will move back to its 2% objective over the medium term. In my view, the first part of the test is now met. There has been substantial improvement in the labor market this year. Unemployment is now at the staff estimate of the natural rate, although there is likely some additional slack.

The second part of the test is also arguably met, but the case is weaker. In the baseline forecast, inflation returns to 1.9% in 2018, which alone is enough to provide a basis for reasonable confidence. Moreover, my forecast calls for unemploymetn to decline to 4.5% during the forecast period, which should put further upward pressure on inflation. However, since the last meeting, developments have on balance created downward pressure on inflation in the short term. I think there would be significant communications challenges if the Committee were to declare the inflation test to be met at a time when inflation is below mandate and declining, even though the factors involved are mostly expected to be transient (the dollar, energy prices). As a result, I would rather wait a meeting or two to declare the inflation test to be met. I would be prepared to see the inflation test as satisfied, and therefore to lift off, as long as growth continues on roughly its expected path, the dollar and energy prices show some stability, and inflation readings do not decline below current expectations.

The intermeeting period has also seen a significant increase in risks of a global slowdown, stemming from weakness in China and many emerging market economies, in a context of falling commodities prices. I would prefer not to raise rates until that risk diminishes.

I believe that it is likely that these conditions will be met later this year, by the time of the December meeting. I do not believe that it is likely that they will be met for the October meeting.

Respondent 3: I made no changes to my appropriate path of the federal funds rate. According to the empirical model supporting my forecast, lift-off should have already occurred. Such an action would have reduced the extent of the undershooting of unemployment and the overshooting of inflation.

Respondent 4: My judgment regarding the appropriate path of the federal funds rate is predicated on promoting sustainable long-run 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 in early 2016. Given uncertainty about how the economy will respond to the removal of accommodation after a prolonged period of near-zero interest rates, I believe increases in the federal funds rate should be gradual to see how the economy responds. Adjustments should be data-dependent, but the gradual approach to normalizing policy results in a funds rate below my estimate of its longer-run level in 2016 and 2017.

I reduced my estimate of the longer-run federal funds rate from 4.25 percent to 3.75 percent, and my estimate of longer-run real GDP growth from 2.3 percent to 1.8 percent. The revision to longer-run real GDP growth reflects demographics that I now anticipate will exert a bit more influence on trend growth sooner than previously estimated. Productivity growth has also been low, so I've taken on as part of my forecast a slightly slower trend in productivity growth. To appropriately reflect lower longer-run real GDP growth, I marked down my estimate of the longer-run real federal funds rate.

(1) Brief description of the economic conditions (or combination of conditions) that, in your judgment, would warrant an increase in the federal funds rate.

The economy is performing in a way that in my view warrants liftoff. Since the beginning of 2011, average real GDP growth has been above my estimate of trend and nonfarm payroll employment has averaged over 200 thousand. The labor market slack caused by the recession has largely disappeared; the unemployment rate is near or below many forecasters' estimates of the natural rate. With an economy near full employment, stable longer-term inflation expectations, and eventual waning effects of the drop in oil prices and the stronger dollar, I believe starting policy normalization now would be appropriate.

Given the lags with which monetary policy works, waiting longer risks having to tighten rapidly if inflation pressures build. I am concerned that maintaining the zero-interest rate policy, followed by a later-and-steeper federal funds rate path, raises financial stability risks considerably, with possible adverse future effects on inflation and employment.

(2) Indicate whether you now see the likelihood that those conditions will be in place this year as appreciably greater than, roughly equal to, or appreciably less than the likelihood that those conditions will not be realized until after this year.

As noted above, I believe the conditions for liftoff are already in place.

Respondent 5: My outlook has liftoff for the federal funds rate in the fourth quarter of 2015 (to a range of 25-50 basis points), followed by 25 basis point increases at every other meeting through 2016. The trajectory steepens to 25 basis point increases at every meeting in 2017, nearing its appropriate long-run value by the end of the year.

I also lowered my longer-run normal value of the federal funds rate to 3.75% in concert with my downward revision to longer-run GDP growth.

In response to the Chair's request:

(1) The domestic economic conditions that would warrant liftoff are similar to those prevailing now. I would want to see solid job gains and some indication that we will get output growth sufficient to sustain those job gains. On inflation, while I would prefer to see near-term trends in underlying inflation measures moving toward 2.0 percent along with stable inflation expectations, I am willing to look through transitory influences of lower oil prices and a stronger dollar on inflation.

(2) I judge the likelihood of those conditions being in place this year as appreciably greater than the likelihood that those conditions will not be realized until after this year.

Respondent 6: The conditions that warrant an increase in the federal funds rate from the zero lower bound are being within sight of full employment and being reasonably confident that inflation will return to our 2 percent objective in the next few years.

In my view, these conditions have now been met. The labor market is at or very near full employment and I expect any residual labor market slack to dissipate by early 2016. On inflation, I judge that transitory factors are significantly damping current inflation readings. I expect inflation to gradually rise and reach our 2 percent objective by 2017 as the economy continues to improve and transitory effects from the dollar appreciation and lower oil prices 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.

Following liftoff, 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 recent appreciation of the dollar. These continue to depress the shorter-term equilibrium real interest rate relative to its long-run value.
- From a risk management perspective, there are benefits to having optionality to respond to unexpected events by altering the pace of policy normalization. This optionality is enhanced by an earlier liftoff which allows for a more gradual path towards equilibrium.
- An additional benefit of an earlier and more gradual normalization strategy is a reduction in uncertainty among market participants, both domestic and global.

Respondent 7: Although we have seen continued improvement in the U3 unemployment rate and a welcome improvement in growth, financial conditions have tightened considerably since the last meeting largely due to developments in China and associated spillovers. In addition, core PCE remains stubbornly low, while declines in commodity prices are again weighing on headline PCE, and earlier glimmers of improvement in compensation have receded. Risk management considerations associated with the asymmetry in our policy toolkit near the effective lower bound, the tightening in financial conditions associated with foreign developments along with a risk of further deterioration in foreign conditions, and the apparent absence of wage pressures despite the continued reduction in resource slack argue for a delay in liftoff along with an initially cautious path once tightening is initiated.

The combination of risk management considerations and the likelihood of a continued strong feedback loop between expectations of policy divergence and financial tightening through exchange rate and financial market channels, suggest that economic conditions would have to improve along three dimensions in order to warrant the initiation of a tightenng cycle. First, the labor market should continue to improve at a robust pace such that margins of slack not capture in the U3 unemployment rate are diminished, and wage and compensation measures show sustained improvement. Second, inflation should show signs of turning upwards, and inflation expectations should firm. In addition, it is important that downside risks from foreign economic and financial spillovers diminish. Faster progress on one of these dimensions would lessen the amount of progress needed in other dimensions.

In light of the likely further adjustment that will be necessary in foreign markets and the ongoing restraining forces on inflation, the likelihood that these conditions will be realized later this year is smaller than the likelihood that they will not be realized until after this year.

The reduction in the longer-run normal value of the federal funds rate is warranted by the notable reduction in 5- and 10-year forward rates on 10-year Treasury yields over the past year as well as by ongoing global developments.

Respondent 8: I have pushed back by one quarter my projection of when it will be appropriate to increase the target range for the federal funds rate. In general, my outlook for the U.S. economy has not changed much since the last SEP. I expect growth to continue at a moderate, slightly-above-trend pace while the labor market continues to improve, though perhaps a bit more slowly than in the last couple of years. The persistent absence of evidence for an acceleration of wage increases strongly suggests that we are not yet at the natural rate of unemployment and, in fact, that the natural rate may have declined moderately below its longer term rate. Headline and core infliation are both likely to be somewhat lower in the remainder of this year, and there is no indication that they would accelerate more than gradually thereafter even in in the absence of a federal funds rate increase. In these circumstances, the argument for liftoff in the next several meetings seems weaker than I might have expected at the beginning of the year wuld be the case by now.

Respondent 9: The projected path for the federal funds rate features a gradual removal of policy accommodation, so that policy can probe for the possibility of greater labor market slack and/or a lower equilibrium real rate of interest than what is assumed in our baseline outlook. If our current estimates for the longer run levels of the unemployment rate and the equilibrium real interest rate turn out to be correct, the projected path for the federal funds rate would be consistent with achieving full employment and 2 percent inflation by 2018.

Respondent 10: I continue to see underlying strength in the economy and labor markets. The labor market has already made a great deal of progress toward our goal of full employment, and I expect further gains going forward. Measures of underemployment have been steadily declining as well. In my view, the economy is at or nearly at full employment – indeed, in my forecast the current level of the unemployment rate is below my point estimate of its longer-run level (which I have reduced by 0.2 percentage point in this forecast). In this scenario, labor compensation measures will eventually firm (in line with anecdotal reports of increasing wage pressures), but I do not see this as a necessary precondition to raising the federal funds rate. Over time, I expect the effects on inflation of the recent declines in oil prices and the strengthening of the dollar to fade. Stable inflation expectations, solid labor market readings, and above-trend growth (which I also revised down 0.2 percentage point) make me reasonably confident that inflation will move back to our goal of 2 percent over the medium run. In my projection, I expect this to occur in early 2017, which is a bit later than in my June projection, reflecting the further drop in oil prices and dollar appreciation that has occurred since that time.

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. The economy is already at or close to full employment, and I anticipate inflation to reach the Committee's goal of 2 percent in early 2017. In my view, this combination of factors warrants a modest increase in the federal funds rate in 2015Q3, with a gradual upward path thereafter over the forecast horizon.

I believe that the FOMC has communicated that such an increase is nearing, and while it will likely cause some reaction in financial markets, so long as the Committee continues to emphasize that the fund rate path will be a gradual one, I do not anticipate any deleterious effect of liftoff.

Respondent 11: My projection for the appropriate path of the federal funds rate is within the range of outcomes given by the monetary policy rules reported in Tealbook B.

Respondent 12: Deterioration in the economic outlook abroad poses a threat to GDP growth in the U.S. Major economies around the world–including China, Europe, Brazil, and Japan–face serious demographic, fiscal, and structural challenges. These challenges are likely to create spillovers which impact the U.S. through a stronger dollar, potentially reduced corporate profits on international operations, and dampened domestic consumer psychology ("headline risk"). The potential impact of these factors is the primary reason that the funds-rate path I project isn't steeper. Still, by the end of 2018, when both of our dual-mandate objectives are fully met (or exceeded), I project that the funds rate will settle at its longer-run sustainable level.

I don't see the risks associated with too-much and too-little accommodation as notably asymmetric at this stage of the business cycle: Too much accommodation maintained for too long can be as risky as too little accommodation. With too much accommodation, I would be concerned that marginal business investment decisions, consumer durables purchases, and financial commitments create excesses which can't be easily reversed or unwound when policy eventually begins to normalize. It becomes more difficult to achieve smooth convergence in an economy in the aftermath of a period when capital has been misallocated, creating debt and capital overhangs. The longer artificially favorable financial conditions are allowed to persist, the greater the potential for these imbalances to become significant.

