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Wells Fargo Economics *Macro Manual – Annual Edition*

Your guide to the data and events that will shape the economic outlook and drive financial markets in 2019

2019 Annual Outlook

December 13, 2018

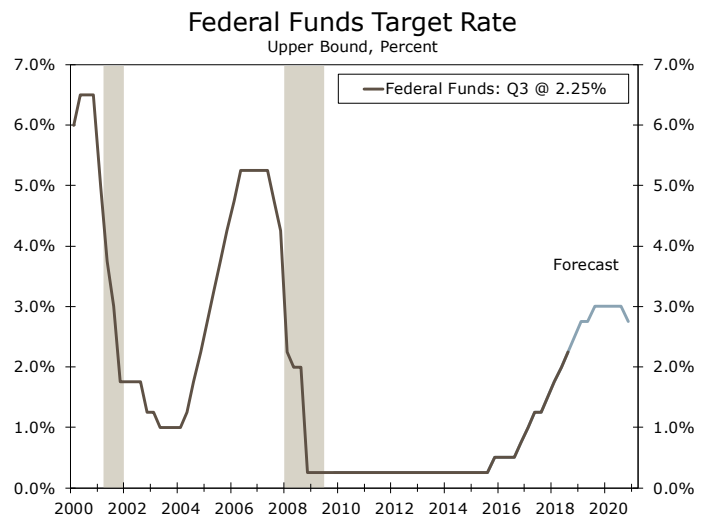
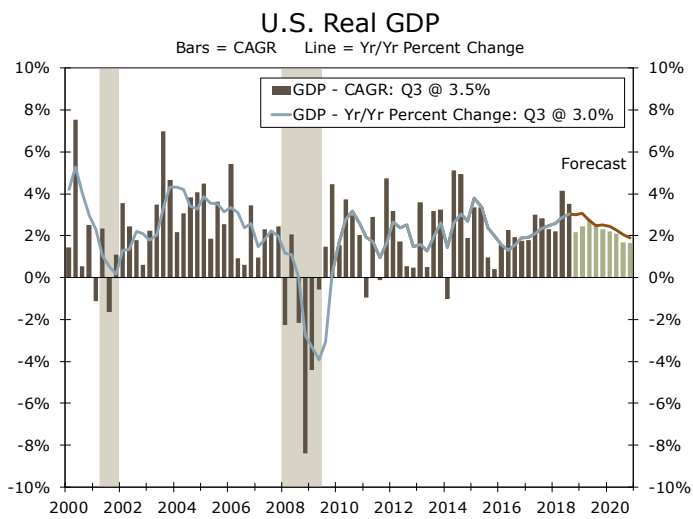
Together we'll go far



Key Takeaways

2019 Annual Outlook

- Our forecast for 2019 U.S. real GDP growth is 2.7%. If realized, this would mark a slowdown from 2018's approximate pace of 2.9%, but it would still be faster than the average for this expansion and most estimates of potential growth.
- Our fed funds forecast is two hikes in 2019, occurring in Q1 and Q3. Slower but still solid growth should prompt the Fed to keep hiking next year, but at a slower pace than occurred in 2018.
- On the international front, we also expect slower economic growth, but not so slow that it derails most developed countries' plans to continue gradually normalizing monetary policy. We look for rate hikes from the Bank of Canada, the European Central Bank, the Bank of England and even some modest tweaks to policy by the Bank of Japan.
- The outlook for global trade policy is perhaps the key risk in 2019, with China being probably the biggest "swing" factor for global growth. We expect the Chinese economy to decelerate in 2019 for both structural and trade-related reasons.



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

Key Dates/Timelines

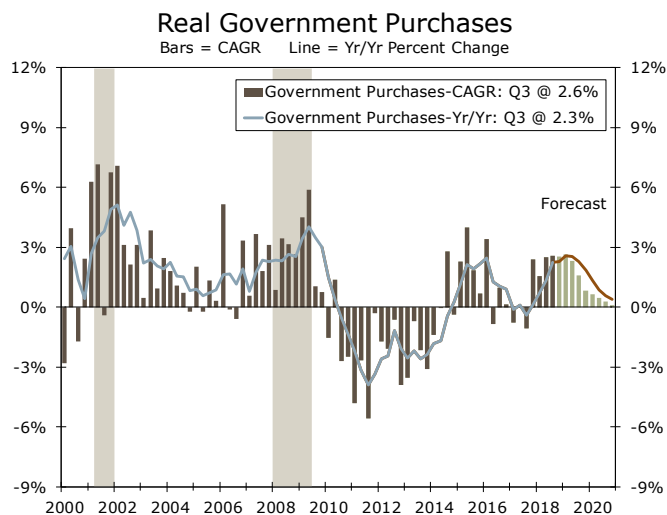
- **Early 2019: Congress begins deliberating on USMCA**
- **January 31: FOMC begins holding press conferences after every meeting**
- **March 1: 90 day “truce” between the U.S. and China on trade ends**
- **March 2: U.S. debt ceiling reinstated**
- **March 29: Brexit deadline**
- **April-May: India general election**
- **May 23-26: European Parliament elections**
- **September 30: U.S. federal government funding expires**
- **October 1: Japan raises consumption tax to 10% from 8%**
- **October 21: Canada federal election**
- **October 27: Argentina general election**
- **October 31: Mario Draghi’s term as ECB Governor ends**

Real GDP growth forecast for 2019: 2.7%

- We expect real GDP growth to be solid in 2019 but down some from 2018's pace. The slowing trajectory, however, should not take away from what stands to be another above-average year. Personal consumption should continue to be supported by the tax cuts, high consumer confidence and lower oil prices. Momentum in government spending should also carry into the new year, though it will likely decelerate as 2019 progresses. However, amid slower profit growth and higher interest rates, growth in business investment is likely to moderate, and we also expect residential construction spending growth to remain sluggish.

Real GDP growth forecast for 2020: 2.2%

- In 2020, we look for real GDP growth of 2.2%, roughly in line with the average growth rate in the current expansion. By that point, the stimulus from tax cuts will have likely faded, and the likelihood of additional, sizable fiscal stimulus on the spending side is low, in our view. Furthermore, both the fed funds rate and the Federal Reserve's balance sheet will likely be near their "terminal" levels by 2020, removing another pillar of policy support. With neither fiscal nor monetary policy providing much of a boost to the economy, we expect real GDP growth to be much closer to 2% than has been the case of late.



