

Economics Group

Weekly Economic & Financial Commentary

U.S. Review

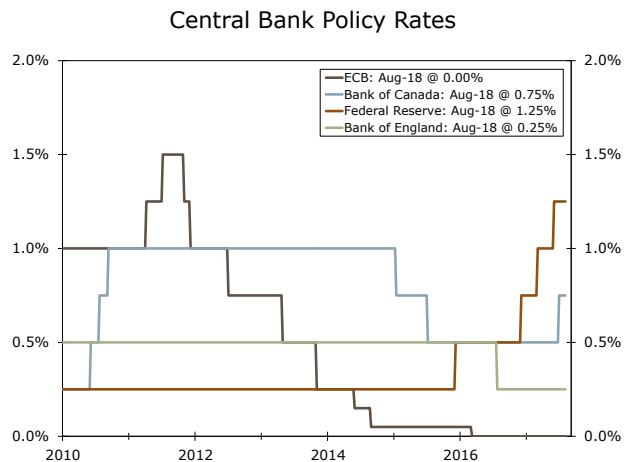
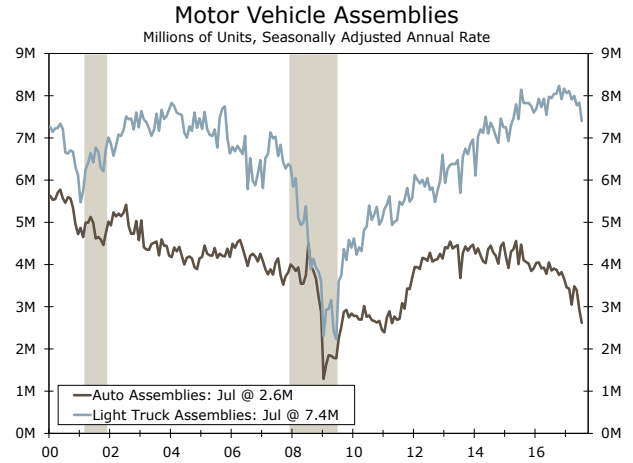
U.S. Economic Data Mixed This Week

- Retail sales provided the most positive piece of economic news in the United States this week. Sales topped expectations in July and, coupled with upward revisions to prior months, suggest a stronger pace of consumer spending than originally believed.
- Housing starts in July were a disappointment, however, as both starts and permits fell on the month. Starts have fallen in five out of seven months this year.
- Industrial production growth also came in below consensus in July, with much of the weakness concentrated in motor vehicles & parts.

Global Review

You Can Go Your Own Way

- For the past several years, the world's major central banks have broadly embraced very accommodative monetary policy. More recently, policy has started to go in different directions.
- In this week's Global Review, we break down the latest figures on inflation for the United Kingdom and Canada and the second quarter GDP number for Japan, and we consider what these numbers mean in the context of monetary policy for these different corners of the global economy.



Wells Fargo U.S. Economic Forecast													
	Actual				Forecast				Actual			Forecast	
	2016				2017				2014	2015	2016	2017	2018
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q					
Real Gross Domestic Product ¹	0.6	2.2	2.8	1.8	1.2	2.6	2.3	2.9	2.6	2.9	1.5	2.1	2.5
Personal Consumption	1.8	3.8	2.8	2.9	1.9	2.8	2.3	2.3	2.9	3.6	2.7	2.6	2.7
Inflation Indicators ²													
PCE Deflator	1.0	1.0	1.2	1.6	2.0	1.6	1.5	1.6	1.5	0.3	1.2	1.6	2.0
Consumer Price Index	1.1	1.1	1.1	1.8	2.6	1.9	1.8	1.6	1.6	0.1	1.3	2.0	2.1
Industrial Production ¹	-1.3	-0.7	0.8	0.7	1.4	4.7	2.7	2.3	3.1	-0.7	-1.2	1.9	2.5
Corporate Profits Before Taxes ²	-6.2	-8.2	-1.6	8.7	3.3	3.7	3.2	3.1	5.3	-1.1	-2.1	3.3	3.0
Trade Weighted Dollar Index ³	89.8	90.6	90.0	95.8	94.0	90.5	89.0	87.8	78.4	91.1	91.6	90.3	84.4
Unemployment Rate	4.9	4.9	4.9	4.7	4.7	4.4	4.3	4.2	6.2	5.3	4.9	4.4	4.1
Housing Starts ⁴	1.15	1.16	1.15	1.25	1.24	1.16	1.27	1.28	1.00	1.11	1.17	1.24	1.32
Quarter-End Interest Rates ⁵													
Federal Funds Target Rate	0.50	0.50	0.50	0.75	1.00	1.25	1.25	1.50	0.25	0.27	0.52	1.25	1.88
Conventional Mortgage Rate	3.69	3.57	3.46	4.20	4.20	3.90	4.13	4.26	4.17	3.85	3.65	4.12	4.41
10 Year Note	1.78	1.49	1.60	2.45	2.40	2.31	2.40	2.55	2.54	2.14	1.84	2.42	2.71

Forecast as of: August 9, 2017
¹ Compound Annual Growth Rate Quarter-over-Quarter
² Year-over-Year Percentage Change
³ Federal Reserve Major Currency Index, 1973=100 - Quarter End
⁴ Millions of Units
⁵ Annual Numbers Represent Averages

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

Inside

U.S. Review	2
U.S. Outlook	3
Global Review	4
Global Outlook	5
Point of View	6
Topic of the Week	7
Market Data	8

Together we'll go far



U.S. Review

U.S. Economic Data Mixed This Week

Economic data in the United States this week started out on a solid note with a robust retail sales print on Tuesday. Retail sales rose 0.6 percent to kick off the third quarter, topping expectations for a 0.3 percent gain. The strength in retail sales was broad based, with motor vehicle and parts dealers' sales increasing 1.2 percent and building material & garden equipment & supplies dealers' sales increasing 1.2 percent after registering a 1.1 percent gain in June. Even department stores sales, a sector that has been negatively affected by the eruption of online sales, posted a strong 1.0 percent increase for the month.

