



QUARTERLY U.S. RURAL ECONOMIC REVIEW, Q4-2013

Forward Progress Instills Guarded Optimism

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

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Key Points:

- *The U.S. economy will likely grow 2.5 to 3 percent in 2014 with additional upside potential dependent upon the pace of recovery in housing and business investment to complement the improving financial condition of U.S. consumers.*
- *U.S. corn producers grew the largest corn crop on record in 2013; and as the crop was moved out of the fields, capacity constraints quickly became the dominant issue in the grains sector.*
- *U.S. soybean supplies remain just as tight this year as last year, with global markets anticipating that the South American crop (now developing) will bring some relief.*
- *The huge combined corn and soybean crops taxed the nation's transportation system in the closing months of 2013, creating logistics bottlenecks for railroads, barges, and truck operators.*
- *Ethanol producers are one of the greatest beneficiaries of the record 2013 corn harvest. But their longer-term growth prospects appear to have taken a turn for the worse in November with the EPA's proposal to significantly lower the RFS blending obligations for 2014.*
- *The animal protein and dairy industries are all benefitting from lower feed costs, strong export markets, and near-record prices. The success of these industries in 2014 and beyond will depend critically on their ability to expand overseas markets.*
- *Cloud services stand out as the most viable opportunity available to communications providers, due to the diversity of service options (including software-as-a-service, infrastructure-as-a-service, and platform-as-a-service) and the astounding growth in the cloud services market.*
- *With the U.S. in the throes of an energy revolution, many power and energy utilities have begun to re-evaluate their strategies, investment priorities, and fundamental business models.*
- *Going forward, the combination of distressed municipal coffers, the EPA's consent decrees, and improved state laws regarding public-private partnerships (PPPs) suggests that private capital will play a greater role in financing water and wastewater infrastructure improvements.*

Preview

The global economy is not out of the woods yet, but it's headed in the right direction. A bi-partisan budget agreement in the U.S., the formation of a coalition government in Germany, breakthroughs in Iran, and Japan's commitment to address structural reforms have moved the global economy out of a crisis mode to one of guarded optimism. Global economic growth will gain some momentum in 2014 but will need to be sustained by positive actions on many of the structural issues that are limiting potential growth in the advanced economies.

Going forward, the major central banks will play a pivotal role in the unfolding global economic expansion, as they attempt to coordinate a reversal of the highly accommodative monetary policies of the past 5 years. The U.S. Federal Reserve will begin the tapering of its quantitative easing in January with a longer commitment to hold short term rates near zero. Other central bank actions and the relative growth rates of their countries' economies will likely shape the pace of U.S. dollar strengthening. The U.S. economy will likely grow in the 2.5 to 3 percent range in 2014 with additional upside potential dependent upon the pace of recovery in housing and business investment to complement the improving financial condition of U.S. consumers.

Global grain and oilseed markets are anticipating larger supplies and gauging the potential demand that will come from China and the animal protein and dairy sectors. Global carryover stocks are on the rise, but they will require another excellent global harvest before stocks reach a level that will sharply reduce potential price volatility. The animal protein and dairy sectors are benefitting from reduced feed costs, continued strong export markets and a severely reduced cattle inventory that will result in a sharp decline in beef availability. Net cash farm income in 2013 was only slightly below the record high levels in 2012 with higher animal protein and dairy income offsetting some declines in the crop sectors. Net cash income in 2014 will move lower but will still likely be the fourth highest on record.

“*The global economy is not out of the woods yet, but it's headed in the right direction.*”

Macroeconomic Outlook

Global economic growth will gain momentum in 2014 as the crisis mentality that has shaped global economies over the past 5 years recedes to a guarded optimism about potential growth. A budget agreement in the U.S., the U.S. Federal Reserve's decision to begin tapering, the formation of a coalition government in Germany, breakthroughs in Iran and Japan's commitment to address structural reforms have reassured markets in the short term. China's economy will likely slow to “only” 7-8 percent in 2014, but it will remain the major growth engine for the global economy. Growth rates in the advanced economies will gain momentum during 2014 and could provide a significant turnaround by 2015. While U.S. growth has been subdued, the U.S. appears to be ahead of the other advanced economies in removing impediments to short term growth. As a result, the U.S. dollar will likely continue to strengthen against the major traded currencies.

The U.S. economy is poised to strengthen during 2014 provided that housing and business investment spending accelerate. U.S. consumer spending, which historically has accounted for 60-70 percent of U.S. growth, will be the principal growth catalyst early in the year. Consumer debt-to-income is sharply lower, consumer net worth is now above pre-recession levels and housing prices are 13 percent above a year ago. A consistent pattern of job growth would ease the ongoing concern about job security. The stage is set for the pace of U.S. economic growth to pick up to 2.5 to 3 percent, a good 50 to 100 basis points above the subdued pace of the past 5 years – but only if businesses and households regain enough confidence to step up their spending on business fixed investment and residential construction. There is ample liquidity to support such increases, but the politics of a Congressional election year could intrude and undermine the progress.

U.S. Agricultural Markets

With the 2013/14 crops now in storage, the grains, fiber, and oilseed sectors are shifting their focus from supply concerns to assessing demand growth potential. A record grain and oilseed crop in 2013/14 and some slowing in demand have provided the first step toward rebuilding carryover stocks and reducing the level and volatility of commodity prices. Greater supplies of grain will pressure prices and re-direct market forces in favor of processors and consumers rather than growers. In the coming year, the animal protein and dairy sectors, grain handlers, and ethanol producers will benefit most from the transition. However, current inventories are still low by historical standards, and any major crop shortfalls in 2014/15 could reverse market conditions quickly.

The animal protein and dairy sectors are benefitting from lower feed costs, strong export markets and near record prices. Widening profit margins in the animal protein and dairy sectors are enabling these operators to begin to rebuild their balance sheets after the stress of record high feed costs over the past several years. The lowest cattle inventory since the early 1950s is leading to sharp reductions in beef output and significant increases in the production of competing meats. As the hog, poultry and dairy sectors expand production in 2014 and beyond, it will be increasingly important to grow export demand if the current price levels and margins are to be sustained.

Grains, Oilseeds, and Ethanol

After delayed planting and a long growing season, the 2013/14 U.S. corn and soybean harvests are finally complete. The record-large combined crops taxed the transportation system in the final months of 2013 as merchandisers raced to replenish a depleted supply chain. Global export demand and crop developments in South America will dictate market movements in early 2014.

Cooperatives and commercial elevators are much more favorably positioned in 2013/14 than they were last year. Elevator operators have benefited from the increased demand for drying corn, and storage capacity utilization is much higher in almost every grain producing region.

The return of carry to the corn market is also adding storage revenue back to the balance sheet. This is a welcome change following the 2012/13 inverted corn and soybean markets, which left bins empty midway through the year and forced elevators to sell their corn and beans shortly after taking possession.

Corn

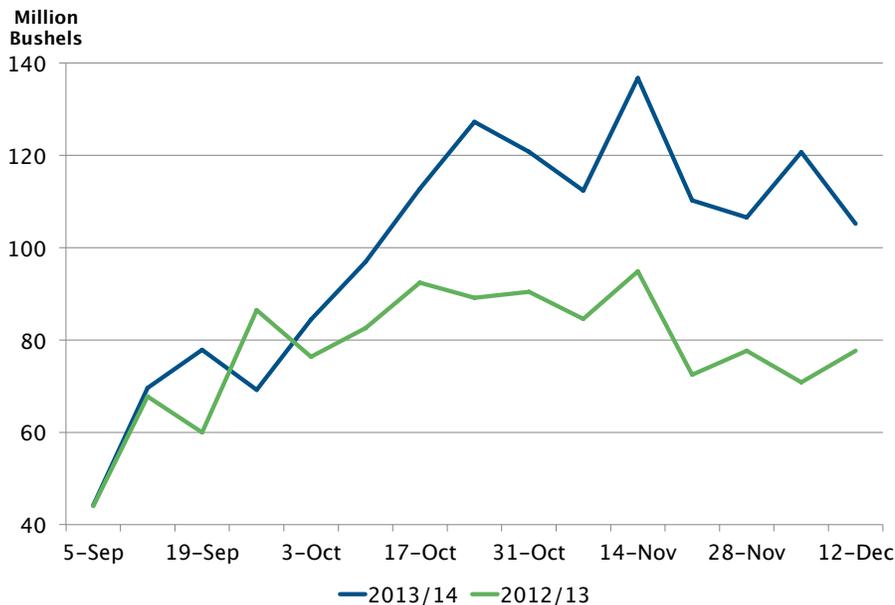
Despite a very challenging year, U.S. corn producers grew the largest corn crop on record in 2013. And as the crop was moved out of the fields, capacity constraints quickly became the dominant issue in the grains sector. Abundant autumn rains delayed the harvest of an already late developing crop, and prevented corn moisture levels from dropping to desirable levels while still in the field. Propane use soared as grain handlers dried the corn before storing it, and supplies of the fuel grew scarce especially in the upper Midwest.

The large investments made by cooperatives, commercial elevators, and producers to expand storage capacity over the past several years ensured that there was sufficient storage space in most areas. However, record yields across the Eastern Corn Belt and Mid-Atlantic states pushed against the limits of capacity in those regions.

While post-harvest storage was sufficient, transportation capacity to move the grain has proven to be less adequate. Widespread reports about truck shortages quickly emerged as the harvest hit full stride. Soon after, barge and rail rates in many areas doubled and in some cases tripled, as merchandisers competed for the ability to fill December orders in a rush. Capacity on the BNSF rail line has been limited for months as the Western U.S. railroad works to improve key portions of its track. This has slowed rail traffic for BNSF customers, and much of the considerable excess demand shifted to the UP lines, limiting capacity on those routes as well.

Logistical complications also developed along the nation's river system. Bitterly cold temperatures in November and December caused portions of the upper Mississippi River to begin freezing weeks earlier than usual. At the same time, underwater demolition work and low water levels near St. Louis forced barge operators to carry lighter

Figure 1. U.S. Corn, Soybean, and Wheat Export Shipments



Source: USDA-AMS

loads, spreading the fleet very thin. This will be less of a problem going forward given that wheat and soybean exports should slow considerably in early 2014, freeing up capacity for corn shipments.

All of these transportation glitches were exacerbated by record export shipments at both the Gulf and Pacific Northwest terminals. (See Figure 1.) A plentiful supply of corn, coupled with a 40 percent decline in price, has made the U.S. very competitive with other suppliers in South America and the Black Sea region. Since the start of the current marketing year in September, U.S. corn export shipments are up 65 percent compared to the same period last year. One of the most significant turnabouts contributing to this increase has been the tripling of corn shipments from a year ago bound for China.

But China's surge in demand has been a mixed blessing. Since November, China has rejected more than a half million metric tons of U.S. corn after discovering an unapproved genetically modified variety in roughly a dozen deliveries. Some of that rejected corn has been redirected to other destinations, but traders remain on edge, with the looming uncertainty about whether further cancellations may ensue.

China's rejection of corn shipments is just one of several bearish indicators clouding the market as we begin a new calendar year. While U.S. exports have been strong, large corn supplies in Ukraine and Argentina will keep those two countries very competitive in the export market in 2014.

Argentina's price competitiveness will be determined by growing conditions there in January and February as the crop develops. Brazil will be less of a force in the corn markets this year as compared to 2012/13. Brazil's corn production could be down as much as 15-20 percent in 2013/14, depending on the crop mix of its *safrinha* (second) crop, which is planted in February and March.

Favorable South American weather would sap global prices and curtail the U.S.'s share in the world market.