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

Key Themes and Upside/Downside Scenarios

- Upside scenario:** Trade uncertainty fades as the year progresses, boosting the global growth backdrop, while Goldilocks inflation keeps the Fed moving along at a gradual pace, reducing the risk of a policy mistake by the central bank.
- Downside scenario:** Higher interest rates pressure consumers and businesses, while a full-blown trade war adds to uncertainty and inflation pressures. The continued removal of historically easy monetary policy accommodation around the world weighs on asset prices, and both the U.S. and global economies decelerate earlier and sharper than we currently expect.

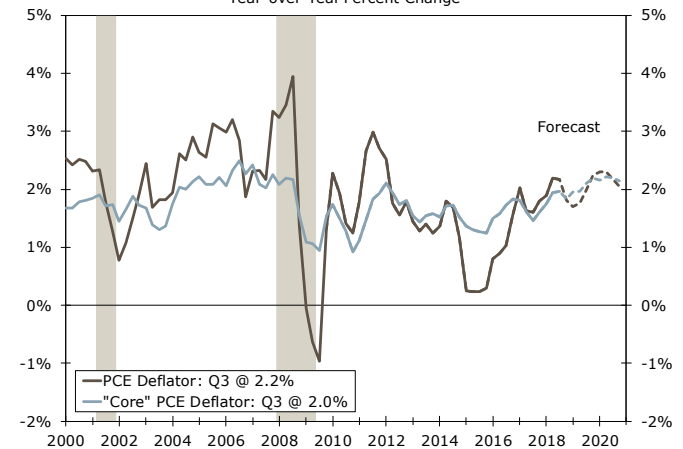
Inflation Forecast

- Both our headline and core inflation forecasts for 2019 have fallen modestly since our last update, but we still expect gradually strengthening inflation over the balance of 2019.
- More specifically, we expect the core PCE deflator to climb from just below to just above 2% by year end 2019.
- Labor Market Forecast
 - We look for the unemployment rate to finish 2019 around 3.5%, with average monthly job gains in 2019 of 168,000 (down from about 204,000 in 2018).

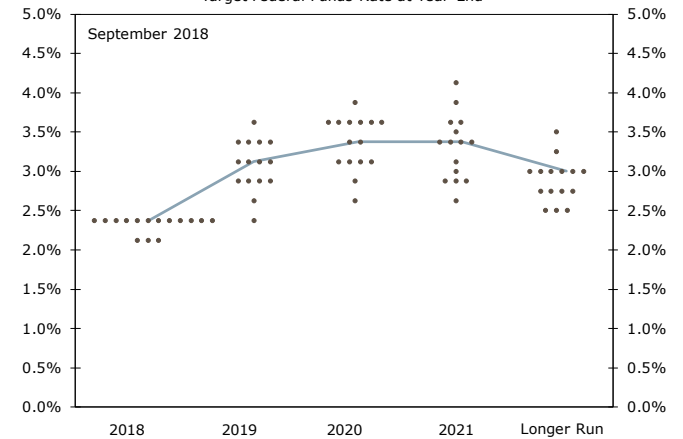
Fed Funds Outlook

- Fed funds forecast for 2018
 - One more 25 bps hike in Q4
- Fed funds forecast for 2019
 - Two 25 bps hikes in Q1 and Q3
 - Rationale: With growth and inflation still solid heading into 2019, we think the Fed will continue hiking until monetary policy is mildly restrictive.
- Fed funds forecast for 2020
 - One 25 bps cut in Q4
 - After the final hike in 2019, we expect a long pause. Then, as quarterly economic growth eventually falls to slightly below 2% in H2-2020, we anticipate policy will need to become less restrictive.

PCE Deflator & "Core" PCE Deflator
Year-over-Year Percent Change



Appropriate Pace of Policy Firming
Target Federal Funds Rate at Year-End



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

Wells Fargo U.S. Interest Rate Forecast

	Actual				Forecast							
	2018				2019				2020			
	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	2.75	2.75	3.00	3.00	3.00	3.00	3.00	2.75
3 Month LIBOR	2.31	2.34	2.40	2.75	2.95	2.95	3.15	3.15	3.15	3.15	3.15	2.90
Prime Rate	4.75	5.00	5.25	5.50	5.75	5.75	6.00	6.00	6.00	6.00	6.00	5.75
Conventional Mortgage Rate	4.44	4.57	4.63	4.60	4.80	4.85	4.95	5.00	5.05	5.05	5.00	4.95
3 Month Bill	1.73	1.93	2.19	2.40	2.60	2.65	2.85	2.90	2.90	2.90	2.85	2.65
6 Month Bill	1.93	2.11	2.36	2.60	2.75	2.80	2.95	2.95	2.95	2.90	2.85	2.70
1 Year Bill	2.09	2.33	2.59	2.75	2.85	2.90	3.00	3.00	3.00	2.95	2.90	2.75
2 Year Note	2.27	2.52	2.81	2.80	2.90	2.95	3.05	3.05	3.05	3.00	2.95	2.80
5 Year Note	2.56	2.73	2.94	2.85	3.00	3.05	3.15	3.20	3.20	3.15	3.10	3.00
10 Year Note	2.74	2.85	3.05	3.00	3.20	3.25	3.35	3.40	3.45	3.45	3.40	3.35
30 Year Bond	2.97	2.98	3.19	3.25	3.45	3.55	3.65	3.70	3.75	3.80	3.75	3.70

