TIAA-CREF Asset Management

Natural Resources & Infrastructure Quarterly

Third Quarter 2014

What's Inside

The Natural Resources & Infrastructure Quarterly features overviews of the following:

Economic Commentary – page 2

- The third quarter is being watched for indications of stability in U.S. economic growth, while European policymakers consider new monetary easing to combat stagnation.

Markets Summary – page 3

- U.S. treasuries and the U.S. dollar strengthened as capital sought yield and signs of relative economic strength; employment markets remain mixed, even as unemployment drops; and commodities fell.

Energy – page 5

- Total crude oil production is expected to increase to approximately 9.5 million bbl/d in 2015, which would be the highest annual crude oil production since 1970.
- The share of total U.S. petroleum and other liquids consumption met by net imports fell to an average of 32% in 2013. The EIA expects the net import share to drop to 21% in 2015, which would be the lowest level since 1968.

Infrastructure – page 6

- A P3 panel within the U.S. House's Transportation and Infrastructure Committee held a series of hearings and roundtables on barriers to private investment in infrastructure and how P3s can be used in the U.S.
- Upwards of $50 billion of Australian infrastructure privatizations is anticipated to come to market in 2015–2016.

Timberland – page 7

- U.S. timber price movement was mixed in 3Q, as domestic production is modestly strengthening due to continued housing and U.S. economic growth, offsetting slack in export markets.
- Deal markets are picking up, especially in more developed timberland markets, as investors flush with capital compete for limited opportunities.

Agriculture – page 8

- Deal flow in the global agriculture space remains dynamic with high levels of investment interest in public and private markets.
- Drought conditions are continuing in California and Australia.
- Although agri-commodity prices sank in 3Q, overall 2014 U.S. farm income was revised upward.

TIAA CREF Financial Services

On the heels of economic volatility through the first half of 2014, the third quarter represented a critical indicator for durability of the slow, sustained U.S. recovery.

Final numbers showed the frigid winter yielded real GDP contraction of 2.1% in the first quarter, the steepest slowdown in five years. A strong bounce-back followed in the second quarter, with fully revised real GDP growth of 4.6%. Whether steadiness holds will be a critical determinant for the Federal Reserve's monetary policy going forward, but early indicators suggest the third quarter is a step in the right direction.

Consensus projection for GDP growth in the third quarter is approximately 3.0–3.5%, supported by positive manufacturing data which emerged during the quarter. However not all U.S. economic data is positive. While job growth (U.S. unemployment rate has fallen to 5.9% for September) is driving domestic growth, real wages remain stagnant, indicating that labor markets are not as strong as they might seem. Despite this, quantitative easing is expected to conclude in October, with U.S. monetary tightening forecast to follow in the first half of 2015, a sign of the Fed's confidence in the continued economic recovery.

Such U.S. policy trends show stark contrast to the patterns of the Eurozone economies. Divergence between the Euro and U.S. economies came to full light this quarter during contrastingly-toned speeches by Janet Yellen (Chair of the Fed) and Mario Draghi (President of the ECB) at the Fed's Economic Symposium in Jackson Hole. While Chair Yellen's speech indicated the U.S. is continuing to let its monetary easing wane, President Draghi pointed the Eurozone on a course toward implementing easing of its own, to try and break the hold of stagnation on the region.

While both Europe and the U.S. faced soaring unemployment during the Great Recession, Europe has faced a second six-quarter recession peaking in April 2013, largely attributable to the sovereign debt crisis. As of August, the Euro area unemployment rate stands at 11.5%, with many calling for a more accommodative central bank policy. Job losses from this second recession, however, were largely concentrated in countries that have been affected by government bond market challenges. Unemployment in Germany, for instance, stands at 4.9% as of August, whereas Spain and Italy are at 24.7% and 12.6%, respectively. With Euro inflation at 0.3%, few were surprised when Draghi announced the ECB's plan to begin a form of quantitative easing, in addition to a new cut in interest rates.

The divergent path between developed economies is driving record strength for the U.S. dollar. Since July, the USD has gained more than 7% against the Euro and 8% against the Yen, as Japan continues its own stimulus program. Dollar based commodities, including energy and most food-based commodities, have traded lower in the face of both the stronger USD and mixed global economic signals. As the Fed begins looking toward the first interest rate hike since 2006, the stark contrast emerging in the monetary policies of developed economies could amplify the effects. Investors will be watching closely.

