

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, September 2017

Percent

Variable	Median ¹					Central tendency ²					Range ³				
	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run
Change in real GDP	2.4	2.1	2.0	1.8	1.8	2.2–2.5	2.0–2.3	1.7–2.1	1.6–2.0	1.8–2.0	2.2–2.7	1.7–2.6	1.4–2.3	1.4–2.0	1.5–2.2
June projection	2.2	2.1	1.9	n.a.	1.8	2.1–2.2	1.8–2.2	1.8–2.0	n.a.	1.8–2.0	2.0–2.5	1.7–2.3	1.4–2.3	n.a.	1.5–2.2
Unemployment rate	4.3	4.1	4.1	4.2	4.6	4.2–4.3	4.0–4.2	3.9–4.4	4.0–4.5	4.5–4.8	4.2–4.5	3.9–4.5	3.8–4.5	3.8–4.8	4.4–5.0
June projection	4.3	4.2	4.2	n.a.	4.6	4.2–4.3	4.0–4.3	4.1–4.4	n.a.	4.5–4.8	4.1–4.5	3.9–4.5	3.8–4.5	n.a.	4.5–5.0
PCE inflation	1.6	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.1	2.0	1.5–1.7	1.7–2.0	1.8–2.2	1.9–2.2	2.0
June projection	1.6	2.0	2.0	n.a.	2.0	1.6–1.7	1.8–2.0	2.0–2.1	n.a.	2.0	1.5–1.8	1.7–2.1	1.8–2.2	n.a.	2.0
Core PCE inflation ⁴	1.5	1.9	2.0	2.0		1.5–1.6	1.8–2.0	2.0	2.0–2.1		1.4–1.7	1.7–2.0	1.8–2.2	1.9–2.2	
June projection	1.7	2.0	2.0	n.a.		1.6–1.7	1.8–2.0	2.0–2.1	n.a.		1.6–1.8	1.7–2.1	1.8–2.2	n.a.	
Memo: Projected appropriate policy path															
Federal funds rate	1.4	2.1	2.7	2.9	2.8	1.1–1.4	1.9–2.4	2.4–3.1	2.5–3.5	2.5–3.0	1.1–1.6	1.1–2.6	1.1–3.4	1.1–3.9	2.3–3.5
June projection	1.4	2.1	2.9	n.a.	3.0	1.1–1.6	1.9–2.6	2.6–3.1	n.a.	2.8–3.0	1.1–1.6	1.1–3.1	1.1–4.1	n.a.	2.5–3.5

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant’s projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant’s assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The June projections were made in conjunction with the meeting of the Federal Open Market Committee on June 13–14, 2017. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the June 13–14, 2017, meeting, and one participant did not submit such projections in conjunction with the September 19–20, 2017, meeting.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

2. The central tendency excludes the three highest and three lowest projections for each variable in each year.

3. The range for a variable in a given year includes all participants’ projections, from lowest to highest, for that variable in that year.

4. Longer-run projections for core PCE inflation are not collected.

Table 1.A. Economic projections for the first half of 2017*
(in percent)

Medians, central tendencies, and ranges			
	Median	Central tendency	Range
Change in real GDP	2.2	2.1 – 2.2	2.1 – 2.3
June projection	2.0	1.9 – 2.0	1.9 – 2.2
PCE inflation	1.2	1.2 – 1.3	1.2 – 1.3
June projection	1.5	1.4 – 1.5	1.4 – 1.7
Core PCE inflation	1.4	1.4	1.4
June projection	1.6	1.6	1.5 – 1.7

Participants' projections			
Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.2	1.3	1.4
2	2.2	1.3	1.4
3	2.1	1.2	1.4
4	2.3	1.2	1.4
5	2.2	1.2	1.4
6	2.1	1.2	1.4
7	2.3	1.2	1.4
8	2.1	1.2	1.4
9	2.2	1.2	1.4
10	2.1	1.2	1.4
11	2.1	1.3	1.4
12	2.1	1.2	1.4
13	2.1	1.2	1.4
14	2.2	1.3	1.4
15	2.1	1.2	1.4
16	2.2	1.2	1.4

* Growth and inflation are reported at annualized rates.

**Table 1.B. Economic projections for the second half of 2017*
(in percent)**

Medians, central tendencies, and ranges			
	Median	Central tendency	Range
Change in real GDP	2.6	2.3 – 2.8	2.2 – 3.2
June projection	2.3	2.1 – 2.5	2.0 – 3.1
PCE inflation	1.9	1.8 – 2.0	1.7 – 2.2
June projection	1.8	1.7 – 1.9	1.6 – 2.1
Core PCE inflation	1.6	1.6 – 1.8	1.4 – 2.0
June projection	1.8	1.6 – 1.9	1.6 – 2.0

Participants' projections			
Projection	Change in real GDP	PCE inflation	Core PCE inflation
1	2.6	1.7	1.6
2	3.2	2.1	2.0
3	2.3	1.8	1.4
4	2.3	1.8	1.6
5	2.8	2.0	1.6
6	2.5	2.0	1.8
7	2.7	2.0	1.6
8	2.9	2.2	1.8
9	2.2	1.8	1.6
10	2.7	2.2	1.6
11	2.9	1.7	1.6
12	2.3	1.8	1.8
13	2.5	2.0	1.6
14	2.8	1.7	1.6
15	2.3	2.0	1.4
16	2.6	1.8	1.6

* Projections for the second half of 2017 implied by participants' September projections for the first half of 2017 and for 2017 as a whole. Growth and inflation are reported at annualized rates.

Table 2. September economic projections, 2017–20 and over the longer run (in percent)

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2017	2.4	4.2	1.5	1.5	1.38
2	2017	2.7	4.2	1.7	1.7	1.38
3	2017	2.2	4.3	1.5	1.4	1.63
4	2017	2.3	4.2	1.5	1.5	1.38
5	2017	2.5	4.3	1.6	1.5	1.13
6	2017	2.3	4.2	1.6	1.6	1.38
7	2017	2.5	4.3	1.6	1.5	1.13
8	2017	2.5	4.2	1.7	1.6	1.38
9	2017	2.2	4.3	1.5	1.5	1.38
10	2017	2.4	4.3	1.7	1.5	1.38
11	2017	2.5	4.2	1.5	1.5	1.38
12	2017	2.2	4.5	1.5	1.6	1.13
13	2017	2.3	4.3	1.6	1.5	1.38
14	2017	2.5	4.2	1.5	1.5	1.13
15	2017	2.2	4.3	1.6	1.4	1.38
16	2017	2.4	4.2	1.5	1.5	1.38
1	2018	2.0	4.0	1.8	1.8	1.88
2	2018	2.6	4.1	1.8	1.9	2.13
3	2018	2.0	4.2	2.0	2.0	2.63
4	2018	2.2	3.9	1.9	1.9	2.13
5	2018	2.5	4.1	1.7	1.7	1.13
6	2018	2.0	4.0	1.9	1.9	2.13
7	2018	2.3	4.0	1.7	1.7	1.88
8	2018	2.1	4.0	1.8	1.9	2.38
9	2018	2.1	4.2	1.9	1.9	2.38
10	2018	1.7	4.4	2.0	2.0	2.13
11	2018	2.2	3.9	1.9	1.9	2.38
12	2018	2.0	4.5	2.0	2.0	1.13
13	2018	2.1	4.3	2.0	2.0	2.13
14	2018	2.2	4.0	1.7	1.7	1.63
15	2018	2.3	4.2	2.0	1.9	2.50
16	2018	1.8	4.0	1.8	1.8	2.13

Table 2. (continued)

Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	2019	1.7	4.0	2.0	2.0	2.38
2	2019	2.3	4.0	1.9	2.0	2.88
3	2019	1.8	4.2	2.0	2.0	3.13
4	2019	2.0	3.8	2.0	2.0	2.63
5	2019	2.1	3.9	2.0	2.0	1.63
6	2019	2.0	3.8	2.1	2.1	2.38
7	2019	2.0	3.9	1.8	1.8	2.75
8	2019	1.6	4.1	2.1	2.1	3.38
9	2019	1.8	4.1	2.0	2.0	3.38
10	2019	1.7	4.4	2.2	2.2	2.88
11	2019	2.1	4.1	2.0	2.0	3.13
12	2019	2.0	4.5	2.0	2.0	1.13
13	2019	2.0	4.4	2.0	2.0	2.63
14	2019	1.8	4.1	1.8	1.8	2.13
15	2019	2.1	4.5	2.0	2.0	3.25
16	2019	1.4	4.2	2.0	2.0	2.50
1	2020	1.5	4.1	2.1	2.1	2.63
2	2020	2.0	4.0	2.0	2.0	3.50
3	2020	1.8	4.3	2.0	2.0	3.63
4	2020	1.8	3.8	2.0	2.0	2.88
5	2020	1.7	3.9	2.1	2.1	2.38
6	2020	1.7	4.0	2.1	2.1	2.63
7	2020	1.9	3.9	2.0	2.0	2.75
8	2020	1.4	4.3	2.2	2.2	3.88
9	2020	1.6	4.1	2.0	2.0	3.50
10	2020	1.7	4.5	2.1	2.1	2.88
11	2020	2.0	4.2	2.0	2.0	3.13
12	2020	2.0	4.5	2.0	2.0	1.13
13	2020	2.0	4.5	2.0	2.0	2.88
14	2020	1.7	4.2	1.9	1.9	2.38
15	2020	2.0	4.8	2.0	2.0	3.00
16	2020	1.4	4.5	2.1	2.1	2.50

Table 2. (continued)

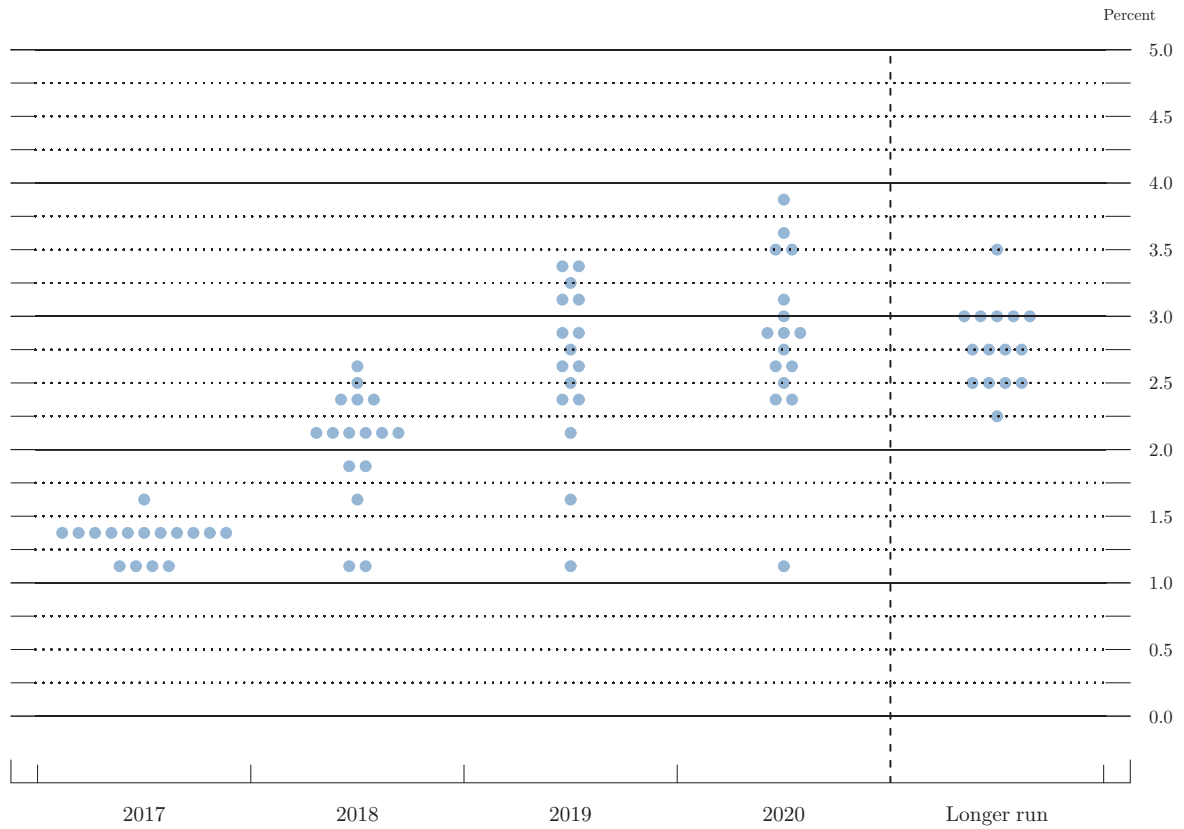
Projection	Year	Change in real GDP	Unemployment rate	PCE inflation	Core PCE inflation	Federal funds rate
1	LR	1.7	4.5	2.0		2.75
2	LR	2.2	4.5	2.0		3.50
3	LR	1.8	4.8	2.0		3.00
4	LR	1.8	4.5	2.0		2.75
5	LR	1.7	4.4	2.0		2.25
6	LR	1.8	4.7	2.0		2.50
7	LR	1.8	4.5	2.0		2.75
8	LR	1.8	4.7	2.0		2.50
9	LR	1.8	5.0	2.0		3.00
10	LR	1.8	4.6	2.0		2.75
11	LR	2.0	4.7	2.0		3.00
12	LR			2.0		
13	LR	2.0	4.6	2.0		3.00
14	LR	1.9	4.5	2.0		2.50
15	LR	2.0	4.8	2.0		3.00
16	LR	1.5	4.8	2.0		2.50