Respondent 13: I believe the Committee should be much more willing to tolerate sharp movements in the federal funds rate. This would allow the Committee to act much more aggressively to provide accommodation now, followed by a sharper liftoff of the funds rate when inflation is much nearer to target (currently anticipated in mid-2017). This approach to policy would allow the Committee to return inflaton to target more rapidly. I note too that recent movements in market-based inflation expectations suggest that investors perceive an increased risk that the FOMC will fail to achieve its inflation target in conjunction with low growth outcomes. Having a tighter linkage between the inflation data and our actions would help enhance the credibility of our inflation target.

My preferred policy approach involves the use of a negative target range for the fed funds rate. he experience of other countries indicates that it would be possible to implement such a range.

The data also suggest that there has been a sharp fall in the natural real rate of interest since 2007. We remain below maximum employment and below target inflation, even though the market real rate of interest (over any horizon) is much lower than in 2007. This means that the neutral real rate of interest – consistent with target inflation and maximum employment – has fallen by even more.

There are many reasons for this change in the neutral real rate of interest – but the main point is that the change islikely to unwind over time – but only slowly and only partially. This judgment is borne out by the real yield curve, which is upward sloping (roughly 35 basis points over the next five years, and rising to over 1.3% from 2025 to 2035).

Put another way: I see the intercept term in the Taylor rule as being a stochastic process with a lot of persistence. That intercept is very low and is likely to return to its long-run value only slowly.

Respondent 14: I believe we should raise the target for the federal funds rate at this meeting, and that it would be appropriate to begin reducing the size of the balance sheet shortly thereafter. The unemployment rate is currently near or at its longer-run normal level, and 12-month inflation can be expected to be close to the FOMC's 2 percent objective by the end of 2016. I believe current conditions warrant an increase in the funds rate for the following reasons: Consumer spending has accelerated to near 3 percent, suggesting the need for higher real rates, private fixed investment is growing, labor markets have tightened significantly, and, as it did last time, inflation will move back toward 2 percent after the transitory effects of recent movements in energy prices and the foreign exchange value of the dollar have passed. Moreover, further delay would represent a substantive departure from our beneficial past behavior.

Respondent 15: The "optimal" path for the federal funds rate exhibits considerable inertia.

Respondent 16: The crucial factors behind our assessment of the appropriate path for monetary policy and the FFR are the current state of the economy, our central economic outlook, and our balance of risks around the central outlook. As such, we believe it is important to communicate clearly to the public that these factors will dictate the path of the policy stance. The developments along these dimensions since the June SEP were such that we now assess that a later liftoff and a subsequent slower pace of normalization than in our June submission is now the appropriate path for the FFR.

Based on our modal outlook and assuming that longer-term inflation expectations remain anchored, we anticipate that the target range for the FFR will remain at its current level until December 2015. Nevertheless, it is important to communicate to the public that the decision about the timing of liftoff is dependent upon the data and the FOMC's assessment of the outlook and risks rather than a particular calendar date.

Regarding the conditions that would warrant an increase in the FFR, let us first discuss the conditions stated in the July FOMC statement. Regarding the condition of "some further improvement in the labor market," the U.S. economy is close to satisfying it: the continued payroll gains and the decline in the unemployment rate indicate that further improvement occurred during the intermeeting period. Beyond that, some indications that the improvement in labor market conditions were beginning to be translated into stronger compensation growth would be an important benchmark to determine that this condition has been met sufficiently. In contrast to the labor market condition, we are still a considerable distance from satisfying the condition of "reasonable confidence" that inflation will rise to 2% over the medium term. Here, we would need to see a number of developments: (1) various measures of underlying inflation (core, median, trimmed mean, SiCo, and the FRBNY underlying inflation gauge) beginning to firm appreciably; (2) longer-term inflation compensation moving back toward the levels of mid-2014, with survey measures of inflation expectations remaining stable; and (3) commodity prices stabilizing (and strengthening in some cases). In addition to the two conditions in the FOMC statement, there is a condition that would need to happen to solidfy the case for increasing the FFR: after tightening recently, financial market conditions would need to show substantial improvement from recent readings. To tighten policy in the current financial market environment would risk an undue further tightening of financial conditions that would put the attainment of the FOMC objectives in jeopardy. Given our assessment that conditions will be such that an initial increase in the FFR can occur in December, we currently judge the likelihood that the conditions for liftoff will be in place this year as roughly equal to the likelihood that they will not be realized until after this year.

A more important factor than the timing of liftoff in determining the stance of policy will be the pace of rate increases following liftoff. In general, this pace will depend upon our assessment of economic conditions and the outlook, longer-term inflation expectations, and the response of overall financial conditions to policy tightening. Currently, the still-low levels of inflation and longer-term inflation compensation, the somewhat greater uncertainty surrounding both the real activity and inflation outlooks, the downside risks to those outlooks, and the uncertainty about the level of the equilibrium real FFR [discussed further below] all point to a more gradual pace during the early stages of normalization than was our assessment in June. Therefore, our current projection of the appropriate path has the target FFR ranges at the end of 2015, 2016, and 2017 at 1/4 - 1/2%, 1 - 1 1/4%, and 2 1/2 - 2 3/4% respectively; the 2016 and 2017 ranges are 50bps below those in our June submission. We thus do not expect that the FFR will reach our estimate of its longer-run normal rate until 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) and to address the uncertainty about the equilibrium real FFR, which in turn will help ensure the attainment of the FOMC's objectives over the longer run. Moreover, in current circumstances–low inflation and unemployment near our estimate of its longer-run normal level–unemployment could fall below its longer-run normal level under appropriate policy, thus providing more insurance against the risk of being caught in a low inflation trap. Our modal forecast has the unemployment rate falling to our 4 3/4% estimate of the longer-run normal rate, although there is a sizable probability that it could fall further below the longer-run rate.

Another factor informing our assessment of the appropriate path for the target FFR is our estimate of the equilibrium real short-term interest rate. We maintain the range of 1/2 - 3% that we had in June: this range is modestly below our assessment of 1% - 3% for "normal times," reflecting the impact of the protracted period of low global interest rates and resulting continued uncertainty about the equilibrium real rate. Adding the objective for inflation (2%) then gives our estimated range for the nominal equilibrium rate as 2.5 - 5.0%. However, with the reduction in our assumptions for trend productivity growth and potential GDP growth, we now assess that the equilibrium rate is more likely to be further in the lower half of that range, leading to our point estimate of 3 1/4%, as seen in the response to question 3(a). Estimates of the equilibrium rate using DSGE models and the Laubach-Williams model also suggest that the equilibrium rate remains low.

We would also note that we assume that reinvestment continues until economic and financial conditions indicate that the exit from the zero 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 the second half of 2016.

Respondent 17: We continue to believe that under appropriate policy, liftoff should be delayed until core inflation has clearly begun to move sustainably higher. In our projection, it will take until mid-2016 for this condition to be met. In particular, by that time, we are hopeful that the dollar and energy prices will have roughly stabilized and that year-over-year core inflation will have clearly moved off of its recent lows. After liftoff, we believe it will be appropriate for the path of rate increases to be quite shallow, at least initially. This would give the Committee time to assess the economy's performance under less accommodative financial conditions and to observe whether inflation is indeed moving up to target.

Furthermore, we believe that a mid-2016 lift off date and a shallow path for rate increases are appropriate policy from a risk management perspective, as we view the costs of a retreat back to the zero lower bound as much greater than those of inflation running modestly above 2 percent for a couple of years if demand is unexpectedly strong. Indeed, given the normal inertia in the inflation process, our rate assumptions could result in inflation modestly overshooting 2 percent beyond the projection horizon. We see this as a feature of an optimal policy aimed at achieving a symmetric inflation target. Finally, our path for appropriate policy also is influenced by our view that the equilibrium real interest rate currently is quite low and, though moving up over time, may still be a bit below our assumption for the long-run neutral rate at the end of the projection period.

Forecast Narratives

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

Respondent 1: 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 even as the federal funds rate rises, thereby generating further improvements in labor market conditions. The increasing underlying strength partly reflects a gradually diminishing drag on net exports from the dollar and foreign growth, a quickening housing market recovery, and a modest turn-around in drilling activity, all of which should in turn help to bolster employment, consumption and investment over time.

My outlook for inflation assumes that the restrictive effects of low oil prices and dollar appreciation should wane as we move into 2016, allowing headline inflation to move up to 1-1/2 percent later in the year. Thereafter, inflation should continue to rise–and by 2018, reach 2 percent–in an environment of anchored long-run inflation expectations, assuming that the unemployment rate undershoots its longer-run normal level for several years. The undershooting is necessary to help pull more discouraged workers back into the labor force and to reduce involuntary part-time employment, thereby speeding the return to 2 percent.

The key risk to the outlook for real activity is that the domestic and foreign headwinds that still restrain real activity may not abate as quickly as I expect. That concern is also a key risk to the inflation outlook; in addition, I worry that inflation may become stuck at a level appreciably below 2 percent because our standard model of inflation could be flawed in some way. For example, readings on inflation expectations may be consistent with inflation stabilizing at less than 2 percent, similar to the Japanese experience in which actual inflation ran peristently below measures of expected inflation for many years.

Respondent 2: N/A

Respondent 3: My view is that lift-off will be tardy.

Respondent 4: My forecast for real GDP growth is characterized by above-trend growth in 2015 - 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 in 2017 as the economy operates at full capacity. I see the unemployment gap as closed in the third quarter of 2015 after the rapid reduction in economic slack in the past few years. My inflation outlook projects a gradual rise in inflation reflecting the reduced slack in the economy and the dissipating of transitory effects of dollar appreciation and lower energy prices.

I see the risks to the economic outlook as broadly balanced. Downside risks for real GDP growth and inflation stemming from the deterioration in global economic and financial conditions appear to have increased since the beginning of the year. However, they are roughly offset by upside risks related to the resilience of the U.S. economy. Consumer spending and inflation could rise faster than expected, especially given the rapid improvement in labor market conditions and the potential for faster wage gains.

Respondent 5: 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 stronger consumption growth, supported by ongoing improvements in the labor market and a robust pace of disposable income growth, further improvement in consumer sentiment, and a modest stimulus from lower energy prices. While lower oil prices negatively impact energy-related investment in the near-term, conditions remain supportive for capital investment in other sectors. Strength in the dollar and weakness from abroad remain modest headwinds in my outlook, slowing export growth and providing some restraint to domestic industrial activity.

