Survey of Professional Forecasters

50 YEAR ANNIVERSARY

Release Date: November 13, 2018

FOURTH QUARTER 2018

Weaker Near-Term Growth amid Stronger Job Gains

The outlook for growth in the U.S. economy over the next four quarters is slightly weaker from that of three months ago, according to 37 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The panel predicts real GDP will grow at an annual rate of 2.6 percent this quarter and 2.4 percent next quarter, down from the previous estimates of 2.8 percent and 2.5 percent, respectively. On an annual-average over annual-average basis, the forecasters see little change in real GDP growth in 2018 and 2019, but they predict higher real output growth in 2020 and 2021, compared with their previous projections.

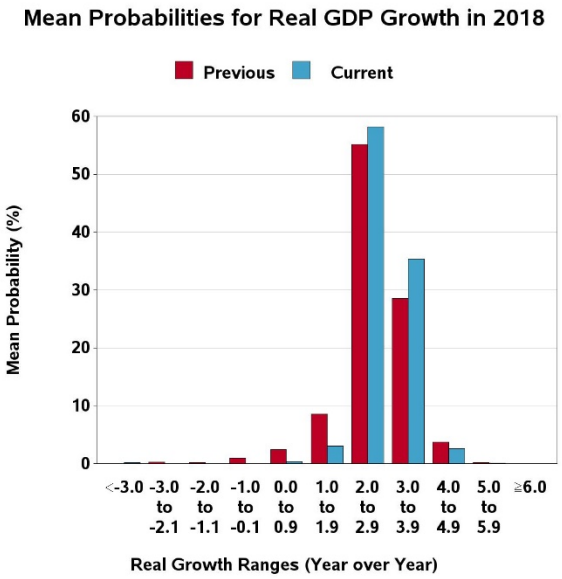
The forecasters see a mostly unchanged outlook for the unemployment rate. On an annual-average basis, the forecasters predict the unemployment rate will be in the range of 3.7 percent to 4.0 percent from 2018 to 2021.

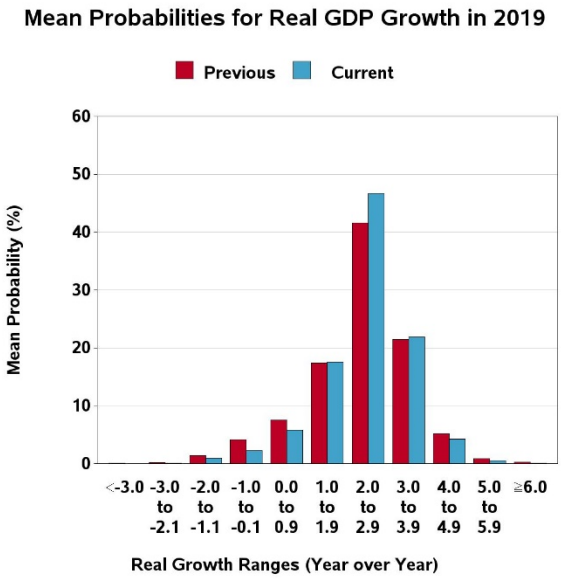
On the employment front, the forecasters have revised upward their estimates for job gains in 2018 and 2019. The projections for the annual-average level of nonfarm payroll employment suggest job gains at a monthly rate of 198,500 in 2018, up from the previous estimate of 194,800, and 181,900 in 2019, up from 167,800 estimated three months ago. (These annual-average estimates are computed as the year-to-year change in the annual-average level of nonfarm payroll employment, converted to a monthly rate.)

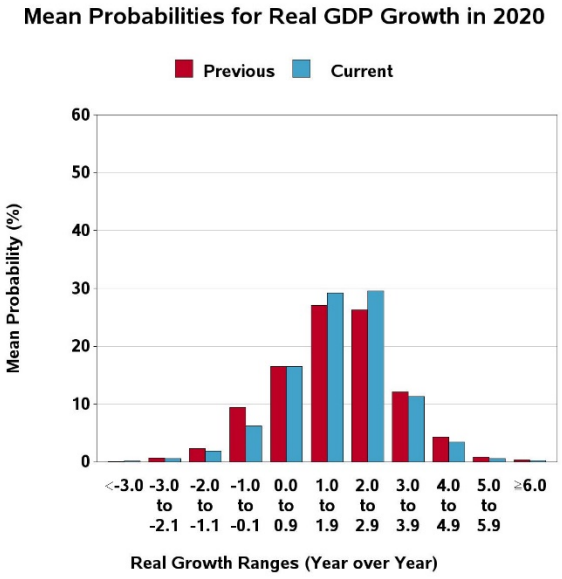
Median Forecasts for Selected Variables in the Current and Previous Surveys

