SURVEY OF PROFESSIONAL FORECASTERS

Release Date: May 15, 2020

SECOND QUARTER 2020

Sharply Lower Growth in the Current Quarter, Followed by Recovery

With many economic activities halted because of the COVID-19 pandemic, the near-term outlook for the U.S. economy looks much weaker now than it did three months ago, according to 42 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters predict the economy will contract at an annual rate of 32.2 percent this quarter. However, the panel sees recovery over each of the next four quarters. On an annual-average over annual-average basis, the forecasters expect real GDP to decrease 5.6 percent this year but to recover and grow at an annual rate of between 2.2 percent to 4.1 percent over each of the following three years.

A sharp upward revision to the forecast for the unemployment rate accompanies the outlook for growth. The forecasters predict unemployment will be above 10.0 percent in each of the next three quarters. In the survey of three months ago, the unemployment rate was expected to stay below 4.0 percent in each of the same three quarters. On an annual-average basis, the panelists predict the unemployment rate will decline from 10.8 percent in 2020 to 5.1 percent in 2023.

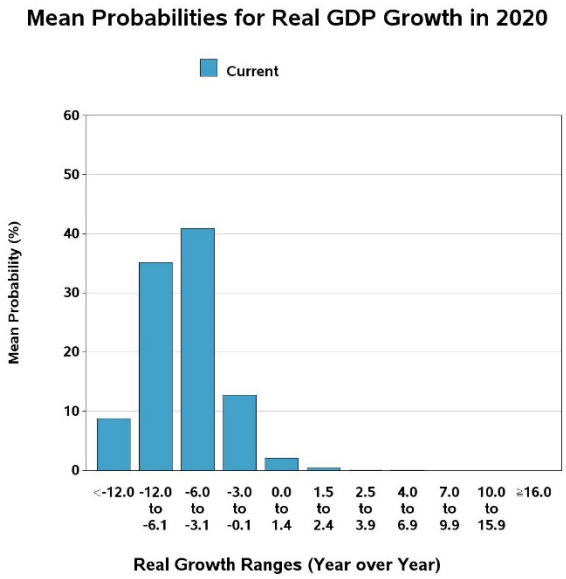
On the employment front, the forecasters see job losses in the current quarter at a rate of 7,647,800 per month. The recovery in the labor market will begin in the third quarter of 2020, with job gains of 2,328,900 per month. The projections for the annual-average level of nonfarm payroll employment suggest job losses at a monthly rate of 933,300 in 2020 and job gains at a monthly rate of 314,400 in 2021. (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.)

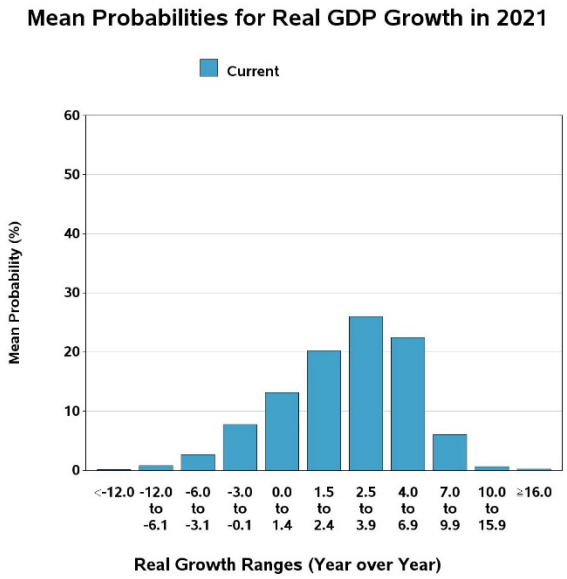
Median Forecasts for Selected Variables in the Current and Previous Surveys

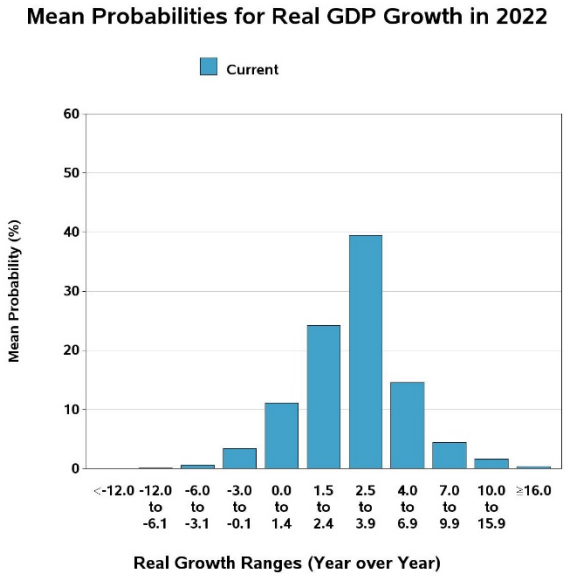
	Real GDP (%)		Unemployment Rate (%)		Payrolls (000s/month)	
	Previous	New	Previous	New	Previous	New
Quarterly data:						
2020:Q2	2.1	-32.2	3.5	16.1	168.6	-7,647.8
2020:Q3	2.0	10.6	3.5	12.9	132.8	2,328.9
2020:Q4	2.1	6.5	3.6	11.0	116.7	900.9
2021:Q1	2.2	6.8	3.6	9.3	114.5	514.9
2021:Q2	N.A.	4.1	N.A.	8.8	N.A.	739.1
Annual data (projections are based on annual-average levels):						
2020	2.0	-5.6	3.6	10.8	168.5	-933.3
2021	2.0	3.1	3.6	8.1	125.2	314.4
2022	2.0	4.1	3.7	6.2	N.A.	N.A.
2023	2.0	2.2	3.9	5.1	N.A.	N.A.