The risks to my growth outlook are tilted to the downside and have intensified in recent weeks. Market volatility, touched off by fears over a material slowdown in China, and further dollar appreciation threaten to significantly restrain export growth and domestic industrial activity. While I view the direct effect of a slowdown in China to be relatively modest, knock-on effects could destabilize our important trading partners and pose a significant risk to domestic output growth through the export sector. Additionally, this new found uncertainty that has roiled markets could spill over onto the broad economy if it changed firms' investment or hiring decisions.

The risks to my inflation outlook have also shifted to the downside. Lower oil prices and a stronger dollar could prove to be more of a headwind to inflation than I have built into by baseline outlook. This could be especially troublesome if inflation expectations un-anchor to the downside as a result of the prolonged period of below target inflation.

Respondent 6: The economy is mostly 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, which policy has only partially offset. Many of the associated remaining headwinds are slowly easing:

- Housing construction has been and continues to be depressed. However, with household balance sheets as well as consumer credit conditions improving, I expect this to abate;
- 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. The potential for further deterioration of foreign economic and financial conditions represents a downside risk.

In this environment, I expect the economic recovery will proceed at a moderate pace. And with substantial monetary stimulus still in play I expect output and unemployment gaps to close by the end of this year. 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 diminishing slack eventually pull inflation back to our objective.

Respondent 7: N/A

Respondent 8: In addition to the factors noted in my response to 3(c), the recent volatility in global markets, along with increased uncertainty about the economic prospects and policies of a number of important foreign economies, pushes risks to the downside. While I have not much changed my baseline expectations for the U.S. economy from the perod prior to that volatility, it's hard to see global developments boosting those prospects, while it's reasonably easy to see how they could take a few more tenths of a percentage point off U.S. growth and/or have further disinflationary effects.

Respondent 9: The pace of growth in economic activity during the first half of the year was stronger than previously thought. Similarly, labor market improvements as measured by the U-3 unemployment rate have exceeded expectations, though the cyclical rebound in labor force participation remains weak by historical standards. Recent developments, however, are less supportive of growth going forward. A weaker outlook for emerging market economies and further appreciation in the trade-weighted dollar imply more drag from net exports. Downward revisions to the savings rate provide less scope for pent-up demand to support consumer expenditures. Moreover, the decline in asset valuations and increased uncertainty are also expected to negatively impact activity. Given the deterioration in some key conditioning factors, the removal of policy accommodation is now projected to occur somewhat more slowly than in previous forecasts. This allows GDP growth to exceed potential on average, albeit modestly, over the forecast horizon.

Given our outlook for real economic activity, we project a small decline in the unemployment rate. The weak cyclical pickup in participation so far could signal a more pronounced downward trend in labor force participation. While in this forecast we continue to expect that more individuals will be drawn into the labor market, our current estimates of the output and the unemployment rate gap provide a more similar assessment of the activity gap. As a result, the projected decline in the unemployment rate is more closely tied to the projected pace of GDP growth than in previous forecasts. The closer alignment between our current estimate of the output gap and the unemployment rate gap was achieved in part by lowering the longer-run estimate of the unemployment rate, from 5.0 to 4.8 percent. We see the lack of significant wage pressures so far, even for occupations that have shown stronger growth in employment, as signaling a lower equilibrium unemployment rate than previously thought. We expect the unemployment rate to reach its longer run equilibrium level in 2017 and flatten at that level in 2018 as GDP growth reverts to potential.

The gradual removal of policy accommodation in our baseline outlook achieves several objectives. In the near term, it provides some insurance against the possibility that the drop in commodity prices, asset valuations, and the associated volatility in financial markets signal more weakness in the global economy than what we are assuming in our baseline outlook. It also reduces the risks of monetary policy adding to an already high level of uncertainty. If recent market developments turn out to find little support in the lagging real activity data, the process of removing accommodation can then start in a less uncertain environment. In the medium term, the gradual removal of accommodation gives monetary policy the opportunity to probe for the possibility of greater labor market slack and/or 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 materialize more rapidly than expected.

The risks to the growth outlook are tilted to the downside. Our baseline outlook features only a modest slowdown in China and other emerging market economies, with financial market volatility and risk spreads returning to more normal levels. However, the risks of a more broad-based crisis in China, with significant spillover effects to the rest of the world, have increased. Since our unemployment rate projection is now more closely tied to projected GDP growth, the risks to the unemployment rate are tilted to the upside. Even though we have lowered our estimate of the equilibrium unemployment rate, we continue to perceive downside risks to the inflation outlook . In particular, we see risks associated with the possibility that long-term inflation expectations are anchored at a level below the 2 percent target.

Respondent 10: Notwithstanding the volatility in financial markets since our last meeting, 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 lower oil prices. Financial market volatility has increased since our last meeting – ostensibly reflecting expectations of slower growth abroad – but I do not take a great deal of signal from this volatility at this point. Weakening activity abroad is likely to have only a modest adverse impact on the overall U.S. economy, and a number of foreign central banks have scope to add accommodation to promote stronger growth and higher inflation rates abroad. Data revisions show that the economy in the first half of this year was stronger than I had anticipated, and labor market readings have also been generally better than I had expected. Reinforcing the data, business contacts report tightening labor markets and some increased wage pressures. Overall, I see these forces contributing to above-trend growth and further improvement in labor markets. By the end of 2018, I project that the economy will essentially be at its steady state. (Note: in this projection, I've revised down my estimates of long-run growth from 2.5 to 2.3 percent, long-run unemployment from 5.5 to 5.3 percent, and the long-run fed funds rate from 3.75 to 3.5 percent.)

Inflation rates remain subdued, as oil and commodity price declines weigh on headline PCE inflation and the pass-through of lower commodity prices and import prices weighs on core PCE inflation. I expect that the most recent declines in oil prices and the strengthening of the dollar – which are smaller than the previous moves over the last year – will have a short-lived impact on inflation measures. In my judgment, inflation expectations remain anchored. Anchored inflation expectations along with an improving economy are consistent with inflation moving back to the 2 percent longer-run objective by early 2017. As inflation increases and the expansion continues, 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 11: I expect the pace of output growth over the medium term to be somewhat above my longer term trend of 2.3 as the headwinds that have been holding down growth recede further. With fairly modest headline growth over the forecast horizon, I anticipate that the unemployment rate will edge down further from its current level of 5.1 percent. However, with a cyclical rebound in the labor force participation rate and appropriate monetary policy firming the unemployment rate only goes modestly below my estimate of the natural rate. Headline inflation has been held down in the first half of 2015 by the fall in energy prices. I anticipate that inflation will rebound in 2016 and rise toward my 2 percent target over the remainder of the forecast horizon. Inflation stays anchored around 2 percent in response to tighter monetary policy than that anticipated in the Tealbook.

Respondent 12: Financial conditions remained highly accommodative through the second quarter of 2015 despite a strong dollar and foreign economic and geo-political uncertainties. Since then, we've seen deterioration in the emerging-market outlook and a (potentially healthy) correction in U.S. equity prices. At this point, neither creates a serious threat to the U.S. expansion. The benefits to the U.S. from a favorable shift in the terms of trade will help to offset reductions in demand for U.S. exports, and I expect U.S. output growth to continue to outstrip growth in potential, further reducing labor-market slack. These reductions give me confidence that trimmed-mean inflation will near 2 percent within two years.

Potential additional adverse international economic and financial developments are the main source of near-term downside risks.

Respondent 13: There is a risk of a premature tightening of monetary policy that would degrade our performance on inflation and employment.

Respondent 14: Real GDP per worker has risen at a 1.3 percent annual rate from 2007 to 2014; my projections assume that productivity continues to grow at the same rate through 2018. I am projecting that through 2018 the working age population grows at 1 percent per year, the labor force particpation rate falls by 0.2 percent per year, and the unemployment rate remains near 5 percent. These supply-side factors suggest longer-run growth of 1.8 percent. My GDP projections through 2017 are higher than that, primarily reflecting robust consumer spending growth and solid growth in business fixed investment and residential investment.

Respondent 15: The key factors: expectations of the FOMC's interest rate decisions, against the background of future developments in the US and foreign economies.

Respondent 16: Growth of real GDP over the first half of 2015 is now estimated to have been at a 2.2% annual rate, up from the 1 1/4% we expected in the June SEP, but still a full percentage point below the pace of growth over 2014H2. Looking forward, we anticipate that 2015H2 growth of real final sales to domestic purchasers will be a relatively healthy 3 1/4%; however, substantial drag from both net exports and inventory investment will keep the overall real GDP growth rate at around 1 3/4%. For 2015 as a whole that would result in growth of real GDP of around 2%, below the 2 1/2% pace of 2013 and 2014. Consistent with the slower growth rate over 2015H2, the pace of employment gains is expected to slow from the 213,000 average monthly increase of nonfarm payroll employment that occurred over 2015H1.

Turning to the near-term inflation outlook, the twelve-month changes of the overall PCE deflator are projected to remain quite low over 2015H2 due to the further decline of oil prices that occurred over July and August as well as expectations that margins on refined petroleum products will narrow. Core PCE deflator inflation is expected to be in the 1 1/4% to 1 1/2% range that has prevailed over the past year, as pass-through from declines in energy prices and non-energy import prices as well as anticipated subdued increases in medical care services provide restraint on core inflation.

For 2016 and 2017 our modal projections of the key SEP variables have not changed much from June, though we have adjusted some of the key parameters of the forecast. First, taking on board the information contained in the annual NIPA revision, we have lowered our estimate of the economy's potential growth rate to 1 3/4% from our previous estimate of 2% (1 1/4% to 1 1/2% growth of productivity in the nonfarm business sector, 1/2% to 3/4% growth of hours worked). In addition, we have lowered our estimate of NAIRU to 4 3/4% from 5% as an acknowledgment of the aging of the population. We discuss these changes in more detail in 4(b).

Given these changes, we continue to project growth to pick up in 2016, but to around 2 1/4% rather than the 2 1/2% of the June SEP. Real PCE are anticipated to continue to grow at a solid pace, reflecting further improvement in the labor market, decent income growth, relatively high consumer confidence, and improving access to consumer credit. In addition, the personal saving rate is high relative to household net worth, providing room for a gradual decline of the personal saving rate over the forecast horizon. That being said, we anticipate growth of consumer spending in 2016 to slow somewhat from its recent 3% pace. The consumer durable goods cycle is well along at this point, so that durable goods are unlikely to provide the support for consumer spending that they have over the past few years. For example, while light vehicle sales have continued to move higher in recent months, the 12-month growth rate of that series has clearly slowed.

Outside of consumption, we project housing construction to continue to move higher, aided by ongoing improvement in labor market conditions, gradual easing of mortgage underwriting standards, and emerging tightness in housing supply. Indeed, household formation moved notably higher over the past three quarters. Beyond that, the rental vacancy rate appears to be below its equilibrium level, as rent inflation has moved higher. In another indication of some tightening in housing supply, after slowing over the year ending in February 2015, the 12-month change of the CoreLogic national home price index has moved up to 6.9% as of July.

