



THE

LIVINGSTON SURVEY

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DECEMBER 2016

Forecasters Strengthen Their Predictions for Output Growth and Predict Declining Unemployment for 2017

The 28 participants in the December *Livingston Survey* predict robust output growth over the second half of 2016. The forecasters, who are surveyed by the Federal Reserve Bank of Philadelphia twice a year, project that real GDP will grow at an annual rate of 2.7 percent in the second half of 2016. They see growth of 2.2 percent (annual rate) in the first half of 2017 and 2.4 percent (annual rate) in the second half of 2017. These projections mark upward revisions over those of the June survey.

The forecasters revised their predictions upward for the unemployment rate in December 2016 (but note that the forecasts were submitted before the December 2, 2016, employment report). The unemployment rate is now predicted to be 4.9 percent in December 2016 and 4.7 percent in June 2017. The unemployment rate is expected to be 4.6 percent in December 2017.

	<i>Growth Rate of Real GDP (%)</i>			<i>Unemployment Rate (%)</i>	
	<i>Previous</i>	<i>New</i>		<i>Previous</i>	<i>New</i>
<i>Half-year data:</i>					
2016 Q2 to 2016 Q4	2.4	2.7	December 2016	4.7	4.9
2016 Q4 to 2017 Q2	2.1	2.2	June 2017	4.7	4.7
2017 Q2 to 2017 Q4	N.A.	2.4	December 2017	N.A.	4.6

Forecasters See Stronger Growth for CPI and PPI Inflation in 2017

On an annual-average over annual-average basis, CPI inflation is expected to be 1.3 percent in 2016 and 2.4 percent in 2017. The 2016 projection remains unchanged from that of the June survey, while the 2017 projection is up 0.3 percentage point. CPI inflation is expected to rise to 2.5 percent in 2018. PPI inflation is expected to be -1.0 percent in 2016 and 2.7 percent in 2017. Both the 2016 and 2017 projections for PPI inflation are up 0.4 percentage point from the estimates of six months ago. PPI inflation is expected to be 2.1 percent in 2018.

	<i>CPI Inflation (%)</i>		<i>PPI Inflation (%)</i>	
	<i>Previous</i>	<i>New</i>	<i>Previous</i>	<i>New</i>
<i>Annual-average data:</i>				
2015 to 2016	1.3	1.3	-1.4	-1.0
2016 to 2017	2.1	2.4	2.3	2.7
2017 to 2018	N.A.	2.5	N.A.	2.1

RESEARCH DEPARTMENT FEDERAL RESERVE BANK OF PHILADELPHIA

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Short-Term Interest Rates Are Revised Downward, While Long-Term Rates Are Revised Upward

The panelists have reduced their forecasts for the interest rates on three-month Treasury bills while increasing their forecasts for 10-year Treasury bonds compared with their projections of six months ago. At the end of December 2016, the interest rate on three-month Treasury bills is predicted to be 0.55 percent, revised down from 0.75 percent. The forecasters predict that the three-month Treasury bill rate will be 0.83 percent at the end of June 2017 and 1.12 percent in December 2017. The rate is expected to rise to 2.00 percent in 2018. The interest rate on 10-year Treasury bonds is predicted to be 2.30 percent at the end of December 2016, up from the previous estimate of 2.25 percent. Additionally, forecasters predict the 10-year rate will be 2.50 percent at the end of June 2017 and 2.75 percent in December 2017. The forecasters expect the rate to be 3.35 percent in 2018.

	<i>3-Month Treasury Bill Interest Rate</i>		<i>10-Year Treasury Bond Interest Rate</i>	
	<i>Previous</i>	<i>New</i>	<i>Previous</i>	<i>New</i>
Dec. 30, 2016	0.75	0.55	2.25	2.30
Jun. 30, 2017	1.12	0.83	2.45	2.50
Dec. 29, 2017	1.55	1.12	2.60	2.75
Dec. 31, 2018	N.A.	2.00	N.A.	3.35

Slightly Higher Outlook for Long-Term Inflation Accompanies a Steady Outlook for Long-Term Output Growth

The forecasters now predict that inflation (measured by the CPI) will be 2.30 percent annually over the next 10 years, which is slightly higher than the forecast of 2.25 percent in the survey of six months ago. The forecasters peg real GDP growth at 2.20 percent on an annual basis over the next 10 years, unchanged from the last survey.