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–20 and over the longer run



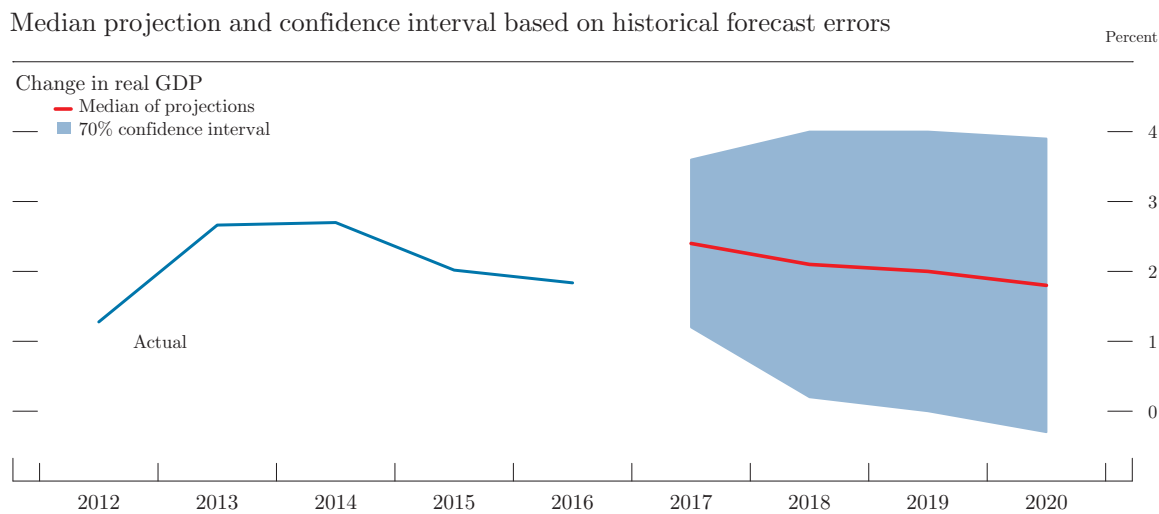
NOTE: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

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

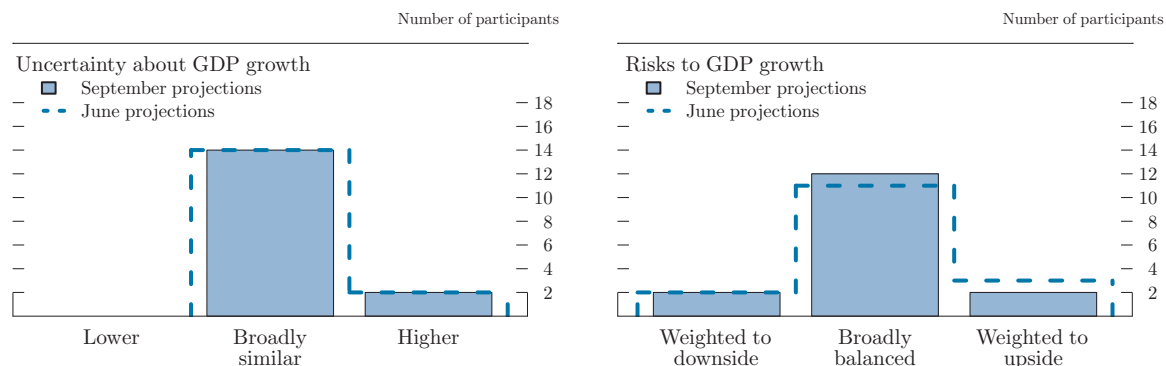


NOTE: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

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

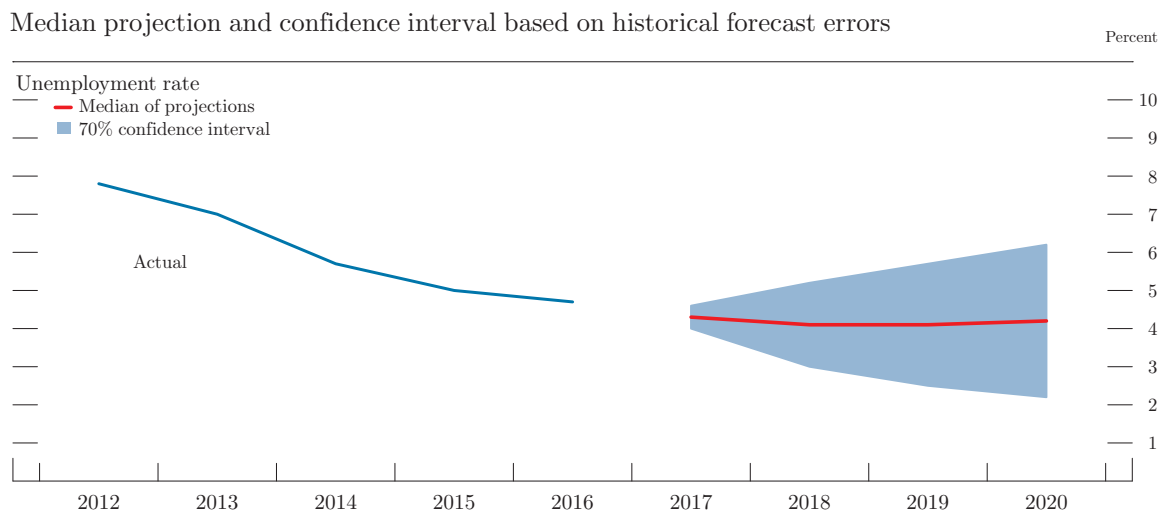


FOMC participants' assessments of uncertainty and risks around their economic projections

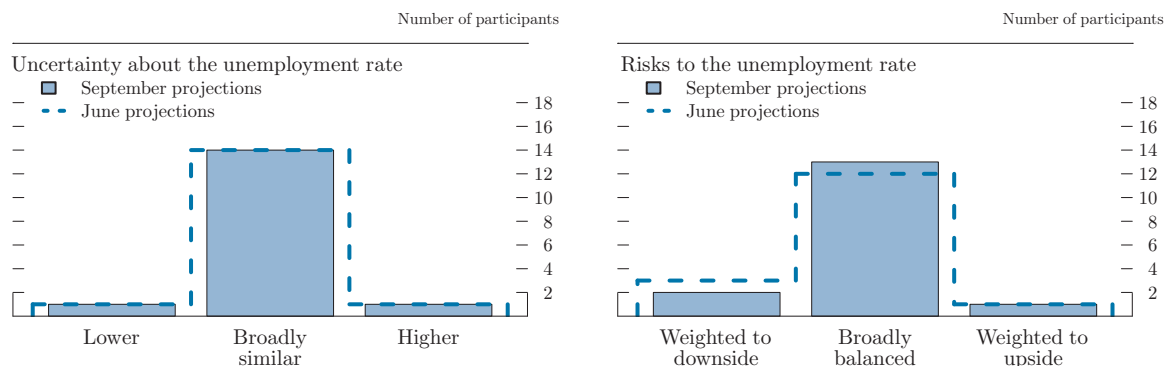


NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as “broadly similar” to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as “broadly balanced” would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box “Forecast Uncertainty.”

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

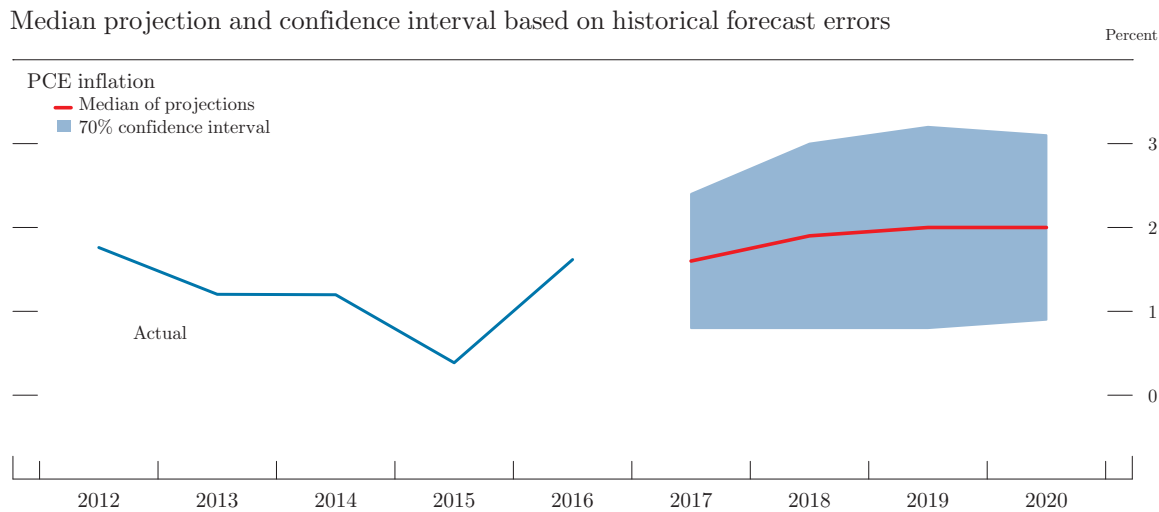


FOMC participants' assessments of uncertainty and risks around their economic projections

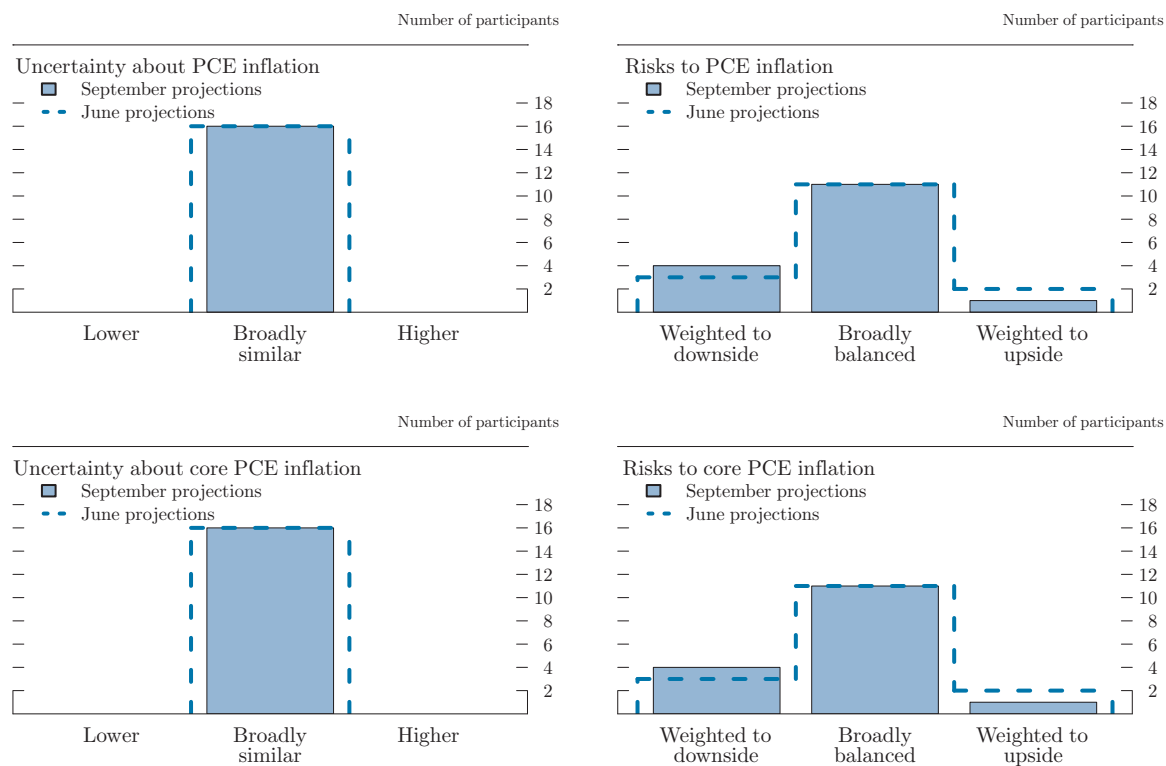


NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as “broadly similar” to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as “broadly balanced” would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box “Forecast Uncertainty.”

Figure 4.C. Uncertainty and risks in projections of PCE inflation



FOMC participants’ assessments of uncertainty and risks around their economic projections



NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants’ current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as “broadly similar” to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as “broadly balanced” would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box “Forecast Uncertainty.”

Table 3. Uncertainty and risks

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

Individual responses																
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Change in real GDP	B	A	B	B	B	B	B	B	B	B	A	B	B	B	B	B
Unemployment rate	B	C	B	B	B	B	B	B	B	B	A	B	B	B	B	B
PCE Inflation	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Core PCE Inflation	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

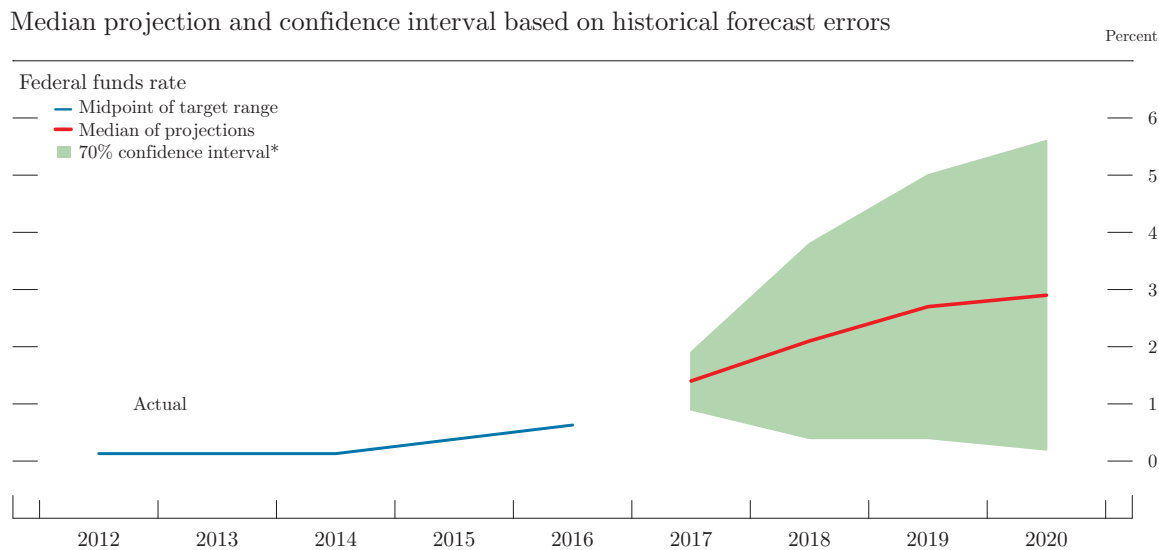
A = Higher	B = Broadly similar	C = Lower
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Question 2(b): Please indicate your judgment of the risk weighting around your projections.

