

# Economics Group

## MONTHLY OUTLOOK

### U.S. Overview

#### Upward Revision Largely a Boost from Trade

Our January forecast puts the annualized rate of GDP growth for the fourth quarter at 2.3%. That is a material upgrade from our prior forecast of 1.5% and is largely a function of an unexpected narrowing in the trade deficit in November.

The November trade report revealed, that after surging earlier this year, imports have fallen for three straight months. It may be that U.S. businesses rushed to get inventory into the United States ahead of an expected escalation in the trade war with China. But a Phase I trade deal reached just prior to the scheduled increase of tariffs on additional consumer goods took those tariffs off the table, for now, while reducing some of the existing tariffs.

We had previously expected a modest boost from trade, but we now look for net exports to add 1.4 percentage points to the headline figure in Q4. That said, the narrowing comes with some offset. If businesses are importing less, but consumer and business spending remains roughly unchanged, that implies that inventory investment will slow. We now expect inventories to lop off nine tenths of a percentage point from GDP growth during the period.

Elsewhere, the adjustments have been more modest. Business fixed investment is now expected to come in a little softer than we forecasted last month with both equipment spending and nonresidential construction outlays revised lower. Our consumer spending number ticked incrementally higher to a 2.2% pace in Q4 from 2.1% previously.

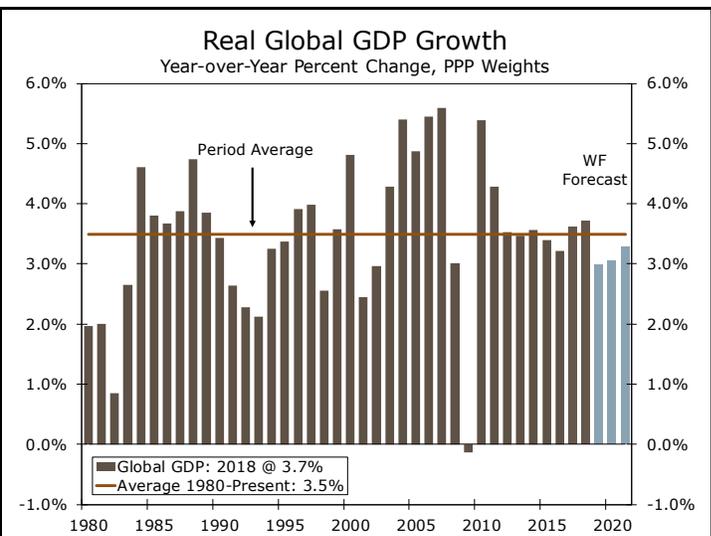
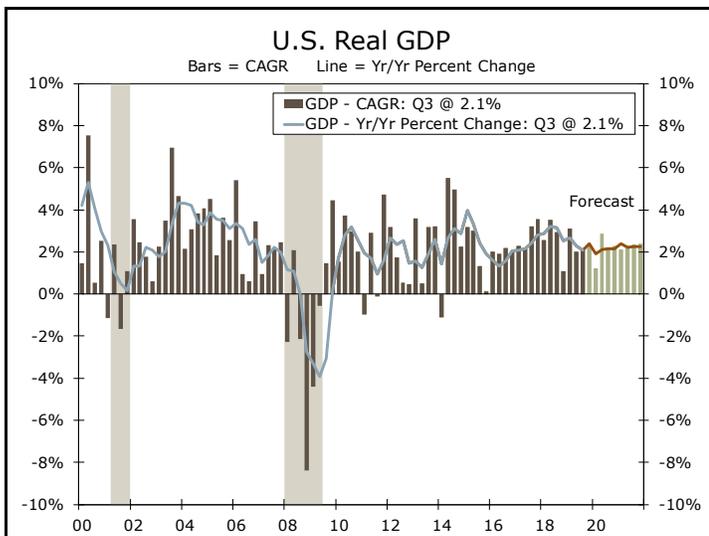
### International Overview

#### Iran Emerges as a Wild Card

As the calendar turned to 2020, the geopolitical landscape seemed as though it was settling down. The United States and China had agreed to a Phase I trade deal, while the Conservative Party's victory in the U.K. elections helped ensure Boris Johnson's Brexit deal would pass parliament. The killing of Iranian General Qasem Soleimani on January 3 jolted financial markets, and, although tensions have eased a bit since, the events of the past couple weeks serve as a reminder that geopolitical issues can emerge onto the scene at any time.