Forecasters Strengthen Their Predictions for Stock Prices

The forecasters predict the S&P 500 index will finish 2016 at a level of 2200.0, an upward revision from the estimate of 2140.0 in the June 2016 survey. They also see stock prices increasing over the next two years, with the index rising to 2254.8 by the end of June 2017, to 2314.5 by the end of 2017, and then to 2400.0 by the end of 2018.

	<i>Stock Prices (end of period) S&P 500 Index</i>	
	<i>Previous</i>	<i>New</i>
Dec. 30, 2016	2140.0	2200.0
Jun. 30, 2017	2167.8	2254.8
Dec. 29, 2017	2200.6	2314.5
Dec. 31, 2018	N.A.	2400.0

Technical Notes

This news release reports the median value across the 28 forecasters on the survey's panel. All forecasts were submitted before the December 2, 2016, employment report.

The Philadelphia Fed's *Livingston Survey* is the oldest survey of economists' expectations. The survey was started in 1946 by the late columnist Joseph A. Livingston. It summarizes the forecast of economists from industry, government, banking and academia. It is published twice a year, in June and December.

To subscribe to the survey, go to <https://www.philadelphiafed.org/notifications>.

Livingston Survey Participants

S. Anderson	Bank of the West	J. Lonski	Moody's Capital Markets Group
J. Butkiewicz	University of Delaware	D. Manaenkov	RSQE (University of Michigan)
R. Chase	Economic & Policy Resources, Inc.	G. Mokrzan	Huntington National Bank
C. Chrappa	Independent Equipment Company	M. Moran	Daiwa Capital Markets America
R. Dietz	National Association of Home Builders	F. Nothaft	CoreLogic
R. Dhawan	Georgia State University	M. Regalia	U.S. Chamber of Commerce
M. Englund	Action Economics, LLC	C. Rupkey	MUFG Union Bank, N.A.
J. Foster	U.S. Chamber of Commerce	J. Silvia	Wells Fargo Securities, LLC
P. Hooper	Deutsche Bank Securities Inc.	J. Smith	Parsec Financial Management, Inc.
K. Goldstein/B. Ark	Conference Board	S. Snaith	University of Central Florida
B. Horrigan	Loomis, Sayles & Co.	S. Stanley	Amherst Pierpont Securities
S. Kahan	Kahan Consulting Ltd.	D. Torgerson	USDA Retired Economist
D. Knop	Independent Economist	B. Wesbury/R. Stein	First Trust Advisors, L.P.
T. Lam	RHB Securities Singapore Pte. Ltd.	R. Yamarone	Bloomberg LP
E. Leamer/D. Shulman	University of California, Los Angeles	L. Yun/D. Hale	National Association of Realtors