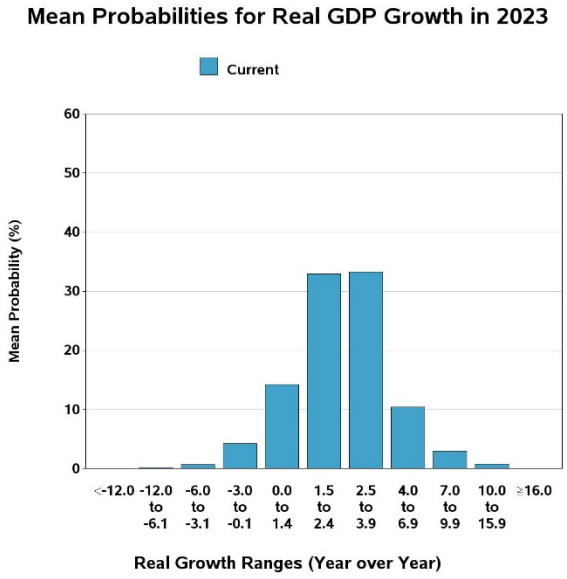
The charts below provide some insight into the degree of uncertainty the forecasters have about their projections for the rate of growth in the annual-average level of real GDP. Each chart presents the forecasters' current estimates of the probability that growth will fall into each of 11 ranges. Beginning with the 2020:Q2 survey, changes were made to the definition of the probability bins for real GDP growth over the next four years.

For 2020, the forecasters predict a less than 3 percent chance that year-over-year growth will be positive. For 2021, the forecasters see recovery and predict a near-90 percent chance that year-over-year growth will fall in the positive range. For 2022 and 2023, the economy is expected to strengthen further, and the forecasters predict a mid-90s percent chance of positive year-over-year growth in both years.