We also anticipate that business fixed investment (BFI) will gradually strengthen over the course of 2016. On the positive side, given our assumption of a gradual firming of oil prices, the steep contraction in investment in the oil and gas sector should be largely over by the second half of 2015. On the negative side, the economy will continue to adjust to the steep dollar appreciation of the past year, and we project the drag from net exports to be around a full percentage point in 2016. Thus, while a bit stronger in 2016 than over the past three years, growth of BFI still will likely be only around 7% (Q4/Q4). Growth of government expenditures is projected to be relatively sluggish over the year, as we assume that the sequester will remain in effect.

In 2017 we anticipate that growth of real GDP will slow to just under 2%, due to a combination of further aging of the business cycle and gradual tightening of financial conditions as the federal funds rate continues along its assumed normalization path. The unemployment rate is projected to fall to its longer-run natural rate by the end of 2016 and then stabilize at that level with the labor force participation rate relatively stable in the 62.6% to 62.7% range, although there is still some remaining overall resource slack at that time. Accordingly, inflation moves gradually up to 2% by the end of 2017 as slack continues to decline and the effects of dollar appreciation fade. With slack largely dissipated by the beginning of 2018 and inflation expectations anchored at the FOMC's longer-run objective, real GDP growth, unemployment, and inflation are all projected to be at the longer-run levels in 2018.

Respondent 17: Accommodative monetary policy, a healthy labor market, improved household and business balance sheets, increased access to credit, and continued low energy prices should allow for solid growth in domestic demand. We assume little change in the dollar going forward, so that the constraint on net exports will wane as we move through the projection period. We recognize the large uncertainty, though, about how international developments might influence the outlook for U.S. growth and inflation.

The factors supporting activity are assumed to generate growth moderately above potential over the next 2-1/2 years. As monetary policy normalizes and cyclical dynamics run their course, growth moderates back towards potential by 2018. We assume that resource gaps will be close to zero by the second half of 2016. The unemployment rate is projected to reach 4.7 percent by the end of the of the projection period, 0.2 percentage point below our estimate of the natural rate, and any additional labor market slack not measured by the unemployment rate gap should have dissipated by then as well.

Under this forecast, changes in resource slack and the assumed stabilization of the dollar and energy prices work to boost inflation. Furthermore, as noted above, we assume policy normalization does not begin until mid-2016 and that rates then rise along a quite shallow path for the bulk of the projection period. We also assume that the Committee will strongly communicate its expectation that rates will follow such a path. We feel this communication is necessary to reinforce the perception that the Committee is firmly committed to a symmetric 2 percent inflation target, and thus solidify the upward pull on actual inflation from inflationary expectations. Without this pull, we would not expect inflation to rise close to target over the forecast period.

See the description of uncertainties and risks in section 2(b) above.

Forecast Narratives (continued)

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

Respondent 1: Revisions to the shorter-term outlook for real activity and inflation largely reflect the annual revisions to the national accounts, the incoming data on spending and production, and the more restrictive financial conditions implied by recent dollar appreciation, lower equity prices, and higher risk premiums. I also lowered my estimate of the normal long-run level of the real federal funds rate in response to less favorable financial conditions, including the dollar. In addition, the disappointing readings on wages published after the July meeting suggested to me that there may be a bit more labor market slack than I previously estimated, and so I edged down my forecast of the longer-run uneployment rate. On net these various changes meant that the projected path of the federal funds rate needed to be lowered in order to generate the slack necessary for returning inflation to 2 percent over the medium term

Respondent 2: N/A

Respondent 3: The delay in lift-off and the momentum in the economy have led me to decrease my estimates for unemployment in 2016 and 2017.

Respondent 4: The information received since June has led me to revise up my forecast for real GDP growth in 2015, as higher growth in the first half of 2015 more than offset a downward revision for the second half of the year. I revised down my forecast of the unemployment rate in 2015 - 2017, as the recent declines in the unemployment rate indicate that labor market slack is diminishing somewhat faster than I projected in June. However, despite the diminishing slack I revised down my forecasts of PCE inflation and core PCE inflation in 2015, reflecting the temporary effects of the declines in oil prices and the strengthening of the dollar since June.

Respondent 5: I have marked up my growth forecast in 2015 by 0.3 percentage points, though that is largely arithmetic, given the upward revision to first half growth. My medium term outlook remains largely intact, as the incoming domestic evidence have come in consistent with my outlook. My longer-run real GDP growth projection has been lowered by 0.2 percentage points, reflecting my judgment that a fraction of the lower productivity growth we've experienced during the recovery will persist.

Given the recent surprise decline in the unemployment rate to 5.1 percent, it's close to my judgment of its longer-run level. My projection is for the (U-3) unemployment rate to fall slightly below my long-run estimate in 2016. However, I judge the more elevated level of the U-6 measure of unemployment as a more reliable gauge of labor market slack and do not expect much pressure on wage and price growth even if the U-3 measure slightly overshoots my longer-run estimate.

On inflation, I've lowered my headline PCE inflation forecast for 2015 by 0.3 percentage points reflecting the decline in oil prices since the June meeting.

Respondent 6: Since June, I have made few changes to my forecast. My forecast for GDP growth in 2015 (Q4/Q4) is a touch higher, primarily due to the stronger than expected rebound in GDP growth in the second quarter. However, my medium and longer run forecasts for GDP growth are slightly lower, partly because the output gap is now closer to zero and partly because of indications of slower trend productivity growth. In addition, I have lowered slightly my forecast of the unemployment rate in the medium and longer run based on the recent decline in the unemployment rate and some analyses pointing to a slightly lower natural rate.

In addition, my inflation forecast for the next two years is a touch lower, reflecting the effects of lower import and commodity prices.

Respondent 7: N/A

Respondent 8: As just noted, the late August developments in global markets have injected considerable uncertainty into the expected path of the global economy

Respondent 9: The projected pace of GDP growth is now somewhat slower, mainly as a result of revisions to the foreign growth outlook and a more appreciated value of the dollar. In order to offset at least in part the deterioration in some key conditioning factors, the forecast is conditioned on a somewhat more accommodative policy stance. Such a stance also provides an opportunity to better assess whether the recent turbulence in financial markets represents a temporary phenomenon, or whether it signals a deterioration in fundamentals that is not adequately captured in our baseline outlook. The lower than expected starting point for the unemployment rate implies that the unemployment rate is on a lower trajectory than previously thought. The downward revision to the equilibrium unemployment rate, however, means that full employment is still reached by the end 2017. The outlook for inflation has not changed materially.

Respondent 10: The primary factor causing my forecast to change since the last SEP is my reassessment of the long-run rates of growth and the unemployment rate. Based in part on revisions to past productivity growth, I have reduced my estimate of potential growth slightly. At the same time, the tepid pace of wage growth and the disconnect between moderate growth and sharp declines in the unemployment rate have caused me to slightly reduce my estimate of the longer-run unemployment rate. Admittedly, the statistical significance of these changes is very small. These revisions largely explain the quantitative changes to my forecast; qualitatively, my outlook is little changed from the previous SEP. I continue to expect growth to pick up to above-trend levels. With an improving economy and stable inflation expectations, I expect further declines in the unemployment rate and an inflation rate that gradually returns to our target.

Respondent 11: NA

Respondent 12: First-quarter GDP growth has been upwardly revised since June and it's now clear that second-quarter growth was quite strong, offsetting residual first-quarter weakness. As a result, our staff has revised their 2015 growth forecast upward and their end-of-2015 unemployment forecast downward. Their core inflation forecasts are largely unchanged: They project that inflation will approach our 2-percent objective in 2017 and overshoot that objective in 2018. Their assessment of the policy path likely to be appropriate has shifted modestly downward as a result of small downward revisions to estimated longer-run equilibrium unemployment and federal-funds rates, and because broad financial conditions (particularly outside the U.S.) have deteriorated somewhat since the previous projection.

Respondent 13: After long consideration and much consultation with staff here in Minneapolis, I have decided to lower my estimate of the natural rate of unemployment.

Respondent 14: GDP growth is 0.3 percentage points higher this year, due to the upward revisions in first half growth. Also, I no longer assume a June rate increase.

Respondent 15: The sense that economic growth is becoming more robust.

Respondent 16: The most significant changes to our projections concern our long-run assumptions, which was part of our usual reassessment of those assumptions following the annual revisions to the NIPA and productivity data.

As we have noted a number of times already, we have reduced our estimate of the longer-run potential GDP growth rate from 2% to 1 3/4%. Two pieces of analysis underlie this change. First, given the downward revision to real GDP growth in the previous few years, a regression analysis of the change in the unemployment rate and real GDP growth in the expansion, accounting for changes in labor force participation in this period, suggests that potential real GDP growth is around 1 3/4%. Second, a separate analysis indicates that there is a very high probability that the U.S. economy is in a low trend productivity growth state–on the order of 1 1/4% to 1 1/2% in the nonfarm business sector (1% to 1 1/4% on a GDP basis). Given common estimates of trend hours growth, this analysis also indicates potential real GDP growth of about 1 3/4%.

The other important change to our long-run assumptions is a reduction in the point estimate of the longer-run natural rate of unemployment from 5% to 4 3/4%–we would note that we still see a reasonable range of estimates as 4% to 6%. Three arguments underlie the change in the point estimate. First, estimates of the staff's two-state model of labor market flows indicate that the steady-state unemployment rate is now 4.8%. Second, another piece of staff analysis shows that based on changes in demographics, a 5% unemployment rate in 2005 (a reasonable estimate of NAIRU at that time) would be equivalent to 4.7 - 4.8% in 2020 (the period for which the longer-run refers to in the SEP). Third, because of the increase of involuntary part-time employment and other factors, the staff assesses that current labor market slack is wider than suggested by the standard unemployment gap (if one used 5% as NAIRU). Consequently, we anticipate that the unemployment rate will fall below 5% in order for labor market slack to dissipate.

Turning to the near- and medium-term projections, for real GDP growth, the first half was stronger than we anticipated in June. Part of the reason for the stronger growth in 2015H1 was robust inventory investment. With inventories-sales ratios modestly higher than they have been recently, we expect that inventory investment will slow in the second half, leading to a sizable negative GDP growth contribution. This factor contributes to slower growth in 2015H2 than we projected in June, with the result that 2015 growth is little different from the June projection. Differences in real GDP growth in this projection from the June projection in subsequent years are minor and primarily reflect our lower potential GDP growth assumption.

