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Wells Fargo Economics *Monthly Macro Manual*

Your guide to the data and events that will shape the economic outlook and drive financial markets in the month ahead

September 11, 2019

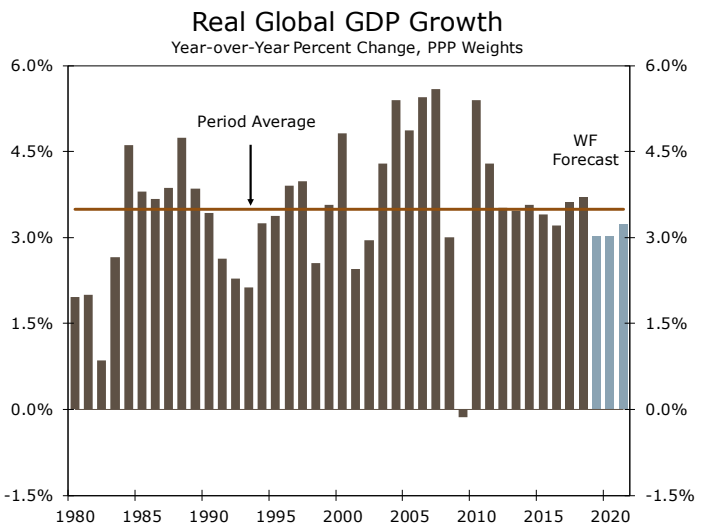
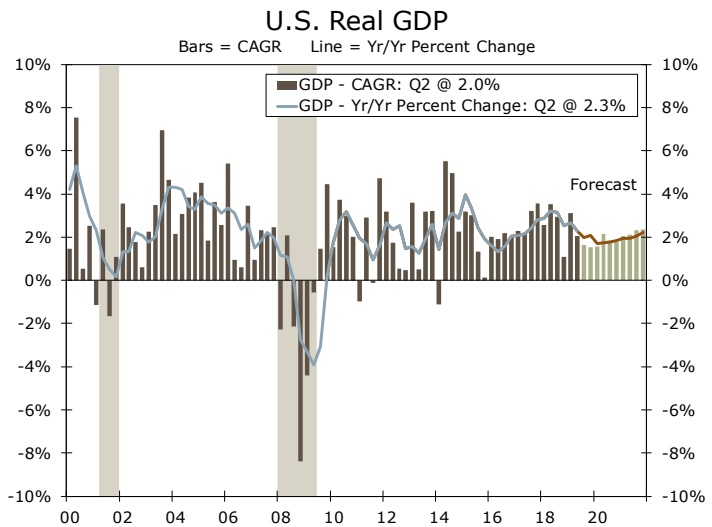
Together we'll go far



Key Takeaways

Developments since our August Monthly Economic Outlook

- Our forecast for 2019 U.S. real GDP growth has fallen to 2.2%. The U.S. economy is showing clear signs of slowing, and while we believe economic growth is still far from entering negative territory, we only anticipate growth of about 1.5% over the next couple quarters. The consumer remains the key source of strength amid continued weakness in business fixed investment.
- Our forecast for the fed funds rate has changed. In addition to the 25 bps cut we already had penciled in for September, we have added two more 25 bps cuts, in Q4-2019 and Q1-2020. The Fed seems intent on taking action to forestall a recession and return inflation to 2%, and as such we anticipate more easing in the absence of a major breakthrough on U.S.-China trade relations. Our 2019 year-end forecast for the 10-year Treasury yield is now 1.70%. For 2020, our year-end forecast is 2.05%.
- Our initial forecast for 2021 sees real GDP growth in the United States of 2.0%, a fed funds rate that remains unchanged at 1.25%-1.50% and global real GDP growth of 3.2%. More complete 2021 forecasts can be found on slide 11.



Source: U.S. Department of Commerce, International Monetary Fund and Wells Fargo Securities

Monthly Macro Calendar: September 9-October 4

Monday	Tuesday	Wednesday	Thursday	Friday
9	10	11	12	13
China CPI (YoY) August 2.8%	JOLTS Job Openings July 7,217K	PPI Final Demand (YoY) July 1.7%; August 1.8% (W) WFS 2021 Economic Outlook Call See below for details	Consumer Price Index (YoY) July 1.8%, August 1.8% (W) ECB Rate Decision (Deposit Facility Rate) Previous -0.40%, September -0.50% (W)	Import Price Index (YoY) July -1.8%, August -2.1% (W) Retail Sales (MoM) July 0.7%, August 0.1% (W)
16	17	18	19	20
	Industrial Production (MoM) July -0.2%, August 0.2% (C)	Housing Starts July 1,191K, August 1,255K (C) FOMC Rate Decision Previous 2.25%, September 2.00% (W) United Kingdom CPI (YoY) July 2.1%	Existing Home Sales July 5.42M, August 5.40M (C) BoE Bank Rate Previous 0.75% Japan CPI (YoY) July 0.5%	Rosengren* (Boston Fed) Speaks in New York
23	24	25	26	27
Bullard* (St. Louis Fed) Discusses U.S. Economy & Monetary Policy 74th Session of UN General Assembly World Economic Forum, Sustainable Development Impact Summit, New York	Consumer Confidence August 135.1	New Home Sales July 635K Evans* (Chicago Fed) Discusses U.S. Economy & Monetary Policy	Bank of Mexico Overnight Rate Previous 8.00% Bullard* (St. Louis Fed) Gives Opening Remarks at Banking Forum Kasharki (Minneapolis Fed) Speaks in Townhall Event in Billings, Montana	Personal Income & Spending (MoM) July 0.1% & 0.6% Durable Goods (MoM) July 2.0% Harker (Philadelphia Fed) Speaks to Shadow Open Market Committee
30	1	2	3	4
	ISM Manufacturing Index August 49.1 Eurozone CPI (YoY) August 1.0% Bowman* (Fed Board of Governors) Speaks at Community Banking Conference	Harker (Philadelphia Fed) Speaks at Community Banking Conference	ISM Non-Manufacturing Index August 56.4 Rosengren* (Boston Fed) Speaks at Boston Fed Conference	Nonfarm Payrolls August 130,000 Trade Balance July -\$54.0B RBI Repurchase Rate Previous 5.40%

Note: (W) = Wells Fargo Estimate, (C) = Consensus Estimate, * = voting FOMC member in 2019

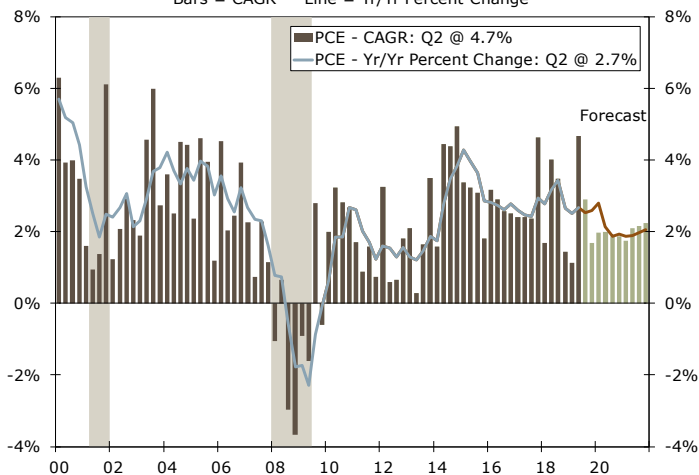
WFS Economic Outlook Through 2021 Webcast: September 11, 2019, at 1:00pm ET. Register [Here](#).

