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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 12, 2018

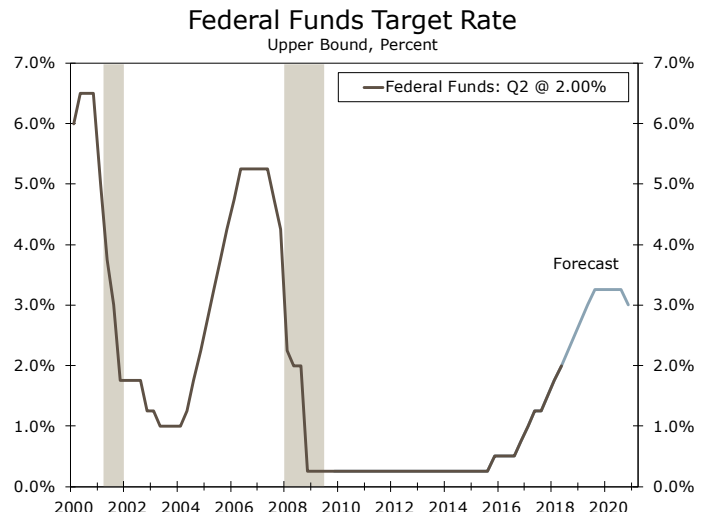
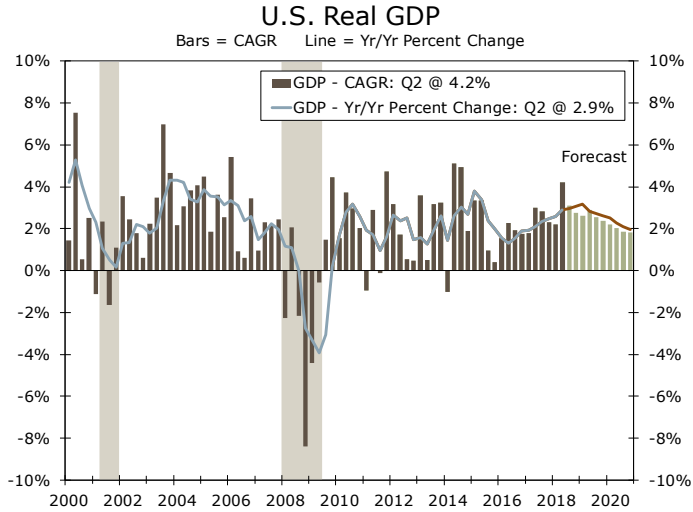
Together we'll go far



Key Takeaways

Developments since our August Monthly Economic Outlook

- **Our updated forecast for Q3-2018 U.S. real GDP growth is 3.1%.** We expect federal spending to provide a strong boost to growth, while the contributions from trade and inventories flip roles from Q2.
- **We have changed our 2019 fed funds call. We now expect three rate hikes in 2019, occurring in Q1, Q2 and Q3.** As next year comes into view, we think economic conditions will remain strong enough for the Fed to continue hiking each quarter through Q3, eventually pushing the fed funds rate a bit above neutral.
- We expect longer-term Treasury rates to keep moving up as well. **Our forecast for the end-of-year 10-year U.S. Treasury yield is 3.20% in 2018 and 3.60% in 2019.** Robust net Treasury issuance and an end to the European Central Bank's asset-purchases should keep Treasury yields grinding higher.
- **We have rolled out our initial macroeconomic forecasts for 2020.** We expect U.S. economic growth to slow to 2.2% in 2020 amid fading fiscal stimulus and monetary policy that has moved from expansionary to modestly restrictive. Against this backdrop, **we look for the Fed to remain on hold after the fed funds rate reaches 3.25% in Q3-2019 before eventually cutting rates 25 bps in Q4-2020.**



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

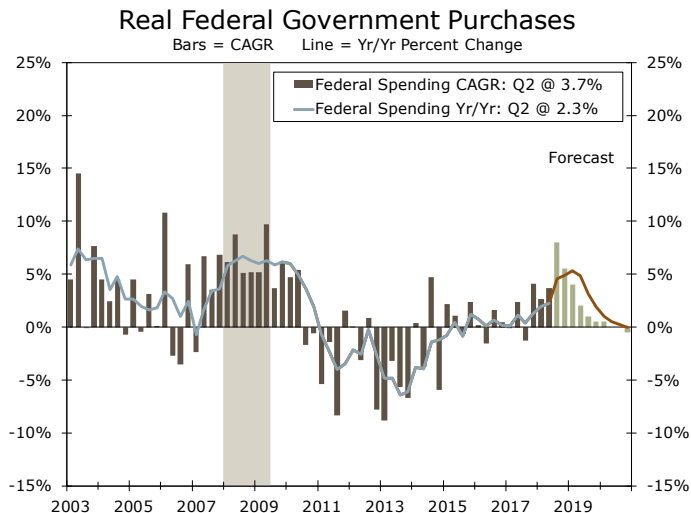
Monthly Macro Calendar: September 10-October 5

Monday	Tuesday	Wednesday	Thursday	Friday
10	11	12	13	14
Bostic* (Atlanta Fed) Speaks on the economic outlook in GA		Bullard (St. Louis Fed) Speaks to the CFA Society Chicago in IL Brainard (Fed Board of Governors) Speaks on monetary policy in MI Federal Reserve Releases Beige Book	Consumer Price Index (MoM) July 0.2%; August 0.2% (W) Bank of England Rate Decision Previous 0.75%; September 0.75% (W) ECB Rate Decision Previous 0.25%; September 0.25% (W)	Evans (Chicago Fed) Speaks at economic forum in IN Rosengren (Boston Fed) Speaks at the Brookings Institution in DC Retail Sales (MoM) July 0.5%; August 0.5% (W)
17	18	19	20	21
	United Nations General Assembly Opening of the 73rd session	Housing Starts (MoM) July 0.9%; August 5.2% (C) United Kingdom CPI (YoY) July 2.5%	Existing Home Sales (MoM) July -0.7%; August 0.0% (C) Japan CPI (YoY) July 0.9%	Canada CPI (YoY) July 3.0%
24	25	26	27	28
	Consumer Confidence August 133.4	New Home Sales (MoM) July -1.7% FOMC Rate Decision Previous 2.0%; September 2.25% (W)	Kaplan (Dallas Fed) Speaks on leadership at a forum in NC Durable Goods Orders (MoM) July -1.7%	Barkin* (Richmond Fed) Gives key note speech at a forum in NC Williams* (New York Fed) Speaks at a conference in NY Personal Income July 0.3%
1	2	3	4	5
Rosengren (Boston Fed) Speaks on economic outlook in MA ISM Manufacturing August 61.3	Powell* (Fed Chair) Speaks at an economic conference in MA	Evans (Chicago Fed) Speaks on the economy in London ISM Non-Manufacturing August 58.5	Factory Orders (MoM) July -0.8%	Nonfarm Payrolls August 201K Trade Balance July -\$50.1B

