TIAA-CREF Asset Management

Natural Resources & Infrastructure Quarterly

Fourth Quarter 2013

What's Inside

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

Financial Services

Economic Commentary

Markets are hot again, as the fourth quarter of 2013 ended with the long-awaited decision to formally begin tapering the existing U.S. quantitative easing program by $10 billion per month.

"Taper fears" dominated much of the economic discussion in 2013, a year that saw strong stock market gains and modest improvement in the economic recovery across developed markets, much of it boosted by the unprecedented prevalence of loose monetary policy regimes worldwide.

The fourth quarter saw a wide spectrum of economic news in the U.S., beginning with a sixteen day government shutdown, followed by strong GDP and production data releases which hinted at continued modest economic improvement, and ending with the passage of a bipartisan budget deal within a divided congress (the first budget passed in such circumstances since 1986). Still, the signature economic event was Ben Bernanke's announcement that the Fed would reduce its asset purchasing rate in his final FOMC address on December 19th. Polls showed economists largely split on whether the Fed would taper, with some cautioning that the negative consequences of tapering too early outweighed the benefits of beginning prior to 2014.

The U.S. stock market rallied on the Fed's decision, in a surprising reversal from the past summer, when markets fell drastically on the announcement of a potential forthcoming tapering of Fed purchases. Investors took solace in Bernanke's reassurance that benchmark interest rates would remain at 0% until at least 2015, and the $10 billion monthly reduction was viewed as a "modest" taper amidst solid economic data.

The U.S. had a number of promising developments in terms of economic data that contributed to the taper decision. Fully revised third quarter GDP growth was 3.6%, ahead of the forecast of 3.1% and the highest quarterly growth since first quarter 2012. Additionally, U.S. industrial production surpassed its pre-recession peak in November, and housing starts rose 22.7% to their highest level in six years.

Unemployment rates improved as well, down to 7.0% from 7.8% in September 2012, when the most recent bond buying program was launched. The caveat continues to be the declining labor force participation rate, as workers leaving the workforce remains a concern. Despite this caution, the U.S. economy has averaged 195,000 new jobs per month for the last 12 months, a marked improvement versus the pre-easing period.

The laggard on the economic data front is inflation. U.S. prices rose just 1.2% in November, up from 0.7% in October, but still well below the Fed's target of 2%. Low inflation continues to be a worldwide phenomenon, currently measuring just 0.9% in the Eurozone and 3.5% in China (down drastically from over 8% five years ago).

Emerging market currencies, including Turkey's lira, South Africa's rand, and the Brazilian real, continue to weaken against the U.S. dollar. This is partially attributable to the anticipation that growth in the U.S. will outpace the recovery in other regions, attracting more capital to the U.S. and away from emerging markets. The slowing injection of new money into the financial system, via the U.S. taper of asset purchases, also presents headwinds for emerging market currencies.

Overall, the fourth quarter of 2013 displayed some promising developments from which investors and policymakers alike have gained confidence. Markets will continue to react to the effects of tapering news in 2014, and global central banks will be weighing all options for maintaining balance, as they have throughout this prolonged economic recovery.

Markets Summary

Key Market Metrics, as of September 30, 2013

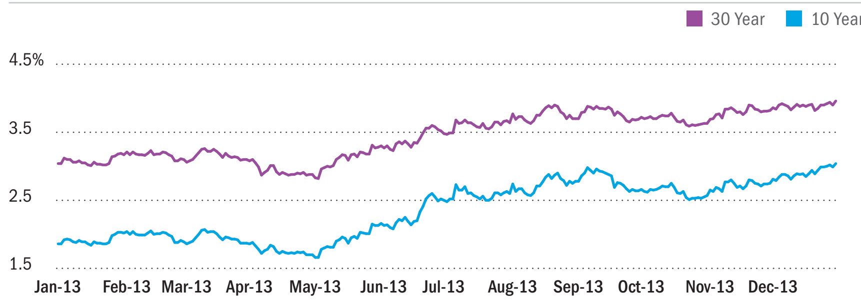
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Key Market Prices						
U.S. 10 Year Treasury	**3.04%**	2.64%	2.52%	1.78%	3.30%	2.25%
U.S. 30 Year Treasury	**3.96%**	3.69%	3.52%	2.95%	4.34%	2.69%
Initial Unemployment Claims	**305k**[1]	308k	344k	372k	406k	533k
Unemployment Rate	**7.0%**[1]	7.2%	7.6%	7.8%	9.3%	7.3%
CB Consumer Confidence	**78.1**	80.2	82.1	66.7	63.4	38.6
S&P 500	**1,848**	1,682	1,606.3	1,426	1,258	903
FX Markets*						
USD-CAD	**1.06**	1.03	1.05	1.00	0.99	1.22
Euro-USD	**1.38**	1.35	1.30	1.32	1.34	1.39
USD-BRR	**2.36**	2.22	2.21	2.05	1.66	2.31
AUD-USD	**0.89**	0.93	0.92	1.04	1.02	0.70