Source: Bloomberg LP and Wells Fargo Securities

- Real GDP growth forecast for Q3-2019: 1.6% (seasonally adjusted annualized rate)
 - **Change since last *Monthly Economic Outlook*: -0.5 percentage points**
 - *Commentary*: Economic data so far in the third quarter have been mixed. The manufacturing sector is under pressure, and business fixed investment continues to struggle in the face of trade uncertainty. The ISM manufacturing index fell below 50 for the first time since 2016 in August, as more firms reported a contraction rather than an expansion in activity. The services side of the economy, however, is holding up somewhat better. Consumer spending is tracking for a solid outturn in Q3, though the pace will likely be a step down from the 4.7% annualized pace in Q2. Consumers have remained resilient in the face of trade uncertainty. But, with consumer goods coming under tariffs, a significant dent to consumer confidence could curtail spending. With the latest round of tariffs only expected to add 0.1-0.2 percentage points to headline inflation, we do not expect higher prices themselves to weigh on spending.
- Real GDP growth forecast for full-year 2019: 2.2%
 - **Change since last *Monthly Economic Outlook*: -0.1 percentage points**
 - *Commentary*: The economy is slowing, and we look for sub-2% growth over the next few quarters.

Real Personal Consumption Expenditures

Bars = CAGR Line = Yr/Yr Percent Change



Source: U.S. Department of Commerce and Wells Fargo Securities

Key Themes and Upside/Downside Scenarios

- *Upside scenario*: Trade uncertainty across the globe dissipates after a U.S.-China deal is reached and the USMCA is passed. The global economy finds firmer footing amid increased confidence, and investment spending accelerates. After a transitory slowdown, inflation returns to the 2% target.
- *Downside scenario*: The trade war escalates further, and the lagged effect of recent tariff actions weigh on economic growth domestically and abroad. Uncertainty continues to have both direct and indirect negative effects on the economy, and the slowest pace of global growth since 2009 pulls the United States down with it.

Inflation Forecast

- As goods make up only a fraction of the CPI, **we estimate the latest round of tariffs will add only 0.1-0.2 percentage points to the year-over-year rate of CPI inflation.** Still, the overall trend in inflation remains tame, and **we do not expect core PCE inflation to return to 2% until 2020.**

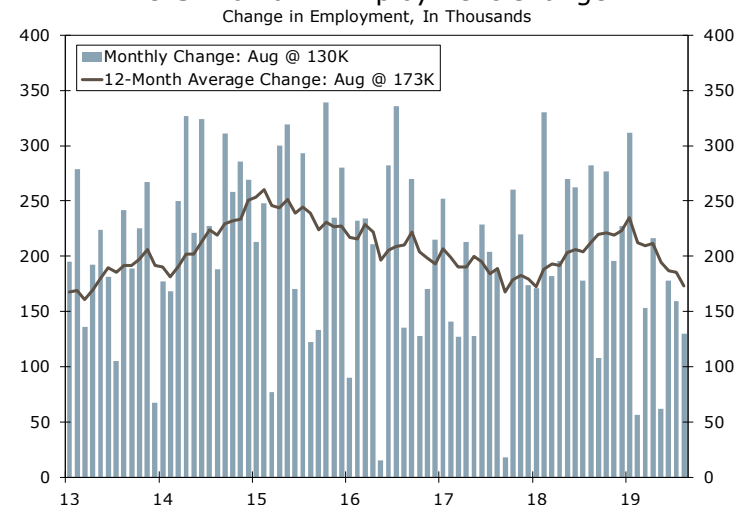
Labor Market Forecast

- Nonfarm job growth has slowed, as employers added only 130K jobs in August.** But, revised data, which will be finalized in January 2020, show about 500K fewer jobs were created in the 12 months through March of this year. This suggests the 12-month average pace of job growth had already slowed to 168K by March.

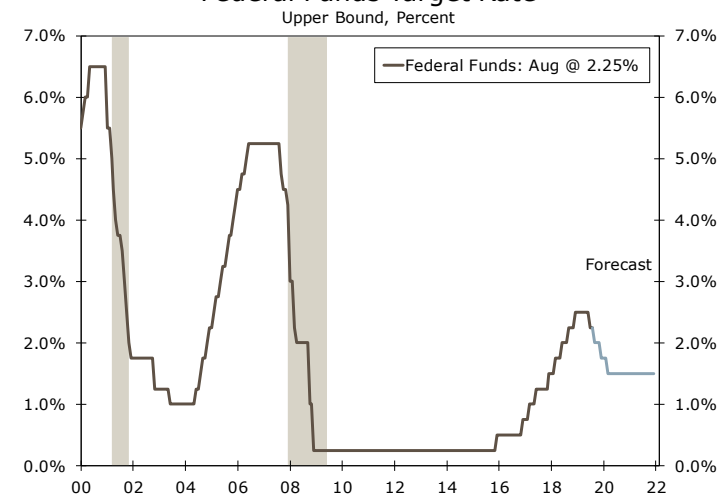
Fed Funds Outlook

- Fed Funds Forecast for 2019
 - Two 25 bps cuts, one in Q3-2019 (Sept) & one in Q4-2019**
 - Risks to the U.S. economy from slowing global growth and trade policy have intensified. The Fed seems intent on taking action to forestall a recession and return inflation to 2%. As such, we expect the Fed to cut rates two more times this year.
- Fed Funds Forecast for 2020
 - One 25 bps cut in Q1-2020**
 - With growth slowing to sub-2% and in the absence of a major breakthrough on U.S.-China trade relations, we expect the Fed to ease policy another 25 bps in Q1-2020.

