THE YEAR AHEAD:

Forces that will shape the U.S. rural economy in 2018

JANUARY 2018

COBANK

KNOWLEDGE EXCHANGE

TO OUR CUSTOMERS AND BUSINESS PARTNERS:

AS WE BEGIN 2018, there is a palpable sense of optimism about the current direction of the American economy. U.S. economic growth has exceeded 3 percent for two consecutive quarters. National unemployment remains very low, and monthly job creation continues to be strong. Inflation is well under control, and asset values are at or near all-time highs. Sweeping tax cuts passed by Congress and signed into law by President Donald Trump at the end of 2017 are providing immediate stimulus for the economy, even if the longer-term impacts of that legislation on deficits, interest rates and government spending are less clear.

In rural America, however, economic conditions are considerably more challenging. Persistently low commodity prices have hurt U.S. agricultural producers, depressing farm income and eating into farmers' working capital. There is continuing uncertainty about the direction the Trump administration will take with regard to NAFTA and other international trade agreements that are vitally important to agriculture. Rural utilities face growing pressure to consolidate in the face of high regulatory costs, technological change and the loss of population across many rural areas. Yet another question mark for industries financed by CoBank is the Farm Bill, which comes up for renewal in what promises to be a highly divisive 2018 election season.

> "Our goal is always the same – to provide value to you and your business and to serve as your dependable financial partner."

These and many other issues are explored in the following report, which offers our customers a comprehensive look at the forces that will shape the U.S. rural economy in 2018. 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.

As with our customer meetings, industry research and other knowledge-sharing programs, we hope this report is useful to you as you position your organization for continued success. 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
President & Chief Executive Officer

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A COBANK KNOWLEDGE EXCHANGE REPORT • JANUARY 2018

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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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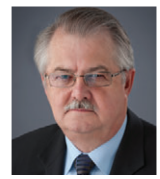

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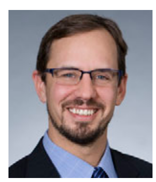

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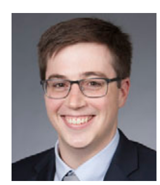

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1

THE GLOBAL ECONOMY:

Gaining steam

The world's advanced and emerging economies are poised for stronger growth in 2018

By **DAN KOWALSKI**

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"The challenge for the world's economies in 2018 will be how to properly manage the expansion that's at hand."

YEARS OF DISMAL COMMENTARY about the world economy have suddenly transitioned to proclamations of optimism. Advanced and developing economies alike appear to be hitting on (most) cylinders as we charge ahead into 2018. After a decade of stagnant global growth, the synchronized expansion is a long-awaited change. Consumers are spending, industry is investing in capital goods such as plants and equipment, and unemployment rates have plummeted.

The challenge for governments of the world's economies in 2018 will be how to properly manage the expansion that's at hand. Roughly three quarters of the world's major economies are now at full employment, signaling that employers will soon be paying greater sums to attract and retain talent.[1] Global economic growth is also projected to approach four percent for the first time since the world began to emerge from the financial crisis in 2010 *(See Exhibit 1)*.

This positive momentum does not come without risk – the biggest economies in the world still face formidable challenges. China has set its intent on higher quality growth, raising concerns that as it makes a concerted effort at reform, economic growth could suffer. Lingering worries about China's rapid expansion in debt will also continue to weigh on markets *(See Exhibit 2)*.

After years of negative or diminutive growth, economic activity has accelerated in Japan and Europe. But persistent structural issues will limit the upside in both regions. Issues related to Brexit in particular will continue to hamper European growth.

