# **Economics Group**

# Weekly Economic & Financial Commentary

## **U.S. Review**

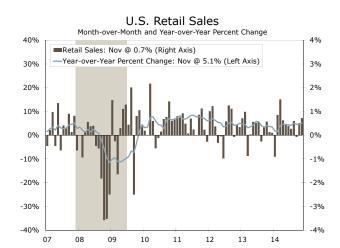
#### **Consumer Spending Leading the Charge in Q4**

- Retail sales posted an impressive 0.7 percent increase in November following an upwardly revised 0.5 percent increase for October. The jump in sales was the strongest monthly reading in eight months.
- On the inflation front, import prices fell 1.5 percent in November pulled down by the continued slide in oil prices. The producer price index also fell for the month, declining 0.2 percent.
- Data on business inventories posted a slight rise in October suggesting only a slight contribution from inventory building in the fourth quarter.

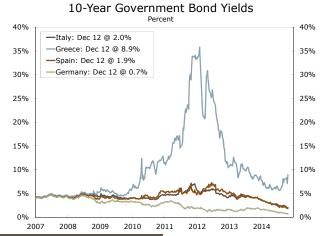
#### **Global Review**

#### Greece: "I'm Baaaack..."

- Financial market strains in Europe related to the sovereign debt crisis reappeared this week when Greece's prime minister called a snap election for the country's president next week in parliament. The country could be embroiled in a political crisis if the candidate of the governing coalition is not elected.
- The ECB is finding it difficult to expand its balance sheet to its intended size of €3 trillion. We expect the ECB to turn to sovereign bond purchases in the first quarter of next year in a more aggressive attempt to reach its balance sheet target.



SECURITIES



Wells Fargo U.S. Economic Forecast													
		Actual			F	orecast			Act	tual		Forecas	t
		20	14			20	15		2012	2013	2014	2015	2016
	10	2Q	3Q	40	10	2Q	3Q	40					
Real Gross Domestic Product <sup>1</sup>	-2.1	4.6	3.9	1.8	2.6	2.6	2.8	2.9	2.3	2.2	2.2	2.8	3.0
Personal Consumption	1.2	2.5	2.2	2.8	2.5	2.6	2.5	2.5	1.8	2.4	2.3	2.5	2.5
Inflation Indicators <sup>2</sup>													
PCE Deflator	1.1	1.6	1.5	1.4	1.4	1.2	1.4	1.8	1.8	1.2	1.4	1.5	2.0
Consumer Price Index	1.4	2.1	1.8	1.6	1.6	1.4	1.7	2.2	2.1	1.5	1.7	1.7	2.4
Industrial Production <sup>1</sup>	3.9	5.7	3.3	3.4	5.0	4.9	3.5	3.1	3.8	2.9	4.0	4.2	3.6
Corporate Profits Before Taxes <sup>2</sup>	-4.8	0.1	0.4	3.2	3.7	3.6	4.1	4.6	11.4	4.2	-0.2	4.0	5.2
Trade Weighted Dollar Index <sup>3</sup>	76.9	75.9	81.3	83.8	83.8	84.8	85.8	86.8	73.5	75.9	79.5	85.3	88.3
Unemployment Rate	6.7	6.2	6.1	5.8	5.7	5.6	5.5	5.4	8.1	7.4	6.2	5.6	5.2
Housing Starts <sup>4</sup>	0.93	0.99	1.03	1.00	1.06	1.13	1.21	1.24	0.78	0.92	1.01	1.16	1.26
Quarter-End Interest Rates <sup>5</sup>													
Federal Funds Target Rate	0.25	0.25	0.25	0.25	0.25	0.50	0.75	1.00	0.25	0.25	0.25	0.63	2.00
Conventional Mortgage Rate	4.34	4.16	4.16	4.14	4.16	4.20	4.30	4.40	3.66	3.98	4.20	4.27	4.95
10 Year Note	2.73	2.53	2.52	2.30	2.40	2.51	2.59	2.66	1.80	2.35	2.52	2.54	3.20
Forecast as of: December 10, 2014													_