U.S. Nonfarm Employment Change



Federal Funds Target Rate



Source: U.S. Department of Labor, Federal Reserve Board and Wells Fargo Securities

Wells Fargo U.S. Interest Rate Forecast

	Actual				Forecast											
	2018				2019				2020				2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Quarter End Interest Rates																
Federal Funds Target Rate	1.75	2.00	2.25	2.50	2.50	2.50	2.00	1.75	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
3 Month LIBOR	2.31	2.34	2.40	2.81	2.60	2.32	2.10	1.90	1.65	1.60	1.60	1.60	1.65	1.60	1.60	1.60
Prime Rate	4.75	5.00	5.25	5.50	5.50	5.50	5.00	4.75	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Conventional Mortgage Rate	4.44	4.57	4.63	4.64	4.28	3.80	3.25	3.35	3.40	3.50	3.60	3.70	3.75	3.85	3.90	3.95
3 Month Bill	1.73	1.93	2.19	2.45	2.40	2.12	1.90	1.70	1.50	1.45	1.45	1.45	1.50	1.45	1.45	1.45
6 Month Bill	1.93	2.11	2.36	2.56	2.44	2.09	1.85	1.70	1.55	1.50	1.50	1.50	1.55	1.50	1.50	1.50
1 Year Bill	2.09	2.33	2.59	2.63	2.40	1.92	1.75	1.65	1.60	1.60	1.60	1.65	1.65	1.65	1.70	1.70
2 Year Note	2.27	2.52	2.81	2.48	2.27	1.75	1.55	1.60	1.60	1.65	1.65	1.70	1.75	1.75	1.80	1.80
5 Year Note	2.56	2.73	2.94	2.51	2.23	1.76	1.45	1.50	1.55	1.65	1.70	1.75	1.85	1.90	1.95	1.95
10 Year Note	2.74	2.85	3.05	2.69	2.41	2.00	1.60	1.70	1.75	1.85	1.95	2.05	2.10	2.20	2.25	2.30
30 Year Bond	2.97	2.98	3.19	3.02	2.81	2.52	2.10	2.20	2.30	2.45	2.55	2.65	2.75	2.80	2.85	2.90

Forecast as of: September 11, 2019

Source: Federal Reserve Board and Wells Fargo Securities

What Are We Watching in the Month Ahead?

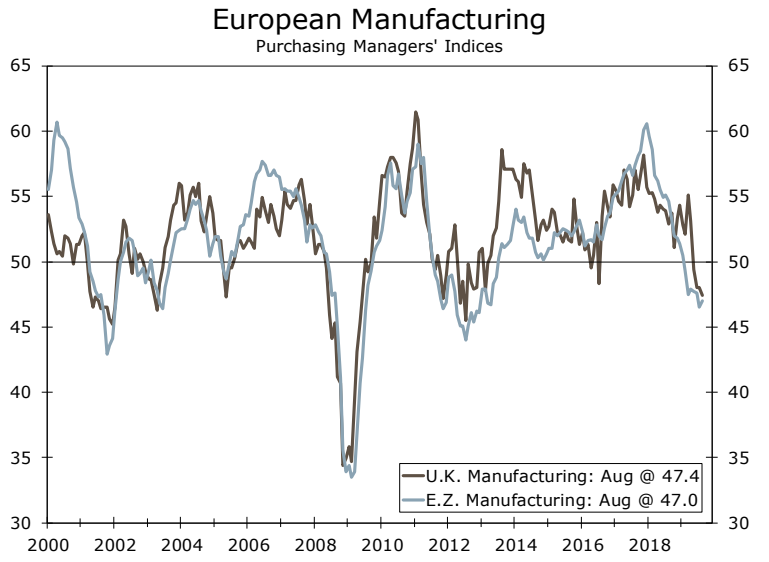
- Market still prices for more cuts than we forecast
 - The difference between our fed funds forecast and what markets are priced for through the end of 2021 is just shy of 50 bps. That is, markets are priced for about two more fed funds cuts than we are forecasting.
 - This discrepancy and our expectation for growth and inflation to eventually firm are behind our expectation that rates will rise over our forecast horizon.
- Fed reaction function
 - Our forecasted rise in Treasury yields is relatively modest however, in part because even if the economy turns around, we believe the Fed would be happy to let growth and inflation run a little bit hot for a time.
 - The Fed's reaction function has been a bit murky of late: will more clarity come in September?
- Structural questions for monetary policy
 - Behind the scenes, the Fed continues to debate the merits of various changes to its framework, such as a new inflation target or the adaptation of a standing repo facility. Will some of these changes come before year end?

European Manufacturing Remains Soft

- As the European Central Bank prepares to enact more stimulus, the latest data continue to show a dismal outlook for the factory sector in Europe. German industrial production growth and factory orders growth remain firmly in contractionary territory on a year-over-year basis. In addition, the most recent European manufacturing PMI was 47.0, marking the seventh consecutive month below the 50 line that demarcates expansion and contraction.
- Although there have been some rumblings about German fiscal stimulus over the past couple months, thus far concrete action has remained elusive.

Brexit Not Helping

- Uncertainty related to Brexit has also been a drag on capital-intensive industries like manufacturing. Through the 12 months ending in July, industrial production growth was -0.6% in the United Kingdom. The initial release of IHS Markit's U.K. manufacturing PMI for August was 47.4, down from 48.0 in July and the lowest reading since July 2012. The U.K. government has also taken some steps towards fiscal stimulus and appears a bit closer to realizing this goal compared to Germany.
- For more on recent Brexit developments, see the Topic of the Month on slide 10.



Source: Bloomberg LP, IHS Markit and Wells Fargo Securities

Wells Fargo Central Bank Policy Forecasts

Central Bank	Current Policy Rate	Last Major Policy Change	WF Next Forecasted Policy Change
United States (FOMC)	2.25	July 2018 <i>25 bps cut</i>	Next Rate Move: Cut in Q3-2019 (25 bps)
Eurozone (ECB)	-0.40 (Deposit Rate)	December 2018 <i>Confirmed end of QE program at end of 2018</i>	Next Rate Move: Cut in Q3-2019 (10 bps) Restart QE program in Q3-2019; €45 billion sov. bonds/month
United Kingdom (BoE)	0.75	August 2018 <i>25 bps hike</i>	No change through end-2020
Japan (BoJ)	-0.10	July 2018 <i>QQE and a greater degree of variation in 10-year govt. bond yield target</i>	No change through end-2020
Canada (BoC)	1.75	October 2018 <i>25 bps hike</i>	Next Rate Move: Cut in Q4-2019 (25 bps)

Forecast as of: September 11, 2019

Source: Bloomberg LP and Wells Fargo Securities

What Are We Watching in the Month Ahead?