Markets Summary

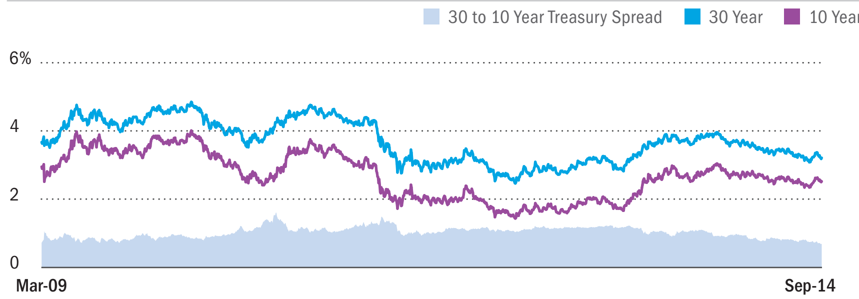
Key Market Metrics, as of September 30, 2014

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Key Market Prices						
U.S. 10 Year Treasury	**2.52%**	2.53%	2.73%	2.64%	1.92%	3.31%
U.S. 30 Year Treasury	**3.21%**	3.34%	3.56%	3.69%	2.90%	4.03%
Initial Unemployment Claims (SA)	**280k**	316k	332k	308k	397k	548k
Unemployment Rate	**5.9%**	6.1%	6.7%	7.2%	9.0%	9.8%
CB Consumer Confidence	**86.0**	86.4	83.9	80.2	46.4	53.4
S&P 500	**1,972**	1,960	1,872	1,682	1,131	1,057
FX Markets*						
USD-CAD	**1.12**	1.07	1.11	1.03	1.04	1.07
Euro-USD	**1.26**	1.37	1.38	1.35	1.34	1.46
USD-BRR	**2.45**	2.20	2.26	2.22	1.85	1.77
AUD-USD	**0.87**	0.94	0.93	0.93	0.97	0.88

* FX table displays 1 unit of 1st currency in terms of 2nd currency (e.g. 1 USD is currently equivalent to 1.12 CAD)

Bond Markets
Search for long term yield drove the bond markets in 3Q, driven by low inflation outlooks and modest global economic growth. Capital moved heavily into U.S. treasuries, given the attractive yield relative to the healthier Euro economies and the stronger U.S. economic performance. The move was especially apparent in the longest term U.S. treasuries — spreads between 10 and 30 year treasuries tightened to less than 70bps by the end of 3Q, the tightest range since March 2009. An bond investors continue to seek yield, it has kept global rates low despite the unwind of quantitative easing by the Federal Reserve.

10 & 30 Year U.S. Treasury Bond Yields

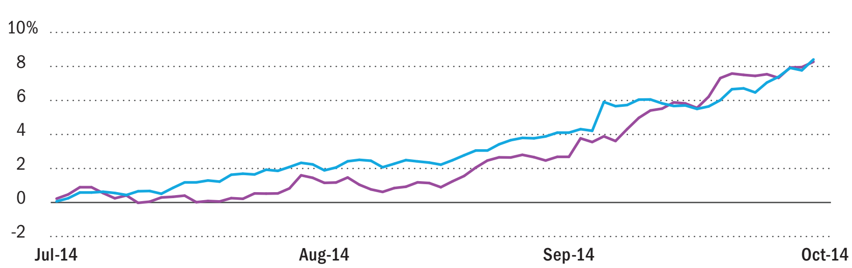


Source: U.S. Federal Reserve Board, Haver Analytics, TIAA-CREF analysis

FX Markets
The divergence of major developed market economies was apparent in the FX market in 3Q. While the U.S. economy continued in expansion mode, both Japan and the Eurozone are continuing to ease monetary conditions to try and combat persistent low inflation. The USD strengthened considerably against the Euro and the Yen. If the U.S. growth continues as expected, further strengthening of the USD is forecast as European and Japanese policymakers appear geared to continue to inject capital into their respective economies.

USD vs. Euro and USD vs. Yen

July 1 — September 30, 2014 Performance



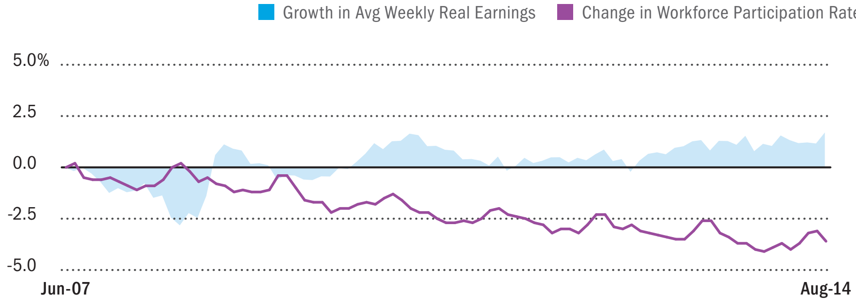
Source: U.S. Federal Reserve Board, Haver Analytics, TIAA-CREF analysis

[1] Items are as of 5/31/14

Markets Summary

Employment and Earnings
While much has been made during the U.S. recovery of growth in housing and the reduction in unemployment, factors continuing to hinder a more robust recovery include lack of wage growth and lower labor force participation. Wage growth since mid-2007 has been almost entirely offset by inflation, allowing little appreciation in purchasing power on a real basis. Meanwhile, the labor force participation rate has fallen from 66.6% in mid-2007 to 63.0%, taking millions out of the workforce and leaving fewer wage earners to drive continued economic expansion.