1 Data as of 11/30/13

* FX table displays 1 unit of 1st currency in terms of 2nd currency (e.g. 1 USD is currently equivalent to 1.06 CAD)

Bond Markets
After differing projections from top economists and analysts alike, the Federal Reserve ultimately elected to begin tapering asset purchases. The Fed's announcement received a modest welcome in bond markets, as benchmark rates were promised to be held at historical lows. Yields on the 10-year Treasury broke through the three percent mark during the closing week of 2013, and yields on the 30-year Treasury finished just under four percent. Spreads narrowed between the two primary benchmarks, driven by increasing demand for long-dated securities in a global low-inflation environment.

10 & 30 Year U.S. Treasury Bond Yields

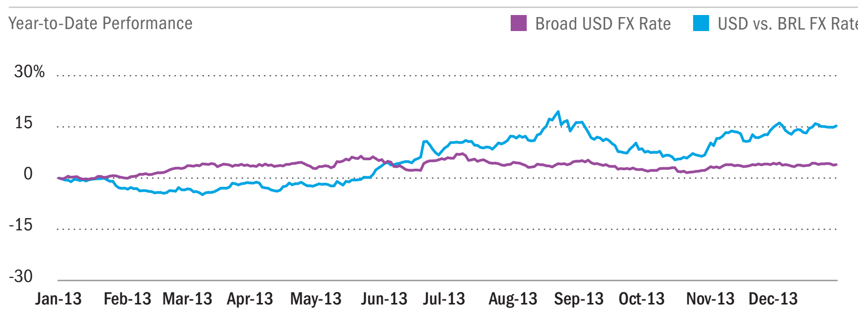


Source: U.S. Federal Reserve Board, Haver Analytics

FX Markets
Select emerging market currencies are again facing downward pressure after the Fed's decision to taper. After experiencing a sharp decline over the summer, attributed to taper fears (much of the increased U.S. money supply has been invested in emerging markets), emerging markets largely erased the loss in the third quarter as expectations stabilized. Stronger economic data in the U.S., however, has shifted investor appetite to domestic opportunities and thus resulted in a stronger USD to close out 2013. Emerging market currencies, including the Brazilian Real, are once again approaching their summer lows.

USD Broad FX Index & vs. Brazilian Real

Year-to-Date Performance



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

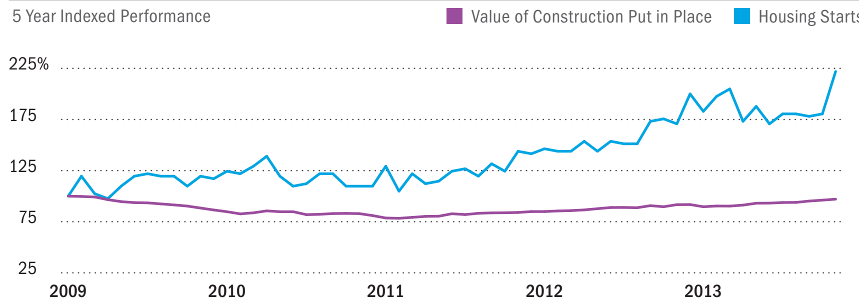
Markets Summary

Housing and Construction

Housing starts are far from the pre-recession peak – heights not likely to be seen again in near future – however momentum out of the recession continues to build. As interest rates rise, pressure will be placed on consumers and credit must be loosened or incomes and employment must rise for the recovery to remain in balance. Overall construction value fluctuates much more modestly, as infrastructure projects remained stronger through the recession. Pressure remains for investment in infrastructure, both through government investment and partnerships with private investors, who are hungry for yielding assets.