- European Central Bank
 - With core inflation remaining stagnant, inflation expectations down and the Eurozone economy still showing little evidence of an imminent rebound, **we look for a 10 bps rate cut in September from the ECB.**
 - **We also expect the ECB to restart its QE program in September with €45 billion/month in sovereign bond purchases.** We are not expecting the ECB to buy corporate bonds or equities at this time.
- Bank of Japan
 - **We do not expect the BoJ to make any material changes to monetary policy for the foreseeable future.**
- Bank of England
 - With Brexit uncertainty likely to linger for an extended period of time and other major central banks taking an extremely dovish turn, **we expect the BoE to keep interest rates on hold through the end of 2020.**
- Bank of Canada
 - **We look for the BoC to cut rates 25 bps in Q4-2019.** Although the Canadian economy has strengthened some, we think a more dovish Fed and weak global environment will eventually lead the BoC to cut rates.

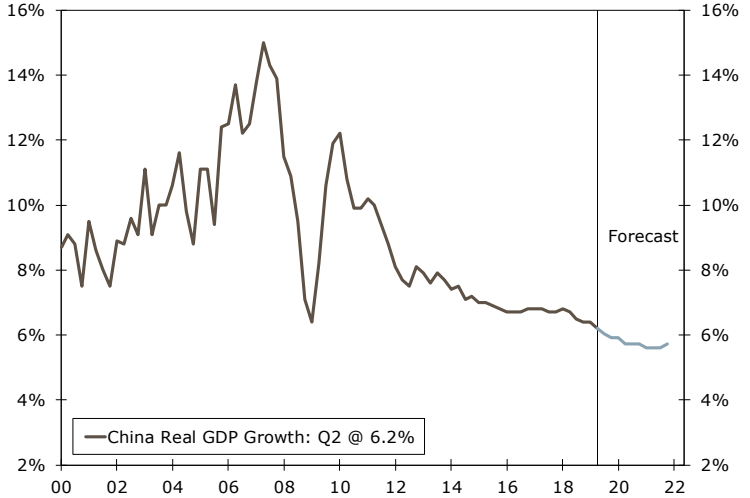
China Slowing, but in an Orderly Fashion

- China's economy remains on a slowing path. Chinese export growth has turned negative in U.S. dollar terms, and activity data and confidence surveys have been mixed. With no sign of a turnaround in sight, **China's central bank once again lowered its reserve requirement ratio this month.**
- We believe China's policy response to its economic challenges will be calibrated to cushion the growth slowdown, as opposed to generating a growth rebound.** Thus, we forecast China's GDP growth at 6.1% in 2019, and expect growth to slow to 5.8% in 2020 and 5.6% in 2021.

India also Weighing on Global Growth

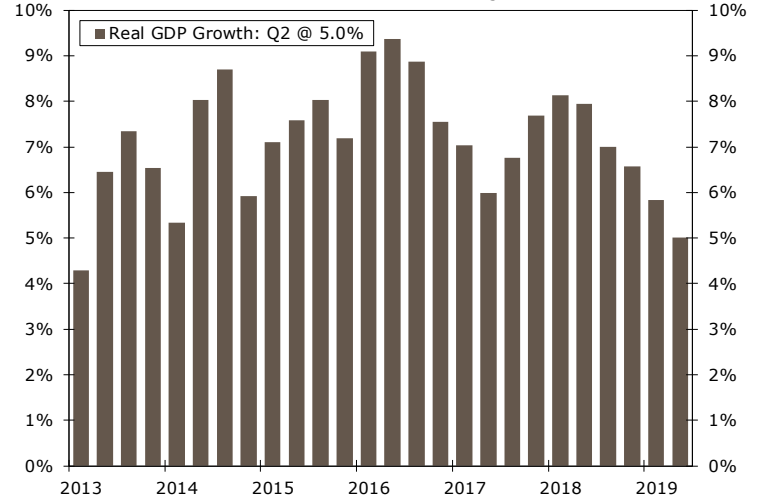
- Another disappointment among the emerging economies has been India, which has seen GDP growth slow from 6.6% y/y in Q4-2018, to 5.8% in Q1 and 5.0% in Q2.** Political uncertainty, along with a less favorable monsoon season this year, have been factors behind India's growth slowdown.
- As a result, we expect India's economy to grow only 5.5% this year, although in contrast to China we do see some recovery for India's economy in 2020 and 2021. **A coincident slowdown in these two dominant emerging market economies is keeping global growth below its long-run average.**

China Real GDP Growth
Year-over-Year Percent Change



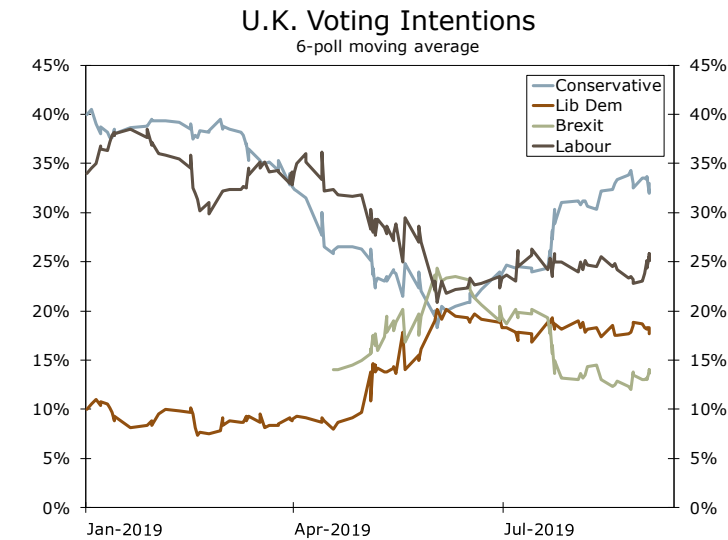
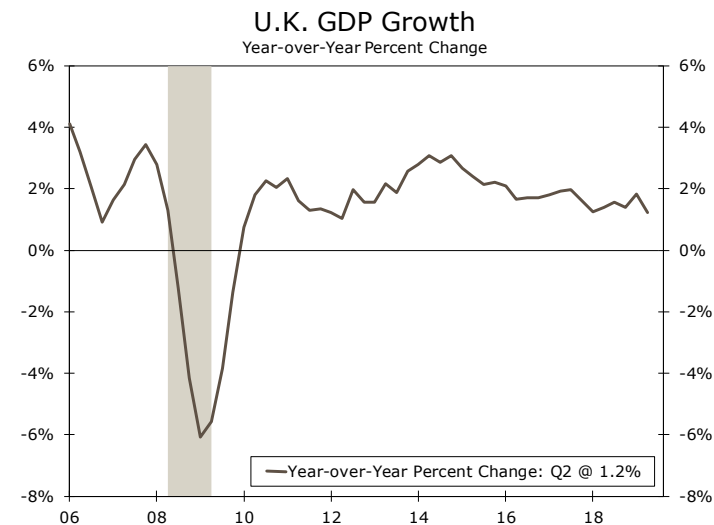
Source: Bloomberg LP, International Monetary Fund and Wells Fargo Securities