Additional downward price pressure in 2014 will likely come from increases in farmer selling. Reports from around the Corn Belt indicate that cash sales have been very light up to this point, with only about 10 percent of the new crop sold by late December, versus 30 percent for the five-year average. Many producers typically wait to sell until the new calendar year for tax purposes. But with so much of the crop still unsold, and given projections for even larger global supplies to come online in 2014, downside price risk is greater than the potential for sustainable rallies. The resurgence of supplies and ending stocks will anchor the bearish tone of the market through the first half of 2014. Domestic corn ending stocks-to-use ratios are projected to roughly double from 7.4 percent in 2012/13 to 14 percent in 2013/14. The world stocks-to-use ratio will climb for the third consecutive year to an estimated 17 percent.

Bullish factors that will support a price floor for the market in early 2014 include strong demand from ethanol producers and expanding animal protein populations. Should prices fall below \$4 per bushel, U.S. farmers

will be very reluctant sellers. Many corn producers have sufficient cash to see them through the crop year, and would prefer to hold their grain in anticipation of a rally that will touch north of \$4.50 per bushel.

Soybeans

Following a year of tight supplies for both corn and soybeans, the two crop markets have diverged in 2013/14. U.S. soybean supplies remain as tight this year as last year, while the world anticipates supply relief from the upcoming South American harvest. Scant supplies have not impeded U.S. export demand, however. Marketing year exports, to date, are up 8 percent over the same period last year for the U.S., with China accounting for nearly 3 out of every 4 bushels exported. China has increased its pace of U.S. purchases this year to buffer against the potential for delayed Brazilian shipments in 2014. Early last year, Brazil's lack of adequate port infrastructure kept vessels waiting for as long as 3-4 months before they could berth and load up. This delay left China in the lurch at a time when soybean crush margins were very favorable.

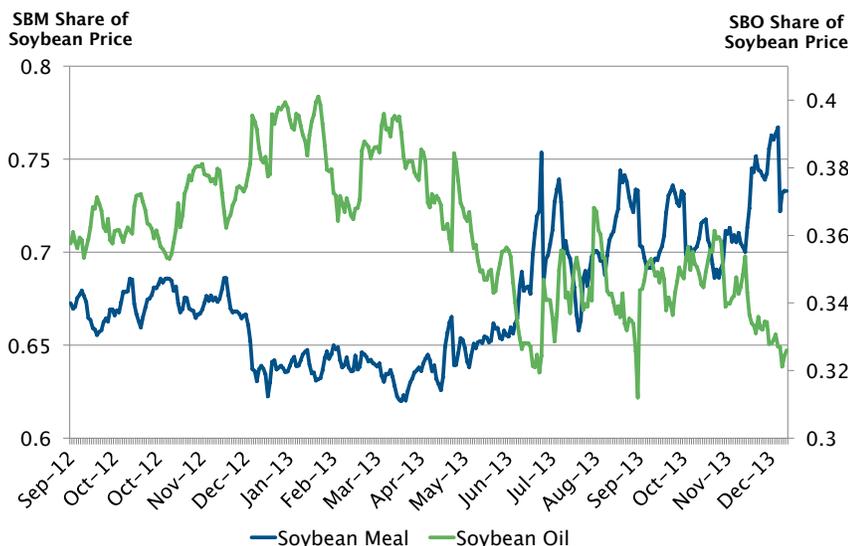
One Brazilian port authority claims to have made adjustments that will significantly reduce delays this time around. Paranagua, Brazil's main port for exporting soybeans, has dredged its shipping channel, initiated a new vessel scheduling system, installed a new shiploader, and announced that it will halt all corn shipments on January 15. These adjustments will help. However, Brazil is projecting yet another record soybean harvest this season, which is sure to strain the infrastructure of its ports and terminals and create logistical bottlenecks again.

China's strengthening demand for soybeans over the past several years has not only challenged Brazilian infrastructure, it has also changed the composition of U.S. agricultural exports. In the past, soybeans typically comprised about one-third of grain and oilseed exports during the peak latter months of the calendar year. But at the peak in 2013, soybeans made up roughly two-thirds of those shipments. Such aggressive buying by China carries two potential risks for the U.S. First, there is a high likelihood that as February and March approach, China could cancel purchases of U.S. soybeans if they expect

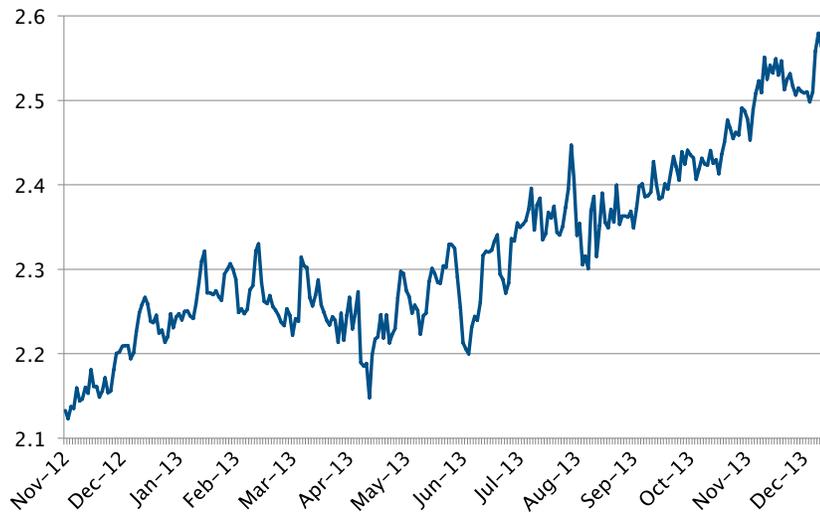
that Brazil shipments will reach its shores before stocks run low. However, if U.S. exports match or exceed expectations (regardless of China's cancellations), the price spread between Brazilian and U.S. soybeans would likely spur U.S. imports from Brazil in the latter half of the marketing year, similar to what occurred in 2012/13. Both of these scenarios are expected to be realized to some degree, and in combination with record South American production, soybean prices are projected to weaken to the low-to-mid \$12 range leading into the U.S. spring season.

In addition to the bearish influence of the impending huge South American harvest, global supplies of competing oilseeds have risen substantially in 2013/14. Combined supplies of canola and sunflower seed are up 10 percent year over year (YoY), and that extra

Figure 2. Value of SBM and SBO as Percentage of Soybean Price



Sources: CME, CoBank

Figure 3. Soybean/Corn Price Ratio

Note: Ratio of futures contract prices for November 2014 soybeans and December 2014 corn
Source: CME

volume has cut prospects for U.S. soybean oil (SBO) trade. The U.S. crush will be in line with the three year average, but SBO exports will likely fall by half to a 10 year low. Moreover, rising biodiesel production, which now accounts for more than a quarter of total U.S. SBO demand, will keep U.S. prices largely uncompetitive in the world market, even as SBO prices slide.

In contrast, demand for U.S. soybean meal (SBM) remains high. U.S. SBM exports for 2013/14 are expected to be the third highest on record, causing the relative price of SBM to rise generously compared with SBO. (See Figure 2.) U.S. exports of SBM will begin to slow in February as Argentina and Brazil re-enter the world market, but not before U.S. sales have reached a very respectable volume.

Looking ahead to the planting of the U.S. 2014/15 crop, soybeans are expected to win the battle for swing acres. The soybean/corn price ratio for the 2014/15 crops has climbed above 2.5 recently, far surpassing the 2.1 level at which it traded last year at this time. (See Figure 3.) The ratio is likely to be quite volatile leading up to spring planting, and will be most influenced by updates on South American growing conditions and Chinese imports. In the end, U.S. planted soybean acres should surpass

80 million for the first time, as corn acres fall back closer to 90 million.

While soybean supply and demand will both rise in the near term, there is considerable downside demand risk for SBO as a feedstock for biodiesel production and partially hydrogenated oils in the longer term. In November, the Environmental Protection Agency (EPA) proposed significant cuts to the 2014 Renewable Fuel Standard (RFS) which mandates the use of certain types of biofuels, including biodiesel. The EPA has proposed to freeze the mandate for the biomass-based diesel category, which encompasses biodiesel produced from SBO.

If the EPA's proposal is finalized, it will eliminate the mandated incentive to expand biodiesel consumption going forward.

Additionally, the production of renewable biodiesel, which is produced from waste fats and oils, and corn oil that is extracted during corn ethanol production, has been growing rapidly and also falls under the biomass-based diesel category of the RFS. Renewable diesel will make up about 14 percent of the biomass-based diesel market in 2013, up from only 4 percent in 2011. The growth rate for renewable diesel is expected to slow in 2014, but any additional growth threatens to crowd out mandated support for SBO-based biodiesel.

Biodiesel producers are also entering 2014 without the \$1.00 per gallon blender tax credit that they have benefited from during the past several years. This tax credit expired at the end of 2013 and can only be re-instated by an act of Congress.

Also in November, the U.S. Food and Drug Administration (FDA) signaled its initial move toward banning trans-fats from being used in the U.S. The FDA has proposed that partially hydrogenated oils should no longer be "generally recognized as safe," which would eliminate their use as an ingredient in American foods. About half of all soybean oil is hydrogenated, of which a majority is partially hydrogenated, so significant volumes of SBO could be

displaced, at least in the short term, by other oils such as imported palm oil. High oleic soybean varieties, which do not produce trans-fats in the oil, do exist. But it will likely take several years before these varieties are grown widely enough to have a significant impact on the SBO market.

Wheat

In the final months of 2013, U.S. wheat producers and merchandisers were impacted by the same logistical issues that hobbled corn and soybean transportation. Approximately two-thirds of U.S. wheat is shipped by rail, which on average makes the wheat sector three times more dependent on rail service than the corn and soybean sectors.

“*Ethanol operators are taking advantage of the cheapest corn feedstocks in several years and have been generating their best margins since 2006.*”

Canadian wheat shippers encountered even greater logistical problems than their U.S. counterparts. The 2013/14 Canadian wheat harvest surpassed the prior year's output by nearly 40 percent and eclipsed the record set in 1990 by 17 percent. Canada also produced a record canola crop, which competes for the same rail access. As a result, Canadian rail carriers ran out of cars and created major backlogs across the Canadian prairies. Many grain handlers north of the border are still struggling to gain access to the railroads. Some Canadian wheat is being shipped south into the U.S., where it is being comingled with U.S. wheat and re-exported.

The U.S. 2013/14 wheat yield was 12 percent lower than Canada's, dragged down by miserable drought conditions in portions of hard red winter (HRW) wheat areas. U.S. HRW production was down 34 percent YoY, while soft red winter production (SRW) was up 35 percent. Together, the two classes accounted for more than 60 percent of all

domestically grown wheat. Total U.S. wheat production was down only marginally from 2012/13, but demand is outstripping supply. Total U.S. wheat ending stocks are projected to fall 20 percent this year, with HRW stocks slated to drop 44 percent and SRW stocks expected to fall 28 percent. So while supplies are still more than adequate, the U.S. stocks-to-use ratio will recede to the lowest level since 2007/08.

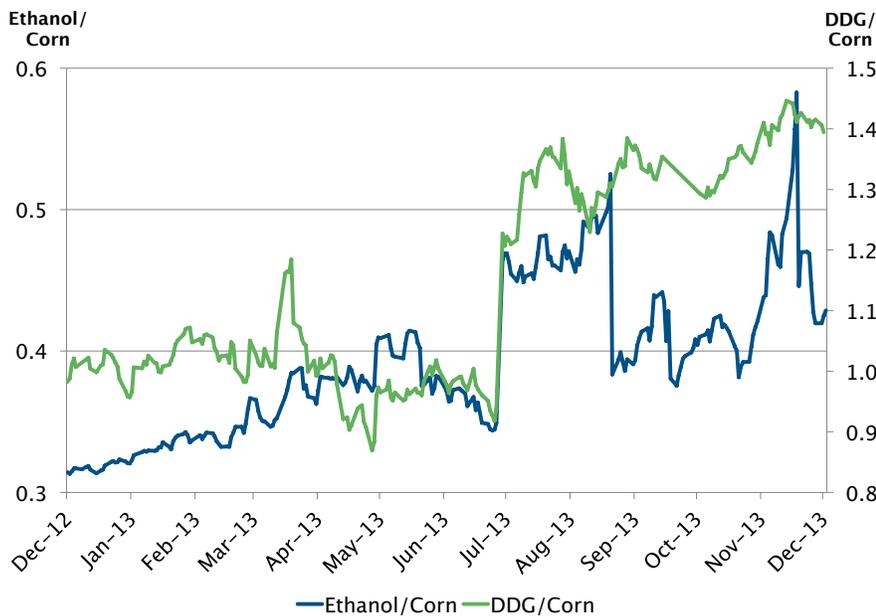
At the same time, the world's wheat yield, production, and trade will all reach record highs in 2013/14. Global supplies will build marginally, but consumption will gain at about the same pace, leaving the stocks-to-use ratio flat compared with 2012/13. Australia is now harvesting a very large crop, and Argentina's crop will be larger than originally expected, enabling both countries to undercut U.S. wheat on price and limit U.S. export opportunities going forward. As a result, U.S. prices are likely to soften over the next few months.