Note: (W) = Wells Fargo Estimate, * = voting FOMC member in 2018

Source: Bloomberg LP and Wells Fargo Securities

- Most recent real GDP growth forecast for Q3-2018: 3.1% (seasonally adjusted annual rate)
 - **Change since last *Monthly Economic Outlook*: -0.1 percentage points**
 - Commentary: Real GDP growth looks solid again in Q3. Inventories and trade could be bigger swing factors than usual amid the noise created by the recently enacted tariffs.
- Real GDP growth forecast for full-year 2019: 2.8%
 - **Change since last *Monthly Economic Outlook*: -0.2 percentage points**
 - Commentary: Our forecast for 2019 economic growth largely remained unchanged. We still expect stronger growth in H1-2019 to give way to a gradual softening starting in the second half of the year.
- **Initial real GDP growth forecast for full-year 2020: 2.2%**
 - Commentary: Our initial forecast for economic growth in 2020 is 2.2%. The slowdown in 2020 relative to 2018 and 2019 is primarily driven by fading fiscal stimulus and monetary policy that we anticipate will have moved from expansionary to modestly restrictive.



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

Key Themes and Upside/Downside Scenarios

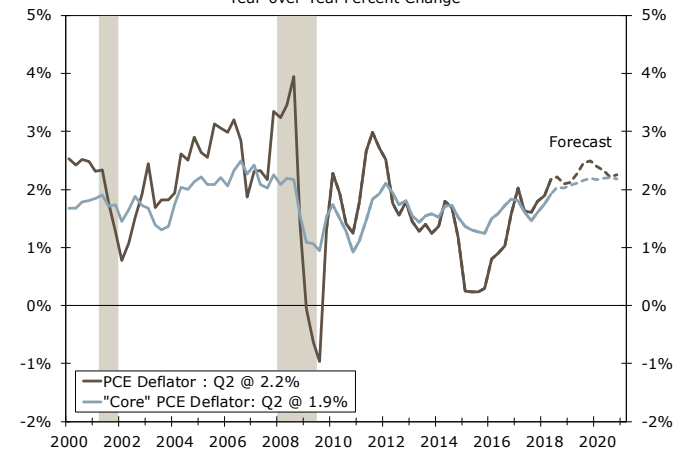
- Fiscal policy has swung from a neutral to an expansionary stance, helping to propel economic growth above potential.
- Upside scenario: After a solid H1-2018, consumption and investment gather steam and fiscal stimulus helps push full-year growth above 3.0%, with momentum headed into 2019.
- Downside scenario: Higher interest rates pressure consumers and businesses, while a trade war adds to uncertainty and inflation pressures, leading economic growth to start slowing earlier than we currently expect.

- Inflation Forecast
 - **Our inflation forecast is largely unchanged for 2018 and 2019.** We expect a tight labor market and higher input cost pressures to lift core inflation steadily higher.
 - In 2020, we forecast core inflation to stabilize at about 2.2% for the PCE deflator and 2.4% for the CPI. In our view, headline inflation will soften somewhat in 2020 as energy prices decline from a peak in Q3-2019.
- Labor Market Forecast
 - As before, **we expect the unemployment rate to steadily decline throughout our forecast horizon** as employers continue to add jobs, albeit at a slightly slower rate over time as it becomes harder to fill positions. We forecast the unemployment rate will fall to 3.3% in 2020.

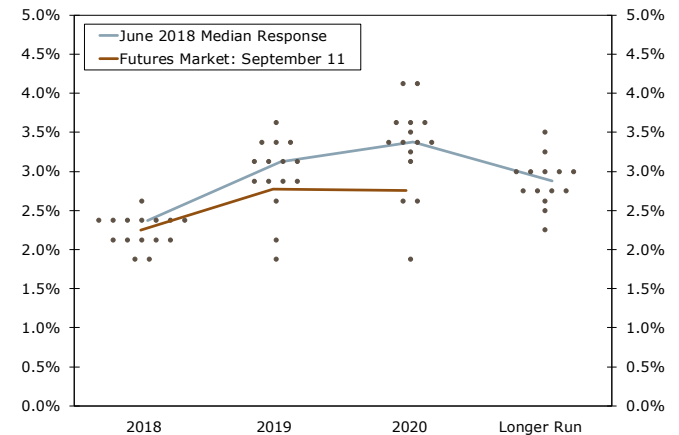
Fed Funds Outlook

- Fed funds forecast for 2018
 - **Two more 25 bps hikes in Q3 and Q4**
- Fed funds forecast for 2019
 - **Three 25 bps hikes in Q1, Q2 and Q3**
 - Previous forecast: Two 25 bps hikes in Q2 and Q4
 - Rational: 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** as quarterly economic growth eventually falls to slightly below 2% in H2-2020.