Indian GDP Growth
Year-over-Year Percent Change



Brexit: No Time for Complacency

- **The United Kingdom is scheduled to leave the European Union on October 31.** Boris Johnson, the newly appointed Prime Minister of the current Conservative-led government, has stated that his government would prefer to leave the EU with a deal, but that if a deal is unreachable, the U.K. could leave on October 31 with no deal.
- **The U.K. Parliament passed a bill that purportedly “blocks a no-deal Brexit.”** But, the reality is more nuanced, and the risks of a no-deal exit remain.
- The core of the bill states that, if PM Johnson’s government is unable to reach a Brexit deal that is approved by U.K. Parliament by October 31, Johnson must ask the EU for an extension to January 31, 2020. However, **PM Johnson has stated an unwillingness to comply with a request for an extension** and in any case **the request would still require unanimous approval from the 27 EU member states.** France has indicated opposition to another extension, citing a lack of progress and no clarity over what the U.K. wants.
- Even if the Brexit deadline is extended beyond October 31, the risk of a no-deal Brexit will not go away. **In our view, the most likely scenario is that the deadline will be extended by a few months, perhaps to January 31, and an election will take place in late November or early December.**
- What happens from there depends entirely on the election result, but the **uncertainty related to Brexit dynamics looks likely to remain for some time.**



Source: IHS Markit, Datastream and Wells Fargo Securities

Wells Fargo U.S. Economic Forecast

	Actual								Forecast								Actual		Forecast			
	2018				2019				2020				2021				2018	2019	2020	2021		
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
Real Gross Domestic Product (a)	2.6	3.5	2.9	1.1	3.1	2.0	1.6	1.5	1.6	2.2	1.9	1.8	2.0	2.1	2.3	2.3	2.9	2.2	1.8	2.0		
Personal Consumption	1.7	4.0	3.5	1.4	1.1	4.7	2.9	1.7	2.0	2.0	1.9	1.9	1.8	2.1	2.2	2.2	3.0	2.6	2.2	1.9		
Business Fixed Investment	8.8	7.9	2.1	4.8	4.4	-0.6	0.4	0.6	3.9	1.2	3.3	3.7	4.2	4.1	4.0	4.0	6.4	2.7	2.0	3.7		
Equipment	6.6	3.4	2.9	7.4	-0.1	0.7	-3.5	-2.7	3.4	-2.2	1.2	2.0	3.4	3.4	3.2	3.0	6.8	1.4	-0.2	2.5		
Intellectual Property Products	9.7	11.9	4.1	11.7	10.8	3.7	5.6	5.0	5.4	4.7	6.2	6.5	6.4	6.2	6.1	6.2	7.4	7.8	5.3	6.2		
Structures	12.1	11.0	-2.1	-9.0	4.0	-9.4	-3.0	0.5	2.5	3.0	2.5	2.2	1.8	1.9	2.0	2.1	4.1	-2.6	0.7	2.1		
Residential Construction	-5.3	-3.7	-4.0	-4.7	-1.0	-2.9	1.5	2.0	2.0	1.5	1.5	1.5	1.0	1.0	1.0	1.0	-1.5	-2.1	1.4	1.2		
Government Purchases	1.9	2.6	2.1	-0.4	2.9	4.5	0.8	1.2	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.7	1.7	2.1	1.2	0.9		
Net Exports	-884.2	-850.5	-962.4	-983.0	-944.0	-982.5	-989.6	-994.5	-978.9	-986.6	-998.4	-1015.5	-1023.4	-1029.9	-1027.5	-1026.4	-920.0	-977.7	-994.9	-1026.8		
Pct. Point Contribution to GDP	0.0	0.7	-2.1	-0.4	0.7	-0.7	-0.1	-0.1	0.3	-0.2	-0.2	-0.4	-0.2	-0.1	0.0	0.0	-0.4	-0.3	-0.1	-0.2		
Inventory Change	40.5	-28.0	87.2	93.0	116.0	69.0	55.0	60.0	15.0	40.0	45.0	50.0	59.0	60.0	60.0	60.0	48.1	75.0	37.5	59.8		
Pct. Point Contribution to GDP	0.1	-1.2	2.1	0.1	0.5	-0.9	-0.3	0.1	-0.9	0.5	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	-0.2	0.1		
Nominal GDP (a)	5.0	7.1	4.8	2.9	3.9	4.6	3.5	3.6	3.9	4.3	3.7	3.7	4.1	4.1	4.1	4.1	5.4	4.1	3.9	4.0		
Real Final Sales	2.4	4.8	0.8	1.0	2.6	3.0	2.3	1.4	2.5	1.6	1.7	1.7	1.9	2.1	2.3	2.4	2.8	2.2	2.0	1.9		
Retail Sales (b)	4.7	5.7	5.6	3.4	2.8	3.4	3.7	4.2	4.3	3.2	3.0	2.9	3.0	3.1	2.9	3.0	4.8	3.5	3.4	3.0		
Inflation Indicators (b)																						