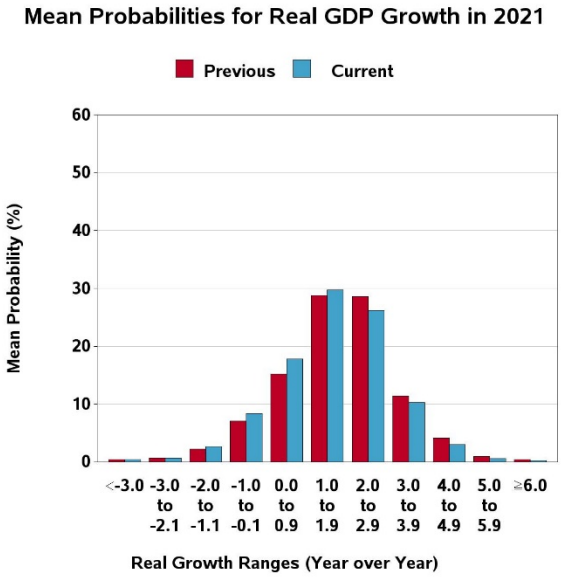
	Real GDP (%)		Unemployment Rate (%)		Payrolls (000s/month)	
	Previous	New	Previous	New	Previous	New
Quarterly data:						
2018:Q4	2.8	2.6	3.7	3.7	173.3	203.1
2019:Q1	2.5	2.4	3.7	3.7	161.5	172.4
2019:Q2	2.7	2.7	3.6	3.6	162.0	168.1
2019:Q3	2.6	2.4	3.6	3.6	150.1	159.7
2019:Q4	N.A.	2.2	N.A.	3.6	N.A.	142.9
Annual data (projections are based on annual-average levels):						
2018	2.8	2.9	3.9	3.9	194.8	198.5
2019	2.8	2.7	3.6	3.7	167.8	181.9
2020	1.8	2.1	3.7	3.8	N.A.	N.A.
2021	1.5	1.7	4.0	4.0	N.A.	N.A.

The charts below provide some insight into the degree of uncertainty the forecasters have about their projections for the rate of growth in the annual-average level of real GDP. Each chart presents the forecasters' previous and current estimates of the probability that growth will fall into each of 11 ranges. The charts show that the estimates of uncertainty about growth over the next four years have changed little from those in the previous survey.

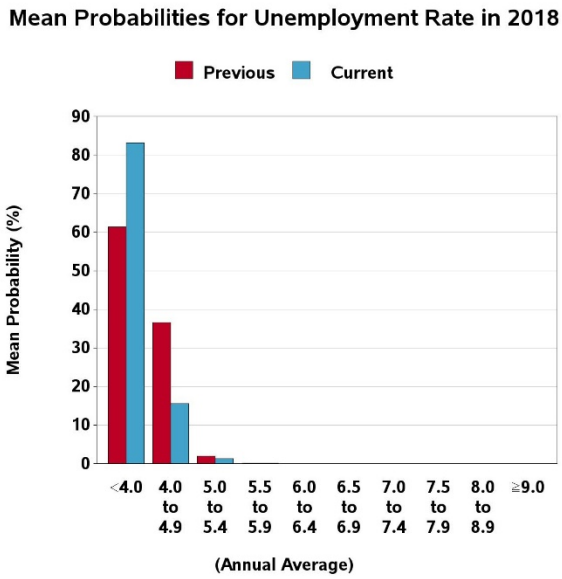


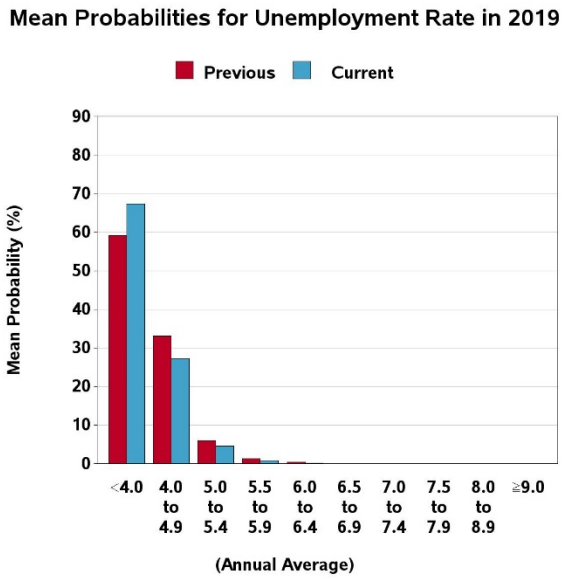


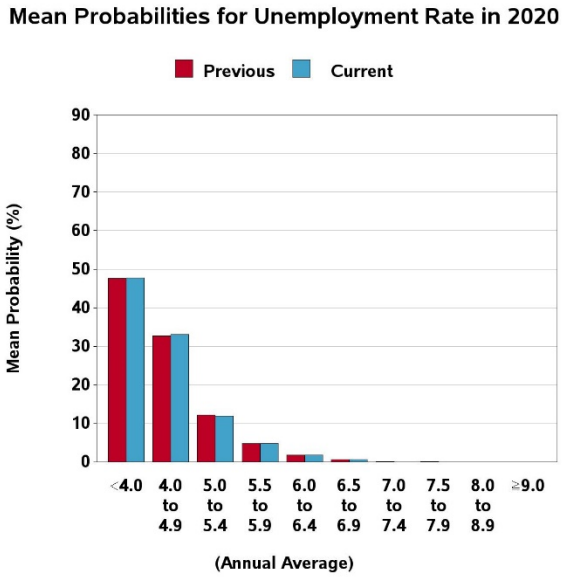


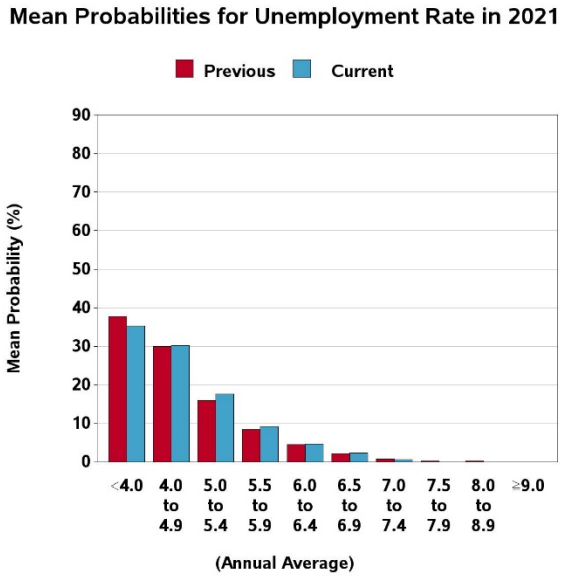


The forecasters' density projections for unemployment, shown below, shed light on uncertainty about the labor market over the next four years. Each chart presents the forecasters' current estimates of the probability that unemployment will fall into each of 10 ranges. The charts show the panelists are raising their density estimates for an unemployment rate below 4.0 percent in 2018 and 2019.