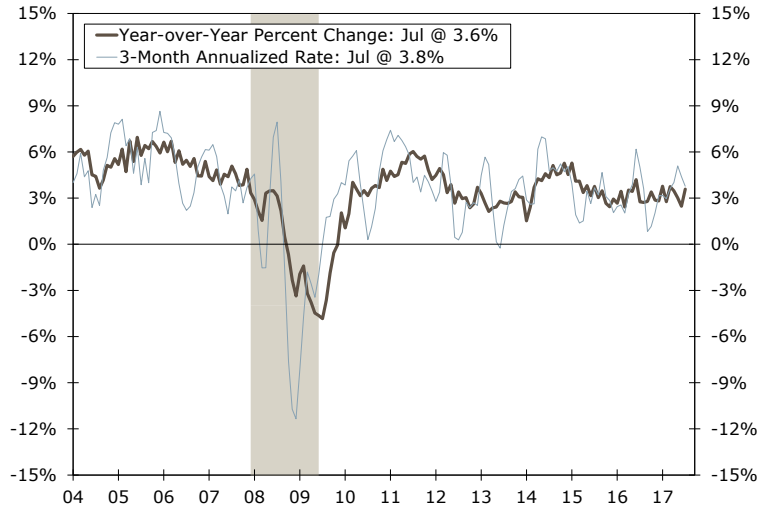
Perhaps equally as important, both June and May's data were upwardly revised, signaling that growth in July was faster off a higher base. This signals that, not only was personal consumption growth likely stronger in Q2 than initially reported in the advance GDP release, but expectations for personal consumption growth during Q3 are likely to be revised higher as well. For more on the consumer sector, see our *Topic of the Week* on page 7.

Despite a robust reading on home builder confidence on Tuesday, housing starts data released the next day for July were a disappointment. Starts declined 4.8 percent in July and have fallen in five of the past seven months. However, much of the weakness has been in the multifamily component, which should not be surprising given slowing fundamentals. Year-to-date, single-family starts are up 11.0 percent compared to the first seven months of last year. However, single-family starts still have not risen nearly as much as builder confidence has, reflecting the greater difficulty builders are having obtaining lots and labor relative to past cycles.

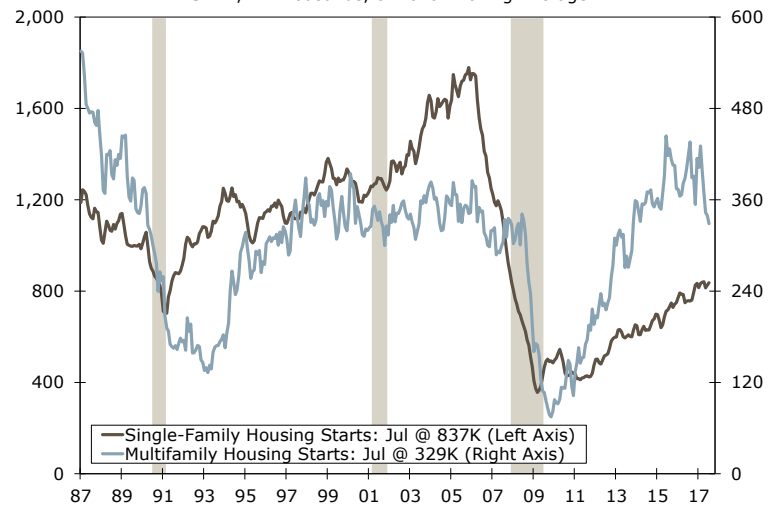
The minutes from the July FOMC meeting suggested that the Fed remains on track to announce balance sheet normalization plans at its September meeting. The message in the minutes on inflation was mixed. On the one hand, "many participants" noted that much of the recent decline in inflation had probably reflected idiosyncratic factors. On the other, "several" participants indicated that the risks to inflation were tilted to the downside, while participants "differed" in their assessments of whether inflation expectations were well anchored. The inflation readings over the next few months will likely determine whether or not the Fed elects to once again cap the year with a December rate hike.

Like housing starts, industrial production growth in July was underwhelming. Manufacturing output, which comprises three quarters of total industrial output, fell 0.1 percent on the month. The automobile sector was a key driver of the miss, with monthly output declining 3.6 percent. Seasonal factors can sometimes wreak havoc on the July figures in this sector due to summer shutdowns at auto plants, but the fourth decline in five months suggests a genuine downward trend in production rather than just seasonal noise. Through the monthly volatility, manufacturing production as a whole is up 1.3 percent on a year-over-year basis, consistent with our forecast for modest but steady growth in the sector more broadly.

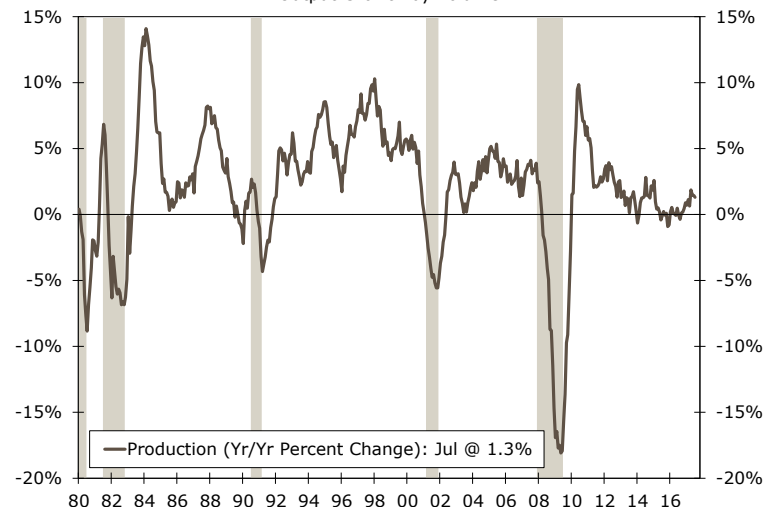
Retail Sales Ex-Food, Autos, Gas & Building Materials
"Control Group" Retail Sales



Single & Multifamily Housing Starts
SAAR, In Thousands, 3-Month Moving Average



Manufacturing Production Growth
Output Growth by Volume



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

New Home Sales • Wednesday

The modest rise in new home sales in June was encouraging, with a 0.8 percent increase to a 610,000-unit pace. Revisions to earlier months removed 27,000 sales, however, which dulled the June reading. On the bright side, some readings suggest inventory pressures eased slightly. Inventory of homes for sale rose, and the median price fell 4.2 percent—which resulted from a shift toward lower-priced homes benefiting first-time homebuyers. Most of the increase in June was for homes that had not yet started construction.