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



Fed Funds Target Rate Expectations



Source: U.S. Department of Labor, Bloomberg LP, Federal Reserve Board 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	3.00	3.25	3.25	3.25	3.25	3.25	3.00
3 Month LIBOR	2.31	2.34	2.45	2.70	2.95	3.15	3.40	3.40	3.40	3.40	3.40	3.15
Prime Rate	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.25	6.25	6.25	6.25	6.00
Conventional Mortgage Rate	4.44	4.57	4.60	4.80	4.95	5.05	5.15	5.20	5.15	5.15	5.10	5.05
3 Month Bill	1.73	1.93	2.15	2.40	2.65	2.90	3.05	3.05	3.00	3.00	2.95	2.75
6 Month Bill	1.93	2.11	2.35	2.60	2.80	3.00	3.10	3.10	3.05	3.05	3.00	2.80
1 Year Bill	2.09	2.33	2.55	2.80	3.00	3.05	3.15	3.15	3.10	3.10	3.05	2.85
2 Year Note	2.27	2.52	2.75	2.90	3.05	3.10	3.20	3.20	3.15	3.15	3.10	3.00
5 Year Note	2.56	2.73	2.85	3.05	3.20	3.30	3.40	3.40	3.35	3.35	3.30	3.25
10 Year Note	2.74	2.85	3.00	3.20	3.35	3.45	3.55	3.60	3.55	3.55	3.50	3.45
30 Year Bond	2.97	2.98	3.15	3.40	3.55	3.70	3.80	3.90	3.90	3.85	3.85	3.80

Forecast as of: September 12, 2018

Source: Federal Reserve Board and Wells Fargo Securities

What Are We Watching in the Month Ahead?

- FOMC: Market pricing in just three more hikes between now and the end of 2019.
 - Markets are only pricing in roughly three hikes between now and the end of 2019. We are looking for five.
 - The shape of the curve matters—if markets were to reprice sharply in-line with our forecast, the yield curve could flatten further, making quarterly rate hikes more difficult for the Fed to execute.
- Not just the short-end: long-end yields rising as well.
 - U.S. Treasury issuance will remain robust while the European Central Bank will taper its asset purchases once again on October 1, just as a possible Italian fiscal stimulus proposal starts to take shape. Developments on this front will likely be key to coupon-bearing Treasury yields in the weeks ahead.
- Central bank shake up? Important meetings ahead.
 - The Bank of England and the European Central Bank both meet tomorrow (September 13). Will either take the opportunity to talk up the probability of H1-2019 rate hikes?

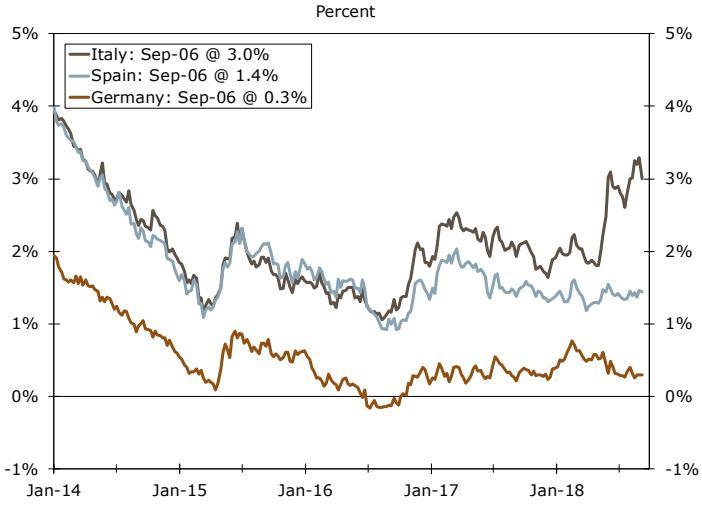
Fiscal Stimulus in Italy?

- There could be some scope for near-term fiscal stimulus in Europe as the new Italian government weighs possible tax cuts and/or new public spending.
- This comes with its own possible risks, however, as Italian bond spreads have widened to a five year high relative to their German peers. A pronounced sell-off in the €2.3 trillion Italian sovereign debt market could prompt a rise in borrowing costs across Europe, potentially slowing economic growth and delaying the first rate hike from the European Central Bank.

U.K. Growth Stabilizing in Q3

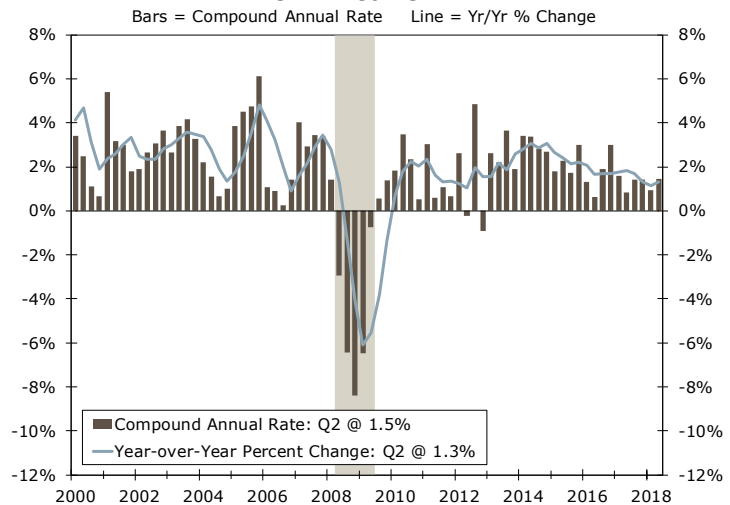
- Data out of the United Kingdom have been a bit firmer of late. A monthly GDP series for the United Kingdom has accelerated each month since April, a welcome sign given potential vulnerability to Brexit-related uncertainties. Construction output, which had been particularly weak to start the year, has strengthened over the past three months.
- With Brexit negotiations likely to ramp up further over the next few months, however, we remain cautious on our outlook for growth and the Bank of England (BoE). We do not look for another rate hike out of the BoE until Q3-2019.

10-Year Government Bond Yields



Source: IHS Markit and Wells Fargo Securities

U.K. Real GDP



Wells Fargo Central Bank Policy Forecasts

Central Bank	Current Policy Rate	Last Major Policy Change	WF Next Forecasted Policy Change
United States (FOMC)	2.00	June 2018 <i>25 bps hike</i>	Next Rate Hike: Q3-2018
Eurozone (ECB)	0.00 (Refi Rate)	June 2018 <i>Announced 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), Q4-2019 (Refi Rate)
United Kingdom (BOE)	0.75	August 2018 <i>25 bps hike</i>	Maintain size of balance sheet through Q4-2019 Next Rate Hike: Q3-2019
Japan (BOJ)	-0.10	July 2018 <i>QQE and a greater degree of variation in 10-year govt. bond yield target</i>	Maintain annual asset purchases of ¥80 trillion Change 10-year govt. bond yield tolerance band in Q2-2019
Canada (BOC)	1.50	July 2018 <i>25 bps hike</i>	Next Rate Hike: Q4-2018

Forecast as of: September 12, 2018

Source: Bloomberg LP and Wells Fargo Securities

What Are We Watching in the Month Ahead?