The unemployment rate is lower than we had projected in June. With little change in our economic growth forecast, our projected path for the unemployment rate is slightly lower than that of our June SEP submission. One difference is that the unemployment rate does not fall below our point estimate of the longer-run natural rate in this submission, although there is still a sizable probability (based on historical patterns) that it may do so sometime in the forecast horizon.

Both overall and core inflation in 2015H1 were slightly above our previous projections; however, with the further decline in oil and commodity prices, our projection for total PCE inflation in 2015 is lower than in June. Beyond that horizon, the changes in the inflation projection are minor and we project inflation to be at 2% at the end of 2017.

Respondent 17: On balance, the incoming data on domestic economic activity have been stronger than we expected in June. The economy appears to be growing above trend, with clear and consistent progress in the labor market. Accordingly, we raised our forecast for 2015 real GDP growth about 0.3 percentage point higher than in June. However, we made only marginal changes to our growth outlook for 2016 and 2017, as our previous forecast already incorporated solid momentum in private domestic spending. We also lowered our unemployment rate forecast by roughly 1/4 percentage point throughout the projection period to be consistent with its surprisingly large decline since June.

Although we have not appreciably changed our forecast for actual GDP growth beyond the current year, we have altered our view of the growth path for potential output to reflect BEA's annual revisions to the national accounts and to better align our estimates of the output and unemployment rate gaps. We now see potential output growth rising from about 1 1/2 percent per year during 2013-15 to roughly 2 percent in 2016 and 2017. We have also reduced our assumption for potential long-run growth to 2.2 percent. The revisions to potential imply the output gap is eliminated somewhat sooner than we projected in June. We assume the natural rate of unemployment currently is 5 percent, but that demographic factors will cause it to edge down roughly 0.05 percentage point a year over the next several years. As a result, our neutral rate of unemployment averages 4.9 percent over the projection period.

As we noted earlier, the incoming news regarding the inflation outlook has been disappointing. The dollar has appreciated and oil prices declined, earlier indications of a pickup in wage growth have weakened, inflation break-even rates have returned to recent lows, and we still are not hearing of any price pressures from our business contacts. Our forecast for top-line PCE inflation has come down a bit in 2015 while our forecast for core inflation is unchanged. We left our 2016 and 2017 inflation forecasts the same as in June, as our reassessment of supply side factors offset other developments that would have lowered the inflation outlook.

We left our policy liftoff date at mid-2016 and marginally lowered the funds path in 2017 to reflect our belief that a touch more accommodation will be needed to return inflation to 2 percent in the medium term. Given our changes to potential output, we reduced our long-run federal funds rate assumption to 3.25 percent.

Forecast Narratives (continued)

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

Respondent 1: N/A

Respondent 2: N/A

Respondent 3: I continue to expect more rapid GDP growth in 2015 and 2016 than is in the Tealbook forecast. I also expect lower unemployment in 2016 than the Tealbook and a much higher long-run value. Finally, while the Tealbook anticipates a steady convergence to inflation of 2%, I expect an overshooting to 2.4% before a convergence to 2%.

Respondent 4: My forecast for real GDP growth in 2016, 2017 and 2018 is above that of Tealbook, largely because I am less pessimistic than Tealbook about net exports and the effects of lower equity prices. My outlook for PCE inflation and core PCE inflation is several tenths of a percentage point above Tealbook's projection in 2016 and 2017. 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 5: After making similar adjustments to the near-term path, my growth forecast continues to run roughly 1/2 percentage point above the Tealbook throughout the forecast horizon, mostly due to our differing perspectives on potential GDP growth. My headline and core inflation forecasts run about 1/4 percentage point above the Tealbook over the medium-term, as it is still my view that inflation expectations remain at a target-consistent level of 2 percent.

Respondent 6: My forecast is broadly similar to the Tealbook projection. One notable difference is that the Tealbook has a more protracted return of inflation to the FOMC's stated 2 percent objective. Also, the Tealbook has somewhat slower GDP growth in the second half of 2015 than I do, though I broadly share the Tealbook's view on GDP growth after 2015. Lastly, while I have a similar assessment of the natural rate of unemployment to that of the Tealbook, I have a somewhat different forecast path for the unemployment rate in the medium run. Both forecasts have the unemployment rate dipping somewhat below the natural rate in 2015 and 2016, but I expect the unemployment rate to return to the natural rate in 2017 whereas the Tealbook projects it to continue falling at least through 2018 before moving back toward the natural rate.

Respondent 7: N/A

Respondent 8: I am modestly more optimistic about growth over the next couple of years.

Respondent 9: Our forecast is conditioned on a more gradual increase in the federal funds rate. The two forecasts have very similar outcomes both in terms of economic activity and inflation. Still, our lower estimate of the equilibrium unemployment rate provides less scope for overshooting full employment by the end of the forecast horizon.

Respondent 10: My growth forecast is somewhat stronger than the September Tealbook forecast, but the difference primarily reflects different estimates for trend growth. As in the Tealbook, I expect that GDP growth will proceed at an above-trend pace in 2015 and 2016 and the unemployment rate will continue to decline. My forecast calls for somewhat more inflationary pressure than in the Tealbook forecast: I expect that inflation will return to our 2 percent longer-term objective by early 2017. Compared with Tealbook, this firmer path for inflation calls for a somewhat steeper path for the funds rate.

Respondent 11: My forecast calls for stronger growth and tighter monetary policy over the forecast horizon than the Tealbook.

Respondent 12: Even though our forecast has moderated somewhat from our last projection, we still expect faster GDP growth in the second half of 2015 than does the Tealbook, and more strength in 2016 as well. This extra growth should be sufficient to drive the unemployment rate down more quickly than is projected in the Tealbook. Partly because of a lower unemployment path, partly because I believe inflation is likely to respond to changes in the unemployment rate at this level, and partly because I believe that longer-term inflation expectations are well anchored at 2 percent, I see inflation rising up to and then past our 2-percent goal within the projections horizon. With the unemployment rate falling faster and farther than in the Tealbook, inflation rising somewhat faster and farther, and a higher long-run equilibrium interest rate, I believe that the funds-rate path should tend to be somewhat steeper than that assumed in the Tealbook baseline forecast.

Respondent 13: More aggressive use of monetary policy enables the Committee to return inflation to its target more rapidly than under the policy path envisioned in Tealbook A.

Respondent 14: I expect higher inflation next year and slightly stronger real GDP growth.

Respondent 15: N/A

Respondent 16: The Tealbook forecast and our projections for the key SEP variables are fairly similar over the SEP forecast horizon. However, because of differences in some of the underlying assumptions in the two forecasts, the interpretations of these projections are quite different.

Because the Tealbook has lowered the level of potential GDP in 2015 and reduced the near-term growth rate of potential GDP over much of the forecast horizon, the Tealbook path of real GDP leads to a fairly sizable positive output gap arising by 2017-18. Even though our potential GDP growth assumption is now a little lower than the Tealbook's longer-run potential GDP growth assumption, near-term growth of potential in our projection is higher than that of the Tealbook. Consequently, even though we do not calculate precise estimates of the output gap, our assessment is that resource slack dissipates by 2018, but that there is not a significantly positive output gap at that time.

The other notable difference in the underlying assumptions concerns the longer-run natural rate of unemployment: the Tealbook has reduced its assumption only slightly since June to 5.1%; whereas we have lowered our assumption by a somewhat larger amount to 4.8%. Consequently, unemployment in our projection falls only to 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 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 a flat participation rate path through 2017 while the Tealbook has it declining gradually to 62.3% at end-2017. This difference reflects our assumption of some positive cyclical effects on participation as well as a slightly shallower downward trend component.

Turning back to real growth, we note a few differences in the details of the near- and medium-term projections. One longstanding difference regards business fixed investment. The Tealbook projects slower growth in business fixed investment in 2016-17 than in our forecast; this difference may partly reflect the Tealbook assessment that the capital stock is fairly close to levels consistent with its rather low estimate of potential growth. This factor is offset by faster consumption growth in the Tealbook forecast, another long-standing difference with our forecast, which in part reflects stronger wealth effects in the Tealbook forecast.

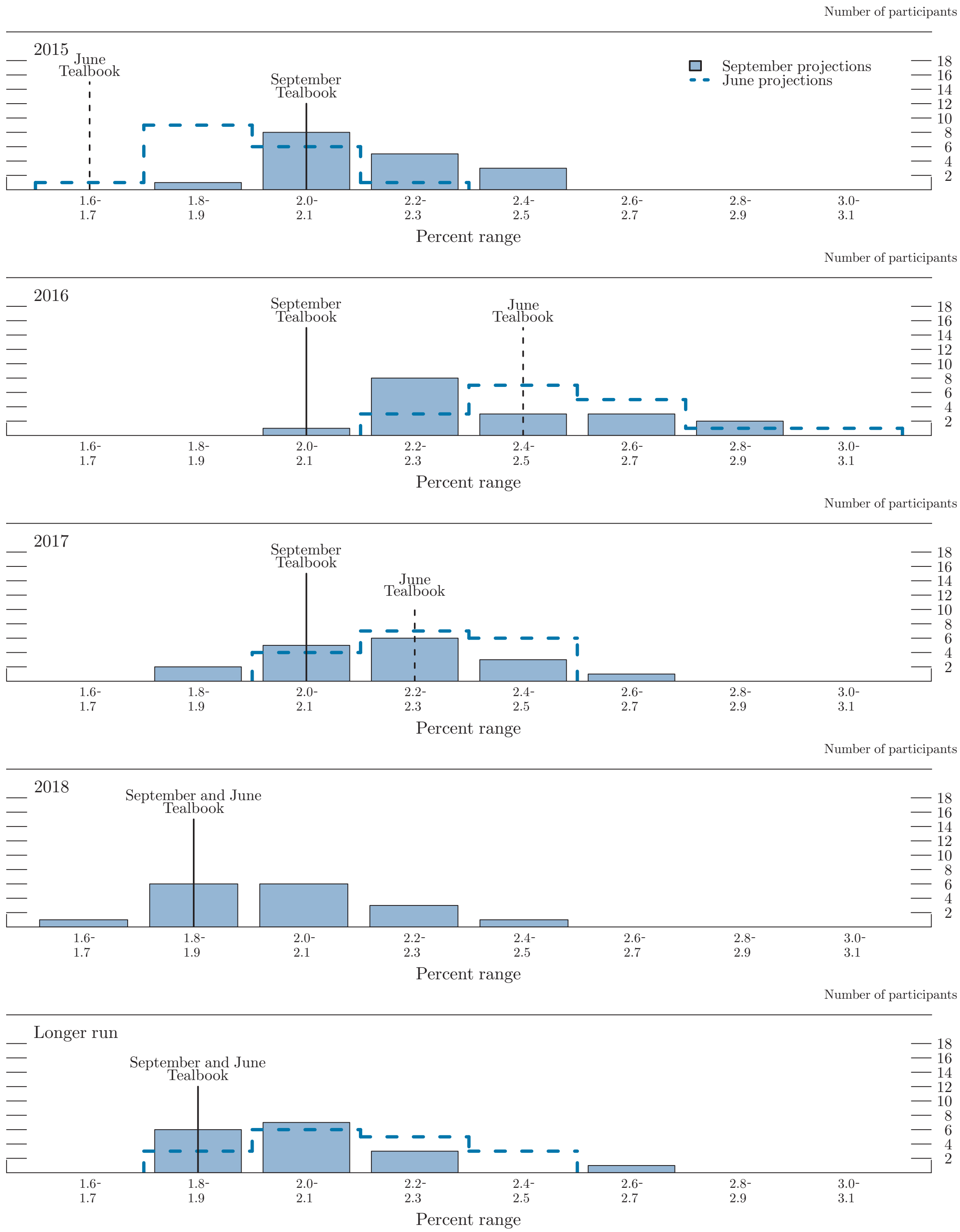
For inflation, the two forecasts differ on how quickly inflation reaches the 2% objective: our projection has inflation near 2% at the end of 2017 whereas the Tealbook projects that inflation will not reach that level until 2019. Note that the Tealbook has this slower rise to 2% even though there is a positive output gap and an undershoot 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–this Tealbook forecast suggests that such a period is indeed quite prolonged. The faster return of inflation to its goal in our forecast reflects our assumptions of less inflation persistence and of the 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 the possible implications of recent financial market and international economic developments leave uncertainty about real activity above the SEP standard associated with the 20-year window of forecast errors. 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 the Tealbook, with uncertainty near the SEP standard and risks tilted to the downside.