When turning to the fundamentals, the global economy continues to sputter along. Economic growth in China and the Eurozone appear to have held steady in Q4-2019, neither slowing further nor picking up. Data out of the United Kingdom have been a bit weaker over the past month and indicate economic growth may have been close to zero in the final quarter of 2019.

Our forecast for the European Central Bank (ECB) remains that the ECB will cut rates one more time 10 bps at its March meeting. We also continue to expect the Bank of England (BoE) to keep its main policy rate on hold for the foreseeable future. We view both of these projections as close calls, however, and if in the next few weeks the economic data are a bit better in Europe/weaker in the United Kingdom, it would not surprise us if it is the BoE, rather than the ECB, that cuts rates during the early part of 2020.



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



**After Stronger 2019 Finish, What is in Store for 2020?**

If our fourth quarter forecast turns out to be correct—and with no major revision to prior data—full year GDP growth for 2019 would come in at 2.3%, which, as it happens, is also the average annual GDP growth rate during this record long expansion.

The headline growth rate drops noticeably in the first quarter of 2020 before rebounding in the second quarter and eventually settling into a range of 2-2.5% throughout the rest of the forecast period. So what is going on here?

Once again, the inventory dynamic is having a big influence on the top-line figure. Inventories are expected to be a drag on Q1 growth due in large part to the production stoppage of the 737 MAX at Boeing (bottom left chart). The aircraft were previously being produced but not shipped, meaning they were showing up in the inventory component of GDP. But with production of the 737 MAX stopping at the start of January, inventory building and production are set to slow. Reflecting this Boeing effect, we have industrial production declining at a 3.9% annualized rate in Q1-2020, after a scant 0.6% drop in the fourth quarter.

In the second quarter, even if the stoppage continues, inventories will likely boost growth, although if Boeing restarts assemblies (but not shipments), the magnitude of the boost could get larger. We will update our forecast when and if there are formal announcements from the manufacturer.

Other than that, fundamentals suggest slow but steady growth ahead, with consumer spending growing at about a two percent pace throughout the forecast period and equipment spending gradually climbing out of its present slump before resuming a 3-4% pace of growth (bottom right chart). Another factor in the steady rise in equipment spending is that the 737 MAX should eventually be cleared to fly again, and once those aircraft ship, equipment outlays will rise.

**What About the Fed’s Dual Mandate?**

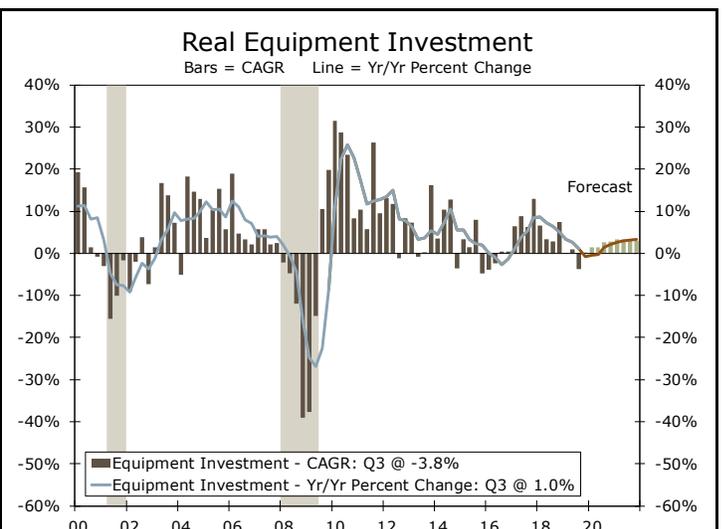
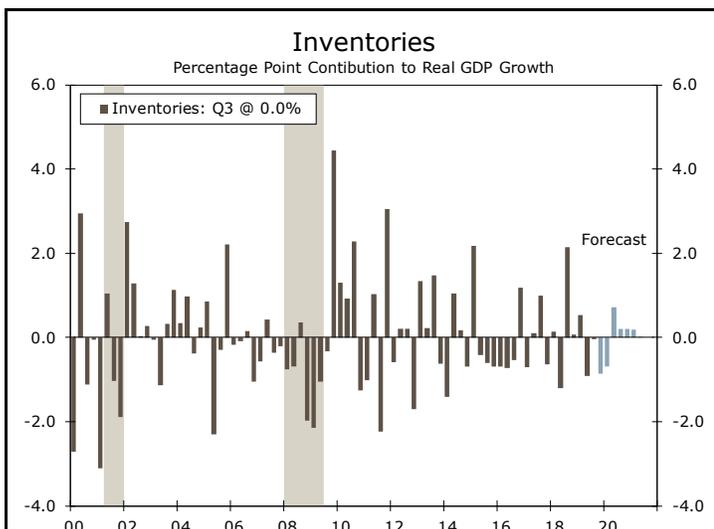
Employers continue to add new jobs throughout our forecast period, despite some Census-induced volatility in the 2020 quarterly hiring estimates. Still, the pace of hiring is simply not sufficient to match the expected growth of the labor force so the jobless rate is expected to tick modestly higher in 2021.