Forecast as of: December 13, 2018

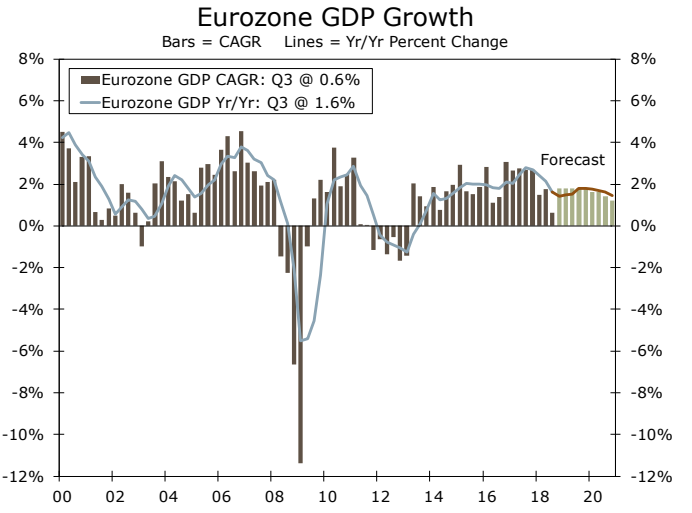
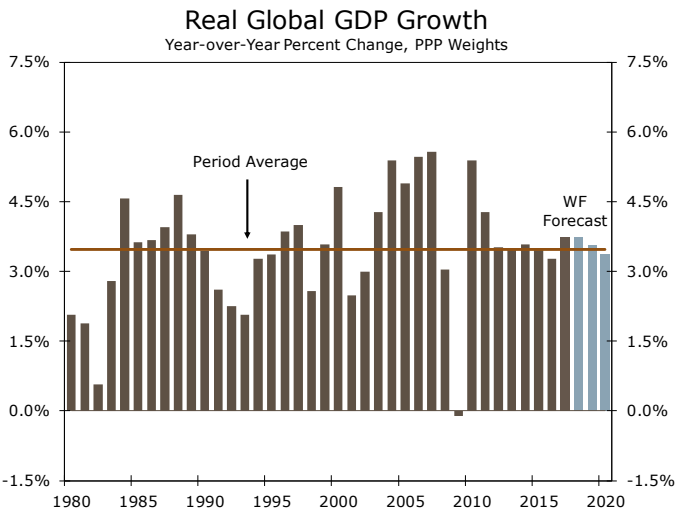
Source: Federal Reserve Board and Wells Fargo Securities

What Are We Watching in the Month Ahead?

- Federal Reserve outlook: **Where to go after neutral?**
 - With the fed funds rate approaching neutral, how does the Fed view the balance of risks?
- Wide budget deficit and Federal Reserve Treasury security redemptions to keep issuance high in 2019.
 - Will financial markets continue to digest the **robust level of Treasury issuance** across the entire curve?
- With a data-dependent Fed and a strong labor market, all eyes are on inflation developments.
 - If economic growth in the United States remains above potential, **inflation data will be key to the fed funds outlook**. Trade, oil, housing and wage growth will be a few of the key swing factors to watch.
- International rates keeping a lid on U.S. rates...for now?
 - **Thus far, higher rates in the U.S. have been primarily a function of domestic developments** (Fed rate hikes, higher deficits, etc.). Will the normalization of monetary policy abroad take the baton?

Our Baseline Forecasts for the World’s Major Developed Economies

- Eurozone economic growth should continue to slow next year, but remain above potential.
 - **Our base case is that growth remains solid enough for ECB to continue normalizing policy**, but for the overall stance of monetary policy to remain very accommodative.
 - Real GDP growth of 1.7% in 2019 and 1.6% in 2020.
- Trend-like growth of 2% expected in Canada in 2019
 - **The Canadian economy could do a bit better if NAFTA uncertainty dissipates.** We expect the USMCA to eventually be passed in 2019.
 - Lower oil prices represent a downside risk.
- Japanese economic growth holds steady around 1% next year, but slows by the end of the year as the government raises the consumption tax to 10% from 8%.
 - Weaker global export growth also a downside risk.
- The United Kingdom looks poised for a modest growth rebound as Brexit concerns ease somewhat as the year progresses.
 - Upside is limited, however, as a longer-term U.K.-E.U. trade deal will still need to be worked out.
 - Forecast of 1.5% real GDP growth in 2019 and 2020.



Source: International Monetary Fund, 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	September 2018 25 bps hike	Next Rate Hike: Q4-2018
Eurozone (ECB)	-0.40 (Deposit Rate)	September 2018 <i>Confirmed taper of asset purchases to €15 billion/month in Oct. 2018</i>	End QE Program at end of 2018 Next Rate Hike: Q3-2019 (Deposit Rate)
United Kingdom (BoE)	0.75	August 2018 25 bps hike	Next Rate Hike: Q2-2019
Japan (BoJ)	-0.10	July 2018 <i>QQE and a greater degree of variation in 10-year govt. bond yield target</i>	Widen 10-year govt. bond yield tolerance band in Q2-2019 Next Rate Hike: Q2-2019 (Policy Balance Rate)
Canada (BoC)	1.75	October 2018 25 bps hike	Next Rate Hike: Q1-2019

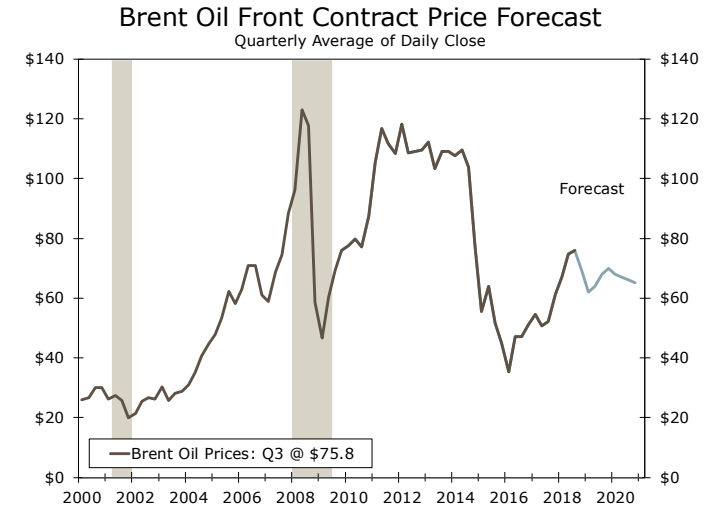
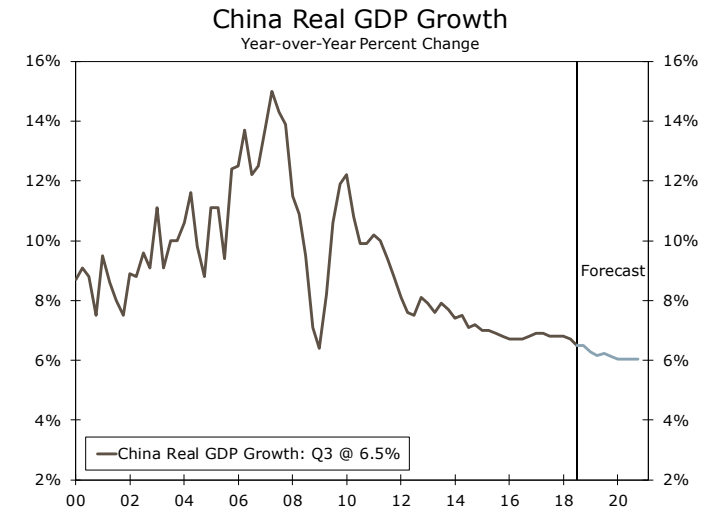
Forecast as of: December 13, 2018