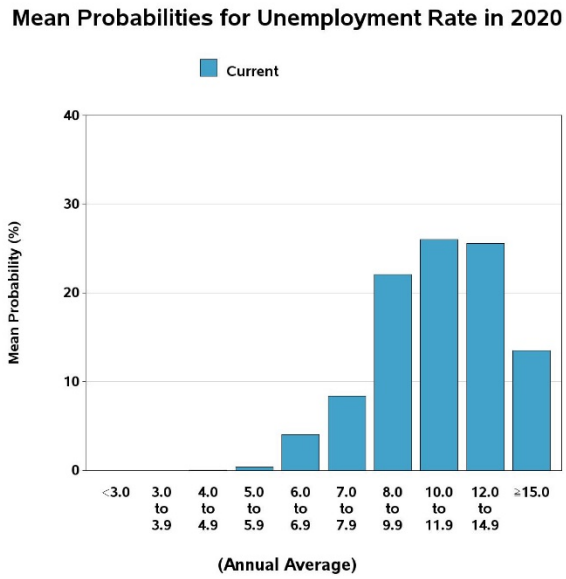


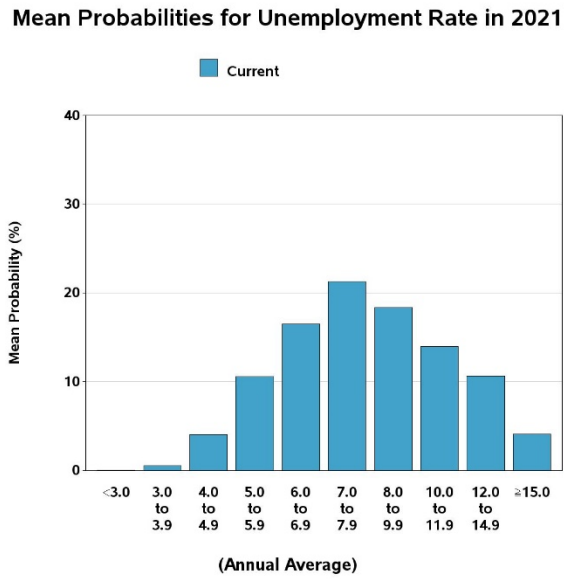


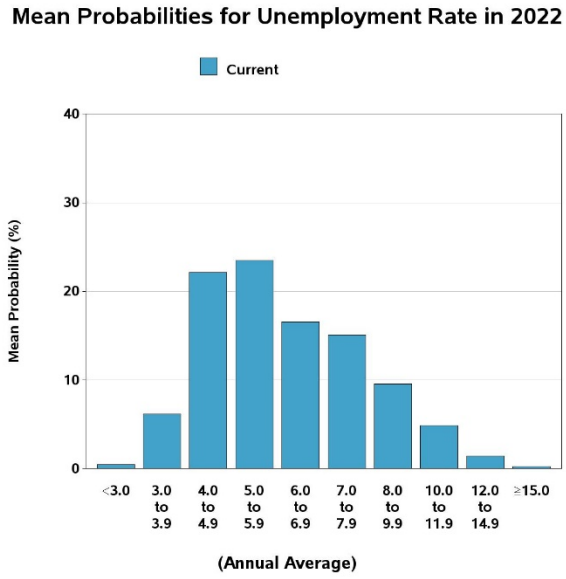


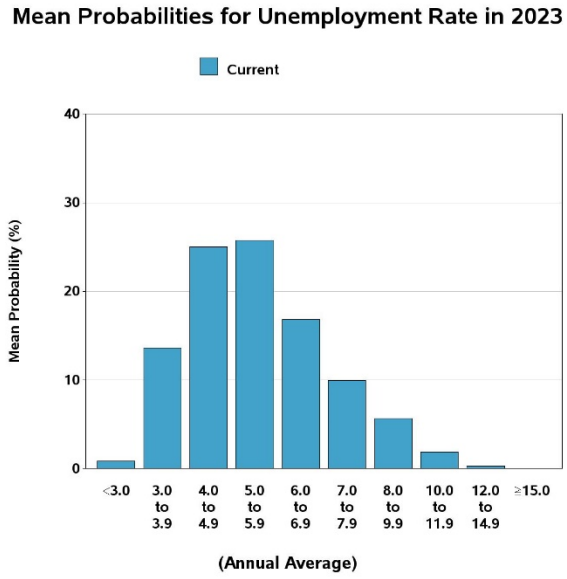
The forecasters' density projections for unemployment, shown below, shed light on uncertainty about the labor market over the next four years. Each chart presents the forecasters' current estimates of the probability that unemployment will fall into each of 10 ranges. Beginning with the 2020:Q2 survey, changes were made to the definition of the probability bins for the unemployment rate over the next four years.

For 2020, the forecasters predict a 65 percent chance that unemployment will be greater than or equal to 10.0 percent. For 2021, the forecasters see a 29 percent chance that unemployment will be in the same range. The forecasters see additional recovery in 2022 and 2023. They predict a 7 percent chance that unemployment will be greater than or equal to 10.0 percent in 2022 and a 2 percent chance in 2023 over the same range.









Downward Revisions to the Projections for Inflation at All Horizons

The forecasters predict lower inflation at all horizons for both the headline and core measures of CPI and PCE inflation than they predicted in the previous survey.

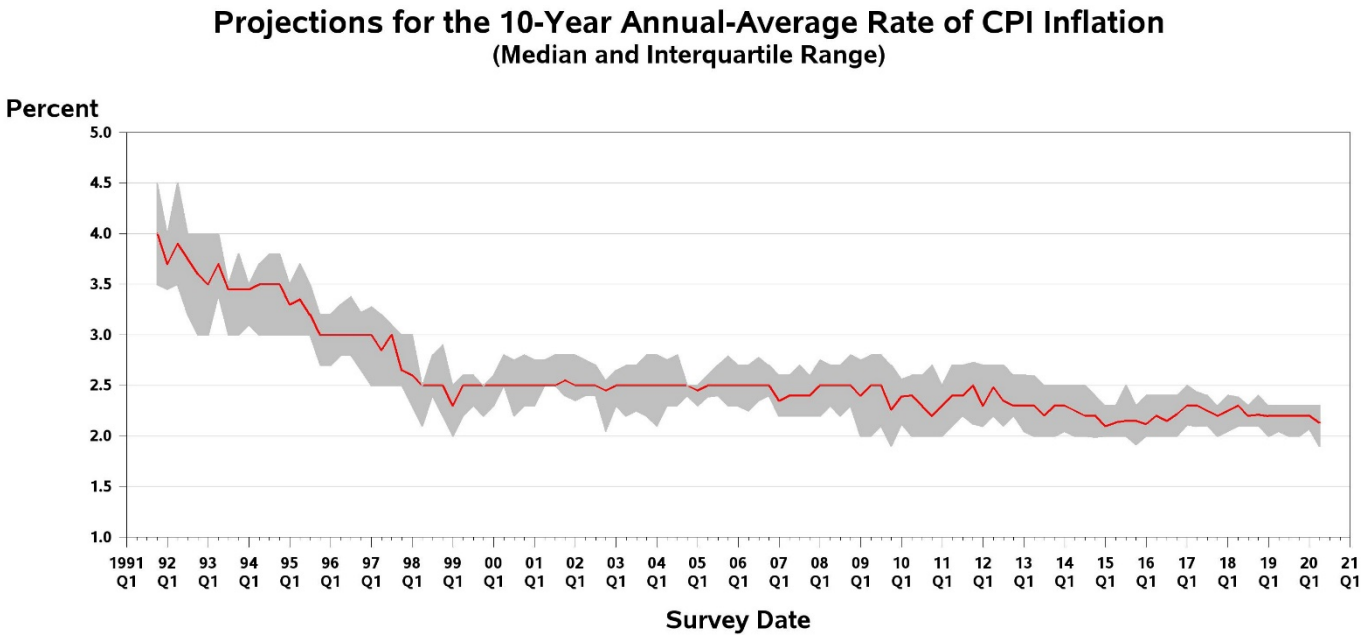
The forecasters expect headline CPI inflation in 2020 to average 0.5 percent, down from 2.0 percent in the last survey. Headline PCE inflation in 2020 will be 0.8 percent, down 1.1 percentage points from the previous estimate.