The 2014/15 winter wheat crop is reported to be in good condition in most parts of the U.S. Wet conditions in the fall delayed planting, but the increased moisture has been a welcome change from last year's dry weather. Snow cover throughout much of the country protected the crop from frigid temperatures in November and December. However, the Plains states will be vulnerable to freeze damage through at least the first half of January. Minimal snow coverage in key growing states such as Nebraska and Kansas will provide support for prices until the frost risk subsides.

Ethanol

Ethanol producers are perhaps the greatest beneficiaries of the record 2013 corn harvest. Ethanol plants steadily increased production after output bottomed at a 28 month low just before harvest got underway. Production rose on a very similar trajectory to what occurred in the closing months of 2011, with weekly output in in mid-December more than 10 percent above what it was in late August 2013. It took several months for the rising rate of production to catch up with demand, but in late November it finally did. Since then, stocks have turned up appreciably for the first time in five months.

Figure 4. Ethanol Related Price Ratios



Sources: CME, USDA-AMS

Plant operators are taking advantage of the cheapest corn feedstocks in several years and have been generating their best margins since 2006. Margins have risen to the range of \$0.50-\$1.00 per gallon. Ethanol producers are benefiting not only from cheaper corn, but also from relatively strong ethanol and distillers grains (DDG) prices. DDG prices have been historically strong in comparison to corn, and ethanol prices have also held up better than corn prices. (See Figure 4.) These two factors have driven margins sky high. But as ethanol production remains elevated and may even eclipse multi-year highs in the first quarter of 2014, the price ratios will decline. With ample cheap corn available and DDG supplies increasing, distillers prices must fall back near equilibrium to compete in feed rations going forward. Similarly, as ethanol supplies become more abundant and stocks build, ethanol prices will fall relative to both corn and gasoline prices. DDG prices are at additional risk for decline if China chooses to reject more U.S. distillers grains. More than 2,000 tons of DDGs were rejected in December as part of China's clampdown on shipments that include an unapproved corn variety.

Producers will continue to see positive margins through the early months of 2014, but the question of just how positive will be determined by whether plant operators pull back on the throttle. The ethanol futures market is strongly inverted into spring 2014, encouraging producers to produce and sell as much ethanol as possible now, rather than later. The industry is expected to respond to market signals in the late winter timeframe and reduce throughput in order to manage margins.

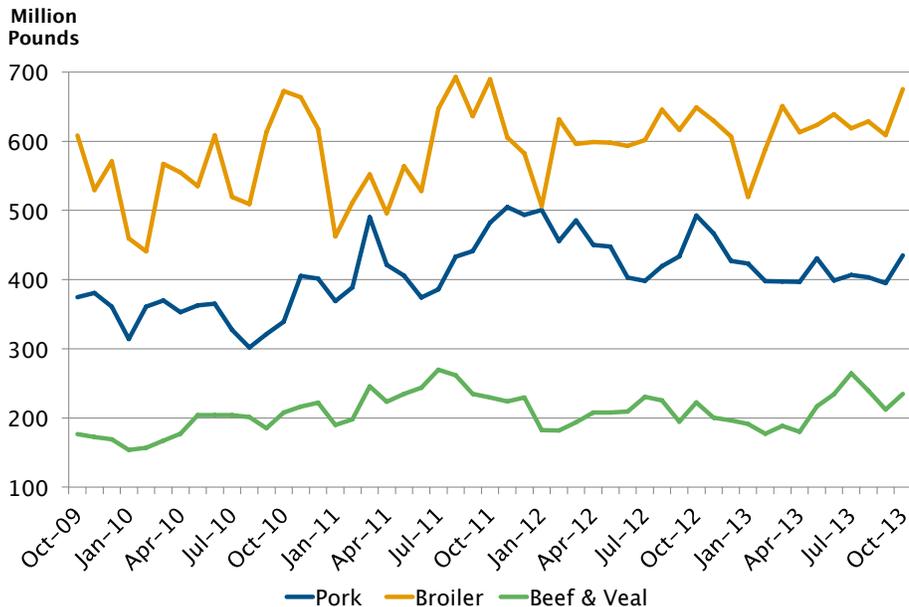
The ethanol industry's longer-term outlook, however, took a turn for the worse in the closing months of 2013. The EPA's proposal to significantly adjust RFS blending obligations for 2014, and align the mandate with the blend wall, poses several long-term

questions for the industry. Over the next couple years, ethanol will continue to be blended into gasoline at a 10 percent level, so adjustments to the mandate will have only a limited impact on production and blending. However, by lowering the mandate to the level of the current blend wall, the EPA will eliminate any incentive for blenders and retail stations to expand offerings of the higher ethanol blends, E15 and E85. And with U.S. drivers consuming about one percent less gasoline with each passing year, the blend wall will also decline in the absence of increased use of the higher blends. If the EPA's proposal becomes final, several ethanol producers are likely to look for ways to better position themselves for the long term, by achieving greater economies of scale through mergers or acquisitions. The EPA has opened a 60-day comment period that will close in late January, and a final ruling is expected from the agency in spring 2014.

Animal Protein and Dairy

As 2014 unfolds, the anticipated downswing in grain and oilseed prices will strengthen margins in varying degrees across the entire animal protein complex. However, as the hog, poultry, and dairy industries begin to expand

Figure 5. U.S. Animal Protein Exports



Source: USDA-FAS

production, their success in 2014 and beyond will depend, in part, on their ability to grow overseas markets to absorb the incremental output. (See Figure 5.)

Beef

With the cattle herd at historically low levels, the stage is set for heifer retention and herd rebuilding through 2014 in response to cheap corn supplies, improved grazing conditions and recovering margins. Overall, beef production will be curtailed from four sources: increased heifer retention, the smallest U.S. calf crop since 1940, the smallest cattle inventory since the early 1950s, and reduced cattle feeder imports. As a result, beef production is expected to decline around 6 percent in 2014, with prices climbing to record levels.

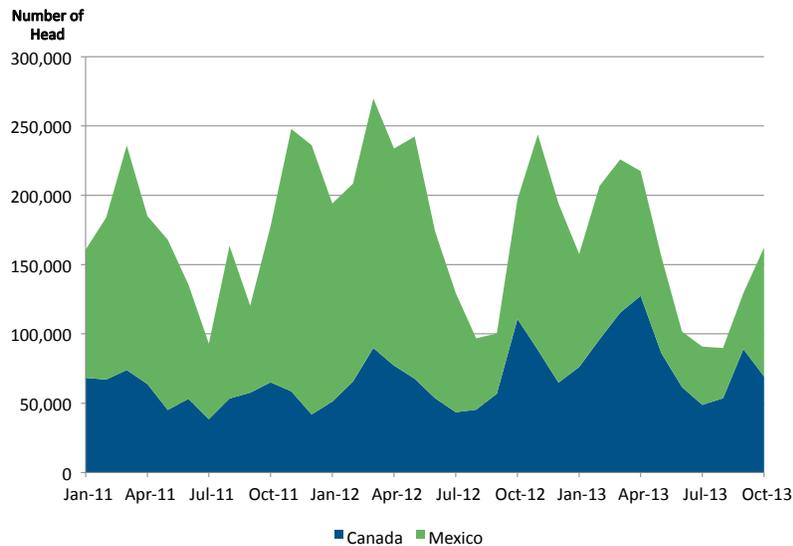
Beef production in the closing months of 2013, however, came in higher than expected at 6.4 million pounds, thanks to favorable fall weather and lower corn costs. Cattle feeders compensated for the loss of feed additive Zilmax by feeding cattle longer on cheaper corn rations. Cattle dressed weights are expected to average around 5 pounds above YoY levels through year-end. Heavier carcass weights, however, failed to make up for the

decline in cattle available for slaughter. Total beef production was off 1 percent YoY in 2013, and down 4 percent YoY in Q4-2013 due to tight feeder supplies.

Cattle placed on feed continue to run below year-ago levels. The USDA's latest estimate of cattle on feed totaled 10.7 million head in December, 5 percent below year-ago levels and the 16th consecutive month that cattle on feed numbers have been lower YoY. Feeder supplies are even tighter due to constrained supplies of feeder cattle imported from Canada and Mexico. In 2011-12, U.S. cattle feeders relied heavily on feeder cattle imported from Mexico and Canada to supplement

feedlot inventories. Mexico is currently experiencing similar market conditions as those in the U.S., with herd liquidation due to drought conditions, constricted production, and the need for herd rebuilding. As a result, year to date (YTD) imports (Jan.-Oct.) of Mexican feeder cattle were down 40 percent YoY, and total imports are expected to be down half a million head in 2013. (See Figure 6.) Feeder imports from Mexico are expected to lag through 2014 as the country's cattle industry focuses on rebuilding its herd.

Canada's cattle market mirrors the tight market conditions in the U.S. and Mexico. In the past, Canada has exported more slaughter cattle to the U.S. than feeder cattle. Following the U.S.'s implementation of the Country of Origin Labelling (COOL) rules in November, its imports of slaughter cattle have dropped off, with major beef processors like Tyson suspending foreign slaughter cattle purchases due to the new COOL regulations. However, foreign feeder cattle do not appear to be subject to as many COOL regulatory restraints. Imports of Canadian feeder cattle expanded in 2013, totaling 272,643 head through the end of November, up 112 percent YoY. Increased imports of Canadian feeder

Figure 6. Monthly U.S. Live Cattle Imports by Country

Source: USDA-FAS

cattle, however, will not be enough to bolster U.S. beef production in 2014.

Tight feeder supplies have spurred aggressive bid-ups in feeder prices, making it challenging for feedlot margins to remain in the black – despite the cheaper feed costs. Southern Plains feedlots are expecting breakeven prices of \$128 per hundredweight (cwt) early in 2014, with fed cattle prices expected to average in the low \$130s. In that event, cattle feeding operations will experience breakeven or slightly positive margins in early 2014. Feeder cattle prices will likely continue to climb in coming months and feedlot operators will have a hard time keeping their margins in the black. In sharp contrast, cow/calf operations are expecting record profits in 2014 given aggressive bidding for feeder calves through the end of 2013 into 2014.

Beef packer margins were comfortably positive in the closing months of 2013 and were expected to remain in the black in early 2014 provided that wholesale cutout values continue to rise. Choice beef cutout prices are expected to exceed \$210 per cwt in early 2014 due to tight supplies. Packers have been able to bolster their margins through high foreign demand for trimmings and offal cuts. Packers have also lowered their cost structures with many processing facilities shifting to

4-5 day workweeks, eliminating Saturday production runs.

Domestic and foreign demand for U.S. beef remains strong, despite record high prices. Domestic beef consumption has held up surprisingly well in the face of record-high retail prices, bolstered in part by the better-than-expected performance of the U.S. economy and by robust restaurant demand. At the same time, overseas demand for U.S. beef has also held up well with YTD (Jan.-Oct.) exports totaling 2.1 billion pounds, up 4 percent from the same period in 2012. This pickup in U.S. beef exports reflects especially hearty demand from Japan and Hong Kong. Ever since the Japanese eased their import restrictions of U.S. beef in February, consumers there have been purchasing U.S.

beef at a breakneck pace, with YTD exports totaling 578 million pounds, up 47 percent from 2012. Similarly, Hong Kong has been another solid export market with YTD exports up 67 percent.