Construction of new residential homes provided a major boost to economic growth in the first quarter, but was softer in Q2 GDP. Much of this data story resulted from unusual weather patterns and the associated correction. Residential investment in the third quarter should be more supportive to GDP growth, as demand for new homes remains solid.

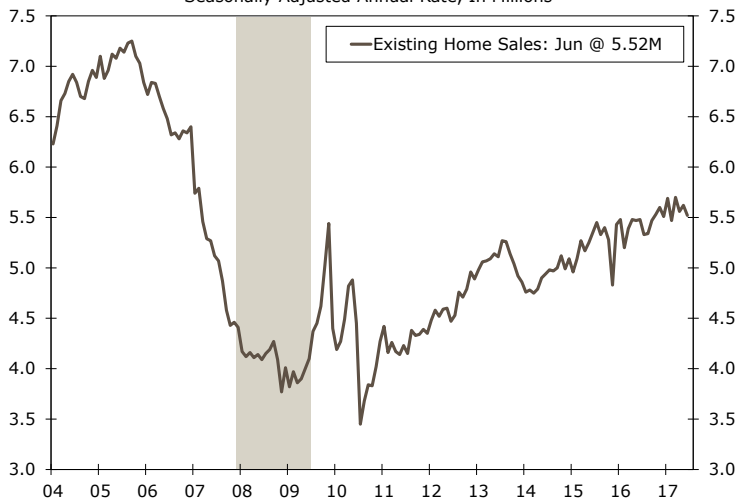
Previous: 610K

Wells Fargo: 617K

Consensus: 610K

Existing Home Sales

Seasonally Adjusted Annual Rate, In Millions



Durable Goods • Friday

The headline reading on durable goods orders in June was skewed to the upside by the notoriously volatile aircraft component, which bumped the monthly gain to 6.4 percent in June. Boeing orders were down in July, which suggests headline durable goods orders growth will likely follow suit. Excluding transportation, orders rose 0.2 percent in June while May was revised up to 0.6 percent. Core capital goods, ex aircraft, fell 0.1 percent after a strong May gain. Core goods shipments were also soft in June, and both were running at the softest 3-month annualized pace of 2017.

Worth noting is that looking beyond the aircraft component, factory sector conditions have been largely stable in recent months. Our call for a slow and steady positive trend continues to play out in the data.

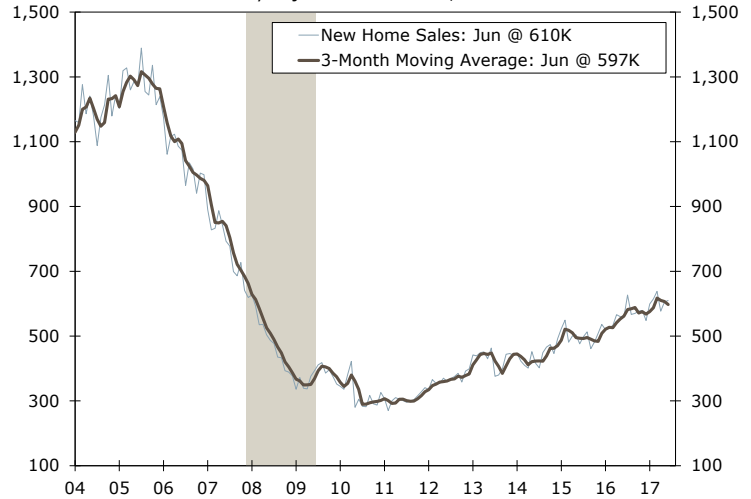
Previous: 6.4%

Wells Fargo: -6.1%

Consensus: -5.8% (Month-over-Month)

New Home Sales

Seasonally Adjusted Annual Rate, In Thousands



Existing Home Sales • Thursday

Persistently lean inventories continued to restrain resales in June, with existing home sales falling 1.8 percent to a 5.52 million-unit pace. We noted last month that the housing market appears to be woefully out of balance. Would-be homebuyers face a dearth of available inventory, particularly at lower price points. Developers are optimistic about demand for new stock, but available lots are lacking amid increasingly prohibitive construction costs, which are exacerbated by a shortage of construction labor. These pressures not only inhibit new home sales, but existing homeowners are understandably reluctant to put their homes on the market and risk not finding trade-up homes in their price range. Home prices continue to reach record highs.

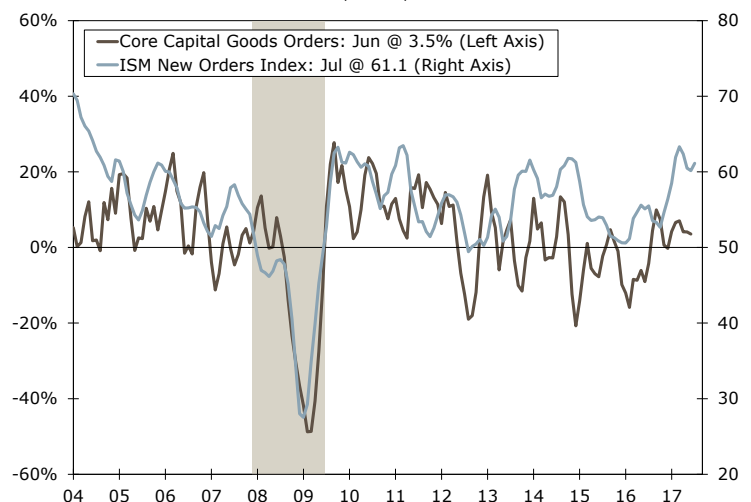
July may have proved more conducive for homebuyers as pending sales rose in June, which tend to lead existing sales by 1-2 months.

Previous: 5.52M

Wells Fargo: 5.49M

Consensus: 5.56M

Nondef. Cap Gds. Orders Ex-Aircraft vs. ISM New Orders
3-M Annualized Rate, Index; Both Series are 3-MMA



Source: U.S. Department of Commerce, National Association of Realtors, ISM and Wells Fargo Securities

Global Review

Central Banks No Longer All on the Same Page

Japan's economy expanded at an annualized pace of 4.0 percent in the second quarter, and in so doing it extended the number of consecutive quarterly expansions to six—the longest winning streak in more than a decade.