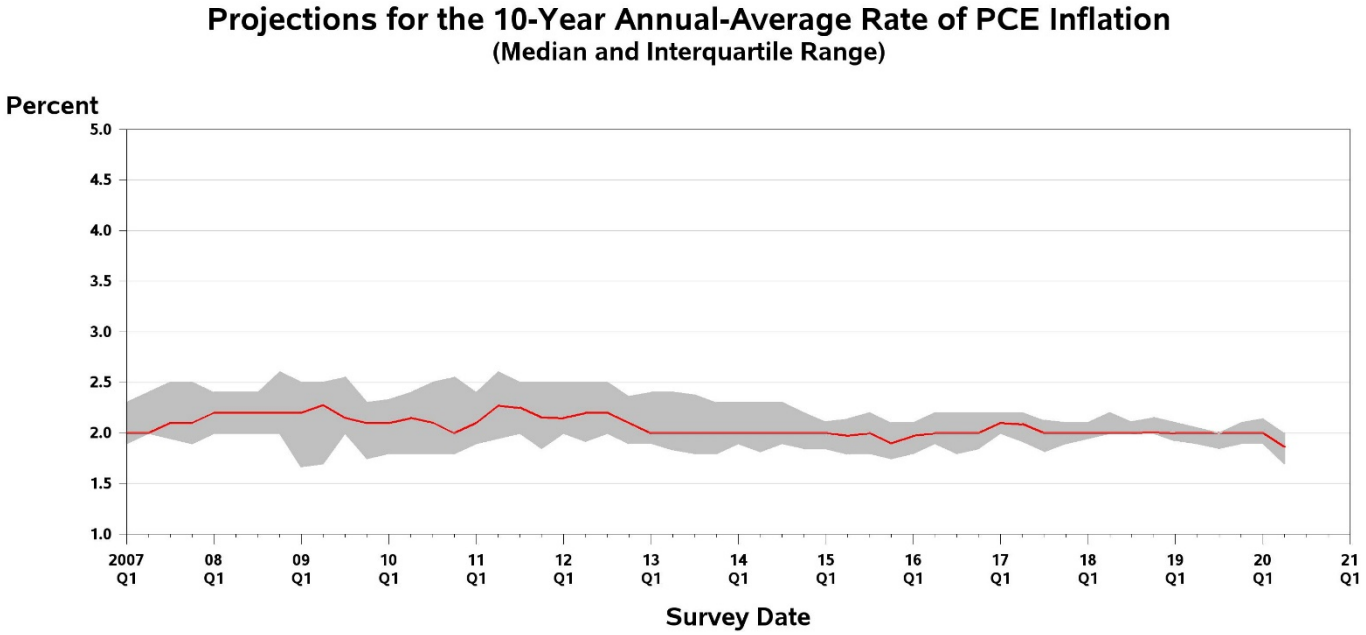
Over the next 10 years, 2020 to 2029, the forecasters expect headline CPI inflation to average 2.14 percent at an annual rate, down from 2.20 percent in the survey of three months ago. The corresponding estimate for 10-year annual-average PCE inflation is 1.87 percent, down from 2.00 percent in the last survey.

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

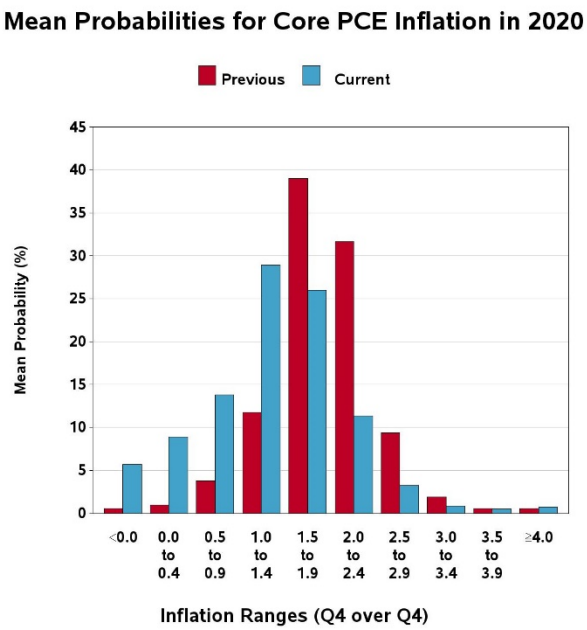
	Headline CPI		Core CPI		Headline PCE		Core PCE	
	Previous	Current	Previous	Current	Previous	Current	Previous	Current
Quarterly								
2020:Q2	2.0	-2.6	2.1	0.7	1.8	-1.5	1.9	1.0
2020:Q3	2.2	1.5	2.1	1.5	1.9	1.3	1.9	1.3
2020:Q4	2.2	1.9	2.2	1.6	2.0	1.6	1.9	1.4
2021:Q1	2.2	2.0	2.2	1.7	2.0	1.6	1.9	1.6
2021:Q2	N.A.	2.0	N.A.	1.8	N.A.	1.6	N.A.	1.7
Q4/Q4 Annual Averages								
2020	2.0	0.5	2.2	1.5	1.9	0.8	1.9	1.3
2021	2.2	1.9	2.1	1.8	2.0	1.7	1.9	1.6
2022	2.3	2.2	2.2	2.0	2.0	1.8	1.9	1.8
Long-Term Annual Averages								
2020-2024	2.20	2.00	N.A.	N.A.	2.00	1.70	N.A.	N.A.
2020-2029	2.20	2.14	N.A.	N.A.	2.00	1.87	N.A.	N.A.