Respondent 17: We assume that the first increase in the funds rate will occur in mid-2016, three quarters later than the Tealbook. Our rate of increase after liftoff is a bit faster than the Tealbook and consequently we converge to the same funds rate by the end of the 2018.

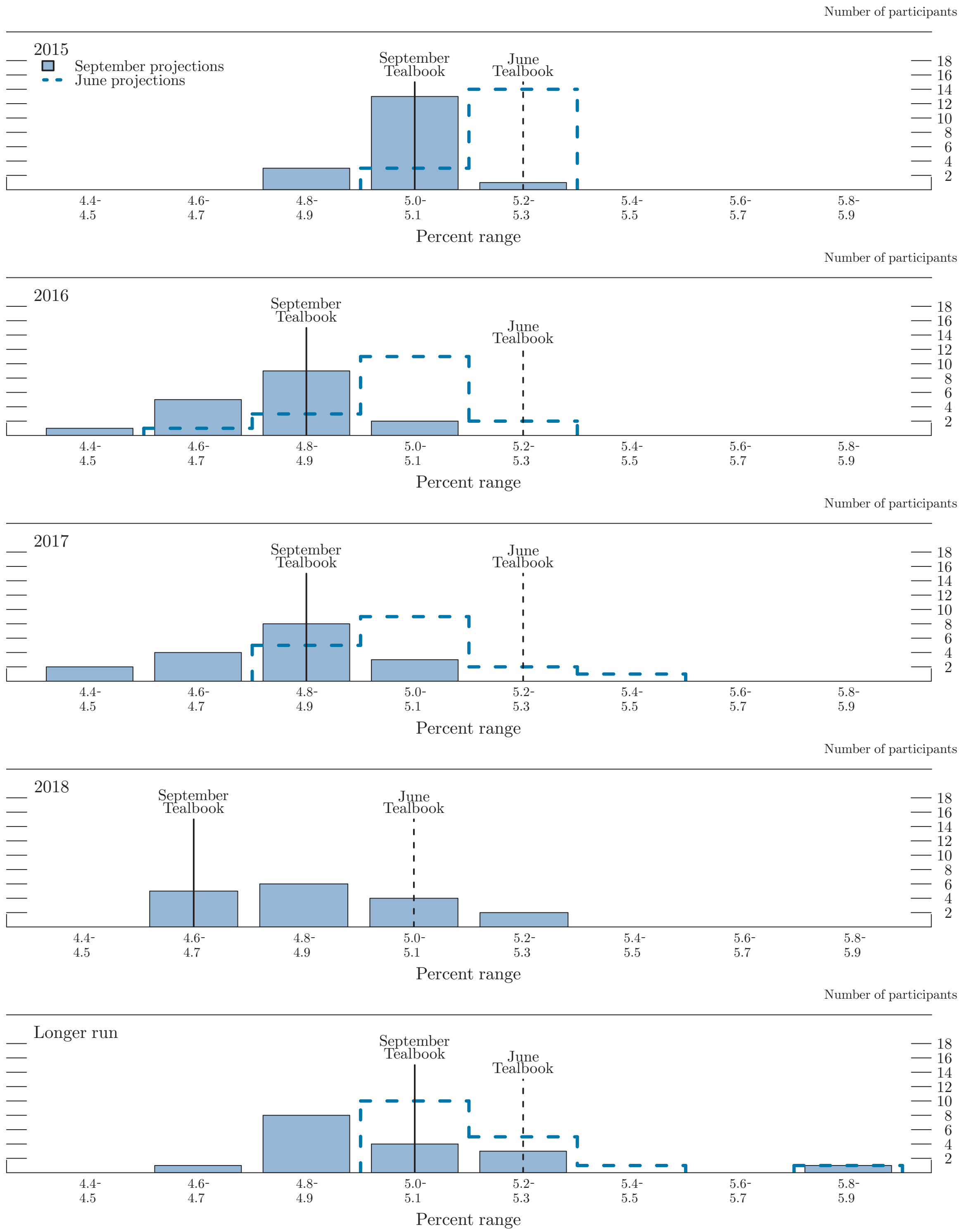
Our projection for GDP growth runs about 1/2 percentage point stronger than the Tealbook throughout the projection period. However, given our higher assumption for potential output growth, our forecast represents a bit weaker cyclical outlook than the Tealbook. We also assume the long-run normal level of the unemployment rate averages 4.9 percent over the projection period, 0.2 percentage point below the Tealbook's. Our projection for inflation essentially matches the Tealbook.

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



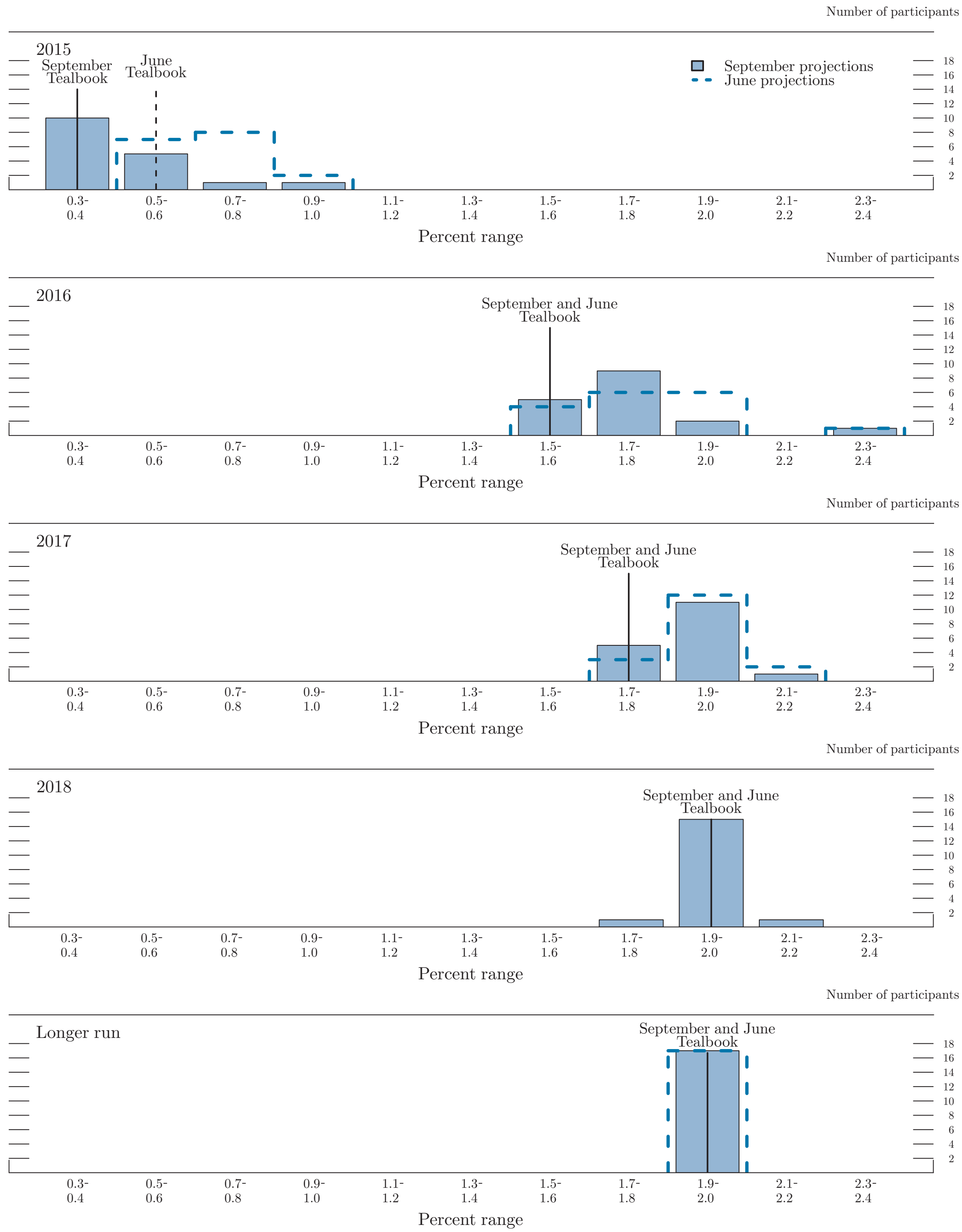
NOTE: Definitions of variables are in the general note to table 1.