PCE Deflator	1.9	2.3	2.2	1.9	1.4	1.4	1.5	1.6	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.8	2.1	1.5	2.1	1.9		
"Core" PCE Deflator	1.8	2.0	2.0	1.9	1.6	1.5	1.7	1.7	2.0	2.1	2.1	2.0	2.0	1.9	1.8	1.8	2.0	1.6	2.1	1.9		
Consumer Price Index	2.2	2.7	2.6	2.2	1.6	1.8	1.8	2.0	2.4	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.4	1.8	2.3	2.2		
"Core" Consumer Price Index	1.9	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.4	2.3	2.3	2.1	2.1	2.0	2.1	2.1	2.2	2.3	2.1		
Producer Price Index (Final Demand)	2.8	3.0	3.1	2.8	1.9	1.9	1.9	1.7	2.4	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.9	1.9	2.4	2.2		
Employment Cost Index	2.7	2.8	2.8	2.9	2.8	2.7	2.7	2.8	2.8	3.0	3.0	3.1	3.1	3.1	3.1	3.1	2.8	2.8	3.0	3.1		
Real Disposable Income (a)	6.9	2.7	3.3	2.8	4.5	2.5	3.2	2.6	2.2	3.2	2.2	2.1	2.2	2.7	2.6	2.4	4.0	3.3	2.6	2.4		
Nominal Personal Income (b)	5.6	5.8	5.9	4.9	4.6	4.9	4.4	4.1	3.6	4.1	3.6	3.3	3.5	2.4	3.3	3.9	5.6	4.5	3.7	3.3		
Industrial Production (a)	2.3	4.6	5.2	3.9	-1.9	-2.1	-0.1	0.3	-0.1	0.7	1.3	2.0	1.2	1.8	1.9	1.3	3.9	0.7	0.3	1.5		
Capacity Utilization	77.9	78.5	79.1	79.4	78.6	77.8	77.5	77.2	76.8	77.1	77.5	78.0	78.3	78.6	78.9	79.2	78.7	77.8	77.3	78.8		
Corporate Profits Before Taxes (b)	2.9	2.4	4.2	4.2	-2.2	2.7	3.5	2.1	3.0	1.4	-1.2	1.5	2.1	2.0	3.0	1.5	3.4	1.5	1.1	2.2		
Corporate Profits After Taxes	10.3	8.3	11.3	10.1	-2.9	2.7	3.6	1.6	2.8	1.4	-1.2	1.5	2.1	1.9	2.9	1.4	10.0	1.3	1.1	2.1		
Federal Budget Balance (c)	-375	-7	-172	-319	-372	-56	-203	-300	-446	-70	-234	-314	-467	-74	-245	-341	-779	-950	-1050	-1100		
Trade Weighted Dollar Index (d)	103.1	107.3	107.6	110.1	109.8	109.7	110.8	110.5	109.5	108.3	107.3	106.0	105.5	105.0	104.5	104.0	106.4	110.2	107.8	104.8		
Nonfarm Payroll Change (e)	228	243	189	233	174	152	145	130	170	395	-115	0	100	105	110	110	223	150	113	106		
Unemployment Rate	4.1	3.9	3.8	3.8	3.9	3.6	3.7	3.6	3.6	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.9	3.7	3.6	3.7		
Housing Starts (f)	1.32	1.26	1.23	1.19	1.21	1.26	1.25	1.28	1.26	1.27	1.27	1.28	1.28	1.28	1.28	1.28	1.25	1.25	1.27	1.28		
Light Vehicle Sales (g)	17.1	17.3	17.0	17.4	16.8	17.0	16.9	16.8	16.5	16.4	16.4	16.4	16.4	16.4	16.4	16.4	17.2	16.9	16.4	16.4		
Crude Oil - Brent - Front Contract (h)	66.9	74.6	75.8	68.6	63.8	67.6	63.0	60.0	58.0	59.0	61.0	61.0	61.0	61.0	61.0	61.0	71.5	63.6	59.8	61.0		
Quarter-End Interest Rates (i)																						
Federal Funds Target Rate	1.75	2.00	2.25	2.50	2.50	2.50	2.00	1.75	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.96	2.19	1.50	1.50		
3 Month LIBOR	2.31	2.34	2.40	2.81	2.60	2.32	2.10	1.90	1.65	1.60	1.60	1.60	1.65	1.60	1.60	1.60	2.31	2.23	1.61	1.61		
Prime Rate	4.75	5.00	5.25	5.50	5.50	5.50	5.00	4.75	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.96	5.19	4.50	4.50		
Conventional Mortgage Rate	4.44	4.57	4.63	4.64	4.28	3.80	3.25	3.35	3.40	3.50	3.60	3.70	3.75	3.85	3.90	3.95	4.54	3.67	3.55	3.86		
3 Month Bill	1.73	1.93	2.19	2.45	2.40	2.12	1.90	1.70	1.50	1.45	1.45	1.45	1.50	1.45	1.45	1.45	1.97	2.03	1.46	1.46		
6 Month Bill	1.93	2.11	2.36	2.56	2.44	2.09	1.85	1.70	1.55	1.50	1.50	1.50	1.55	1.50	1.50	1.50	2.14	2.02	1.51	1.51		
1 Year Bill	2.09	2.33	2.59	2.63	2.40	1.92	1.75	1.65	1.60	1.60	1.60	1.65	1.65	1.65	1.70	1.70	2.33	1.93	1.61	1.68		
2 Year Note	2.27	2.52	2.81	2.48	2.27	1.75	1.55	1.60	1.60	1.65	1.65	1.70	1.75	1.75	1.80	1.80	2.53	1.79	1.65	1.78		
5 Year Note	2.56	2.73	2.94	2.51	2.23	1.76	1.45	1.50	1.55	1.65	1.70	1.75	1.85	1.90	1.95	1.95	2.75	1.74	1.66	1.91		
10 Year Note	2.74	2.85	3.05	2.69	2.41	2.00	1.60	1.70	1.75	1.85	1.95	2.05	2.10	2.20	2.25	2.30	2.91	1.93	1.90	2.21		
30 Year Bond	2.97	2.98	3.19	3.02	2.81	2.52	2.10	2.20	2.30	2.45	2.55	2.65	2.75	2.80	2.85	2.90	3.11	2.41	2.49	2.83		