- European Central Bank
 - With quantitative easing set to wind down and rate hikes probably on hold until the second half of 2019, the ECB seems content to patiently await the incoming data. It would likely take a material increase in core inflation to spark a more hawkish tone; core inflation has been stagnant near 1.0% for the past several months.
- Bank of Japan
 - We expect the Bank of Japan to raise its main policy rate to 0.00% and increase the band of its 10-year yield target to 25 bps in Q2-2019.
- Bank of England
 - We look for the BoE to remain on hold for the remainder of the year in the face of Brexit uncertainty.
- Bank of Canada
 - We expect the BoC to hike rates once more this year, given on-target inflation and growing supply constraints.

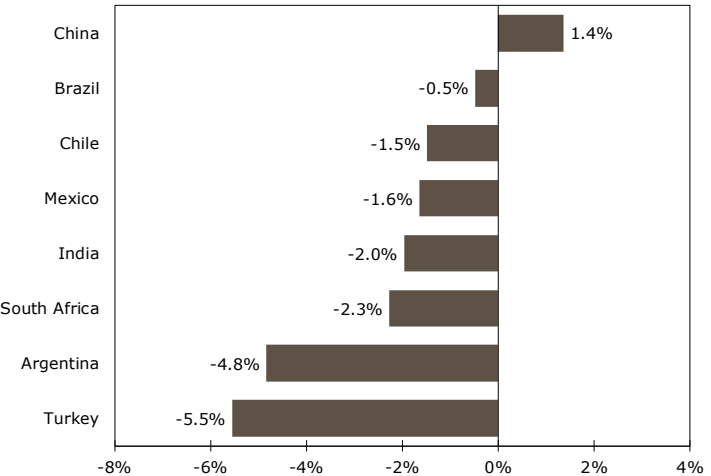
Stormy Conditions for EM

- Conditions have been stormy in emerging markets, with multiple factors driving the weakness. Turkey has been at the eye of the storm, hampered by political uncertainty, concerns about central bank independence and a wide current account deficit.
- Generally speaking, the more closely an emerging market country mirrors Turkey in these categories, the more macroeconomic stress that country has been under. The structural trend towards more monetary policy tightening in the advanced world appears to be putting pressure on the most vulnerable emerging market economies.

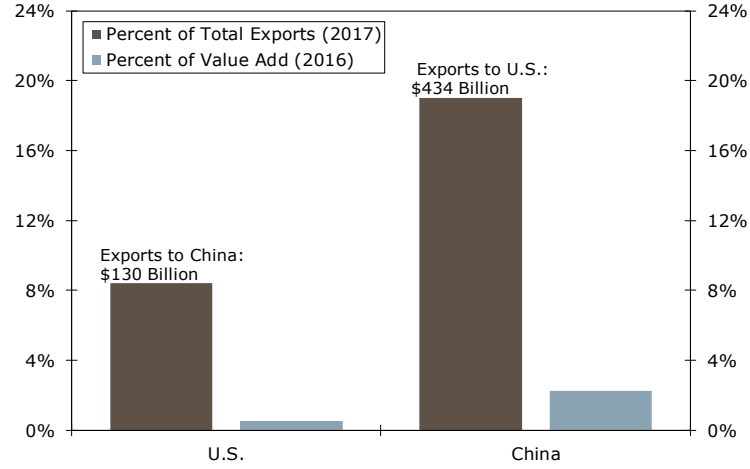
Trade Update: Another EM Challenge

- The Trump administration appears to be moving towards another round of tariffs on an estimated \$200 billion of Chinese imports, though the rate and potential effective date are still unclear. A breakthrough between the United States and Mexico on NAFTA renegotiation was a reversal of this protectionist trend, but a full resolution to the NAFTA knot is still likely months away, if not years.
- Trade concerns are yet another challenge for emerging market economies, which on average tend to be more trade-reliant than their developed economy counterparts.

Current Account Deficit
Percent of GDP, 2017



Bilateral Export Exposure
Percent

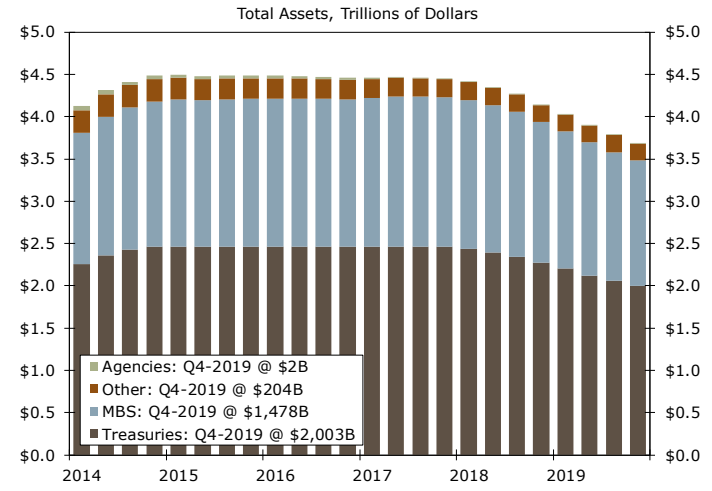


Source: International Monetary Fund, OECD and Wells Fargo Securities

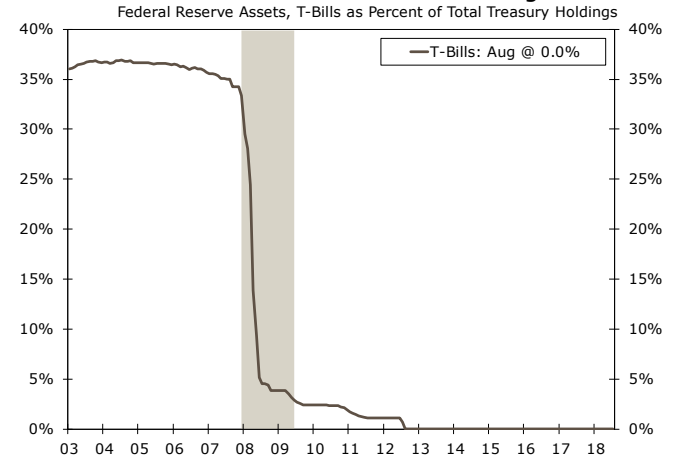
Will the Fed's Balance Sheet Ever Return to "Normal"?