Inflation Projections Are Holding Steady

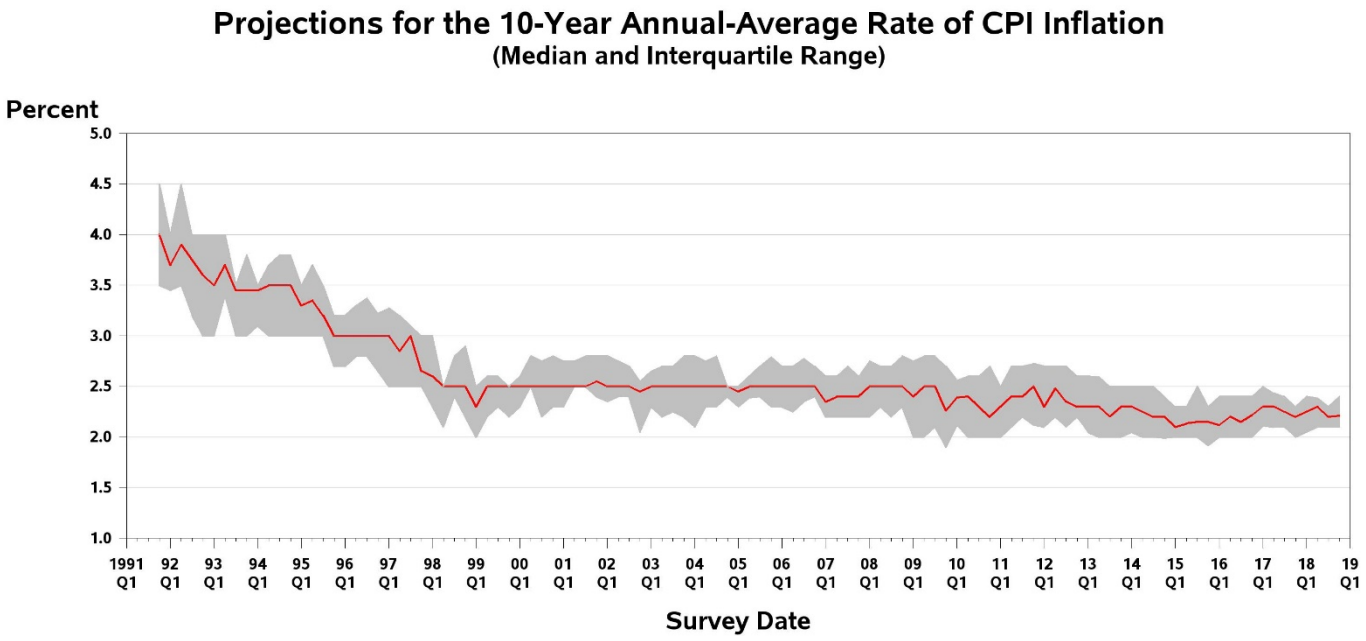
The current outlook for the headline and core measures of CPI and PCE inflation during the next two years remains mostly unchanged. Measured on a fourth-quarter over fourth-quarter basis, core CPI inflation is expected to average 2.2 percent for the current year and 2.4 percent for 2019 and 2020. The projections for core PCE inflation are 2.0 percent for 2018 and 2.1 percent for 2019 and 2020.

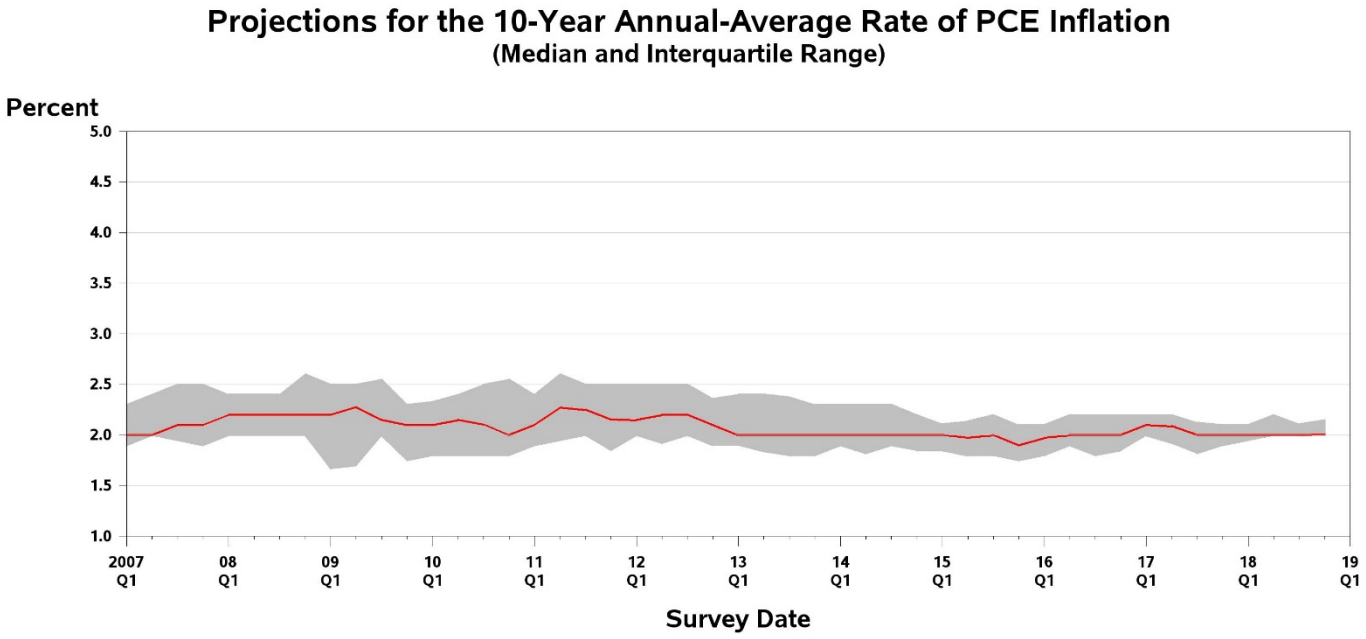
Over the next 10 years, 2018 to 2027, the forecasters expect headline CPI inflation to average 2.21 percent at an annual rate. The corresponding estimate for 10-year annual-average PCE inflation is 2.01 percent. These estimates have changed little from the forecasts of three months ago.