Beef exports will be the industry's wild card in 2014, given tight supplies and expected record prices. Exports to Russia could be restored in 2014, for example, if Russia terminates its current ban on beef, pork, and turkey exports due to ractopamine. Russian officials have indicated that they may be willing to lift their current export restriction on U.S. beef in light of the USDA's recent announcement of a ractopamine-free certification program. In addition, it remains to be seen whether foreign consumers will tolerate ever increasing U.S. beef prices.

Pork

Porcine epidemic diarrhea virus (PEDv) is the black cloud that continues to hang over the pork industry as well as the entire animal protein complex.

With no remedy for PEDv in sight, market analysts are attempting to estimate what impact PEDv is having on overall pork production, but so far, no consensus has emerged. Despite low YoY slaughter rates in Q3, production levels ramped up in Q4 with pork production easily outpacing YoY levels in three of the past five

weeks. Total production is expected to edge up to 6.3 billion pounds in Q4-2013, up 1 percent from a year ago, and total pork production for all of 2013 is estimated to be around 23 billion pounds, down a modest 0.5 percent from 2012. Although fewer hogs were slaughtered in Q4, heavier carcass weights more than offset the decrease in the number of head slaughtered.

Although carcass weights tend to be seasonally heavier in the fall due to cooler weather and newly harvested, nutrient-rich feed, the carcass weights posted in Q4 were off the charts. Packer-owned pigs were on average 8 pounds, or 4 percent, heavier YoY, while producer-sold barrows and gilts were 2-3 percent heavier YoY. Cheaper feed is allowing producers to feed pigs to heavier weights, and producers also have more barn space available to house larger pigs due to PEDv losses. Slaughter weights are expected to run high as long as producers are losing pigs to PEDv.

With increases in slaughter weights and slight growth in pork production, prices continue to maintain a robust upward pace thanks to firm domestic demand and record high beef prices. Cold storage numbers posted a 2 percent YoY decline in November, reflecting the smaller slaughter numbers in Q3. Retail prices for pork have been setting industry records since early 2013, with the USDA forecasting retail pork prices in the mid to high \$3.70s per pound. in Q4. Margins for pork processors are expected to remain positive into early 2014, thanks to the sharp drop in feed costs. However, if producers are able to work around the negative effects of PEDv and ramp up production in 2014, pork prices are expected to begin softening by springtime 2014. Overall pork production is expected to be around 24 billion pounds in 2014, up 3 percent from 2013, and this hike in production is expected to push hog prices down 5 percent YoY in 2014.

Pork exports were a disappointment in 2013. YTD exports (Jan.-Oct.) amounted to 4.1 billion pounds, down 9 percent – yet it should be noted that this YTD export number is still the third largest on record. Weak exports are primarily tied to sluggish demand from key Asian markets. YTD exports to Japan slipped 4 percent YoY; exports to China fell 22 percent; and exports

“*Broiler integrators appear to be concerned about how much they can expand production without impairing their profit margins.*”

to South Korea tumbled 35 percent. The declines in exports to China and South Korea were primarily due to high exports in 2012 and the rebuilding of the Chinese and South Korean hog herds after a series of disease outbreaks over the past two years. Exports to South Korea are expected to gradually rebound through 2014, thanks to the enactment of the Korea Free Trade Agreement.

Poultry

2013 turned out to be highly profitable for the broiler industry, due to the high prices for competing proteins and producers' restraint in bolstering supply. Broiler integrators are preparing to ramp up production in coming months, in response to lower feed costs and the higher prices for pork and beef. However, the operators appear to be concerned about how much they can expand production without impairing their profit margins. One sign pointing to industry uncertainty is the wide range of growth expectations for 2014, with projections ranging from 1 percent to more than 4 percent. This variance highlights analysts' uncertainty about how vigorously producers are going to respond to current market conditions. The outlook is further muddled by uncertainty over the effects of PEDv on the pork industry, the softer than expected broiler export markets, and recent weakness in prices for broiler parts.

The number of pullets placed for growout from September through November averaged 3 percent above year-ago levels. Placements in the last few weeks of December are expected to slow, further hinting at producers' hesitation to ramp up production too quickly given market uncertainty in other protein sectors. Placements are projected to pick up on average about 2 percent YoY in Q1-2014, a modest increase at best.

Total broiler production was up 3 percent YoY in Q4 and up 2 percent for all of 2013. Broiler production is expected to post a 3 percent gain YoY in Q1-2014, responding to declining feed costs. The growth in Q4 broiler production reflected higher broiler liveweights as opposed to increases in the number of birds slaughtered. Broiler slaughter rates edged up during Q4 by 0.4 percent YoY, while average broiler liveweights increased 1 percent in 2013, to 6 pounds. The trend toward bigger birds is expected to extend into 2014 due to the expansion in the number of big bird processing plants and the upsurge of food service offerings featuring boneless breast meat.

Cold storage stocks have been on the rise. November chicken stocks totaled 721 million pounds, up 7 percent from the same period in 2012, and they are expected to expand further in early 2014. In response to the rise in broiler production and cold storage holdings, prices for many broiler parts declined seasonally in Q4, receding from record high prices posted early in Q3 2013. However, prices for boneless/skinless breast meat in 2013 remained well above year-ago levels, reaching a high in the \$1.80s per pound in June and settling around \$1.50 per pound on average for 2013. Prices for breast meat eased to the \$1.30s in the closing weeks of 2013 where they are expected to remain in Q1 2014. Leg quarter prices remained below year-earlier levels for much of 2013 due to slackening demand in export markets. Wing prices are expected to experience their seasonal pickup in prices into Q1 2014 due to increased food service promotions and Super Bowl demand.

Export growth over the past few years has been a key component of profitability and growth within the U.S. broiler sector. While overseas demand for U.S. broilers remained steady in 2013, overseas demand was not as aggressive as expected in 2013, due in part to Brazil eating into market shares of a few price sensitive export markets. YTD U.S. broiler exports (Jan.-Oct.) totaled 6.2 billion pounds, up 2 percent from 2012. Russia and Mexico were the top export destinations, with Mexican YTD imports totaling 1.2 billion pounds, up 16 percent YoY, thanks to high beef and pork prices. Exports to Russia totaled 525 million pounds YTD, up 3 percent for

the same period in 2012. Broiler exports are expected to rise in 2014, as long as prices for substitute proteins continue to rise, making chicken a cost effective protein choice for foreign consumers.

Turkey markets have begun to stabilize after a turbulent few years. The turkey flock continued to shrink during 2013 with significant cuts in pullet placements and decreases in production. Poult placements consistently declined YoY in 2013, with Q4 placements down 7 percent YoY. Placements are expected to continue declining through early Q1 and then level off in Q2. Total turkey production declined 2 percent in 2013, with a 6 percent YoY drop in production in Q4 2013. Production is expected to continue to contract during the first half of 2014 as the industry continues to adjust to market demand. With declining feed costs and reduced production, margins in the turkey industry are expected to cross the line into positive territory early in 2014.

Prices for breast meat and thighs continued their slow recovery in late 2013, bolstering the industry's hopes of re-gaining profitability in 2014, thanks to strong foreign demand. Ground turkey could play an important role in industry profitability in 2014 as it has become a competitor to ground beef in recent years. The turkey industry will benefit from declining ground beef production in 2014. Much of the U.S. output of hamburger and processed beef items comes from harvested cows, which are projected to decline dramatically YoY; and imported beef will likely only fill part of the shortfall.

Looking at other turkey products, breast meat remained relatively healthy in the last half of 2013, averaging over \$2.00 per pound, but prices will experience a seasonal decline in Q1-2014 and then strengthen in Q2 as demand for summer deli turkey picks up. Prices for turkey thigh meat have been pushed to near record highs around \$1.55 per pound thanks to record export demand. Total YTD (Jan.-Oct.) export demand for turkey meat totaled 634 million pounds, down 4 percent YoY; however, exports are expected to strengthen into Q1-2014, increasing 1 percent YoY.

Table 1. Dairy Futures Prices

	Jan-Jun 2014 Futures	2013 Average	2012 Average
Cheese	\$1.76	\$1.77	\$1.71
Butter	\$1.57	\$1.55	\$1.60
Nonfat Dry Milk	\$1.88	\$1.71	\$1.33
Class III Milk	\$17.92	\$17.98	\$17.44
Class IV Milk	\$20.69	\$19.06	\$16.01

*Futures as of 12/16/13; 2013 through December 13
All prices \$ per pound or \$ per hundredweight*

Dairy Industry

Milk powders are not only the least glamorous products sold by the industry, but also largely invisible as whole milk powder (WMP) and skim milk powder (SMP) are customarily reconstituted or used as ingredients in other food products. Yet, these two stalwarts have become the industry's primary growth engine. (See Table 1.) From July through mid-December, central state nonfat dry milk powder prices in the U.S. climbed 15.0 percent, rising to \$1.99 per pound, a level not seen since 2007; and global WMP prices gained about 4 percent, reaching \$2.16 per pound. As a result, end-users confronted much higher-

than-expected costs across the dairy product spectrum during Q4- 2013 – higher prices that will likely persist into the opening months of 2014.

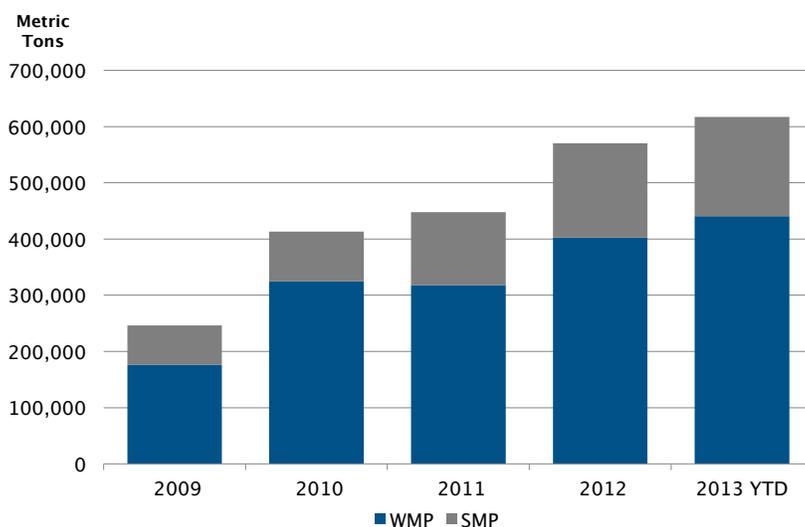
With powder prices surging – and carrying other markets along for part of the ride – dairy producers are enjoying rising revenue and, more importantly, rising net income as milk prices climb and feed costs fall. USDA data showed the November “all milk” price at \$21.30 per cwt, the highest price in a year, with December numbers set to move higher yet again. Meanwhile, nearby corn futures have been trading below \$4.50 per bushel since October 1, averaging \$4.30 from then until December 16.

With 2014 about to unfold, market participants around the world are pondering two questions: How did they get here? Can it really last?

■ Yin and Yang – China and New Zealand

Price percolation in the closing months of 2013 appears most directly tied to a familiar plotline: China's needs and New Zealand's ability to satisfy this demand. Five years ago, China did not import much dairy. Today, its appetite tops the charts. (See Figure 7.) By virtue of disposition and proximity, New Zealand is China's biggest dairy supplier. From January to October 2013, China imported 92 percent of its WMP and 51 percent of its SMP volume from New Zealand. Over that same period, 43 percent of New Zealand's WMP exports and 28 percent of its SMP exports went to China.