Real disposable income growth remains positive over our forecast horizon. That said, we expect it to moderate slightly, reflecting slightly slower growth in the jobs market and somewhat higher inflation compared to 2019. Headline inflation is expected to rise near the Fed’s 2.0% target in coming quarters after increasing just 1.4% last year.

Still, we expect only modest price pressure over the next two years. Inflation expectations remain broadly anchored around 2%. The University of Michigan’s measure of year-ahead price expectations fell to its lowest rate since 2016 in December, and longer-term expectations notched their lowest rate on record. With low price expectations, muted wage growth and unit labor costs only around 2%, an overshoot in core inflation remains unlikely.

As such, the core PCE deflator, which informs Fed policy, is expected to remain close to, but just below, 2.0%. On that basis, upcoming FOMC meetings will be less about what will happen with the fed funds rate and more about some of the more esoteric topics of Fed policy—like the rate it pays on excess reserves, the size of its balance sheet and the composition of asset purchases. Early this year, we may finally get details on a long-anticipated standing repo facility to help smooth some of the recent flare-ups in the short-term funding market, while mid-year, attention will likely turn to the results of the Fed’s policy review of its tools and communication.

The bottom line for the U.S. economy is that aside from some noisy headline figures and inventory swings, slow growth is expected to continue over the next few months, which should keep the Fed on hold.