Key Global Central Bank Themes for 2019

- **Monetary policy convergence – global central banks play “catch up” with the Fed**
- European Central Bank finally starts to gradually raise interest rates in Q3-2019.
 - **We look for two 20 bps rate hikes in Q3 and Q4 from the ECB to bring the deposit rate back to 0%.**
 - Draghi’s term ends on October 31, 2019 – who takes over, and how do markets respond?
- Bank of England finally enters a true hiking cycle in the second half of next year post-Brexit.
 - **We look for two 25 bps rate hikes in Q2-2019 and Q4-2019 from the BoE.**
 - This forecast is predicated on Brexit eventually occurring and going smoothly.
- **Bank of Canada should continue hiking with three 25 bps hikes next year.**
 - Risks tilted toward fewer hikes amid housing/NAFTA/oil concerns.
- Bank of Japan normalizes a bit more, but primarily in the name of financial stability.
 - **We look for the BoJ to increase its policy rate by 10 bps to 0% and increase the tolerance band around the 10-year JGB yield from +/-20 bps to +/-30 bps.**

Our Baseline Forecasts for the World's Major Developing Economies

- Growth in emerging market economies should also slow next year, driven primarily by China. From an individual country standpoint, **China is probably the biggest “swing” factor to global growth in 2019.**
- We look for a slowdown to **6.2%** in Chinese real GDP growth next year, down from about **6.6%** this year.
 - Slowdown driven by a combination of structural factors (aging population, leverage issues) and tariffs (both existing and uncertainty about future).
 - If the trade war escalates further, our forecast would likely continue to decline, with **a sub-6% real GDP forecast possible in a full-blown trade war.**
- Economic growth in India should slow in line with growth in China.
 - Possible higher rates and uncertainty around the 2019 general election could also be headwinds.
- Mexico's economy looks better positioned on growth, especially if AMLO provides fiscal stimulus.
 - A slower U.S. economy could weigh on Mexico, as could a slowdown in investment spending growth due to AMLO-related uncertainty.

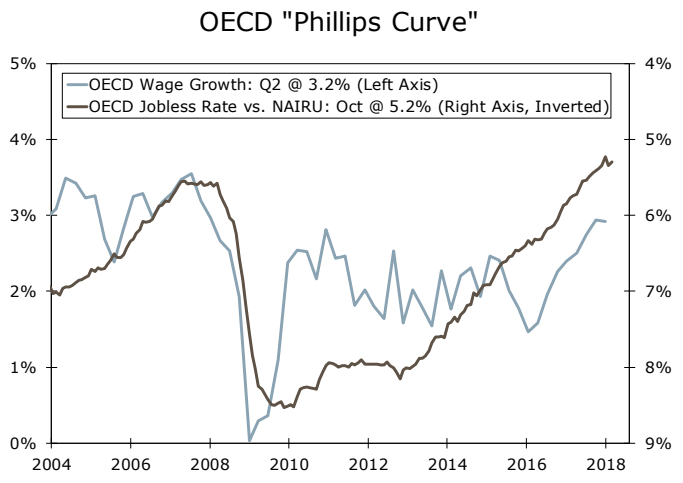
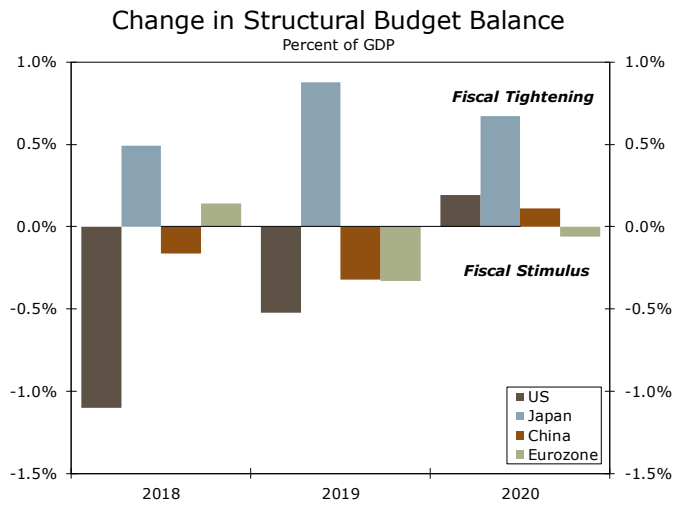


Source: Bloomberg LP, IHS Markit and Wells Fargo Securities

Global Theme: Is the Phillips Curve Really Dead?

Fiscal Policy May Not Boost the Global Economy, but Income Growth Could

- One of the defining themes of 2018 was the extent to which the U.S. economy outperformed other major economies.
- **Might fiscal stimulus outside the U.S. provide a bullish convergence in 2019? Probably not, in our view.**
 - Policy constraints (Italy) and traditional caution (Germany) limit the potential for Eurozone fiscal easing.
 - **In Japan, fiscal policy should actually *tighten*** as the consumption tax is raised in Oct-2019.
 - Chinese fiscal easing will likely only pick up meaningfully if economic conditions deteriorate further.
 - The projected U.K. and Canadian budgets are only very modestly expansionary.
 - In all, **nothing on the order of the 2018 fiscal boost in the U.S.** (top chart to the right).
- However, faster income growth should help overall growth.
 - Stronger wage growth is not just a U.S. story.
 - **Seeing signs of accelerating wages in the Eurozone, United Kingdom and Japan as labor markets tighten.**
 - This will be a key impetus for monetary policy normalization from global central banks, including the ECB, BoE, and, to a lesser extent, the BoJ.



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

From U.S. Outperformance...