Given the prominence and growth of this symbiotic relationship, in normal years analysts can learn a lot by trying to figure out whether New Zealand's milk production can expand enough to accommodate the next iteration of growth in Chinese import demand. From 2009 through 2012, China's milk powder imports soared at a rate of 32 percent a year. Based on trend-line growth during calendar year 2013, New Zealand's milk production would have had to increase by 6 to 7 percent just to fill China's needs.

Figure 7. China Milk Powder Imports

*Note: The 2013 YTD bar covers January through October
Sources: GTIS and DCANZ*

However, “normal” years in the global dairy markets are elusive, and last year was no exception. Early in 2013, New Zealand endured a late-season drought that severely pinched milk production and, by extension, its export potential. Later in the year, domestic milk production in China was thought to be slipping, driving even stronger need for imports. In short, New Zealand produced less output when China needed more.

■ *That's Not All*

Dairy production issues were not limited to Oceania. Europe's output was off 2.5 percent YoY in March and down 2.7 percent in April. Keep in mind that dairy output in Europe is roughly seven times bigger than New Zealand's and one-and-a-half times bigger than the U.S.'s. In contrast, U.S. output was up slightly. Overall, milk production from the “big three” – the U.S., the EU and NZ – was down 1 percent YoY during the first half of 2013, the biggest such deficit in several years. By now, the first half of 2013 seems like a distant memory. But the impact has lingered long afterward as end-users operated on a hand-to-mouth basis and continually deferred pipeline-filling initiatives. With supply-side relief slow to develop, buyers simply had to come back to the market for more, keeping prices firm or even pushing them higher.

■ *Here Comes Supply*

Though the recovery path has been longer and bumpier than most analysts had anticipated, global supply has been making a comeback. As year-end 2013 approached, New Zealand's output was on trend to post 6 to 8 percent growth for the June-to-May season. Production in the EU was up sharply during the third quarter. Farm volumes in the U.S. have also increased, though less vigorously than those in New Zealand and the EU.

At year-end, global pipelines still needed filling; the China story remained uncertain; and the global supply engine had begun revving up. Strong producer margins were likely to further fuel the engine, leading to stepped up production in the months ahead. Dairy producers in the U.S. are likely to see the best margins since 2007. Milk prices in the EU are near all-time highs. And dairy farmers in New Zealand are set for sizable payouts.

In the past, more money has meant more milk, no matter the geography. And this is what we're anticipating for the next year or two.

In the U.S., the dairy outlook includes a few interesting features. First, on paper, on-farm profitability is set to get a big boost. Generic metrics show that 2013 has been a good year. As of mid-December, futures pricing for milk and grain point to a borderline great year in 2014, in view of the combination of \$20 per hundredweight milk and sub-\$4.50 per bushel corn.

Second, as a general rule, those producers who fared less well over the past two years stand to benefit the most. In California specifically, producer income will get a nice, early push from global powder market strength. The Golden State is the nation's leading powder producer. And, because fluid milk prices are established by the higher value derived from Class III (cheese/whey) or Class IV (butter/ powder) products, and given that Class IV prices are currently running well above the Class III prices, as much as 70 percent of pool pricing will be driven by the latter. At the same time, California's producers are largely dependent on purchased feed, and these costs are moving significantly lower. According to analysts at Blimling Associates, a consultancy, producers' margins in California could climb as high as \$5.18 per cwt during the first half of 2014, up more than three-fold from \$1.68 per cwt for the same period a year ago. While widespread, greenfield expansion is not likely anytime soon, California's operators are likely to boost milk production during coming months. Elsewhere in the West, the case for improved margins and amplified output is less clear or pronounced, but lower feed costs alone should coax additional milk in Idaho and Washington – and perhaps even in New Mexico and Texas.

Third, many of those producers who had a good run over the past few years will do less well going forward. Corn at \$7 a bushel was a blessing for dairy producers in the Upper Midwest and Northeast, who grow a high percentage of their own feed. In fact, those producers with a sizable land base probably did quite well, given the elevated milk prices (i.e., assuming that the accounting was done on a total enterprise basis, and that the corn

or corn silage was transferred at cost rather than at market value.) Lower corn prices heading into 2014 won't be that much help for those farms. At the same time, while cheese prices are high in historical terms, the new calendar year will begin with Class III values well below those for Class IV. Consequently, producers in the Upper Midwest won't necessarily see their incomes jump as much as their peers will in heavy Class IV regions (California, the Pacific Northwest, and the Northeast).

This dichotomy may well force a shift in regional milk production. Early in 2013, milk output in the Midwest and Northeast led while milk flows in the West lagged. Pricing patterns and prospective margins suggest that things could switch around early in 2014, with the West taking the lead. In any case, however, expectations point to strengthening milk production as 2014 unfolds.

■ **The Cure for High Prices**

At some point, high prices will be the cure for high prices. Producers and consumers alike will fashion appropriate responses, making more in the case of the former, consuming less in the case of the latter. But it takes time for the process to unfold. Dairy producers cannot, by and large, immediately command a lot more milk from their cows, nor can end users reformulate often or easily. Despite these quirks, however, dairy markets ultimately correct.

Corrections on the supply side have already begun. Conditions in New Zealand have been favorable. EU milk production has been strong and should improve further given high prices and looming quota expiration. As 2013 ended, U.S. dairy producers were already bidding up the price for replacement animals, suggesting that some are gearing up to make more milk. Plus, a major grain price rally does not seem imminent.

Corrective demand-side dynamics are less tangible. Global economic growth continues, but at a deliberate and sometimes uneven pace. Economic conditions are better today in the U.S. and the EU than they were two or three years ago, but unemployment is still high and consumer spending is still fragile. Overall, macroeconomic forces seem conducive to supporting dairy product demand growth, but not at a high rate or at any price.

How soon the global market corrections unwind will be dictated by the China-take/New Zealand-make relationship. In mid-December, milk futures for 2014 averaged about \$17.80 for Class III (cheese/whey) and \$19.75 for Class IV (butter/powder), implying an "All-Milk" price of about \$18.50. While 2014 will undoubtedly begin on a high note, prices will likely ratchet lower due to mounting supply-side pressure, perhaps by as early as the second quarter. With that in mind, analysts currently foresee more downside than upside risk.

Amidst the uncertainty, one thing has become clearer: as dairy markets have become more entwined globally, events far away from the U.S. can have a profound, sudden impact on price. As the U.S. gains global market share, its domestic dairy markets can be rocked one way when exports climb or shaken violently in the other direction when exports ebb – with only a 1 or 2 percent swing separating the two. The global dairy market's supply-demand balance is delicate and prone to volatility.

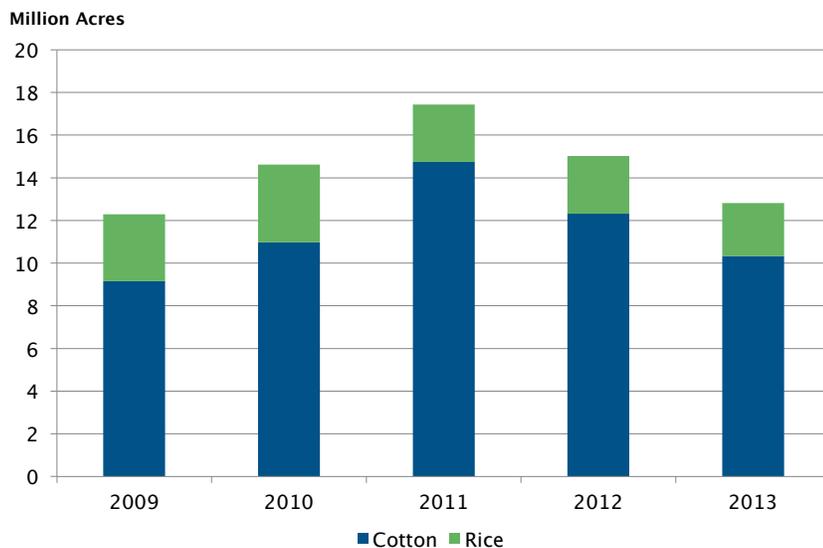
Other Commodities

Highly favorable corn and soybean prices in early 2013 caused growers to plant fewer acres of other crops such as rice, cotton, and sugar. (See Figure 8.) With corn prices down significantly entering 2014, and soybean prices expected to fall in the coming months, producers are likely to give other crops a second look as planting season approaches.

Cotton

The record large U.S. corn/soybean crop of 2013/14 came at the expense of area planted to several other crops. Cotton, far and away, lost the most acreage from the prior year, with area declining 2 million acres, or 16 percent. Continued drought in the southwest and excessive rain in the southeast further constricted output by reducing the average yield to one of the lowest levels of the past decade. The result was a 25 percent YoY decline in production.

Demand for U.S. cotton is expected to decline 15 percent YoY in 2013/14, mostly due to fewer exports to China. The downside of the industry's dependence on

Figure 8. U.S. Cotton and Rice Planted Area

Source: USDA-NASS

China is expected to be felt more severely in 2014 than last year, as China cuts back on total purchases and also sources more from other origins. U.S. exports to China are expected to fall to a 10 year low, while total U.S. exports fall to the lowest level in 13 years. Nonetheless, China will continue to hold 60 percent of the world's cotton stocks.

Global cotton mill use is projected to increase in 2013/14 by 3 percent. All of the increased output will come from countries other than China, with India and Pakistan benefiting the most from increased demand for cotton yarn. China is actually importing an increasing amount of cotton yarn from countries like India as a result of Chinese policies that incentivize its mills to do so. China's cotton yarn imports this year could exceed the equivalent of 10 million bales of cotton.

On a global scale, cotton production will be down only five percent YoY. World cotton trade will likely shrink 16 percent to the lowest level in three years. Significant expansion in the world economy will be needed to stimulate meaningful increases in cotton consumption, which would in turn reduce inventories and support higher prices. The global economic recovery is expected to pick up pace in 2014, but not fast enough to substantively improve cotton use.

China's decision making with regard to its record large inventories will continue to be the directional factor for the world cotton market for the duration of 2013/14 and beyond. China has stated for several months that it will import significantly less cotton than it sells in order to shrink its massive stockpile. That has yet to occur. One reason for the delay is the slowdown in cotton sales. So far in 2013/14, only about half of the cotton that China has offered for sale has been sold.

Despite the negative market outlook, U.S. cotton plantings will likely increase in 2014. In the wake of the dramatic decline in corn prices, cotton will compete again for acres, particularly in

Texas. The drought there has subsided; and at the time of planting, cotton is expected to be price competitive with corn, sorghum, and wheat, all of which are grown in the cotton areas of Texas. Cotton area may increase slightly in the Delta and the Southeast, but much of the competition for land in those regions will be decided in favor of soybeans.

Cotton prices will maintain some strength as long as China continues to hold on to its cotton stocks and import more bales. At some point, however, China's approach must change. China is likely to sell off portions of its inventory in the event of price rallies. But those sales will likely prevent the rallies from gaining momentum and becoming sustainable.

Rice

The U.S. rice industry bucked the global trend in 2013/14, with both U.S. supplies and use on course to shrink on an annualized basis. Total domestic rice acreage in 2013 fell to its lowest level in 26 years as a result of high prices for competing crops and poor weather in the Mid-South during planting. Two states accounted for the nation's total reduction in rice acreage: Arkansas and Missouri. Excellent growing conditions and expanded use of hybrid seeds made up for much of the loss in area, though. Average yield

posted a record high, which limited the decline in total production to 5 percent.

In contrast, global supplies will increase for a ninth consecutive year in 2013/14, to set another all-time high. And global consumption is maintaining pace. World use will rise for the eighth time in the last nine years, to set another record, pushing down the stocks-to-use ratio marginally to 20 percent.