Forecast as of: September 11, 2019

Notes: (a) Compound Annual Growth Rate Quarter-over-Quarter

(b) Year-over-Year Percentage Change

(c) Quarterly Sum - Billions USD; Annual Data Represents Fiscal Yr.

(d) Federal Reserve Advanced Foreign Economies Index, 2006=100 - Quarter End

(e) Average Monthly Change

(f) Millions of Units - Annual Data - Not Seasonally Adjusted

(g) Quarterly Data - Average Monthly SAAR; Annual Data - Actual Total Vehicles Sold

(h) Quarterly Average of Daily Close

(i) Annual Numbers Represent Averages

Source: U.S. Department of Commerce, U.S. Department of Labor, IHS Markit, Federal Reserve Board and Wells Fargo Securities

U.S. Economic Forecast: Change Since Forecast from August 06, 2019

Changes to the Wells Fargo U.S. Economic Forecast

	Actual				Forecast												Actual		Forecast			
	2018				2019				2020				2021				2018	2019	2020	2021		
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
Real Gross Domestic Product (a)	0.00	0.00	0.00	0.00	0.00	-0.02	-0.44	-0.76	-0.98	-0.20	-0.16	-0.25					0.00	-0.11	-0.52			
Personal Consumption	0.00	0.00	0.00	0.00	0.00	0.39	0.41	-0.34	0.01	-0.06	-0.06	-0.02					0.00	0.10	-0.01			
Business Fixed Investment	0.00	0.00	0.00	0.00	0.00	-0.04	-2.91	-2.63	-0.20	-2.35	0.35	0.84					0.00	-0.54	-1.26			
Equipment	0.00	0.00	0.00	0.00	0.00	0.01	-4.59	-4.75	-0.19	-4.78	-0.83	0.03					0.00	-0.89	-2.54			
Intellectual Property Products	0.00	0.00	0.00	0.00	0.00	-1.00	-1.45	0.43	0.72	0.12	2.54	2.96					0.00	-0.35	0.55			
Structures	0.00	0.00	0.00	0.00	0.00	1.18	-1.00	-3.00	-2.00	-1.00	-1.00	-1.30					0.00	-0.06	-1.49			
Residential Construction	0.00	0.00	0.00	0.00	0.00	-1.38	-1.00	0.00	0.00	0.00	0.00	0.00					0.00	-0.38	-0.21			
Government Purchases	0.00	0.00	0.00	0.00	0.00	-0.52	-0.15	0.00	-0.15	0.00	0.00	0.00					0.00	-0.11	-0.09			
Net Exports	0.0	0.0	0.0	0.0	0.0	-3.8	-13.3	-17.2	-24.1	-30.6	-39.0	-56.4					0.0	-8.6	-37.5			
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	0.00	-0.07	-0.20	-0.08	-0.14	-0.14	-0.17	-0.36					0.00	-0.05	-0.15			
Inventory Change	0.00	0.00	0.00	0.00	0.00	-2.70	-5.00	-8.00	-45.00	-30.00	-30.00	-30.00					0.00	-3.93	-33.75			
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	0.00	-0.05	-0.05	-0.06	-0.77	0.31	0.00	0.00					0.00	-0.02	-0.16			
Nominal GDP	0.00	0.00	0.00	0.00	0.00	0.02	-0.29	-0.92	-0.84	-0.10	-0.04	-0.14					0.00	-0.09	-0.45			
Real Final Sales	0.00	0.00	0.00	0.00	0.00	0.04	-0.39	-0.70	-0.20	-0.52	-0.17	-0.25					0.00	-0.09	-0.36			
Retail Sales (b)	0.00	0.00	0.00	0.00	0.00	-0.01	0.23	-0.25	-0.77	-1.17	-1.34	-0.89					0.00	-0.01	-1.05			
Inflation Indicators (b)																						
PCE Deflator	0.00	0.00	0.00	0.00	0.00	-0.01	0.03	0.00	0.04	0.08	0.06	0.13					0.00	0.01	0.08			
"Core" PCE Deflator	0.00	0.00	0.00	0.00	0.00	-0.01	-0.04	-0.05	0.04	0.08	0.10	0.14					0.00	-0.03	0.09			
Consumer Price Index	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	-0.03	-0.04	-0.05	0.01					0.00	0.02	-0.03			
"Core" Consumer Price Index	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.13	0.13	0.15	0.02	0.02					0.00	0.07	0.08			
Producer Price Index (Final Demand)	0.00	0.00	0.00	0.00	-0.06	0.00	0.06	0.05	0.11	0.05	-0.01	0.00					0.00	0.01	0.04			
Employment Cost Index	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00			
Real Disposable Income (a)	0.00	0.00	0.00	0.00	0.06	0.02	-0.16	-0.05	0.00	0.13	0.45	0.83					0.00	0.00	0.11			
Nominal Personal Income (b)	0.00	0.00	0.00	0.00	0.02	0.02	-0.59	-1.00	-0.94	-0.29	-0.34	-0.39					0.00	-0.39	-0.49			
Industrial Production (a)	0.00	0.00	0.00	0.00	-0.04	-0.93	-1.31	-1.47	-0.60	-0.34	-0.54	1.15					0.00	-0.44	-0.71			
Capacity Utilization	0.00	0.00	0.00	0.00	-0.01	-0.19	-1.40	-1.85	-2.23	-2.03	-1.48	-0.93					0.00	-0.86	-1.67			
Corporate Profits Before Taxes (b)	0.00	0.00	0.00	0.00	0.00	3.94	-0.44	-1.91	-1.50	-1.44	0.71	3.00					0.00	0.39	0.26			
Corporate Profits After Taxes	0.00	0.00	0.00	0.00	0.00	3.64	-0.63	-2.24	-1.54	-1.36	1.01	3.30					0.00	0.18	0.42			
Federal Budget Balance (c)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	1.23	-1.48	-0.11	12.29					0.00	0.00	0.00			
Trade Weighted Dollar Index (d)	0.00	0.00	0.00	0.00	0.00	0.00	-0.50	-0.25	-0.50	0.00	0.25	0.25					0.00	-0.19	0.00			
Nonfarm Payroll Change (e)	0.00	0.00	0.00	0.00	0.00	-5.00	-13.33	-20.00	-20.00	-25.00	-15.00	-15.00					0.00	-9.58	-18.75			
Unemployment Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.03	0.10	0.10	0.00	0.10					0.00	0.03	0.08			
Housing Starts (f)	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	-0.02	-0.02	-0.02	-0.03	-0.02					0.00	-0.02	-0.02			
Light Vehicle Sales (g)	0.00	0.00	0.00	0.00	0.00	0.01	0.21	0.23	-0.07	-0.18	-0.20	-0.20					0.00	0.12	-0.16			
Crude Oil - Brent - Front Contract (h)	0.00	0.00	0.00	0.00	0.00	0.00	-2.00	0.00	-2.00	-1.00	-1.00	-4.00					0.00	-0.50	-2.00			
Quarter-End Interest Rates (i)																						
Federal Funds Target Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.50	-0.50	-0.50	-0.50					0.00	-0.06	-0.50			
3 Month LIBOR	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.30	-0.55	-0.55	-0.55	-0.55					0.00	-0.10	-0.55			
Prime Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.50	-0.50	-0.50	-0.50					0.00	-0.06	-0.50			
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.35	-0.40	-0.35	-0.35	-0.35					0.00	-0.16	-0.36			
3 Month Bill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.40	-0.40	-0.40	-0.40					0.00	-0.05	-0.40			
2 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	-0.15	-0.20	-0.25	-0.25	-0.35	-0.35					0.00	-0.09	-0.30			
5 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.30	-0.30	-0.30	-0.35	-0.40					0.00	-0.13	-0.34			
10 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.35	-0.40	-0.35	-0.35	-0.35					0.00	-0.16	-0.36			
30 Year Bond	0.00	0.00	0.00	0.00	0.00	0.00	-0.35	-0.40	-0.40	-0.30	-0.30	-0.30					0.00	-0.19	-0.33			

Forecast as of: September 11, 2019

Notes: (a) Compound Annual Growth Rate Quarter-over-Quarter

(b) Year-over-Year Percentage Change

(c) Quarterly Sum - Billions USD; Annual Data Represents Fiscal Yr.

