

# Natural Resources & Infrastructure Quarterly

## Second Quarter 2014



### What's Inside

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

#### **Economic Commentary – page 2**

- After a long, cold winter created an economic drag in the first quarter, the second quarter saw a rebound. Global conditions remain tenuous, though the broad trend is one of strength.

#### **Markets Summary – page 3**

- Medium and long term bond spreads remain tight; FX markets stable; housing and employment remain focal points of policy; energy and agricultural commodities up slightly.

#### **Energy – page 5**

- News of a private ruling by the Commerce Department has allowed two U.S. oil companies to export a type of minimally processed ultralight oil, another small step toward a potential lifting of the export ban on U.S. crude oil.
- Gas production levels remain an important figure to monitor this summer, as storage levels look to refill before the onset of next winter.

#### **Infrastructure – page 6**

- The U.S. Senate passed the Water Resources & Reform Development Act, paving the way for potential low-cost financing for water P3 projects across the U.S.
- The fundraising environment remained strong in 2Q, with First Reserve reaching a final close at \$2.5 billion for its second energy infrastructure fund, while EMG reached final close on its third fund for \$4 billion.

#### **Timberland – page 7**

- The U.S. housing market is improving, though somewhat unevenly. North American log and lumber prices slid in 2Q after a strong 1Q on softer export demand from Asian markets.
- Deal flow picked up in the timber space in the first half of 2014. A strong mix of buyers includes strategics, REITs, and TIMOs.

#### **Agriculture – page 8**

- Agri-commodity prices declined in late 2Q following improved production expectations, while U.S. farmland values were steady in most regions in 1H 2014.
- Deal flow in the Ag sector was robust in 2Q (including the Tyson-Hillshire Brands deal).



After the sustained cold winter played a major role in the poor first quarter U.S. economic performance, global heat records in the second quarter led a thawing of economic conditions. Though weather patterns present major long term economic challenges, the short term question at the top of mind for economists and analysts alike at the end of 1Q was how big a role weather had played. The second quarter and the warmer weather largely answered the question, with a reversal to broadly positive economic data setting us back on track in the long journey toward a full recovery.

Part of the challenge of reacting to the poor conditions of the first quarter was that the depth of the hole created was not fully known until almost the end of the second quarter. Original estimates of 1Q U.S. GDP growth by the Bureau of Economic Analysis showed GDP up approximately 1%, quarter-over-quarter. The fully revised figure, released in June, was much worse, showing that the U.S. economy contracted by 2.9%. This represented the weakest quarterly performance since 1Q 2009. Several factors contributed to the revision—among them a larger decline in exports than previously recorded, fewer durable goods orders, and a smaller increase in personal consumption than initially shown. Despite the weakness, both the Federal Reserve and most economists largely agreed that the weather played a significant role. The Fed maintained its tapering program in anticipation of a substantial rebound in 2Q, an optimistic view that was ultimately substantiated by the past quarter's rebound.

Data on jobs led the way. The U.S. added 304,000 in April, 224,000 in May, 288,000 in June. The monthly average for 2014 sits above the 200,000 threshold that economists believe is necessary to further reduce the unemployment rate, currently 6.3%. The Fed expects unemployment around 6% by year-end, with further reduction to the mid-5% range in 2015.

New home sales rose 18.6% in May, to a seasonally adjusted annual rate of 504,000—the highest level since May 2008. The pending home sales index rose 6.1%, but lags year-ago levels by more than five percent. The Consumer Confidence Index hit its highest reading in June since January 2008. The latest level, 85.2, is a material improvement from 78.3 in February. Inflation, well-documented as the laggard in the economic recovery, approached stated targeted levels. CPI was up 1.8% in May, year-over-year. That represents the highest level in more than a year and a half. Manufacturing data was also strong, with May PMI rating 57.5, the highest since May 2010.

This positive economic data was well documented in the Fed's Federal Open Market Committee meeting in June. Noting an improving labor market, easy credit policies, reduced household debt, rising stock and home prices, and less-restrictive government tax and spending policies, the Fed elected to continue its tapering program, bringing monthly stimulus down to \$35 billion in July. The Fed also announced plans to fully unwind the program by year-end and to start raising interest rates as early as next year. The projected Federal Funds Rate target for year-end 2015 was 1.2%, up from the 1.125% announced at the FOMC meeting in March.

In global economic news, Chinese deceleration fears were slightly mitigated this quarter, as local manufacturing statistics improved and the government experimented with expanding the role of market interest rates. Data in the Euro region was mixed, with Germany registering a strong quarter, while France's private sector shrank materially. The World Bank's most recent projections show European Union GDP growth of 1.1% for 2014, a positive step for an economic region that shrank in 2012 and 2013.