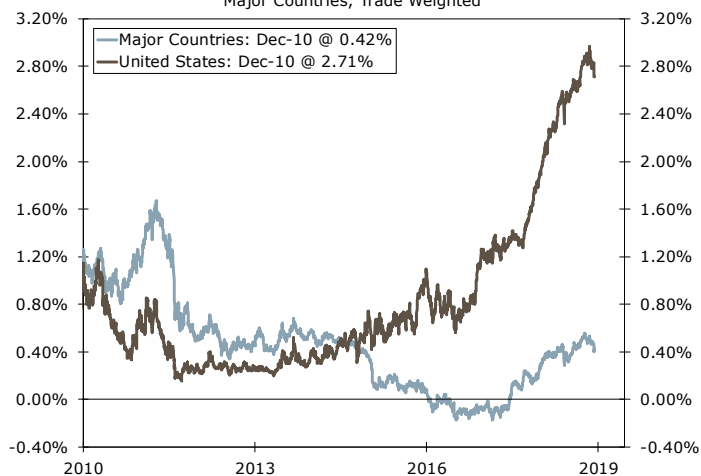
- Dollar strength in 2018 driven by:
 - Fed to date has hiked rates three times while most other central banks stood pat/moved more slowly.
 - U.S. growth surged on fiscal boost, while foreign economies (Europe, U.K., China) slowed.
 - Trade tensions and other global risks (Brexit, Italy) supported safe haven bid for U.S. dollar.
- Emerging market currencies underperformed G10
 - Trade tensions + meaningful Fed tightening = challenging recipe for emerging markets.

...to Global Convergence

- **Dollar strength turns to weakness in 2019:**
 - Monetary policy convergence takes hold – Fed slows hikes, while the rest of the world speeds up.
 - U.S. fiscal boost fades and growth slows, while foreign economies stabilize.
 - Global political risks, such as Italy’s budget drama, Brexit and U.S.-China trade have a murkier outlook and could determine the timing of the turning point.
 - **For now, we see the dollar turn occurring by mid-2019**, but that could change based on how these risks evolve.