Source: U.S. Department of Commerce 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	2.1	2.3	1.2	2.9	2.2	2.3	2.1	2.2	2.4	2.4	2.9	2.3	2.1	2.3
Personal Consumption	1.7	4.0	3.5	1.4	1.1	4.6	3.1	2.2	2.1	2.0	1.9	1.9	1.8	2.1	2.2	2.2	3.0	2.6	2.3	2.0
Business Fixed Investment	8.8	7.9	2.1	4.8	4.4	-1.0	-2.3	1.1	2.2	2.6	3.7	3.9	4.0	3.9	3.9	3.8	6.4	2.3	1.6	3.8
Equipment	6.6	3.4	2.9	7.4	-0.1	0.8	-3.8	0.0	1.4	1.5	2.6	2.9	3.4	3.4	3.2	3.0	6.8	1.6	0.7	3.0
Intellectual Property Products	9.7	11.9	4.1	11.7	10.8	3.6	4.7	6.3	5.1	4.4	5.7	6.0	5.9	5.5	5.6	5.7	7.4	7.7	5.2	5.7
Structures	12.1	11.0	-2.1	-9.0	4.0	-11.1	-9.9	-10.5	-1.5	1.5	2.5	2.0	1.8	1.9	2.0	2.1	4.1	-4.5	-3.8	2.0
Residential Investment	-5.3	-3.7	-4.0	-4.7	-1.0	-3.0	4.6	4.5	4.3	4.5	4.5	4.3	4.0	4.0	3.8	3.5	-1.5	-1.6	4.0	4.1
Government Purchases	1.9	2.6	2.1	-0.4	2.9	4.8	1.7	0.8	1.1	1.1	1.0	0.8	0.8	0.8	0.8	0.7	1.7	2.2	1.3	0.9
Net Exports	-884.2	-850.5	-962.4	-983.0	-944.0	-980.7	-990.1	-923.7	-932.9	-931.6	-938.6	-941.5	-948.8	-954.8	-952.1	-950.7	-920.0	-959.6	-936.1	-951.6
Pct. Point Contribution to GDP	0.0	0.7	-2.1	-0.4	0.7	-0.7	-0.1	1.4	-0.2	0.0	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.4	-0.2	0.1	-0.1
Inventory Change	40.5	-28.0	87.2	93.0	116.0	69.4	69.4	28.0	-5.0	30.0	40.0	50.0	59.0	60.0	60.0	60.0	48.1	70.7	28.8	59.8
Pct. Point Contribution to GDP	0.1	-1.2	2.1	0.1	0.5	-0.9	0.0	-0.9	-0.7	0.7	0.2	0.2	0.2	0.0	0.0	0.0	0.1	0.1	-0.2	0.2
Nominal GDP (a)	5.0	7.1	4.8	2.9	3.9	4.7	3.8	4.2	3.5	4.8	4.1	4.2	4.2	4.1	4.1	4.1	5.4	4.2	4.1	4.2
Real Final Sales	2.4	4.8	0.8	1.0	2.6	3.0	2.1	3.5	1.9	2.1	2.0	2.1	1.9	2.2	2.4	2.4	2.8	2.3	2.4	2.1
Retail Sales (b)	4.7	5.7	5.5	3.4	2.8	3.4	4.0	4.1	4.2	3.0	2.7	2.9	3.0	3.1	2.9	3.0	4.8	3.6	3.2	3.0
Inflation Indicators (b)																				
PCE Deflator	1.9	2.3	2.2	1.9	1.4	1.4	1.4	1.5	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.8	2.1	1.4	1.9	1.9
"Core" PCE Deflator	1.8	2.0	2.0	1.9	1.6	1.6	1.7	1.6	1.8	1.9	1.8	1.8	1.8	1.7	1.8	1.8	2.0	1.6	1.8	1.8
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	2.2	2.1	2.2	2.2	2.1	2.4	1.8	2.2	2.1
"Core" Consumer Price Index	1.9	2.2	2.2	2.2	2.1	2.1	2.3	2.3	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.0
Producer Price Index (Final Demand)	2.8	3.0	3.1	2.8	1.9	2.0	1.6	1.2	1.8	1.5	2.0	2.3	2.3	2.2	2.2	2.2	2.9	1.7	1.9	2.2
Employment Cost Index	2.7	2.8	2.8	2.9	2.8	2.7	2.8	2.8	2.8	2.9	3.0	3.0	3.0	3.1	3.1	3.1	2.8	2.8	2.9	3.1
Real Disposable Income (b)	3.9	3.9	4.1	3.9	3.3	3.0	2.9	2.7	2.3	3.4	2.7	2.3	2.1	1.5	2.0	2.2	4.0	3.0	2.7	1.9