Domestic demand picked up substantially in the second quarter as growth was driven by consumer spending as well as business fixed investment spending. Both components posted their largest quarterly increases in years and together boosted the headline GDP growth rate offsetting a modest drag from trade.

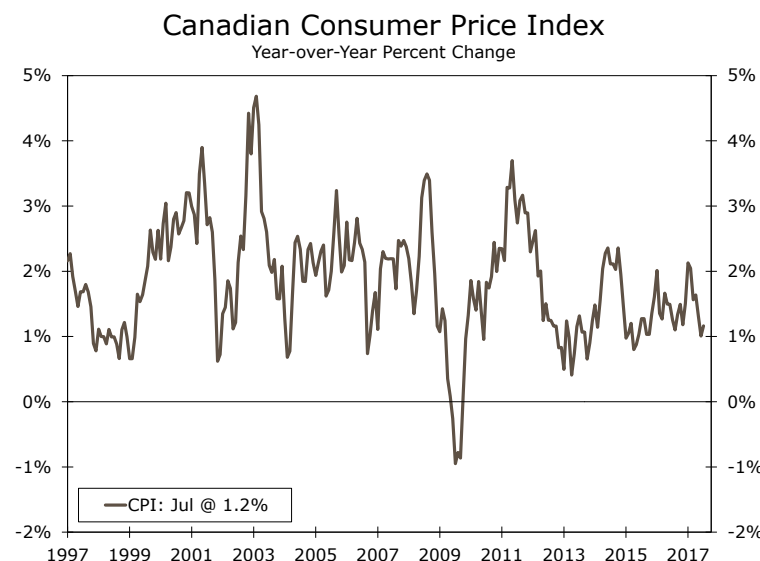
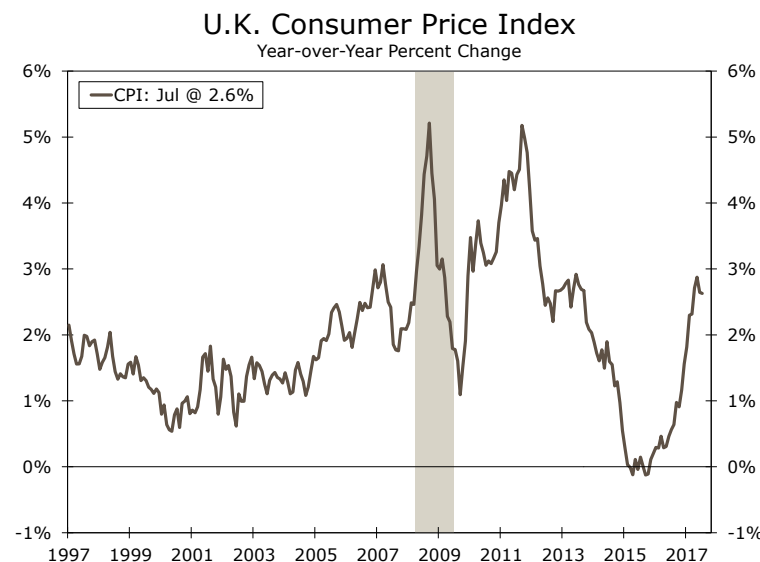
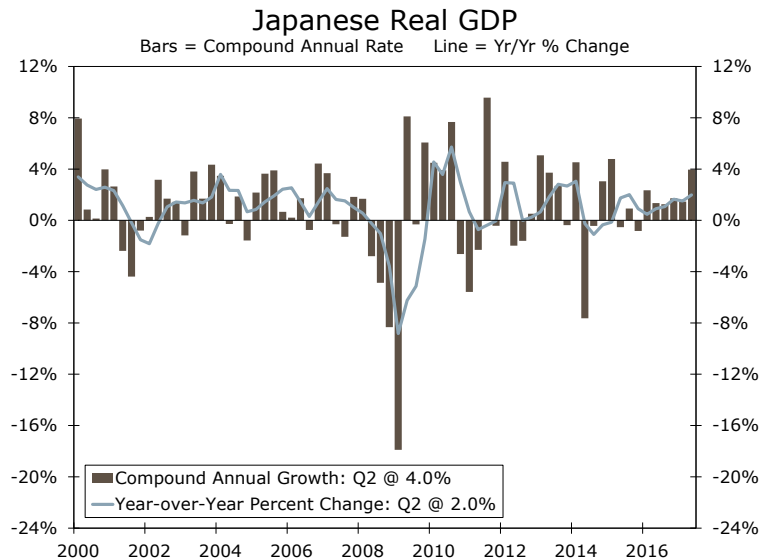
The Bank of Japan (BoJ) is not quite in synch with the world's major foreign central banks at present. The Fed is in a rate tightening cycle, the Bank of Canada raised rates in July with another hike expected this year. The European Central Bank is widely expected to announce plans to dial back its asset purchase program as early as this autumn. Despite this backdrop, which can be collectively described as “less accommodative,” the Bank of Japan has not budged in terms of its intended course.

At its July meeting, the BoJ made no change to that stance and even lowered its inflation forecast. As we describe in the international outlook section on the next page, CPI figures for July will print next week. With inflation still well-below target, we do not expect the BoJ to signal any substantive change in its comprehensive package of monetary policy accommodation.

Another consideration on the topic of large central banks is the Bank of England. The Monetary Policy Committee (MPC) is also in a situation where a rate hike could be justified. Indeed, in the past few meetings, there has been growing dissent with some members expressing a desire to raise rates sooner rather than later. The main catalyst for this pressure to hike is the fact that inflation is running a little hot. This week brought the latest reading for CPI inflation in the United Kingdom, and we learned that the year-over-year rate of inflation held steady at 2.6 percent, just shy of the consensus expectation for 2.7 percent. Some of the upward pressure on prices has to do with the marked depreciation of sterling in the wake of last year's Brexit referendum.

The MPC looks for this pass-through effect to continue to push inflation higher in the coming months and to peak at around 3 percent in October before the effect begins to fade. If the U.K.'s economy picks up over the next 18 months as we expect, the BoE could raise rates as soon as next spring.