Individual responses																
Respondent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Change in real GDP	B	C	B	B	C	B	B	B	B	B	A	A	B	B	B	B
Unemployment rate	B	A	B	B	B	B	B	C	B	B	C	B	B	B	B	B
PCE Inflation	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B
Core PCE Inflation	C	C	B	C	C	B	B	B	B	B	B	A	B	B	B	B

A = Weighted to upside	B = Broadly balanced	C = Weighted to downside
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Figure 5. Uncertainty in projections of the federal funds rate



NOTE: The blue and red lines are based on actual values and median projected values, respectively, of the Committee’s target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants’ individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants’ current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Longer-run Projections

Question 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: Full convergence of GDP growth, the unemployment rate, inflation and interest rates to their longer-run values will likely take six years or so, for two reasons. First, I anticipate a gradual rise in the neutral rate through 2020 and beyond as productivity growth gradually picks up and the dollar depreciates modestly. Second, the unemployment rate is likely to remain modestly below its longer-run level over the next couple of years, and only in 2020 to begin moving back towards its sustainable level. I also anticipate that inflation will run slightly above 2 percent for a time until the unemployment rate settles back at its longer-run sustainable level.

Respondent 2: N/A

Respondent 3: I expect real GDP growth and PCE inflation to converge to their longer-run rates in the next year or two, while the unemployment rate will likely reach its longer-run rate only later. The unemployment rate has declined below my estimate of its longer-run rate, and I expect the convergence process for the unemployment rate to last five or six years.

I reduced my estimate of the longer-run unemployment rate to 4.8 percent from 5.0 percent, primarily in light of ongoing demographic changes—such as, importantly, the aging of the workforce—that exert downward pressure on the longer-run unemployment rate.

Respondent 4: N/A

Respondent 5: N/A

Respondent 6: We continue to push past full employment. Inflation is likely to be just shy of our longer run objective at the end of next year and to rise above our objective in 2019. At that point it will be challenging to rein the economy in without triggering a recession. I suspect that we will not have achieved full convergence even after six years.

Respondent 7: We believe that convergence of the federal funds rate to its long-run level of 2.75 percent is likely to take about 2 years.

Respondent 8: Given our estimate of the equilibrium unemployment rate, the economy is now operating above potential and the underlying pace of activity suggests a significant risk of further undesirable overshooting of full employment in the near term. In order to converge back to full employment, a prolonged period of growth below potential will be needed. The historical record, however, places a significant probability on a “growth recession” eventually morphing into a full-blown recession. In sum, while a purely model-driven forecast would suggest convergence to the equilibrium unemployment rate from below around 2022, there is a nontrivial risk that the projected soft landing will not materialize in practice.

Respondent 9: N/A

Respondent 10: The annual revisions to GDP and productivity have not led us to change our long-run assumptions. We still assume potential GDP growth is 1.8 percent, as in the past several SEP submissions. We also continue to judge that the longer-run normal rate of unemployment is within the range of 4 to 6 percent, with the mode of that distribution between 4.5 and 5 percent. Given the recent trends in labor market conditions, we set our point estimate in the lower portion of that range at 4.6 percent.

We project that the current unemployment rate will remain modestly below its longer-run normal level through 2020. Our scenario analysis of labor flows and the historical behavior of the unemployment rate in long expansions indicate that there is a significant probability that the unemployment rate will fall further below its longer-run normal level.

We assume that long-term inflation expectations will remain anchored at levels consistent with the FOMC's longer-run objective. Under these conditions and with some undershooting of the longer-run normal unemployment rate over the forecast horizon, we expect inflation as measured by the PCE price index to be mildly above the FOMC's longer-run objective in 2019-20, before returning to that level afterwards.

Respondent 11: I anticipate that the economy will converge to my longer-run projection within 5 years.

Respondent 12: Reflecting recent data, we project a temporary undershooting of inflation for 2017. GDP growth and the unemployment rate have converged to a regime characterized by low productivity growth and a low real interest rate on short-term government debt. This regime features GDP growth of 2.0 percent, an unemployment rate of 4.5 percent, and inflation of 2.0 percent. Because there are multiple medium term outcomes, we cannot provide a single set of projections for GDP growth and unemployment. Calculating an average of these variables based on multiple outcomes is potentially misleading. We do provide a 2.0 percent longer-run inflation projection that is independent of the regime.

Respondent 13: N/A

Respondent 14: N/A

Respondent 15: At this point, convergence is likely in three to four years.

Respondent 16: Our dual mandate goals are reached by 2019. However, it will take a couple more years to achieve complete convergence to our longer-run projections. The effects from accommodative monetary policy will generate some overshooting of inflation and undershooting of unemployment before dissipating over the longer run.

Uncertainty and Risks

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

Respondent 6: Uncertainty about the appropriate path for the federal funds rate over the next few years is unusually high, with little room for error on either side. The adverse economic consequences of any policy errors will be felt in 2019 and, especially, 2020. At those horizons, uncertainty about the paths of real activity and inflation is elevated. At shorter horizons, however, economic uncertainty is about average.

Respondent 7: On balance, we continue to judge that the levels of uncertainty for the growth and inflation forecasts are broadly similar. Factors that previously had the potential for generating higher uncertainty – such as large changes in government fiscal and regulatory policies, global growth concerns, etc. – have receded further since June. The effects of Hurricanes Harvey and Irma add a good deal of uncertainty to the near-term outlook for both growth and inflation. However, the hurricanes are unlikely to have any effect on the more fundamental contours of the forecast.

Respondent 8: N/A

Respondent 9: N/A

Respondent 10: Ours is a quantitative judgment based on the width of the probability intervals from the FRBNY forecast distribution for real GDP growth and core PCE inflation. (We have revised our methodology to incorporate greater use of the New York Fed Bayesian VAR and DSGE models in constructing the forecast distribution.) The widths of these intervals are somewhat narrower than in our June SEP submission, as economic data have been roughly consistent with our central projection and financial market volatility generally has been subdued. Nevertheless, the probability intervals for real activity and core PCE inflation forecasts are still broadly in line with the SEP standard (for inflation, this assessment takes into account the differences between forecast errors for overall consumer inflation and core PCE inflation).

Respondent 11: Uncertainty surrounding output growth and unemployment remains elevated by the heightened uncertainty about the course of fiscal policy, regulatory reform, and trade policy. The impact on inflation uncertainty is small given how flat the Phillips curve seems to be.

Respondent 12: N/A

Respondent 13: N/A

Respondent 14: N/A

Respondent 15: N/A

Respondent 16: Uncertainty about my projection for economic activity and inflation is similar to its average level over the past 20 years. Inflation remains anchored by stable longer-run inflation expectations at the FOMC's stated goal of 2 percent.

Uncertainty and Risks (continued)

Question 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: The lack of any slowdown to date in employment and output growth despite tighter monetary policy by itself might suggest that the risks to real activity are weighted to the upside, but this concern is offset by the downside risks implied by the effective lower bound on nominal interest rates and the limitations it places on our ability to offset adverse shocks.

A string of unexpectedly low monthly price readings, wage increases that remain subdued despite stronger labor market conditions, and other evidence have increased my concern that returning inflation to our 2 percent goal will prove to be more difficult than envisioned in my baseline forecast. Hence, I now view the risks to the inflation outlook as weighted to the downside.

Respondent 2: N/A

Respondent 3: N/A

Respondent 4: N/A

Respondent 5: Risks for output and inflation are weighted to the downside because the effective lower bound limits the ability of monetary policy to respond to adverse shocks. For the unemployment rate, there is a counter-vailing risk that it will fall more rapidly if the labor force participation rate resumes its downward trend. Therefore I see the risks to unemployment as broadly balanced.

Respondent 6: While I see some potential upside from tax-policy changes, regulatory reform, and appropriate infrastructure spending, prospects for thoughtful policy changes have faded. Meanwhile, I continue to be concerned about the potential negative impacts of healthcare reform and immigration policies, and about tax changes that ultimately do not create sustained improvement in GDP, but leave us with a higher level of debt to GDP at a time when the US government is already highly leveraged. I am hopeful that trade policy, despite recent rhetoric, will be done in a way that doesn't dismantle logistics and other integrated supply chain arrangements which I believe help US competitiveness and employment opportunities.

Respondent 7: We see the risks to the outlook for growth as broadly balanced. Our forecast assumes a modest impetus to growth from fiscal policy in 2018; we see the odds as roughly equal that the policy process will result in a bit more or a bit less stimulus. Similarly, the likelihood of stronger world-wide demand appears balanced against the potential for some future weakness, most notably from a slowdown in China. With regard to inflation, given the downward adjustments we made to our inflation outlook, we judge that the risks to the forecast continue to be balanced. Once again, this was a close call. Persistently low inflation readings, as well as the continued low levels of inflation compensation in financial markets and survey expectations, remain disconcerting. However, we feel our forecast revisions were enough to re-center the balance of risks.

Respondent 8: Our forecast for GDP growth in the near term, smoothing through the effects of the hurricanes, remains upbeat. The recent behavior of the unemployment rate continues to be consistent with a low estimate of the potential growth rate of the economy. In this context, if our real growth forecast materializes, there is the risk that the unemployment rate may fall by more than what we are envisioning absent some improvement in potential GDP growth.

Respondent 9: N/A

Respondent 10: Ours is a quantitative judgment based on the difference between the central projection and the expected value from the New York Fed forecast distribution. With little resolution concerning U.S. fiscal, regulatory, and trade policy changes as well as notable outstanding geopolitical issues, risks remain significant on both sides of the real activity outlook. Overall, as in June, they are roughly balanced over the forecast horizon.

Inflation risks also remain roughly balanced throughout the forecast horizon. Longer-term inflation compensation, the Michigan long-run survey inflation expectations, and our SCE 3-year inflation expectations remain at low levels, consistent with continued downside risks. In addition, some measures of underlying inflation have moved down modestly since the June FOMC meeting. By contrast, global disinflationary forces appear to have abated somewhat and financial conditions have eased, indicating still-significant upside risks. Also, the August CPI suggests that the softer inflation data in recent months largely reflected transitory factors, which is consistent with our central projection.

Respondent 11: Fiscal uncertainty remains high. Some stimulus may be forthcoming that would boost demand, raise output growth, and lower the unemployment rate further. The magnitude and timing of any such stimulus remains uncertain.

Respondent 12: We are answering this question variable by variable as they may be affected by important regime shifts.

With respect to GDP growth, the current productivity regime is low. A higher productivity growth regime is possible, but we see no compelling reason to predict a switch at this time. We do not see the fiscal and deregulation proposals of the administration as sufficiently concrete or close enough to enactment to forecast a high productivity regime. Such a possible switch, however, leads us to weight to the upside more rapid GDP growth. Our assessment of the effects of Hurricanes Harvey and Irma on output is that the negative effects in Q3 would be reversed in Q4.

Concerning unemployment, the current unemployment rate is at the low end for an economic expansion. If a recession were to occur, the unemployment rate would rise substantially. We have no compelling reason to predict a recession during the forecast horizon; however, such a possibility leads us to allow for a higher unemployment rate. On the other hand, we also see the possibility of further declines in the unemployment rate. Overall, we see the risks as broadly balanced.

For core PCE inflation, we place negligible weight on the prospects of Phillips Curve effects. There is, however, a risk that Phillips Curve effects reassert themselves and inflation moves higher as the unemployment rate falls. It is also possible that inflation expectations drift higher and become unanchored. Thus, we see the risks on this variable to be weighted to the upside.

For PCE inflation, the risks are the same as for core PCE inflation. In addition, this variable also depends on the behavior of energy prices. We considered the effects of Hurricanes Harvey and Irma and concluded that the energy price increases in Q3 would likely be reversed in Q4. Overall, we see the risks as weighted to the upside.

Respondent 13: N/A

Respondent 14: N/A

Respondent 15: I continue to view the risks around my forecast as broadly balanced. This view continues to be based on a monetary policy path that is a bit steeper than the median path in the June SEPs.

The recent hurricanes have caused loss of life, considerable property damage, and disruptions in economic activity in Texas and Florida. Rebuilding efforts have already begun and will continue for some time to come. The effects are beginning to show up in some of the monthly economic indicators, and this will continue in the near term. As a result of the hurricanes, I expect that growth will be depressed in the third quarter and boosted somewhat over the subsequent couple of quarters. Some measures of inflation will be affected in the short-run as well, as the prices of gasoline and other materials related to rebuilding efforts increase. I anticipate that the hurricanes will exert little effect on the outlook for the economy over the medium run, which is the time horizon over which monetary policy operates.

Over the forecast horizon, there could be some form of expansionary fiscal policy, but there continues to be uncertainty about what, if anything, will be passed and the timing. My baseline forecast incorporates a small fiscal stimulus in line with the size and timing of the package assumed in the Tealbook. Like the Tealbook, my modal expectation is for a smaller fiscal package than I assumed in the June SEP, but with some offset due to increased

federal spending and transfer payments in response to the hurricanes. My projections are not dependent on a sizable fiscal policy package; I assume only a modest increase in output growth in 2018 and 2019 due to fiscal policy. Instead, my forecast reflects healthy underlying fundamentals. I see the risks due to fiscal policy as being balanced.

The global outlook has improved over the last year. Some risks remain, including the weak banking system in Italy, the continued rebalancing of the Chinese economy, vulnerabilities in emerging market economies, and geopolitical risks. Monetary policy remains accommodative in many countries, helping to support their economies, even if there is some gradual reduction in the level of accommodation.