#### 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

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

Together we'll go far

recast as of: December 10, 2014 · Compound Annual Growth Rate Quarter-over-Quarter

<sup>&</sup>lt;sup>2</sup> Year-over-Year Percentage Change Federal Reserve Major Currency Index, 1973=100 - Quarter End

Annual Numbers Represent Averages

#### U.S. Review

#### **Consumer Spending Leading the Charge in Q4**

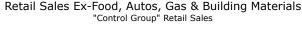
Economic data this week was upbeat reinforcing our view for continued robust growth in the fourth quarter. The most impressive data point this week came from the November retail sales report that showed sales climbing 0.7 percent for the month while October sales were revised higher. With the strong pace of sales, inventory building in the fourth quarter looks like it will only slightly add to growth. Inflation data for November reflected the continued slide in oil prices with declines in both the producer price index and the import price index. The Labor Department's job openings data continued to reflect a tightening labor market as the number of job openings continue to climb.

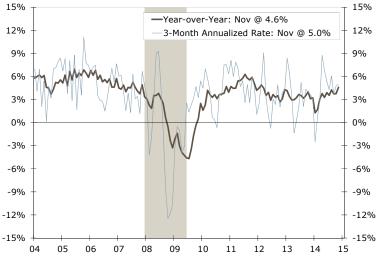
It appeared that the holiday shopping season was off to a solid start as retail sales posted an impressive 0.7 percent rise in November, the strongest reading since March of this year. Sales growth was broad-based with sales rising in 11 of 13 categories. The largest increases were observed for motor vehicles and parts, building materials, and clothing. Sales declines for gasoline stations likely reflect the continued slide in motor fuel prices. The control group within retail sales, which feeds into the calculation for GDP, also posted an impressive 0.6 percent rise while October's figure was revised higher suggesting some upside risk to our forecast for fourth quarter consumer spending. In a separate release this week, the Census Bureau's Quarterly Services Survey pointed toward much stronger healthcare spending in the third quarter of this year which should also translate into greater momentum behind consumer services spending in the fourth quarter.

With the robust pace of sales activity, inventories rose only modestly in October. Total business inventories climbed 0.2 percent for the month with wholesale inventories posting the largest increase for the month. Following a slight drag on third quarter GDP growth, our expectation is that inventory building will be modest in the fourth quarter, adding just 0.1 percent to top line GDP growth.

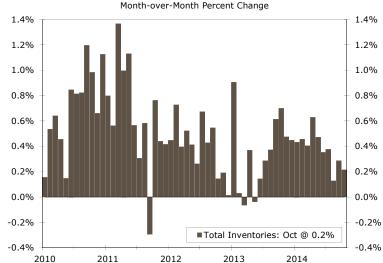
Inflation data this week continued to reflect the dramatic slide in oil prices. The import price index slid 1.5 percent in November pulled down by both lower oil prices and a stronger U.S. Dollar. Excluding fuel items, import prices fell 0.2 percent, underscoring the broad-based softness in the inflation measure. The Producer Price Index also pulled back for the month, declining 0.2 percent. Excluding volatile food and energy prices, the PPI came in flat for the month. The PPI final demand index now stands at 1.4 percent on a year-over-year basis.

Data on the labor market this week pointed toward further tightening in labor market conditions. The Job Opening and Labor Turnover Survey showed that the number of open positions rose 149,000 in October. In addition, the hiring rate remained at a post-recession high of 3.6 percent. The quit rate fell for the month to 1.9 percent, the second highest reading since 2008. With both job openings and quits edging higher, we expect hiring activity to remain robust in the year ahead.