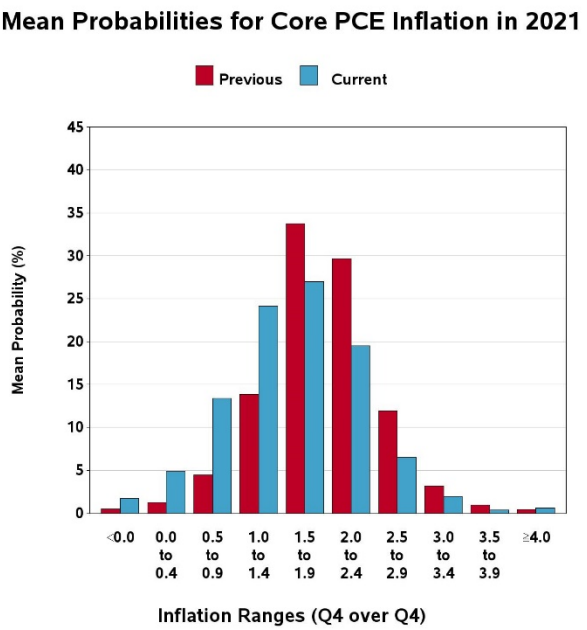
The charts below show the median projections (the red line) and the associated interquartile ranges (gray areas around the red line) for the projections for 10-year annual-average CPI and PCE inflation. The charts highlight lowered projections for the long-term inflation rate, compared with those of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





The figures below show the probabilities that the forecasters are assigning to each of 10 possible ranges for fourth-quarter over fourth-quarter core PCE inflation in 2020 and 2021. For both years, the forecasters have increased the probability that core PCE inflation will be below 1.5 percent.





Sharply Higher Risk of a Negative Quarter

The forecasters have revised upward the chance of a contraction in real GDP in any of the next three quarters. For the current quarter, the forecasters predict a 98.1 percent chance of negative growth, up from 14.9 percent in the survey of three months ago.

Risk of a Negative Quarter (%)
Survey Means

Quarterly data:	Previous	New
2020:Q2	14.9	98.1
2020:Q3	18.4	43.8
2020:Q4	21.3	27.2
2021:Q1	25.7	22.3
2021:Q2	N.A.	18.1

Technical Notes

New Probability Ranges
Beginning with the 2020:Q2 survey, changes were made to the definition of the probability bins for real GDP growth and the unemployment rate over the next four years.

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.; **Wayne Best** and **Michael Brown**, Visa, Inc.; **Jay Bryson**, Wells Fargo; **J. Burton**, **G. Ehrlich**, **D. Manaenkov**, **W. Song**, and **A. Thapar**, RSQE, University of Michigan; **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; **Michael R. Englund**, Action Economics, LLC; **Michael Gapen**, Barclays Capital; **Sacha Gelfer**, Bentley University; **James Glassman**, JPMorgan Chase & Co.; **Jan Hatzius**, Goldman Sachs; **Brian Higginbotham**, U.S. Chamber of Commerce; **Peter Hooper**, Deutsche Bank Securities, Inc.; **Fred Joutz**, Benchmark Forecasts; **Sam Kahan**, Kahan Consulting Ltd. (ACT Research LLC); **N. Karp**, BBVA Research USA; **Walter Kemmsies** and **Ryan Severino**, Jones Lang LaSalle; **Jack Kleinhenz**, Kleinhenz & Associates, Inc.; **Thomas Lam**, Sim Kee Boon Institute, Singapore Management University; **John Lonski**, Moody's Capital Markets Group; **IHS Markit**; **Robert McNab**, Old Dominion University; **R. Anthony Metz**, Pareto Optimal Economics; **R. M. Monaco**, TitanRM; **Michael Moran**, Daiwa Capital Markets America; **Joel L. Naroff**, Naroff Economic Advisors; **Mark Nielson, Ph.D.**, MacroEcon Global Advisors; **Brendon Ogmundson**, BC Real Estate Association; **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; **Maira Trimble**, Eaton Corporation; **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

	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2020	2021	2022	2023
						(YEAR-OVER-YEAR)			
PERCENT GROWTH AT ANNUAL RATES									
1. REAL GDP (BILLIONS, CHAIN WEIGHTED)	-32.2	10.6	6.5	6.8	4.1	-5.6	3.1	4.1	2.2
2. GDP PRICE INDEX (PERCENT CHANGE)	0.6	0.4	1.4	1.7	2.0	1.2	1.5	N.A.	N.A.
3. NOMINAL GDP ($ BILLIONS)	-31.3	13.1	7.1	6.6	5.6	-4.3	4.7	N.A.	N.A.
4. NONFARM PAYROLL EMPLOYMENT									
(PERCENT CHANGE)	-48.0	23.5	8.2	4.5	6.5	-7.4	2.7	N.A.	N.A.
(AVG MONTHLY CHANGE)	-7647.8	2328.9	900.9	514.9	739.1	-933.3	314.4	N.A.	N.A.
VARIABLES IN LEVELS									
5. UNEMPLOYMENT RATE (PERCENT)	16.1	12.9	11.0	9.3	8.8	10.8	8.1	6.2	5.1
6. 3-MONTH TREASURY BILL (PERCENT)	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.6	0.9
7. 10-YEAR TREASURY BOND (PERCENT)	0.7	0.8	0.8	1.0	1.1	0.9	1.2	1.7	2.0

	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2020	2021	2022
						(Q4-OVER-Q4)		
INFLATION INDICATORS								
8. CPI (ANNUAL RATE)	-2.6	1.5	1.9	2.0	2.0	0.5	1.9	2.2
9. CORE CPI (ANNUAL RATE)	0.7	1.5	1.6	1.7	1.8	1.5	1.8	2.0
10. PCE (ANNUAL RATE)	-1.5	1.3	1.6	1.6	1.6	0.8	1.7	1.8
11. CORE PCE (ANNUAL RATE)	1.0	1.3	1.4	1.6	1.7	1.3	1.6	1.8

Note: The figures on each line are medians of 42 forecasters.

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Second Quarter 2020.