Median Short-Run and Long-Run Projections for Inflation (Annualized Percentage Points)

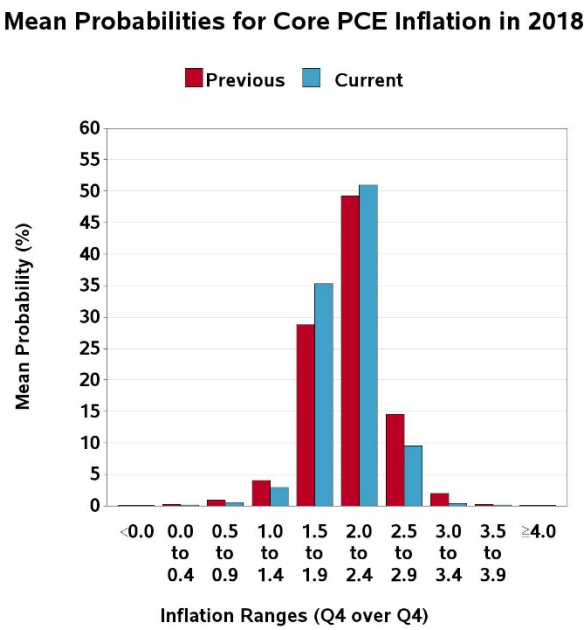
	Headline CPI		Core CPI		Headline PCE		Core PCE	
	Previous	Current	Previous	Current	Previous	Current	Previous	Current
Quarterly								
2018:Q4	2.3	2.3	2.3	2.1	2.1	2.2	2.0	2.0
2019:Q1	2.4	2.4	2.4	2.3	2.1	2.2	2.1	2.1
2019:Q2	2.1	2.3	2.4	2.3	2.0	2.1	2.1	2.1
2019:Q3	2.3	2.3	2.4	2.4	2.1	2.1	2.1	2.1
2019:Q4	N.A.	2.4	N.A.	2.4	N.A.	2.1	N.A.	2.1
Q4/Q4 Annual Averages								
2018	2.4	2.4	2.3	2.2	2.1	2.1	2.0	2.0
2019	2.3	2.3	2.4	2.4	2.1	2.1	2.1	2.1
2020	2.3	2.3	2.4	2.4	2.1	2.1	2.1	2.1
Long-Term Annual Averages								
2018-2022	2.22	2.25	N.A.	N.A.	2.04	2.10	N.A.	N.A.
2018-2027	2.20	2.21	N.A.	N.A.	2.00	2.01	N.A.	N.A.

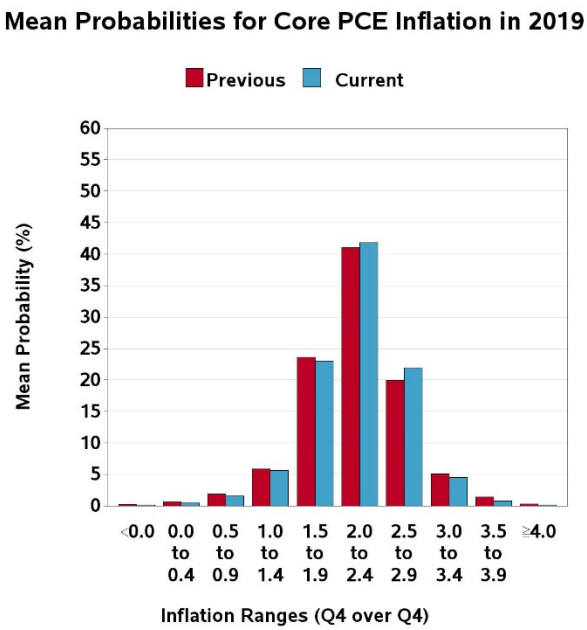
The charts below show the median projections (the red line) and the associated interquartile ranges (gray areas around the red line) for the projections for 10-year annual-average CPI and PCE inflation. The charts highlight the nearly unchanged projections for the long-term CPI and PCE inflation, compared with those of the previous survey.





The figures below show the probabilities that the forecasters are assigning to the possibility that fourth-quarter over fourth-quarter core PCE inflation in 2018 and 2019 will fall into each of 10 ranges. For both years, the estimates are about the same now as they were previously.