LIVINGSTON SURVEY
MAJOR MACROECONOMIC INDICATORS, 2016-2018

QUARTERLY INDICATORS (percentage changes at annual rates)	Q2 2016 TO Q4 2016	Q4 2016 TO Q2 2017	Q2 2017 TO Q4 2017	2015 TO 2016	2016 TO 2017	2017 TO 2018
Real Gross Domestic Product	2.7	2.2	2.4	1.6	2.3	2.4
Nominal Gross Domestic Product	4.5	4.2	4.3	2.9	4.2	4.5
Nonresidential Fixed Investment	1.8	3.2	3.7	-0.5	2.6	4.1
Corporate Profits After Taxes	12.9	4.1	2.8	-0.9	6.3	2.2
MONTHLY INDICATORS (percentage changes at annual rates)	JUN 2016 TO DEC 2016	DEC 2016 TO JUN 2017	JUN 2017 TO DEC 2017	2015 TO 2016	2016 TO 2017	2017 TO 2018
Industrial Production	0.7	1.7	2.1	-0.9	1.5	2.1
Producer Prices - Finished Goods	1.4	2.6	1.8	-1.0	2.7	2.1
Consumer Price Index (CPI-U)	2.2	2.3	2.4	1.3	2.4	2.5
Average Weekly Earnings in Mfg.	3.4	2.4	2.5	2.8	2.5	3.7
Retail Trade	4.6	3.0	3.8	2.9	4.4	4.7
(levels of variables)	DEC 2016	JUN 2017	DEC 2017	2016	2017	2018
Total Private Housing Starts (annual rate, millions)	1.215	1.247	1.286	1.169	1.256	1.316
Unemployment Rate (percent)	4.9	4.7	4.6	4.9	4.7	4.6
Automobile Sales (incl. foreign) (annual rate, millions)	6.8	6.8	6.9	6.9	6.9	7.0
FINANCIAL INDICATORS (levels of variables at end of month)	DEC 2016	JUN 2017	DEC 2017	DEC 2018		
Prime Interest Rate	3.75	4.00	4.25	5.13		
10-Year Treasury Note Yield	2.30	2.50	2.75	3.35		
3-Month Treasury Bill Rate	0.55	0.83	1.12	2.00		
Stock Prices (S&P500)	2200.0	2254.8	2314.5	2400.0		

LONG-TERM OUTLOOK
Average Annual Growth Rate for the Next Ten Years

Real GDP	2.20
Consumer Price Index	2.30

Source: Research Department, Federal Reserve Bank of Philadelphia, Livingston Survey, December 2016

LIVINGSTON SURVEY

December 2016

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 November 18; the tables do not reflect subsequent revisions to the data. All forecasts were received on or before December 1.

TABLE ONE
MAJOR MACROECONOMIC INDICATORS, 2016-2018
MEDIAN OF FORECASTER PREDICTIONS

QUARTERLY INDICATORS	NUMBER OF FORE- CASTERS	ACTUAL				FORECASTS			
		2016 Q2	2016 Q4	2017 Q2	2017 Q4	2015	2016	2017	2018
1. Real Gross Domestic Product (billions, chain weighted)	27	16583.1	16801.8	16985.2	17192.0	16397.2	16654.3	17044.0	17451.5
2. Nominal Gross Domestic Product (\$ billions)	28	18450.1	18858.6	19249.6	19655.3	18036.7	18562.1	19340.0	20213.5
3. Nonresidential Fixed Investment (billions, chain weighted)	25	2185.0	2204.9	2240.3	2281.0	2200.2	2189.8	2246.0	2337.2
4. Corporate Profits After Taxes (\$ billions)	19	1477.1	1569.8	1602.0	1623.9	1534.3	1520.0	1615.0	1650.5
MONTHLY INDICATORS		ACTUAL		FORECASTS		ACTUAL	2016	FORECASTS	2018
		JUN 2016	DEC 2016	JUN 2017	DEC 2017	2015		2017	
5. Industrial Production (2012=100)	24	104.2	104.6	105.5	106.6	105.2	104.2	105.7	108.0
6. Total Private Housing Starts (annual rate, millions)	25	1.195	1.215	1.247	1.286	1.108	1.169	1.256	1.316
7. Producer Prices - Finished Goods (index level)	17	192.8	194.1	196.6	198.3	193.8	191.8	196.9	201.1
8. Consumer Price Index (CPI-U) (index level)	26	239.9	242.6	245.4	248.3	237.0	240.0	245.8	251.9
9. Unemployment Rate (percent)	26	4.9	4.9	4.7	4.6	5.3	4.9	4.7	4.6
10. Average Weekly Earnings in Mfg. (\$)	10	854.8	869.0	879.3	890.1	832.4	855.5	877.1	909.2
11. Retail Trade (\$ billions)	14	457.4	467.7	474.7	483.7	444.0	457.0	476.9	499.1
12. Automobile Sales (incl. foreign) (annual rate, millions)	17	6.6	6.8	6.8	6.9	7.5	6.9	6.9	7.0

TABLE ONE (CONTINUED)