We mentioned earlier that the Bank of Canada (BOC) is expected to raise rates again this year. The BoC targets inflation between 1 percent and 3 percent and as close as possible to the midpoint of that range. We learned this week that CPI inflation for July increased to a year-over-year rate of 1.2 percent from 1.0 percent the prior month. The BoC's three remaining meetings are in September, October and December. The September meeting occurs just before the FOMC meeting that month, so we expect the October meeting to be the first realistic opportunity for the BoC to hike rates.



Source: IHS Global Insight and Wells Fargo Securities

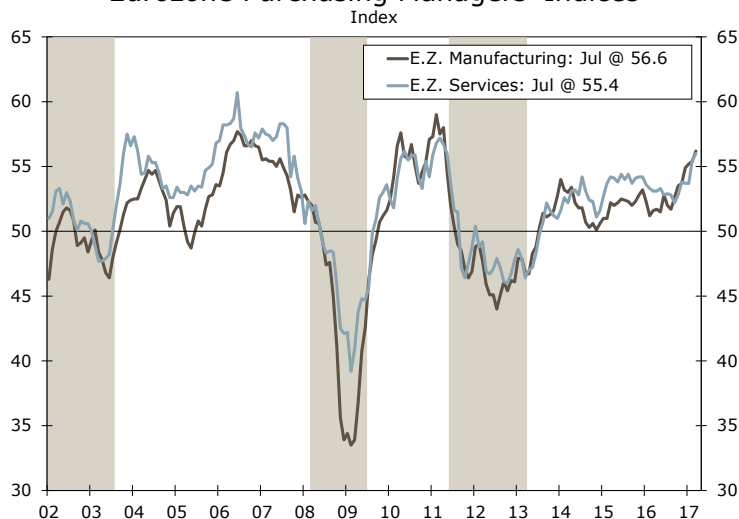
Germany ZEW • Tuesday

Recent market uneasiness regarding a potential slowdown in the German economy will probably be put to the test when the August ZEW index is released on Tuesday. Although the current situation index slipped marginally, from 88.0 in June to 86.4 in July, data on the German economy have remained relatively strong lately. Thus, an improvement in the August reading will help cement the notion that the German economy remains in good shape. Meanwhile, the ZEW expectations index has weakened since June. After a 20.6 reading in May, the index printed 18.6 in June and 17.5 in July. This weakening probably helped to make the case of a slowdown in the German economy. Thus, a rebound for this index in August would be a positive sign for the German economy as well as for the Eurozone economy. On Friday, we will also get the release of the IFO business climate, current assessment, and expectations indices. This overall index recorded a series high in July.

Previous: 86.4

Consensus: 85.3

Eurozone Purchasing Managers' Indices



Japan CPI • Thursday

After the strong Japanese Q2 GDP reported last week, the release of the CPI number for July on Thursday will carry a little more weight than normal in a country that has had its issues with keeping inflation close to or above its pledged target of 2 percent. The year-over-year CPI rate has stabilized at 0.4 percent since April of this year and our forecast July is for the rate to remain unchanged at 0.4 percent.

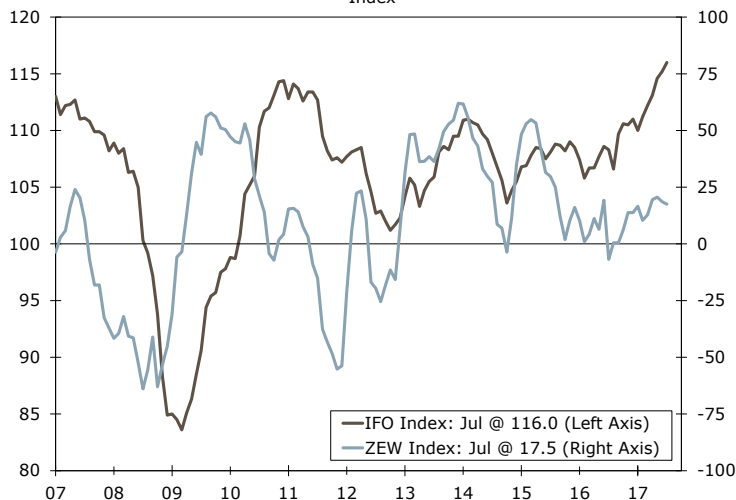
Thus, as we argued on our report [“Q: What G-7 Economy had Fastest GDP Growth in Q2? A: Japan,”](#) which is available on our website, we do not expect the Bank of Japan to change its view regarding monetary policy any time soon even if other developed countries’ central banks have either started to take monetary accommodation away or are moving in that direction.

Previous: 0.4%

Wells Fargo: 0.4%

Consensus: 0.4% (Year-over-Year)

German IFO and ZEW Indices



Eurozone Manufacturing PMI • Wednesday

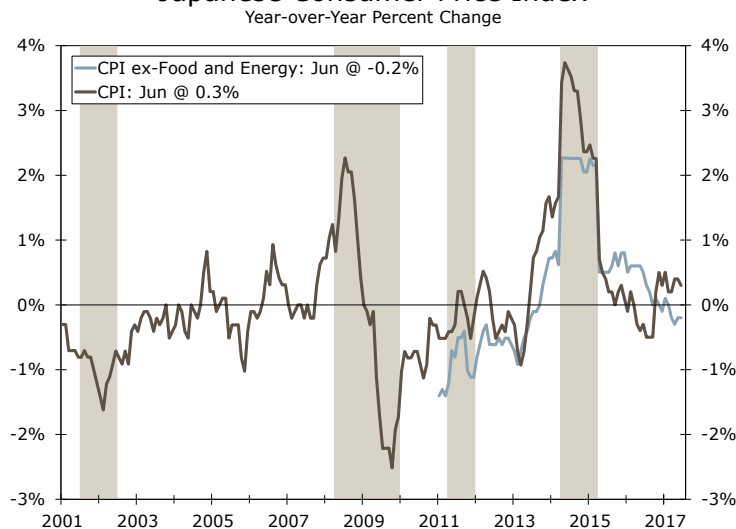
Another index that has contributed to the view that the German and the Eurozone economies were slowing down was the Markit Manufacturing PMI index for July. After hitting an index high of 59.6 for Germany and 57.4 for the Eurozone in June, both indices came down marginally, to 58.1 in Germany and 56.6 for the Eurozone, in July. Thus, the release of the preliminary August Markit manufacturing PMI on Wednesday has the potential to move the market as a further decline in the index will help cement the slowing-down view while a recovery will tend to confirm what other data on the region have been indicating.