Low Risk of a Negative Quarter

The forecasters have revised downward the chance of a contraction in real GDP in any of the next four quarters. For the current quarter, the forecasters predict a 5.7 percent chance of negative growth, down from 10.5 percent in the survey of three months ago. The forecasters have also made downward revisions to their risk forecasts for the following three quarters.

Risk of a Negative Quarter (%)
Survey Means

Quarterly data:	Previous	New
2018:Q4	10.5	5.7
2019:Q1	13.2	10.6
2019:Q2	16.4	13.6
2019:Q3	19.6	19.1
2019:Q4	N.A.	22.8

Technical Notes

Moody's Aaa and Baa Historical Rates
The historical values of Moody's Aaa and Baa rates are proprietary and, therefore, not available in the data files on the Bank's website or on the tables that accompany the survey's complete write-up in the PDF.

The Federal Reserve Bank of Philadelphia thanks the following forecasters for their participation in recent surveys:

Lewis Alexander, Nomura Securities; **Scott Anderson**, Bank of the West (BNP Paribas Group); **Robert J. Barbera**, Johns Hopkins University Center for Financial Economics; **Peter Bernstein**, RCF Economic and Financial Consulting, Inc.; **Jay Bryson**, Wells Fargo; **Christine Chmura**, **Ph.D.**, and **Xiaobing Shuai**, **Ph.D.**, Chmura Economics & Analytics; **Gary Ciminero**, **CFA**, GLC Financial Economics; **Gregory Daco**, Oxford Economics USA, Inc.; **Rajeev Dhawan**, Georgia State University; **Bill Diviney**, ABN AMRO Bank NV; **Gabriel Ehrlich**, **Daniil Manaenkov**, **Owen Nie**, and **Aditi Thapar**, RSQE, University of Michigan; **Michael R. Englund**, Action Economics, LLC; **J.D. Foster**, U.S. Chamber of Commerce; **Michael Gapen**, Barclays Capital; **Sacha Gelfer**, Bentley University; **James Glassman**, JPMorgan Chase & Co.; **Jan Hatzius**, Goldman Sachs; **Keith Hembre**, Nuveen Asset Management; **Peter Hooper**, Deutsche Bank Securities, Inc.; **Sam Kahan**, Kahan Consulting Ltd. (ACT Research LLC); **N. Karp**, BBVA Research USA; **Walter Kemmsies**, Jones Lang LaSalle; **Jack Kleinhenz**, Kleinhenz & Associates, Inc.; **Thomas Lam**, Sim Kee Boon Institute, Singapore Management University; **L. Douglas Lee**, Economics from Washington; **John Lonski**, Moody's Capital Markets Group; **Macroeconomic Advisers**, **IHS Markit**; **Robert McNab**, Old Dominion University; **R. Anthony Metz**, Pareto Optimal Economics; **Michael Moran**, Daiwa Capital Markets America; **Joel L. Naroff**, Naroff Economic Advisors; **Mark Nielson, Ph.D.**, MacroEcon Global Advisors; **Luca Noto**, Anima Sgr; **Brendon Ogmundson**, BC Real Estate Association; **Arun Raha** and **Maira Trimble**, Eaton Corporation; **Philip Rothman**, East Carolina University; **Chris Rupkey**, MUFG Union Bank; **Sean M. Snaith**, **Ph.D.**, University of Central Florida; **Constantine G. Soras, Ph.D.**, CGS Economic Consulting/Montclair State University; **Stephen Stanley**, Amherst Pierpont Securities; **Charles Steindel**, Ramapo College of New Jersey; **Susan M. Sterne**, Economic Analysis Associates, Inc.; **James Sweeney**, Credit Suisse; **Thomas Kevin Swift**, American Chemistry Council; **Gary Wagner**, University of Louisiana at Lafayette; **Mark Zandi**, Moody's Analytics; **Ellen Zentner**, Morgan Stanley.

This is a partial list of participants. We also thank those who wish to remain anonymous.

SUMMARY TABLE
SURVEY OF PROFESSIONAL FORECASTERS
MAJOR MACROECONOMIC INDICATORS

	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2018	2019	2020	2021
						(YEAR-OVER-YEAR)			
PERCENT GROWTH AT ANNUAL RATES									
1. REAL GDP (BILLIONS, CHAIN WEIGHTED)	2.6	2.4	2.7	2.4	2.2	2.9	2.7	2.1	1.7
2. GDP PRICE INDEX (PERCENT CHANGE)	2.2	2.3	2.2	2.0	2.3	2.3	2.2	N.A.	N.A.
3. NOMINAL GDP ($ BILLIONS)	4.7	4.8	4.9	4.6	4.6	5.2	5.0	N.A.	N.A.
4. NONFARM PAYROLL EMPLOYMENT									
(PERCENT CHANGE)	1.6	1.4	1.3	1.3	1.1	1.6	1.5	N.A.	N.A.
(AVG MONTHLY CHANGE)	203.1	172.4	168.1	159.7	142.9	198.5	181.9	N.A.	N.A.
VARIABLES IN LEVELS									
5. UNEMPLOYMENT RATE (PERCENT)	3.7	3.7	3.6	3.6	3.6	3.9	3.7	3.8	4.0
6. 3-MONTH TREASURY BILL (PERCENT)	2.3	2.5	2.7	2.8	2.9	1.9	2.7	3.1	3.1
7. 10-YEAR TREASURY BOND (PERCENT)	3.2	3.3	3.4	3.5	3.5	2.9	3.4	3.6	3.7

	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2018	2019	2020
						(Q4-OVER-Q4)		
INFLATION INDICATORS								
8. CPI (ANNUAL RATE)	2.3	2.4	2.3	2.3	2.4	2.4	2.3	2.3
9. CORE CPI (ANNUAL RATE)	2.1	2.3	2.3	2.4	2.4	2.2	2.4	2.4
10. PCE (ANNUAL RATE)	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1
11. CORE PCE (ANNUAL RATE)	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1

Note: The figures on each line are medians of 37 forecasters.