With both temperatures and economic performance heating up heading into the second half of the year, the third quarter will further indicate whether the second quarter was simply a bounce-back from a disappointing start to the year or maintainable sign of economic progress.

# Markets Summary

## Key Market Metrics, as of March 31, 2014

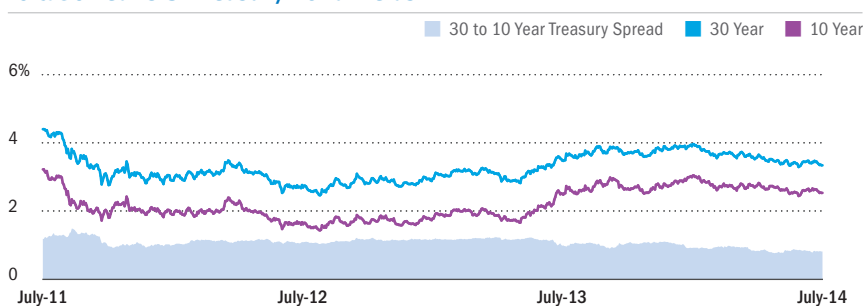
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
<b>Key Market Prices</b>						
U.S. 10 Year Treasury	2.53%	2.73%	3.04%	2.49%	3.18%	3.53%
U.S. 30 Year Treasury	3.34%	3.56%	3.96%	3.52%	4.38%	4.32%
Initial Unemployment Claims (SA)	313k <sup>1</sup>	332k	344k	344k	421k	594k
Unemployment Rate	6.1%	6.7%	6.7%	7.5%	9.1%	9.5%
CB Consumer Confidence	85.2	83.9	77.5	82.1	57.6	49.3
S&P 500	1,960	1,872	1,848	1,606	1,321	919
<b>FX Markets*</b>						
USD-CAD	1.07	1.11	1.06	1.05	0.96	1.16
Euro-USD	1.37	1.38	1.38	1.30	1.45	1.40
USD-BRR	2.22	2.26	2.36	2.21	1.56	1.97
AUD-USD	0.94	0.93	0.89	0.92	1.07	0.81

\* FX table displays 1 unit of 1st currency in terms of 2nd currency (e.g. 1 USD is currently equivalent to 1.07 CAD)

### Bond Markets

The spread tightening between shorter and longer terms securities held in 2Q, with 10-year and 30-year Treasuries remaining approximately 80bps apart throughout the quarter. Despite signs of slightly higher inflation and a continued unwind of monetary easing, there was no disproportionate softening of support out toward the long end of the curve. Interest rates were down modestly through the quarter, as investor demand remains strong and issuers continue to find a favorable environment for rates and terms.

### 10 & 30 Year U.S. Treasury Bond Yields

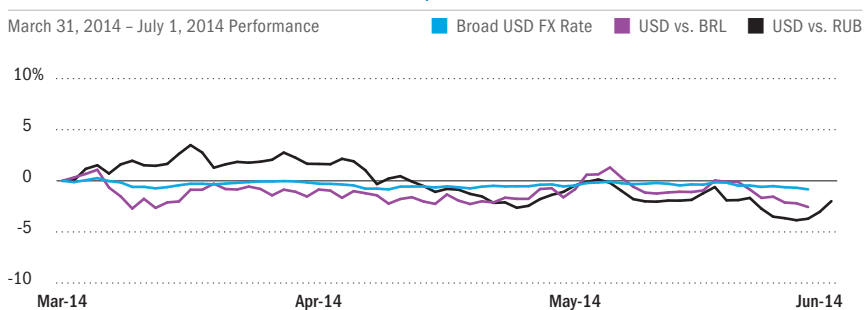


Source: U.S. Federal Reserve Board, Haver Analytics, TIAA-CREF analysis

### FX Markets

After the recent past in FX has been characterized by pockets of volatility, global markets held fairly stable in 2Q. The USD has stabilized as the unwind of QE continues. Emerging markets have faced less pressure over concerns of their ability to withstand changes in global monetary policy. Geopolitical concerns in eastern Europe and the Middle East remain, though the impact on major currencies was modest in the past quarter. Sustaining stability depends on many factors, but the past three months did not see many major influencing events.

### USD Broad FX Index & vs. Brazilian Real, Russian Ruble



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

<sup>1</sup> Items are as of 5/31/14

## Housing and Employment

Balancing improving unemployment with fragile economic conditions continues to weigh on the minds of policymakers. After the Federal Reserve did away with a link between the unemployment rate and monetary policy in 1Q, Chairman Janet Yellen stated at the start of July that any changes in policy would depend on underlying economic conditions, not possible financial bubbles. Housing and labor remain focal points of this analysis. While unemployment falls, participation rate remains low. While housing strengthens, affordability remains strained.