SURVEY OF PROFESSIONAL FORECASTERS

Second Quarter 2020

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 April 29, 2020; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before May 12, 2020.

TABLE ONE
MAJOR MACROECONOMIC INDICATORS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL 2020 Q1	2020 Q2	FORECAST 2020 Q3	2020 Q4	2021 Q1	2021 Q2	ACTUAL 2019 ANNUAL	2020 ANNUAL	FORECAST 2021 ANNUAL	2022 ANNUAL	2023 ANNUAL
1. GROSS DOMESTIC PRODUCT (GDP) ($ BILLIONS)	41	21538	19611	20224	20574	20903	21191	21428	20497	21454	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	41	113.40	113.56	113.68	114.08	114.56	115.12	112.35	113.70	115.39	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES ($ BILLIONS)	27	N.A.	1569.6	1626.8	1678.7	1808.4	1848.7	1856.5	1661.2	1884.6	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	42	3.8	16.1	12.9	11.0	9.3	8.8	3.7	10.8	8.1	6.2	5.1
5. NONFARM PAYROLL EMPLOYMENT (THOUSANDS)	38	152162	129132	136119	138821	140366	142583	150935	139735	143509	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	33	107.5	96.3	99.1	101.6	103.0	104.1	109.5	101.0	104.4	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	36	1.47	0.95	0.99	1.11	1.21	1.24	1.30	1.13	1.25	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	39	1.11	0.13	0.13	0.15	0.18	0.19	2.06	0.38	0.22	0.60	0.93
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	28	N.A.	2.48	2.57	2.71	2.70	2.81	N.A.	2.68	2.87	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	27	N.A.	4.00	4.00	3.94	3.93	3.95	N.A.	3.97	3.99	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	41	1.38	0.67	0.75	0.80	0.95	1.10	2.14	0.90	1.21	1.71	2.05
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	40	18988	17229	17669	17949	18245	18429	19073	18005	18569	19323	19743
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	38	13153.0	11862.0	12303.7	12679.9	12771.3	12895.2	13280.1	12507.6	12965.5	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	37	2664.9	2393.7	2345.3	2374.5	2419.0	2434.6	2748.1	2441.9	2444.6	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	36	632.6	545.7	546.4	551.2	560.2	570.0	593.8	564.6	576.0	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	34	1300.6	1315.9	1327.5	1336.3	1339.4	1348.5	1275.6	1320.2	1353.7	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	36	2035.6	2034.4	2033.8	2040.4	2049.5	2046.9	2022.3	2036.7	2038.3	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	34	-16.3	-64.7	-90.1	-20.0	20.0	31.8	67.0	-68.3	38.5	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	35	-817.4	-733.7	-770.0	-790.0	-808.2	-830.8	-953.9	-784.7	-846.6	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, Second Quarter 2020.

TABLE TWO
MAJOR MACROECONOMIC INDICATORS
PERCENTAGE CHANGES AT ANNUAL RATES

	NUMBER OF FORECASTERS	Q1 2020 TO Q2 2020	Q2 2020 TO Q3 2020	Q3 2020 TO Q4 2020	Q4 2020 TO Q1 2021	Q1 2021 TO Q2 2021	2019 TO 2020	2020 TO 2021	2021 TO 2022	2022 TO 2023
1. GROSS DOMESTIC PRODUCT (GDP) ($ BILLIONS)	41	-31.3	13.1	7.1	6.6	5.6	-4.3	4.7	N.A.	N.A.
2. GDP PRICE INDEX (2012=100)	41	0.6	0.4	1.4	1.7	2.0	1.2	1.5	N.A.	N.A.
3. CORPORATE PROFITS AFTER TAXES ($ BILLIONS)	27	-40.9	15.4	13.4	34.7	9.2	-10.5	13.4	N.A.	N.A.
4. UNEMPLOYMENT RATE (PERCENT)	42	12.3	-3.2	-1.9	-1.7	-0.6	7.1	-2.7	-1.9	-1.1
5. NONFARM PAYROLL EMPLOYMENT										
(PERCENT CHANGE)	38	-48.0	23.5	8.2	4.5	6.5	-7.4	2.7	N.A.	N.A.
(AVG MONTHLY CHANGE)	38	-7647.8	2328.9	900.9	514.9	739.1	-933.3	314.4	N.A.	N.A.
6. INDUSTRIAL PRODUCTION (2012=100)	33	-35.7	12.3	10.5	5.5	4.4	-7.7	3.4	N.A.	N.A.
7. NEW PRIVATE HOUSING STARTS (ANNUAL RATE, MILLIONS)	36	-82.4	19.6	54.4	41.6	11.4	-13.1	10.9	N.A.	N.A.
8. 3-MONTH TREASURY BILL RATE (PERCENT)	39	-0.98	0.00	0.02	0.03	0.01	-1.68	-0.16	0.38	0.33
9. MOODY'S AAA CORP BOND YIELD * (PERCENT)	28	N.A.	0.09	0.14	-0.01	0.11	N.A.	0.19	N.A.	N.A.
10. MOODY'S BAA CORP BOND YIELD * (PERCENT)	27	N.A.	0.00	-0.06	-0.01	0.02	N.A.	0.02	N.A.	N.A.
11. 10-YEAR TREASURY BOND YIELD (PERCENT)	41	-0.71	0.08	0.05	0.15	0.15	-1.24	0.31	0.50	0.33
12. REAL GDP (BILLIONS, CHAIN WEIGHTED)	40	-32.2	10.6	6.5	6.8	4.1	-5.6	3.1	4.1	2.2
13. TOTAL CONSUMPTION EXPENDITURE (BILLIONS, CHAIN WEIGHTED)	38	-33.9	15.7	12.8	2.9	3.9	-5.8	3.7	N.A.	N.A.
14. NONRESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	37	-34.9	-7.9	5.1	7.7	2.6	-11.1	0.1	N.A.	N.A.
15. RESIDENTIAL FIXED INVESTMENT (BILLIONS, CHAIN WEIGHTED)	36	-44.6	0.5	3.5	6.7	7.2	-4.9	2.0	N.A.	N.A.
16. FEDERAL GOVERNMENT C & I (BILLIONS, CHAIN WEIGHTED)	34	4.8	3.6	2.7	0.9	2.7	3.5	2.5	N.A.	N.A.
17. STATE AND LOCAL GOVT C & I (BILLIONS, CHAIN WEIGHTED)	36	-0.2	-0.1	1.3	1.8	-0.5	0.7	0.1	N.A.	N.A.
18. CHANGE IN PRIVATE INVENTORIES (BILLIONS, CHAIN WEIGHTED)	34	-48.4	-25.4	70.1	40.0	11.8	-135.3	106.8	N.A.	N.A.
19. NET EXPORTS (BILLIONS, CHAIN WEIGHTED)	35	83.7	-36.3	-20.0	-18.2	-22.6	169.2	-62.0	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, Second Quarter 2020.