At this point, I continue to see inflation risks as roughly balanced and I continue to expect that inflation will gradually return to our goal of 2 percent over time. The weaker readings on inflation in recent months suggest it may take slightly longer to achieve a sustained return to 2 percent inflation; I expect this goal to be met in the first half of 2019.

If the dynamics of inflation have fundamentally changed, then I may be underestimating the persistence of low inflation, or overestimating the long-run unemployment rate. This could lead to a weaker inflation forecast relative to my modal forecast. But if the forces weighing on inflation are, indeed, transitory and idiosyncratic (as assumed), and if labor markets tighten more than I expect and nonlinear Phillips curve dynamics kick in, inflation could move higher than I expect, especially if the withdrawal of monetary accommodation is slower than I've assumed. Even absent a change in the slope of the Phillips curve, a slower withdrawal of monetary accommodation than I've assumed poses an upside risk to my inflation forecast.

The risks to inflation from oil prices appear balanced over the medium-run despite near-term upward pressure from the hurricanes.

After appreciating over most of the last two and a half years, the dollar has depreciated this year. A continuation of this depreciation poses an upside risk to my inflation forecast.

Risks to financial stability from very low interest rates appear to be contained so far, but given the outlook and the low level of interest rates, should we fail to remove monetary policy accommodation at an appropriate pace, these risks would rise. Indeed, the low level of market volatility coupled with the low equity premium suggests that these risks may be building.

Respondent 16: Risks to economic activity appear broadly balanced. We have reached our objective of maximum sustainable employment according to a wide array of labor market measures and will be beyond full employment for the next few years. The main uncertainty is by how much and for how long.

I no longer expect a meaningful boost to growth in 2018 and 2019 from government fiscal policy initiatives. That said, there remains some possibility of a tax cut, which is a source of upside risk to the outlook on activity.

Downside risks to the foreign economic outlook—notably in China and continental Europe—have receded somewhat in recent months, but geopolitical concerns related to North Korea have risen.

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

I see inflation moving very gradually to our 2 percent goal and view the risks to this forecast as balanced. On the upside, there is a risk that an extended period of very tight labor markets may foster a more rapid increase in inflation than I assume in my forecast. On the downside, there are other factors, such as muted healthcare services inflation, which if sustained, could slow the pace of inflation going forward.

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

Question 3(b). Please describe the key factors informing your judgments regarding the appropriate path of the federal funds rate. If, in your projections for any year in the projection period, the unemployment rate for that year is close to or below your projection for its longer-run normal level and inflation for that year is close to or above 2 percent, and your assessment of the appropriate level of the federal funds rate for that year is still significantly below your assessment of its longer-run normal value, please describe the factor or factors that you anticipate will make the lower-than-normal funds rate appropriate. If you have revised 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: My assessment of appropriate monetary policy continues to rest on three assumptions. First, keeping the unemployment rate near 4 percent—modestly below my estimate of the natural rate—will facilitate the return to 2 percent inflation over the next two years. Second, the neutral federal funds rate appears to be currently near zero, suggesting that only a modest amount of accommodation is still in place. And third, the neutral rate is likely to rise modestly over time as productivity growth picks up, suggesting that the federal funds rate will need to rise in tandem in order to keep the economy from overheating.

Respondent 2: The low level of the federal funds rate has been necessary to move inflation and unemployment back toward our targets. This is likely because r^* is temporarily depressed by the low rate of productivity growth and other factors. Those factors are likely to dissipate only gradually, requiring a low federal funds rate for some time in order to deliver an appropriate amount of accommodation.

Respondent 3: My judgment regarding the appropriate path of the federal funds rate is predicated on promoting sustainable economic growth and price stability. As the economy has reached full capacity and we have essentially achieved price stability, I view a federal funds rate of 1.63 percent by the end of 2017 as most consistent with keeping the economy in its current desirable state, even though it would require two additional 25 basis point increases by the end of the year.

My forecast calls for the unemployment rate to be below its longer-run level and inflation to be close to two percent in 2017. Yet I view the appropriate level of the federal funds rate to be below my estimate of its longer-run level in 2017. The reason is that the federal funds rate is still low despite the economy's return to full capacity and price stability, reflecting the Committee's past decisions, and I view a gradual path of the funds rate as important to promote economic and financial stability.

Respondent 4: N/A

Respondent 5: Inflation continues to come in below our 2 percent target; in fact it has been falling since February. Even though the labor market continues to strengthen, it is not clear that we have reached maximum employment as the labor force participation rate and employment-population ratio for prime age persons remain well below their pre-recession levels, and wage growth remains subdued. Given the persistent undershooting of our inflation target, I believe that appropriate monetary policy implies a very gradual path for the federal funds rate.

I have lowered my long-run normal value for the federal funds rate because of model-based estimates that indicate the neutral real interest rate is close to zero as well as long-term interest rates that, even after accounting for term premiums that are notably lower than historical averages, imply a very low normal federal funds rate.

Respondent 6: I've lowered my estimate of the longer-run value of the funds rate by 25 basis points, but left my projected funds-rate path largely unchanged. Implicitly, accommodation is removed slightly faster than before. A slightly-more-rapid removal of accommodation is appropriate, in my view, given the stronger outlook for real growth here and abroad.

Risks to my funds-rate projections are balanced, in my view. However, my confidence that the funds-rate path I have specified will, in fact, prove to be appropriate is lower than usual. I am cognizant that the 10-year Treasury yield now stands at approximately 2.2 percent. At issue is whether we can slow the economy to a sustainable rate of growth without inverting the yield curve.

I assume that we will vote to begin scaling back reinvestment of funds from maturing Treasury and MBS securities at this meeting. The policy change is widely expected, and I do not believe its announcement will appreciably affect overall financial conditions. Nor does the policy change have more than a very marginal effect on my thinking on the appropriate path for the funds rate.

Respondent 7: After updating and reviewing projections for the equilibrium federal funds rate from a range of models, we lowered our estimate of its long-run level by 25 basis points to 2.75 percent. Our assumed path for appropriate policy brings the federal funds rate gradually up to its long-run value by the end of 2019 and then has the funds rate remaining at that level in 2020. Specifically, we anticipate no additional rate hikes for the rest of 2017, followed by three rate increases per year in 2018 and 2019. We assume balance sheet normalization begins in October of this year and proceeds according to the announced plan.

We believe this policy package represents a balanced approach to achieving both of our dual mandate objectives. Given our projection of continued low inflation, as well as uncertainty over its outlook, we think it will be appropriate to forego increasing the funds rate further until 2018. More generally, we feel policy has work to do in order to solidify inflationary expectations symmetrically around 2 percent, which is a pre-requisite for achieving our inflation objective. That is why in 2020 we have the funds rate at only its longer-run level even though we project inflation at 2 percent and the unemployment rate 0.6 percentage point below the natural rate. This configuration should generate some modest overshooting of 2 percent inflation beyond 2020, which would reinforce the symmetry of our inflation target and mitigate the risk that inflation expectations could settle in below 2 percent.

Respondent 8: We have revised our estimate of the longer-run normal value of the federal funds rate down to 2.5 percent, from 3.0 percent in June. The lower estimate of the equilibrium federal funds rate appears to be more consistent with the dynamics of the unemployment rate gap over the most recent period. This revision notwithstanding, monetary policy is projected to tighten over time while still giving policymakers the opportunity to probe for a lower equilibrium unemployment rate. The extent of probing is pushed to what, by historical standards, is likely the limit before the probability that a soft landing will turn into a recession becomes too high. Our federal funds rate assumption is coupled with a contraction in the SOMA portfolio starting in October of this year.

Respondent 9: I believe that monthly annualized inflation rates will average about 2 percent for the rest of the year. Appropriate policy will be to gradually raise interest rates, beginning in December.

Respondent 10: The principal factors behind our assessment of the appropriate path for monetary policy are the current state of the economy, our central economic outlook, and our balance of risks around the outlook. The steepness of the policy path also depends on how overall financial conditions respond to our policy actions.

Even though the near-term real growth outlook has improved and financial conditions have eased, the near-term core inflation outlook is lower and the medium-term economic outlook and balance of risks are little changed. Consequently, our projection of the appropriate policy path is the same as in the June SEP submission: The target FFR ranges at the end of 2017, 2018, and 2019 are $1\frac{1}{4}$ – $1\frac{1}{2}$ percent, $2 - 2\frac{1}{4}$ percent, and $2\frac{3}{4}$ – 3 percent respectively. For 2020, we do not anticipate that further tightening of the policy stance will be needed to achieve the FOMC's objectives over the medium term. Our policy path remains fairly shallow and is consistent with the gradual rising path of the natural interest rate as projected by the New York Fed staff DSGE model.

Our estimate of the longer-run equilibrium real short-term interest rate remains in the range of 0 – 2 percent, consistent with the estimates and forecasts from a variety of models. Adding the objective for inflation (2 percent) gives our estimated range for the nominal equilibrium rate as 2 – 4 percent. Our modal projection is in the lower half of this range due to the combination of continued fairly subdued productivity growth, low longer-term sovereign

yields, continued indications of a global “saving glut,” and demographic factors. As reported in the response to question 3(a) we maintained our point estimate of the nominal equilibrium rate at $2\frac{3}{4}$ percent. Our appropriate policy path thus slightly overshoots the longer-run FFR.

As for the balance sheet policy, we assume that the conditions for starting the phase-out of reinvestment have been met and that the plan outlined in June addendum to the Policy Normalization Principles and Plans will be implemented in October.

Respondent 11: My projection for the appropriate path for the federal funds rate is unchanged from last time. My view is that policy should adjust at a gradual pace given low productivity growth, uncertainty about the future path of labor force participation, and inflation that has been running below target for some time.

Respondent 12: We see no reason to change the target for the federal funds rate during the forecast horizon. By 2018 all variables will have essentially converged to a regime characterized by low productivity growth and a still low rate on short-term government debt.

Respondent 13: My projection for the federal funds rate is informed by a simple policy rule with a gradual rise in the short-run equilibrium funds rate.

Respondent 14: In my projection, the real neutral federal funds rate rises from around zero today to 0.5 percent in the longer run. Because inflation in my projection runs below the Committee’s objective, my funds rate path is somewhat below the neutral rate for the next several years.

I have revised down my estimate of the longer-run federal funds rate because of the reduced prospects for fiscal stimulus.

Respondent 15: I continue to view a gradual upward path for the funds rate as appropriate. There is little change to my forecast from my June projections. My inflation forecast is a little bit flatter so my policy path is slightly flatter in 2018. I believe it is appropriate to initiate our balance sheet normalization plan at the September 2017 FOMC meeting.

The near-term data will be affected by the hurricanes, but we need to smooth through those fluctuations and focus on the medium-run outlook. In 2018 and 2019, I project that growth will be somewhat above and the unemployment rate will be below my estimates of their longer-run levels. I anticipate that labor compensation measures will firm moderately, in line with the rising number of anecdotal reports of increasing wage pressures across a range of skill groups and a variety of data showing that wage and compensation gains have been picking up over time. However, if productivity growth remains low, these gains will likely be slower than in past expansions.

I continue to see the weaker readings on inflation in recent months as largely reflecting transitory factors rather than a falloff in demand that could be putting more persistent downward pressure on inflation. I view inflation expectations as reasonably stable, and this, coupled with continued strength in labor markets and ongoing economic growth at or slightly above trend, suggests that inflation will gradually increase to our goal of 2 percent over the forecast horizon.

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. Based on the outlook, I believe it will be appropriate for the FOMC to gradually move rates up over the course of the forecast horizon, as the Committee has been consistently communicating for some time. The gradual path allows for the types of fluctuations we’ve seen in the data without having to change strategy. I assume that the funds rate will end 2019 at a level slightly higher than my longer-run estimate of 3 percent, and then move down to 3 percent in 2020.

Respondent 16: The labor market is beyond full employment according to various measures of slack. Labor markets will continue to tighten this year as the unemployment rate falls further below its natural rate before gradually returning to its long-run steady-state value. On inflation, despite some recent weakness due to transitory factors, I expect a continued gradual increase, reaching our 2 percent objective by 2019 and a modest overshooting in 2020. Underpinning this path is my view that the economy will continue to improve, causing it to run above potential, and that this will contribute to upward pressure on inflation.

My assessment of appropriate policy is generally informed by looking at simple rules that adjust for the zero lower bound and assume a low natural rate of interest, as well as by my expectations of, and uncertainty about, the costs and benefits of continuing unconventional actions.

My fed funds path through the end of this year remains flatter than some simple rules would suggest. This reflects the fact that inflation has been rising only gradually to our objective from below. Beyond the near term, I envision a faster pace of fed funds rate normalization than predicted by fed funds futures. The fed funds rate will reach its long-run level a bit by the end of 2018 and in 2019 to unwind the overshooting in inflation and labor market conditions. Similarly to the Tealbook, I expect the SOMA portfolio to gradually decline beginning in the fourth quarter of this year with the reduction in reinvestments.

Forecast Narratives

Question 4(a). Please describe the key factors, potentially including your assumptions about changes to government policies, shaping your central economic outlook and the uncertainty and risks around that outlook.

Respondent 1: Key factors include: a gradual pick-up in productivity growth over the next few years, similar to that projected in the Tealbook; little change in fiscal policy other than hurricane-related spending; continued solid growth in global demand; and a gradual rise in the federal funds rate that will bring it into line with its neutral rate sometime next year and keep in line with the (rising) neutral rate thereafter. These factors should enable labor market conditions to strengthen a bit further before beginning to ease in 2020. A moderately tight labor market, coupled with the assumption that inflation expectations remain anchored at around 2 percent, should enable actual inflation to gradually move up 2 percent over the next two years.

On the real side, key risks include the possibility of changes in federal economic policy (including ones with potentially adverse effects); the risk that the lack of any slowdown in employment growth to date indicates that the neutral rate is higher than I have judged; and the potential for a market correction given rich valuations for corporate equities and bonds. For inflation, the key risk is that returning inflation to 2 percent may prove to be more difficult than assumed in my model projection, possibly because the sustainable rate of unemployment is lower than I have judged, or perhaps because inflation expectations are consistent with expected PCE inflation stabilizing at less than 2 percent, as the staff assumes.