Thailand's stocks-to-use ratio is five times higher than the world figure, pushed ever higher by the Thai government's purchasing program. Thai rice is priced at a \$160 per ton discount to the U.S., and yet Thailand is still struggling to reduce inventories. Brazil, Cambodia, and Vietnam all have plenty of exportable supplies and were able to gain shares in world trade during the past two years as Thai prices were kept artificially inflated. All three exporters have also been gaining market share in Latin America, at the expense of U.S. exports. Lack of price competitiveness and quality issues will sink U.S. rice exports by 7 percent this year.

“*The world is awash in sugar, and sugar prices have tanked.*”

Despite the decline in demand for U.S. rice, consumption will still outpace supply, compressing the U.S. stocks-to-use ratio to 15 percent. The lower ratio will support domestic prices and spur more long grain planting in the Mid-South in spring 2014. Lower prices for competing corn and soybean crops, combined with reduced fertilizer and fuel costs for pumping, should heighten incentives for rice producers to increase planted acreage. Most of the additional area is expected to be concentrated in Arkansas and Mississippi. Texas and California producers continue to be challenged by water access issues. Texas acres will likely remain low again in 2014, while California plantings will be heavily influenced by winter snowfall amounts and the runoff it produces.

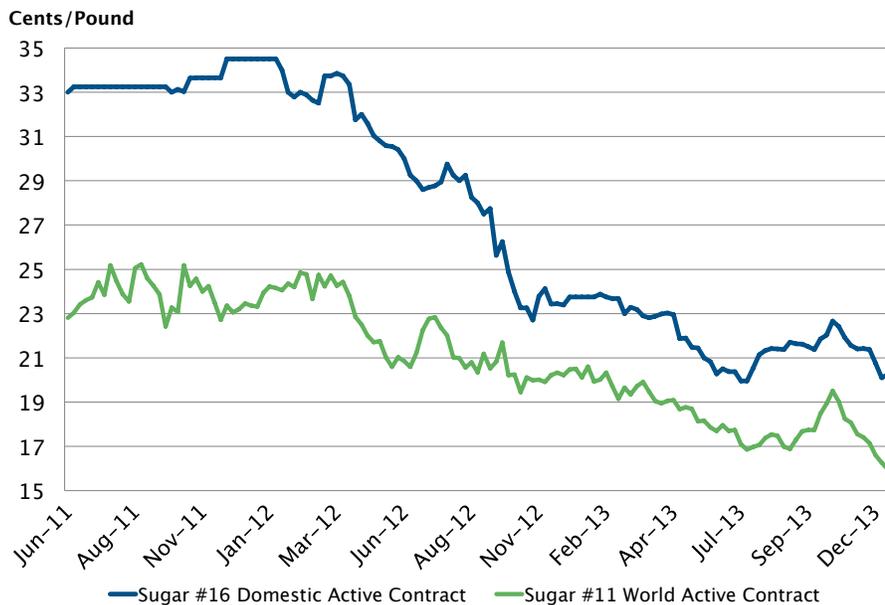
On average, the industry has a good potential of achieving record yields again for all three classes of rice in 2014/15, which could lead to record production and consumption. Larger domestic supplies would bring U.S. prices closer in line with the world market and enable the industry to regain its share of the Latin American market which was lost in 2013/14.

U.S. rice exports next year, however, will depend partly on political developments in Thailand. The Thai rice purchasing program, enacted in 2011, has been extremely costly for the government. Federal coffers were stretched thin late in 2013, causing the government to defer payments to farmers for rice already delivered. These delays contributed to a broader discontent among the Thai population, which led to demonstrations and the eventual dissolution of Parliament in mid-December. New elections have been scheduled for early February. Concurrently, Thailand has been conducting negotiations with other governments for large volume sales of its rice. Such sales would free up warehouse space and enable the government to meet its payment obligations to farmers, at least in the short run. If transacted, these agreements would also weigh on the world price and could negatively impact U.S. prices as well.

Sugar

The world is awash in sugar. The total world surplus (i.e., total production minus total use) is estimated to be 6.4 million metric tons, raw value (MTRV) in 2013/14, following two previous years of large surpluses. As a result, the global stocks-to-use ratio stood at an elevated 25.7 percent in November 2013, well above the ten-year average of 24.6 percent, and global sugar prices have tanked. Worse still, it looks like the world's oversupply will persist for a while longer.

The U.S. is also plagued by an oversupply of sugar. In 2013/14, U.S. domestic production plus imports (the sum of which we'll refer to as "new" supply) will amount to a projected 10.9 million MTRV, whereas total use weighed in at 11.1 million MTRV. While the U.S. market would have been in deficit, equal to the difference between the two, i.e., -163,000 MTRV, it also had to absorb the 287,000 MTRV that sugar processors had

Figure 9. U.S. vs World Raw Sugar Price

Source: CME

consigned to the Commodity Credit Corporation's (CCC) last year, and the CCC has been unwinding this stockpile during the current 2013/14 season. Altogether, the U.S. sugar surplus in 2013/14 amounted to about 124,000 MTRV which was equal to about 1.5 percent of total U.S. sugar production. Last year, the U.S. surplus had amounted to roughly 500,000 MTRV, slightly more than 8 percent of total U.S. sugar production. In the wake of these back-to-back surpluses, domestic sugar prices have also tanked.

During Q4-2013, domestic sugar prices fell 7.3 percent and stood at 19.5 cents per pound for the March 2014 contract as of December 20, 2013. (See Figure 9.) However, U.S. raw sugar maintained a 3.71 cent average margin above the world raw sugar price through the quarter, with world raw sugar prices on a weekly average basis tumbling 13.6 percent. Continued surplus market conditions, here in the U.S. as well as abroad, should prevent sugar prices from rallying any time soon.

Americans are fond of sweet foods and beverages, and U.S. sugar growers never produce enough sugar to satisfy the nation's collective sweet tooth. The shortfall typically amounts to 25-30 percent of total use, with imports making up the difference. Sugar imports into

the U.S. in 2013/14 are projected to total 2.89 million MTRV, down 1 percent from the previous year but amounting to 26 percent of the nation's total usage. Mexico has emerged as the number one exporter to the U.S. since NAFTA's sweeteners provisions took effect in 2007/08, and Mexico's sugar sales to the U.S. accounted for 55 percent of total imports.

The nation's Sugar Program has been in the spotlight all year long as the USDA has had to unsheathe several tools to manage the program's mounting costs. Under the Sugar Program, domestic processors may obtain loans from the CCC and pledge their

next sugar crop as collateral. When the loans mature, processors may then either repay the loan or transfer title of the collateral to the CCC – i.e., an event known as loan forfeiture.

This program was designed to provide a minimum price guarantee and was structured to operate at no cost to the federal government, provided that the market price for sugar remains above the guaranteed price. Last year, however, as the surplus sugar supply drove prices below the forfeiture level, many processors exercised the forfeiture option, and the CCC ended up owning tons of sugar with a market value well below what it paid in effect to acquire those tons. In this market year, the CCC has been either selling its holdings to ethanol producers or re-exporting them – at a loss that totaled \$267 million as of November 22.

Specialty Crops

The fall harvest for many specialty crops was a mixed bag at the end of 2013. Harvests for tree nuts were lower than expected, but demand remains healthy for almonds, pistachios, and walnuts and growers are expected to reap strong profits from 2013 harvests. The Florida citrus industry continues to struggle with

decreased production due to citrus greening, while California's new citrus crop is expected to remain essentially unchanged from 2012/13.

Despite the addition of 20,000 bearing acres in 2013, the almond harvest came in 2 percent below 2012 at 1.8 billion pounds. The decline in production stemmed from the unusually short pollination period in the spring, windy weather that caused nut drop and almond tree damage, and the lowest average kernel weight in 40 years. The decrease in production will push prices for almonds up 10-15 percent through the 2014 marketing year. Both domestic and foreign demand remained strong during the first quarter of the 2013/14 marketing year (Aug-Oct), with almond export shipments totaling 394 million pounds, up 7 percent YoY. Domestic shipments totaled 160 million pounds, up 9 percent from the same period in 2012. Both domestic and foreign demand is expected to remain strong in 2014.

The 2013 pistachio harvest was lower than expected with early estimates pegging production at 460 million pounds, down 17 percent from 2012. The decline was attributable to hot weather in key pistachio growing regions, which kept nut sizing down, and to 2013 being an off production year for trees – pistachio trees produce larger crops every other year. Due to the smaller pistachio crop, some analysts expect prices to be propelled above \$5 per pound in 2014.

The 2013 walnut harvest also came in one percent lower YoY at 990 million pounds. Despite the slight decrease in production, growers reported good quality and large nut sizes in the 2013 crop. Prices are expected to rise 10 percent YoY into Q2-2014, in response to lower U.S. production and a shortage of Chinese walnuts on the international market due to freeze losses in 2013.

With strong demand for tree nuts, many California growers have been planting more acreage to walnut, pistachio and almond trees. In fact, the USDA reported that tree nurseries sold out of walnut varieties in 2013 and were back-ordered into 2014 – a common occurrence for most tree nut crops given strong demand, high profit returns and low labor requirements.

Citrus greening continues to have a devastating impact on Florida's citrus industry. Early estimates are pegging Florida's orange production to decline 9 percent to 121 million boxes in 2013/14 – the smallest crop since 1989/90. Florida's crop could turn out to be even smaller if it is damaged by cold weather or if additional fruit drop occurs due to trees strained by citrus greening – a disease that already has seriously impaired Florida's citrus production. The smaller crop will boost prices for fresh-pack growers, but with Florida accounting for 90 percent of the country's orange juice supply, juice processors are struggling to pass on increased juice prices to consumers as demand for orange juice continues to ebb. Given the impacts of citrus greening on Florida's citrus industry, and with the battle not ceasing anytime soon, some Florida growers are diversifying their citrus operations by planting alternative tree fruit crops such as peaches.

On the opposite side of the country, California's orange production is expected to remain unchanged for 2012/13 at 56.5 million boxes in 2013/14. However, this projection could be revised downward due to freezing temperatures in early December. California's citrus industry has not experienced the devastating impacts of citrus greening, although the aphid that causes citrus greening has been spotted in key citrus regions in California. Strict quarantine methods have so far held citrus greening at bay in California's citrus groves. In an effort to mitigate the damaging effects of citrus greening on California's and Florida's citrus groves, the USDA recently announced new research initiatives to combat the disease. Secretary Vilsack announced on December 12th that an additional \$1 million dollars would be earmarked toward citrus greening research. News of additional research monies to combat greening was well received by the citrus industry.

Farm Supply

Net farm income is projected to climb 15 percent in 2013 to a record-high \$131 billion. However, net cash income is expected to fall 3.4 percent from what it was a year ago, reflecting growers' reluctance to sell their 2013/14 crops during calendar year 2013. Total farm

production expenses increased 3.2 percent in 2013 to a record \$352 billion. For the past ten years, higher input prices have been the main driver behind increases in production expenditures rather than quantities.

Fertilizer

This year's harvests occurred later than usual owing to last spring's delay in planting, and growers were keenly focused on operating their combines with little spare time to consider fall fertilizer applications. Falling fertilizer prices have also impelled growers to postpone their fertilizer purchases. Many growers and retailers are still looking for prices to bottom out before booking remaining fertilizer tons for the spring season. Flexibility in acreage allocations is playing a stronger role in the decision when to apply fertilizer. Many growers are opting to leave a larger portion of their acreage unfertilized until springtime, giving them the option to transition a few more acres to crops other than corn.

The spring fertilizer season is likely to be compressed as growers wait to apply tons. As growers' purse strings tighten, they will take a harder look at all expenses in the coming season. Rather than using blanket applications, growers may focus on cutting back expenses to preserve margins, and thus curtail application volumes to be more cost effective. In addition, growers' increasing use of precision agriculture technology and practices will help them better analyze and apply appropriate amounts of inputs in the right locations.

Nevertheless, the curtailment of fertilizer applications in the fall may lead to some logistical glitches in the spring, especially if the planting season ends up requiring more tons to be applied within a smaller window. The nation's grain transportation network has been strained with weather challenges and robust grain exports this fall. However, barring major weather mishaps, many of these logistical issues should be alleviated in time for the spring planting season.