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Fourth Quarter 2018.

SURVEY OF PROFESSIONAL FORECASTERS

Fourth Quarter 2018

Tables

Note: Data in these tables listed as "actual" are the data that were available to the forecasters when they were sent the survey questionnaire on October 26, 2018; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before November 6, 2018.

TABLE ONE
MAJOR MACROECONOMIC INDICATORS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL 2018 Q3	FORECAST 2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	ACTUAL 2017 ANNUAL	FORECAST 2018 ANNUAL	2019 ANNUAL	2020 ANNUAL	2021 ANNUAL
1. GROSS DOMESTIC PRODUCT (GDP) ($ BILLIONS)	34	20659	20900	21147	21399	21643	21887	19485	20504	21528	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	35	110.63	111.23	111.87	112.48	113.05	113.70	107.93	110.36	112.78	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES ($ BILLIONS)	23	N.A.	2076.2	2094.3	2113.6	2125.9	2138.2	1748.6	2019.0	2118.6	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	35	3.8	3.7	3.7	3.6	3.6	3.6	4.4	3.9	3.7	3.8	4.0
5. NONFARM PAYROLL EMPLOYMENT (THOUSANDS)	32	149321	149930	150447	150952	151431	151859	146624	149006	151189	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	31	108.2	108.9	109.5	110.1	110.8	111.3	103.7	107.6	110.5	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	32	1.22	1.26	1.27	1.28	1.29	1.30	1.21	1.26	1.29	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	34	2.04	2.31	2.49	2.70	2.82	2.90	0.93	1.94	2.73	3.10	3.11
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	23	N.A.	4.20	4.39	4.50	4.60	4.75	N.A.	3.94	4.55	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	23	N.A.	5.10	5.25	5.37	5.59	5.74	N.A.	4.79	5.46	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	36	2.93	3.18	3.29	3.40	3.50	3.50	2.33	2.95	3.40	3.60	3.70
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	35	18672	18792	18903	19028	19140	19245	18051	18575	19083	19477	19816
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	34	12968.5	13057.3	13136.3	13214.2	13289.6	13352.0	12558.7	12897.8	13246.0	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	32	2715.7	2755.2	2791.4	2821.7	2849.8	2878.6	2538.1	2708.7	2837.2	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	33	607.0	608.5	611.5	614.6	617.0	621.2	611.1	611.1	616.2	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	32	1234.1	1243.6	1252.6	1259.1	1266.5	1273.7	1196.4	1228.8	1263.1	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	33	1962.1	1969.5	1976.5	1983.1	1988.4	1994.7	1932.4	1954.0	1985.4	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	32	76.3	56.3	52.7	50.4	49.5	47.3	22.5	31.5	49.9	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	33	-939.0	-950.8	-962.5	-972.8	-984.8	-993.0	-858.7	-908.3	-979.4	N.A.	N.A.

* The historical values of Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE TWO
MAJOR MACROECONOMIC INDICATORS
PERCENTAGE CHANGES AT ANNUAL RATES

	NUMBER OF FORECASTERS	Q3 2018 TO Q4 2018	Q4 2018 TO Q1 2019	Q1 2019 TO Q2 2019	Q2 2019 TO Q3 2019	Q3 2019 TO Q4 2019	2017 TO 2018	2018 TO 2019	2019 TO 2020	2020 TO 2021
1. GROSS DOMESTIC PRODUCT (GDP) ($ BILLIONS)	34	4.7	4.8	4.9	4.6	4.6	5.2	5.0	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	35	2.2	2.3	2.2	2.0	2.3	2.3	2.2	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES ($ BILLIONS)	23	6.9	3.5	3.8	2.3	2.3	15.5	4.9	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	35	-0.1	-0.0	-0.0	0.0	-0.0	-0.5	-0.2	0.1	0.2
5. NONFARM PAYROLL EMPLOYMENT										
(PERCENT CHANGE)	32	1.6	1.4	1.3	1.3	1.1	1.6	1.5	N.A.	N.A.
(AVG MONTHLY CHANGE)	32	203.1	172.4	168.1	159.7	142.9	198.5	181.9	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	31	2.5	2.2	2.4	2.5	1.9	3.8	2.7	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	32	13.2	5.8	2.5	3.4	3.2	4.6	2.2	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	34	0.27	0.18	0.21	0.13	0.08	1.01	0.79	0.37	0.01
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	23	N.A.	0.19	0.11	0.10	0.15	N.A.	0.61	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	23	N.A.	0.15	0.12	0.22	0.15	N.A.	0.67	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	36	0.25	0.11	0.11	0.10	0.00	0.62	0.45	0.20	0.09
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	35	2.6	2.4	2.7	2.4	2.2	2.9	2.7	2.1	1.7
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	34	2.8	2.4	2.4	2.3	1.9	2.7	2.7	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	32	5.9	5.3	4.4	4.0	4.1	6.7	4.7	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	33	1.0	2.0	2.0	1.6	2.8	0.0	0.8	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	32	3.1	2.9	2.1	2.3	2.3	2.7	2.8	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	33	1.5	1.4	1.3	1.1	1.3	1.1	1.6	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	32	-20.0	-3.6	-2.3	-0.8	-2.2	9.0	18.4	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	33	-11.8	-11.7	-10.3	-12.0	-8.2	-49.6	-71.1	N.A.	N.A.