Markets will also have an opportunity to look at the service side of the economy, both in Germany and the Eurozone, when the services PMIs are released on Wednesday. This index hit a series high in April for the Eurozone while it has been trending down since June for Germany.

Previous: 56.6

Consensus: 56.3

Japanese Consumer Price Index



Source: IHS Global Insight and Wells Fargo Securities

Interest Rate Watch

It Is Beginning to Feel Like August

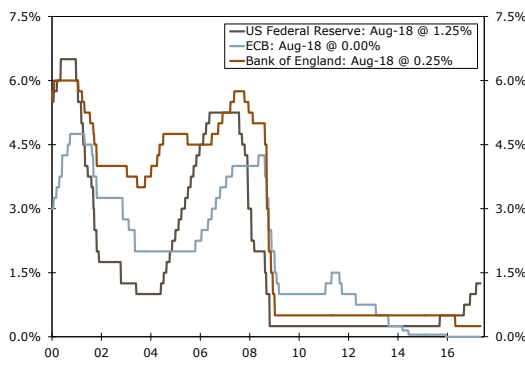
Hot, muggy weather and daily thunderstorms are not the only things August is known for. Financial market volatility also tends to increase and did once again, as new questions about U.S. political leadership and the future course of fiscal policy have been added to questions about an impending shift in monetary policy, both in the U.S. and abroad, despite persistent low inflation around much of the globe. As if this were not enough, Thursday's dreadful terrorist attacks in Spain reminded everyone of the ever present geopolitical concerns hanging over the global economy and financial markets.

Bond yields pulled back, as stock prices sold off on Thursday. Economic data have, for the most part, come in on the strong side. One notable exception is motor vehicle sales and production, which have weakened due to an onslaught of used vehicles hitting the market and some deterioration in household finances. Home sales and new home construction also remain disappointing, largely due to supply constraints and the winding down of the apartment boom. Inflation remains perplexingly low, despite a tightening labor market and weakening dollar.

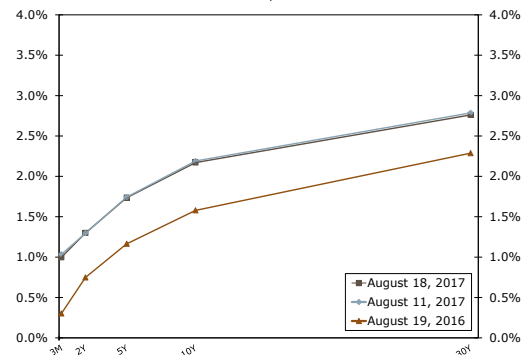
Bond yields declined this week, as rising geopolitical concerns and Thursday's sharp sell-off in equity prices triggered a flight to safety. Minutes from the Fed's September FOMC meeting raised additional doubts about whether the Fed will raise the federal funds rate again in 2017 but appear to confirm that most FOMC members remain firmly committed to beginning to draw down the Fed's balance sheet this fall.

Fed Chair Janet Yellen should provide some additional insight into the Fed's intentions when she speaks at the Kansas City Fed's annual Jackson Hole shindig, which is focused this year on "Fostering a Dynamic Global Economy." Her remarks will center on promoting financial stability. The Jackson Hole conference will be the highlight of a light week of economic data but likely will not change views on the timing of the Fed's next move or give new insights into the Fed's plans for unwinding their balance sheet.

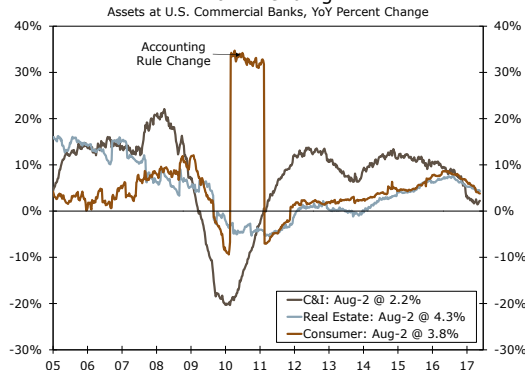
Central Bank Policy Rates



Yield Curve
U.S. Treasuries, Active Issues



Bank Lending



Source: IHS Global Insight, Bloomberg LP, FRB and Wells Fargo Securities

Credit Market Insights

Mortgage Credit Growth Continues

Recently released data from the Mortgage Bankers Association (MBA) showed a 0.3 percent increase in the Mortgage Credit Availability Index for July. Updated underwriting standards for adjustable-rate mortgages (ARMs) have pushed their availability closer to that of traditional mortgages, helping drive the increase for the month according to the report.

Both fixed and adjustable mortgage rates have increased over the past year; however, adjustable rates are typically lower than fixed rates. As home prices continue to climb while inventories remain low, this rate differential could be pushing borrowers to forego fixed rates for lower adjustable rates. The MBA's Mortgage Application Survey supports this shift, with ARMs at 15 percent of the total value of loan applications for the week of August 11th, up 28 percent year-over-year.

While mortgage credit continues to grow, mortgage delinquencies are maintaining their downward trend, now at only 1.5 percent of balances at least 90 days past due in Q2, compared to almost 9 percent in 2010. Lower delinquencies may position borrowers to better withstand rate increases on the horizon, especially for those with ARMs sensitive to interest rate changes. We look for one more Fed rate hike in 2017 and three in 2018. Data to be released next week on new and existing home sales should reinforce the extent to which mortgage credit growth is displayed in the housing market as of late.