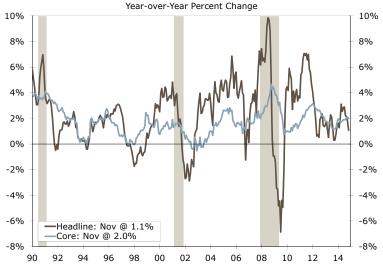




## Total Business Inventories



#### Finished Goods Producer Price Index

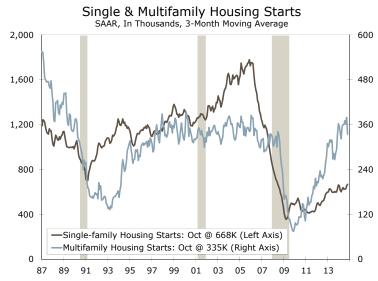


Source: U.S. Dept. of Commerce, U.S. Dept. of Labor and Wells Fargo Securities, LLC

### **Industrial Production • Monday**

Activity in the industrial sector cooled in October, with industrial production unexpectedly slipping 0.1 percent. A drop in utilities and mining output more than offset a 0.2 percent increase in manufacturing production. Manufacturing output looks to have picked up in November, however, with aggregate hours worked rising 0.7 percent and the ISM index near multi-year highs. Output in the utilities sector likely rebounded last month as temperatures in the lower-48 were the coldest since 2000. Production in the mining industry may be the most interesting figure in the report. Last month production, adjusted for price changes, fell 0.9 percent. The November reading would indicate whether last month was a temporary soft patch or lower oil prices are already seeping into production plans. We expect total industrial production to have risen 0.6 percent in November.

Previous: -0.1% (Month-over-Month) Wells Fargo: 0.6% Consensus: 0.7%

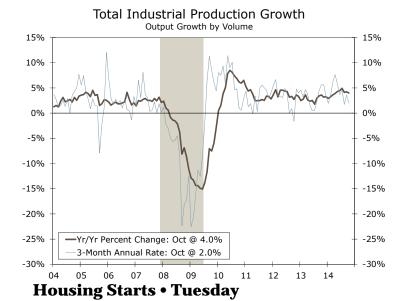


### **Consumer Price Index • Wednesday**

Despite a 3.0 percent decline in gas prices, the Consumer Price Index was unchanged in October as food prices ticked up and core prices also firmed. We doubt the index will hold up as well in November. Gasoline prices fell even more sharply over the month, down 8.7 percent according to AAA. While gas prices usually fall during this time of year, the year-over-year rate of decline has accelerated, suggesting seasonal adjustments will do less to mitigate the decline. Natural gas prices look to have risen over the month, but at less than a fifth of the size of gasoline expenditures, will do little to boost the energy index.

We expect core CPI to increase 0.1 percent as rising costs for services, particularly shelter costs, offset softness in core goods prices. Headline CPI will likely fall, however, on lower gas prices and moderating food inflation.

Previous: 0.0% (Month-over-Month) Wells Fargo: -0.1% Consensus: -0.1%

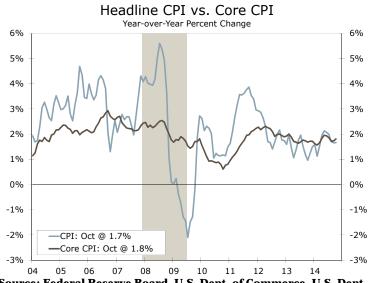


Housing starts came in lower than expected in October, but the 1.01-million unit annualized print followed an upwardly revised September. The pullback also stemmed from the volatile multifamily sector, where starts fell 15 percent. Single-family starts, on the other hand, continued to march higher and are now up 15.4 percent over the past year.

We expect starts to have resumed their upward trend in November. Building permits jumped 5.8 percent last month to the highest level since mid-2008. Homebuilders are also feeling more confident. The November NAHB/Wells Fargo Homebuilders index rebounded to 58 last month, four points higher than its year-ago level.

Previous: 1.01 Million Wells Fargo: 1.03 Million

**Consensus: 1.04 Million** 



Source: Federal Reserve Board, U.S. Dept. of Commerce, U.S. Dept. of Labor and Wells Fargo Securities, LLC

#### **Global Review**

Greece: "I'm Baaaack..."

The European sovereign debt crisis, which had been more or less on the back burner for the past two years, burst back on to the scene again this week. The catalyst was the surprise decision by Greek Prime Minister Samaras to call a snap presidential election in the Greek parliament that is scheduled for next week.

The President of the Hellenic Republic is essentially a figurehead. However, a defeat of the government's candidate would show that Samaras has lost support in parliament, and it could provoke a political crisis in Greece. If a general election needs to be held, opinion polls show that the far-left Syriza Party, which vows to reverse the austerity program that international lenders have demanded of Greece and which threatens to repudiate the country's debt, would be the party garnering the most support among voters.

