THE YEAR AHEAD:

Forces That Will Shape the U.S. Rural Economy in 2019

January 2019

CoBANK KNOWLEDGE EXCHANGE

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JANUARY 2019

To Our Customers and Business Partners

IT'S AMAZING THE DIFFERENCE A YEAR CAN MAKE. At the beginning of 2018, there was a palpable sense of optimism about the direction of the U.S. economy. With growth accelerating, unemployment low, inflation under control and asset valuations near all-time highs, Americans had reason to be hopeful about the health of the economy and their collective prospects for the year ahead.

Today, as we begin 2019, the economic mood of the country is warier. By most key measures the U.S. economy is still performing quite well. But consumers, investors, companies and other market participants have become more anxious about the near-term future – seemingly with good reason.

Consider the following:

- **The current U.S. economic expansion, which dates to July 2009, is now the second-longest in modern history.** It will become the longest on record later this year. Like all business cycles, this one will eventually end, and many observers worry that that a recession is likely at some point in the next 12-24 months. Unfortunately, U.S. policymakers will likely have limited room to maneuver with either fiscal or monetary stimulus once a recession occurs.

- **Policy uncertainty, particularly around international trade, is exerting downward pressure on growth.** That's especially true for export-dependent industries like agriculture, which have been severely harmed by continuing trade disputes between the U.S. and China and many of our other key trading partners. The

By most key measures the U.S. economy is still performing quite well. But consumers, investors, companies and other market participants have become more anxious about the near-term future.

prolonged federal government shutdown and the return to divided government are also exacerbating fears that Washington is not up to the task of managing the economy.

- **Overall debt levels remain very high in both the public and private sectors of the economy.** In a rising interest rate environment, debt and the cost of debt service become more of a constraining factor for households, businesses and all levels of government.
- **Equity market volatility has undermined confidence.** U.S. stocks suffered their worst overall performance in 2018 since the end of the financial crisis. A growing number of investors believe we may have reached so-called "peak earnings" for the current cycle, which if true means less upside potential for equities going forward.
- **Geopolitical risk abounds in a globalized economy.** The prospect of economic disruption stemming from beyond U.S. shores is always with us, but that risk is elevated today now that a majority of global growth comes from outside the United States and the world's other advanced economies.

For the rural industries financed by CoBank, these challenges combine to create a softening operating environment at the outset of 2019. That is the overarching theme of the attached report, which explores in detail the various forces that will shape the U.S. rural economy in the year ahead. Prepared by economists and analysts in our Knowledge Exchange Division, it provides a holistic look at rural America from a variety of global, national and industry-specific vantage points. We hope you find the report valuable as you navigate the market and position your own organization for continued success.

At CoBank, our goal is always the same – to provide value to you and your business and to serve as your dependable financial partner. We deeply appreciate the relationship we have with you, and we look forward to serving you in the year ahead.

With warmest regards,

Tom Halverson

Tom Halverson
President and Chief Executive Officer

THE GLOBAL ECONOMY:

Trade-Induced Slowdown to Hit U.S. Shores

By Dan Kowalski and Terry Barr

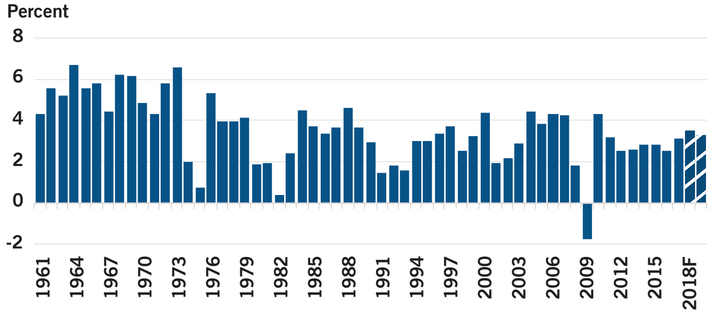
THE GLOBAL ECONOMY IS SLOWING and the effects will spread to U.S. shores in 2019. World economic output hit an eight-year high in 2018, powered by both advanced economies and emerging markets. *(See Exhibit 1.)* But challenges mounted in late 2018, and risks are decisively weighted to the downside for the coming year.

Trade is the outsized risk, as the world's two largest economies test each other's willingness to accept economic pain. China's cyclical peak was in 2017 and all signs point to continued slowing through 2019. If U.S. tariffs are raised, China's slowing will accelerate. And as goes China, so goes much of the rest of Asia.

Europe's economy also reached a cyclical peak in 2017, and underperformed expectations in 2018. Tumultuous negotiations and uncertainty over Brexit have dragged on the UK, Germany's economy has stalled, Italy is testing the EU's willingness to accept a budget that breaks the Union's fiscal rules, and France must retreat from its economic reforms to quell the recent uprising. All of this is likely to lead to another disappointing year for Europe.

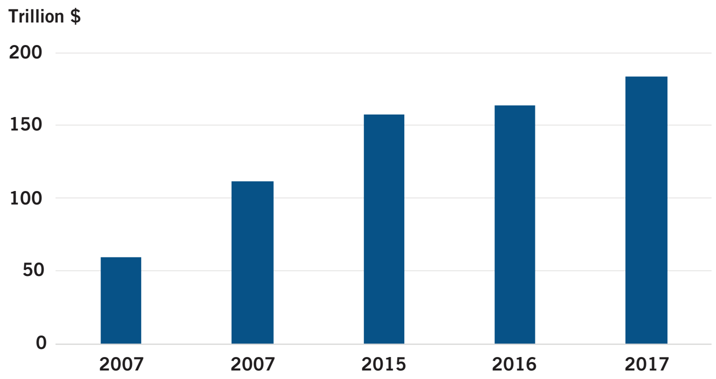
The rising of debt levels is another undercurrent that threatens to derail the global economy. Total global debt (all public and private debt) is now more than three times greater than what it was in 2001. By most measures, 2017 and 2018 were pretty good economic years globally. And yet, total debt grew by 12 percent in 2017, sending borrowing to a new all-time high. *(See Exhibit 2.)* We know that debt continued to expand in 2018, but we won't know by how much for several more months.

EXHIBIT 1: **Global Economic Growth**



Source: World Bank, CoBank

EXHIBIT 2: **Global Gross Debt (public and private)**



Source: IMF, Bloomberg

This debt expansion trend is concerning on a number of levels, including the fact that excess debt will limit fiscal stimulus options if economic conditions turn worse. China has already announced that it will further loosen financial constraints by cutting taxes and easing credit standards. China can sustain such stimulus (at least in the near term), but other emerging economies cannot.

To add to the concern, much of the debt in emerging economies is denominated in dollars and is thus subject to Federal Reserve interest rate movements. Time will tell if the Fed raises rates further in 2019, but debt service has become more costly and is trimming growth. Emerging markets, the engine of growth for much of the past two decades, will have less fuel in the tank in 2019.

All of these factors are likely to have greater influence on the world economy in 2019 than they did in 2018. And the U.S. economy, while comparatively stronger than other advanced economies, will not escape the impacts. Trade policy between the U.S. and China will remain the leading risk to the global economy. Whether or not a deal between the two powers can be brokered will set the economic tone for the remainder of the year. If U.S. tariffs on most Chinese goods rise to 25 percent from 10 percent, the economic picture will darken. If a substantive deal is struck, the global economy could turn the corner. ■

THE U.S. ECONOMY:

Slowing Growth, Accelerating Risk

By Dan Kowalski

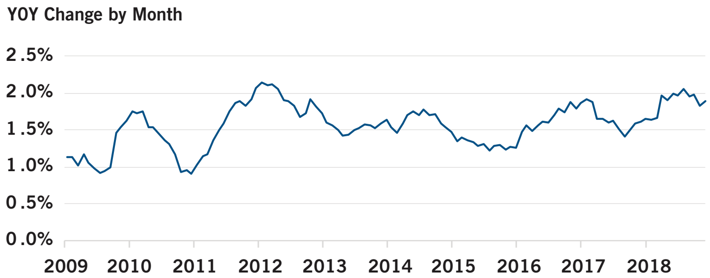
THE U.S. ECONOMIC EXPANSION IS SET TO BECOME the lengthiest in history this summer. But clouds forming on the horizon suggest more modest growth in 2019 and greater concerns for 2020. We expect a delicate balance of consumer strength to offset a slowing housing market and weaker business investment to keep the U.S. economy growing between 1.75 and 2.25 percent in 2019.