- The size of the Fed's balance sheet ballooned in the years after the financial crisis, from about \$900 billion in autumn 2008 to a peak of \$4.5 trillion in early 2015. With the balance sheet now slowly shrinking (it sits at about \$4.2 trillion at present), **what is the terminal size of the Fed's balance sheet?**
- On the liabilities side, over the past 10 years there has been an increase in currency in circulation and cash balances that the Treasury holds at the Fed. In addition, changes in Fed operating procedure have led to higher reverse repo and excess reserve holdings. **Based off our estimates, the unwind will come to an end when the balance sheet totals roughly \$3.7 trillion.**
- When will this occur? This depends primarily on the pace of asset redemptions. **We estimate that the unwinding process will end in late 2019/early 2020.** Thereafter, the balance sheet will grow again in-line with the organic growth of Fed liabilities.
- As the Fed weighs its options, policymakers will also have to decide on the appropriate composition of asset holdings. We believe the mix of assets will likely shift toward Treasury securities as the Fed eventually winds down its holdings of MBS. **In our view, there would also be some advantages to the Fed shortening the maturity profile of its Treasury portfolio going forward.** Were this to occur, this strategy would exert some steepening pressure on the yield curve, all else equal.
- For more, see our recent two part series on the outlook for the Fed's balance sheet, available on our [website](#).