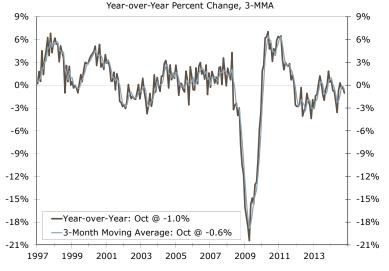
The yield on the 10-year Greek government bond shot up nearly 200 bps this week (see graph on front page). Although the reaction in the Italian, Portuguese and Spanish bond markets was much more muted, European financial markets could encounter more volatility if Greece does indeed experience a political crisis.

Data released this week showed that French industrial production (IP) declined 0.8 percent in October relative to the previous month, pulling the year-over-year growth rate down to negative 1.0 percent (top chart). Italian IP edged down 0.1 percent in October. With economic activity weak at present, the Eurozone can ill afford more financial volatility at this time.

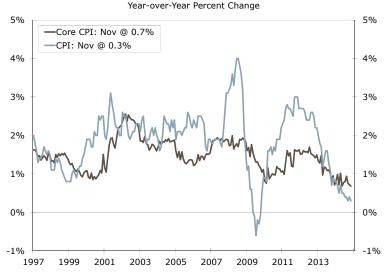
In an effort to stimulate the economy and reverse the disinflationary forces at work in the euro area (middle chart), the European Central Bank (ECB) has devised a program, known as Targeted Long-term Refinancing Operations (TLTRO), to provide cheap financing to banks on the condition they use the liquidity to lend to businesses. The ECB held the second of its TLTRO auctions this week and allocated €129.8 billion to the banking system, which was a bit smaller than the consensus forecast had anticipated. Moreover, the TLTRO allotment may not fully offset some repayments from other liquidity-providing programs that are coming due within the next few months. Therefore, the ECB may find it difficult, at least in the near term, to expand its balance sheet from €2 trillion at present to €3 trillion as it has publicly avowed to do (bottom chart).

In an effort to expand its balance sheet, the ECB has purchased €22 billion worth of covered bonds and asset-backed securities thus far in its recently inaugurated quantitative easing program. However, we are skeptical that the ECB will be able to purchase the requisite quantities of these types of bonds to achieve its balance sheet objective. Therefore, we believe that the ECB will start to purchase sovereign bonds, most likely in the first quarter of next year, to more quickly close in on its intended size of its balance sheet. The euro, which has depreciated 10 percent against the dollar since the end of June, likely will weaken further if, as we expect, the ECB does indeed get more aggressive in its attempts to expand the size of its balance sheet.

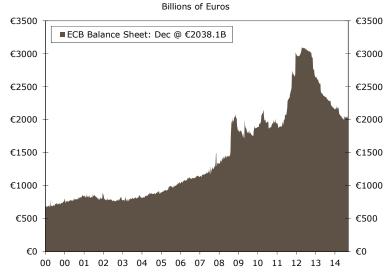
### French Industrial Production Index



### **Eurozone Consumer Price Inflation**



## ECB Balance Sheet



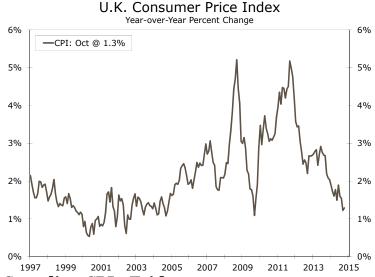
Source: IHS Global Insight, Bloomberg LP and Wells Fargo Securities, LLC

### **Eurozone PMIs • Tuesday**

We learned this week that industrial production for October increased a scant 0.1 percent even as September production figures were revised lower. The report is an indication that the fourth quarter is not off to a good start.