Respondent 2: N/A

Respondent 3: Modal forecast: My forecast for real GDP growth is characterized by growth near trend in the period from 2017 to 2020. I expect Hurricanes Harvey and Irma to temporarily affect indicators of real activity and energy prices, with minor effects on real GDP growth and PCE inflation in 2017 and beyond. In the medium term, as the stance of monetary policy becomes less accommodative, I expect growth to become more self-sustaining, based on modest increases in the labor force and a moderate pace of productivity gains. I view the economy as at or beyond full capacity, and expect the unemployment rate to remain below its longer-run level in the next few years, before gradually moving back toward its longer-run rate. The softness in consumer prices this year appears more persistent than initially anticipated; however, I expect core inflation to rise to 2 percent next year, consistent with real GDP above potential, tightening labor market conditions, and a lower dollar.

Uncertainty and risks: In the near term, the effects of Hurricanes Harvey and Irma add uncertainty to the pattern of growth in the second half of 2017. In the medium term, however, I view uncertainty surrounding my projections as broadly similar to levels of uncertainty over the past 20 years, considering the magnitude of historical projection errors and current economic and policy uncertainty at home and abroad. The risks to economic growth, inflation, and unemployment appear broadly balanced. A downside risk emanating from the U.S. is the possibility that an overly expansive monetary policy could lead the unemployment rate to significantly undershoot its natural level, as periods of overheating have historically often ended with a recession. In addition, an overly expansive monetary policy would increase financial stability risks, which could necessitate a quicker than expected monetary policy tightening that would raise the risk of recession. Upside risks to my forecast are related to the resilience of the U.S. economy and the possibility of a more expansionary fiscal policy stance.

Government policies: My assumption for fiscal policy has not changed since June. My forecast does not assume major changes in fiscal policy because any possible changes in taxes, government spending, or regulations remain highly uncertain. The likelihood of a more accommodative fiscal policy stance, while diminished since earlier this year, still poses upside risk for growth and inflation and downside risk for the unemployment rate. I did not assume any major changes in trade policy or immigration policy either, but view them as posing downside risk to my forecast. Considering the risks related to government policies in the context of the array of global and domestic risks to the outlook, I view uncertainty as broadly similar to the past 20 years and the risks around my outlook as broadly balanced. Given that my assumptions about government policies do not imply changes in the modal outlook or in my assessment of uncertainty and risks, they did not alter my projection for the appropriate path of the federal funds rate.

Respondent 4: I see the path of economic activity as broadly unchanged from the June SEP. Although I am still inclined to see the recent weakness in inflation as mostly driven by transitory factors, I see somewhat greater

risk that underlying inflation may have declined. I have therefore slowed my assumed pace of policy tightening this year as we await clearer signs on inflation.

Respondent 5: The continued low level of inflation and the benefits to the economy of allowing further improvement in the labor market suggest a gradual approach to normalizing the stance of monetary policy.

I have not assumed any changes to government policies.

Respondent 6: While the recent hurricanes are likely to significantly affect the pattern of quarterly growth and near-term headline inflation, I do not expect much impact on GDP growth over the second half of 2017 taken as a whole, or on trend inflation as captured, for example, by the Dallas Fed trimmed mean PCE inflation rate.

A brightening overseas growth outlook and a somewhat weaker dollar should reduce the growth drag from net exports and support continued expansion in capital investment. Consumer spending remains on a solid growth track. Substantial oil inventories and the high price-elasticity of shale oil production reduce the danger that continued expansion of the world economy will be choked off by sharply higher energy prices over the projections horizon.

On inflation, I assume that the cyclical forces driving inflation upward eventually more than offset the secular pricing restraint arising from new technologies that threaten traditional business models.

Monetary policy remains accommodative, and with labor-market strains increasingly in evidence it is appropriate to continue withdrawing monetary stimulus. However, in light of aging demographics leading to slowing workforce growth, I believe that r^* may stay lower for longer than is commonly recognized. A low long-run r^* will help support historically high asset valuations and limit the size of the funds-rate increase that's required to remove accommodation.

Transitions to sustainable, non-inflationary growth are always difficult, but this is especially so once the unemployment rate has fallen below the natural rate. The exact mechanisms are unclear, but probably revolve around levels of debt, physical capital, and staffing that suddenly become problematic—inducing sharp cutbacks in spending and hiring—when it becomes apparent that the growth outlook must be revised downward. It sometimes seems that the economy has only two distinct modes—(1) growth above potential and (2) recession—with very different dynamics. Substantial unemployment undershoot now seems all but inevitable, and it will take unusual skill and a good measure of luck to engineer a soft landing.

Respondent 7: We expect growth to run moderately above potential through 2020. The fundamentals underlying private domestic final demand are solid. Accommodative monetary policy, a healthy labor market, and improved household balance sheets are supporting solid gains in consumer spending, and business outlays appear at last to be growing at a healthier pace. Our baseline scenario envisions such momentum carrying forward into next year. We also assume growth in 2018 will be boosted about 1/4 percentage point by higher defense spending and tax cuts. Subsequently, gradual removal of monetary accommodation is projected to return GDP growth to its potential by 2020.

Hurricanes Harvey and Irma clearly will alter the quarterly patterns in growth over the near term. Our working assumption is that the storms will reduce growth in the third quarter by about 3/4 percentage point and that the recovery in activity and beginning of rebuilding efforts will add almost that amount to growth in the fourth quarter and 1/4 percentage point to growth in early 2018. We assume total inflation readings will be slightly higher in the near term due to higher energy prices, but that there will be no measurable impact on core inflation from the hurricanes.

At 4.4 percent, the current unemployment rate is slightly below our estimate of the natural rate. We expect it to move somewhat further below over the course of the forecast period. The unemployment rate is at 3.9 percent in 2020—0.6 percentage point below the natural rate we expect to prevail at that time. (We think the natural rate currently is 4.6 percent and will trend down to 4.5 percent by 2020.)

With unemployment projected to modestly undershoot the natural rate, resource pressures should provide some lift to inflation going forward. Furthermore, our assumption of a shallow path for policy normalization and a strongly communicated commitment to a symmetric 2 percent inflation target play critical roles in solidifying inflation expectations and helping to bring actual inflation toward target. Still, the string of disappointing news on inflation has led us to assume a somewhat weaker persistent component in underlying inflation, and we have lowered our projection accordingly. We now see inflation reaching only 1.7 percent next year, and not achieving target until the end of the projection period.

The key factors shaping uncertainty and the risks to the forecasts were discussed earlier in the risks and uncertainty sections.

Respondent 8: Real activity rebounded noticeably in the second quarter, and the underlying pace of growth appears to be well above potential. We continue to expect GDP growth in the second half of this year to average close to 3 percent, with the negative impact of hurricanes this quarter being offset by faster growth in the fourth quarter. Conditioning assumptions remain favorable, with households' net worth higher and long-term rates lower than anticipated. These developments, coupled with ongoing gains in employment and favorable sentiment readings, should be consistent with solid advances in consumer spending in the near-term.

In 2018, fiscal policy is expected to provide some support to disposable income at a time when the effect on consumption from net worth appreciation is starting to wane. Uncertainty surrounding the timing, nature, and size of the Trump Administration's fiscal policy measures persists. As in the Tealbook, we have halved the size of the fiscal policy expansion, with the stimulus now widening the primary budget deficit by half of one percentage point of GDP. The smaller size of the fiscal stimulus is in part offset by lower interest rates and a weaker dollar. Overall, we continue to expect the unemployment rate to reach a low of 4.0 percent by the end of 2018.

In 2019, the tightening of monetary policy brings the pace of GDP growth below potential, and thus the unemployment rate starts to rise. We view the recent slowdown in inflation as a temporary phenomenon, and continue to expect inflation to stay close to target in 2018 and beyond. The current forecast is conditioned on another 25 bp increase in the federal funds rate in December, and four 25 bp increases in both 2018 and 2019. Our federal funds rate assumption is coupled with a contraction in the SOMA portfolio starting in October of this year. The projected removal of policy accommodation is more gradual than in June, reflecting a lower estimate of the equilibrium federal funds rate and a smaller fiscal stimulus.

We view our current assessment of the likely size of the fiscal stimulus package as providing a baseline with risks around the GDP growth outlook that are roughly balanced. As concerns prices, there is the possibility that the equilibrium unemployment rate is lower than what we are currently estimating. A countervailing risk is a nonlinear response of inflation associated with low levels of the unemployment rate. From a policy standpoint, it is worth mentioning that long-term yields remain very low by historical standards, even when taking into account a reduction in the equilibrium real rate of interest. If this pattern persists, the federal funds rate may need to increase by more than what we are currently assuming.

Respondent 9: My basic forecast is for real GDP to grow slightly above its trend rate, 1 3/4 percent, this year and next. I have modified that forecast for storm effects, lowering the growth rate by 1.2 percent in the third quarter and raising it by 0.6 percent in each of the next two quarters. I expect that real GDP will grow at its trend rate in 2019. And with the funds rate above its longer-run level, growth is slightly below trend in 2020. This forecast assumes no change in fiscal or other economic policies, since the prospects for significant change are uncertain at this time.

Respondent 10: We project real GDP growth to average 2.7 percent over 2017H2, up from 2.2 percent in the June SEP submission. Growth of final sales to domestic purchasers is projected to be a little below 2 1/2 percent, while inventory investment contributes about +0.3 percentage point to growth. On balance, net exports are expected to be a modest drag on growth, due largely to an anticipated faster pace of growth of real imports in Q4. With the upward revision to H2, we project real GDP growth of 2.4 percent for 2017, up from 2.1 percent in June. Growth is then projected to slow to slightly below our assumption of the potential growth rate (1.8 percent) over the remainder of the forecast horizon due largely to a tightening of financial conditions associated with the gradual normalization of monetary policy.

In thinking about the details to this forecast, we see the fundamentals for consumer spending as remaining solid, with strong labor market conditions prompting continued real disposable income growth, high aggregate household wealth, and robust consumer confidence. As such, we project real PCE growth to be 2.4 percent for this year, but then to slow to around 2 percent in 2018 and 2019 as part of the general slowing of growth, with the personal saving rate drifting down somewhat. In the housing sector, low inventories of single-family homes and improvements to the existing housing stock should support residential investment over the coming quarters.

Business fixed investment grew at a 7 percent annual rate over 2017H1, a significant improvement over the preceding two years. However, much of that strengthening is due to the energy sector, which should fade over time given our flat projected path for oil prices. We have raised our near-term real equipment investment projection

since the June submission, but nonresidential structures investment is anticipated to be weaker. On balance, we expect relatively modest growth of fixed investment over the forecast horizon, as has been a feature of this cycle.

Since June the dollar has depreciated, and we now expect the trade-weighted dollar to decline 6.1 percent in 2017. Combined with the robust growth rates for the global economy, we project stronger export growth and slower import growth for 2017 than in June; consequently, the net export contribution to real GDP growth is now expected to be +0.1 percentage point. However, with foreign real GDP growth projected to slow and the dollar anticipated to appreciate in real terms, the net export growth contribution is projected to be -0.2 and -0.4 percentage point in 2018 and 2019, respectively.

As has been the case for recent submissions, we do not incorporate for now a fiscal stimulus into our forecast, as we believe that any tax reform/tax cut legislation will take longer to emerge than many reports suggest. We therefore anticipate the growth contribution from the government sector to be essentially zero.

Through sometime in 2018H1, we expect the economy to grow somewhat above its potential rate, further reducing labor market slack. The decline in the unemployment rate is however modest, due to firming productivity growth and a very gradual rise of labor force participation. We have lowered our projected path of the unemployment rate: That rate is anticipated to average 4.2 percent over 2018H1, and then rise to 4.3 percent by 2018Q4 and to 4.4 percent by 2019Q4. Average monthly gains in nonfarm payroll employment should slow from around 170,000 in 2017 to 120,000 in 2018 and 100,000 in 2019.

While core inflation has slowed in recent months, we suspect that the bulk of this slowing is due to temporary factors. The CPI data for August were consistent with this hypothesis. Nonetheless, the 2017 increase of the core PCE price index is projected to be 1.5 percent. In light of the lower near-term path, we have reduced slightly our projection for 2018 core PCE inflation to 2.0 percent. Core inflation then is projected to rise to 2.2 percent in 2019 and remain slightly above the FOMC's longer-run objective in 2020.

Respondent 11: My forecast calls for output growth of about 2 percent over the forecast horizon. I continue to expect that some fiscal stimulus may be forthcoming over the next two years, but because the timing and magnitude is uncertain it is not yet meaningfully affecting my point forecast. However, I see some upside risk to output growth and downside risk to the unemployment rate over the medium term. I expect the unemployment rate to remain below my estimate of the natural rate over the forecast horizon as output grows at about its trend pace and the labor force participation rate declines. Headline inflation is being held down by transitory factors and as these factors wane headline inflation moves up to the 2 percent target in 2019. With gradually rising inflation, near-trend output growth, and the unemployment rate below my estimate of the natural rate, monetary policy becomes less accommodative over the forecast horizon. However, accommodation is removed at a gradual pace in light of the economic uncertainties surrounding fiscal policy, regulatory and trade reform, productivity growth, and inflation dynamics.

Respondent 12: Our forecast continues to use a regime-based conception of outcomes for the U.S. economy. In our conception, there are multiple regimes and we appear to have nearly converged to one of them. The current regime is viewed as persistent, and we see no reason to forecast an exit from the current regime over the forecast horizon. Monetary policy is regime-dependent and can be viewed as optimal given the current regime. Longer term, the economy may visit other regimes, such as ones associated with higher productivity growth, a higher real return to short-term government debt, or recession. If the economy transitions to any of these states, all variables may be affected and, in particular, the optimal regime-dependent policy may require adjustment. However, predicting when these transitions may occur is very challenging, so we forecast that we will remain in the current regime over the forecast horizon.