U.S. Construction Spending & Housing Starts

5 Year Indexed Performance



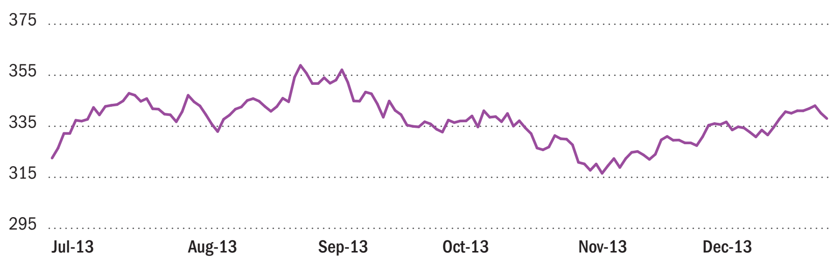
Source: U.S. Census Bureau, Haver Analytics, TIAA-CREF analysis

Energy

The energy complex declined slightly at the start of 4Q, but strengthened by the end of December. The weakening was due in part to negative reactions in oil markets to the Iran deal, in which Iran pledged to restrict its nuclear work in return for loosened economic sanctions. However, this proved to be a temporary movement. Natural gas prices rose amid cold temperatures and increased demand in the residential and commercial sectors. The Federal Reserve's decision to formally begin tapering toward the end of 4Q did not materially impact the diversified energy complex. The improved GDP and employment figures seen during the quarter could serve as a catalyst moving forward.

S&P GSCI Energy Spot Index

December 1982 = 100



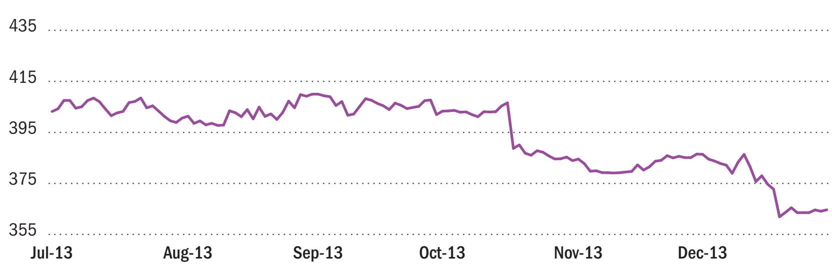
Source: Standard & Poor's, Haver Analytics

Agriculture

The effects of tapering could be felt on multiple fronts for global farmland investors. With the U.S. dollar strengthening, U.S. export competitiveness is challenged, while countries experiencing weaker currencies – such as Brazil and Australia – become more competitive. The stronger U.S. dollar also puts pressure on crop prices, as they are denominated in USD while being produced globally. Along with strong production, prices weakened into year-end.

CRB Foodstuffs Index

1967 = 100



Source: Commodity Research Bureau, Haver Analytics

Energy Market Overview

Market Review

- U.S. field production of crude oil reached its highest level since May of 1989, with 7.7 million barrels being produced daily during October.
  - Exports continued their strong growth, as record levels, nearly 124 million barrels, of crude oil and petroleum products were shipped abroad in October.
- Henry Hub natural gas rose from $3.60 to $4.23 during 4Q.
  - Higher prices are attributable to cold weather across most of the U.S., increased demand in the residential and commercial sectors, combined with reduced gas production caused by well freeze-offs. Near term Henry Hub futures remain above $4.00.
- The spread between WTI[a] and Brent[b] reached its widest mark since March, at $19 in late November, due to increased U.S. domestic stockpiles. A seasonal lack of demand, along with continued increases in production, has led to higher stocks. Since then, increased refinery production and strong economic data in the U.S. has tightened the spread, closing 4Q at $12.
- Devon Energy reached a deal to buy GeoSouthern Energy's holdings in the Eagle Ford shale region of Southern Texas for $6 billion, marking the largest takeover in the oil and gas industry in 2013. The transaction involves operations that currently produce 53,000 barrels of oil equivalent per day.
- A consortium composed of Brazil's state-run oil company Petrobas, Royal Dutch Shell, France's Total, and two Chinese state oil companies won the bid for Brazil's Libra deep-water oilfield on October 21, which has an expected capacity of up to one million barrels of oil equivalent per day
  - The deal included a $7 billion signing bonus paid by the consortium, who also agreed to give 41.65% of what is produced back to the Brazilian government.