Economic Laggards — Participation and Earnings

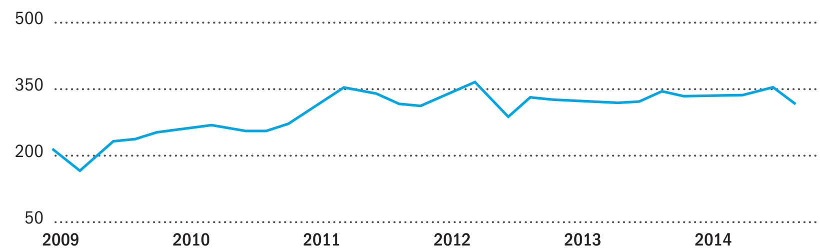


Source: U.S. BLS, Haver Analytics, TIAA-CREF analysis

Energy
The energy complex decreased slightly during 3Q, with oil prices being the largest factor. Increased production and weakening global demand have caused both Brent crude and West Texas Intermediate to fall slightly toward the end of the quarter. It will be important to watch how prices move as we approach winter, and how this effects the broader energy complex. The Federal Reserve's decisions regarding tapering thus far have not materially impacted the diversified energy complex, however this is something to be monitored going forward. Continued improvements in GDP and employment figures could serve as a catalyst moving forward.

S&P GSCI Energy Spot Index

Monthly Average

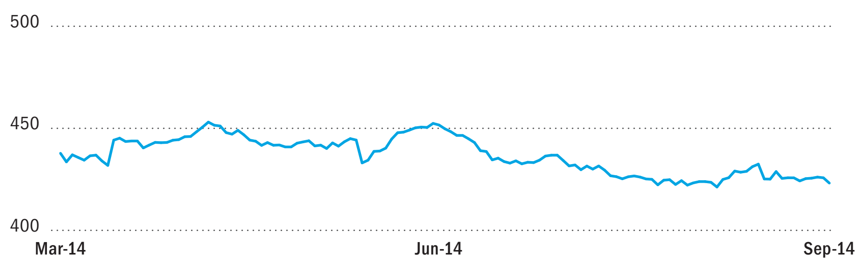


Source: Standard & Poor's, Haver Analytics

Agriculture
Major cash crop values declined in 3Q, driven by a combination of factors. A strong U.S. dollar puts pressure on globally traded, USD-denominated commodities, as international purchasing power declines. In addition, record production forecasts for U.S. corn and soybeans and softening demand for wheat and cotton supported a broad decline in prices. Non-core agri-commodities, such as cocoa and coffee, soared in 3Q on lackluster production and strong demand.

CRB Foodstuffs Index

1967 = 100



Source: Commodity Research Bureau, Haver Analytics

Energy Market Overview

Market Review

- Weakening global demand and increased Libyan oil exports contributed to a drop in the Brent[a] oil spot price, which ended the quarter at around $95/bbl. Brent crude prices have remained under $100/bbl since September 5, the lowest level in more than two years. Prices have declined approximately 18% from the 2014 daily peak of $115/bbl on June 19.
  - Prior to this decline, average monthly Brent spot prices traded within a narrow $5/bbl band from $107 to $112 per barrel for 13 consecutive months through July 2014.
- WTI[b] fell to around $91/bbl and the WTI–Brent spread, which averaged $11 in 2013, ended the quarter at approximately $4. The EIA projects the spread to average about $8 in both 2014 and 2015.
- Henry Hub is trading at around $4.12 per MMBtu, down from around $4.30/MMBtu at the start of the quarter. EIA expects that the Henry Hub natural gas spot price, which averaged $3.73 per MMBtu in 2013, will average $4.46/MMBtu in 2014 and $3.87/MMBtu in 2015.
- The first unrestricted sale of unrefined American oil since the 1970s set sail from Texas to South Korea in late July.
  - Some view this event as a potential wedge that could push the door open for more ultralight oil exports from the U.S.
- M&A activity in the sector over the first half of 2014 reached the total level for 2013.
- Large capital requirements for domestic shale plays test E&P companies' capital markets access.