Respondent 13: My outlook consists of modestly above-trend growth over the next two years, supported by a moderate pace of consumption and investment spending.

I see the economic impact from Hurricanes Harvey and Irma in much the same way as the Board staff does. Relative to my baseline, third quarter growth is likely to be depressed by roughly 1/2 to a full percentage point, offset by a similarly sized (perhaps slightly larger) increase in the fourth quarter. I do not see these events as having a material effect on my medium-term outlook. However, the impact on the incoming data stream adds further noise to the task of teasing out signals on the underlying pace of economic growth.

As for inflation, despite the recent soft readings, I see inflation converging to target next year. Over the next few months, the impact from the recent hurricanes will be felt in the retail price statistics, with the largest boost to energy prices coming in September. The latest futures markets data imply that gasoline prices will return

to their early-August levels by the end of the year. While there remains considerable uncertainty regarding any hurricane-effects on core inflation, I have yet to mark that into my baseline outlook.

I view the risks to my growth outlook as balanced. I have not incorporated any changes in either fiscal policy or other government policies into my baseline outlook. If there are eventual changes in fiscal policy, they are likely to be, on net, expansionary in the near-to-medium term. On the other hand, it is possible that the negative effects from the hurricanes prove to be more persistent than what I expect.

The risks to my inflation outlook are also balanced. While recent history suggests that the response of inflation to resource slack is somewhat muted, it may be more pronounced at high rates of resource utilization. On the other hand, after a number of years with below-target inflation, it is possible that inflation expectations are becoming entrenched at a level lower than is consistent with our mandate.

Respondent 14: N/A

Respondent 15: The fundamentals supporting the expansion remain favorable, including accommodative monetary policy, household balance sheets that have improved greatly since the recession, continued improvement in labor markets, and relatively low oil prices. Consumer and business sentiment remain positive. Consistent with the data, business contacts report further tightening in labor markets, more widespread difficulties in finding qualified workers, and the increasing need to raise wages in order to retain workers across a range of skill groups and occupations. The global outlook has improved over the last year. Inflation rates here and abroad are fluctuating around a general upward trajectory, supported by accommodative monetary policy.

In the near term, I expect that the destruction caused by the recent hurricanes will reduce output growth in the third quarter, while rebuilding efforts will boost growth somewhat over the subsequent couple of quarters. Some inflation measures will be elevated in the near term, reflecting higher gasoline prices and other prices related to rebuilding efforts. However, I expect that the hurricanes will have a limited impact on the overall economy over the medium run.

In the U.S., there could be some form of expansionary fiscal policy, although the details are still unknown. While I've incorporated fiscal policy assumptions similar to those in the Tealbook, my modal forecast is not dependent on fiscal policy; I expect that fiscal stimulus will provide only a modest increase to growth over the forecast horizon.

The U.S. economy has been growing at a moderate rate and labor market conditions have strengthened over the last year. From the standpoint of the cyclical conditions that monetary policy can address, I believe we are at or somewhat beyond maximum employment.

While some recent readings on inflation have been soft, transitory factors have played a role. Measured year-over-year, inflation is notably higher than it was in 2015 and most of 2016 and is not far from our 2 percent goal. I view inflation expectations as reasonably well-anchored. This, coupled with continued strengthening in labor market conditions and ongoing economic growth, suggests that inflation will gradually move to 2 percent on a sustained basis over the forecast horizon.

Although there is uncertainty surrounding fiscal and other government policies, 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 16: The economy is expanding at a solid pace relative to the slow pace of growth in potential output, which has pushed the unemployment rate lower. Going forward, the strength in labor market hiring, faster wage growth, and gains in household wealth should support continued consumption growth. The climate for future fixed business investment appears to have improved given the continued expectation of lighter regulatory burdens and improving prospects abroad. Given the diminishing prospects for any new fiscal stimulus, our modal forecast assumes no measurable net impact on economic growth over the next few years from such initiatives. I expect the economic disruptions from Hurricanes Harvey and Irma to be transitory. The likely hurricane impacts include a contraction in economic activity on the order of $\frac{3}{4}$ percentage point in the third quarter, followed by a rebound in subsequent quarters that will add to real GDP growth a cumulative 1 to $1\frac{1}{4}$ percentage points. I also expect the hurricanes to provide a small temporary boost to inflation.

In this environment, I expect the economic recovery to proceed at a pace that is above potential. Output and unemployment gaps were closed in 2016. With substantial monetary stimulus still in place, I expect these gaps to overshoot for the next few years, leading to a gradual pickup in inflation over the next few years. I expect inflation to reach our 2 percent target in 2019, and to overshoot slightly in 2020. Normalization of monetary policy will help bring inflation, growth, and unemployment back to their long-run sustainable levels by the following year or two.

Forecast Narratives (continued)

Question 4(b). Please describe the key factors, potentially including revisions to your assumptions about changes to government policies, causing your forecasts to change since the previous SEP.

Respondent 1: I have revised up my forecast for real GDP growth in 2017 and 2018 modestly since June in response to the stronger tone of recent indicators of business investment and net exports, somewhat more favorable financial conditions (mainly the dollar), and somewhat stronger foreign activity. Taking into account a somewhat stronger outlook for GDP growth, as well as the recent sideways movement of the unemployment rate despite continued strong employment growth, the projected path of the unemployment rate is a touch lower than before.

Although the hurricanes will cause noticeable quarter-to-quarter movements in real activity and inflation, I don't anticipate that they will have much of an effect on the Q4/Q4 growth rates of either real GDP or consumer prices in 2017 and beyond. Similarly, they shouldn't have much of an effect on Q4 unemployment rates.

Respondent 2: N/A

Respondent 3: My forecast is largely unchanged, except for small updates that reflect incoming data. I revised down my projected path for the unemployment rate slightly in the medium term to reflect both recent improvements in labor market data and a lower longer-run unemployment rate. The downward revision in the projected unemployment path left my estimate of the degree of resource utilization largely unchanged because I also revised down my estimate of the longer-run unemployment rate. Hence, I have not changed my view of the appropriate level of the federal funds rate.

Respondent 4: N/A

Respondent 5: Near-term core inflation has continued to decline since the previous SEP and the economy continues to add jobs without a notable decrease in the unemployment rate or increasing wage pressures. This reinforces my assessment that there continues to be a significant amount of slack in the economy. At this point I am concerned that the increases in the federal funds rate since late 2015 may be slowing the economy prematurely. As a result, I think a more accommodative policy than I had projected in June is necessary and appropriate.

I have not assumed any changes to government policies.

Respondent 6: My projections assume a somewhat shallower path for r^* than in March, based partly on the belief that policies which significantly enhance productivity and labor-force growth are unlikely to be enacted and partly on persistently low longer-term market yields.

In response to incoming data I have upwardly revised my near-term GDP growth projection and downwardly revised my near-term inflation projections. I've lowered my path for the unemployment rate to make it more consistent with projected GDP growth.

Respondent 7: The strength in the incoming data led us to revise up our growth projection for 2017 by 0.3 percentage points. (Our adjustments for the hurricanes essentially cancel out in the Q4-to-Q4 growth number.) In June, we had assumed a small boost to growth in 2017 from an increase in defense spending. Given legislative developments since then, we moved those outlays into 2018 in the current projection.

Our regular post-NIPA revision review of the data led us to reduce our estimate of potential output slightly. This change was offset in our forecast for actual growth, however, by some small upside factors. As a result, the projected GDP gap throughout the forecast period is slightly more positive than in our June forecast. This configuration also led to a small downward revision to our unemployment rate forecast in 2018 and 2019.

We think that some of the recent low readings on core inflation were due to idiosyncratic, one-off price movements. However, we also think that there is some more meaningful signal in these data pointing to a softer underlying inflationary trend. Accordingly, we brought our inflation forecast down 0.1 percentage point throughout the projection period.

In addition, as noted above, we reduced the estimated long-run level of the federal funds rate by 25 basis points to 2.75 percent based. In accordance, we have one fewer rate increase (in 2018) in our path for appropriate policy.

Respondent 8: The forecast has not changed materially since June, both in terms of activity and inflation. As already mentioned, however, the forecast is conditioned on a slower pace of tightening of monetary policy, which reflects a lower equilibrium federal funds rate and a smaller fiscal stimulus.

Respondent 9: My projections have changed relatively little since June submission when I anticipated two more rate increases in 2017. However, I am not shifting down my funds rate path but shifting it out in time - effectively by 3 months.

Respondent 10: Hurricanes Harvey and Irma will likely depress the Q3 growth rate somewhat. We have introduced a $\frac{1}{4}$ percentage point hit to the Q3 growth rate, mainly through slower PCE growth and a slower pace of inventory investment due to production disruptions, but assume that it is made up in Q4. By comparison, the Board staff (as of September 13) is assuming a one percentage point reduction of Q3 GDP growth due to the hurricanes, and a modestly larger rebound in Q4. Our assessment is guided by how quickly economic activity has rebounded following even very severe storms such as Hurricane Sandy. Indeed, a Tealbook chart indicates that daily electronic retail spending in Texas returned to its baseline within six days of Hurricane Harvey making landfall, similar to the experience around Hurricane Sandy. Another offsetting effect is that supplies flow into the storm-affected areas from non-affected areas, likely resulting in a boost to production in non-affected areas.

Because real GDP growth in the first half was a little higher in H1 than we expected in June and the recent activity data suggest stronger growth in the H2, we have raised our near-term real GDP growth projection. Nevertheless, we still expect real growth to slow to near potential over the rest of the forecast horizon. With somewhat stronger near-term growth, we now see a slightly lower path of the unemployment rate in the near and medium term.

The overall and core inflation forecasts for 2017 are lower than they were in our June SEP submission, reflecting the soft inflation data over the past several months until the August CPI. As we still judge this softness as temporary, we project that inflation will rise in the medium term and slightly overshoot the FOMC's longer-run inflation objective in 2019 – 20. This overshoot helps to ensure that inflation expectations do not begin to fall below the objective and thus helps to achieve the Federal Reserve's mandated objectives over the longer run.

Our assessment of the appropriate policy path is unchanged, with a mild overshoot of the longer-term policy rate meant to ensure that the overshoot of inflation and undershoot of unemployment are temporary, and the longer-run objectives are met in the early 2020s.

Respondent 11: My forecast is largely unchanged from last time.

Respondent 12: Recent data has caused us to change our inflation projections for 2017.

Respondent 13: I have marked up output growth in the second half of this year, in response to the strength in the recent (pre-hurricanes) economic data. At the same time, I have lowered my 2017 inflation projections, reflecting the continued string of soft retail price reports.

Respondent 14: As noted above, I have revised down my central forecast for fiscal stimulus in the medium run. I continue to put some weight on the prospects for a tax cut, of a size similar to that in the staff projection, although implemented a bit later. As a consequence of these reduced prospects for tax cuts, I have revised down my path for the federal funds rate, both in the medium and in the longer run. My forecast for GDP and the unemployment rate are little changed from June, however, because foreign growth has strengthened and led to some easing of financial conditions through currency depreciation. Also, stronger incoming data suggest more momentum in the economy, and the lower path for the federal funds rate provides some offset.

Respondent 15: The narrative of my forecast has changed little since June. Because price and wage inflation have been moderate, I edged down my core inflation forecast for 2018, but I continue to expect inflation to gradually firm over the forecast horizon.

As in the Tealbook, I have reduced the size of the effect of expansionary fiscal policy since my last SEP submission, but fiscal policy has not been an important component of my SEPs, having only a minor positive effect on growth over the forecast horizon.

In the near term, I expect that the destruction caused by the recent hurricanes will reduce output growth in the third quarter, while rebuilding efforts will boost growth somewhat over the subsequent couple of quarters. Some

inflation measures will be elevated in the near term, reflecting higher gasoline prices and other prices related to rebuilding efforts. However, I expect that the hurricanes will have a limited impact on the overall economy over the medium run.

I view an upward path of monetary policy as appropriate given that the unemployment rate is expected to remain below its longer-run level and inflation is projected to gradually move to our goal of 2 percent over the next year or so. My funds rate path is slightly flatter next year compared to my June projection, reflecting a slightly weaker path for inflation.

Respondent 16: Since June I have dropped my placeholder assumption that there will be any meaningful fiscal stimulus or other government policy initiatives that will affect the economy. My modal projection now assumes that fiscal policy will not have a meaningful impact on growth. Even without additional fiscal stimulus, stronger than expected equity and labor markets should boost consumption and investment through the remainder of the year. Additionally, the dollar has declined, reducing the drag from net exports. Therefore, my projection for growth in this year is higher compared to June.

The hurricanes Harvey and Irma led me to make adjustments to my near term forecast of economic activity and inflation. Combining effects from disruptions with recovery efforts and a rebound in economic activity, I expect no effect in my medium term projections.

My inflation projection is revised down a bit for this year due to weaker than expected data in the second quarter and July. I expect this to be mostly due to transitory factors with only a small impact on my projections for inflation in 2018 and 2019.

Forecast Narratives (continued)

Question 4(c). Please describe any important differences, potentially including those related to your assumptions about changes to government policies, between your current economic forecast and the Tealbook.

Respondent 1: Relative to my outlook, the Tealbook implicitly incorporates a much higher effective level of the neutral federal funds rate over the medium term, while assuming that (very) long-run real federal funds rate is somewhat lower. The Tealbook also incorporates a higher natural rate of unemployment and assumes that long-run inflation expectations are at a lower level (that is, are below 2 percent).

Respondent 2: N/A

Respondent 3: Unlike Tealbook, my forecast does not incorporate a change in the stance of fiscal policy. Consistently, my projection for real GDP growth in 2018 is lower and my projected path for the unemployment rate is flatter than in Tealbook.

Respondent 4: N/A

Respondent 5: My forecast for economic activity is broadly similar to the Tealbook. However, I believe the long-run unemployment rate is lower and the improving labor market will continue to keep the labor force participation rate from falling, minimizing the downward effects of healthy job growth on the unemployment rate. I now project that is appropriate for the federal funds rate to rise more gradually than in the Tealbook. Even with lower rates, my projection anticipates that inflation will return to target later than in the Tealbook.