(d) Federal Reserve Advanced Foreign Economies Index, 2006=100 - Quarter End

(e) Average Monthly Change

(f) Millions of Units - Annual Data - Not Seasonally Adjusted

(g) Quarterly Data - Average Monthly SAAR; Annual Data - Actual Total Vehicles Sold

(h) Quarterly Average of Daily Close

(i) Annual Numbers Represent Averages

Source: U.S. Department of Commerce, U.S. Department of Labor, IHS Markit, Federal Reserve Board and Wells Fargo Securities

Wells Fargo International Economic Forecast

(Year-over-Year Percent Change)

	GDP				CPI			
	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Global (PPP Weights)	3.6%	3.0%	3.0%	3.2%	3.6%	3.3%	3.5%	3.4%
Advanced Economies ¹	2.2%	1.9%	1.7%	1.9%	2.0%	1.7%	2.0%	1.9%
United States	2.9%	2.2%	1.8%	2.0%	2.4%	1.8%	2.3%	2.2%
Eurozone	1.9%	1.1%	1.3%	1.4%	1.8%	1.4%	1.4%	1.6%
United Kingdom	1.4%	1.1%	1.2%	1.6%	2.5%	1.9%	1.9%	2.0%
Japan	0.8%	1.2%	0.5%	1.0%	1.0%	0.7%	1.1%	0.9%
Canada	1.9%	1.6%	1.9%	1.9%	2.3%	1.9%	2.0%	2.0%
Developing Economies ¹	4.5%	3.8%	4.0%	4.2%	4.8%	4.5%	4.5%	4.4%
China	6.6%	6.1%	5.8%	5.6%	2.1%	2.5%	2.4%	2.2%
India	7.4%	5.5%	6.2%	7.1%	3.9%	3.2%	4.0%	4.0%
Mexico	2.0%	0.4%	1.3%	1.8%	4.9%	3.9%	3.8%	3.6%

Forecast as of: September 11, 2019

¹Aggregated Using PPP Weights

Source: International Monetary Fund and Wells Fargo Securities

International Forecast: Change Since Forecast from August 06, 2019

Changes to the Wells Fargo International Economic Forecast

	GDP				CPI			
	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Global (PPP Weights)	0.00%	-0.10%	-0.19%		0.00%	0.00%	-0.07%	
Advanced Economies ¹	0.00%	-0.02%	-0.25%		0.00%	-0.01%	-0.02%	
United States	0.00%	-0.11%	-0.52%		0.00%	0.00%	0.00%	
Eurozone	0.00%	-0.08%	-0.12%		0.00%	-0.04%	0.00%	
United Kingdom	0.00%	-0.17%	-0.20%		0.00%	-0.07%	0.00%	
Japan	0.00%	0.42%	0.11%		0.00%	0.06%	0.00%	
Canada	0.00%	0.27%	0.16%		0.00%	0.11%	0.00%	
Developing Economies ¹	0.00%	-0.16%	-0.15%		0.00%	0.01%	-0.10%	
China	0.00%	0.03%	-0.01%		0.00%	0.03%	0.00%	
India ²	0.00%	-0.67%	-0.63%		0.00%	0.00%	0.00%	
Mexico	0.00%	-0.54%	-0.39%		0.00%	0.00%	0.00%	

Forecast as of: September 11, 2019

¹Aggregated Using PPP Weights

Source: International Monetary Fund and Wells Fargo Securities

Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	Central Bank Key Policy Rate						
	2019		2020				2021
	Q3	Q4	Q1	Q2	Q3	Q4	Q1
United States	2.00%	1.75%	1.50%	1.50%	1.50%	1.50%	1.50%
Eurozone ¹	-0.50%	-0.50%	-0.50%	-0.50%	-0.50%	-0.50%	-0.50%
United Kingdom	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
Japan	-0.10%	-0.10%	-0.10%	-0.10%	-0.10%	-0.10%	-0.10%
Canada	1.75%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
	2-Year Note						
	2019		2020				2021
	Q3	Q4	Q1	Q2	Q3	Q4	Q1
United States	1.55%	1.60%	1.60%	1.65%	1.65%	1.70%	1.75%
Eurozone ²	-0.80%	-0.75%	-0.65%	-0.55%	-0.40%	-0.25%	-0.15%
United Kingdom	0.50%	0.55%	0.65%	0.75%	0.80%	0.90%	0.95%
Japan	-0.25%	-0.20%	-0.15%	-0.10%	-0.10%	-0.05%	0.00%
Canada	1.40%	1.40%	1.45%	1.50%	1.55%	1.60%	1.60%
	10-Year Note						
	2019		2020				2021
	Q3	Q4	Q1	Q2	Q3	Q4	Q1
United States	1.60%	1.70%	1.75%	1.85%	1.95%	2.05%	2.10%
Eurozone ²	-0.55%	-0.45%	-0.30%	-0.20%	-0.05%	0.10%	0.20%
United Kingdom	0.65%	0.75%	0.90%	1.05%	1.15%	1.20%	1.25%
Japan	-0.20%	-0.10%	-0.05%	0.00%	0.05%	0.10%	0.10%
Canada	1.30%	1.35%	1.45%	1.55%	1.60%	1.70%	1.75%

Forecast as of: September 11, 2019

¹ ECB Deposit Rate ² German Government Bond Yield

Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	Central Bank Key Policy Rate						2021 Q1
	2019		2020				
	Q3	Q4	Q1	Q2	Q3	Q4	
United States	0.00%	-0.25%	-0.50%	-0.50%	-0.50%	-0.50%	
Eurozone ¹	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
United Kingdom	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Japan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Canada	0.00%	-0.25%	-0.25%	-0.25%	-0.25%	-0.25%	

	2-Year Note						2021 Q1
	2019		2020				
	Q3	Q4	Q1	Q2	Q3	Q4	
United States	-0.15%	-0.20%	-0.25%	-0.25%	-0.35%	-0.35%	
Eurozone ²	0.00%	0.00%	0.00%	-0.05%	-0.05%	-0.05%	
United Kingdom	0.00%	-0.05%	0.00%	0.00%	0.00%	0.05%	
Japan	-0.15%	-0.10%	-0.10%	-0.10%	-0.10%	-0.05%	
Canada	-0.10%	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%	

	10-Year Note						2021 Q1
	2019		2020				
	Q3	Q4	Q1	Q2	Q3	Q4	
United States	-0.30%	-0.35%	-0.40%	-0.35%	-0.35%	-0.35%	
Eurozone ²	-0.15%	-0.10%	0.00%	-0.05%	-0.05%	-0.05%	
United Kingdom	0.05%	-0.10%	-0.05%	0.00%	0.00%	0.00%	
Japan	-0.10%	-0.05%	-0.05%	-0.05%	0.00%	0.00%	
Canada	-0.20%	-0.30%	-0.30%	-0.25%	-0.25%	-0.20%	

Forecast as of: September 11, 2019

¹ ECB Deposit Rate ² German Government Bond Yield

Source: International Monetary Fund and Wells Fargo Securities

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