Two-Year Government Bond Yields

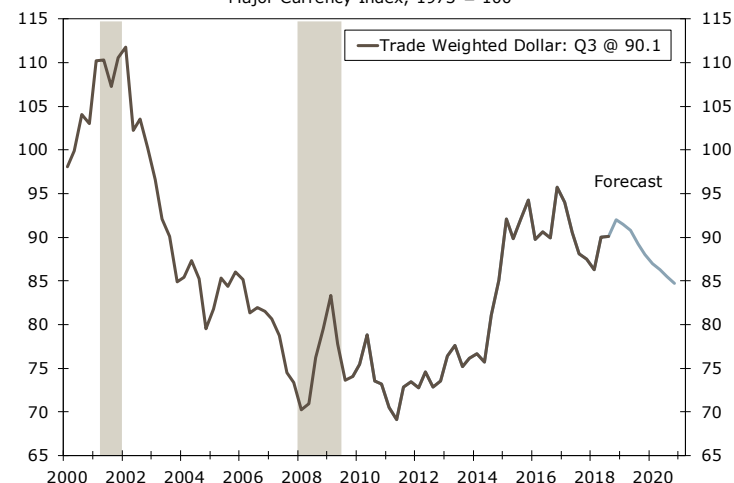
Major Countries, Trade Weighted



Source: Datastream, Federal Reserve Board and Wells Fargo Securities

Trade Weighted Dollar

Major Currency Index, 1973 = 100



Wells Fargo U.S. Economic Forecast

	Actual								Forecast								Actual		Forecast		
	2017				2018				2019				2020				2017	2018	2019	2020	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q					
Real Gross Domestic Product (a)	1.8	3.0	2.8	2.3	2.2	4.2	3.5	2.2	2.4	2.8	2.5	2.3	2.2	2.1	1.7	1.7	2.2	2.9	2.7	2.2	
Personal Consumption	1.8	2.9	2.2	3.9	0.5	3.8	3.6	2.9	2.4	2.9	2.6	2.5	2.1	2.1	1.8	1.7	2.5	2.7	2.8	2.2	
Business Fixed Investment	9.6	7.3	3.4	4.8	11.5	8.7	2.5	5.6	4.7	4.9	4.4	4.0	3.7	3.6	2.9	2.8	5.3	6.9	4.8	3.7	
Equipment	9.1	9.7	9.8	9.9	8.5	4.6	3.5	5.3	3.9	4.2	3.7	3.1	2.7	2.6	2.1	2.0	6.1	7.4	4.1	2.8	
Intellectual Property Products	8.0	6.6	1.7	0.7	14.1	10.5	4.3	7.5	4.8	5.3	4.7	4.6	4.7	4.6	3.7	3.6	4.6	7.1	5.7	4.5	
Structures	12.8	3.8	-5.7	1.3	13.9	14.5	-1.7	3.0	6.5	6.0	5.5	5.0	4.5	4.0	3.5	3.5	4.6	5.7	4.9	4.5	
Residential Construction	11.1	-5.5	-0.5	1.1	-3.4	-1.3	-2.6	-3.0	-1.5	2.0	1.8	1.5	1.5	1.5	1.0	1.0	3.3	-0.1	-0.7	1.5	
Government Purchases	-0.8	0.0	-1.0	2.4	1.5	2.5	2.6	2.5	2.7	2.3	1.6	0.8	0.7	0.5	0.3	0.1	-0.1	1.7	2.3	0.8	
Net Exports	-845.5	-844.1	-845.9	-899.2	-902.4	-841.0	-945.8	-975.9	-984.4	-996.7	-1010.7	-1021.3	-1018.1	-1017.0	-1020.8	-1020.6	-858.7	-916.3	-1003.3	-1019.1	
Pct. Point Contribution to GDP	-0.1	0.1	0.0	-0.9	0.0	1.2	-1.9	-0.6	-0.2	-0.3	-0.3	-0.2	0.1	0.0	-0.1	0.0	-0.4	-0.3	-0.5	-0.1	
Inventory Change	-2.4	11.9	64.4	16.1	30.3	-36.8	86.6	85.0	79.0	74.0	74.0	74.0	72.0	72.0	72.0	72.0	22.5	41.3	75.3	72.0	
Pct. Point Contribution to GDP	-0.8	0.2	1.0	-0.9	0.3	-1.2	2.3	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	
Nominal GDP (a)	3.9	4.2	4.8	5.1	4.3	7.6	5.0	3.5	4.5	5.1	5.0	4.7	4.5	4.4	3.6	3.6	4.2	5.1	4.7	4.4	
Real Final Sales	2.6	2.8	1.8	3.2	1.9	5.4	1.2	2.5	2.6	2.9	2.5	2.3	2.2	2.1	1.7	1.7	2.2	2.8	2.6	2.2	
Retail Sales (b)	4.9	4.1	4.3	5.6	4.5	5.7	5.7	4.6	5.1	4.5	4.5	4.5	4.5	4.4	4.4	3.7	4.7	5.1	4.6	4.2	
Inflation Indicators (b)																					
PCE Deflator	2.0	1.6	1.6	1.8	1.9	2.2	2.2	1.8	1.7	1.8	2.0	2.2	2.3	2.3	2.2	2.1	1.8	2.0	1.9	2.2	
"Core" PCE Deflator	1.8	1.6	1.5	1.6	1.7	1.9	2.0	1.8	1.9	2.0	2.1	2.2	2.2	2.2	2.2	2.1	1.6	1.9	2.1	2.2	
Consumer Price Index	2.6	1.9	2.0	2.1	2.3	2.6	2.6	2.3	2.0	2.2	2.5	2.6	2.7	2.7	2.5	2.4	2.1	2.4	2.3	2.6	
"Core" Consumer Price Index	2.1	1.8	1.7	1.7	1.9	2.2	2.2	2.2	2.1	2.3	2.4	2.4	2.3	2.2	2.2	2.2	1.8	2.1	2.3	2.2	
Producer Price Index (Final Demand)	2.0	2.2	2.4	2.8	2.8	3.0	2.9	2.6	1.8	1.6	1.9	2.0	2.5	2.6	2.4	2.2	2.3	2.8	1.8	2.4	
Employment Cost Index	2.4	2.4	2.5	2.6	2.7	2.8	2.8	2.9	2.9	3.1	3.1	3.2	3.2	3.3	3.3	3.3	2.5	2.8	3.1	3.3	
Real Disposable Income (a)	4.5	2.2	2.2	2.3	4.4	1.8	2.4	3.0	3.1	3.3	3.1	3.0	2.9	2.8	2.7	2.5	2.6	2.8	2.9	2.9	
Nominal Personal Income (b)	4.1	4.3	4.5	4.6	4.3	4.5	4.4	4.3	4.2	4.6	4.8	4.7	4.4	4.2	3.9	3.6	4.4	4.4	4.6	4.0	
Industrial Production (a)	1.0	5.0	-1.5	7.7	2.5	5.3	4.7	3.1	2.4	4.2	1.2	4.0	2.5	4.7	0.7	0.1	1.6	3.9	3.3	2.8	
Capacity Utilization	75.4	76.2	75.8	77.0	77.2	77.8	78.3	78.4	78.5	78.6	78.6	78.8	78.9	79.1	79.0	78.9	76.1	77.9	78.6	79.0	
Corporate Profits Before Taxes (b)	3.0	3.6	2.8	3.3	5.9	7.3	10.3	7.7	9.0	5.0	3.9	3.3	0.6	1.0	-1.4	-1.0	3.2	7.8	5.2	-0.2	
Corporate Profits After Taxes	6.0	6.2	6.4	7.3	15.1	15.8	19.4	13.9	8.0	4.8	3.7	3.2	0.5	0.9	-1.7	-1.3	6.5	16.0	4.9	-0.4	
Federal Budget Balance (c)	-317	4	-143	-225	-375	-7	-172	-317	-434	-72	-228	-313	-463	-79	-245	-339	-666	-779	-1050	-1100	
Trade Weighted Dollar Index (d)	94.0	90.5	88.1	87.5	86.3	90.0	90.1	92.0	91.5	90.8	89.3	88.0	87.0	86.3	85.5	84.8	91.1	89.6	89.9	85.9	
Nonfarm Payroll Change (e)	177	190	142	221	218	217	190	191	180	170	160	160	150	140	100	90	182	204	168	120	
Unemployment Rate	4.7	4.3	4.3	4.1	4.1	3.9	3.8	3.7	3.7	3.6	3.5	3.5	3.4	3.3	3.3	3.3	4.4	3.9	3.6	3.3	
Housing Starts (f)	1.23	1.17	1.17	1.26	1.32	1.26	1.22	1.28	1.29	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.20	1.27	1.30	1.31	
Light Vehicle Sales (g)	17.1	16.8	17.1	17.6	17.1	17.2	16.9	17.2	16.8	16.7	16.7	16.6	16.6	16.5	16.4	16.3	17.1	17.1	16.7	16.5	
Crude Oil - Brent - Front Contract (h)	54.6	50.8	52.2	61.4	66.9	74.6	75.8	69.0	62.0	64.0	68.0	70.0	68.0	67.0	66.0	65.0	54.7	71.6	66.0	66.5	
Quarter-End Interest Rates (i)																					
Federal Funds Target Rate	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.50	2.75	2.75	3.00	3.00	3.00	3.00	3.00	2.75	1.13	2.13	2.88	2.94	
3 Month LIBOR	1.15	1.30	1.33	1.69	2.31	2.34	2.40	2.75	2.95	2.95	3.15	3.15	3.15	3.15	3.15	2.90	1.26	2.45	3.05	3.09	
Prime Rate	4.00	4.25	4.25	4.50	4.75	5.00	5.25	5.50	5.75	5.75	6.00	6.00	6.00	6.00	6.00	5.75	4.13	5.13	5.88	5.94	
Conventional Mortgage Rate	4.20	3.90	3.81	3.94	4.44	4.57	4.63	4.60	4.80	4.85	4.95	5.00	5.05	5.05	5.00	4.95	3.99	4.56	4.90	5.01	
3 Month Bill	0.76	1.03	1.06	1.39	1.73	1.93	2.19	2.40	2.60	2.65	2.85	2.90	2.90	2.90	2.85	2.65	0.95	2.06	2.75	2.83	
6 Month Bill	0.91	1.14	1.20	1.53	1.93	2.11	2.36	2.60	2.75	2.80	2.95	2.95	2.95	2.90	2.85	2.70	1.07	2.25	2.86	2.85	
1 Year Bill	1.03	1.24	1.31	1.76	2.09	2.33	2.59	2.75	2.85	2.90	3.00	3.00	3.00	2.95	2.90	2.75	1.20	2.44	2.94	2.90	
2 Year Note	1.27	1.38	1.47	1.89	2.27	2.52	2.81	2.80	2.90	2.95	3.05	3.05	3.05	3.00	2.95	2.80	1.40	2.60	2.99	2.95	
5 Year Note	1.93	1.89	1.92	2.20	2.56	2.73	2.94	2.85	3.00	3.05	3.15	3.20	3.20	3.15	3.10	3.00	1.91	2.77	3.10	3.11	
10 Year Note	2.40	2.31	2.33	2.40	2.74	2.85	3.05	3.00	3.20	3.25	3.35	3.40	3.45	3.45	3.40	3.35	2.33	2.91	3.30	3.41	
30 Year Bond	3.02	2.84	2.86	2.74	2.97	2.98	3.19	3.25	3.45	3.55	3.65	3.70	3.75	3.80	3.75	3.70	2.89	3.10	3.59	3.75	