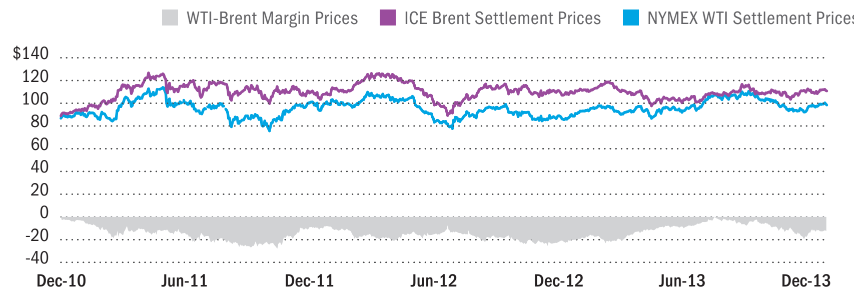
Outlook

- The U.S. Energy Information Administration estimates that the U.S. will surpass Russia as the world's top oil producer by 2015 and be close to energy self-sufficiency in the next two decades, amid booming output from shale formations.
- While U.S. law bars overseas shipments of most domestically produced oil, lawmakers have confirmed that potential changes to this law have moved onto the Congressional agenda amidst record production levels.

Key Market Metrics

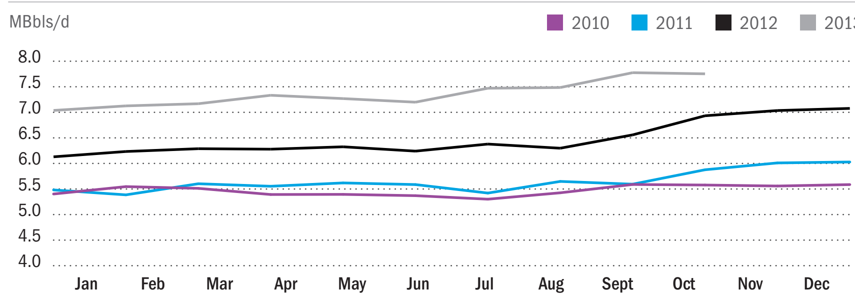
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
NYMEX WTI Crude Oil	**$98.42**	$102.87	$96.56	$91.82	$91.38	$44.60
ICE Brent Crude Oil	**$110.80**	$108.63	$102.16	$111.11	$94.75	$45.59
WCS Crude Oil	**$75.55**	$70.34	$82.31	$58.82	$71.38	$35.20
Henry Hub Nat. Gas	**$4.23**	$3.59	$3.57	$3.35	$4.41	$5.62
Alberta Nat. Gas	**$1.84**	$3.12	$3.04	$2.37	$3.36	$5.91
Wtd. Avg. $/kWh in U.S.	**N/A**	$10.45	$10.47	$9.65	$9.52	$9.57
OPEC Prod. (Mbbls/d)	**N/A**	30.0M	30.6M	30.4M	29.6M	30.7M
U.S. Oil Imports (Mbbls/d)	**8.1M[1]**	7.9M	7.7M	7.6M	8.7M	9.4M
U.S. Gas Output (Bcf/d)	**82.3B[2]**	82.2B	81.5B	81.4B	77.4B	71.8B

Crude Oil Exchange Prices



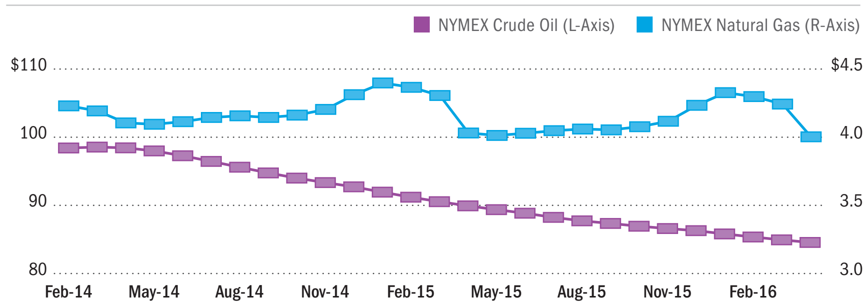
Source: Haver Analytics, TIAA-CREF analysis

U.S. Crude Oil Production



Source: Energy Information Administration, Haver Analytics

Futures Curve – Crude Oil & Natural Gas



Source: Haver Analytics

[a] West Texas Intermediate; [b] Brent Crude
[1] Items are as of 11/30/13; [2] Items are as of 10/31/13