Nominal Personal Income (b)	5.6	5.8	5.9	4.9	4.6	4.7	4.4	4.5	4.3	5.1	4.7	4.3	4.1	3.5	3.9	4.1	5.6	4.6	4.6	3.9
Industrial Production (a)	2.3	4.6	5.2	3.9	-1.9	-2.3	1.2	-0.6	-3.9	1.6	1.7	2.1	1.2	1.8	1.9	1.3	3.9	0.8	-0.5	1.7
Capacity Utilization	77.9	78.5	79.1	79.4	78.6	77.8	77.6	77.1	76.4	76.7	77.0	77.4	78.0	78.4	78.9	79.2	78.7	77.8	76.9	78.6
Corporate Profits Before Taxes (b)	2.9	2.4	4.2	4.2	-2.2	1.3	-1.2	1.5	3.0	2.0	2.5	2.2	2.2	2.0	1.8	2.0	3.4	-0.2	2.4	2.0
Corporate Profits After Taxes	10.3	8.3	11.3	10.1	-2.9	1.3	-0.3	1.9	3.8	2.9	2.5	2.2	2.2	2.0	1.8	2.0	10.0	0.0	2.8	2.0
Federal Budget Balance (c)	-375	-7	-172	-319	-372	-56	-237	-357	-414	-49	-230	-331	-448	-66	-255	-359	-779	-984	-1050	-1100
Trade Weighted Dollar Index (d)	103.1	107.3	107.6	110.1	109.8	109.7	111.0	109.9	109.3	108.5	107.5	106.5	105.8	104.8	104.3	103.8	106.4	110.1	107.9	104.6
Nonfarm Payroll Change (e)	228	243	189	233	174	152	193	184	180	405	-105	10	115	110	110	110	223	176	123	111
Unemployment Rate	4.1	3.9	3.8	3.8	3.9	3.6	3.6	3.5	3.6	3.5	3.6	3.6	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	1.28	1.35	1.34	1.33	1.33	1.32	1.34	1.35	1.35	1.36	1.25	1.27	1.33	1.35
Light Vehicle Sales (g)	17.1	17.3	17.0	17.4	16.8	17.0	17.0	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	61.5	61.7	61.0	58.0	60.0	61.0	61.0	61.0	61.0	61.0	71.5	63.6	60.0	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	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.96	2.25	1.75	1.75
3 Month LIBOR	2.31	2.34	2.40	2.81	2.60	2.32	2.09	1.91	1.80	1.80	1.80	1.80	1.85	1.85	1.85	1.85	2.31	2.33	1.80	1.85
Prime Rate	4.75	5.00	5.25	5.50	5.50	5.50	5.00	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.96	5.25	4.75	4.75
Conventional Mortgage Rate	4.44	4.57	4.63	4.64	4.28	3.80	3.61	3.72	3.90	3.90	3.90	3.90	3.95	4.00	4.05	4.10	4.54	3.94	3.90	4.03
3 Month Bill	1.73	1.93	2.19	2.45	2.40	2.12	1.88	1.55	1.60	1.60	1.60	1.60	1.65	1.65	1.65	1.65	1.97	2.11	1.60	1.65
6 Month Bill	1.93	2.11	2.36	2.56	2.44	2.09	1.83	1.60	1.60	1.60	1.60	1.65	1.65	1.70	1.70	1.70	2.14	2.11	1.61	1.69
1 Year Bill	2.09	2.33	2.59	2.63	2.40	1.92	1.75	1.59	1.65	1.70	1.70	1.75	1.80	1.80	1.85	1.85	2.33	2.05	1.70	1.83
2 Year Note	2.27	2.52	2.81	2.48	2.27	1.75	1.63	1.58	1.75	1.80	1.80	1.85	1.90	1.90	1.95	2.00	2.53	1.97	1.80	1.94
5 Year Note	2.56	2.73	2.94	2.51	2.23	1.76	1.55	1.69	1.85	1.90	1.90	1.95	2.00	2.05	2.10	2.15	2.75	1.95	1.90	2.08
10 Year Note	2.74	2.85	3.05	2.69	2.41	2.00	1.68	1.92	2.10	2.15	2.15	2.20	2.25	2.30	2.35	2.40	2.91	2.14	2.15	2.33
30 Year Bond	2.97	2.98	3.19	3.02	2.81	2.52	2.12	2.39	2.50	2.55	2.60	2.70	2.75	2.80	2.85	2.90	3.11	2.58	2.59	2.83