Credit Market Data

Mortgage Rates	Credit Market Data			
	Current	Week Ago	4 Weeks Ago	Year Ago
30-Yr Fixed	3.89%	3.90%	3.92%	3.43%
15-Yr Fixed	3.16%	3.18%	3.20%	2.74%
5/1 ARM	3.16%	3.14%	3.18%	2.76%

Bank Lending	Credit Market Data			
	Current Assets (Billions)	1-Week Change (SAAR)	4-Week Change (SAAR)	Year-Ago Change
Commercial & Industrial	\$2,108.9	-5.02%	5.50%	2.23%
Revolving Home Equity	\$388.1	-13.42%	-8.39%	-7.48%
Residential Mortgages	\$1,780.1	-10.94%	7.45%	3.72%
Commercial Real Estate	\$2,044.1	-2.47%	5.80%	7.42%
Consumer	\$1,379.2	4.66%	1.42%	3.80%

Source: Freddie Mac, Federal Reserve Board and Wells Fargo Securities

Topic of the Week

Consumers Tap Rainy Day Fund

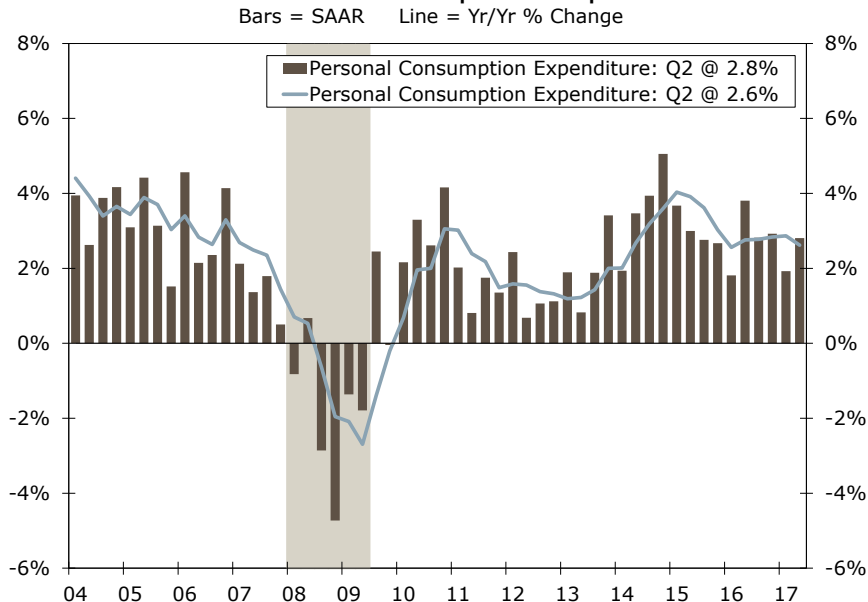
Consumer confidence surged after the surprise U.S. presidential election result last fall. The Conference Board's consumer confidence index soared roughly 25 percent between October 2016 and March 2017, with much of the gain coming in the expectations component. This shift in sentiment suggested consumers were poised to ramp up their spending in the first half of the year. Despite the gain, real personal expenditures growth was ho-hum in the first half, continuing to trudge along at roughly 2.5 percent year-over-year (top chart). Was the surge in confidence a false start?

To keep consumption growth humming along, consumers dipped into their savings. The personal savings rate fell from 5.7 percent in September 2016 to 3.8 percent in June 2017 (bottom chart). Consumers had been keeping their powder dry heading into the end of last year and evidently felt confident enough to alter their saving behavior in the wake of the election. This drawdown can only keep growth going for so long, however, and if employment growth gradually slows over the next year, as we expect, it will take fatter paychecks to keep growth steady in the consumer sector.

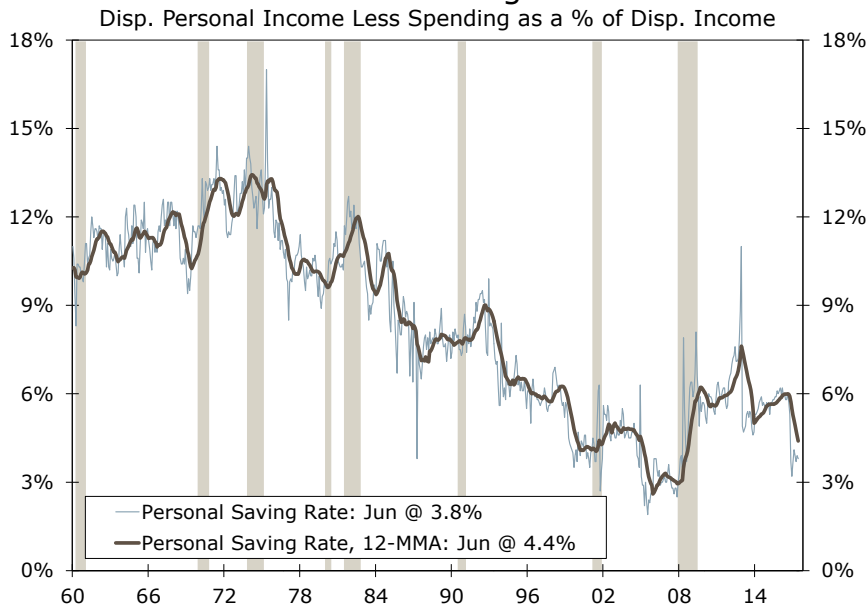
Wage growth has been a perennial challenge in this cycle, and with slack in the labor market continuing to diminish, continued weak income growth presents a significant risk to the outlook. Personal consumption accounts for about 70 percent of GDP, making it far and away the largest component of the economy. As a result, the outlook for the consumer will play a key role in driving economic growth in the quarters ahead. For now, our outlook is for personal consumption growth to be more or less stable during the second half of the year. Retail sales kicked off the third quarter on a positive note, and average hourly earnings growth was solid in July, encouraging signs for second half activity.

For further reading, see "[Midyear Consumer Spending Outlook](#)" available on our website.

Real Personal Consumption Expenditures



Personal Saving Rate



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

Subscription Info

Wells Fargo's *Weekly Economic & Financial Commentary* is distributed to subscribers each Friday afternoon by e-mail.

To subscribe please visit: www.wellsfargo.com/economicsemail

The *Weekly Economic & Financial Commentary* is available via the Internet at www.wellsfargo.com/economics

Via The Bloomberg Professional Service at WFRE.