The ECB has noted the downside risk in the Eurozone economy and has been taking unconventional measures to boost CPI inflation including the TLTRO lending incentive program as well as covered bond and ABS purchases. Unfortunately, these measures have been insufficient to lift prices and financial markets are beginning to bet on eventual sovereign bond purchases by the ECB. After the IP report hit the wire Friday, German 10-year bunds caught a bid that dropped the yield to a fresh record low. Survey data for the manufacturing and service sector will hit the wire Tuesday of next week and offer some perspective on business activity for December.

Previous: Manufacturing: 50.1, Services: 51.1 Consensus: Manufacturing: 50.5, Services: 51.5



### Canadian CPI • Friday

Canada has inflation that is above the Bank of Canada's 2.0 percent target and GDP growth that surprised on the upside in the third quarter. In an ordinary environment that would have moved forward expectations of a rate hike from the BoC (the first G7 bank to have tightened in the current cycle).

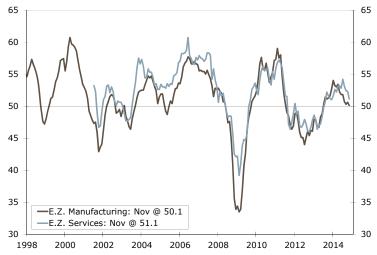
But this is anything but an ordinary environment. With oil below \$60/barrel, and commodity prices in general quite depressed, it is close to impossible that the BoC would raise rates and present another obstacle for Canada's export-driven economy.

We expect a slight monthly decline in prices in November, but the headline CPI rate will likely remain above 2.0 percent.

Previous: 2.4% (Year-over-year) Wells Fargo: 2.3%

Consensus: 2.2%





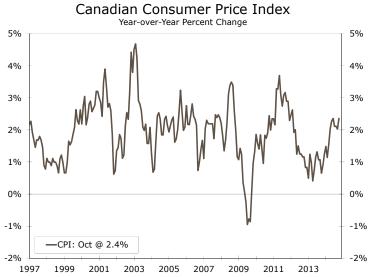
### **United Kingdom CPI • Tuesday**

As recently as a few months ago, BoE Governor Mark Carney was steering financial market expectations toward the first rate hike from the Monetary Policy Committee in spring of 2015. But inflation has remained below target and economic data have been hit and miss which has pushed back the timing of eventual BoE tightening.

CPI inflation in 2013 was at or above the BoE's 2.0 percent target but has been trending lower in 2014. In October CPI inflation was just 1.3 percent on a year-over-year basis. The selloff in oil and commodity prices will likely put downward pressure on prices in coming months. CPI figures for November are due out on Tuesday of next week.

Previous: 1.3% (Year-over-year) Wells Fargo: 1.1%

Consensus: 1.2%



Source: IHS Global Insight and Wells Fargo Securities, LLC

#### **Interest Rate Watch**

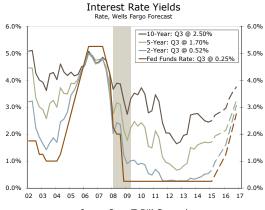
### **FOMC Action and Yield Spreads**

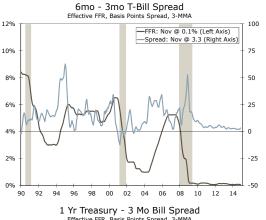
Our expectation remains that the Federal Open Market Committee (FOMC) next week removes the language "considerable time" and pursues a more data dependent guidance. As of now, our probability of any FOMC rate action six months ahead is that of an unchanged rate (see top graph), while the probability of a rate increase has moved upward from 10 percent to more than 20 percent over the next six months. This rising expectation for action reflects the influence of a declining unemployment rate along with a slight rise in the rate of inflation. Since 2010 the probability of an unchanged rate has been the dominant expectation.

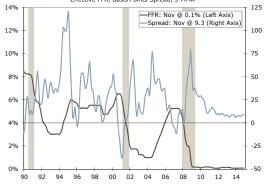
#### When FOMC Does Move, So Do Rates

As illustrated in the middle graph, once the target funds rate moves, as it did in 1994-1995 and 2004-2006, the six-month rate spread over the three-month rate tends to jump such that the spread rises more in the very short run (1994-1995) than the range that the spread eventually settles into overtime (1996-2000). The short-term money market investor appears to overcompensate for the risk of future fed funds rate increases. Perhaps there is the willingness to discount a series of fed funds increases given the uncertainty of the FOMC's plan of action. Once a series of funds rate changes are enacted, then it appears that the market has a greater sense of the ultimate actions of the Fed and spreads settle down into a range, similar to 1992-1994, for example.