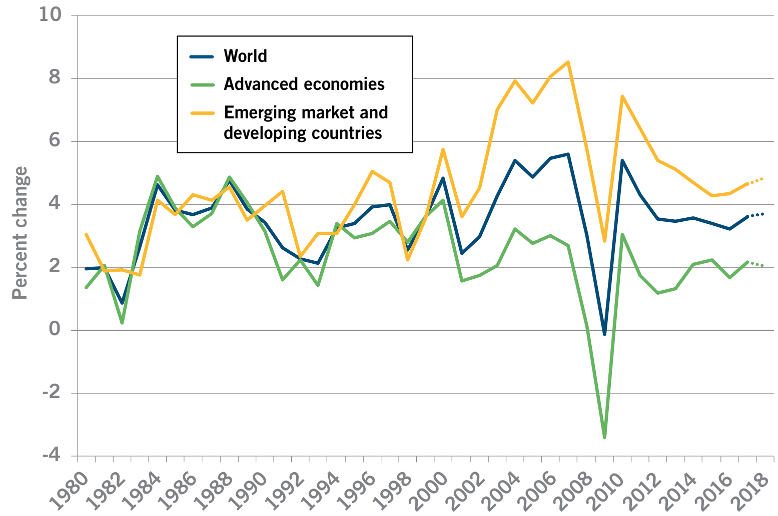
Emerging markets, which have largely been hurt by sluggish advanced economies and depressed commodity prices, will gain better footing in 2018 as well. However, much of the recently added debt in developing economies is denominated in U.S. dollars, so as interest rates rise, so could the cost of debt service for these countries. Higher U.S. rates also typically lead to capital outflows from emerging markets.

Brazil, a chief competitor of the U.S. in agricultural markets, will elect a new president in October 2018 as it attempts to recover from a string of corruption scandals and a doggedly high unemployment rate. Mexico, the third-largest buyer of U.S. agricultural goods, also awaits a presidential election in July 2018. The Mexican electorate appears ready for change as it wrestles with a soaring crime rate, a weak economy and corruption problems of its own. The election winner is likely to immediately inherit the task of navigating difficult trade issues with the U.S.

Collectively, the global economy will also struggle to throw off its longer-term shackles. To sustain an economic pickup for more than a few quarters, the world must overcome unfavorable demographics, low productivity growth and other negative secular trends.

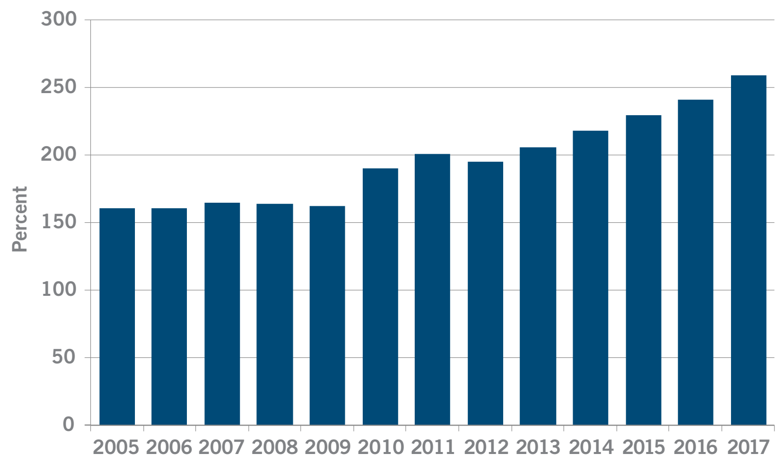
2018 will also offer the world's economies a window of opportunity to shore up monetary and fiscal bastions in advance of the next recession. The most pressing economic issues for governments to address include labor reform, deleveraging, normalizing interest rates and other structural impediments that have not yet been dealt with during the now decade-long recovery. This year could be the best opportunity that governments have to, as IMF Director Christine Lagarde stated recently, fix the roof while the sun is shining. However, for many countries, the political will to attend to these issues will be deficient, and the opportunity to prepare for the next downturn will be missed. ■

EXHIBIT 1: Gross Domestic Product



Source: International Monetary Fund

EXHIBIT 2: China's Total Debt as a Percentage of GDP



Sources: International Monetary Fund, Bloomberg

2

MONETARY POLICY:

A new Fed to navigate choppier waters

The Federal Reserve will contend with a tightening labor market and a flattening yield curve

By **DAN KOWALSKI**

Vice President, Knowledge Exchange Division, CoBank

"The transition is occurring at the same time that the economy is closing in on its capacity, meaning that difficult decisions will soon need to be made."