I have not assumed any changes to government policies.

Respondent 6: I am projecting somewhat weaker GDP growth this year and next than does the Tealbook, but somewhat faster growth in 2019 and 2020. The net result is that the unemployment rate falls by almost as much as in the Tealbook baseline. Despite a similar unemployment path, I anticipate a slightly faster increase in inflation than is forecasted by Board staff. In my view, the longer-term inflation expectations relevant to wage and price setting remain anchored at 2 percent, and inflation remains fairly responsive, albeit with a lag, to labor-market slack. Most significantly, I have a substantially shallower policy path than does the Tealbook. I think that the Tealbook policy path would almost certainly trigger a recession.

Respondent 7: Our federal funds rate path is noticeably below the Tealbook over the next three years, ending 2020 at 2.75 percent. Furthermore, unlike the Tealbook, we do not overshoot the long-run level of the fed funds rate during the projection period.

With regard to growth, in the near term, we currently have somewhat smaller effects from Hurricane Harvey and Irma built in to our forecast. Our projections for Q4-to-Q4 growth in 2017, 2018, and 2019 are very close to the Tealbook's. However, given our slightly higher assumption for potential output growth, our output gap at the end of 2020 is about 1/2 percentage point smaller than the Tealbook's. In terms of labor market slack, our projection for the unemployment rate averages about 0.2 percentage point higher than the Tealbook, and we assume the natural rate of unemployment is about 0.3 percentage point lower. Accordingly, our 3.9 percent unemployment rate projection for 2020:Q4 undershoots the natural rate by less than in the Tealbook.

Our outlook for inflation is somewhat more pessimistic than the Tealbook's, as we feel that even with our more accommodative path for monetary policy, actual inflation will not return to target until 2020.

Respondent 8: The two forecasts are qualitatively similar. The Tealbook forecast features a somewhat faster pace of growth relative to potential, which brings the unemployment rate down to a lower level than in our forecast. The conditioning assumptions for monetary policy, fiscal policy, households' net worth and the dollar are similar in the two forecasts.

Respondent 9: The Tealbook forecast is for relatively stronger growth in the second half of 2017. I believe that growth is currently fluctuating around the 2.1 percent average we have observed since the end of the recession. In addition, in my projection, some of the rebound from the third quarter's storm effects occurs in early 2018.

Respondent 10: As in the June SEP, there are some notable differences between the Tealbook forecast and our projections for the key SEP variables. In part, these differences reflect divergences in some of the underlying assumptions in the two forecasts. In particular, the Tealbook forecast incorporates a fiscal stimulus in the form of a personal income tax cut that commences in 2018Q1. As we said in our answer to 4(a), we currently do not incorporate changes in fiscal policy in our projection as there still is not enough information regarding their nature, magnitude and timing.

Over the near term, the Tealbook assumes a larger disruption to Q3 activity from Hurricanes Harvey and Irma than is assumed in our projection. However, both projections assume a sufficient rebound in Q4 such that the disruptions do not have a material effect on 2017 growth.

The Tealbook projects faster growth in 2018 – 19 than in our outlook. Furthermore, based on its assessment of potential GDP growth, which is below our assumption in 2017 – 20, the Tealbook path of real GDP leads to a notably positive output gap in those years. Even though we do not calculate precise estimates of the output gap, our assessment is that it is at most modestly positive at that time.

A major component behind the differences between the two real GDP growth projections is consumption. The Tealbook forecast has higher real PCE growth in 2018 – 19 than in our projection; this is a long-standing difference between the two forecasts, which has been exacerbated by the Tealbook's fiscal policy assumption that helps to boost its projection of consumption growth in 2018. Another effect of the Tealbook's fiscal policy assumption is a projected saving rate that is above our projection in 2018 – 19.

Another notable difference between the projections is the underlying assumptions on the longer-run natural rate of unemployment, which the Tealbook has at 4.8 percent and we have at 4.6 percent. Combined with our growth projections, we anticipate that unemployment will modestly undershoot its natural rate over the projection period; in contrast, the Tealbook projects the unemployment to undershoot the longer-run natural rate significantly in 2018 – 20. This pattern is a counterpart of the sizable positive output gap that arises in the Tealbook forecast. The lower unemployment rate path also contributes to higher projected payroll growth in the Tealbook forecast.

One other difference in the labor market projections concerns the paths for labor force participation. In our projection, the participation rate rises very gradually to 63.0 percent in 2018 and 2019. Even though the Board staff has raised its projected path of the participation rate, in the Tealbook this rate still declines to 62.5 percent at end-2019. This difference reflects our assumption of some positive cyclical effects on participation.

For inflation, the two forecasts differ notably. We see inflation rising to 2 percent in 2018 and modestly above that level in 2019 – 20 before returning to objective early in the next decade. In contrast, the Tealbook projects core inflation to reach 2 percent in 2019, despite a sizable undershooting of unemployment, and then running persistently above that level in the early 2020s. The considerable persistence of inflation and the flat Phillips curve within the Tealbook framework appear to require a prolonged period of above-potential growth in order to induce inflation to rise toward the longer-run inflation goal. As mentioned previously, the overshoot of inflation in our projection occurs to prevent inflation expectations from falling below levels consistent with the FOMC's longer-run objective.

In terms of the uncertainty and risk assessment, both projections see uncertainty at near normal levels and risks broadly balanced.

Finally, our monetary policy path is below the Tealbook path for 2018 – 20. In addition, our assumption for the longer-run normal policy rate is now 25bps above that of the Tealbook: As we have not incorporated a fiscal policy stimulus in our forecast to this point, we did not have to make fiscal policy adjustment to r^* as the Tealbook did. Both policy paths have an overshooting of the longer-run FFR in 2019 – 20, although the Tealbook's is appreciably larger, which is a reflection of the larger projected positive output gap in the Tealbook forecast.

Respondent 11: I have not included a fiscal stimulus package in my forecast due to uncertainties about timing and magnitude. My path for appropriate monetary policy remains more accommodative than the Tealbook over the forecast horizon.

Respondent 12: For GDP growth and inflation, our projections are quite similar to those in the Tealbook. Differences arise because the Tealbook projections incorporate the idea of a longer-run steady state to which the economy is converging. Monetary policy has to be set appropriately as the economy transitions to the longer-run

steady state. This tends to imply an upward-sloping policy rate path. Our regime conception, in contrast, views monetary policy as regime-dependent and the current regime is viewed as persistent. It is acknowledged that the economy may visit other regimes in the future, but switches to those regimes are quite difficult to forecast. This suggests a flat path for the policy rate over the forecast horizon relative to that contained in the Tealbook. The Tealbook forecast also has a substantial undershooting of the unemployment rate before returning to its longer-run value of 4.8 percent.

Respondent 13: My projection for cumulative real GDP growth over the forecast horizon is similar to the Tealbook, though I project slower growth in the short-run and stronger growth in 2020. My projection has a higher long-run growth trend owing to a somewhat stronger productivity assumption. Unlike the Tealbook, I am not forecasting a decline in the unemployment rate in 2018 due to my somewhat lower projection for employment growth next year and my somewhat higher projection for the labor force participation rate.

Respondent 14: N/A

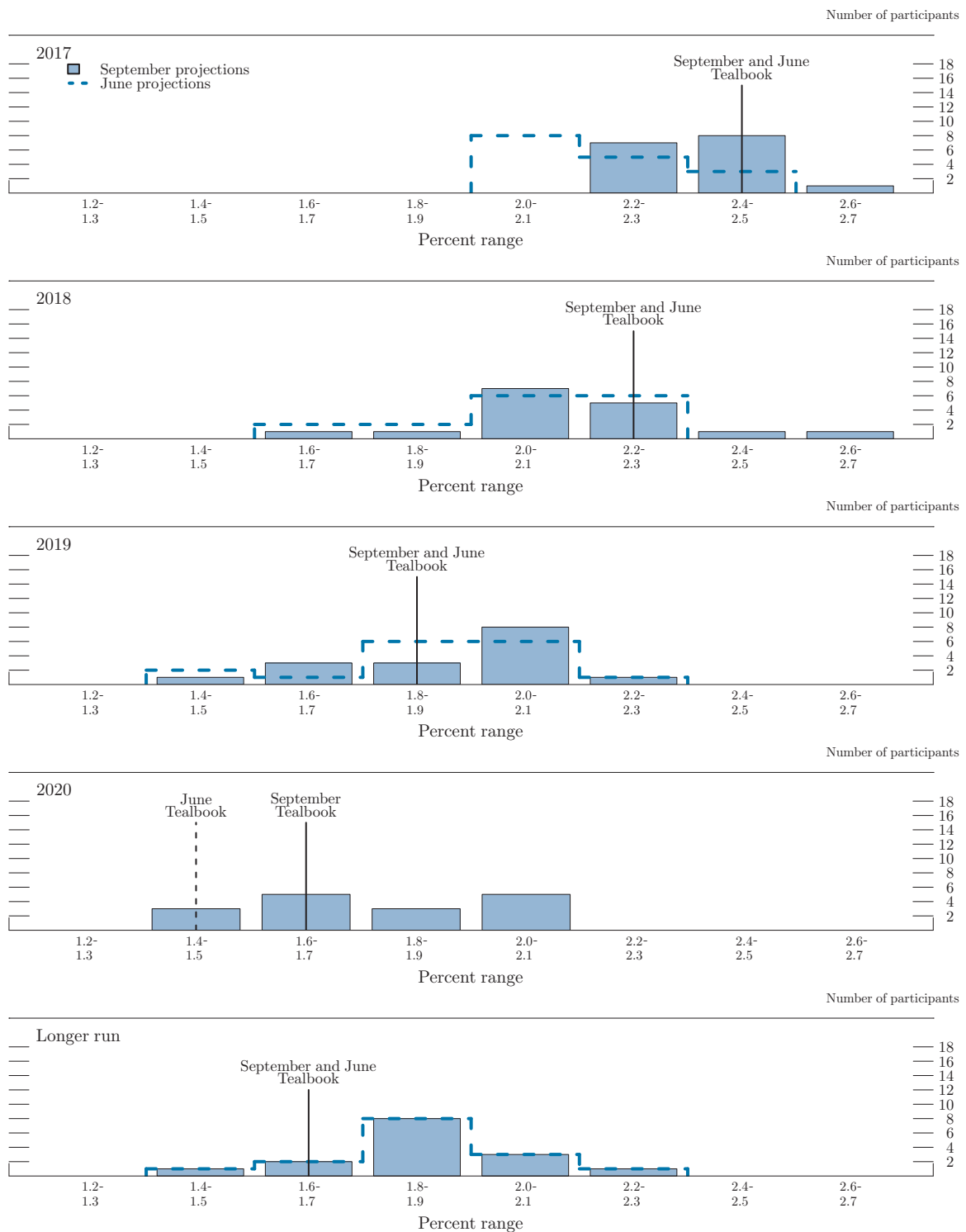
Respondent 15: As in the Tealbook, I expect that the economy will grow at a moderate pace, labor market conditions will continue to strengthen, and inflation will gradually rise to our 2 percent goal. The inflation and labor market dynamics in my outlook differ from those in Tealbook: our inflation paths are similar but I do not project as great a fall in the unemployment rate. Thus, compared to the Tealbook, I see inflation somewhat better anchored at target and see somewhat stronger inflationary pressures. On balance, my funds rate path over the next two years is similar to that in the Tealbook. My fiscal policy assumptions are similar to those in the Tealbook, but there is considerable uncertainty around those assumptions.

Respondent 16: The Tealbook projects a more substantial and protracted overshooting of full employment, with the unemployment rate declining to 3.7 percent at the end of 2019, and with inflation returning to the 2 percent target only very gradually. In my projection, there is more modest overshooting of unemployment and output through 2019, and those gaps close in the following year or two. Despite strong financial conditions, I am not seeing much evidence in the data that this is translating into higher growth in consumer or business spending. I see the unemployment rate bottoming out at 3.9 percent by the third quarter of next year.

The Tealbook continues to factor in fiscal stimulus for the first half of 2018. In my projections I do not expect fiscal policy to lead to a change in growth.