Forecast as of: December 13, 2018

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 Major Currency Index, 1973=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 Last Monthly Macro Manual (November 7, 2018)

Changes to the Wells Fargo U.S. Economic Forecast

	Actual				Forecast												Actual							
	2017				2018				2019				2020				2017				Forecast			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	2017	2018	2019	2020				
Real Gross Domestic Product (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.17	0.18	0.02	-0.01	0.09	0.12	-0.14	-0.13	0.00	0.00	0.08	0.03				
Personal Consumption	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	-0.13	0.00	0.00	0.00	0.01	0.06	-0.02				
Business Fixed Investment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	-0.06	0.00				
Equipment	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	0.00	0.00	0.00	0.00	0.00				
Intellectual Property Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	-0.19	0.00				
Structures	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	0.00	0.00	0.00	0.00	0.00				
Residential Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.00	-2.00	0.50	-0.20	-0.50	-0.50	-0.50	-0.50	-0.50	0.00	-0.06	-0.66	-0.40				
Government Purchases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	-0.09	0.00				
Net Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	6.3	17.0	18.2	18.6	23.8	34.9	29.0	23.7	0.0	-0.1	15.0	27.8				
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.14	0.23	0.03	0.01	0.11	0.23	-0.12	-0.11	0.00	0.00	0.08	0.07				
Inventory Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.00				
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	-0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Nominal GDP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.19	-0.65	-0.19	-0.19	-0.16	0.06	-0.25	-0.53	-0.81	0.00	-0.01	-0.27	-0.22				
Real Final Sales	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.08	0.17	0.25	0.02	-0.01	0.09	0.12	-0.14	-0.13	0.00	0.00	0.08	0.04				
Retail Sales (b)	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	0.00	0.00	0.00	0.00	0.00				
Inflation Indicators (b)																								
PCE Deflator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.24	-0.33	-0.38	-0.38	-0.19	-0.19	-0.23	-0.36	0.00	-0.01	-0.33	-0.24				
"Core" PCE Deflator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.06	-0.06	-0.06	-0.11	-0.02	0.02	-0.02	0.00	0.00	-0.01	-0.07	0.00				
Consumer Price Index	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	-0.18	-0.18	-0.20	-0.14	0.01	-0.05	-0.06	-0.13	0.00	-0.01	-0.18	-0.06				
"Core" Consumer Price Index	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.17	-0.23	-0.27	-0.27	-0.16	-0.13	-0.16	-0.20	0.00	-0.01	-0.23	-0.16				
Producer Price Index (Final Demand)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.18	-0.91	-1.03	-1.13	-1.03	-0.40	-0.34	-0.30	-0.39	0.00	-0.05	-1.03	-0.36				
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	0.00	0.00	0.00	0.00	0.00				
Real Disposable Income (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.35	0.70	0.50	0.40	0.30	0.30	0.50	0.50	0.00	0.03	0.40	0.41				
Nominal Personal Income (b)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	-0.12	-0.21	-0.10	-0.17	-0.13	-0.06	-0.29	-0.29	0.00	0.02	-0.15	-0.20				
Industrial Production (a)	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	0.00	0.00	0.00	0.00	0.00				
Capacity Utilization	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	0.00	0.00	0.00	0.00	0.00				
Corporate Profits Before Taxes (b)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	3.41	3.17	3.37	4.11	2.20	3.20	1.20	2.40	0.00	0.38	3.51	2.24				
Corporate Profits After Taxes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	3.26	2.97	3.43	4.19	2.29	3.29	1.17	2.37	0.00	0.37	3.46	2.27				
Federal Budget Balance (c)	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	0.00	0.00	0.00	0.00	0.00				
Trade Weighted Dollar Index (d)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.50	1.00	1.00	1.00	1.25	1.50	1.75	0.00	0.00	1.00	1.38				
Nonfarm Payroll Change (e)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-6.00	2.50	0.00				
Unemployment Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00				
Housing Starts (f)	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	-0.01	-0.01	0.00	0.00	0.00	0.00	-0.01				
Light Vehicle Sales (g)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00				
Crude Oil - Brent - Front Contract (h)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-9.00	-18.00	-21.00	-20.00	-12.00	-12.00	-7.00	-4.00	-5.00	0.00	-2.25	-17.75	-7.00				
Quarter-End Interest Rates (i)																								
Federal Funds Target Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	0.00	0.00	-0.19	-0.25				
3 Month LIBOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	-0.20	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	0.00	0.01	-0.18	-0.25				
Prime Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	0.00	0.00	-0.19	-0.25				
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.25	-0.30	-0.30	-0.30	-0.25	-0.20	-0.20	-0.20	0.00	-0.08	-0.29	-0.21				
3 Month Bill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.25	-0.20	-0.20	-0.15	-0.10	-0.10	-0.10	0.00	0.00	-0.18	-0.11				
2 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.15	-0.20	-0.20	-0.20	-0.20	-0.15	-0.15	-0.15	-0.20	0.00	-0.04	-0.20	-0.16				
5 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.25	-0.30	-0.30	-0.30	-0.25	-0.25	-0.25	-0.25	0.00	-0.06	-0.29	-0.25				
10 Year Note	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.25	-0.30	-0.30	-0.30	-0.25	-0.20	-0.20	-0.20	0.00	-0.08	-0.29	-0.21				
30 Year Bond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.20	-0.25	-0.25	-0.25	-0.25	-0.20	-0.20	-0.20	0.00	-0.06	-0.24	-0.21				