TABLE THREE
MAJOR PRICE INDICATORS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL 2020 Q1	FORECAST(Q/Q) 2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	ACTUAL 2019 ANNUAL	FORECAST(Q4/Q4) 2020 ANNUAL	2021 ANNUAL	2022 ANNUAL
1. CONSUMER PRICE INDEX (ANNUAL RATE)	40	1.2	-2.6	1.5	1.9	2.0	2.0	2.0	0.5	1.9	2.2
2. CORE CONSUMER PRICE INDEX (ANNUAL RATE)	39	2.0	0.7	1.5	1.6	1.7	1.8	2.3	1.5	1.8	2.0
3. PCE PRICE INDEX (ANNUAL RATE)	38	1.3	-1.5	1.3	1.6	1.6	1.6	1.4	0.8	1.7	1.8
4. CORE PCE PRICE INDEX (ANNUAL RATE)	39	1.8	1.0	1.3	1.4	1.6	1.7	1.6	1.3	1.6	1.8

Source: Research Department, Federal Reserve Bank of Philadelphia. Survey of Professional Forecasters, Second Quarter 2020.

TABLE FOUR
YIELD SPREADS
MEDIANS OF FORECASTER PREDICTIONS

	NUMBER OF FORECASTERS	ACTUAL 2020 Q1	2020 Q2	FORECAST 2020 Q3	2020 Q4	2021 Q1	2021 Q2	ACTUAL 2019 ANNUAL	2020 ANNUAL	FORECAST 2021 ANNUAL	2022 ANNUAL	2023 ANNUAL
1. TBOND MINUS TBILL (PERCENTAGE POINTS)	38	0.27	0.55	0.60	0.60	0.72	0.80	0.08	0.51	0.90	0.96	0.94
2. AAA MINUS TBOND (PERCENTAGE POINTS)	28	N.A.	1.79	1.76	1.71	1.60	1.54	N.A.	1.70	1.57	N.A.	N.A.
3. BAA MINUS TBOND (PERCENTAGE POINTS)	27	N.A.	3.29	3.10	2.98	2.80	2.68	N.A.	2.91	2.64	N.A.	N.A.
4. BAA MINUS AAA (PERCENTAGE POINTS)	26	N.A.	1.50	1.35	1.22	1.13	1.15	N.A.	1.25	1.11	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, Second Quarter 2020.

TABLE FIVE
ESTIMATED PROBABILITY OF DECLINE IN REAL GDP

ESTIMATED PROBABILITY (CHANCES IN 100)	Q1 2020 TO Q2 2020	Q2 2020 TO Q3 2020	Q3 2020 TO Q4 2020	Q4 2020 TO Q1 2021	Q1 2021 TO Q2 2021
	NUMBER OF FORECASTERS				
10 OR LESS	0	4	7	9	13
11 TO 20	0	5	8	11	13
21 TO 30	0	6	10	7	5
31 TO 40	0	4	5	7	3
41 TO 50	0	6	2	0	0
51 TO 60	1	1	1	0	0
61 TO 70	0	2	1	1	1
71 TO 80	0	1	1	0	0
81 TO 90	1	4	0	0	0
91 AND OVER	33	2	0	0	0
NOT REPORTING	7	7	7	7	7
MEAN AND MEDIAN					
MEDIAN PROBABILITY	100.0	40.00	25.00	20.00	15.00
MEAN PROBABILITY	98.11	43.77	27.15	22.31	18.14

Note: Total number of forecasters reporting is 35.

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Second Quarter 2020.