WILL WAGES AND CONSUMER PRICES finally accelerate? This is the question that will dominate the minds of central bankers in 2018 as they await the perceived next step of the economic recovery. Labor markets have tightened around the world, but inflation has been stubbornly low. In response, most central banks plan to keep interest rates at current levels for at least most of 2018, if not longer *(See Exhibit 3)*.

The European Central Bank (ECB) and the Bank of Japan have both signaled a more hawkish tone in early 2018, but both are also still committed to a form of quantitative easing. The ECB has stated that its interest rates will remain at current levels until at least late 2018 even as it has reduced its monthly bond purchases. Japan has also reduced its level of bond buying, but it may begin raising rates in mid-to-late 2018.

In contrast, the U.S. Federal Reserve is leading the way in removing monetary accommodation, despite the lack of evidence that inflation is moving higher. In December it raised its short-term rate for the fifth time since 2015, and expressed its intent to raise rates three more times in 2018. The Federal Reserve has also been allowing its balance sheet to ever-so-slowly shrink since October 2017, by not reinvesting maturing bonds. This process is likely to continue well into the 2020s before a new asset holding level is determined.

The Federal Reserve's plan seems clear cut and definitive, but none of it is actually assured. Several personnel changes are in process at the Fed and when the dust settles, the new faces will determine whether the Fed actually keeps to its carefully devised plan.

The first change on tap will be the rotating of Fed president voting rights in January. Three dovish bank presidents will lose their votes to counterparts that are more hawkish. Then in February, Jerome Powell will replace outgoing Fed Chair Janet Yellen. The hand off is expected to be a smooth one given that Powell has expressed similar economic views as Yellen. In addition, there are also four open seats on the Fed's Board of Governors – all to be nominated by President Trump. Then in mid-2018, the highly influential New York Fed Bank president role will be vacated when Wiliam Dudley retires.

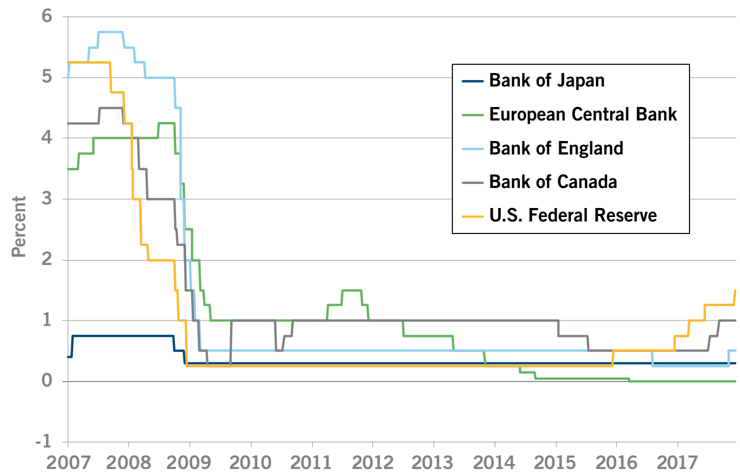
The turnover alone injects a level of uncertainty into the 2018 Fed picture. To add to the uncertainty, the new Fed chair and Board will consist of far fewer career economists and collectively represent far less experience in making critical monetary decisions. President Trump is expected to favor Board nominees that are dovish, but the new rotating votes will lean hawkish. This increases the likelihood that Chair Powell will be tasked with delivering a consensus view amidst an increase in Fed governor dissent.