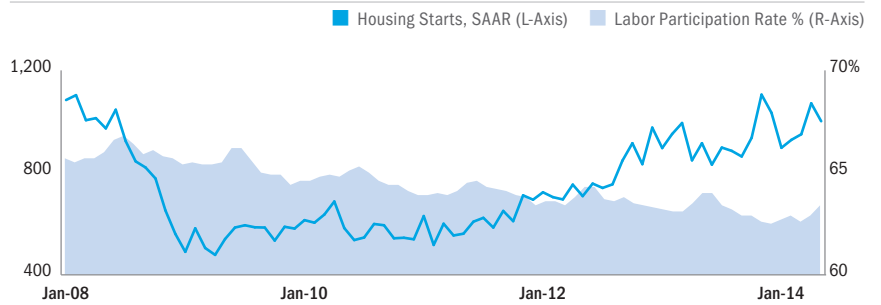
## Energy

The energy complex rose just slightly during the second quarter. The effects of the long and cold winter which had previously caused a spike in the natural gas market began to taper during the second quarter. This was offset by worries in the oil markets related to the ongoing tensions in Iraq. The Federal Reserve's decision to formally begin tapering toward the end of last year has thus far not materially impacted the diversified energy complex. Continuing improvement in GDP and employment could serve as a catalyst moving forward.

## Agriculture

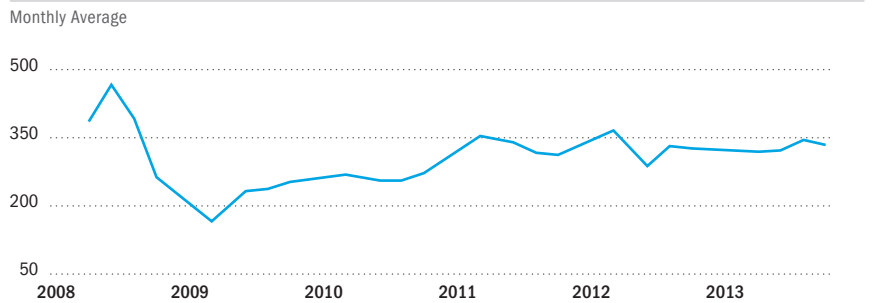
Strong markets and companies with excess cash drove continued deal flow in 2Q, including among agribusinesses. Farmland values have held steady, even as some forecast softening. Commodity prices were also firm for much of 1H 2014, although softening is projected for 2H 2014 as crop yields are expected to be strong. Agribusiness M&A has shown purchasing companies willing to pay healthy multiples, both on earnings and market value metrics.

## Housing Starts vs. Labor Participation Rate



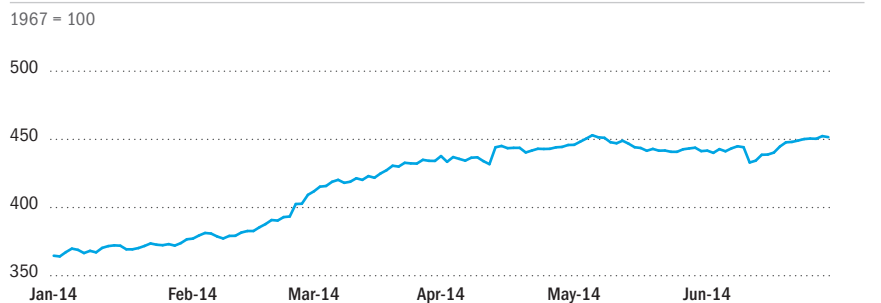
Source: U.S. Census Bureau, U.S. BLS, Haver Analytics, TIAA-CREF analysis

## S&P GSCI Energy Spot Index



Source: Standard & Poor's, Haver Analytics

## CRB Foodstuffs Index



Source: Commodity Research Bureau, Haver Analytics

# Energy Market Overview

## Market Review

- The natural gas market experienced more stability during 2Q after a volatile price environment in 1Q due to the long and harsh winter conditions.
  - Henry Hub began the quarter at \$4.37 per millions of BTU, and closed the quarter at \$4.46.
- As of June 27, working gas in storage was 1,929 Bcf, 25% lower than at this time last year, and 30% lower than the five year average.
  - It will be important to monitor production this summer to ensure storage levels get back on track before the onset of next winter
- The WTI – Brent spread widened during the quarter to nearly \$9, from \$5 at the start of the quarter, but has since dropped to around \$7 to close the quarter.
  - This was primarily due to an increase in Brent crude as a reaction to the violence that has been experienced in Iraq over the past few weeks.
  - Thus far, current operations and production have been unaffected as most of the activity has taken place in northern Iraq and the country's main oil fields and refineries are located in southern Iraq. However, this situation will be important to monitor.