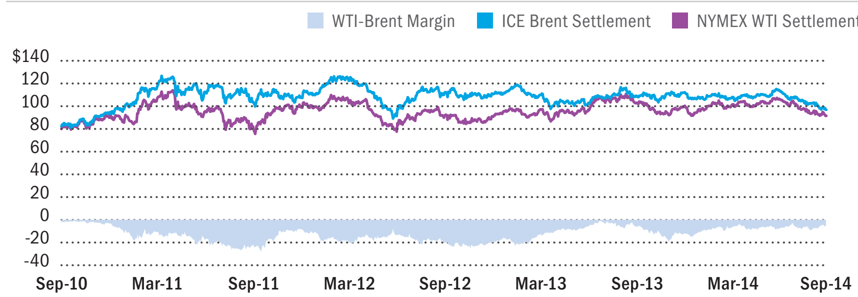
Outlook

- Total U.S. crude oil production averaged an estimated 8.6 million bbl/d in August, the highest monthly production since July 1986. Total crude oil production, which averaged 7.5 million bbl/d in 2013, is expected to increase to an average 9.5 million bbl/d in 2015. If achieved, the 2015 forecast would be the highest annual average crude oil production since 1970.
- The growth in U.S. domestic liquids production has contributed to a significant decline in petroleum imports. The share of total U.S. petroleum and other liquids consumption met by net imports fell from 60% in 2005 to an average of 32% in 2013. The EIA expects the net import share to decline to 21% in 2015, which would be the lowest level since 1968.

Key Market Metrics

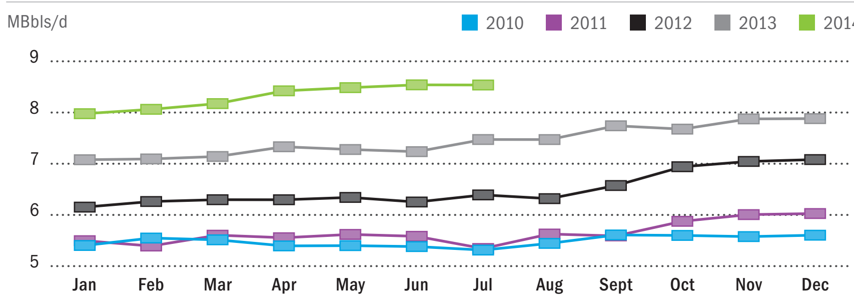
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
NYMEX WTI Crude Oil	**$91.16**	$105.37	$101.58	$102.33	$79.20	$70.61
ICE Brent Crude Oil	**$94.67**	$112.36	$107.76	$108.37	$102.76	$69.07
WCS Crude Oil	**$76.91**	$84.37	$81.57	$70.43	$68.70	$59.56
Henry Hub Nat. Gas	**$4.12**	$4.46	$4.37	$3.56	$3.67	$4.84
Alberta Nat. Gas	**$3.95**	$4.18	$4.47	$1.82	$3.34	$3.50
Wtd. Avg. $/kWh in U.S.	**N/A**	$10.75	$10.32	$10.43	$10.29	$10.10
OPEC Prod. (Mbbls/d)	**N/A**	30.2M	29.5M	30.0M	29.4M	28.8M
U.S. Oil Imports (Mbbls/d)	**7.1M[1]**	7.1M	7.3M	7.9M	8.9M	9.3M
U.S. Gas Output (Bcf/d)	**85.4B[2]**	87.1B	86.3B	82.2B	78.6B	69.6B

Crude Oil Exchange Prices



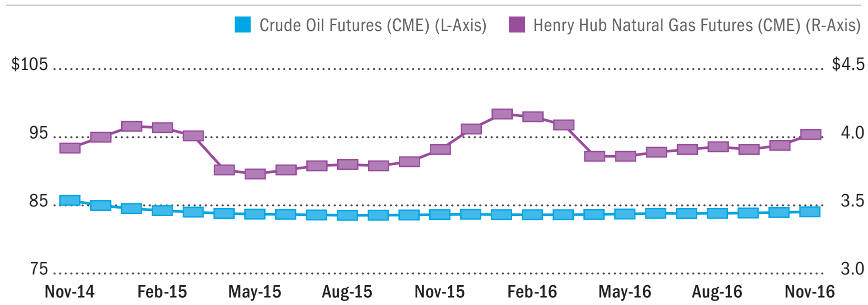
Source: Haver Analytics, TIAA-CREF analysis

U.S. Crude Oil Production



Source: Energy Information Administration, Haver Analytics

Futures Curve — Crude Oil & Natural Gas



Source: CME

[a] Brent Crude; [b] West Texas Intermediate
[1] Items are as of 8/31/14; [2] Items are as of 7/31/14