Market Review

- Infrastructure markets continue to be highly competitive, given increasing investor appetite and a limited number of quality assets in politically stable markets. According to Prequin, unlisted infrastructure funds across the globe raised $38 billion in 2013 through October, a post-financial crisis high and almost the same level as 2008. Valuations for core infrastructure assets are at a five-year high.
- Over the past year, the European infrastructure sector appears to have survived a wave of restructuring and refinancings pressured by the region's recession and previously aggressive deal terms. Liquidity rose as the wider economic climate improved, while privatizations continued. Fortum's transmission assets in Finland sold for €2.55 billion in December, commanding almost 17 times EBITDA valuations, with the remaining Swedish assets expected to be valued in the €4.5-5 billion range. The European infrastructure fundraising market had 13 Europe-focused unlisted funds raising €9.1 billion, which is more than three times 2011 levels.
- Australian infrastructure assets have garnered increasing interest, due to a number of privatizations, including Port of Newcastle and Queensland Motorway. In late November, GIP agreed to sell its stake in the Port of Brisbane to Canada's Caisse de depot for AUD$1.4 billion (28 times projected EBITDA). This follows the purchase by IFM and others of Port Botany and Port of Kembla at 25 times EBITDA.

Outlook

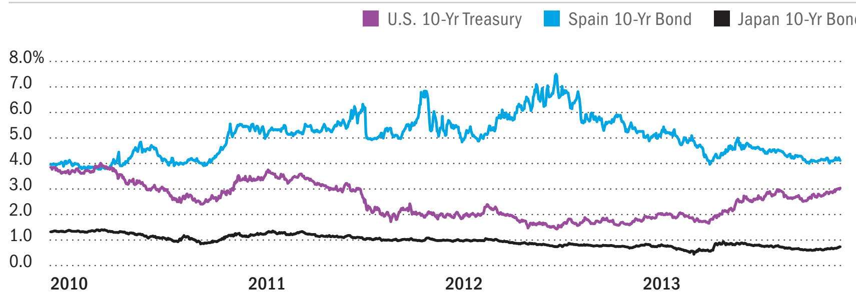
- U.S. public private partnership ("P3") markets remain active, with an increasing number of states looking to fund their infrastructure gaps through the model. While the pipeline of P3 deals is full, opportunities such as the expansion of the TIFIA loan program and the Chicago Infrastructure Trust, have not attracted sizable private capital due to high costs of pursuit for investors.
- Given the greater sophistication of both the public and private sectors in structuring P3 deals, there is a cautious optimism for a more productive U.S. transportation investment climate in 2014. As in previous years, however, more deal flow is expected to come from energy, infrastructure, and regulated sectors, including LNG facilities, contracted power, transmission and pipelines.

Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
U.S. Pop. Growth from '00	**11.8%[1]**	11.7%	11.5%	11.1%	9.5%	7.8%
U.S. Inflation Rate (Y-o-Y)	**1.2%[1]**	1.2%	1.8%	1.7%	1.5%	0.1%
Y-o-Y U.S. Real GDP Growth	**N/A**	2.0%	1.6%	2.0%	2.8%	-2.8%
U.S. Deficit as % of GDP	**N/A**	4.9%	1.4%	6.4%	8.6%	8.2%
U.K. Deficit as % of GDP	**N/A**	4.4%	3.6%	4.6%	6.3%	2.4%
FTSE Utilities*	**415.5**	407.9	390.3	373.0	378.8	339.0
FTSE Constru./Manufact.*	**628.8**	597.7	531.4	534.2	531.2	350.9
U.S. Inv. Priv. Structures**	**N/A**	$471B	$453B	$458B	$370B	$556B
Freight Transport Index	**114.3[2]**	115.1	113.9	112.1	108.4	100.5

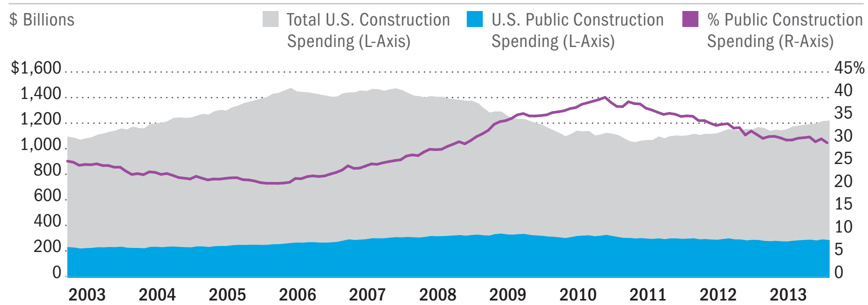
* Global, Total Return Index; ** Total investment ($) in non-residential structures in the U.S.