The U.S. consumer powered the 2018 economy and the same is likely to be true in 2019. Unemployment is at its lowest since 1969 and consumers are benefitting from lower federal income taxes and consistent real wage gains. (*See Exhibits 3,4.)* Consumers are also using less of their paychecks at the pump. Crude oil prices have fallen dramatically from their 2018 highs and will remain under pressure for much of 2019 due to growing supplies and reduced influence of OPEC.

Housing values increased 5 percent in 2018 and are now 3 percent above the then-record high in 2006. Even if the increase in value is illiquid, home owners tend to loosen spending restrictions when the value of their largest asset has risen. On the flip side, affordability has become a significant issue in the housing sector. This is having an acute impact on renters and is limiting the movement of people from lower value housing markets to higher value markets where better jobs may await. Home price gains are likely to be minimal in 2019 as the market continues to adjust to higher mortgage rates.

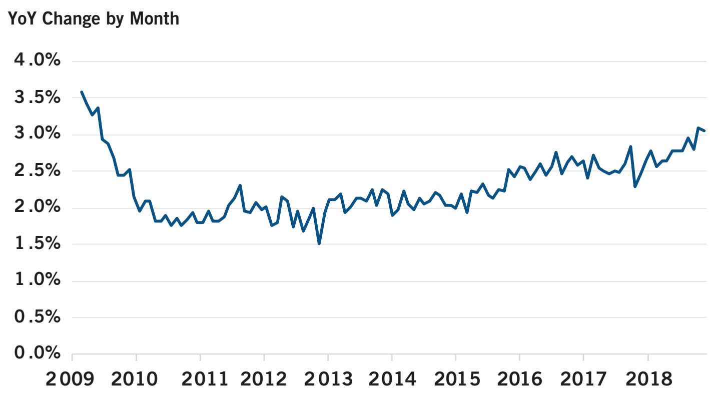
Businesses benefited significantly from lower corporate tax rates in 2018 and turned some of those gains into fixed investments, but to a lesser degree than expected. *(See Exhibit 5.)* As the economy slows in 2019, manufacturing and other capital-intensive industries are likely to invest even less this year.

EXHIBIT 3: **Core Personal Consumption Expenditures**



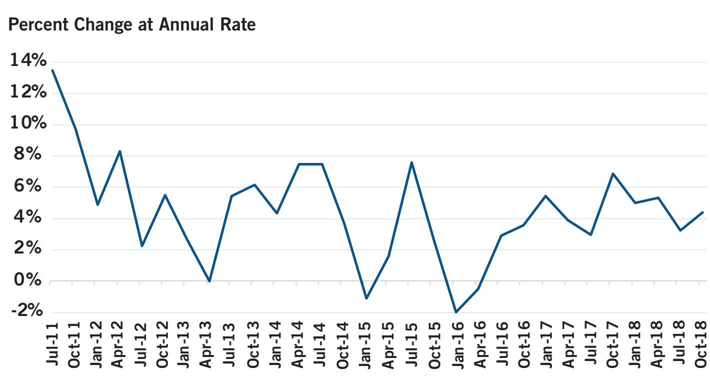
Source: Federal Reserve Bank of St. Louis

EXHIBIT 4: **Average Wages, All Employees**



Source: Federal Reserve Bank of St. Louis

EXHIBIT 5: **Fixed Business Investment**



Source: Federal Reserve Bank of St. Louis

Labor availability became a significant problem for some sectors in 2018, and the challenge of finding talented workers will only increase this year. The impact is likely to be particularly acute in transportation, construction, and animal protein processing. This could slow business activity and will likely push annual wage gains above 3 percent. We expect that fading impacts of the tax cuts, persistent trade disputes, a higher interest rate environment, and business cycle concerns all will dampen business capex. The U.S. business environment will remain attractive, but less robust than last year.

The 2018/19 government shutdown won't help the economy either. The impacts of the shutdown range from lost productivity of the 800,000 federal workers that have been furloughed to the delay of key services depended upon by the private sector. Estimates of the economic impact vary significantly, but one thing is certain: The lengthiness of this shutdown will translate into a greater drag on GDP than shutdowns of the past. We conservatively estimate that each week of the shutdown will reduce Q1 GDP by 0.05 percentage points.

Unresolved trade disputes with Mexico, Canada, Europe and China are the greatest collective threat to the U.S. economy in 2019. Trade represents a much smaller proportion of GDP in the U.S. than in other advanced economies (20 percent vs. 35 percent). But an escalation in trade tensions or prolonged impacts from tariffs and trade uncertainty could lead to a progressive weakening of the U.S. economy as 2019 advances. ■

MONETARY POLICY:

Thinning Margin for Error

By Dan Kowalski

THE FEDERAL OPEN MARKET COMMITTEE (FOMC) will have much more difficult decisions to make in 2019 than it did last year. The fourth rate increase of 2018 in December triggered a wild ride for equity markets and invoked criticism from President Trump. The scrutiny will remain high amidst a slowing of the U.S. and global economies, and the margin for error will grow even thinner.

The world's largest economies were widely expected to grow in concert in 2018; that did not happen. *(See Exhibit 6.)* As a result, the major central banks are now attempting to guide their economies through very different stages of the economic recovery. Japan is still committed to stimulating its economy for the foreseeable future while the European Central Bank has just halted its quantitative easing program and will not raise interest rates until at least Q3 2019. China's economy is slumping and its central bank has stated that it's ready to loosen monetary conditions as needed. Meanwhile, the U.S. Federal Reserve (Fed) has raised rates nine times and is further tightening by meaningfully reducing the size of its balance sheet. *(See Exhibits 7,8.)*

GDP forecasts have been cut over the past month amidst a darkening outlook for the U.S. and Chinese economies. If this slowing materializes, it will become very difficult for the Fed to raise rates this year absent a spike in inflation. Given our expectation for continued weakness in crude oil markets and tepid growth in wages, we project that inflation will remain relatively tame through 2019. Our baseline points to the Fed standing pat on rates through the year, with a less than 25 percent chance that it raises rates one time in the first half of the year.