Infrastructure Market Overview

Market Review

- In late September, the Ohio Department of Transportation (ODOT) selected the Portsmouth Gateway Group as preferred bidder for its Portsmouth Bypass P3 project. It will be ODOT's largest construction project to date, and its first P3. The winning consortium, consists of ACS Infrastructure (40%), InfraRed Infra Fund III (40%), Star America Fund GP (20%).
- The private operator of the Indiana traffic risk P3 Toll Road, which stretches 157 miles across northern Indiana, announced that it filed a prepackaged reorganization with the bankruptcy court for the Northern District of Illinois due to overleverage.
- Midstream M&A remains very active due to growing demand for pipeline/gathering lines/processing capacity across North America. Large scale developments are captured by MLPs. PE strategy is focused on smaller scale/high execution risk projects.
- Due to evolving supply and demand dynamics across Regional Transmission Organizations (RTOs) and imbalanced load growth, new build merchant transmission projects are being seen across the U.S.
- Transactions in the power sector continue to be driven by utilities, strategics and financials sponsors seeking to rebalance their portfolios (contracted and merchant)
- The Canadian pipeline operator Versen acquired a 50% interest in the Ruby Pipeline for US$1.425 billion. The pipeline was built to carry 1.5 billion cubic feet a day of natural gas 680 miles across the Rocky Mountains — from Wyoming to Oregon.
- QIC, John Laing, Acciona and Bouygue's consortium was named preferred bidder for East West Link, the state of Victoria's largest P3 project, at an expected cost of ~$7bn AUD.
- The European/Australian infrastructure markets remains highly competitive due to local investor interest, increasing number of publicly listed infra/renewable vehicles, and highly transparent privatization processes in Australia, respectively.

Outlook

- Over the past year, a dedicated P3 panel within the U.S. House's Transportation & Infrastructure Committee has held a series of hearings/roundtables on how P3s can be used in the U.S., and discussed the barriers to private investment in infrastructure. This concluded with a 56-page report on how to lower barriers to U.S. P3s, with those suggestions likely to be contained in the new transportation reauthorization bill.
- Upwards of $50 billion of Australian infrastructure privatizations is anticipated to come to market in 2015–2016.

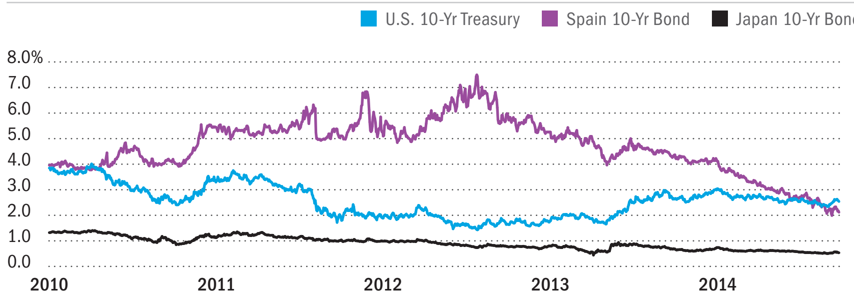
[1] Items are as of 8/31/14; [2] Items are as of 7/31/14

Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
U.S. Pop. Growth from '00	**12.4%**	12.2%	12.0%	11.7%	10.1%	8.5%
U.S. Inflation Rate (Y-o-Y)	**1.7%**[1]	2.1%	1.5%	1.2%	3.9%	-1.3%
Y-o-Y U.S. Real GDP Growth	**N/A**	2.6%	1.9%	2.3%	1.2%	-3.3%
U.S. Deficit as % of GDP	**N/A**	3.6%	2.0%	4.3%	8.9%	10.0%
U.K. Deficit as % of GDP	**N/A**	3.6%	3.4%	3.9%	3.5%	5.9%
FTSE Utilities*	**475.4**	482.4	447.3	407.9	353.8	367.6
FTSE Constru./Manufact.*	**695.8**	692.2	668.8	597.7	421.4	482.1
U.S. Inv. Priv. Structures**	**$504B**	$504B	$488B	$463B	$397B	$413B
Freight Transport Index	**119.6**[2]	118.6	118.8	116.8	111.3	99.3

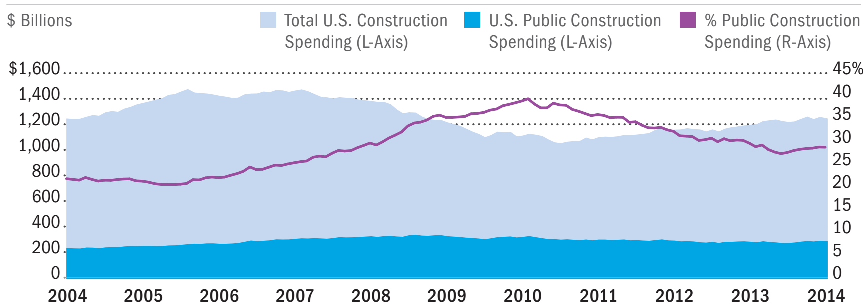
* Global, Total Return Index; ** Total investment ($) in non-residential structures in the U.S.