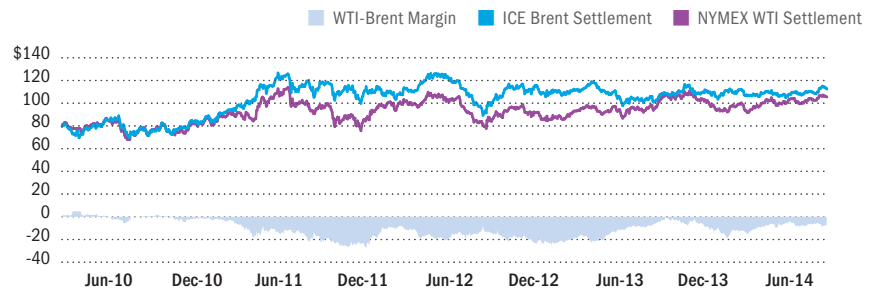
## Outlook

- OPEC projects oil demand from industrialized nations will increase next year for the first time since 2010, underpinned by increased U.S. demand amidst the current production boom.
- Historically low natural gas storage levels have increased the importance of realizing significant production before the start of next winter.
- News of a private ruling by the Commerce Department was reported near the end of the quarter, which has allowed two U.S. oil companies to export a type of minimally processed ultralight oil.
  - While this will not have a major impact on oil markets in the near term, it is another small step toward the lifting of the export ban on U.S. crude oil that many have been calling for in light of rising U.S. oil production and expanding domestic resource potential.

## Key Market Metrics

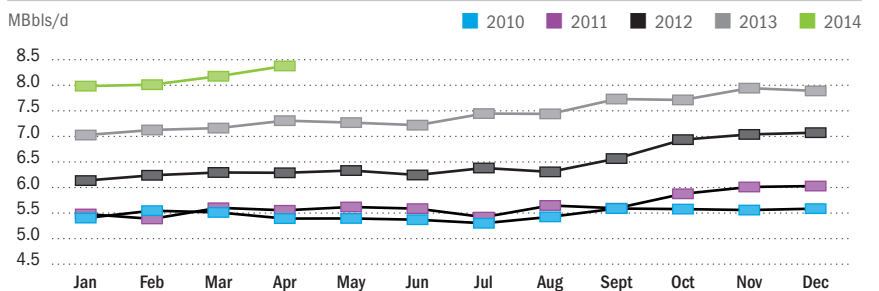
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
NYMEX WTI Crude Oil	\$105.37	\$101.58	\$98.42	\$96.56	\$95.42	\$69.89
ICE Brent Crude Oil	\$112.36	\$107.76	\$110.80	\$102.16	\$112.48	\$69.30
WCS Crude Oil	\$84.37	\$81.57	\$75.55	\$82.31	\$74.44	\$62.93
Henry Hub Nat. Gas	\$4.46	\$4.37	\$4.23	\$3.57	\$4.37	\$3.84
Alberta Nat. Gas	\$4.18	\$4.47	\$3.82	\$2.87	\$3.54	\$3.65
Wtd. Avg. \$/kWh in U.S.	N/A	\$10.32	\$9.88	\$10.47	\$10.26	\$10.13
OPEC Prod. (Mbbbls/d)	N/A	29.5M	29.9M	30.6M	30.1M	28.6M
U.S. Oil Imports (Mbbbls/d)	7.1M <sup>1</sup>	7.3M	7.8M	7.7M	9.2M	9.1M
U.S. Gas Output (Bcf/d)	86.76B <sup>2</sup>	86.2B	84.9B	81.5B	77.1B	71.4B

## Crude Oil Exchange Prices



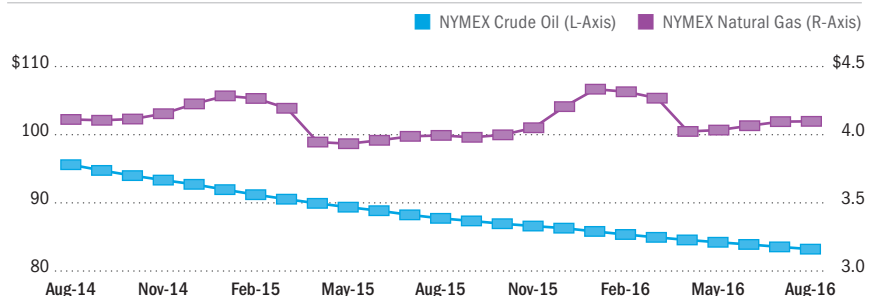
Source: Haver Analytics, TIAA-CREF analysis