Federal Reserve Balance Sheet



Federal Reserve T-Bill Holdings



Source: Federal Reserve System and Wells Fargo Securities

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	3.1	2.8	2.6	2.9	2.6	2.4	2.2	2.0	1.9	1.8	2.2	2.9	2.8	2.2		
Personal Consumption	1.8	2.9	2.2	3.9	0.5	3.8	2.9	2.8	2.2	2.9	2.6	2.5	2.1	2.2	1.8	1.7	2.5	2.6	2.7	2.2		
Business Fixed Investment	9.6	7.3	3.4	4.8	11.5	8.5	6.8	5.1	4.7	4.9	4.4	4.0	3.7	3.6	2.9	2.8	5.3	7.4	5.2	3.7		
Equipment	9.1	9.7	9.8	9.9	8.5	4.4	6.9	4.3	3.8	4.2	3.7	3.1	2.7	2.6	2.1	2.0	6.1	7.7	4.3	2.8		
Intellectual Property Products	8.0	6.6	1.7	0.7	14.1	11.0	7.1	5.2	4.8	5.3	4.7	4.6	4.7	4.6	3.7	3.6	4.6	7.5	5.6	4.5		
Structures	12.8	3.8	-5.7	1.3	13.9	13.2	7.0	7.0	6.5	6.0	5.5	5.0	4.5	4.0	3.5	3.5	4.6	6.8	6.7	4.5		
Residential Construction	11.1	-5.5	-0.5	11.1	-3.4	-1.6	2.0	4.0	5.5	5.0	4.5	4.0	3.5	3.0	2.5	2.0	3.3	0.9	4.0	3.5		
Government Purchases	-0.8	0.0	-1.0	2.4	1.5	2.4	3.4	2.9	2.2	1.4	0.8	0.7	0.7	0.5	0.3	0.1	-0.1	1.7	2.1	0.6		
Net Exports	-845.5	-844.1	-845.9	-899.2	-902.4	-843.7	-900.0	-928.9	-943.2	-965.5	-980.0	-990.2	-991.4	-1000.7	-997.9	-991.6	-858.7	-893.7	-969.7	-995.4		
Pct. Point Contribution to GDP	-0.1	0.1	0.0	-0.9	0.0	1.2	-1.2	-0.6	-0.3	-0.5	-0.3	-0.2	0.0	-0.2	0.1	0.1	-0.4	-0.2	-0.4	-0.1		
Inventory Change	-2.4	11.9	64.4	16.1	30.3	-26.9	30.0	35.0	41.0	52.0	57.0	56.0	56.0	55.0	55.0	55.0	22.5	17.1	51.5	55.3		
Pct. Point Contribution to GDP	-0.8	0.2	1.0	-0.9	0.3	-1.0	1.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0		
Nominal GDP (a)	3.9	4.2	4.8	5.1	4.3	7.6	4.6	5.0	5.3	5.5	5.2	4.8	4.4	4.3	4.0	4.4	4.2	5.2	5.3	4.6		
Real Final Sales	2.6	2.8	1.8	3.2	1.9	5.3	2.5	2.7	2.5	2.6	2.5	2.4	2.2	2.0	1.9	1.8	2.2	3.0	2.7	2.2		
Retail Sales (b)	4.9	4.1	4.2	5.6	4.5	5.7	6.2	5.1	5.6	5.0	4.6	4.5	4.5	4.4	4.4	3.7	4.7	5.4	4.9	4.2		
Inflation Indicators (b)																						
PCE Deflator	2.0	1.6	1.6	1.8	1.9	2.2	2.2	2.1	2.1	2.3	2.5	2.5	2.4	2.3	2.2	2.3	1.8	2.1	2.3	2.3		
"Core" PCE Deflator	1.8	1.6	1.5	1.6	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	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	2.4	2.2	2.4	2.6	2.7	2.6	2.5	2.3	2.4	2.1	2.5	2.5	2.5		
"Core" Consumer Price Index	2.1	1.8	1.7	1.7	1.9	2.2	2.3	2.3	2.3	2.5	2.5	2.5	2.4	2.3	2.4	2.4	1.8	2.2	2.4	2.4		
Producer Price Index (Final Demand)	2.0	2.2	2.4	2.8	2.8	3.0	3.1	2.7	2.6	2.5	2.7	2.9	2.8	2.8	2.5	2.5	2.3	2.9	2.7	2.7		
Employment Cost Index	2.4	2.4	2.5	2.6	2.7	2.8	2.8	2.9	2.9	3.0	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	2.5	2.5	2.5	2.8	2.6	2.6	2.6	2.6	2.5	2.2	2.0	2.6	2.9	2.6	2.5		
Nominal Personal Income (b)	4.1	4.3	4.5	4.6	4.3	4.6	4.6	4.3	4.4	4.7	4.8	4.8	4.6	4.3	4.2	3.9	4.4	4.4	4.7	4.2		
Industrial Production (a)	1.0	5.0	-1.5	7.7	2.5	6.0	3.0	3.3	2.4	4.2	1.2	4.0	2.5	4.7	0.7	0.1	1.6	3.9	3.1	2.8		
Capacity Utilization	75.4	76.2	75.8	77.0	77.2	78.0	78.2	78.4	78.5	78.6	78.6	78.8	78.9	79.1	79.0	78.9	76.1	78.0	78.6	79.0		
Corporate Profits Before Taxes (b)	3.0	3.6	2.8	3.3	5.9	7.7	8.0	6.2	5.6	1.8	0.5	-0.8	-1.6	-2.2	-2.6	-3.4	3.2	6.9	1.7	-2.4		
Corporate Profits After Taxes	6.0	6.2	6.4	7.3	15.1	16.1	17.0	12.5	4.7	1.9	0.3	-1.0	-1.8	-2.4	-2.9	-3.7	6.5	15.1	1.4	-2.7		
Federal Budget Balance (c)	-317	4	-143	-225	-375	-7	-168	-321	-396	-63	-270	-337	-416	-63	-283	-364	-666	-775	-1050	-1100		
Trade Weighted Dollar Index (d)	94.0	90.5	88.1	87.5	86.3	90.0	90.0	90.5	90.0	89.0	87.8	86.3	85.8	83.5	82.0	80.0	91.1	89.2	88.3	82.8		
Nonfarm Payroll Change (e)	177	190	142	221	218	217	179	180	170	170	160	160	150	140	100	90	182	199	165	120		
Unemployment Rate	4.7	4.3	4.3	4.1	4.1	3.9	3.9	3.8	3.7	3.6	3.6	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	1.25	1.27	1.33	1.34	1.37	1.39	1.42	1.42	1.43	1.43	1.42	1.20	1.30	1.38	1.43		
Light Vehicle Sales (g)	17.1	16.8	17.1	17.6	17.1	17.2	16.7	16.8	16.8	16.7	16.7	16.6	16.6	16.5	16.4	16.3	17.1	17.0	16.7	16.5		
Crude Oil - Brent - Front Contract (h)	54.6	50.8	52.2	61.4	66.9	74.6	75.0	72.0	75.0	80.0	85.0	80.0	76.0	71.0	70.0	65.0	54.7	72.1	80.0	70.5		
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	3.00	3.25	3.25	3.25	3.25	3.25	3.00	1.13	2.13	3.06	3.19		
3 Month LIBOR	1.15	1.30	1.33	1.69	2.31	2.34	2.45	2.70	2.95	3.15	3.40	3.40	3.40	3.40	3.40	3.15	1.26	2.45	3.23	3.34		
Prime Rate	4.00	4.25	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00	6.25	6.25	6.25	6.25	6.25	6.00	4.13	5.13	6.06	6.19		
Conventional Mortgage Rate	4.20	3.90	3.81	3.94	4.44	4.57	4.60	4.80	4.95	5.05	5.15	5.20	5.15	5.15	5.10	5.05	3.99	4.60	5.09	5.11		
3 Month Bill	0.76	1.03	1.06	1.39	1.73	1.93	2.15	2.40	2.65	2.90	3.05	3.05	3.00	3.00	2.95	2.75	0.95	2.05	2.91	2.93		
6 Month Bill	0.91	1.14	1.20	1.53	1.93	2.11	2.35	2.60	2.80	3.00	3.10	3.10	3.05	3.05	3.00	2.80	1.07	2.25	3.00	2.98		
1 Year Bill	1.03	1.24	1.31	1.76	2.09	2.33	2.55	2.80	3.00	3.05	3.15	3.15	3.10	3.10	3.05	2.85	1.20	2.44	3.09	3.03		
2 Year Note	1.27	1.38	1.47	1.89	2.27	2.52	2.75	2.90	3.05	3.10	3.20	3.20	3.15	3.15	3.10	3.00	1.40	2.61	3.14	3.10		
5 Year Note	1.93	1.89	1.92	2.20	2.56	2.73	2.85	3.05	3.20	3.30	3.40	3.40	3.35	3.35	3.30	3.25	1.91	2.80	3.33	3.31		
10 Year Note	2.40	2.31	2.33	2.40	2.74	2.85	3.00	3.20	3.35	3.45	3.55	3.60	3.55	3.55	3.50	3.45	2.33	2.95	3.49	3.51		
30 Year Bond	3.02	2.84	2.86	2.74	2.97	2.98	3.15	3.40	3.55	3.70	3.80	3.90	3.90	3.85	3.85	3.80	2.89	3.13	3.74	3.85		

Forecast as of: September 12, 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 (August 8, 2018)