Forecast as of: January 15, 2020

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

### Iran Emerges as a Wild Card

The year began on an encouragingly quiet note for geopolitics. The United States and China agreed to a Phase I trade deal, while the Conservative Party's victory in the U.K. elections helped ensure Boris Johnson's Brexit deal would pass parliament. The killing of Iranian General Qasem Soleimani on January 3 upset this tranquility, and, although tensions have relaxed a bit since, the events of the past couple weeks serve as a reminder that geopolitical issues can emerge onto the scene at any time. So long as there is not another flare up, we doubt the recent U.S.-Iran tensions will have any material impact on the global economy. After a brief spike, oil prices have retreated below the levels that prevailed before the incident occurred, and global equity markets have remained resilient. That said, the tinder is clearly still there, and the wrong spark could lead to a much more serious fire.

When it comes to fundamentals, the global economy continues to sputter along, neither accelerating into a rebound nor decelerating into a recession. China reports its Q4-2019 real GDP growth on January 17, and we expect it to come in just below 6.0% year-over-year, which would be roughly steady with the previous quarter. Policymakers in China started this year by taking further steps to stimulate the economy, cutting the reserve requirement ratio for banks 50 bps. The combination of a trade détente between the United States and China, as well as continued stimulus support from the authorities will, we believe, be enough to keep real GDP growth in China floating in a tight range of 5.75%-6.0% over the next year.

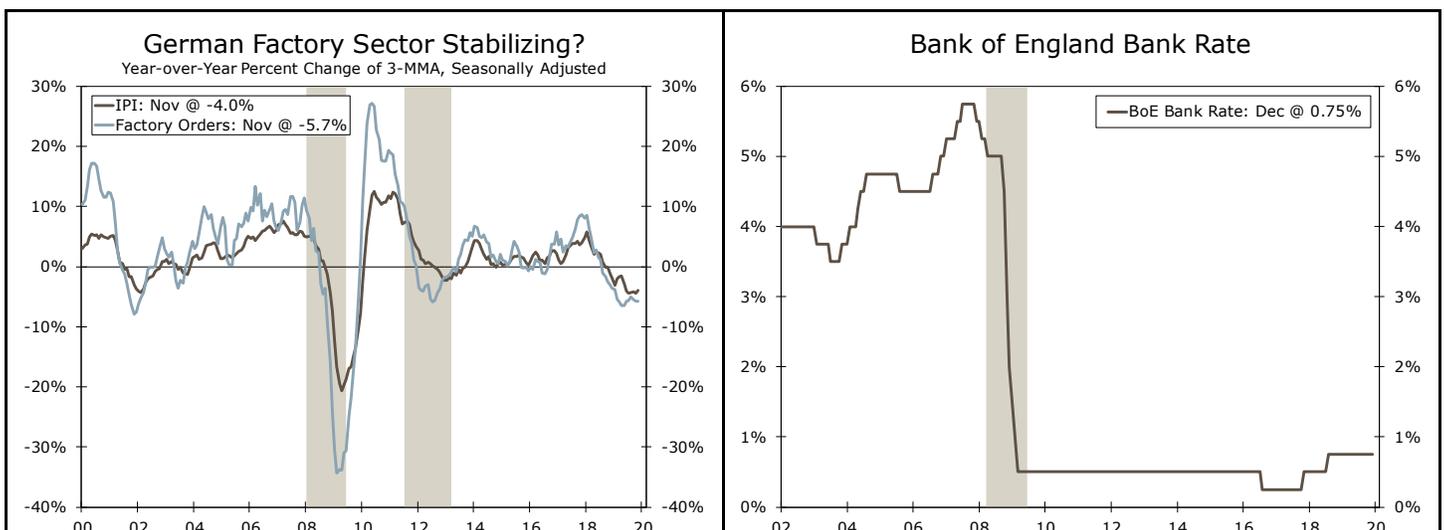
In Europe, there are signs that a stabilization in the manufacturing sector has taken hold. The Eurozone manufacturing PMI has stabilized around 46-47 over the past few months, and hard data on industrial output and factory orders in Germany suggest that the pace of contraction has eased (bottom left chart). Furthermore, the service sector has remained resilient, with the services PMI for December posting

the strongest reading since August. Our forecast for the ECB remains that it will cut rates one more time 10 bps at its March meeting amid below target inflation and still soft growth. That said, we recognize that the risks are skewed toward no cut. Stronger PMIs and/or a better-than-expected real GDP number (GDP to be reported on January 31) could be enough to forestall further easing.

In the United Kingdom, the risks to our forecast are drifting in the opposite direction. At present, we expect the BoE to keep its main policy rate on hold for the foreseeable future. The problem is that, although some certainty appears to be on the horizon in regards to Brexit, the U.K. economy appears to be stalling out. Monthly GDP data suggest that growth ground to a halt in the three months ending in November, and manufacturing output is down 2.0% on a year-over-year basis. Core inflation is a relatively tame 1.7% year-over-year, and has been slowly grinding lower over the past couple years.