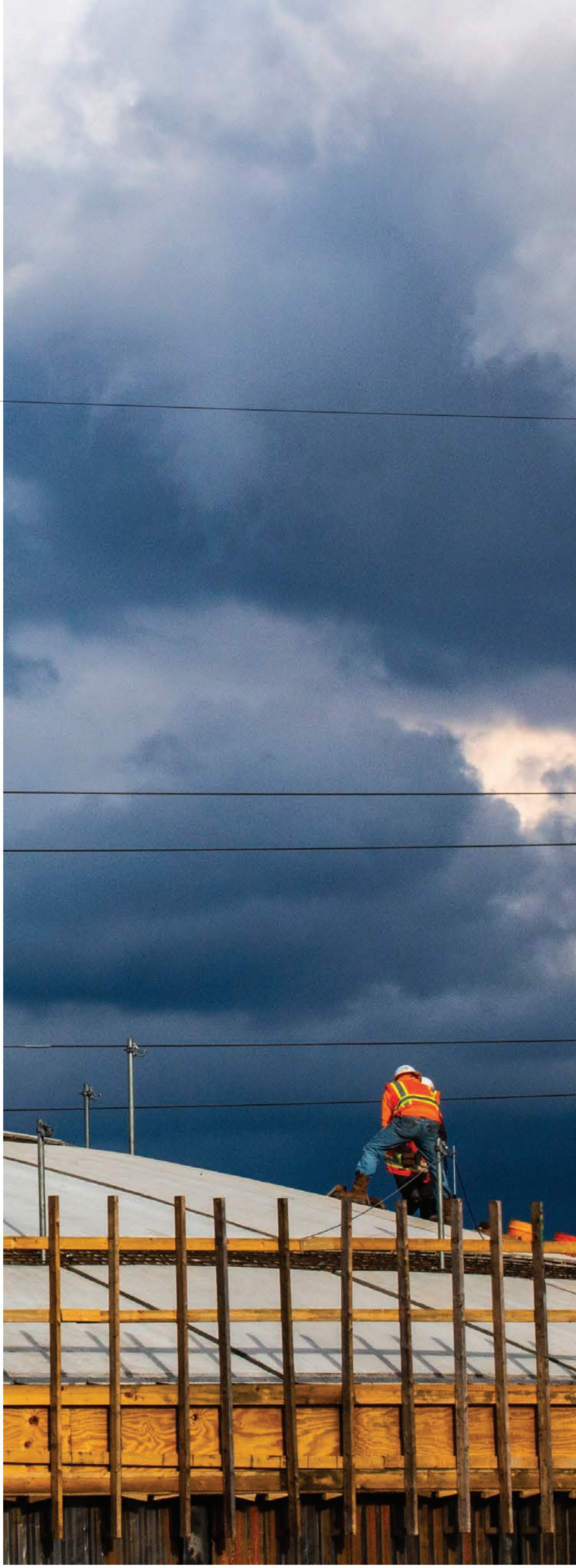
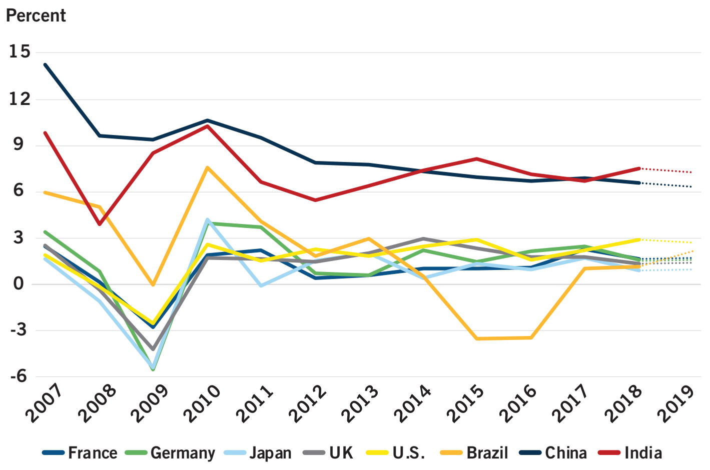
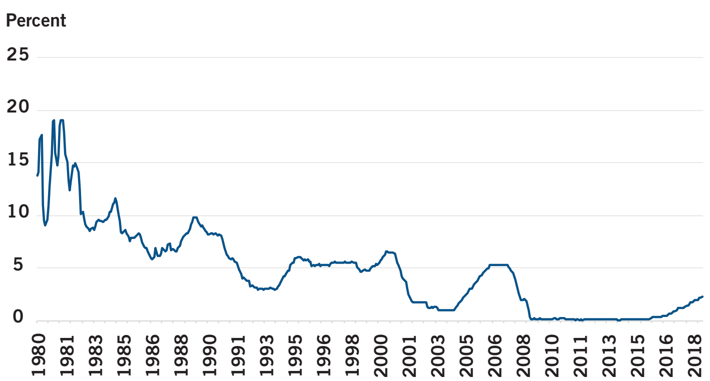


EXHIBIT 6: Real GDP of World's 8 Largest Economies



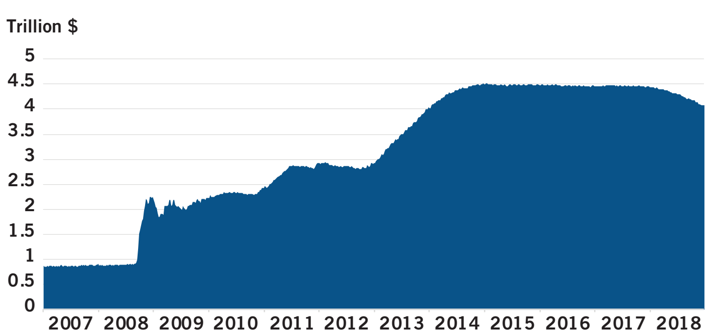
Source: OECD

EXHIBIT 7: Effective Federal Funds Interest Rate



Source: Federal Reserve Bank of St. Louis

EXHIBIT 8: U.S. Federal Reserve Balance Sheet



Source: Federal Reserve Bank of St. Louis

The question of whether the Fed has tightened enough to prepare for the next downturn is now less relevant to the FOMC. Instead, the Fed will be concerned with the risk (real or perceived) that it could tip the U.S. economy into recession this year or next if it continues to raise rates.

This leveling out of monetary policy will slow the momentum behind the U.S. dollar, removing some of the downward pressure on commodity prices. The dollar has been valued well above the historical average in recent years due to two factors: fiscal stimulus and monetary tightening. Both of those factors will play less of a role in 2019. The dollar will not have the fuel to move substantively higher unless the rest of the world slows significantly faster than the U.S.

Two additional factors will weigh on the dollar. The repatriation of cash by U.S. companies that was incentivized by the December 2017 tax rewrite will slow in 2019. Fewer fiscal stimulus options will also raise political interests in a weaker dollar. One counteracting force in a slowing economy could be investor interest in the dollar as a liquid, safe asset in an increasingly risk averse market.

The Fed's words and actions will be amplified in 2019, much more so than they were in 2017 and 2018. The FOMC is no longer locked into a tightening cycle aimed at returning to "neutral" conditions. Instead, we expect the Fed to lean dovish as it attempts to take its foot off the gas and coast safely through 2019. The greatest threat to this approach will be the risk of stagflation – a slowing economy and a resurgence in inflation. Under such circumstances, the Fed may allow inflation to move higher than 2 percent if longer run inflation expectations remain anchored and their economic projections indicate that inflation is likely to normalize back to 2 percent over the intermediate term. ■

U.S. GOVERNMENT:

Split Congress, More Opposition

By Brian Cavey

GAVELED INTO SESSION ON JANUARY 3, 2019, the 116th Congress has a dramatically new look. For the first time in eight years, Congresswoman Nancy Pelosi, Democrat from California, has been re-elected as Speaker of the House. And for the first time in the Trump Administration, control of Congress will be split. The House will be controlled by the Democrats after their pickup of 40 seats, yielding a 235-200 majority that will be very focused on serving as a check to the President. The Senate is slightly more Republican than in the 115th Congress, with a 53-47 margin of control for Majority Leader Mitch McConnell (R-KY). It is safe to say that finding the consensus to move large legislation will be difficult in the next two years, but there are reasons for managed optimism.

One of the final bills out of the 115th Congress reauthorized the Farm Bill. HR 2 passed the Senate (87-13) and the House (369-47) by very large bipartisan margin, reminding us that Congress can still work together when there is strong constituent support and engagement on an issue. The Farm Bill has traditionally engendered strong support from both rural and urban members. After a prior divide among these groups, the final bill restored this unique coalition which may be available to advance other legislation to address needs in rural communities next year. The coming year will be focused on enactment of the Farm Bill, and the intent of Congress as they work though procedure and regulatory matters with USDA.

In terms of leadership, the Senate will remain largely unchanged. Both the Majority and Minority leaders remain. Ag Committee leadership is constant with only Senator Durbin (D-IL) slated to join the panel as Senators Donnelly (D-IN) and Heitkamp (D-ND) leave following their defeats. In the

House, Ag Committee Chair Mike Conaway (R-TX) will hand the gavel to Former Chair-Collin Peterson (D-MN). Peterson is a steady hand with a solid team. He is focused on doing more work through the subcommittees during the Congress and there will be some new chairs on those panels.

With the Farm Bill behind us, oversight hearings can be expected as the Administration commences to implement the bill's changes. As the long-running slump in farm prices continues, a spring hearing on rural economies or farm credit conditions is highly likely. With a new crop of progressives in Congress and the more relaxed pace of the post-farm bill period, not only will hunger issues get more attention, the perceived shortcomings of our hunger safety net, the nutrition programs, is certain to be juxtaposed against the 2018 Farm Bill's expansion of eligibility for farm program payments.