10-Year Benchmark Government Bond Yields by Country



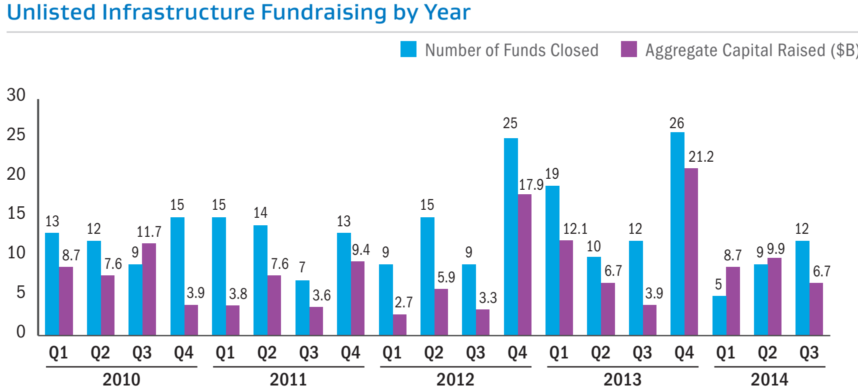
Source: U.S. Treasury, Banco de España, Ministry of Finance Japan, Haver Analytics

10-Year U.S. Construction Spending



Source: U.S. Census Bureau, Haver Analytics, TIAA-CREF analysis

Unlisted Infrastructure Fundraising by Year



Source: Preqin Infrastructure Spotlight

Timberland Market Overview

Market Review

- U.S. timber prices were mixed in 3Q.
  - Southern softwood pulp prices remain near historic highs in 3Q on tightening supply from Europe and North America.
  - U.S. Pacific Northwest log prices are down about 15% from peak levels early in 2014, as Asian demand and high inventories in China and western U.S. mills have driven moderation in log pricing.
- China became a net exporter of pulp and paper products in 3Q on all-time high paperboard exports and decreased pulpwood imports. The country continues to face an overall wood deficit, unlikely to abate anytime soon.
- U.S. housing data is mixed, yet broad trends remain promising.
  - The NAHB/Wells Fargo Housing Market Index has increased ten points since the end of 2Q, to 59. This indicates confidence has improved meaningfully in the sector. Above 50 is generally considered positive for building conditions.
  - Although housing starts fell sharply in August, they remain up year-over-year, and single-family housing starts saw strong upward momentum.

Outlook

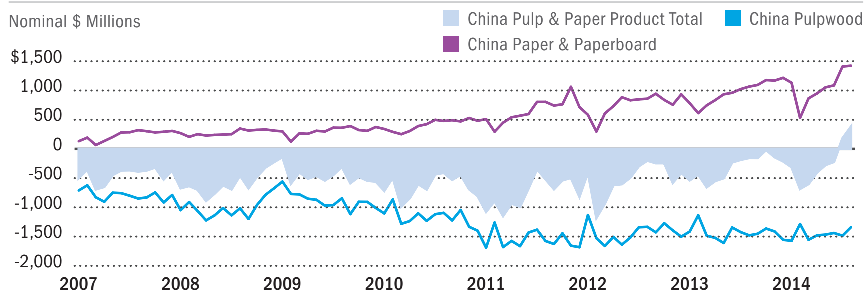
- Timberland deal flow appears robust moving into year-end 2014. Strong valuations are being driven by capital supply from REITs, TIMOs, and other large timberland investors.
  - According to RISI, global transaction volume is on pace to match the 2010 record of over 2.2 million acres.
  - Also according to RISI, U.S. transaction value could reach the second-highest total in six years, led by the southern and western regions.
  - Resource Management Service's sale in the U.S. South of 200,000 acres, primarily plantation, was closely monitored in 3Q. The deal represents the largest U.S. offering in 2014. With expectations of a valuation of over $360 million ($1,800/acre), the auction deal went to Potlatch in early 4Q for $384 million ($1,900/acre).
- U.S. housing activity, like the broader U.S. economy, continues to improve at a gradual pace. Continued headwinds facing the housing recovery include the outlook for rising interest rates, tepid wage growth, and lower labor force participation rates.

Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Total Res. Construction	**357B[1]**	$356B	$363B	$352B	$254B	$256B
Housing Starts, SA (Vol)	**956k[1]**	909k	950k	863k	650k	585k
Building Permits (Vol)	**1,003k[1]**	973k	1,000k	993k	610k	609k
U.S. S. Sawtimber Index	**N/A**	$25.23	$25.66	$24.01	$22.59	$26.47
CME Lumber ($/1,000BF)	**$333**	$335	$336	$344	$244	$169
NBSK U.S. Pulp Index	**$1,027**	$1,030	$1,020	$948	$971	$780
Paper&Paperboard Prod.*	**6,596k[1]**	6,626k	6,610k	6,629k	6,824k	6,697k
Industry Capacity Use (%)	**72%[1]**	71%	71%	72%	60%	54%
World Timber Index	**$979**	$1,049	$1,044	$993	$587	$609

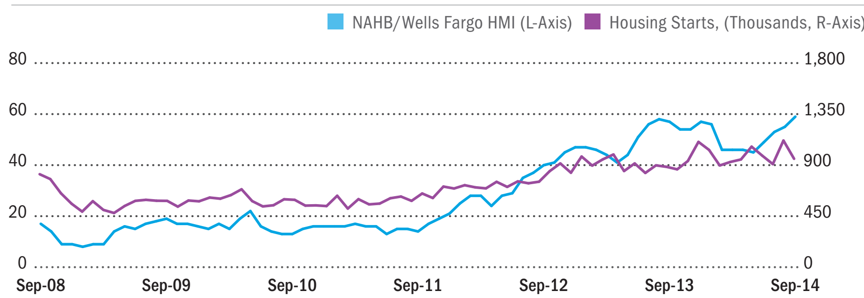
* U.S. Total Production, in Tons

China Pulp & Paper Products Trade Balance



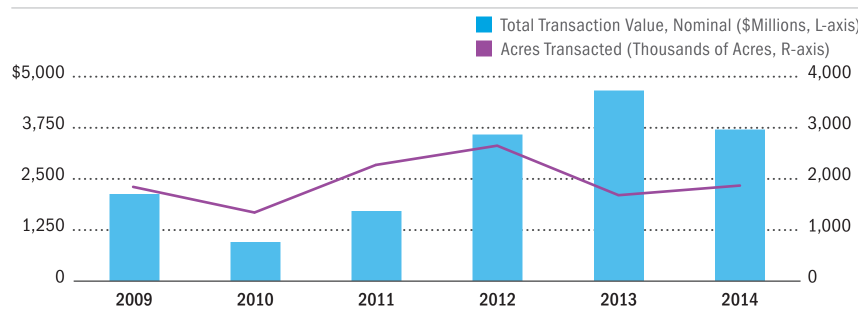
Source: China General Administration of Customs, Haver Analytics, TIAA-CREF analysis

Builder Confidence vs. Housing Starts



Source: U.S. Census, National Association of Homebuilders, Haver Analytics, TIAA-CREF analysis

Total U.S. Timberland Transactions, Value and Volume*



* 2014 Forecast. Source: RISI, TIAA-CREF analysis

[1] As of 8/30/14

Agriculture Market Overview

Market Review

- Deal flow in the global ag space remains dynamic, driven by heightened M&A activity and increased capital inflows.
  - There are 33 ag funds in the market, of which eight have raised $1.1 billion through 3Q, compared to nine funds that raised $1.1 billion in all of 2013 (source: Preqin).
- Drought conditions continue in California (the driest year on record with 99% of the state experiencing severe, extreme, or exceptional drought) and Australia.
  - At this stage, production expectations and farmland values for permanent crops do not appear to be materially impacted from the drought in CA.
- Russia issued an order banning certain agricultural imports from the U.S., E.U., Canada, Australia, and Norway for one year. Russia was only the 20th-largest market for related U.S. ag exports in 2013, accounting for less than 1% of total.
- The USDA revised 2014 U.S. farm income expectations to $113.2 billion, $17.4 billion above estimates released in February.
  - Although down approximately 14% from 40-year high income in 2013, 2014 farm income is projected to be $25 billion above the ten-year average.
- Recent market reports indicate U.S. farmland values stabilizing to softening modestly with variability observed across different states and regions.