The deterioration in the data over the past couple months, in combination with some dovish comments by policymakers at the BoE, have boosted expectations that some easing could be in the offing. Markets are pricing roughly a 50% chance of a 25 bps rate cut at the January 30 meeting. Should a cut occur, it would be the first ease by the BoE since the summer of 2016 (bottom right chart). With Mark Carney set to leave at the end of the month, it strikes us as odd that the leader of the BoE would initiate a major shift in monetary policy on his way out the door. Should the data continue to deteriorate in the United Kingdom, however, policymakers there may not have much of a choice.

Outside the United States, the North American growth backdrop appears sluggish. Economic growth in Canada appears listless around 1.5%, and Mexican gross fixed capital formation has contracted nearly 9% on a year-ago basis. We believe the Canadian economy will remain resilient enough to ward off any additional rate cuts, but more easing is likely in store from the Bank of Mexico.



Source: Bloomberg LP and Wells Fargo Securities

## Wells Fargo International Economic Forecast

(Year-over-Year Percent Change)

	GDP				CPI			
	2018	2019	2020	2021	2018	2019	2020	2021
Global (PPP Weights)	3.6%	3.0%	3.0%	3.3%	3.6%	3.4%	3.6%	3.4%
Advanced Economies <sup>1</sup>	2.3%	2.0%	1.7%	2.0%	2.0%	1.5%	1.9%	1.8%
United States	2.9%	2.3%	2.1%	2.3%	2.4%	1.8%	2.2%	2.1%
Eurozone	1.9%	1.2%	1.1%	1.4%	1.8%	1.2%	1.3%	1.4%
United Kingdom	1.3%	1.3%	1.1%	1.5%	2.5%	1.8%	1.8%	2.0%
Japan	0.3%	1.1%	0.5%	1.0%	1.0%	0.5%	1.2%	1.0%
Canada	2.0%	1.6%	1.6%	1.7%	2.3%	1.9%	1.8%	2.0%
Developing Economies <sup>1</sup>	4.5%	3.7%	4.0%	4.2%	4.8%	4.7%	4.9%	4.5%
China	6.6%	6.1%	5.9%	5.9%	2.1%	2.9%	3.0%	2.1%
India	7.4%	5.1%	6.0%	6.6%	3.9%	3.6%	4.5%	4.4%
Mexico	2.1%	0.1%	1.1%	1.8%	4.9%	3.6%	3.5%	3.4%

Forecast as of: January 15, 2020

<sup>1</sup>Aggregated Using PPP Weights

## Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	Central Bank Key Policy Rate					
	2020				2021	
	Q1	Q2	Q3	Q4	Q1	Q2
United States	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
Eurozone <sup>1</sup>	-0.60%	-0.60%	-0.60%	-0.60%	-0.60%	-0.60%
United Kingdom	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%
Canada	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
	2-Year Note					
	2020				2021	
	Q1	Q2	Q3	Q4	Q1	Q2
United States	1.75%	1.80%	1.80%	1.85%	1.90%	1.90%
Eurozone <sup>2</sup>	-0.70%	-0.65%	-0.60%	-0.55%	-0.45%	-0.35%
United Kingdom	0.65%	0.75%	0.80%	0.90%	0.95%	1.00%
Japan	-0.05%	-0.05%	0.00%	0.00%	0.05%	0.05%
Canada	1.70%	1.75%	1.75%	1.80%	1.85%	1.85%
	10-Year Note					
	2020				2021	
	Q1	Q2	Q3	Q4	Q1	Q2
United States	2.10%	2.15%	2.15%	2.20%	2.25%	2.30%
Eurozone <sup>2</sup>	-0.35%	-0.30%	-0.20%	-0.10%	0.05%	0.20%
United Kingdom	0.90%	1.00%	1.05%	1.05%	1.10%	1.15%
Japan	0.05%	0.05%	0.10%	0.10%	0.15%	0.15%
Canada	1.70%	1.75%	1.80%	1.85%	1.90%	1.95%