Since the start of President Trump's campaign, infrastructure has been a frequent talking point. This year, with a Democratic House, a Republican Senate and the 2020 Presidential campaign underway, there is a possible pathway to a broad infrastructure bill. The key to that effort will be the revenue to pay for it. As a result, the conversation around the federal budget this spring will be a key indicator as to the likelihood of a bill being drafted. While all sides can agree on the need for infrastructure investment, the challenge is reaching consensus on how to provide the funding.

The Administration's efforts on trade have many in agriculture nervous. The USMCA clock started ticking on November 30, 2018, when the three participating country leaders signed the agreement. Reaching agreement on the implementing legislation will be a test of cooperation in a split Congress. Senate Finance Chair Chuck Grassley will find cooperation with his Ranking Member Ron Wyden of Oregon. In the House, new Ways and Means Chairman Richard Neal will have his hands full balancing his members' concerns over labor and the environment with his need to move a bill enforcing the trade agreement in a timely manner. The agriculture industry will be very focused on the need to get the USMCA completed. Further, it is imperative that we negotiate a resolution to the trade dispute with China and reach successful conclusion to our conversations with Japan, the EU and a post-Brexit UK. There is a tremendous amount of work needed to re-establish these major trade relationships before any further damage is done to U.S. agriculture. ■

U.S. FARM ECONOMY:

Higher Costs and Debt to Hamstring Producers

By Tanner Ehmke

WITH AGRICULTURAL COMMODITY MARKETS DEPRESSED by global supply abundance and ongoing trade disputes, farmers and ranchers face the arduous task of cutting production costs. Continually rising costs in agriculture, though, are expected to squeeze farmers and ranchers, causing further margin erosion and financial stress in 2019.

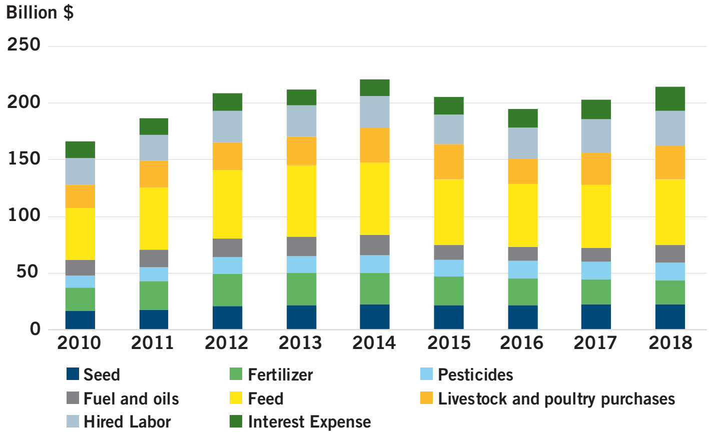
Rising production costs span the agricultural sector. Costs ranging from interest expense to labor and seed will march higher in tandem with growth in the broader U.S. economy. Farm production expenses in 2018 were at the highest level since the peak in 2014. *(See Exhibit 9.)* Further increases in 2019 would put production costs still closer to record levels but with no comparable increase in farm income on the horizon.

Interest expense in particular is quickly eroding margins in agriculture as farmers lean harder on debt to continue farm operations. Surveys of rural banks by the Federal Reserve banks in Chicago, Kansas City and Dallas show fixed interest rates for farm operating loans have kept a steady pace with the rise in the federal funds rate. *(See Exhibit 10.)*

In 2018 alone, interest expense in production agriculture rose 21 percent YoY as higher farm debt levels collided with rising interest rates. Interest rates may level off in the year ahead, but farm debt is projected to rise.

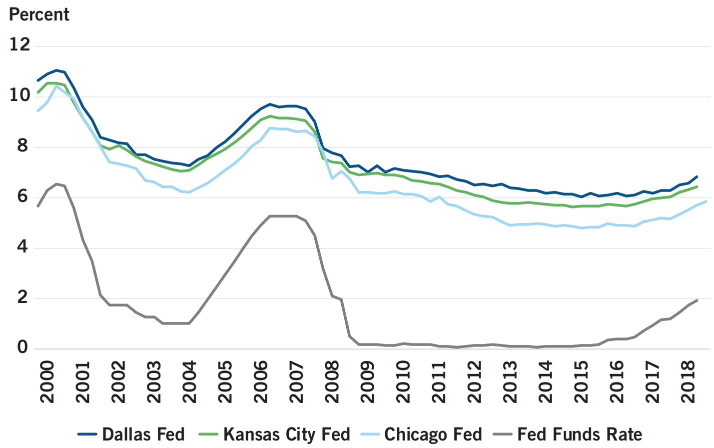
Higher fertilizer and transportation costs could be exacerbated by tightness in the broader labor market, making it more difficult and expensive to staff operations. Farmland cash rents

EXHIBIT 9: Agricultural Production Expenses



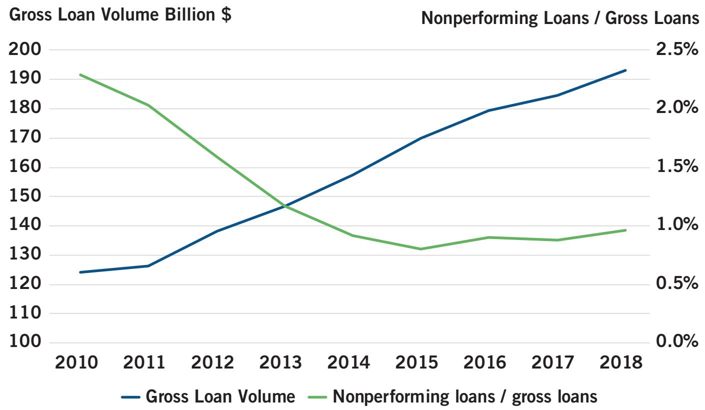
Source: USDA-ERS

EXHIBIT 10: Farm Operating Loan Fixed Interest Rates by Federal Reserve Districts



Source: Federal Reserve Banks of Dallas, Kansas City, Chicago and St. Louis

EXHIBIT 11: Farm Credit System Associations Loans



Source: Farm Credit System Major Financial Indicators, Annual Comparison

have remained resilient despite weakness in farm income, and will likely remain steady in 2019 barring a significant drop in regional land values.

U.S. trade policy has led to higher costs as well. Steel and aluminum tariffs implemented in May 2018 remain in effect, holding capital costs on important farm investments from grain bins to farm machinery at elevated levels. With trade woes showing no clear sign of abating, the continuation of higher steel and aluminum costs will weaken farmers' and ranchers' ability to invest in their operations.

With a less-than-positive outlook for agricultural net farm income, demand for loans in farming households continues to grow. *(See Exhibit 11.)* Rural banks have already reported declining loan repayment rates and are implementing covenants on farm loans, like imposing caps on cash rents, or by raising collateral requirements.

Strong land values remain the positive for farmers and ranchers. Another year of higher interest rates and declining farm incomes, though, will continue to pressure farmland values in regional areas if more farmers sell land to raise capital. For farmers and ranchers who have borrowed against the equity in their land, a drop in local land values would add further financial stress to their balance sheets.

Farmers cannot bank on a fourth consecutive year of above-trend crop yields to make up for low commodity prices and rising costs. To steady the agricultural economy, and boost revenues, the sector is dependent on substantive breakthroughs in trade policy. ■

AG TRADE POLICY:

Seeking Resolution

By Tanner Ehmke and Dan Kowalski

MARKETS LOVE CERTAINTY, and U.S. trade policy has led to the opposite for U.S. agriculture. Ongoing tariffs and trade negotiations continue to hang over the U.S. ag economy with no clear sign of resolution, clouding agriculture's trade outlook for 2019.