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



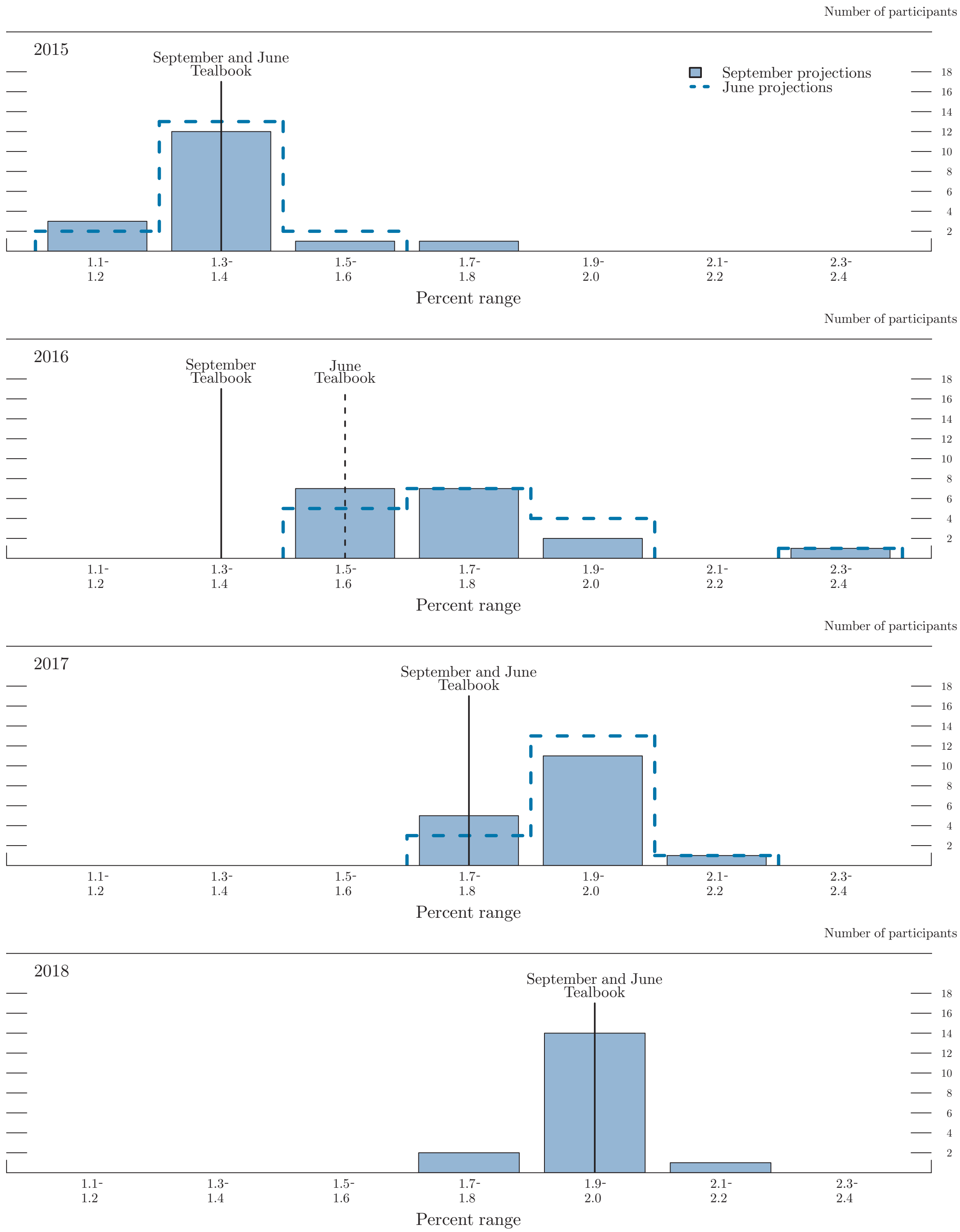
Note: Definitions of variables are in the general note to table 1.

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



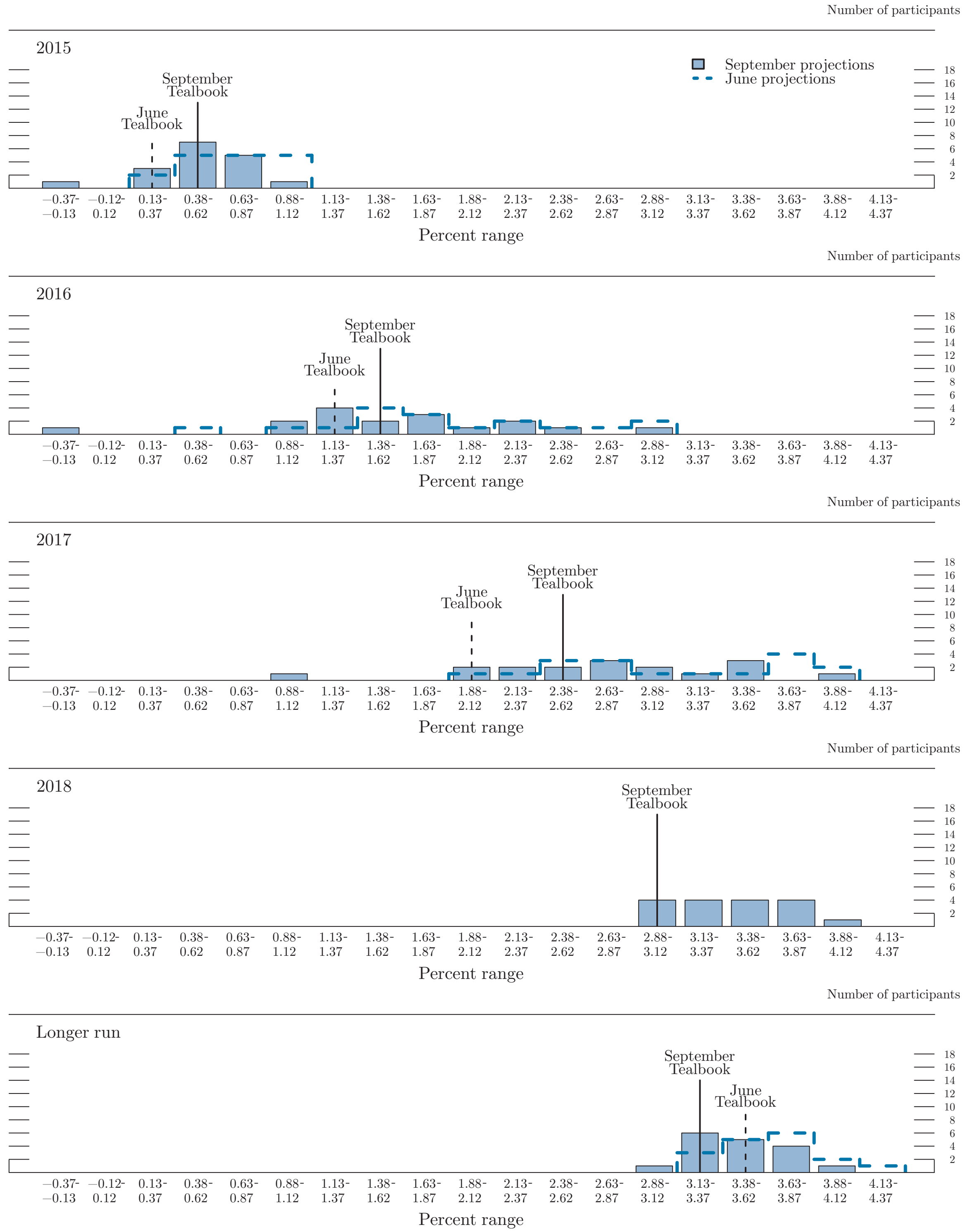
Note: Definitions of variables are in the general note to table 1.

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



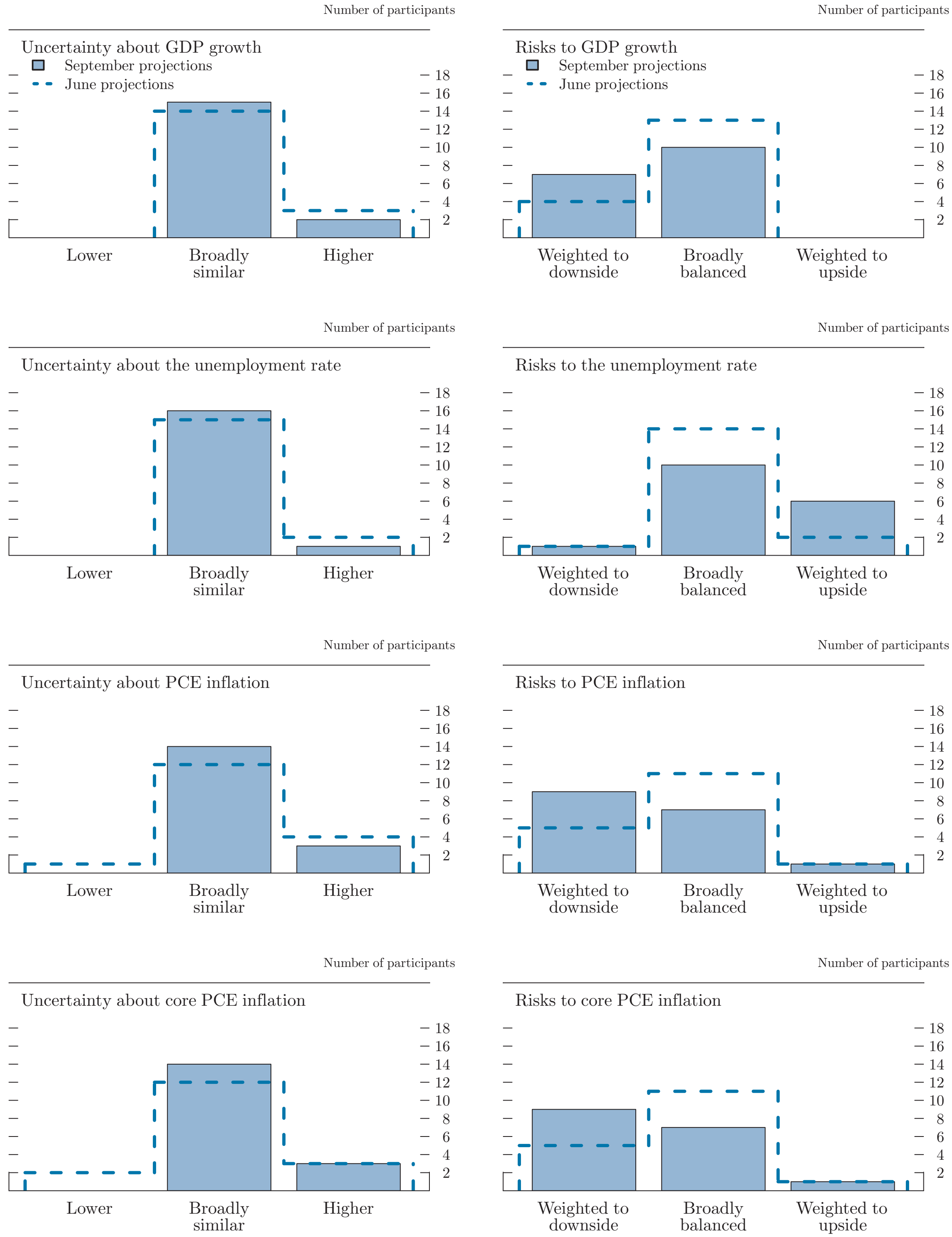
Note: Definitions of variables are in the general note to table 1.