This transition is occurring at the same time that the economy is nearing full capacity, meaning that difficult decisions will soon need to be made, just as the margin for error seems to be shrinking. Most economists acknowledge that in a world of modest growth, tightness is likely to occur at a much lower nominal funds rate. Much as the path of quantitative easing was uncharted territory, so will be the path to decide a new lower equilibrium for interest rates, especially if inflation remains muted.

The Fed will also be forced to address two newer developments: the effects of tax reform and the flattening yield curve.

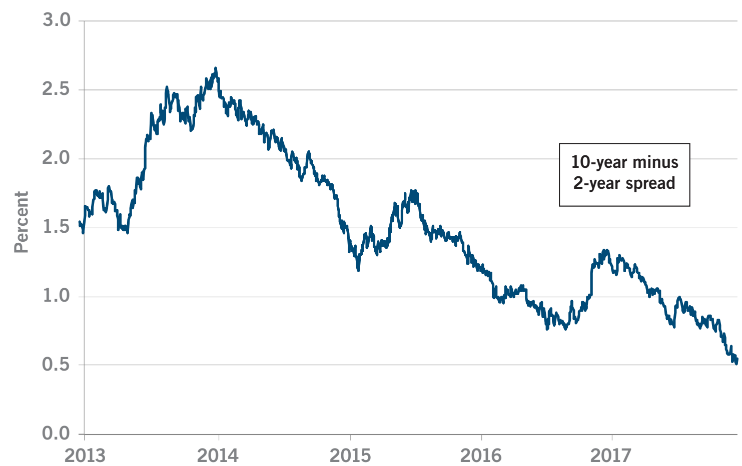
The Fed's economic model suggests that for every one percent of GDP in tax cuts, interest rates will rise by 0.4 percentage points. According to the model, the tax package passed in December will raise deficits by 0.2 percent of GDP in 2018 and 1.1 percent of GDP in 2019. If the Fed were to act in concert with the model, it could risk tightening policy too fast. If the Fed releases the reins and lets the economy run, the economy could overheat.

EXHIBIT 3: Central Bank Short-Term Interest Rates



Source: Bloomberg

EXHIBIT 4: U.S. Treasury Yield Curve Spread



Source: Federal Reserve

EXHIBIT 5: U.S. Dollar Index

Source: The Wall Street Journal

But perhaps the greatest caution sign on the economic road of 2018 is the flattening yield curve. The Fed has controlled short-term rates by pushing them higher over the past two years, but it has much less control over longer-term rates. The longer end of the curve is dictated much more by market expectations. And since early 2017, longer-term rates have trended downward, signaling that the market doesn't foresee sustained higher economic growth or a reemergence of inflation *(See Exhibit 4)*. Since the Second World War, every U.S. recession has been preceded by the flattening and eventual inversion of the yield curve.

All of these factors will influence the direction of the U.S. dollar in 2018 (*See Exhibit 5*). But the newfound health in the global economy, and the relative strength of other currencies, is likely to further pressure the greenback. Typically, rising interest rates and a strengthening U.S. economy would spell high times for the dollar. But improving metrics in Europe, Japan and elsewhere, along with hawkish foreign central bank guidance, is making the dollar look expensive. A weaker dollar will be a welcome trend for U.S. agriculture and should provide support under ag prices, all else being equal.

Fed policy in 2017 was relatively straightforward and met little resistance. In 2018, Fed decisions could become more complex and more hotly contested. ■

3

THE U.S. ECONOMY:

Consumers have that wealthy feeling

Business investment will rise to keep up with a confident consumer

By **DAN KOWALSKI**

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Senior Director, Knowledge Exchange Division, CoBank

"Armed with sky-high confidence, consumers have chosen to ditch their savings to buy more goods and services."

THE U.S. ECONOMY TOOK A DECISIVE TURN FOR THE BETTER in 2017, and will build off of that momentum in 2018. The biggest reason for the upturn? U.S. consumer spending.