Fertilizer prices have been trending downward since last spring; and for many forms of fertilizer, ample global fertilizer supplies are likely to keep large price swings at bay barring any logistical concerns during the spring

“*Falling fertilizer prices have impelled growers to postpone their fertilizer purchases.*”

application season. Yield improvements are expected to outweigh falling commodity prices, allowing growers to recognize another record in net farm income; however, cash receipts for crops are expected to edge lower. Fertilizer prices in relationship to corn appear to be falling into alignment with ten-year averages, and growers will likely have the incentive and financial wherewithal to apply desired amounts of inputs, albeit at a more conservative level as commodity prices drop and the margins tighten in the coming season.

Fertilizer prices are expected to firm leading into the spring application season, with the potential to trend slightly lower after crops are planted. In the past, prices of fertilizer and other inputs have been highly correlated with grain prices. In the next year or two, grain prices will continue to be volatile, but the degree of volatility should subside as grain stocks increase and provide greater cushions against price swings. And in that event, the prices of fertilizer and other manufactured inputs should perform similarly.

Other Crop Inputs

Total operating expenditures less outlays for operator dwellings are estimated to have increased 3.6 percent in 2013. Seed expenses accounted for 7.8 percent of total operating expenses less outlays for operator dwellings; fertilizer and lime, for 9.8 percent; fuel and oil, for 5.7 percent; and pesticides, for 5 percent. The combined seed, fuel, fertilizer and pesticide expenses accounted for 28.5 percent of total operating expenses less outlays for operator dwellings. Heading into 2014, seed and pesticide prices are expected to increase while fertilizer prices will run lower than year-ago levels.

Seed prices are estimated to have increased 5.3 percent in 2013. Popularity and breadth of seed treatments may

also have an impact on seed expenses as this industry is widely expected to double in size by 2018. Having the right volumes and varieties of seeds available is a challenge each season as the weather and growing conditions will influence which specific products will be in highest demand. Seed prices are expected to increase by 3-5 percent in 2014.

Total seed expenses in 2013 are now estimated to have ended up 4.2 percent above year ago levels. Planting in 2014 will likely have an impact on U.S. total seed expenditures as growers are likely to plant fewer corn acres. However, continued advancement in seed technology and the likely shift from corn to soybean acres will likely keep seed expenses on an upward trajectory.

Commodity prices influence the farmer's willingness to purchase and apply the appropriate amounts of insecticides and herbicides to reach optimum yield targets. Prices paid for herbicides increased 2.2 percent in 2013 while prices for insecticides rose 5.1 percent. Next year, pesticide prices are expected to edge up no more than 1 percent while pesticide expenses are likely to be flat to down slightly, as more acres are shifted away from corn and other crops require fewer applications of fungicide and insecticides.

Fuel and oil expenses are expected to decline 2.3 percent YoY to \$15.35 billion in 2013. Off-road diesel is the main fuel for field equipment, and crude oil accounts for about two-thirds of the price of diesel fuel. The U.S. Energy Information Administration (EIA) is projecting that the average price of on-highway diesel fuel will decline about 4 percent YoY in 2014 to \$3.77 a gallon. Fuel and oil expenses comprise 5.7 percent of total operating expense excluding operator dwellings in 2013.

Rural Infrastructure

These are trying times for the rural infrastructure industries. Rural communications providers, power and energy utilities, and rural water providers are all caught in whirlwinds of rapid technological change, regulatory upheaval, weakening government financial support, and fierce competition. To survive and even thrive in this environment, companies must become innovative and

proactive in re-evaluating their strategies, investment priorities, and business models.

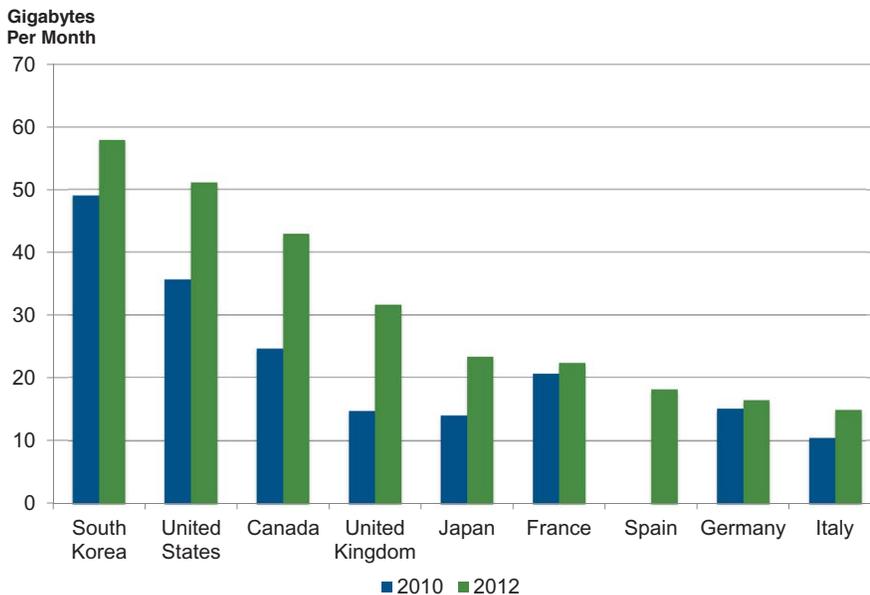
Communications Industry

Consumer and enterprise demand and technological innovation are driving the communications industry toward an all-IP network. Industry analysts continue to report that the sky is the limit when it comes to all things broadband. Annual reports and surveys across the board are again predicting extraordinary growth in broadband subscribership, Internet traffic, smart device purchases and every other category related to the adoption and use of broadband in the coming years.

The latest statistics confirm that the U.S. is now a broadband nation. Wireline telephone subscribership has plummeted over the last decade by roughly 10 percent each year. By year-end 2013, analysts estimate that at least 75 percent of U.S. telephone subscribers will rely exclusively upon VoIP or wireless connections for voice service. Legacy switched traffic amounts to less than 1 percent of IP traffic today. As of May 2013, 70 percent of American adults over the age of 18 subscribed to a high-speed broadband service and another 10 percent subscribed to a wireless broadband service. With enterprise broadband usage included, Americans generate more than 30 percent of the world's Internet traffic with less than 5 percent of the globe's population. (See *Figure 10*.)

Competition is fierce in the all-IP world as broadband subscribers search for a single fast, reliable connection to meet their needs, and convergence has erased most of the distinctions between local exchange carriers (LECs), cable/satellite companies, and wireless carriers. Fewer than 25 percent of Americans subscribe to both a wired and wireless broadband service. J.D. Power's most recent survey found that customer satisfaction and loyalty both increase as customers upgrade their Internet service. The race to capture satisfied, loyal customers has prompted numerous providers to announce plans to deploy fiber to make one-gig service a reality for select cities across the nation. Several of the major wireless players now offer broadband routers to capture the broadband market utilizing the 4G LTE network.

Figure 10. IP Traffic per Internet User



Source: U.S. Telecom

The winners will likely be those providers that deliver a speedy, dependable connection with the right mix of complementary services.

■ Cloud Services – Top Opportunity

Data usage trends point to specific opportunities that many communications providers are carefully evaluating. Cloud services stand out as the most viable opportunity due to the diversity of service options (including software-as-a-service, infrastructure-as-a-service, and platform-as-a-service) and the astounding growth in the cloud services market. Gartner estimates that global spending on cloud services will reach \$131 billion in 2013, with North America representing one of the largest shares of regional spending. According to CenturyLink's data center business, Savvis, nearly 90 percent of enterprises use some type of cloud service, yet only 5 percent of companies outsource the majority of their IT needs to the cloud. In the last 18 months, large companies nearly doubled their use of cloud storage. Consumer spending on cloud services is also increasing, though it accounts for a much smaller portion of total expenditures.

Though data center operators are the original cloud providers, every sector of the communications industry,

including fiber transport companies, now offers cloud-based services. Scalability and third-party vendor partnerships enable even the smallest providers to enter into the market. While competition is intense due to the large number of players, companies offering a new, innovative or niche product have found great success. Data security remains the paramount challenge for providers, and a demonstrated track record of reliability and security can give a cloud provider an advantage in the marketplace.

■ Trends to Watch

Content from Netflix and YouTube now account for more than half of the data downloaded in North

America. Over-the-top (OTT) entertainment will continue to put increasing pressure on the pay-TV model. Companies with a traditional video product are looking to robust on-demand features as well as TV-anywhere applications to combat OTT competition, but on-demand content has been only marginally successful in holding OTT at bay. However, TV-anywhere platforms that boast live streaming television content on mobile devices, as has been recently announced by several large video providers, are likely to better insulate these players from non-traditional content providers. Looking ahead, broadband providers may also find Internet-based content companies, like Netflix, willing to pay a premium to ensure that their content receives high-priority transmission.

Now that smart TVs, refrigerators and other home appliances are a mainstream reality, consumers are becoming more interested in home automation services. AT&T and Verizon have both recently expanded their home automation services to new markets. A recent survey found that 26 percent of broadband households in America intended to purchase a smart thermostat by year-end 2013, and 21 percent planned to buy smart door locks. For providers, home automation products not only help retain customers, but open up a new service

opportunity, as nearly one third of those installing these new smart features will run into some sort of technical glitch during installation. Offering service and support for smart products and other tech equipment increases revenues and establishes the provider as the customer's technology company of choice.

■ *New Leadership in Washington*

The Federal Communications Commission (FCC) gained a new Chairman and a fifth Commissioner in early November. The new Chairman, Tom Wheeler, quickly established an aggressive agenda and stressed his preference to set policy via industry consent as opposed to dictated regulation. He intends to increase competition in the communications arena, streamline procedures within the Commission, and ensure that policy decisions are based upon factual evidence. And in a major win for the rural LEC industry, Chairman Wheeler directed FCC staff to prepare an order that eliminates the use of Quantile Regression Analysis to determine federal funding levels for rate of return carriers serving high-cost areas, as it fails to provide predictable support. If the Chairman is able to retain this no-nonsense, even-handed approach, the FCC's policies in the coming years are likely to provide small and rural players with the fair, predictable regulations necessary to make well-informed long-term business decisions.

In the meantime, long-term federal support for price cap LECs is slowly becoming solidified, though critics point out that funds were awarded based on flawed data and are currently in dispute. New support mechanisms for rate of return carriers have yet to be established, leaving the nation's smallest and most remote operators in limbo. This lack of regulatory clarity has stymied investment in the network. The latest Telergee Alliance Annual Benchmark study reveals that small telcos across the nation spent 19.5 percent on capital expenditures as a percentage of operating revenue in 2012, a number that has been steadily decreasing since 2009. Analysts and industry stakeholders alike warn that network investment and innovation will continue to suffer until rules that offer clear and predictable support for an IP network are established.

The Commission has provided some relief for rural players by way of other new policies. Rural carriers are hopeful that new procedural and data record requirements will put an end to rural call completion problems. Enforcement will be the key to ensuring the success of the new rules. The FCC demonstrated its willingness to enforce rules when it levied \$44 million in fines for Lifeline program guideline violations, which bodes well for the end of rural call completion issues. And Chairman Wheeler's call to allow consumers to unlock wireless devices and end handset exclusivity is a major boon to smaller wireless carriers.

Looking ahead, here are several important regulatory and legislative actions to watch in 2014:

- The U.S. Circuit Court of Appeals' decision on the legality of the USF/ICC Transformation Order.
- The FCC's actions on USF and ICC reform, rulings on merger and acquisition activity among the larger industry players, and spectrum auction procedures.
- Congressional bills that promote wireless spectrum allocation and consumer choice in video services.
- The House Energy and Commerce Committee's progress on revising the Communications Act of 1934.