10-Year Benchmark Government Bond Yields by Country



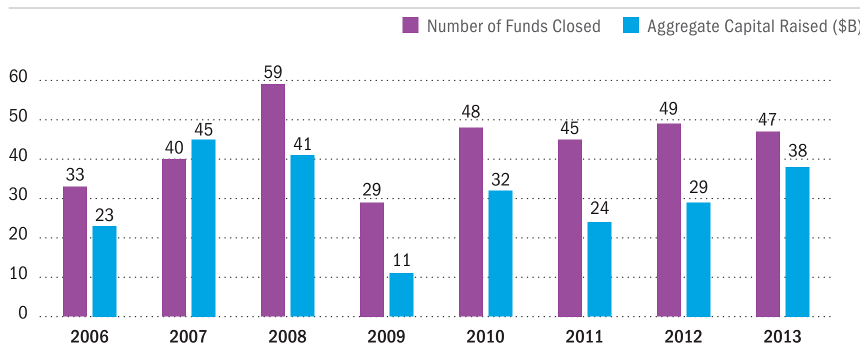
Source: U.S. Treasury, Banco de España, Ministry of Finance Japan, Haver Analytics

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

[1] Items are as of 11/30/13; [2] Items are as of 10/31/13

Timberland Market Overview

Market Review

- The U.S. housing market showed continued signs of growth in 4Q, a result of improving U.S. economic conditions and pent-up demand. Importantly, consumers appear undeterred by recent increases in mortgage rates.
  - U.S. housing starts were up 22.7% in November month-over-month, to the highest level in nearly six years.
  - The NAHB/Wells Fargo Housing Market Index increased four points, to a reading of 58 in December. A reading over 50 reflects expansion in the industry.
- U.S. lumber prices continue a mixed recovery on stronger demand from China and parts of the U.S., while prices in certain regions in the U.S. and internationally continue to be mixed.
  - According to CIBC, lumber and log imports in China were up 34% and 61%, respectively, in October over the same period in 2012.
- Plum Creek, the largest timberland holder in the U.S., acquired all the U.S. timberland holdings (501,000 acres across the U.S. South) of MeadWestvaco, the Richmond, Virginia-based packaging products company, for $1.1 billion. An additional $400 million was put into a partnership between the two companies.
- Fibria, Brazil's largest producer of paper and pulp, sold approximately 508,130 gross acres of Brazilian timberland to Parkia Participacoes for approximately $690 million.

Outlook

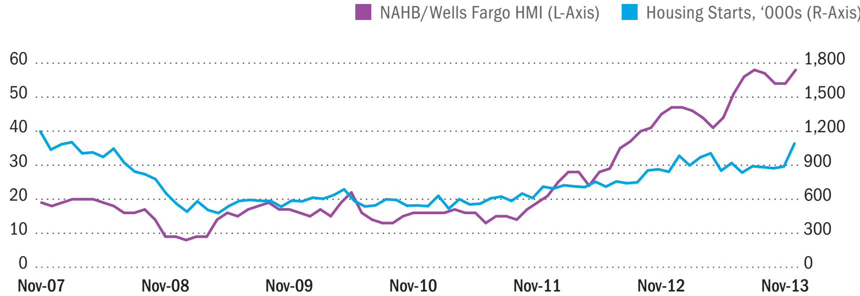
- Forest product prices are expected to be supported by several positive factors in the short to medium term.
  - The gradual recovery in the U.S. construction market is expected to continue. Housing starts are predicted to continue to rise in 2014.
  - Lumber exports to Asia have more than doubled in the past four years. Continued growth is expected, especially attributable to China's housing market.
- Transaction valuations on major deals indicate continued investor interest in the asset class, with TIMOs losing out to other both public and private investors on headline deals. Discount rates continue to face pressure into 2014 as capital available continues to outpace deal supply.

Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Total Res. Construction	**$351B[1]**	$346B	$341B	$304B	$239B	$296B
Housing Starts, SA (Vol)	**1,091k[1]**	873k	835k	983k	539k	560k
Building Permits (Vol)	**1,017k[1]**	974k	918k	943k	632k	554k
U.S. S. Sawtimber Index	**N/A**	$24.01	$24.59	$23.27	$25.62	$29.16
CME Lumber ($/1,000BF)	**$360**	$344	$298	$374	$302	$169
NBSK U.S. Pulp Index	**$990**	$948	$940	$870	$969	$739
Paper&Paperboard Prod.*	**6,759k[2]**	6,645k	6,714k	6,776k	6,981k	6,240k
Industry Capacity Use (%)	**73%[1]**	71%	69%	69%	59%	54%
World Timber Index	**$1,082**	$993	$854	$838	$816	$498

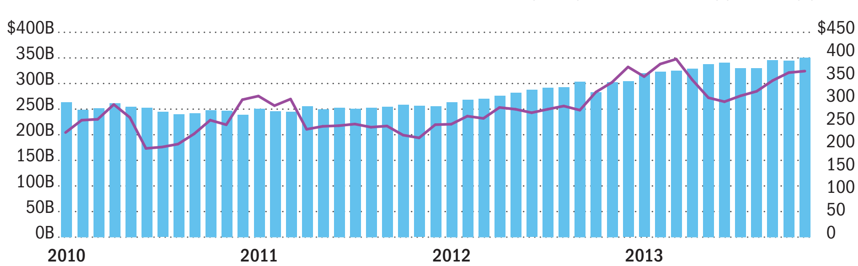
* U.S. Total Production, in Tons

Builder Confidence vs. Housing Starts



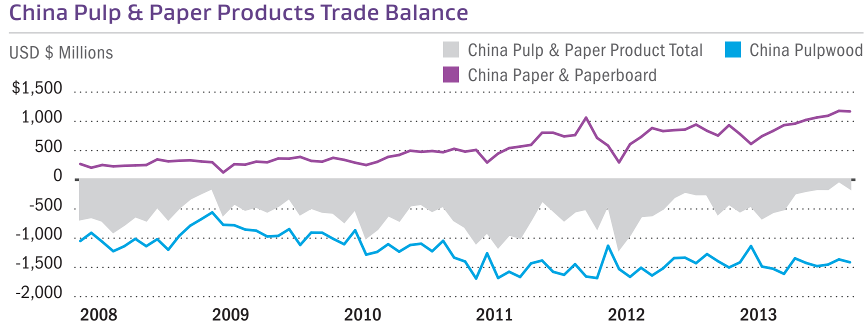
Source: U.S. Census Bureau, National Association of Home Builders, Haver Analytics

Residential Construction and CME Lumber Price Index



Source: U.S. Census, CME, Haver Analytics

China Pulp & Paper Products Trade Balance



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

[1] Items are as of 11/30/13; [2] Items are as of 10/31/13

Agriculture Market Overview

Market Review

- Global inventories increased for many agri-commodities in 2013 due to increased supply from strong harvests, resulting in declining prices relative to drought-impacted prices in 2012.
  - Corn prices have decreased markedly this year (down 40%) due to a rebound in U.S. production (up 30%), resulting in the highest global stocks-to-use ratio since the 2009/10 season.
  - In 2013, the soybean-to-corn price spread reached its highest point since 2009, which is anticipated to result in increased soybean plantings in the coming year. This increase, along with strong soybean harvests in South America, is expected to increase global supplies and pressure prices in 2014.
  - Cotton prices increased in 2013 due to continued imports from China, which are anticipated to decline in the short-term. Sugar prices decreased on strong production from Brazil.
- According to the USDA, inflation-adjusted U.S. farm income reached a 40-year high in 2013, totaling $131 billion, up 15% from 2012. Gains were driven by the livestock sector, while declines were seen for cash crops, such as corn and soybeans.
- The Australian Treasury blocked the $2.2 billion acquisition of GNC, Australia's largest public grain merchant, by U.S.-based ADM, the world's largest corn processor, over concerns of foreign ownership damaging the competitive development of the Australian grain market.
- Sysco Corp, North America's largest restaurant food distributor, acquired US Foods for approximately $8.2 billion in the largest North American food-distribution deal in eight years.