Consumer confidence and the unemployment rate are at the best levels since 2000, thanks to consistently strong job growth. And while nominal wage growth has been slow, inflation-adjusted wages have actually been growing much faster than the historical average since 2014 *(See Exhibit 6)*. Armed with sky-high confidence, consumers have chosen to ditch their savings (now at decade lows) to buy more goods and services *(See Exhibit 7)*.

Consumers are spending more, on average, because they feel wealthier. This so-called wealth effect has been powered by last year's multi-trillion dollar gain in household net worth from stock market gains and double digit gains in home prices. For consumers affluent enough to own a home and equities, their wealth has surged. Consumers make up two-thirds of the U.S. economy, and if they keep spending because they feel wealthy, businesses will ultimately exhaust their capacity and invest too.

And despite the outlook for more interest rate increases, businesses are operating with the loosest financial conditions since 1994 *(See Exhibit 8)*. In fact, since 2015, financial conditions actually eased after each of the Fed's interest rate hikes. So if the economy continues to heat up as expected, favorable conditions for business investment should still prevail.

The U.S. economy has also been boosted by stronger exports. The combination of a weaker dollar and better global demand has given exports a serious lift since mid-2017. Commodity markets have benefitted, but not enough to materially increase agricultural prices.

In 2018, the U.S. GDP is expected to climb 2.5 percent or slightly higher, with a modest enhancement coming from tax reform. Businesses will expand, and the demand for workers should tighten the job market enough to lure in Americans that left the labor force, breathing life back into the participation rate. The unemployment rate is likely to contract further, begin nudging wages higher, and trigger a modest uptick in inflation.

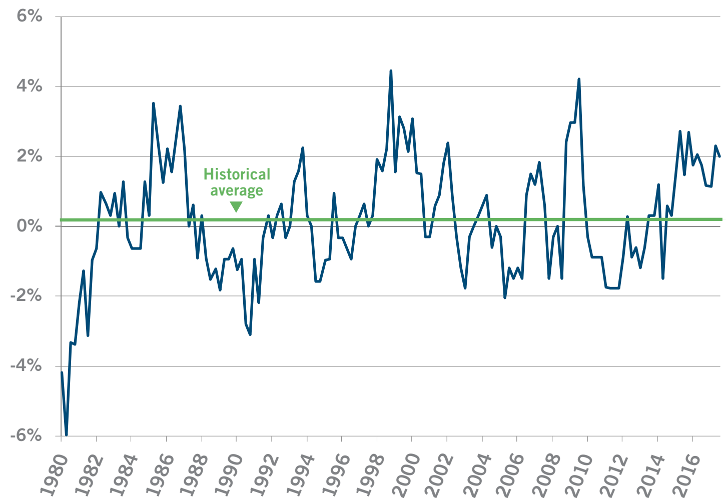
By the spring, the economic expansion will be the second longest on record, and if recession remains at bay until mid-2019, the expansion will become the longest on record.

The list of risks that could derail this outlook is long. To start, consumers are unlikely to benefit from sizable increases in equity values or home prices in 2018 like they did in 2017. Thus, the wealth effect will have a much more limited effect going forward.

Second, the growing divide of income inequality in the U.S. poses a longer term risk to consumer spending power and the potential growth trajectory of the economy. Lower-income Americans did not benefit near as much from the appreciation in asset values in 2017. And statistics show that education level has largely determined whether Americans have far exceeded their pre-recession income levels or are still playing catch-up.