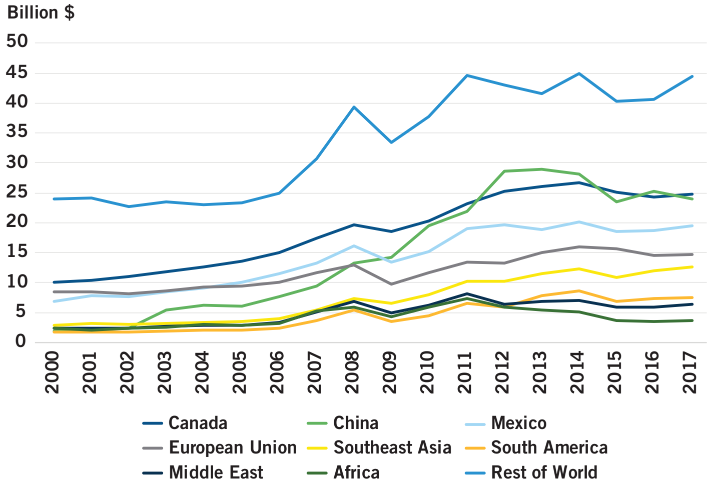
Three significant trade-related issues must be solved this year to restore some normalcy to agricultural markets: legislative approval of USMCA, removal of the steel/aluminum retaliatory tariffs, and substantive improvement of trade relations with China.

Congressional approval of USMCA will be much more challenging under a divided Congress. Democrats will require additional labor and environmental enforcement mechanisms to be included in the bill before they will support its passage. Reaching the finish line will require several administrative steps before Congress will debate the merits of the trade deal, so final approval is unlikely to happen before Q2, or perhaps the second half of the year. However, we do expect the trade deal to pass all three nations' legislative bodies in 2019.

Relief from Mexican and Canadian retaliatory tariffs is more difficult to time. Tariff relief was unexpectedly left out of the USMCA deal, and there has been little word about ongoing discussions from the Trump administration. We expect a deal to be struck in 2019 to lift the retaliatory tariffs, but it may not come until later in the year, and could be finalized upon legislative approval.

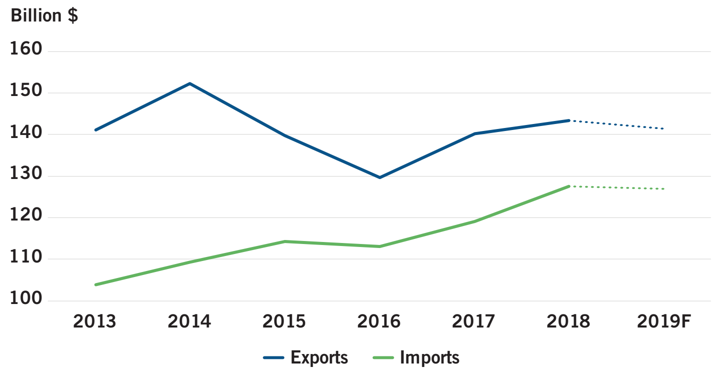
The outcome of the 90-day "cease-fire" with China will be the most pivotal event for U.S. agriculture in 2019. We expect some progress to be made by the March deadline, but a substantive deal that is acceptable to both sides will likely require more time. Critical differences related to issues such as IP rights and forced technology transfer remain, and will be difficult to overcome. However, China has reportedly offered to increase its purchases of U.S. goods significantly, in an attempt to bring bilateral trade into balance. This type of arrangement would have a measurable impact on U.S. agricultural exports. Without this type of deal, exports to China will remain well

EXHIBIT 12: **U.S. Agricultural Production Exports by Destination**



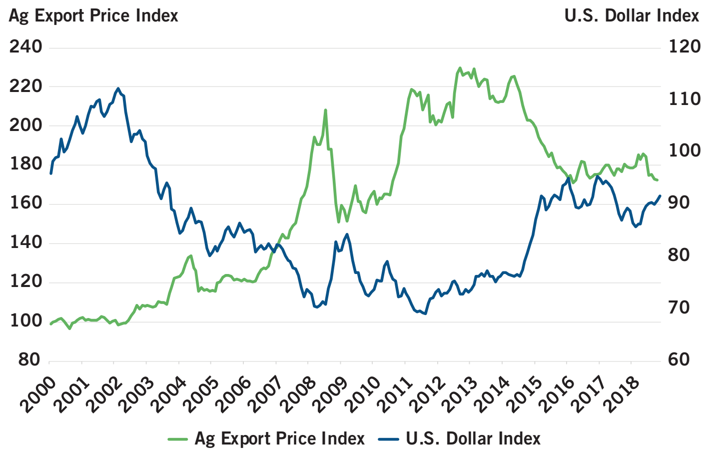
Source: USDA-FAS

EXHIBIT 13: **U.S. Agricultural Trade**



Source: USDA-ERS, Outlook for U.S. Agricultural Trade

EXHIBIT 14: **U.S. Dollar vs. Agricultural Export Prices**



Source: Federal Reserve Bank of St. Louis

below past levels when 2019 comes to a close. The U.S. agricultural sector will aggressively attempt to develop alternative markets in 2019 to prepare for a sustained, smaller share of China's agricultural purchases.

Agriculture Secretary Sonny Perdue has announced plans to build relations outside China with trade missions to Taiwan, Canada, Colombia, Vietnam, Kenya, Mexico, and the U.K. in 2019. Diversifying away from an important and sizable market like China, though, is no small task. In 2017, China was the second-biggest destination for U.S. agriculture exports behind Canada. *(See Exhibit 12.)*

As a result of the trade war, the value of total U.S. agricultural exports in 2019 is expected to fall to $141.5 billion, down $1.9 billion YoY, according to USDA's latest projections. The loss of soybean exports will account for most of the decline. *(See Exhibit 13.)*

U.S. agricultural exporters will also be playing defense in Japan in 2019. At the end of 2018, the CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) trade agreement took effect, reducing tariffs between Japan and several U.S. ag competitors (Canada, Australia, New Zealand, Chile, Vietnam). And on Feb 1, Japan will implement its free trade agreement with the EU, further threatening U.S. ag exports. Japan is the fourth largest export market for U.S. agriculture after Canada, China and Mexico, and the most significant U.S. ag commodities that will be at risk are beef, pork, wheat, corn, rice, and wine. The threat to U.S. market share will grow through 2019 and beyond if the U.S. does not secure a free trade deal with Japan that encompasses agricultural goods.

The lack of certainty in trade policy on a number of fronts, combined with a resilient U.S. dollar, makes for a discouraging export outlook for agriculture in 2019. *(See Exhibit 14.)* Progress in negotiations is likely to be slow, which spells more pain for months to come. Access to key markets will remain limited and downward price adjustments will persist, both hurting margins and opportunities for U.S. agriculture. ■

GRAIN, FARM SUPPLY AND BIOFUELS:

The Rise of Competition

By Will Secor

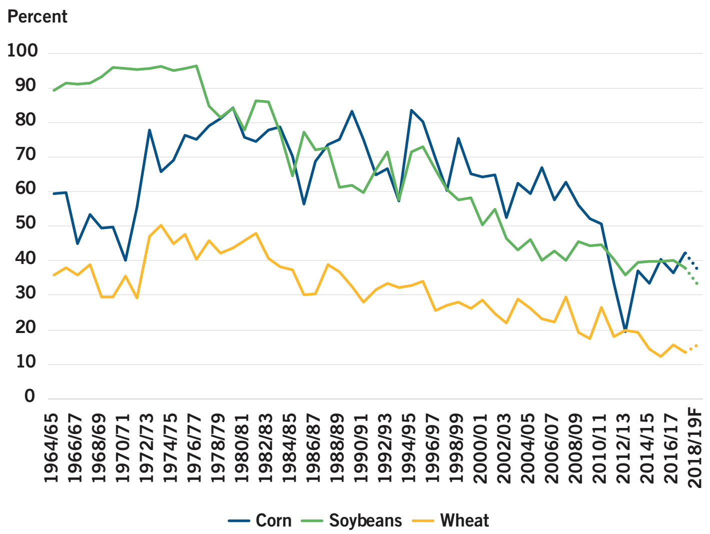
2019 WILL BE A YEAR OF NEW AND INTENSE COMPETITION for the grain, farm supply, and biofuels sectors. These competitive changes will benefit a few while hurting many along the supply chain.

The most salient and impactful competitive pressures will come from outside the U.S. American trade policy and currency swings have incentivized producers in South America and the Black Sea region to expand output. Armed with abundant supplies, merchants in these regions are aggressively attempting to wrestle export market share away from the U.S. Foreign buyers will continue to seek out grain and soybeans from reliable origins that carry the lowest price tag and the least amount of market risk.