Forecast as of: January 15, 2020

<sup>1</sup> ECB Deposit Rate <sup>2</sup> German Government Bond Yield

Source: International Monetary Fund and Wells Fargo Securities

## Wells Fargo Securities Economics Group

Jay H. Bryson, Ph.D.	Acting Chief Economist	(704) 410-3274	jay.bryson@wellsfargo.com
Mark Vitner	Senior Economist	(704) 410-3277	mark.vitner@wellsfargo.com
Sam Bullard	Senior Economist	(704) 410-3280	sam.bullard@wellsfargo.com
Nick Bennenbroek	Macro Strategist	(212) 214-5636	nicholas.bennenbroek@wellsfargo.com
Tim Quinlan	Senior Economist	(704) 410-3283	tim.quinlan@wellsfargo.com
Azhar Iqbal	Econometrician	(212) 214-2029	azhar.iqbal@wellsfargo.com
Sarah House	Senior Economist	(704) 410-3282	sarah.house@wellsfargo.com
Charlie Dougherty	Economist	(704) 410-6542	charles.dougherty@wellsfargo.com
Erik Nelson	Macro Strategist	(212) 214-5652	erik.f.nelson@wellsfargo.com
Michael Pugliese	Economist	(212) 214-5058	michael.d.pugliese@wellsfargo.com
Brendan McKenna	Macro Strategist	(212) 214-5637	brendan.mckenna@wellsfargo.com
Shannon Seery	Economic Analyst	(704) 410-1681	shannon.seery@wellsfargo.com
Matthew Honnold	Economic Analyst	(704) 410-3059	matthew.honnold@wellsfargo.com
Jen Licis	Economic Analyst	(704) 410-1309	jennifer.licis@wellsfargo.com
Hop Mathews	Economic Analyst	(704) 383-5312	hop.mathews@wellsfargo.com
Coren Burton	Administrative Assistant	(704) 410-6010	coren.burton@wellsfargo.com

Wells Fargo Securities Economics Group publications are produced by Wells Fargo Securities, LLC, a U.S. broker-dealer registered with the U.S. Securities and Exchange Commission, the Financial Industry Regulatory Authority, and the Securities Investor Protection Corp. Wells Fargo Securities, LLC, distributes these publications directly and through subsidiaries including, but not limited to, Wells Fargo & Company, Wells Fargo Bank N.A., Wells Fargo Clearing Services, LLC, Wells Fargo Securities International Limited, Wells Fargo Securities Canada, Ltd., Wells Fargo Securities Asia Limited and Wells Fargo Securities (Japan) Co. Limited. Wells Fargo Securities, LLC is registered with the Commodities Futures Trading Commission as a futures commission merchant and is a member in good standing of the National Futures Association. Wells Fargo Bank, N.A. is registered with the Commodities Futures Trading Commission as a swap dealer and is a member in good standing of the National Futures Association. Wells Fargo Securities, LLC and Wells Fargo Bank, N.A. are generally engaged in the trading of futures and derivative products, any of which may be discussed within this publication. Wells Fargo Securities, LLC does not compensate its research analysts based on specific investment banking transactions. Wells Fargo Securities, LLC's research analysts receive compensation that is based upon and impacted by the overall profitability and revenue of the firm which includes, but is not limited to investment banking revenue. The information and opinions herein are for general information use only. Wells Fargo Securities, LLC does not guarantee their accuracy or completeness, nor does Wells Fargo Securities, LLC assume any liability for any loss that may result from the reliance by any person upon any such information or opinions. Such information and opinions are subject to change without notice, are for general information only and are not intended as an offer or solicitation with respect to the purchase or sales of any security or as personalized investment advice. Wells Fargo Securities, LLC is a separate legal entity and distinct from affiliated banks and is a wholly owned subsidiary of Wells Fargo & Company © 2020 Wells Fargo Securities, LLC.

### Important Information for Non-U.S. Recipients

For recipients in the EEA, this report is distributed by Wells Fargo Securities International Limited ("WFSIL"). WFSIL is a U.K. incorporated investment firm authorized and regulated by the Financial Conduct Authority. For the purposes of Section 21 of the UK Financial Services and Markets Act 2000 ("the Act"), the content of this report has been approved by WFSIL, an authorized person under the Act. WFSIL does not deal with retail clients as defined in the Directive 2014/65/EU ("MiFID2"). The FCA rules made under the Financial Services and Markets Act 2000 for the protection of retail clients will therefore not apply, nor will the Financial Services Compensation Scheme be available. This report is not intended for, and should not be relied upon by, retail clients.

SECURITIES: NOT FDIC-INSURED/NOT BANK-GUARANTEED/MAY LOSE VALUE