INTEREST RATES & STOCK PRICES (end of period)		ACTUAL	FORECASTS			
		JUN 2016	DEC 2016	JUN 2017	DEC 2017	DEC 2018
13. Prime Interest Rate (percent)	26	3.50	3.75	4.00	4.25	5.13
14. 10-Year Treasury Note Yield (percent)	28	1.49	2.30	2.50	2.75	3.35
15. 3-Month Treasury Bill Rate (percent)	27	0.26	0.55	0.83	1.12	2.00
16. Stock Prices (S&P500) (index level)	18	2098.9	2200.0	2254.8	2314.5	2400.0

Source: Research Department, Federal Reserve Bank of Philadelphia, Livingston Survey, December 2016

TABLE TWO
 MAJOR MACROECONOMIC INDICATORS, 2016-2018
 PERCENTAGE CHANGES AT ANNUAL RATES

QUARTERLY INDICATORS	NUMBER OF FORE- CASTERS	Q2 2016	Q4 2016	Q2 2017	2015	2016	2017
		TO Q4 2016	TO Q2 2017	TO Q4 2017	TO 2016	TO 2017	TO 2018
1. Real Gross Domestic Product	27	2.7	2.2	2.4	1.6	2.3	2.4
2. Nominal Gross Domestic Product	28	4.5	4.2	4.3	2.9	4.2	4.5
3. Nonresidential Fixed Investment	25	1.8	3.2	3.7	-0.5	2.6	4.1
4. Corporate Profits After Taxes	19	12.9	4.1	2.8	-0.9	6.3	2.2
MONTHLY INDICATORS		JUN 2016	DEC 2016	JUN 2017	2015	2016	2017
		TO DEC 2016	TO JUN 2017	TO DEC 2017	TO 2016	TO 2017	TO 2018
5. Industrial Production	24	0.7	1.7	2.1	-0.9	1.5	2.1
6. Total Private Housing Starts	25	0.020	0.032	0.039	0.061	0.087	0.060
7. Producer Prices - Finished Goods	17	1.4	2.6	1.8	-1.0	2.7	2.1
8. Consumer Price Index (CPI-U)	26	2.2	2.3	2.4	1.3	2.4	2.5
9. Unemployment Rate	26	0.0	-0.2	-0.1	-0.4	-0.2	-0.1
10. Average Weekly Earnings in Mfg.	10	3.4	2.4	2.5	2.8	2.5	3.7
11. Retail Trade	14	4.6	3.0	3.8	2.9	4.4	4.7
12. Automobile Sales (incl. foreign)	17	0.2	0.0	0.1	-0.6	0.0	0.1

INTEREST RATES & STOCK PRICES		JUN 2016	DEC 2016	JUN 2017	DEC 2017
		TO	TO	TO	TO
		DEC 2016	JUN 2017	DEC 2017	DEC 2018
13. Prime Interest Rate	26	0.25	0.25	0.25	0.88
14. 10-Year Treasury Note Yield	28	0.81	0.20	0.25	0.60
15. 3-Month Treasury Bill Rate	27	0.29	0.28	0.29	0.88
16. Stock Prices (S&P500)	18	9.9	5.0	5.4	3.7

Note: Figures for housing starts, unemployment rate, auto sales, prime interest rate, 10-year Treasury bond, and 90-day Treasury bill are changes in levels. All others are percentage changes at annual rates.

Source: Research Department, Federal Reserve Bank of Philadelphia, Livingston Survey, December 2016

TABLE THREE
LONG-TERM (10 YEAR) FORECASTS

SERIES: CPI Inflation Rate

STATISTIC	
Minimum	1.60
Lower Quartile	2.10
Median	2.30
Upper Quartile	2.50
Maximum	2.90
Mean	2.31
Std. Deviation	0.30
N	27
Missing	1

SERIES: Real GDP

STATISTIC	
Minimum	1.40
Lower Quartile	2.00
Median	2.20
Upper Quartile	2.40
Maximum	3.10
Mean	2.23
Std. Deviation	0.35
N	27
Missing	1