## U.S. Crude Oil Production



Source: Energy Information Administration, Haver Analytics

## Futures Curve – Crude Oil & Natural Gas



Source: Haver Analytics

<sup>a</sup> West Texas Intermediate; <sup>b</sup> Brent Crude

<sup>1</sup> Items are as of 5/31/14; <sup>2</sup> Items are as of 4/30/14

# Infrastructure Market Overview

## Market Review

- Australia's central government announced in late May that it would make incentive payments through a new \$5 billion AUD fund. Under what is called the Asset Recycling Initiative, the federal government will pay states up to 15% of sale proceeds that are reinvested in new infrastructure. This initiative is expected to maintain the active and competitive Australian infrastructure landscape.

- The Port of Newcastle, which is the world's largest coal export terminal, sold for \$1.75 billion AUD to a consortium led by Hastings during the second quarter.

- President Obama's four-year, \$302 billion transportation bill was introduced in the House of Representatives at the end of the quarter. This bill focuses on increased spending on highways and mass transit.

- The House transportation and infrastructure committee is drafting its own transportation bill, so it will be important to monitor how the MAP-21 act is ultimately replaced, which is due at the end of September.

- The Senate passed the Water Resources and Reform Development Act on May 22 which has the potential to provide low-cost financing for water P3 projects across the U.S. The bill begins to address the hundreds of billions in funding needed to update the country's water systems.

- The EPA released a report last year stating that \$384.2 billion will be needed for capital improvements over the next twenty years in order for U.S. drinking water systems to remain safe. Widespread government support for the upgrade of the country's water system could lead to increased P3 activity in the sector.

## Outlook

- The fundraising environment remained strong with First Reserve reaching a final close at \$2.5 billion for its second energy infrastructure fund, while EMG reached final close on its 3rd fund for \$4 billion.

- In the UK, the Water Act 2014 received Royal Assent and came into force in May, providing basis for increased competition among UK water and sewerage companies.

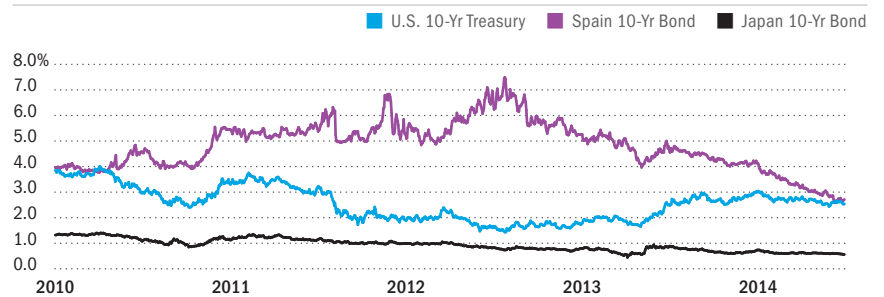
- Germany is assessing its renewable support regime, with the possibility that new renewable energy projects may no longer receive feed-in tariffs in the future.

## Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
U.S. Pop. Growth from '00	12.2%	12.0%	11.9%	11.5%	9.8%	8.2%
U.S. Inflation Rate (Y-o-Y)	2.1% <sup>1</sup>	1.5%	1.5%	1.8%	3.6%	-1.4%
Y-o-Y U.S. Real GDP Growth	N/A	1.5%	2.6%	1.6%	1.9%	-4.1%
U.S. Deficit as % of GDP	N/A	2.1%	2.5%	1.8%	6.7%	11.3%
U.K. Deficit as % of GDP	N/A	2.9%	3.8%	3.9%	3.7%	5.8%
FTSE Utilities*	482.4	447.3	415.5	390.3	395.0	328.0
FTSE Constr./Manufact.*	692.2	668.8	628.8	531.4	566.7	393.3
U.S. Inv. Priv. Structures**	N/A	\$467B	\$473B	\$453B	\$370B	\$455B
Freight Transport Index	117.6 <sup>2</sup>	117.1	117.1	113.7	108.5	95.9

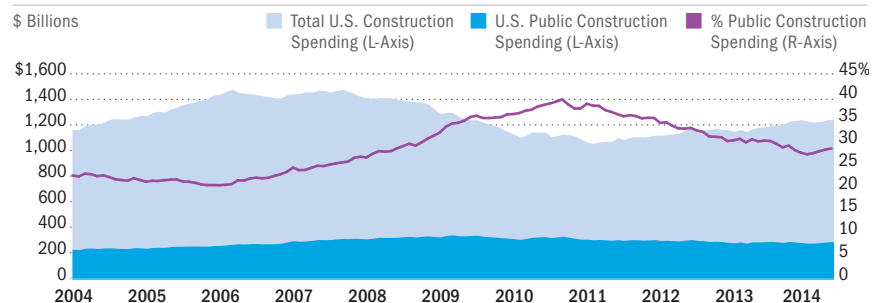
\* Global, Total Return Index; \*\* Total investment (\$) in non-residential structures in the U.S.