In our annual outlook for 2015, we have incorporated this pattern of a rising spread in market rates in the short run with a subsequent settling in of the spread into a more historical pattern once the pace and possible extent of any series of FOMC moves can be discounted. In a similar pattern, note in the bottom graph that the 1-year Treasury-bill to three-month spread jumps pretty sharply in the very short-run in response to a move to raise the funds rate but then settles down again to a more historical spread. We suspect that this pattern will be repeated again once the FOMC starts to raise the funds rate sometime in the year ahead.







## **Credit Market Insights**

#### **Corporate Debt Watch**

Despite the record pace of high grade and high yield debt issuance during the past year, interest coverage, a measure of how easily a company can pay its interest expenses, is well above levels seen in the previous expansion. This is in part because of the low interest rate environment, but the ratio has also been bolstered by steady profit margins. After-tax profits in the manufacturing sector have hovered around 9 cents per dollar of sales for the past few years, above any level reached in the prior two cycles.

However, downturns in manufacturers' profits are often sharp, swift and come with little warning. The manufacturing sector remains a cyclical sector and movements in profit margins in this sector tend to be more extreme than movements in the overall economy.

Despite this possible downside risk, the health financial of manufacturing corporations has improved considerably since the recession. Most corporations have increased their margins, and their coverage and leverage ratios look healthy. In manufacturing addition. firms significantly reduced their ratio of shortterm to long-term debt, reducing their exposure to the next interest rate cycle. Given the easier credit lending standards over the past year and the rise in the ratio of current assets to liabilities, these firms appear to be in good financial position despite the concerns by some of a rapid pace of debt issuance.

Source: Federal Reserve Board and Wells Fargo Securities, LLC

Credit Market Data					
Mortgage Rates	Current	Week Ago	4 Weeks Ago	Year Ago	
30-Yr Fixed	3.93%	3.89%	3.99%	4.42%	
15-Yr Fixed	3.20%	3.10%	3.17%	3.43%	
5/1 ARM	2.98%	2.94%	3.01%	2.94%	
1-Yr ARM	2.40%	2.41%	2.44%	2.51%	
Bank Lending	Current Assets (Billions)	1-Week Change (SAAR)	4-Week Change (SAAR)	Year-Ago Change	
Commercial & Industrial	\$1,777.5	54.29%	25.95%	13.08%	
Revolving Home Equity	\$459.0	-3.80%	-2.05%	-3.38%	
Residential Mortgages	\$1,570.8	-14.62%	-0.14%	0.72%	
Commerical Real Estate	\$1,585.7	8.62%	3.25%	6.43%	
Consumer	\$1,196.9	-6.21%	3.00%	5.28%	

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

### **Topic of the Week**

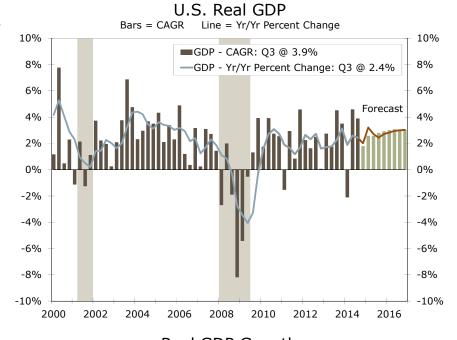
#### **A Whole New Ball Game**

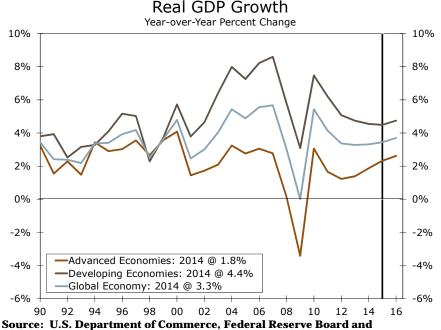
Wednesday marked the release of our annual 2015 Economic Outlook: A Whole New Ball Game. In this report we share our thoughts and outlook for the domestic and global economies for 2015. The report, as well as a replay of our conference call, is available at www.wellsfargo.com/economicoutlook.