Changes to the Wells Fargo U.S. Economic Forecast

	Actual																Forecast											
	2016				2017				2018				2019				2017			2018			2019					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	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	0.24	0.71	0.90	0.53	0.43	1.24	0.27	0.48	0.40	-1.18	-0.59	-0.93	0.00	-0.01	-0.18									
Personal Consumption	0.00	0.00	0.00	0.00	-0.63	-0.55	-0.43	1.34	-1.27	0.90	0.68	-1.16	1.72	-1.12	-0.02	-0.22	0.00	-0.01	0.02									
Business Fixed Investment	0.00	0.00	0.00	0.00	10.76	3.49	-1.13	4.84	1.96	1.22	3.37	0.27	-6.85	-2.44	-2.63	-1.14	0.00	0.20	-0.01									
Equipment	0.00	0.00	0.00	0.00	15.45	9.58	9.68	8.98	-0.56	-5.25	-2.92	-5.58	-4.73	0.31	-3.88	-1.21	0.00	0.03	-0.11									
Intellectual Property Products	0.00	0.00	0.00	0.00	-0.79	-2.99	-3.77	1.02	6.15	4.45	5.42	4.48	-9.30	-2.85	-2.12	-0.54	0.00	0.57	0.12									
Structures	0.00	0.00	0.00	0.00	16.77	0.57	-18.29	2.55	1.08	9.34	12.70	5.69	-7.40	-7.25	-1.50	-2.00	0.00	-0.01	0.00									
Residential Construction	0.00	0.00	0.00	0.00	-2.56	-4.48	1.18	3.43	-14.49	3.86	2.47	-7.12	8.90	6.06	1.50	0.00	0.00	-0.23	-0.67									
Government Purchases	0.00	0.00	0.00	0.00	-4.18	0.89	-2.03	2.23	2.30	2.30	4.40	0.51	0.63	-0.74	-2.50	-2.12	0.00	0.05	0.28									
Net Exports	0.00	0.00	0.00	0.00	-67.63	-79.93	-79.65	-62.59	-56.85	0.35	-54.05	-29.67	-40.85	####	-96.93	-90.98	0.00	-10.11	-42.24									
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	0.26	-0.21	-0.02	0.43	0.08	1.09	-1.22	0.27	-0.28	-1.53	0.41	0.13	0.00	-0.06	-0.17									
Inventory Change	0.00	0.00	0.00	0.00	-53.13	-5.89	78.49	-22.94	32.74	-38.87	-34.35	18.86	10.66	79.92	42.00	24.00	0.00	4.75	-3.50									
Pct. Point Contribution to GDP	0.00	0.00	0.00	0.00	-0.18	0.85	1.63	-1.94	1.07	-1.20	0.20	1.02	-0.14	1.23	-0.83	-0.39	0.00	0.03	-0.04									
Nominal GDP	0.00	0.00	0.00	0.00	2.72	-0.96	1.36	1.19	0.37	3.44	-0.20	-0.02	0.96	-1.94	0.11	-0.87	0.00	-0.06	-0.24									
Real Final Sales	0.00	0.00	0.00	0.00	0.40	-0.17	-0.76	2.51	-0.65	2.50	0.77	-0.56	0.55	-2.47	-0.44	-0.53	0.00	-0.04	-0.13									
Retail Sales (b)	0.00	0.00	0.00	0.00	2.01	1.54	1.75	2.04	-0.40	1.72	2.00	-0.45	1.12	-0.91	-1.87	-0.90	0.01	-0.18	-0.59									
Inflation Indicators (b)																												
PCE Deflator	0.00	0.00	0.00	0.00	1.23	0.73	0.57	0.23	-0.14	0.54	0.62	0.30	0.23	0.12	0.17	0.32	0.00	-0.04	-0.05									
"Core" PCE Deflator	0.00	0.00	0.00	0.00	0.31	0.04	-0.27	-0.22	-0.06	0.30	0.57	0.42	0.32	0.20	0.14	0.18	0.00	0.01	0.01									
Consumer Price Index	0.00	0.00	0.00	0.00	1.51	0.83	0.83	0.31	-0.31	0.74	0.65	0.24	-0.05	-0.22	-0.03	0.28	0.00	-0.03	-0.04									
"Core" Consumer Price Index	0.00	0.00	0.00	0.00	-0.09	-0.42	-0.53	-0.43	-0.21	0.41	0.61	0.58	0.34	0.27	0.20	0.18	0.00	0.02	0.02									
Producer Price Index (Final Demand)	0.00	0.00	0.00	0.00	2.03	2.09	2.08	1.39	0.79	0.81	0.76	-0.06	-0.24	-0.52	-0.61	0.02	0.00	-0.09	-0.13									
Employment Cost Index	0.00	0.00	0.00	0.00	0.44	0.03	0.18	0.34	0.33	0.41	0.30	0.33	0.20	0.27	0.29	0.30	0.00	0.01	0.05									
Real Disposable Income (a)	0.00	0.00	0.00	0.00	1.73	2.78	0.69	-0.45	-0.01	0.31	0.28	0.20	-1.69	0.04	0.10	0.10	0.00	-0.01	-0.01									
Nominal Personal Income (b)	0.00	0.00	0.00	0.00	1.05	2.07	2.41	1.64	0.18	0.34	0.09	-0.33	0.11	0.02	0.05	0.42	0.00	-0.09	-0.07									
Industrial Production (a)	0.00	0.00	0.00	0.00	2.84	7.10	-2.65	7.05	1.56	0.96	4.53	-4.42	-0.05	-1.80	-1.44	1.64	0.00	0.13	0.46									
Capacity Utilization	0.00	0.00	0.00	0.00	-0.30	1.07	0.58	1.78	1.85	1.73	2.39	1.35	1.25	0.66	0.51	0.65	0.00	0.11	0.31									
Corporate Profits Before Taxes (b)	0.00	0.00	0.00	0.00	9.53	7.59	3.35	-4.27	2.87	4.11	5.24	2.92	-0.31	-2.28	-2.70	-1.60	0.00	3.48	2.37									
Corporate Profits After Taxes	0.00	0.00	0.00	0.00	12.17	9.10	8.41	-0.08	9.05	9.87	10.60	5.26	-10.37	-11.42	-12.51	-8.75	0.00	2.98	1.97									
Federal Budget Balance (c)	0.00	0.00	0.00	0.00	-71.53	-56.43	43.83	-15.12	-57.73	-11.17	-25.16	-95.82	-21.09	-55.69	####	-16.31	0.17	0.00	0.00									
Trade Weighted Dollar Index (d)	0.00	0.00	0.00	0.00	4.24	-0.09	-1.83	-8.25	-7.69	-0.52	1.90	3.03	3.73	-0.97	-2.25	-4.00	0.00	0.06	1.13									
Nonfarm Payroll Change (e)	0.00	0.00	0.00	0.00	-21.00	25.33	####	56.67	41.00	27.33	37.67	-40.67	-48.33	-60.33	-19.00	-20.00	0.00	-3.25	0.00									
Unemployment Rate	0.00	0.00	0.00	0.00	-0.27	-0.53	-0.63	-0.63	-0.57	-0.43	-0.43	-0.33	-0.40	-0.30	-0.27	-0.27	0.00	0.00	-0.03									
Housing Starts (f)	0.00	0.00	0.00	0.00	0.09	0.01	0.02	0.01	0.09	0.08	0.10	0.07	0.03	0.11	0.08	0.10	0.00	0.00	0.00									
Light Vehicle Sales (g)	0.00	0.00	0.00	0.00	-0.22	-0.49	-0.49	-0.06	-0.03	0.39	-0.35	-0.78	-0.32	-0.50	-0.16	-0.20	0.00	-0.02	0.03									
Crude Oil - Brent - Front Contract (h)	0.00	0.00	0.00	0.00	19.37	3.77	5.18	10.40	12.33	23.84	22.83	10.63	8.06	5.37	10.00	8.00	0.00	0.00	0.00									
Quarter-End Interest Rates (i)																												
Federal Funds Target Rate	0.00	0.00	0.00	0.00	0.50	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	0.75	0.00	0.00	0.31									
3 Month LIBOR	0.00	0.00	0.00	0.00	0.52	0.65	0.48	0.70	1.16	1.04	1.12	1.01	0.64	0.81	0.95	0.70	0.00	0.00	0.31									
Prime Rate	0.00	0.00	0.00	0.00	0.50	0.75	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	0.75	0.00	0.00	0.31									
Conventional Mortgage Rate	0.00	0.00	0.00	0.00	0.51	0.33	0.35	-0.26	0.25	0.66	0.79	0.86	0.51	0.48	0.50	0.40	0.00	-0.01	0.01									
3 Month Bill	0.00	0.00	0.00	0.00	0.55	0.77	0.77	0.88	0.97	0.90	1.09	1.01	0.92	0.97	0.95	0.70	0.00	0.03	0.29									
2 Year Note	0.00	0.00	0.00	0.00	0.54	0.80	0.70	0.69	1.00	1.14	1.28	1.01	0.78	0.58	0.50	0.35	0.00	0.02	0.23									
5 Year Note	0.00	0.00	0.00	0.00	0.72	0.88	0.78	0.27	0.63	0.84	0.93	0.85	0.64	0.57	0.55	0.40	0.00	0.01	0.02									
10 Year Note	0.00	0.00	0.00	0.00	0.62	0.82	0.73	-0.05	0.34	0.54	0.67	0.80	0.61	0.60	0.50	0.40	0.00	0.02	0.03									
30 Year Bond	0.00	0.00	0.00	0.00	0.41	0.54	0.54	-0.32	-0.05	0.14	0.29	0.66	0.58	0.72	0.65	0.55	0.00	0.01	0.04									