## 10-Year Benchmark Government Bond Yields by Country



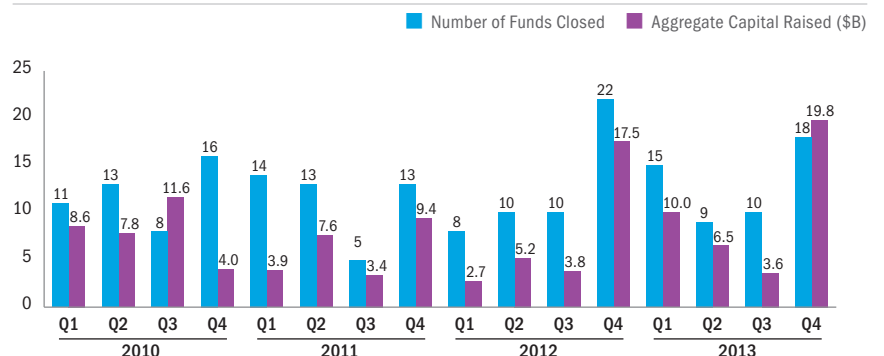
Source: U.S. Treasury, Banco de España, Ministry of Finance Japan, Haver Analytics

## 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

<sup>1</sup> Items are as of 5/31/14; <sup>2</sup> Items are as of 4/30/14

# Timberland Market Overview

## Market Review

- North American log and lumber prices faced downward pressure in 2Q on soft export demand from Asian markets.
  - Log prices fell 5–15% in both the U.S. South and Pacific Northwest.
  - The Chinese construction sector faces pressure from tighter credit policies and an oversupply of housing following several years of strong construction output.
- The U.S. housing sector continues to show signs of improvement, albeit at an uneven pace.
  - Housing starts reached a 2014 high in April, subsequently falling 6.5% in May.
  - The NAHB/Wells Fargo Housing Market Index increased four points in June to 49, indicating confidence is improving in the sector, although still below 50, considered the threshold for positive building conditions.
- Deal flow in the global timber space showed signs of accelerating in 1H 2014, as institutional investors reacted to strong valuations.
  - New Forests, a Sydney-based timber investment fund, won a competitive auction to acquire the forestry assets (435,000 acres) of Gunns Limited for approximately \$330 million.
  - Investments for construction of timber processing plants continue, including Metsa Fibre's planned construction of a \$1.5 billion pulp and bioenergy complex in Finland.

## Outlook

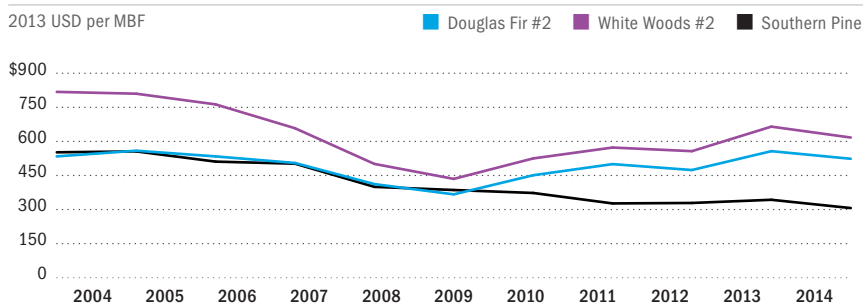
- The U.S. housing sector continues to be closely watched by economists and policymakers. Factors presenting headwinds include rising interest rates and a general sense of cautiousness by potential homebuyers.
- Whether a slowdown in Chinese demand is temporary remains to be seen. Many industry participants believe demand will remain as the Chinese economy continues steady growth.
  - Despite a slowdown in residential construction, China's pulp and paper trade balance improved in 1H 2014.
  - The outlook for robust investment into productive forestry assets by strategic and institutional investors provides support that fundamentals in the global timber sector are improving.