TABLE SIX
MEAN PROBABILITIES

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

	2020	2021	2022	2023
15.0 PERCENT OR MORE	13.52	4.09	0.25	0.00
12.0 TO 14.9 PERCENT	25.56	10.62	1.41	0.31
10.0 TO 11.9 PERCENT	26.00	13.94	4.86	1.89
8.0 TO 9.9 PERCENT	22.08	18.37	9.55	5.67
7.0 TO 7.9 PERCENT	8.40	21.28	15.10	9.96
6.0 TO 6.9 PERCENT	4.03	16.50	16.57	16.86
5.0 TO 5.9 PERCENT	0.37	10.60	23.47	25.76
4.0 TO 4.9 PERCENT	0.03	4.05	22.13	25.02
3.0 TO 3.9 PERCENT	0.00	0.53	6.19	13.63
LESS THAN 3.0 PERCENT	0.00	0.03	0.48	0.89

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

	2019-2020	2020-2021	2021-2022	2022-2023
16.0 PERCENT OR MORE	0.00	0.18	0.40	0.00
10.0 TO 15.9 PERCENT	0.00	0.65	1.62	0.79
7.0 TO 9.9 PERCENT	0.00	6.05	4.41	3.01
4.0 TO 6.9 PERCENT	0.01	22.46	14.61	10.43
2.5 TO 3.9 PERCENT	0.02	26.05	39.48	33.30
1.5 TO 2.4 PERCENT	0.41	20.15	24.26	32.94
0.0 TO 1.4 PERCENT	2.04	13.15	11.09	14.26
-3.0 TO -0.1 PERCENT	12.71	7.77	3.39	4.27
-6.0 TO -3.1 PERCENT	40.91	2.64	0.65	0.74
-12.0 TO -6.1 PERCENT	35.19	0.79	0.09	0.21
LESS THAN -12.0 PERCENT	8.72	0.12	0.00	0.05

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

	2019-2020	2020-2021
4.0 PERCENT OR MORE	0.11	0.22
3.5 TO 3.9 PERCENT	0.20	0.38
3.0 TO 3.4 PERCENT	0.52	1.37
2.5 TO 2.9 PERCENT	2.27	5.78
2.0 TO 2.4 PERCENT	7.65	17.44
1.5 TO 1.9 PERCENT	23.45	26.84
1.0 TO 1.4 PERCENT	34.78	27.65
0.5 TO 0.9 PERCENT	18.37	12.48
0.0 TO 0.4 PERCENT	8.12	5.04
LESS THAN 0.0 PERCENT	4.53	2.80

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Second Quarter 2020.

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

MEAN PROBABILITY ATTACHED TO CORE CPI INFLATION:

	19Q4 TO 20Q4	20Q4 TO 21Q4
4.0 PERCENT OR MORE	0.63	0.66
3.5 TO 3.9 PERCENT	0.30	0.42
3.0 TO 3.4 PERCENT	0.86	2.37
2.5 TO 2.9 PERCENT	4.89	7.66
2.0 TO 2.4 PERCENT	16.56	20.39
1.5 TO 1.9 PERCENT	25.50	31.44
1.0 TO 1.4 PERCENT	24.68	20.57
0.5 TO 0.9 PERCENT	13.53	9.24
0.0 TO 0.4 PERCENT	5.88	4.37
LESS THAN 0.0 PERCENT	7.16	2.88

MEAN PROBABILITY ATTACHED TO CORE PCE INFLATION:

	19Q4 TO 20Q4	20Q4 TO 21Q4
4.0 PERCENT OR MORE	0.74	0.60
3.5 TO 3.9 PERCENT	0.49	0.38
3.0 TO 3.4 PERCENT	0.86	1.97
2.5 TO 2.9 PERCENT	3.26	6.48
2.0 TO 2.4 PERCENT	11.34	19.51
1.5 TO 1.9 PERCENT	25.99	27.01
1.0 TO 1.4 PERCENT	28.93	24.13
0.5 TO 0.9 PERCENT	13.78	13.37
0.0 TO 0.4 PERCENT	8.92	4.85
LESS THAN 0.0 PERCENT	5.70	1.70

Source: Research Department, Federal Reserve Bank of Philadelphia.
Survey of Professional Forecasters, Second Quarter 2020.

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

ANNUAL AVERAGE OVER THE NEXT 5 YEARS: 2020-2024

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	0.90	MINIMUM	0.87
LOWER QUARTILE	1.70	LOWER QUARTILE	1.50
MEDIAN	2.00	MEDIAN	1.70
UPPER QUARTILE	2.20	UPPER QUARTILE	1.90
MAXIMUM	2.40	MAXIMUM	2.20
MEAN	1.88	MEAN	1.67
STD. DEVIATION	0.38	STD. DEVIATION	0.31
N	34	N	34
MISSING	8	MISSING	8

ANNUAL AVERAGE OVER THE FOLLOWING 5 YEARS: 2025-2029

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.56	MINIMUM	1.00
LOWER QUARTILE	2.00	LOWER QUARTILE	1.96
MEDIAN	2.20	MEDIAN	2.00
UPPER QUARTILE	2.60	UPPER QUARTILE	2.13
MAXIMUM	3.61	MAXIMUM	3.41
MEAN	2.32	MEAN	2.06
STD. DEVIATION	0.42	STD. DEVIATION	0.44
N	34	N	34
MISSING	8	MISSING	8

ANNUAL AVERAGE OVER THE NEXT 10 YEARS: 2020-2029

CPI INFLATION RATE		PCE INFLATION RATE	
MINIMUM	1.44	MINIMUM	1.20
LOWER QUARTILE	1.90	LOWER QUARTILE	1.70
MEDIAN	2.14	MEDIAN	1.87
UPPER QUARTILE	2.30	UPPER QUARTILE	2.00
MAXIMUM	2.80	MAXIMUM	2.60
MEAN	2.10	MEAN	1.87
STD. DEVIATION	0.29	STD. DEVIATION	0.27
N	34	N	34
MISSING	8	MISSING	8

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, Second Quarter 2020.

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