* The historical values of Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Note: Figures for unemployment rate, 3-month Treasury bill rate, Moody's Aaa corporate bond yield, Moody's Baa corporate bond yield, and 10-year Treasury bond yield are changes in these rates, in percentage points. Figures for change in private inventories and net exports are changes in billions of chain-weighted dollars. All others are percentage changes at annual rates.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE THREE
MAJOR PRICE INDICATORS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL	FORECAST(Q/Q)					ACTUAL	FORECAST(Q4/Q4)		
		2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2017 ANNUAL	2018 ANNUAL	2019 ANNUAL	2020 ANNUAL
1. CONSUMER PRICE INDEX (ANNUAL RATE)	34	2.0	2.3	2.4	2.3	2.3	2.4	2.1	2.4	2.3	2.3
2. CORE CONSUMER PRICE INDEX (ANNUAL RATE)	34	2.0	2.1	2.3	2.3	2.4	2.4	1.7	2.2	2.4	2.4
3. PCE PRICE INDEX (ANNUAL RATE)	33	1.6	2.2	2.2	2.1	2.1	2.1	1.8	2.1	2.1	2.1
4. CORE PCE PRICE INDEX (ANNUAL RATE)	33	1.6	2.0	2.1	2.1	2.1	2.1	1.6	2.0	2.1	2.1

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE FOUR
YIELD SPREADS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL	FORECAST					ACTUAL	FORECAST			
		2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2017 ANNUAL	2018 ANNUAL	2019 ANNUAL	2020 ANNUAL	2021 ANNUAL
1. TBOND MINUS TBILL (PERCENTAGE POINTS)	34	0.89	0.85	0.80	0.67	0.60	0.59	1.40	1.00	0.65	0.47	0.51
2. AAA MINUS TBOND (PERCENTAGE POINTS)	23	N.A.	1.00	1.01	1.03	1.02	1.06	N.A.	1.00	1.05	N.A.	N.A.
3. BAA MINUS TBOND (PERCENTAGE POINTS)	23	N.A.	1.91	1.95	1.98	2.00	2.02	N.A.	1.85	1.99	N.A.	N.A.
4. BAA MINUS AAA (PERCENTAGE POINTS)	22	N.A.	0.93	0.95	0.95	0.99	1.00	N.A.	0.85	0.96	N.A.	N.A.

Notes:

TBOND is the rate on 10-year Treasury bonds.
TBILL is the rate on 3-month Treasury bills.
AAA is the rate on Moody's Aaa corporate bonds.
BAA is the rate on Moody's Baa corporate bonds.

The historical values for interest rate spreads for Moody's Aaa and Baa rates are proprietary and therefore not available to the general public.

Each interest rate spread is computed as the median value of the forecasters' spreads. These median values may differ from those computed as the difference between the median values of each interest rate in the spread.

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE FIVE
ESTIMATED PROBABILITY OF DECLINE IN REAL GDP

ESTIMATED PROBABILITY (CHANCES IN 100)	Q3 2018 TO Q4 2018	Q4 2018 TO Q1 2019	Q1 2019 TO Q2 2019	Q2 2019 TO Q3 2019	Q3 2019 TO Q4 2019
	NUMBER OF FORECASTERS				
10 OR LESS	27	21	11	5	3
11 TO 20	4	10	18	16	13
21 TO 30	0	0	2	8	9
31 TO 40	0	0	0	2	6
41 TO 50	0	0	0	0	0
51 TO 60	0	0	0	0	0
61 TO 70	0	0	0	0	0
71 TO 80	0	0	0	0	0
81 TO 90	0	0	0	0	0
91 AND OVER	0	0	0	0	0
NOT REPORTING	6	6	6	6	6
MEAN AND MEDIAN					
MEDIAN PROBABILITY	5.00	10.00	15.00	20.00	20.00
MEAN PROBABILITY	5.66	10.60	13.62	19.09	22.79

Note: Total number of forecasters reporting is 31.

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE SIX
MEAN PROBABILITIES

MEAN PROBABILITY ATTACHED TO POSSIBLE
CIVILIAN UNEMPLOYMENT RATES:
(ANNUAL AVERAGE)

	2018	2019	2020	2021
9.0 PERCENT OR MORE	0.00	0.00	0.00	0.00
8.0 TO 8.9 PERCENT	0.00	0.00	0.00	0.04
7.5 TO 7.9 PERCENT	0.00	0.00	0.00	0.05
7.0 TO 7.4 PERCENT	0.00	0.00	0.03	0.65
6.5 TO 6.9 PERCENT	0.00	0.00	0.59	2.39
6.0 TO 6.4 PERCENT	0.03	0.10	1.84	4.64
5.5 TO 5.9 PERCENT	0.07	0.71	4.75	9.21
5.0 TO 5.4 PERCENT	1.28	4.56	11.88	17.60
4.0 TO 4.9 PERCENT	15.51	27.30	33.11	30.19
LESS THAN 4.0 PERCENT	83.11	67.32	47.80	35.23

MEAN PROBABILITY ATTACHED TO POSSIBLE
PERCENT CHANGES IN REAL GDP:
(ANNUAL-AVERAGE OVER ANNUAL-AVERAGE)