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



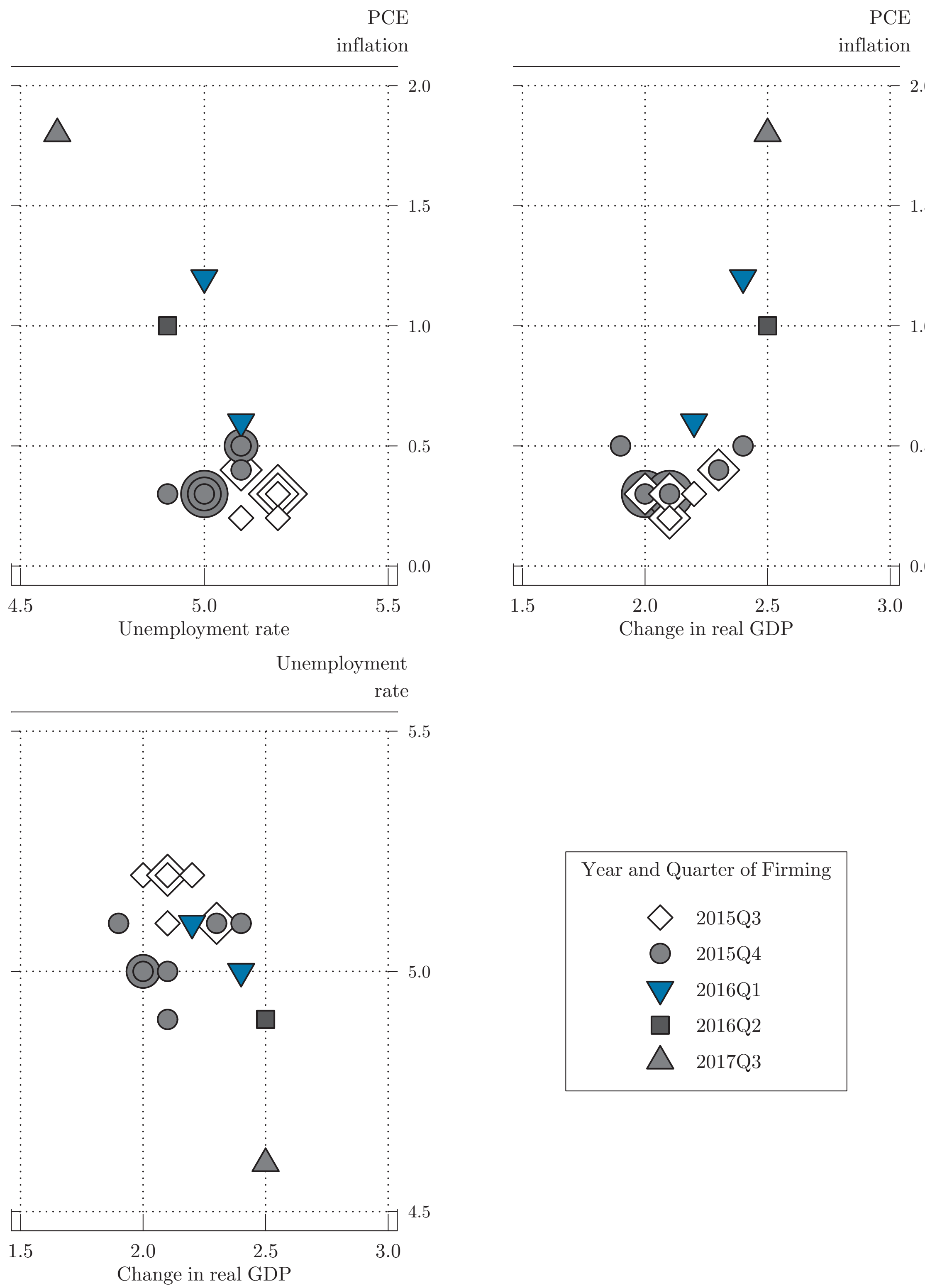
Note: The midpoints of the target ranges for the federal funds rate and the target levels for the federal funds rate are measured at the end of the specified calendar year or over the longer run.

Figure 4. Uncertainty and risks in economic projections



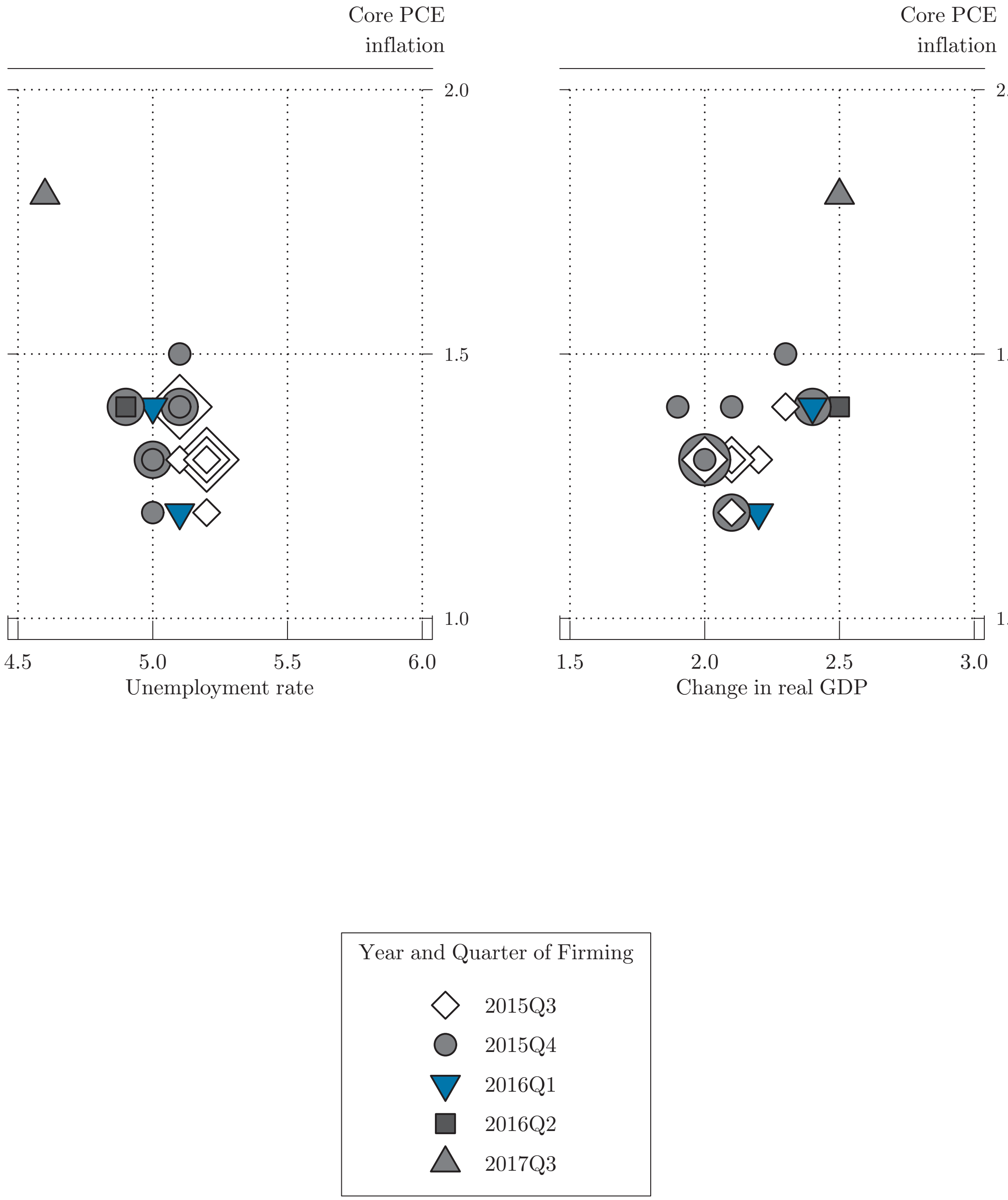
NOTE: Definitions of variables are in the general note to table 1.

Figure 6. Projections of GDP, unemployment, and PCE inflation in the quarter of liftoff



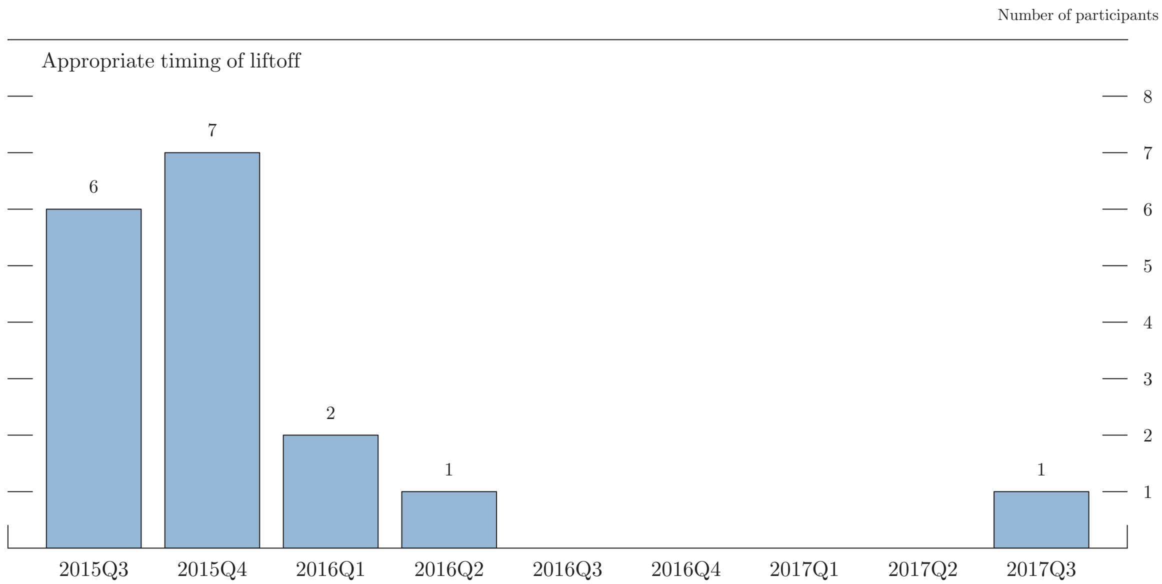
Note: When the projections of two or more participants are identical, larger markers, which represent one participant each, are used so that each projection can be seen.

Figure 7. Projections of GDP, unemployment, and core PCE inflation in the quarter of liftoff



Note: When the projections of two or more participants are identical, larger markers, which represent one participant each, are used so that each projection can be seen.

Figure 8. FOMC participants' assessments of appropriate liftoff year and quarter



NOTE: In the upper panel, the height of each bar denotes the number of FOMC participants who judge that, under appropriate monetary policy, the first increase in the target range for the federal funds rate from its current range of 0 to 1/4 percent will occur in the specified calendar year and quarter.