Global crop production has been increasing for decades, but abundant U.S. supplies and a protracted trade dispute with China have enhanced foreign opportunities. Brazil's projected record crop, Argentina's production rebound, and continued agricultural expansion in Eastern Europe will further inundate a bloated market. In 2019, U.S. market share will erode for corn and soybeans, and wheat's market share will remain weak. *(See Exhibit 15.)* Recapturing the loss in market share could take years.

These developments will weigh on U.S. prices at least through 2019, creating winners and losers in the industry. Domestic processors are benefiting from lower input prices, but others dependent on exports will again experience disappointing margins in 2019. Elevators will continue to capitalize on the need for more storage, but variable basis appreciation will impact the magnitude and timing of market gains.

EXHIBIT 15: **U.S. Export Share**



Source: USDA-FAS

Trade dynamics will also impact an ethanol industry that is already struggling. Large supplies have caused some producers to cut output amid negative margins. Domestic ethanol demand is expected to be mostly flat in 2019, but low oil prices will cap ethanol prices as well.

Prospects for growth will need to come from export markets. However, China has largely cut off imports from the U.S. due to the trade dispute, and Brazil has dialed back U.S. ethanol purchases. Additionally, Brazil's new president has stated that he wants Brazil to be the global ethanol leader. Erosion of exports to Brazil (the leading export market for U.S. ethanol) and China will crimp margins through the year.

Farmers facing low commodity prices will also likely seek out alternative crops including sorghum, cotton, barley, oats, and even industrial hemp. Segregated crops like high-oleic soybeans, Enogen corn, and non-GMO crops may be on the table to increase revenues or cut costs as farmers compete with the financial realities of the current ag economy.

Competition will also increase in the farm supply sector, squeezing margins. Nutrien is looking to invest $4 billion dollars over the next five years in its retail business, Nutrien Ag Solutions, formerly Crop Production Services (CPS). As the largest ag retailer in the country with a nationwide reach, this investment will certainly increase pressure on competing retailers.

Farmers under financial duress will also assess how they buy inputs, and from whom. E-commerce sites that offer just the product, with no service, will aggressively market themselves as cost-conscious alternatives to full-service agricultural retailers. This environment will enhance price competition between input suppliers that will lower margins for many ag retailers.

Ag retailers will also face price hikes from a more concentrated supplier base. The three mega-mergers have been finalized, and the combined companies will be looking to take advantage of their new-found scale and scope in 2019.[1] The ability of ag retailers to keep input prices low and provide value for their farmer-customers will be key in maintaining adequate margins in the year-ahead. ■

[1] *The recently merged companies include: Bayer/Monsanto, ChemChina/Syngenta and Dow/Dupont.*

DAIRY AND ANIMAL PROTEIN:

Output Grows Again

By Will Sawyer and Ben Laine

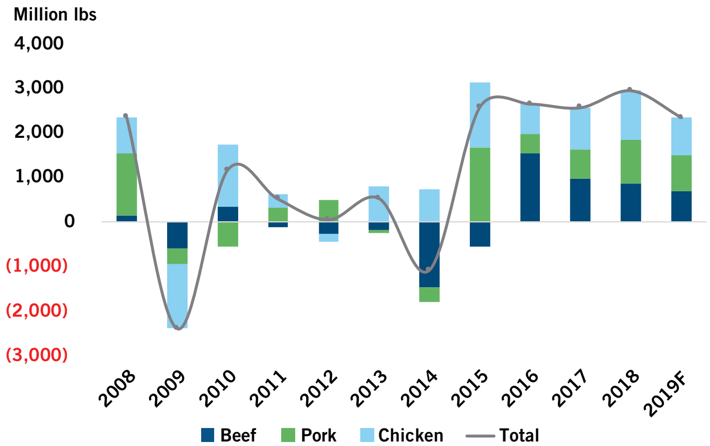
IN 2018, THE U.S. ANIMAL PROTEIN SECTOR began suffering from the same oversupply and weak margins that have plagued U.S. dairy producers since 2015. Despite the less favorable profitability environment, the protein and dairy sectors will continue to expand production in 2019, prolonging the margin squeeze.

Animal protein production has climbed by an average of three percent per annum, but exports have grown at twice that rate, softening the impact. *(See Exhibit 16.)* Export growth will slow in 2019 as competitors begin take advantage of free trade agreements with some of the U.S.'s most important animal protein customers.

Milk production will continue to grow as well, though in the face of low margins that growth will largely be driven by increased milk per cow rather than an increase in the total number of cows in the national dairy herd. *(See Exhibit 17.)* Without adding new cows, the milk production growth will be slower than in years past, ranging between 0.5 and 1 percent YoY compared to a long-term trend above 1.5 percent. This will give demand a chance to catch up, though the greatest opportunities for demand growth will come from abroad and trade barriers will continue to limit milk prices from climbing significantly.

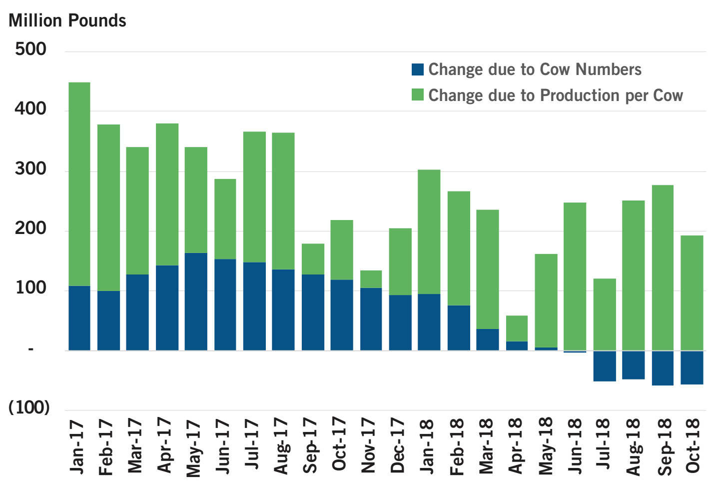
Demand for animal protein and dairy, both domestically and internationally, has been strong since industry growth turned upward in 2015. Per capita meat and poultry consumption has returned to the all-time peak set in 2006 prior to the Great Recession and run-up in grain prices. In 2019, consumption will surely set a new record albeit at lower prices, especially in the pork and poultry sectors. Per capita consumption of dairy

EXHIBIT 16: U.S. Animal Protein Production Growth



Source: LMIC, CoBank Estimates

EXHIBIT 17: Year over Year Change in Milk Production



Source: USDA-NASS, CoBank

should continue its steady trend of growth as well, driven by strong cheese and butter consumption.

Of the three major animal protein species, beef appears to be weathering the animal protein oversupply situation best, with favorable fed cattle prices and historically high packer margins resulting from tight processing capacity. Retail beef demand has held quite strong with beef premiums over pork and poultry at all-time highs of late. Modest beef supply growth in 2019 should keep this trend alive through the year. The most likely risk to beef's favorable position is the risk of a U.S. economic recession in late 2019 or 2020 which would likely bring beef prices back in line with historic averages.