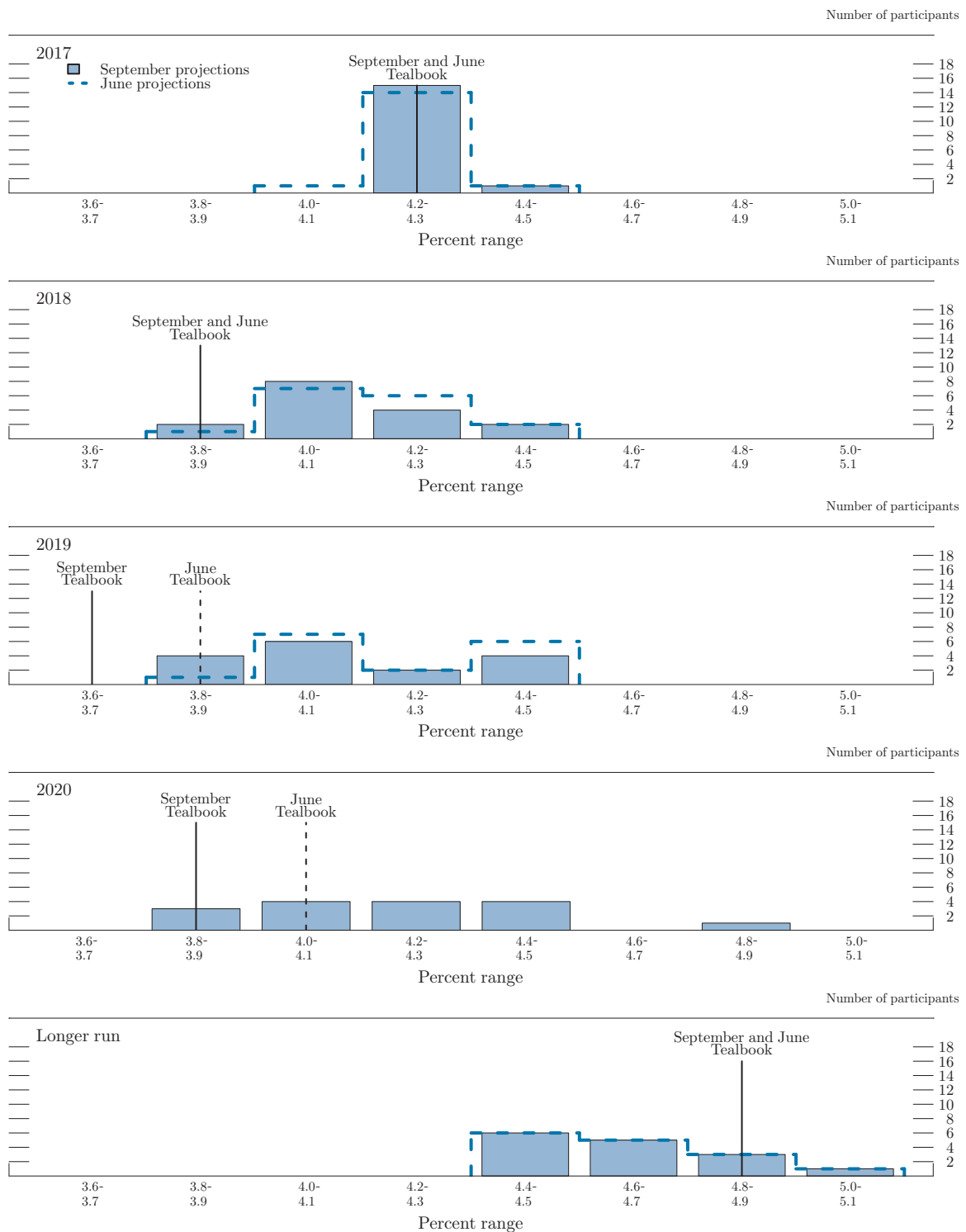
The gradual removal of monetary policy accommodation tightens financial conditions over time and slows growth to below potential in 2019. This pushes up the unemployment rate to 4.2 percent by the end of 2019. Finally, the persistent overshooting of full employment pushes inflation back to 2 percent by 2019 and results in a slight overshooting of inflation for some time afterwards. Tighter monetary policy brings inflation back to target and unemployment close to its long-run sustainable level in 2020.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–20 and over the longer run



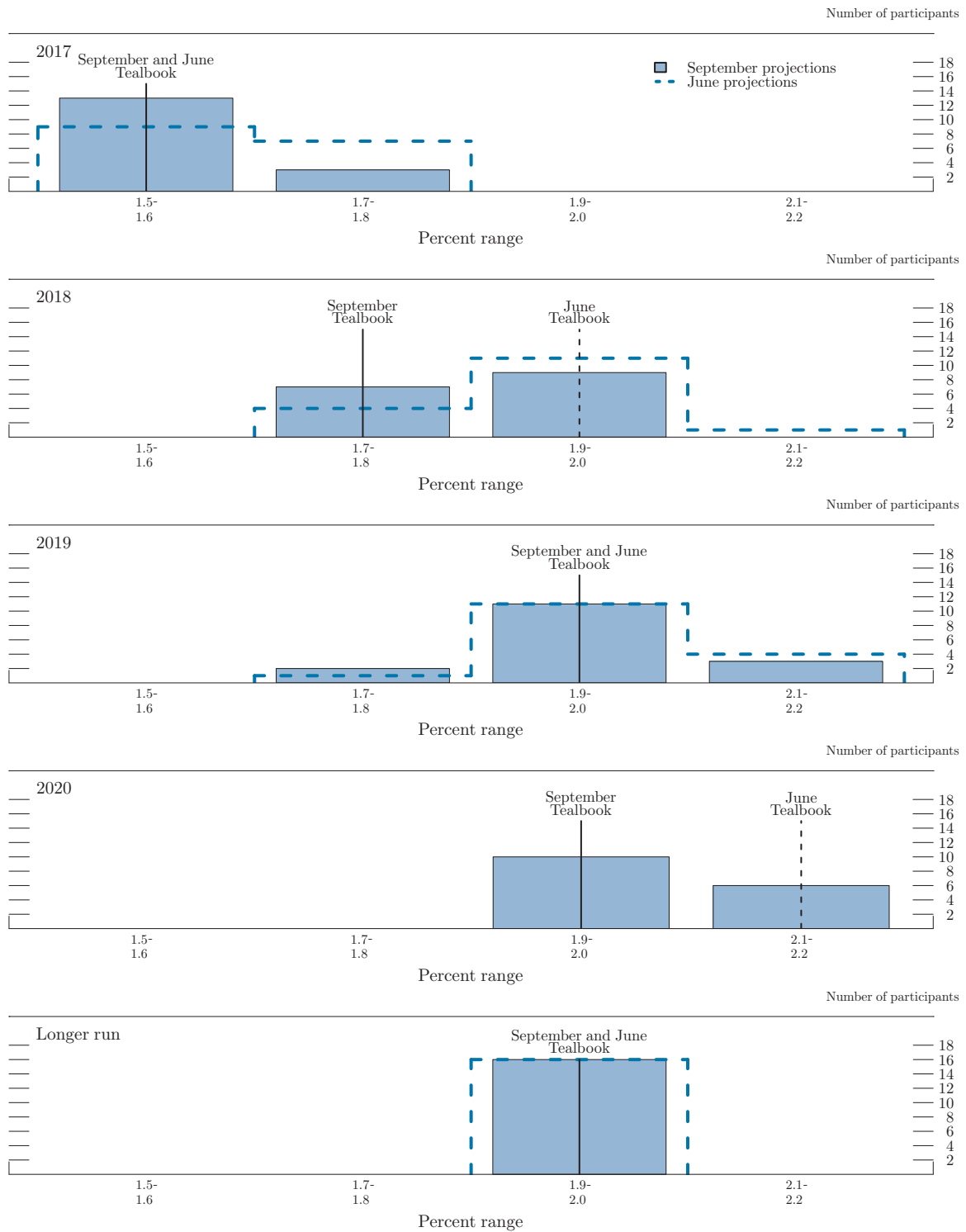
NOTE: Updated September Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–20 and over the longer run



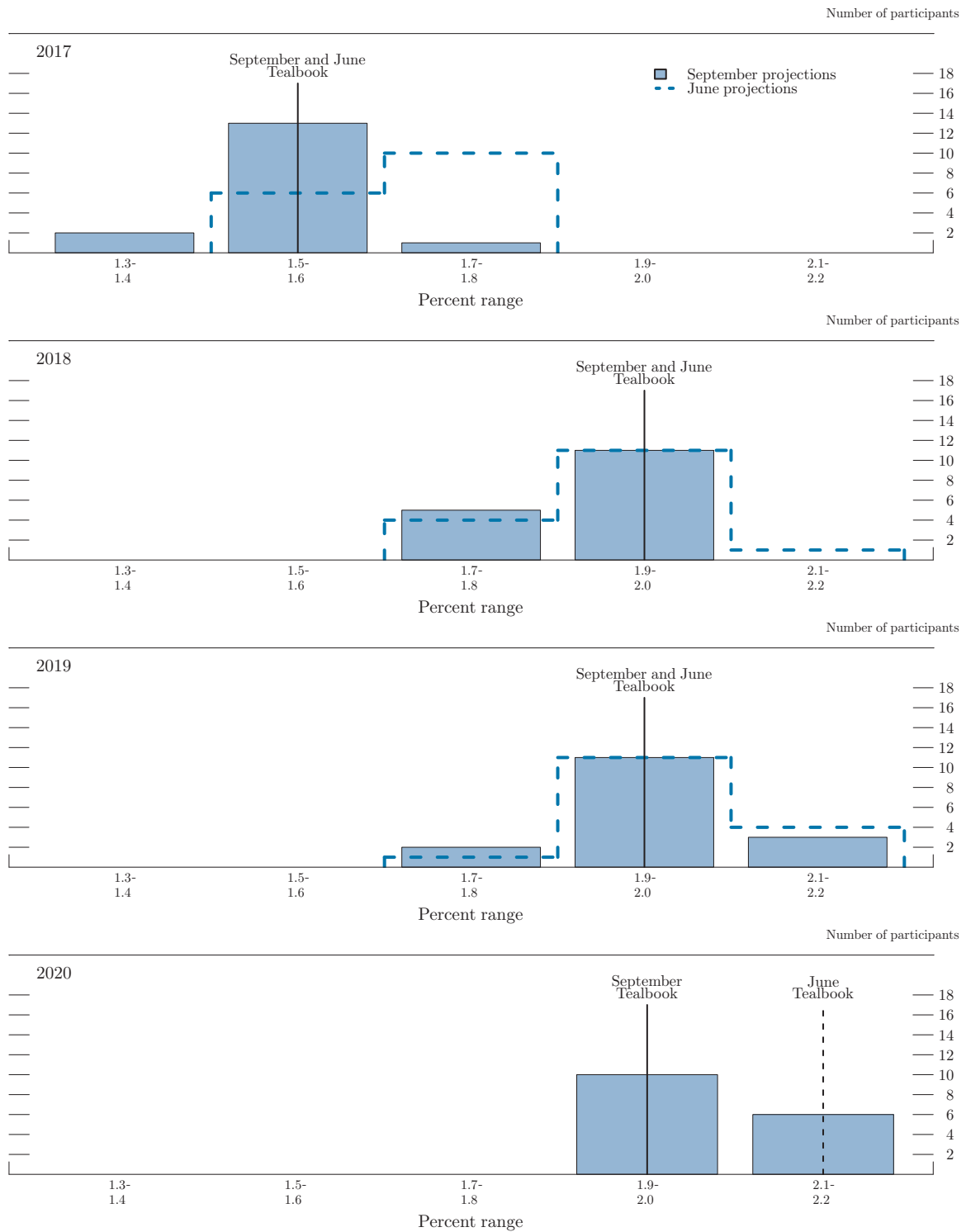
NOTE: Updated September Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–20 and over the longer run



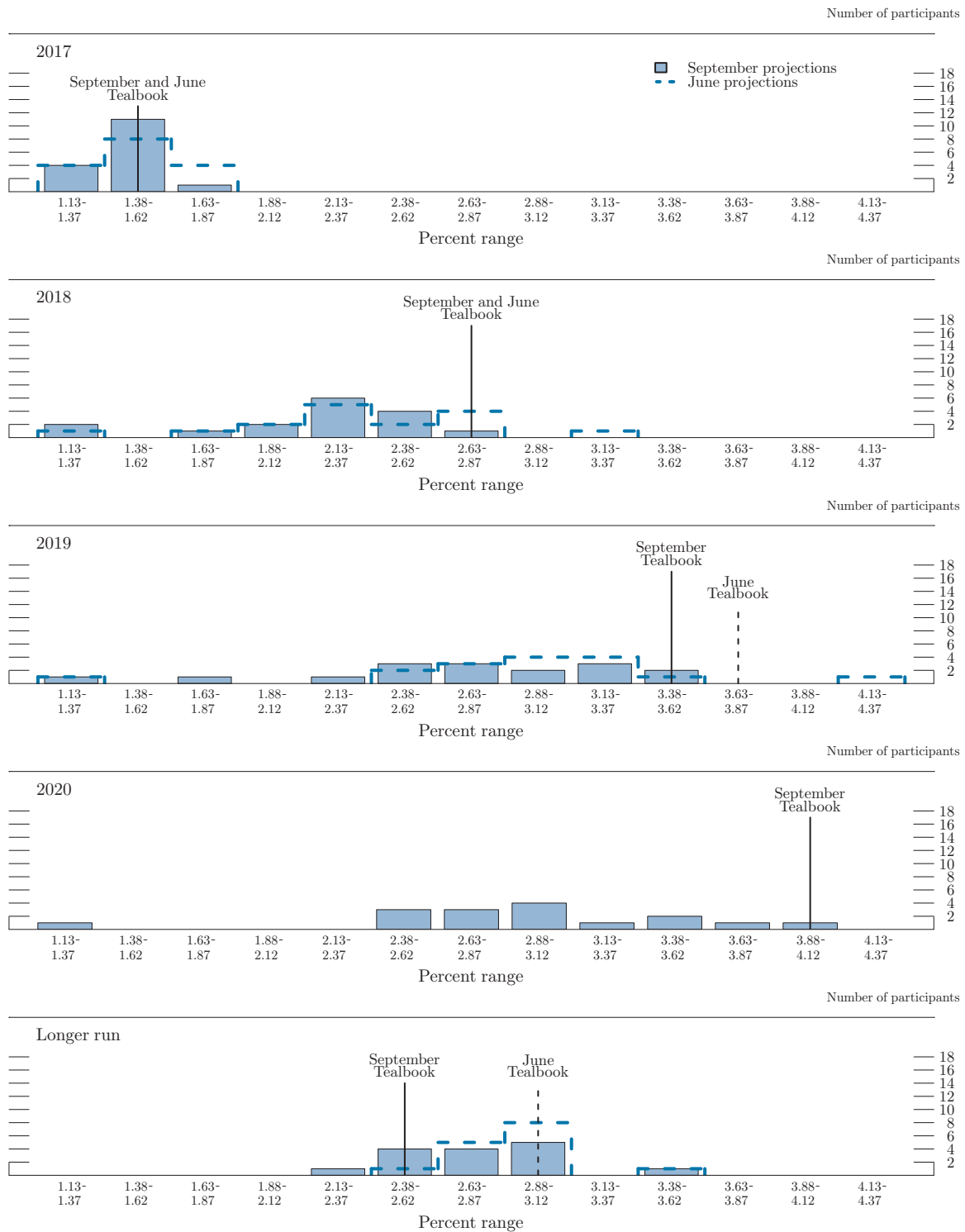
NOTE: Updated September Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–20



NOTE: Updated September Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–20 and over the longer run



NOTE: Updated September Tealbook values are reported. Definitions of variables and other explanations are in the notes to table 1.