On the domestic front, we see strong fundamentals allowing growth to be more self-sustaining, with employers adding an average of 210,000 jobs per month. We expect the improving labor market to support consumer spending and to see business begin to make capital investments as opposed to the dividend and share buybacks that have characterized this cycle. The plummet in oil prices provides downside risks in the near term to business fixed investment, as producers may cut back investment into new projects or existing projects that are unable to cover costs. Conversely, lower energy prices should support consumer spending, although this effect may take a bit longer to trickle through to the data.

Against this favorable backdrop, we expect the first Fed rate hike to occur in the middle of 2015, and the upper end of the fed funds rate target range reaching 1.00 percent at the end of 2015 and 2.75 percent at the end of 2016. We expect the Fed to proceed cautiously when raising rates, as their newly outlined tools for controlling the fed funds rate in such a liquid environment remain largely untested.

The U.S. economy will be a bright spot in the global economy; however, overall global growth is not expected to revisit its robust 5 percent annual rate registered during the 2004-2007 boom years. Growth should slightly exceed its long term average over the next two years. We expect modest growth in both advanced and developing economies. The continued strength of the U.S. economy against the backdrop of modest global growth along with rising U.S. rates suggests further strength in the dollar.





#### **Subscription Info**

Wells Fargo Securities, LLC

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	1 Week	1 Year		
	12/12/2014	Ago	Ago		
3-Month T-Bill	0.03	0.01	0.07		
3-Month LIBOR	0.24	0.23	0.24		
1-Year Treasury	0.23	0.18	0.14		
2-Year Treasury	0.56	0.64	0.32		
5-Year Treasury	1.55	1.68	1.53		
10-Year Treasury	2.12	2.31	2.88		
30-Year Treasury	2.77	2.97	3.89		
Bond Buyer Index	3.65	3.83	4.74		

Foreign Exchange Rates					
	Friday	1 Week	1 Year		
1	2/12/2014	Ago	Ago		
Euro (\$/€)	1.244	1.228	1.375		
British Pound (\$/₤)	1.570	1.558	1.635		
British Pound (£/€)	0.792	0.788	0.841		
Japanese Yen (¥/\$)	118.450	121.460	103.380		
Canadian Dollar (C\$/\$)	1.156	1.144	1.064		
Swiss Franc (CHF/\$)	0.965	0.979	0.889		
Australian Dollar (US\$/A\$	0.827	0.832	0.894		
Mexican Peso (MXN/\$)	14.834	14.359	12.965		
Chinese Yuan (CNY/\$)	6.188	6.152	6.071		
Indian Rupee (INR/\$)	62.295	61.785	61.830		
Brazilian Real (BRL/\$)	2.647	2.589	2.334		
U.S. Dollar Index	88.296	89.334	80.206		
Course, Bloombour ID and Walls Force Convities IIC					

Source: Bloomberg LP and Wells Fargo Securities, LLC  $\,$ 

Foreign Interest Rates						
	Friday	1 Week	1 Year			
	12/12/2014	Ago	Ago			
3-Month Euro LIBOR	0.06	0.06	0.23			
3-Month Sterling LIBOR	0.56	0.55	0.52			
3-Month Canada Banker's Acceptanc	e 1.28	1.28	1.28			
3-Month Yen LIBOR	0.11	0.11	0.15			
2-Year German	-0.04	-0.02	0.25			
2-Year U.K.	0.49	0.58	0.48			
2-Year Canadian	0.99	1.05	1.10			
2-Year Japanese	0.01	0.00	0.10			
10-Year German	0.63	0.78	1.84			
10-Year U.K.	1.84	2.02	2.90			
10-Year Canadian	1.79	1.96	2.67			
10-Year Japanese	0.40	0.42	0.66			