## Key Market Metrics

	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Total Res. Construction	\$360B <sup>1</sup>	\$363B	\$369B	\$337B	\$253B	\$236B
Housing Starts, SA (Vol)	1,001 <sup>1</sup>	950k	1,034k	831k	608k	585k
Building Permits (Vol)	1,005 <sup>1</sup>	1,000k	1,022k	938k	636k	601k
U.S. S. Sawtimber Index	N/A	\$25.66	\$25.14	\$24.59	\$23.80	\$26.75
CME Lumber (\$/1,000BF)	\$335	\$336	\$360	\$391	\$245	\$191
NBSK U.S. Pulp Index	\$1,030	\$1,020	\$990	\$940	\$1,035	\$650
Paper&Paperboard Prod.*	6,651k <sup>1</sup>	6,609k	6,685k	6,710k	6,921k	6,603k
Industry Capacity Use (%)	72% <sup>1</sup>	70%	72%	70%	59%	52%
World Timber Index	\$1,049	\$1,051	\$1,082	\$862	\$805	\$471

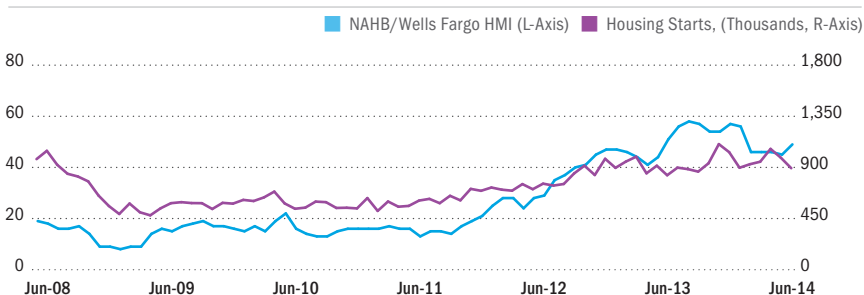
\* U.S. Total Production, in Tons

## Inflation-Adjusted U.S. PNW and South Sawlog Prices



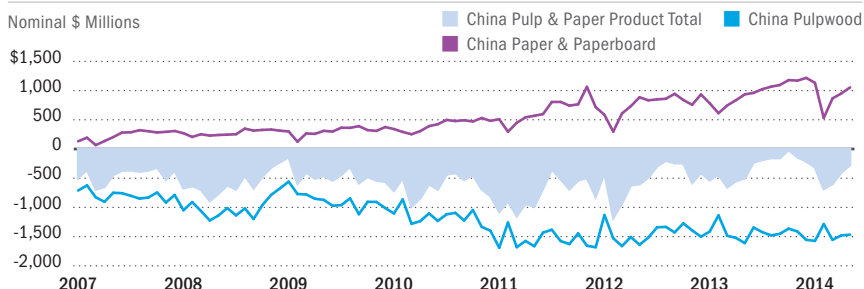
Source: RISI, TIAA-CREF analysis

## Builder Confidence vs. Housing Starts



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

## China Pulp & Paper Products Trade Balance



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

<sup>1</sup> As of 5/31/14

# Agriculture Market Overview

## Market Review

- Investor capital continued to flow into the Ag space in 2Q, as deal flow remained dynamic and several farmland REITs held/planned IPOs.
  - Tyson Foods, Inc. announced its intent to acquire Hillshire Brands Co. for \$8.55 billion. Tyson is paying a 70% premium to market value of Hillshire stock (prior to being targeted for acquisition), the second-highest premium paid for deals over \$1 billion this year, and a 16.7x multiple of EBITDA.
  - Farmland Partners REIT launched a \$48.5 million IPO.
- U.S. farmland values in most regions remain steady due to continued expectations for above long-term trend farm income and sustained strong agri-demand augmented by continued low interest rates.
- Agri-commodity prices declined in late 2Q as crop conditions improved, removing premiums from earlier in the quarter that were driven by production uncertainty and geopolitical risk.
  - Corn and wheat prices were supported early in 2Q by political turmoil in the Black Sea region; wheat prices were also supported by weather volatility in the U.S. and Canada.
  - Tight old crop supply kept soybean prices elevated, but record acreage for the new crop has resulted in easing prices into 3Q.
  - Sugar prices maintained an upward trajectory on Brazilian weather; higher U.S. production and decreased Chinese demand are exerting downward price pressure on cotton.