Forecast as of: September 12, 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)	3.8%	3.7%	3.4%	3.5%	3.7%	3.7%
Advanced Economies ¹	2.5%	2.5%	2.0%	2.2%	2.2%	2.3%
United States	2.9%	2.8%	2.2%	2.5%	2.5%	2.5%
Eurozone	2.1%	2.1%	1.7%	1.7%	1.8%	1.9%
United Kingdom	1.3%	1.5%	1.5%	2.3%	2.0%	2.0%
Japan	1.2%	1.2%	0.6%	1.0%	1.1%	2.0%
Canada	1.9%	2.0%	1.6%	2.3%	2.1%	2.0%
Developing Economies ¹	4.7%	4.6%	4.4%	4.5%	4.8%	4.7%
China	6.6%	6.3%	6.1%	2.1%	2.3%	2.3%
India	7.5%	7.4%	7.2%	4.7%	5.0%	4.8%
Mexico	2.2%	2.7%	2.4%	4.7%	3.9%	3.7%

Forecast as of: September 12, 2018

¹Aggregated Using PPP Weights

Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	3-Month LIBOR						10-Year Bond					
	2018		2019				2018		2019			
	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4	Q1	Q2	Q3	Q4
U.S.	2.45%	2.70%	2.95%	3.15%	3.40%	3.40%	3.00%	3.20%	3.35%	3.45%	3.55%	3.60%
Japan	-0.02%	-0.01%	0.00%	0.00%	0.00%	0.01%	0.12%	0.16%	0.20%	0.22%	0.24%	0.25%
Euroland ¹	-0.35%	-0.35%	-0.30%	-0.25%	-0.15%	0.05%	0.45%	0.60%	0.75%	0.90%	1.00%	1.10%
U.K.	0.80%	0.80%	0.85%	0.95%	1.05%	1.10%	1.40%	1.50%	1.60%	1.70%	1.90%	2.00%
Canada ²	1.95%	2.20%	2.25%	2.40%	2.50%	2.65%	2.30%	2.40%	2.50%	2.60%	2.70%	2.75%

Forecast as of: September 12, 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 (August 8, 2018)

Changes to the Wells Fargo International Economic Forecast

	GDP		CPI	
	2018	2019	2018	2019
Global (PPP Weights)	0.29%	0.17%	0.11%	0.13%
Advanced Economies ¹	0.09%	0.04%	0.11%	0.10%
United States	-0.01%	-0.18%	0.00%	-0.06%
Eurozone	0.01%	0.15%	0.05%	0.03%
United Kingdom	0.02%	-0.24%	0.04%	0.05%
Japan	0.28%	0.18%	0.28%	0.45%
Canada	0.13%	0.23%	0.01%	0.17%
Developing Economies ¹	0.15%	-0.02%	-0.29%	-0.30%
China	0.03%	0.30%	0.09%	0.02%
India ²	0.83%	-0.33%	0.06%	0.04%
Mexico	-0.05%	-0.01%	0.05%	-0.06%

Forecast as of: September 12, 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				2018		2019		
	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4	Q1	Q2	Q3
U.S.	0.00%	0.00%	0.25%	0.25%	0.50%	0.25%	-0.05%	0.00%	0.00%	0.00%	0.05%
Japan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.08%	0.11%	0.12%	0.13%
Euroland ¹	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.10%	0.05%	0.00%	0.00%
U.K.	0.00%	-0.10%	-0.20%	-0.20%	-0.25%	-0.30%	0.00%	-0.10%	-0.20%	-0.30%	-0.20%
Canada ²	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Forecast as of: September 12, 2018

¹ 10-year German Government Bond Yield² 3-Month Canada Bankers' Acceptances

Source: International Monetary Fund and Wells Fargo Securities

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