And for those with permission at www.wellsfargoresearch.com

Market Data ♦ Mid-Day Friday

U.S. Interest Rates

	Friday 8/18/2017	1 Week Ago	1 Year Ago
1-Month LIBOR	1.23	1.23	0.51
3-Month LIBOR	1.32	1.31	0.81
3-Month T-Bill	0.99	1.03	0.29
1-Year Treasury	1.25	1.28	0.61
2-Year Treasury	1.30	1.29	0.70
5-Year Treasury	1.74	1.74	1.11
10-Year Treasury	2.17	2.19	1.54
30-Year Treasury	2.76	2.79	2.26
Bond Buyer Index	3.57	3.52	2.84

Foreign Exchange Rates

	Friday 8/18/2017	1 Week Ago	1 Year Ago
Euro (\$/€)	1.174	1.182	1.135
British Pound (\$/£)	1.286	1.301	1.317
British Pound (£/€)	0.913	0.908	0.862
Japanese Yen (¥/\$)	108.800	109.190	99.890
Canadian Dollar (C\$/\\$)	1.260	1.268	1.278
Swiss Franc (CHF/\\$)	0.962	0.962	0.954
Australian Dollar (US\$/A\\$)	0.791	0.789	0.769
Mexican Peso (MXN/\\$)	17.915	17.832	18.189
Chinese Yuan (CNY/\\$)	6.669	6.664	6.631
Indian Rupee (INR/\\$)	64.148	64.138	66.810
Brazilian Real (BRL/\\$)	3.172	3.194	3.239
U.S. Dollar Index	93.464	93.069	94.157

Source: Bloomberg LP and Wells Fargo Securities

Foreign Interest Rates

	Friday 8/18/2017	1 Week Ago	1 Year Ago
3-Month Euro LIBOR	-0.38	-0.37	-0.32
3-Month Sterling LIBOR	0.28	0.28	0.38
3-Month Canada Banker's Acceptance	1.30	1.30	0.90
3-Month Yen LIBOR	-0.03	-0.02	-0.02
2-Year German	-0.71	-0.72	-0.62
2-Year U.K.	0.22	0.21	0.14
2-Year Canadian	1.23	1.21	0.57
2-Year Japanese	-0.14	-0.11	-0.20
10-Year German	0.41	0.38	-0.08
10-Year U.K.	1.08	1.06	0.55
10-Year Canadian	1.85	1.85	1.04
10-Year Japanese	0.03	0.06	-0.08

Commodity Prices

	Friday 8/18/2017	1 Week Ago	1 Year Ago
WTI Crude (\\$/Barrel)	46.90	48.82	48.22
Brent Crude (\\$/Barrel)	50.89	52.10	50.89
Gold (\\$/Ounce)	1294.62	1289.35	1352.23
Hot-Rolled Steel (\\$/S.Ton)	621.00	621.00	596.00
Copper (\\$/Pound)	293.80	291.20	216.75
Soybeans (\\$/Bushel)	9.23	9.16	10.26
Natural Gas (\\$/MMBTU)	2.90	2.98	2.67
Nickel (\\$/Metric Ton)	10,671	10,938	10,170
CRB Spot Inds.	510.86	510.77	454.99

Next Week's Economic Calendar

	Monday 21	Tuesday 22	Wednesday 23	Thursday 24	Friday 25
U.S. Data			New Home Sales June 610K July 617K (W)	Existing Home Sales June 5.52M July 5.49 (W)	Durable Goods June 6.4% July -6.1% (W)
		Germany ZEW July 86.4 August 85.3 (C)	Eurozone Manufacturing PMI July 56.6 United Kingdom GDP (YoY) Q1 1.7%	Japan CPI (YoY) June 0.4% July 0.4% (W)	
Global Data					

Note: (W) = Wells Fargo Estimate (C) = Consensus Estimate

Source: Bloomberg LP and Wells Fargo Securities

Wells Fargo Securities Economics Group

Diane Schumaker-Krieg	Global Head of Research, Economics & Strategy	(704) 410-1801 (212) 214-5070	diane.schumaker@wellsfargo.com
John E. Silvia, Ph.D.	Chief Economist	(704) 410-3275	john.silvia@wellsfargo.com
Mark Vitner	Senior Economist	(704) 410-3277	mark.vitner@wellsfargo.com
Jay H. Bryson, Ph.D.	Global Economist	(704) 410-3274	jay.bryson@wellsfargo.com
Sam Bullard	Senior Economist	(704) 410-3280	sam.bullard@wellsfargo.com
Nick Bennenbroek	Currency Strategist	(212) 214-5636	nicholas.bennenbroek@wellsfargo.com
Anika R. Khan	Senior Economist	(212) 214-8543	anika.khan@wellsfargo.com
Eugenio J. Alemán, Ph.D.	Senior Economist	(704) 410-3273	eugenio.j.aleman@wellsfargo.com
Azhar Iqbal	Econometrician	(704) 410-3270	azhar.iqbal@wellsfargo.com
Tim Quinlan	Senior Economist	(704) 410-3283	tim.quinlan@wellsfargo.com
Eric Viloría, CFA	Currency Strategist	(212) 214-5637	eric.viloria@wellsfargo.com
Sarah House	Economist	(704) 410-3282	sarah.house@wellsfargo.com
Michael A. Brown	Economist	(704) 410-3278	michael.a.brown@wellsfargo.com
Jamie Feik	Economist	(704) 410-3291	jamie.feik@wellsfargo.com
Erik Nelson	Currency Strategist	(212) 214-5652	erik.f.nelson@wellsfargo.com
Michael Pugliese	Economic Analyst	(704) 410-3156	michael.d.pugliese@wellsfargo.com
E. Harry Pershing	Economic Analyst	(704) 410-3034	edward.h.pershing@wellsfargo.com
Hank Carmichael	Economic Analyst	(704) 410-3059	john.h.carmichael@wellsfargo.com
Ariana Vaisey	Economic Analyst	(704) 410-1309	ariana.b.vaisey@wellsfargo.com
Abigail Kinnaman	Economic Analyst	(704) 410-1570	abigail.kinnaman@wellsfargo.com
Shannon Seery	Economic Analyst	(704) 410-1681	shannon.seery@wellsfargo.com
Donna LaFleur	Executive Assistant	(704) 410-3279	donna.lafleur@wellsfargo.com
Dawne Howes	Administrative Assistant	(704) 410-3272	dawne.howes@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 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 © 2017 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. The content of this report has been approved by WFSIL a regulated person under the Act. For purposes of the U.K. Financial Conduct Authority's rules, this report constitutes impartial investment research. WFSIL does not deal with retail clients as defined in the Markets in Financial Instruments Directive 2007. 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. This document and any other materials accompanying this document (collectively, the "Materials") are provided for general informational purposes only.

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

WELLS
FARGO

SECURITIES