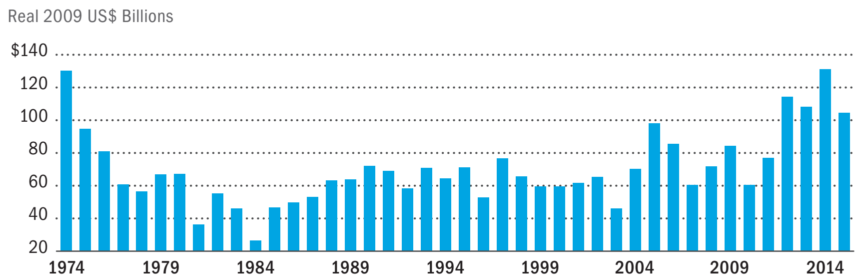
Outlook

- Most major agri-commodity prices (corn, soybeans, cotton, wheat, sugar) declined sharply in 3Q due to increased production and/or sluggish demand with expectations for prices to remain muted in the short-term.
  - Corn and soybean harvests began, and expectations for record U.S. production were validated. High wheat and cotton stocks and inconsistent demand contributed to price declines.
  - A stronger U.S. dollar also impacted commodity pricing.
  - Depressed prices should improve crushing margins for corn/soybeans, which could provide price support.
  - Market forecasters project wheat and cotton prices to bottom in 4Q before recovering in 2015.
  - Sugar prices are forecast to gain in 4Q and beyond as weaker Brazilian production results in global demand exceeding supply for the first time in five years.
- A sustained decline in commodity prices will likely result in U.S. farmland values softening further. TIAA's market observations indicate lower quality parcels/areas are seeing greater pressure on values as compared to higher quality farmland.

Key Market Metrics

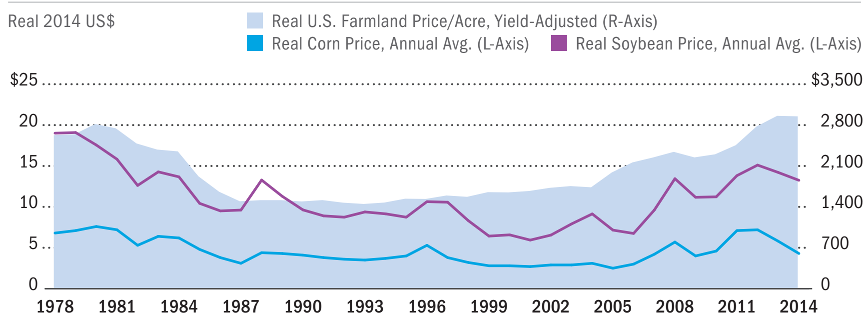
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Corn ($/bu)	**$3.21**	$4.24	$5.02	$4.41	$5.92	$3.44
Soybeans ($/bu)	**$9.13**	$14.00	$14.64	$12.83	$11.79	$9.27
Wheat ($/bu)	**$4.78**	$5.65	$6.97	$6.78	$6.09	$4.57
Sugar ($/100 lbs)	**$15.48**	$16.62	$17.77	$17.48	$26.34	$24.12
Cotton ($/100 lbs)	**$61.96**	$79.21	$93.52	$86.11	$98.71	$61.34
Ethanol ($/gallon)	**$1.59**	$2.12	$3.46	$1.95	$2.49	N/A
S&P GSCI Agri. Index	**367.5**	367.5	400.9	373.4	479.2	300.8
CRB Foodstuffs Index	**423.2**	450.2	432.4	404.8	468.6	305.1
FAO Food Price Index	**196.6**[1]	208.9	213.8	203.7	227.7	164.1

U.S. Annual Net Farm Income*



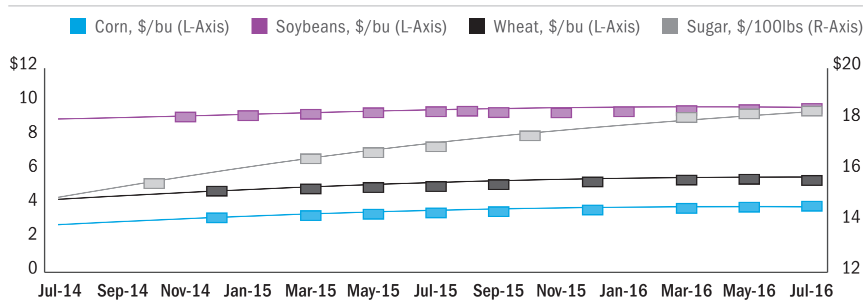
* 2014 Forecast. Source: USDA ERS, TIAA-CREF analysis

Average Annual Crop Prices and Yield-Adjusted U.S. Farmland Values*



* 2014 commodity prices YTD; land values forecast. Source: USDA, Haver Analytics, TIAA-CREF analysis

Futures Curve — Key Agricultural Commodities



[1] As of 8/30/14

Financial Services

C20034

186320_478416
(10/14)