■ *Ecosystem of Change Here to Stay*

Competition in the industry is expected to further intensify in the coming year as new non-facility based companies enter the market with traditional communications and cloud service offerings. Strategic M&A activity will continue in all sectors of the market, with companies divesting non-core assets and picking up assets that provide new revenue opportunities. The next wholesale M&A boom will likely be the consolidation of the cloud service market. Flagship players will soon begin to snap up mid-tier and small cloud companies to bolster and diversify existing businesses and remove competition. After several years, the cloud service provider market will resemble the rest of the sectors in the communications market, with 3-5 top tier players, a handful of mid-market companies, and a number of small niche providers.

The communications companies that are thriving today, and will continue to be successful, are those with a focus on innovation. PwC’s recent study of technology, media and communications companies revealed that those with a coherent innovation strategy that allows for radical and diverse changes enjoy higher revenue growth and a distinct competitive advantage. These companies know that the communications services of tomorrow will be different than those of today, and a nimble organization that can respond to changing demands will solidify its future.

Power and Energy

The U.S. is in the throes of an energy revolution. The confluence of relatively flat power demand, cheap natural gas, regulations designed to slash air pollution, and advances in technology is leading utilities to re-evaluate their strategies, investment priorities and even business models. Recent events highlight the transformative environment that is sweeping across the power and energy sector.

Electricity sales through Q4-2013 posted very little YoY growth, a trend that is likely to persist through 2014. A significant driver of reduced electricity consumption is increased penetration of energy efficiency (EE). Recent industry studies suggest that EE saved 2 percent, or 200,000 MW, of peak demand in 2013 and that the savings are likely to grow to 500,000 MW by 2020. Going forward, continuing advances in EE technology, federal and state initiatives, falling, EE equipment prices, and easy implementation all point toward a steady increase in EE. Energy efficiency penetration has the greatest potential in states with relatively high per capita electricity consumption and residential electricity prices – namely, Texas, Florida, Georgia, Arizona, Maryland and Delaware.

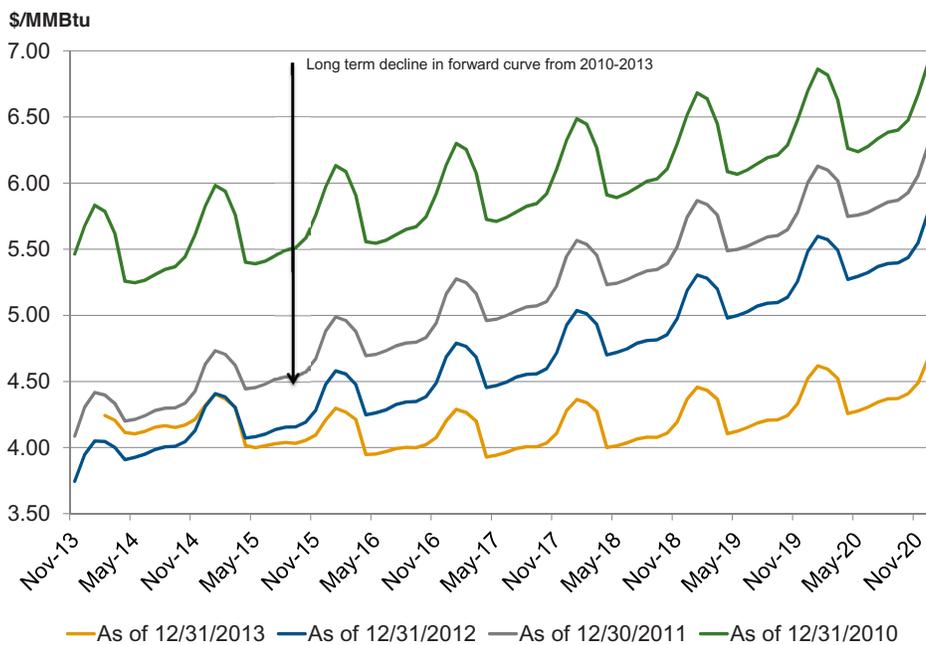
Steadily mounting increases in natural gas production from the nation’s shale reserves have maintained downward pressure on the futures curve for Henry Hub gas over the past two years. (See Figure 11.) Constant downward revisions of the natural gas futures curve have far-reaching implications for electricity prices, the economics of

coal-fired generation, and the competitiveness of renewable technologies over the long run.

Natural gas prices have exhibited a steady upward trend since last year. They are expected to rise 2.4 percent in 2014 to an annual average of \$3.78 per million British thermal units (MMBtu). In response to the higher gas prices, analysts at the EIA expect U.S. residential electricity prices to rise to 11.9 cents per kilowatt-hour (kWh) during the winter, which is 2.1 percent higher than in the winter of 2012-13.

Higher gas prices have been a boon for coal generation. In 2013, the power sector responded to natural gas price signals by increasing coal generation by 6 percent and reducing gas generation by 13

Figure 11. Henry Hub Natural Gas Forward Curve



Sources: CME Group, CoBank

percent YoY. As natural gas prices rise through 2014, albeit at a slower rate since 2012, this trend will continue, with coal generation growing by 1.9 percent and natural gas generation falling by 0.8 percent.

Despite the recent uptick in coal-fired generation, market fundamentals and environmental pressures will continue to weigh against the coal sector over the long-haul. Since October, several high profile coal plant retirements, have been announced totaling approximately 5 GW of capacity, with owners citing low electricity prices and high costs to meet impending environmental regulations.

The Environmental Protection Agency's (EPA) Mercury and Air Toxics Standards (MATS) remain the primary regulatory driver of coal plant retirements through 2016. Besides MATS, several other rules that have contributed to uncertainty for coal fleets will likely be finalized in 2014 or receive more clarity following court decisions. For example, oral arguments for the lawsuit pitting the EPA against EME Homer City et al. began on December 10, 2013. This case will address the fate of the Cross-State Air Pollution Rule (CSPAR). In addition, the EPA has several other rules pending for 2014:

- Policy for greenhouse gas emissions for existing power plants,
- Section 316(b), also known as the cooling water intake structures rule, which will tighten standards on cooling structures to minimize the impact of water withdrawals and discharges,
- New wastewater effluent guidelines regulating the disposal of potentially toxic wastewater,
- New coal ash handling rules.

Natural gas and renewable energy capacity continues to increase steadily as utilities and independent power merchants respond to the long-term shifts in the coal sector. According to SNL, natural gas-fired generation capacity easily surpassed coal-fired capacity among U.S. power plant M&A deals announced during the first six months of 2013. This trend will persist through 2014 as revenues remain strained and generators look to diversify their portfolios to comply with environmental

“*Despite the recent uptick in coal-fired generation, market fundamentals and environmental pressures will continue to weigh against the coal sector over the long-haul.*”

regulations. With higher reserve margins (reduced peak demand) comes lower returns on capacity, and lower returns coupled with a weak price environment are encouraging utilities and merchant power providers to buy existing plants as opposed to building new ones. Market participants have also become more comfortable with the long-term price projections for natural gas as compared to a year ago, allowing buyers and sellers to agree upon valuations for gas-fired generation.

Increased renewable energy capacity is also helping power providers diversify their generation mix and meet Renewable Portfolio Standards (RPS). Wind capacity increased by 2.2 percent to about 61 GW in 2013 and will likely total more than 66 GW at year-end 2014, contributing over 4 percent of total electricity generation. Growth in wind capacity through 2014 will be driven by the 4,468 MW of projects that recently broke ground in order to take advantage of the wind Production Tax Credit that is scheduled to expire on December 31, 2013.

The solar sector has not had to manage the same high degree of policy uncertainty as the wind sector, given that the solar Production Tax Credit was extended through 2016. This extension has promoted innovation and increased the flow of capital into the sector, all of which has led to drastic reductions in the installed cost of solar. The national average blended price (which includes residential, non-residential, and utility systems) for a system dropped over 16 percent to \$3.00 per watt in 2013 from a year ago. The U.S. is on track to install 4.3 GW of new photovoltaic (PV) solar in 2013, up 27 percent from 2012. The utility solar market has seen

strong growth through the fourth quarter, installing more than 1 GW of capacity, the first time a single market has exceeded that mark in a quarter.

The residential solar market continues to see the most rapid growth of any segment in the U.S. solar market. Residential PV installation, i.e., distributed generation (DG), is likely to increase 52 percent YoY through Q4-2013. Although it accounts for only a tiny portion of the nation's current overall electricity capacity, DG is poised for rapid growth over the next few years supported by favorable federal and state policies, especially those involving net metering.

Natural gas prices, driven by the market dynamics of supply and demand, are the throttle for this complex system known as the nation's power and energy sector. Natural gas supplies from vast shale reserves have kept pace with demand, keeping prices competitive. The retirement of coal-fired generation through 2014 and beyond will boost natural gas prices, which will translate into higher electricity rates. Despite modest gains in electricity prices, utilities and power merchants will likely be faced with flat demand compounded by increased energy efficiency and growth in distributed generation. To be competitive, generators will have to look for ways to incorporate EE and DG into their business mix. According to Fitch Ratings, those with a retail arm should be better positioned to exploit emerging trends.

Water

Going forward, households and businesses will likely continue to reduce their usage of water and wastewater services during 2014, forcing utilities to find new ways to improve their financial metrics. Operating expenses across all water and wastewater utilities have been slashed to match reduced revenue. According to Fitch Ratings, continued stagnation in water and wastewater revenues could limit improvements in debt service coverage and surplus cash flows available for capital renewal purposes. For the sixth consecutive year, water and wastewater systems posted rate increases in 2013 well above the pace of inflation. The consensus among analysts and the rating agencies is that municipalities will continue to face a stressed fiscal environment during 2014.

To offset the utilities' flat to declining sales, rate-setting authorities have been more accommodating in approving their requests for rate-hikes. According to Global Water Intelligence's (GWI) annual U.S. tariff survey, water and wastewater rates posted average increases of 5 percent and 5.4 percent, respectively, during the 12 months ended in July 2013. However, the municipalities' capital investments in water and wastewater infrastructure have lagged behind the rate increases, suggesting that they are raising rates in anticipation of future construction or to account for declining sales.

With the economy slowly improving, the majority of capital spending during 2014 will likely continue to be driven by aging infrastructure and the consent decrees filed by the EPA against cities for inadequate sewers. Improvements to pipeline networks will likely capture the lion's share of capital outlays in 2014. Other improvements such as upgrading or replacing drinking water treatment facilities, for example, are relatively cost effective and are required only when new regulatory standards come into play.

The regulatory environment, which affects all aspects of utilities' operations, is expected to remain relatively stable through 2014. The EPA is likely to issue a national drinking water regulation for perchlorate. However, perchlorate regulations have been well vetted by water industry stakeholders and will not come as a surprise to the utilities. As the regulation is finalized, additional details of the technologies as well as the capital outlays required to meet the standards will come into focus.

Wastewater providers will continue to face the most regulatory pressure as the EPA pushes states to implement enhanced phosphorous and nitrogen criteria. With wastewater discharge permits renewing on a 5-year cycle, the stricter requirements will potentially be placed on permits being renewed in 2014 and beyond.

Analysts and major rating agencies foresee no relief during 2014 in the fiscal stress currently facing municipalities. The combination of distressed municipal coffers, the EPA's consent decrees, and the improved state laws regarding public-private partnerships (PPPs) suggests that private capital will likely play a greater role in financing water and wastewater infrastructure

improvements going forward. A nascent opportunity exists in the municipal water sector for private equity; there are productivity gains to be had and investment returns to be made, even in a zero growth environment. This is because all the cheap money that has been pumped into the economy has largely missed the

municipal water and wastewater sector, according to GWI's Christopher Gasson. "Whereas the rest of the economy is arguably suffering from overinvestment, the water utilities sector continues to suffer from the reverse: chronic underinvestment." ■

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries. We also want to recognize the contributions of two outside groups: analysts at Blimling and Associates prepared the overview of the dairy industry, and analysts at Plus One Strategic Communications LLC prepared the overview of the communications industry.

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