Forecast as of: December 13, 2018

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 Major Currency Index, 1973=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		
	2018	2019	2020	2018	2019	2020
Global (PPP Weights)	3.7%	3.6%	3.4%	3.5%	3.6%	3.7%
Advanced Economies ¹	2.4%	2.3%	2.0%	2.2%	2.1%	2.3%
United States	2.9%	2.7%	2.2%	2.4%	2.3%	2.6%
Eurozone	1.9%	1.7%	1.6%	1.8%	1.7%	1.8%
United Kingdom	1.3%	1.5%	1.5%	2.4%	2.2%	2.0%
Japan	0.9%	0.9%	0.5%	1.0%	1.2%	1.9%
Canada	2.1%	2.0%	1.7%	2.3%	2.1%	2.0%
Developing Economies ¹	4.6%	4.5%	4.4%	4.5%	4.7%	4.7%
China	6.6%	6.2%	6.0%	2.2%	2.4%	2.3%
India	7.4%	7.3%	7.1%	4.5%	4.6%	4.8%
Mexico	2.1%	2.3%	1.9%	4.9%	4.0%	3.7%

Forecast as of: December 13, 2018

¹Aggregated Using PPP Weights

Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	3-Month LIBOR						10-Year Bond					
	2018		2019			2020	2018		2019			2020
	Q4	Q1	Q2	Q3	Q4	Q1	Q4	Q1	Q2	Q3	Q4	Q1
U.S.	2.75%	2.95%	2.95%	3.15%	3.15%	3.15%	3.00%	3.20%	3.25%	3.35%	3.40%	3.45%
Japan	-0.10%	-0.08%	0.00%	0.00%	0.00%	0.00%	0.10%	0.15%	0.20%	0.22%	0.24%	0.25%
Euroland ¹	-0.35%	-0.35%	-0.30%	-0.10%	0.15%	0.15%	0.40%	0.55%	0.65%	0.75%	0.85%	0.95%
U.K.	0.85%	0.85%	1.10%	1.10%	1.35%	1.35%	1.40%	1.70%	1.90%	2.00%	2.05%	2.10%
Canada ²	2.20%	2.45%	2.70%	2.95%	2.95%	2.95%	2.35%	2.60%	2.70%	2.80%	2.85%	2.90%

Forecast as of: December 13, 2018

¹ 10-year German Government Bond Yield ² 3-Month Canada Bankers' Acceptances

Source: International Monetary Fund and Wells Fargo Securities

International Forecast: Change Since Last Monthly Macro Manual (November 7, 2018)

Changes to the Wells Fargo International Economic Forecast

	GDP			CPI		
	2018	2019	2020	2018	2019	2020
Global (PPP Weights)	-0.06%	-0.05%	-0.03%	-0.02%	-0.13%	0.03%
Advanced Economies ¹	-0.06%	-0.11%	-0.01%	-0.01%	-0.25%	0.01%
United States	-0.02%	-0.03%	0.01%	-0.01%	-0.46%	0.02%
Eurozone	-0.04%	-0.21%	-0.05%	-0.03%	-0.12%	0.00%
United Kingdom	0.06%	-0.05%	-0.08%	0.02%	0.05%	0.00%
Japan	-0.29%	-0.18%	0.06%	0.02%	0.07%	0.00%
Canada	-0.08%	-0.16%	0.00%	-0.05%	-0.08%	0.02%
Developing Economies ¹	-0.06%	-0.01%	-0.05%	-0.02%	-0.05%	0.04%
China	0.06%	0.07%	0.03%	0.03%	0.10%	0.10%
India ²	-0.30%	-0.20%	-0.20%	-0.17%	-0.50%	0.00%
Mexico	-0.09%	-0.13%	-0.40%	-0.01%	-0.10%	-0.06%

Forecast as of: December 13, 2018

¹Aggregated Using PPP Weights

Changes to the Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	3-Month LIBOR						10-Year Bond					
	2018	2019				2020	2018	2019				2020
	Q4	Q1	Q2	Q3	Q4	Q1	Q4	Q1	Q2	Q3	Q4	Q1
U.S.	0.05%	0.00%	-0.20%	-0.25%	-0.25%	-0.25%	-0.30%	-0.25%	-0.30%	-0.30%	-0.30%	-0.25%
Japan	-0.09%	-0.08%	0.00%	0.00%	-0.01%	-0.01%	-0.06%	-0.05%	-0.04%	-0.05%	-0.06%	-0.05%
Euroland ¹	0.00%	0.00%	0.00%	0.00%	0.00%	-0.25%	-0.15%	-0.15%	-0.25%	-0.25%	-0.25%	-0.25%
U.K.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.15%	0.05%	0.00%	0.00%	-0.05%	-0.10%
Canada ²	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.30%	-0.20%	-0.20%	-0.20%	-0.20%	-0.15%

Forecast as of: December 13, 2018

¹ 10-year German Government Bond Yield ² 3-Month Canada Bankers' Acceptances

Source: International Monetary Fund and Wells Fargo Securities

Global Head of Research, Economics & Strategy

Diane Schumaker-Krieg diane.schumaker@wellsfargo.com
Global Head of Research, Economics & Strategy

Senior Economists

Jay H. Bryson, Global Economist jay.bryson@wellsfargo.com
 Mark Vitner, Senior Economist mark.vitner@wellsfargo.com
 Sam Bullard, Senior Economist sam.bullard@wellsfargo.com
 Nick Bennenbroek, Macro Strategist nicholas.bennenbroek@wellsfargo.com
 Azhar Iqbal, Econometrician azhar.iqbal@wellsfargo.com
 Tim Quinlan, Senior Economist tim.quinlan@wellsfargo.com
 Sarah House, Senior Economist sarah.house@wellsfargo.com

Economists

Charlie Dougherty, Economist charles.dougherty@wellsfargo.com
 Erik Nelson, Macro Strategist erik.f.nelson@wellsfargo.com
 Michael Pugliese, Economist michael.d.pugliese@wellsfargo.com
 Brendan McKenna, Macro Strategist brendan.mckenna@wellsfargo.com

Economic Analysts

Abigail Kinnaman, Economic Analyst abigail.kinnaman@wellsfargo.com
 Shannon Seery, Economic Analyst shannon.seery@wellsfargo.com
 Matthew Honnold, Economic Analyst matthew.honnold@wellsfargo.com

Administrative Assistants

Donna LaFleur, Executive Assistant donna.lafleur@wellsfargo.com
 Dawne Howes, Administrative Assistant dawne.howes@wellsfargo.com

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