Outlook

- As supply and demand reach more balanced levels, short-term agri-commodity prices are anticipated to soften and stabilize with weather events likely to drive higher volatility in 2014.
- On balance, global farmland markets demonstrated continued appreciation in 2013, with values expected to stabilize in 2014.
- Pest and weather events in Brazil and Chile have resulted in emergency declarations, due to anticipated damages to crop production. While these issues will impact short-term production and profitability, no material long-term impacts are anticipated at this time.
- The key variables to watch for in the farmland markets in coming years, particularly in the U.S., will be softer commodity prices, rental rates, and the path of interest rates.

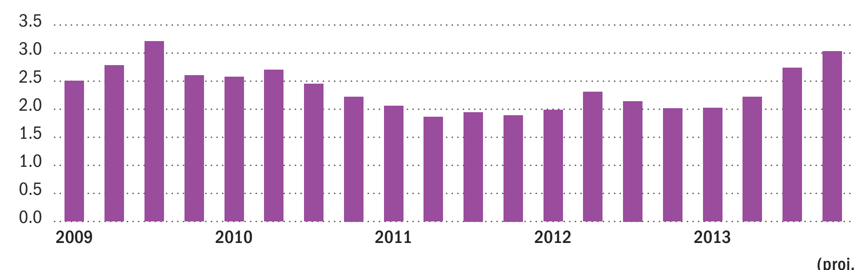
Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Corn ($/bu)*	**$4.22**	$4.41	$6.79	$6.98	$6.29	$4.07
Soybeans ($/bu)*	**$13.12**	$12.83	$15.64	$14.19	$13.94	$9.72
Wheat ($/bu)	**$6.05**	$6.78	$6.48	$7.78	$7.94	$6.11
Sugar ($/100 lbs)	**$16.41**	$17.48	$16.38	$19.51	$32.12	$11.81
Cotton ($/100 lbs)	**$84.64**	$86.11	$82.71	$75.14	$144.81	$49.02
Ethanol ($/gallon)	**$1.91**	$1.95	$2.45	$2.19	$2.38	N/A
Corn Belt YTD Precip. (in)	**358.4**	373.4	409.6	464.4	489.1	279.8
CRB Foodstuffs Index	**364.7**	404.8	410.3	426.0	438.7	291.5
FAO Food Price Index	**206.3**[1]	203.9	211.9	214.1	225.2	151.4

* 12/31/13 and 9/30/13 figures reflect 2013/14 crop; 6/30/13 figures reflect 2012/13 crop

Soybean-to-Corn Price Ratio, Quarterly Average

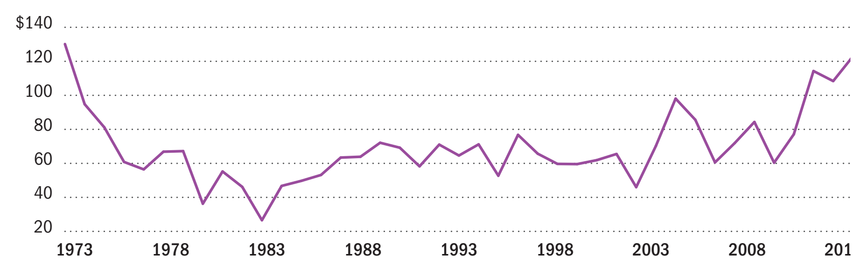
2009–2013



Source: U.S. Department of Agriculture, Haver Analytics, TIAA-CREF Analysis

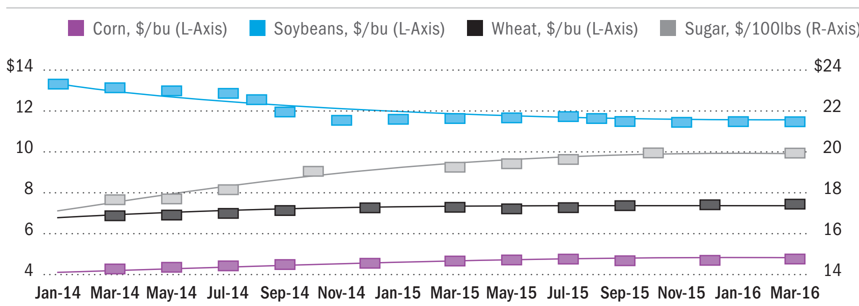
U.S. Annual Net Farm Income, Real 2009 USD$Billions

1973–2013



Source: U.S. Department of Agriculture ERS

Futures Curve – Key Agricultural Commodities



[1] Items are as of 11/30/13; [2] Items are as of 10/31/13

Data is as of 12/31/2013 unless noted otherwise.

Financial Services

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