Conversely, the pork and poultry sectors reflect the impact of plant expansions which will deliver double-digit increases in processing capacity for both species by 2020. Most of the new pork plant capacity was added in 2017 and 2018 and poultry will see its significant capacity expansion in 2019. Additional dairy processing capacity in the form of cheese plants will be built during 2019 and begin taking milk in 2020. With labor availability being the major concern for U.S. animal protein and agriculture in general, plants with especially difficult labor conditions will be looked at closely for possible closure. ■

RURAL ELECTRICITY:

Data Analytics Become a Necessity

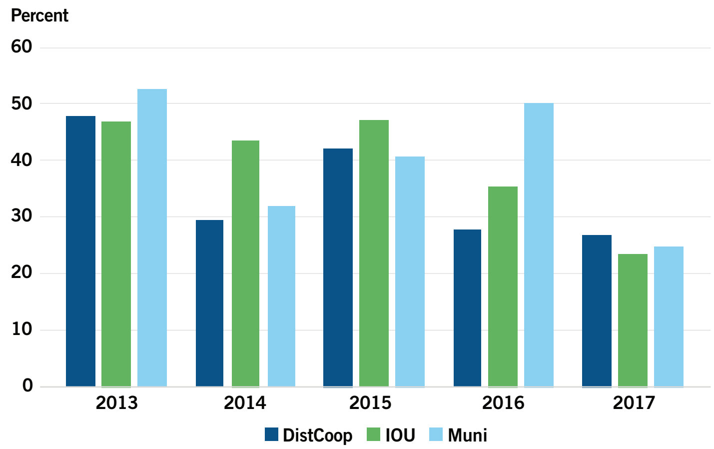
By Taylor Gunn

ONCE AN AFTERTHOUGHT, the impact of distributed generation (DG) is rising to the forefront of strategic discussions at electric co-ops across the country. Electric distribution co-ops reported the highest YoY growth rate for net metered customers across the entire industry in 2017, edging out both investor owned utilities (IOUs) and municipals. (See Exhibit 18.) Data through the first nine months of 2018 suggests co-ops continue to see strong growth in adoption of DG. While the penetration rate of net metered customers across the entire electric co-op industry sector is only 0.25 percent, there has been a three-fold increase since 2013. States with the highest penetration of distributed solar among electric co-ops range from 2.7 - 12.1 percent. *(See Exhibit 18.)* High penetration of DG dismantles the traditional model for rate recovery and forces co-ops to incorporate data analytics into long-term planning.

Embracing data analytics as a tool to improve operations and enhance member engagement will become a growing priority among electric co-ops in 2019. This is driven by advancements in technology and exponential growth in the amount of data available to co-ops. According to the Energy Information Administration (EIA), roughly 85 percent of all distribution co-op customers had either advanced metering infrastructure (AMI) or automatic meter reading (AMR) capabilities in 2017. *(See Exhibit 19.)* Meters are only one source of data; co-ops also have access to SCADA, billing data, and operational data from assets in the field. The challenge is managing this data to improve operations.

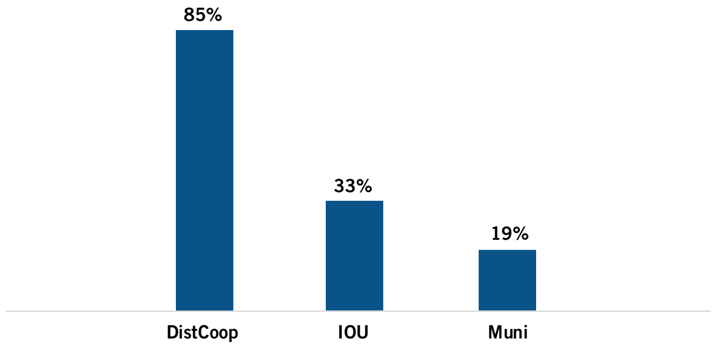
Electric co-ops currently have the capability to disaggregate customer classes by analyzing meter data and design tailored rate structures. Early examples focus on time-of-use rates that

EXHIBIT 18: YoY Growth in Total Net Meter Customers



Source: EIA Form 861

EXHIBIT 19: Share of Customers Served by Smart Meters in 2017



Source: EIA Form 861

incentivize electric vehicle charging when the cost of energy is lowest. A growing number of electric co-ops will implement grid access fees to ensure DG customers pay their fair share of fixed costs. There will also be growing interest for imposing demand charges on residential customers to influence consumption habits as to reduce the overall system peak demand and save money.

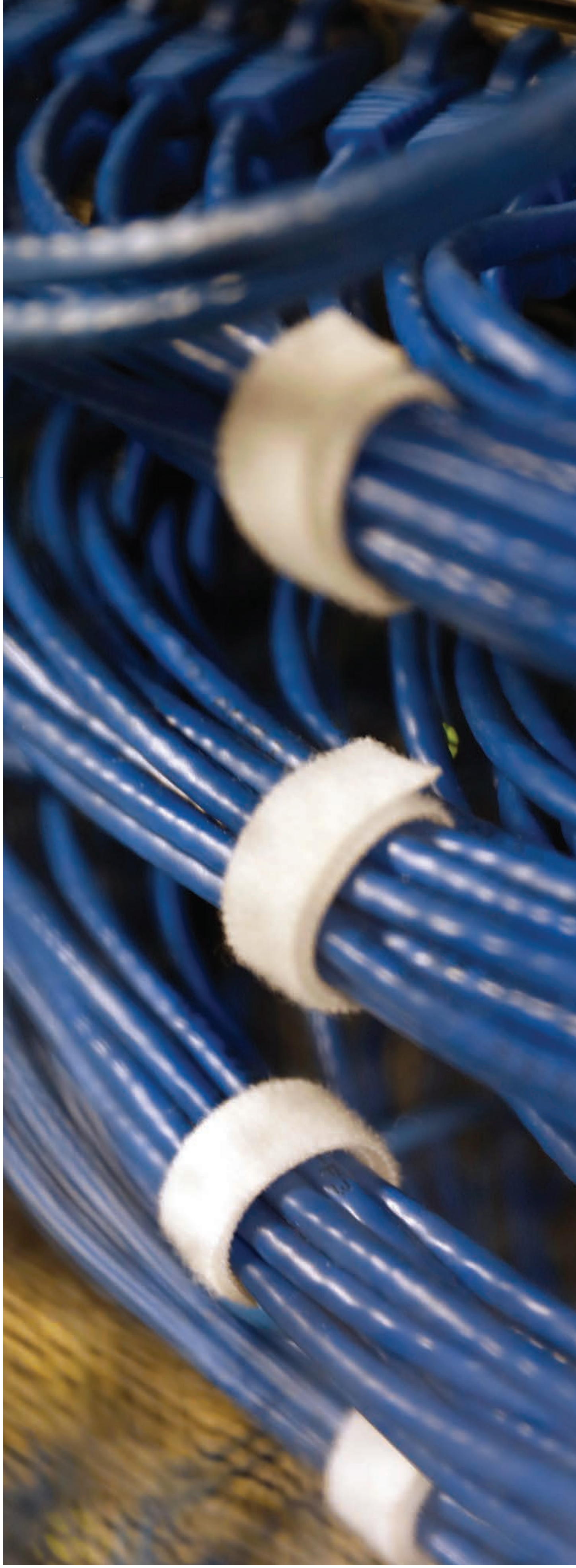
Opportunities for co-ops to unlock value will grow as more smart devices with sensors and remote control capability are connected to the grid. This will accelerate the convergence of electricity and the internet. Robust fiber networks will become increasingly important for secure and efficient communication across a multitude of smart grid devices. Evolution of the smart grid will lead to automated distribution management systems that can proactively reduce peak demand, optimize operations, or detect faults.

2018 will go down as a turning point for the role data analytics will play in transforming the electric co-op industry. Optimization of the grid offers many benefits in cost savings and member relations. However, if co-ops do not harness the power of data to unlock value, third party providers will step in to provide this service. Co-ops cannot afford to delay adopting strategies for a more distributed future that includes automated controls, tailored rate structures, enhanced customer engagement, and sophisticated data analytics. ■

RURAL COMMUNICATIONS:

Electric Distribution Co-ops Gain Appetite for Broadband

By Jeff Johnston



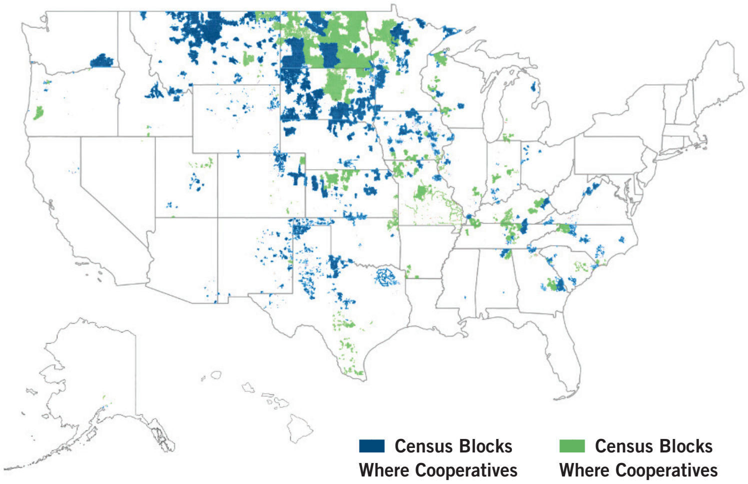
OVER THE LAST FEW YEARS, electric distribution (ED) cooperatives have been building fiber networks, causing some angst in the rural LEC community as they fear this will lead to increased competition. *(See Exhibit 20.)* ED co-ops are in an enviable position to build fiber networks given their cost of capital, rights-of-way, and ability to leverage existing infrastructure. In addition, a number of ED co-ops were awarded CAF-II funding which suggests we could see an acceleration of these builds.