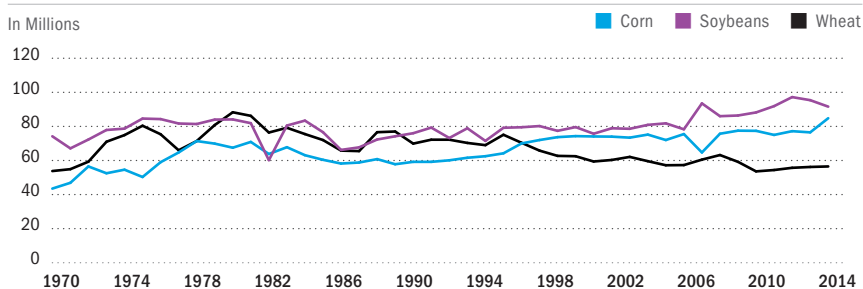
## Outlook

- Agri-commodity prices for the remainder of 2014 are expected to decline, following the USDA 6/30 report, which forecasted strong production for corn, soybeans and wheat.
  - The USDA report showed soybean stocks and acreage higher than expected, increasing the projection of a record crop. Additionally, improving corn, wheat and cotton supplies are expected to drive short-term prices downward.
  - Sugar prices maintain a positive outlook due to production uncertainty as a result of weather risk.
- Continued speculation that U.S. farmland values are due for a correction (comparable to the 1980s) is overstated.
  - Farmer capitalization is at the healthiest levels in 40+ years, (debt-to-asset levels under 13% compared to 22%+ in the 1980s).
  - Expect to see continued demand growth (not negative, unanticipated demand shocks) for agri-commodities as compared to the 1980s.

## Key Market Metrics

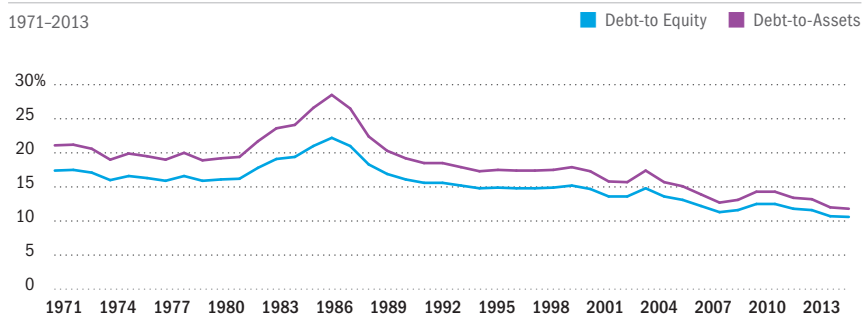
	QTD	Previous QTD	6 Months	1 Year	3 Years	5 Years
Corn (\$/bu)	\$4.24	\$5.02	\$4.22	\$6.79	\$6.29	\$3.48
Soybeans (\$/bu)	\$14.00	\$14.64	\$13.12	\$15.64	\$13.06	\$12.26
Wheat (\$/bu)	\$5.65	\$6.97	\$6.05	\$6.48	\$5.85	\$5.11
Sugar (\$/100 lbs)	\$16.62	\$17.77	\$16.41	\$16.38	\$28.36	\$16.81
Cotton (\$/100 lbs)	\$79.21	\$93.52	\$84.64	\$82.71	\$159.79	\$53.30
Ethanol (\$/gallon)	\$2.12	\$3.46	\$1.91	\$2.45	\$2.56	N/A
S&P GSCI Agri. Index	367.5	400.9	358.4	409.6	494.4	331.2
CRB Foodstuffs Index	450.2	432.4	364.7	410.3	489.7	303.9
FAO Food Price Index	206.0	213.8	206.2	211.9	235.2	161.0

## U.S. Planted Acres of Key Agri-Commodities



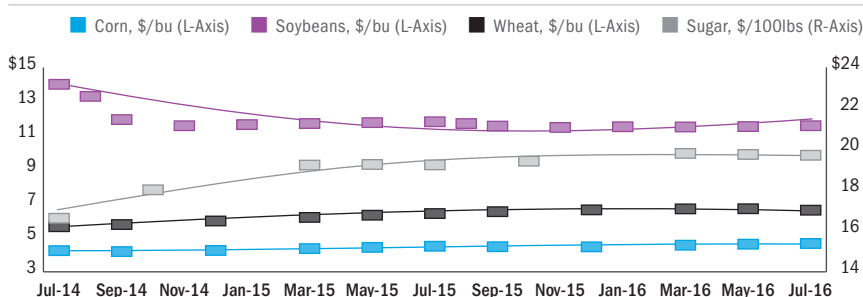
Source: USDA NASS, TIAA-CREF analysis

## Farm Sector Debt Levels



Source: USDA ERS, TIAA-CREF analysis

## Futures Curve – Key Agricultural Commodities



<sup>1</sup> As of 5/31/14



Please note alternative and commodity investments may be subject to the risks of leverage, speculative trading, volatility and political risk. Natural Resources and Infrastructure Investment Quarterly Highlights: Second Quarter 2014 is prepared by TIAA-CREF Asset Management and represents the views of TIAA-CREF's Global Natural Resources and Infrastructure Investment team as of July 2014. These views may change in response to changing economic and market conditions. Past performance is not indicative of future results. The material is for informational purposes only and should not be regarded as a recommendation or an offer to buy or sell any product or service to which this information may relate. Certain products and services may not be available to all entities or persons.

Data is as of 06/30/2014 unless noted otherwise.

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