	2017-2018	2018-2019	2019-2020	2020-2021
6.0 PERCENT OR MORE	0.00	0.09	0.27	0.28
5.0 TO 5.9 PERCENT	0.10	0.51	0.61	0.61
4.0 TO 4.9 PERCENT	2.60	4.26	3.47	2.98
3.0 TO 3.9 PERCENT	35.41	21.84	11.36	10.25
2.0 TO 2.9 PERCENT	58.24	46.70	29.55	26.21
1.0 TO 1.9 PERCENT	3.05	17.51	29.21	29.71
0.0 TO 0.9 PERCENT	0.35	5.79	16.53	17.81
-1.0 TO -0.1 PERCENT	0.03	2.23	6.26	8.40
-2.0 TO -1.1 PERCENT	0.03	0.95	1.94	2.65
-3.0 TO -2.1 PERCENT	0.03	0.10	0.64	0.69
LESS THAN -3.0 PERCENT	0.16	0.03	0.15	0.39

MEAN PROBABILITY ATTACHED TO POSSIBLE
PERCENT CHANGES IN GDP PRICE INDEX:
(ANNUAL-AVERAGE OVER ANNUAL-AVERAGE)

	2017-2018	2018-2019
4.0 PERCENT OR MORE	0.00	0.23
3.5 TO 3.9 PERCENT	0.10	0.88
3.0 TO 3.4 PERCENT	1.11	5.06
2.5 TO 2.9 PERCENT	15.04	19.14
2.0 TO 2.4 PERCENT	66.11	44.26
1.5 TO 1.9 PERCENT	15.68	22.90
1.0 TO 1.4 PERCENT	1.53	5.39
0.5 TO 0.9 PERCENT	0.34	1.62
0.0 TO 0.4 PERCENT	0.07	0.39
LESS THAN 0.0 PERCENT	0.03	0.13

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE SEVEN
MEAN PROBABILITY OF CORE CPI AND CORE PCE INFLATION (Q4/Q4)

MEAN PROBABILITY ATTACHED TO CORE CPI INFLATION:

	17Q4 TO 18Q4	18Q4 TO 19Q4
4.0 PERCENT OR MORE	0.03	0.28
3.5 TO 3.9 PERCENT	0.13	1.70
3.0 TO 3.4 PERCENT	1.61	8.04
2.5 TO 2.9 PERCENT	18.70	31.71
2.0 TO 2.4 PERCENT	68.24	39.24
1.5 TO 1.9 PERCENT	9.66	14.44
1.0 TO 1.4 PERCENT	1.40	3.40
0.5 TO 0.9 PERCENT	0.19	0.90
0.0 TO 0.4 PERCENT	0.03	0.24
LESS THAN 0.0 PERCENT	0.00	0.06

MEAN PROBABILITY ATTACHED TO CORE PCE INFLATION:

	17Q4 TO 18Q4	18Q4 TO 19Q4
4.0 PERCENT OR MORE	0.03	0.14
3.5 TO 3.9 PERCENT	0.13	0.80
3.0 TO 3.4 PERCENT	0.40	4.55
2.5 TO 2.9 PERCENT	9.50	21.94
2.0 TO 2.4 PERCENT	50.95	41.86
1.5 TO 1.9 PERCENT	35.34	22.95
1.0 TO 1.4 PERCENT	2.91	5.63
0.5 TO 0.9 PERCENT	0.57	1.55
0.0 TO 0.4 PERCENT	0.13	0.44
LESS THAN 0.0 PERCENT	0.03	0.13

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Fourth Quarter 2018.

TABLE EIGHT
LONG-TERM (5-YEAR AND 10-YEAR) INFLATION FORECASTS

ANNUAL AVERAGE OVER THE NEXT 5 YEARS: 2018-2022

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.85	MINIMUM	1.80
LOWER QUARTILE	2.10	LOWER QUARTILE	1.92
MEDIAN	2.25	MEDIAN	2.10
UPPER QUARTILE	2.47	UPPER QUARTILE	2.17
MAXIMUM	2.90	MAXIMUM	2.90
MEAN	2.29	MEAN	2.10
STD. DEVIATION	0.24	STD. DEVIATION	0.23
N	31	N	31
MISSING	6	MISSING	6

ANNUAL AVERAGE OVER THE FOLLOWING 5 YEARS: 2023-2027

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.80	MINIMUM	1.70
LOWER QUARTILE	2.04	LOWER QUARTILE	1.98
MEDIAN	2.20	MEDIAN	2.02
UPPER QUARTILE	2.30	UPPER QUARTILE	2.20
MAXIMUM	2.53	MAXIMUM	2.64
MEAN	2.20	MEAN	2.07
STD. DEVIATION	0.20	STD. DEVIATION	0.20
N	30	N	30
MISSING	7	MISSING	7

ANNUAL AVERAGE OVER THE NEXT 10 YEARS: 2018-2027

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.84	MINIMUM	1.80
LOWER QUARTILE	2.10	LOWER QUARTILE	2.00
MEDIAN	2.21	MEDIAN	2.01
UPPER QUARTILE	2.40	UPPER QUARTILE	2.15
MAXIMUM	2.60	MAXIMUM	2.50
MEAN	2.24	MEAN	2.08
STD. DEVIATION	0.18	STD. DEVIATION	0.16
N	30	N	30
MISSING	7	MISSING	7

Note: The summary statistics for each forecast horizon are computed on a sample of panelists that may differ from one horizon to the next. The usual identity linking the 10-year horizon to the two underlying five-year horizons may not hold in the results.

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Fourth Quarter 2018.