<b>Commodity Prices</b>			
	Friday	1 Week	1 Year
	12/12/2014	Ago	Ago
WTI Crude (\$/Barrel)	59.12	65.84	97.50
Gold (\$/Ounce)	1223.20	1192.51	1225.52
Hot-Rolled Steel (\$/S.Ton)	614.00	620.00	676.00
Copper (¢/Pound)	294.20	292.55	333.20
Soybeans (\$/Bushel)	10.40	10.08	13.51
Natural Gas (\$/MMBTU)	3.73	3.80	4.41
Nickel (\$/Metric Ton)	16,210	17,055	13,972
CRB Spot Inds.	501.05	503.99	529.88

### **Next Week's Economic Calendar**

Monday	Tuesday	Wednesday	Thursday	Friday
15	16	17	18	19
Industrial Production (MoM)	Housing Starts	CPI (MoM)	Leading Index	
October -0.1%	October 1009K	October 0.0%	October 0.9%	
November 0.8% (W)	November 1030K (W)	Nov em ber -0.1% (W)	November 0.4% (W)	
TIC		FOMC Rate Decision		
September \$164.3B		October 0.25%		
October N/A		December 0.25% (W)		
	Eurozone	Russia		Canada
	PMI Manufacturing & Services	Unemployment Rate		CPI (YoY)
	Previous (November) 50.1 & 51.1	Previous (October) 5.1%		Previous (October) 2.4%
	United Kingdom			Brazil
	CPI (YoY)			Unemployment Rate
	Previous (October) 1.3%			Previous (October) 4.7%
	Industrial Production (MoM) October -0.1% November 0.8% (W) TIC September \$164.3B	15  Industrial Production (MoM) October -0.1% October 1009 K November 0.8% (W) November 1030 K (W)  TIC September \$164.3B October N/A  Eurozone PMI Manufacturing & Services Previous (November) 50.1 & 51.1 United Kingdom CPI (YoY)	15   16   17   17   17   18   18   17   19   10   19   10   19   10   19   10   10	15

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

Source: Bloomberg LP and Wells Fargo Securities, LLC

### Wells Fargo Securities, LLC Economics Group

Diane Schumaker-Krieg	Global Head of Research,	(704) 410-1801	diane.schumaker@wellsfargo.com
	<b>Economics &amp; Strategy</b>	(212) 214-5070	
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. bennen broek @wells fargo.com
Eugenio J. Alemán, Ph.D.	Senior Economist	(704) 410-3273	eugenio.j.aleman@wellsfargo.com
Anika R. Khan	Senior Economist	(704) 410-3271	anika.khan@wellsfargo.com
Azhar Iqbal	Econometrician	(704) 410-3270	azhar.iqbal@wellsfargo.com
Tim Quinlan	Economist	(704) 410-3283	tim.quinlan@wellsfargo.com
Eric Viloria, CFA	Currency Strategist	(212) 214-5637	eric.viloria@wellsfargo.com
Sarah Watt House	Economist	(704) 410-3282	sarah.house@wellsfargo.com
Michael A. Brown	Economist	(704) 410-3278	michael.a.brown@wellsfargo.com
Michael T. Wolf	Economist	(704) 410-3286	michael.t.wolf@wellsfargo.com
Zachary Griffiths	Economic Analyst	(704) 410-3284	zachary.griffiths@wellsfargo.com
Mackenzie Miller	Economic Analyst	(704) 410-3358	mackenzie.miller@wellsfargo.com
Erik Nelson	Economic Analyst	(704) 410-3267	erik.f.nelson@wellsfargo.com
Alex Moehring	Economic Analyst	(704) 410-3247	alex.v.moehring@wellsfargo.com
Donna LaFleur	Executive Assistant	(704) 410-3279	donna.lafleur@wellsfargo.com
Cyndi Burris	Senior Admin. Assistant	(704) 410-3272	cyndi.burris@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 Advisors, LLC, Wells Fargo Securities International Limited, Wells Fargo Securities Asia Limited and Wells Fargo Securities (Japan) Co. Limited. Wells Fargo Securities, LLC. ("WFS") 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. ("WFBNA") is registered with the Commodities Futures Trading Commission as a swap dealer and is a member in good standing of the National Futures Association. WFS and WFBNA 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

#### 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