For 2019, rural America should expect to see a continuation of these network builds, but the risk of co-ops overbuilding in rural LEC markets is low. Their primary focus is to build networks in underserved markets for the benefit of their own operations, and their customers.

For ED co-ops, having fiber networks in the communities they serve enables them to more efficiently manage their business and to offer their members value added services. They are beginning to adopt data analytics, artificial intelligence and deep learning which is helping co-ops manage their operations. As a result, some co-ops are seeing line losses in the 2.5 - 3.0 percent range, down from 5.0 percent. Also, with these technologies co-ops are able to, within minutes, proactively identify anomalies in household consumption that could indicate problems with the home network.

We believe that over 90 percent of co-op fiber builds are done in markets where there is no broadband service, or where throughput speeds do not meet the FCC's definition of broadband (25Mbps download and 3Mbps upload). There is

EXHIBIT 20: Where Fiber Internet is Offered by Cooperatives



Source: Institute for Local Self-Reliance

very little evidence to suggest that this will change in 2019 as the co-ops are not interested in disrupting the broadband market.

There also does not appear to be much of an appetite for the co-ops and RLECs to collaborate on building and managing fiber networks. Several years ago this seemed like a logical scenario given the RLECs' experience in sales, marketing and customer service coupled with the co-ops' expertise in building networks. These relationships have yet to materialize in any meaningful way, and it doesn't look like that will change in 2019.

Fiber Valuations – Over the last 12 months, valuations for fiber companies have grown about 30 percent. This is due, in large part, to traditional supply and demand factors. On the demand side, there has been an influx of foreign capital flowing into infrastructure funds from investors who are used to paying a high multiple (e.g., 15-20x) for fiber assets. And on the supply side, there is growing scarcity thanks to demand from enterprise, wireless and data center customers. In 2019, we don't think multiples will compress as demand levels for fiber assets will likely remain strong. And on the supply side, the lead times involved in deploying new fiber networks are such that it's unlikely the industry will be in supply-demand balance anytime soon.

These trends support our bullish thesis on fiber investments. Applications such as 5G, augmented/virtual reality, and edge computing will continue to fuel growth in data traffic. Given this, rural operators should pursue fiber deals if the business case justifies the investment.

Spectrum – As the FCC moves toward its highly anticipated CBRS auction in 2019, service providers will begin deploying the unlicensed portion of the band in early 2019. This spectrum will play a role in helping bridge the digital divide as rural operators will deploy it in fixed and mobile wireless networks. The spectrum has good propagation characteristics, and is much cheaper to use versus licensed spectrum.

As for the licensed portion of the band, the FCC rules could be a roadblock for some WISPs to participate in the auction. The FCC decided to license the spectrum at the county level versus census tracts which are much smaller. This means that some WISPs may be hard-pressed to justify the cost for licensed CBRS spectrum as they could be forced to buy spectrum that they will never use. For rural broadband service, this could manifest itself with smaller coverage footprints and slower data speeds given the risk of interference in the unlicensed portion of the band.

Lastly, this year will see the launch of additional millimeter wave fixed wireless networks. These networks will be limited to urban and suburban markets, however. The spectrum band offers a tremendous amount of capacity, but the signals do not travel very far and are therefore not a great fit for rural networks. ■

Silver Linings

By Dan Kowalski

AS A FINAL NOTE, we would like to acknowledge that our baseline outlook for the macro- and agricultural economies is distinctively dim. The global and U.S. economic prospects are weakening, and the agricultural economy shows few signs of an imminent comeback. There are silver linings, however, and many of them hinge directly on the prospect of favorable trade developments, particularly with China.

We expect that some form of a deal will be struck with China by Q2 2019, but it is still highly uncertain how comprehensive this deal will be, whether all existing tariffs will be lifted, and whether the economic damage done can quickly be reversed. With that caveat, we assign a 50 percent probability to a deal being struck with China in the first half of the year, and a similar probability to most or all tariffs being lifted on U.S. exports during that period.

If this scenario develops, it would brighten our view of the world, the U.S., and agriculture. Our glass-half-full comments follow below:

Trade – We entered 2018 with serious concern about trade disruptions – they materialized. But all is not lost as we begin a new year. USMCA is nearing legislative approval, a new trade deal has been inked with South Korea, and talks with China have improved. The Trump administration understands that the U.S. will not remain immune to a slowing China if it lasts several more months or years. And with the 2020 elections quickly approaching, a deal is becoming increasingly attractive to the leadership of both countries.

It is possible that we could finish 2019 in a much better trade situation than at the start. In such a case, the groundwork would also have been laid for less tenuous, more productive

The rising risks of economic contagion and political consequences may very well cause government leaders to right the ship in 2019, and enable the U.S. and rural America to sail on calmer waters than a year ago.

trade relations for years to come. This would reduce the long-term risk of worsening U.S.-China tensions, which have been building for years.

The U.S. and Global Economies – In 2018, the U.S. experienced the strongest economic growth since 2005. Even if the domestic economy slows as expected through 2019, we will be slowing from a position of strength, not weakness. The labor participation rate has also shown signs of life, meaning discouraged workers are still re-entering the workforce and thus we are not yet at full employment. This recently bumped up the unemployment rate, arresting the trend of long term decline. If workers continue to come off the sidelines, it could give the Fed further reason to hold off on rate increases, which could delay the next recession and would increase the probability of a soft economic landing.

Most importantly, a trade deal with China would stop a key drain on GDP, and improve economic output for China, the U.S. and the world.

Agricultural Economy – Agricultural commodity prices fell to a lower level in 2018 as a result of trade tensions and tariffs. Legislative passage of USMCA and even a moderately favorable trade deal with China that reverses some or all tariffs would likely boost prices to early 2018 levels. Agriculture has suffered the most from the U.S.-China trade dispute and is already benefitting from the thawing of relations. A trade deal would not immediately repair all damage, but it would lift demand in the near term and make it possible for exports to grow rather than stagnate or shrink.

A lifting of tariffs would bring U.S. agriculture out of the penalty box and export market share would bounce for many commodities including soybeans, pork, and specialty crops. Prices would likely rebound to near or slightly above breakeven for many producers, enabling them to renew financing and make it through another year. A bounce in prices would also support farmland prices, an important part of the equation that keeps farmers bankable.

Conclusion – Headwinds do appear to be stiffening for the U.S. and global economies, as well as many of the industries that power rural America. But the rising risks of economic contagion and political consequences may very well cause government leaders to right the ship in 2019, and enable the U.S. and rural America to sail on calmer waters than a year ago. ■

CONTRIBUTORS

KNOWLEDGE EXCHANGE is an innovative knowledge-sharing initiative that is designed to provide strategic insights about trends, structural change, and policy directives within the key rural industries served by CoBank. It draws upon the expertise within CoBank and the rest of the Farm Credit System, the broad perspective of outside consultants and academics, and the first-hand knowledge and experience of our customers to enhance our collective understanding of emerging business opportunities and risks.

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ABOUT COBANK

CoBank is a $128 billion cooperative bank serving vital industries across rural America. The bank provides loans, leases, export financing and other financial services to agribusinesses and rural power, water and communications providers in all 50 states. The bank also provides wholesale loans and other financial services to affiliated Farm Credit associations serving more than 70,000 farmers, ranchers and other rural borrowers in 23 states around the country.

CoBank is a member of the Farm Credit System, a nationwide network of banks and retail lending associations chartered to support the borrowing needs of U.S. agriculture, rural infrastructure and rural communities. Headquartered outside Denver, Colorado, CoBank serves customers from regional banking centers across the U.S. and also maintains an international representative office in Singapore.

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