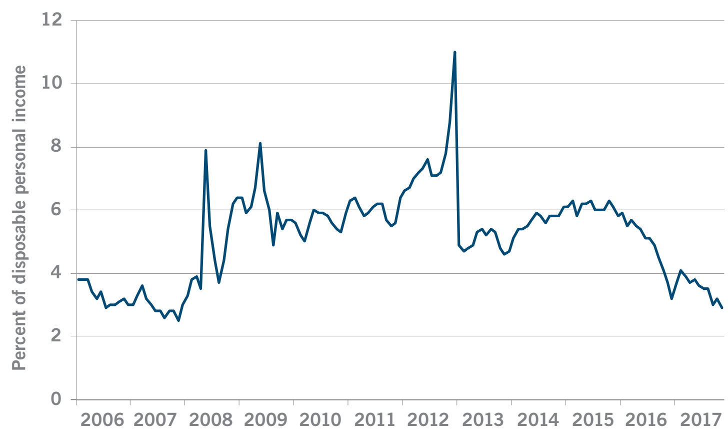
Potential changes in trade policy also loom over the economy. The costs and benefits of globalization are up for debate, but access to competitive markets has driven businesses to reduce costs, and a reversal in policy would add some of those costs back to the consumer. ■

EXHIBIT 6: Annualized Change in Real Earnings of U.S. Full-Time Employees



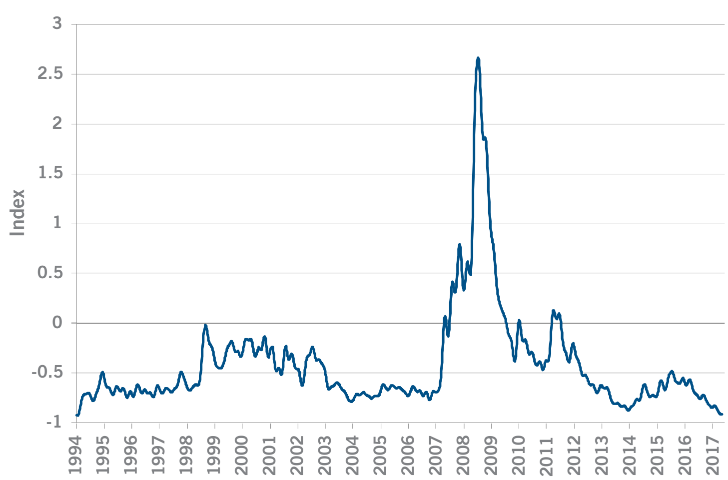
Source: Federal Reserve Bank of St. Louis

EXHIBIT 7: U.S. Personal Savings Rate



Source: Federal Reserve Bank of St. Louis

EXHIBIT 8: National Financial Conditions Index



Source: Federal Reserve Bank of Chicago

4

THE RURAL ECONOMY:

Against the wind

Agriculture and other rural industries will need to remain resilient amidst structural challenges

By **DAN KOWALSKI**

Vice President, Knowledge Exchange Division, CoBank

"As the U.S. population has changed, so have the dynamics of the rural/urban economies."

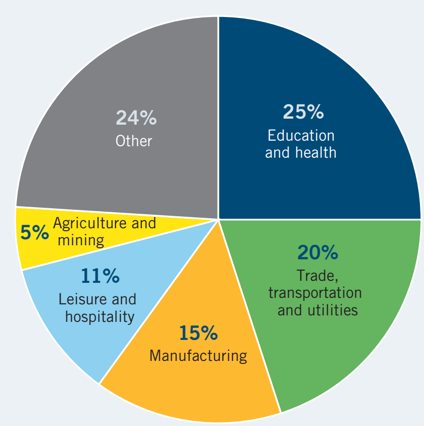
RURAL AMERICA COVERS A LARGE SWATH OF THE COUNTRY, encompassing two-thirds of all counties, 14 percent of the population and nearly three-fourths of the nation's land area. The amount of rural land area in the U.S. has been relatively static over time, but the share of Americans living in rural areas has shifted dramatically over the past century. In 1900, roughly two-thirds of Americans were rural dwellers. As the population has changed, so have the dynamics of the rural/urban economies.

Rural America is often thought of as a homogeneous part of the country, synonymous with farming communities. The reality is that rural America, and its economy, varies dramatically by region, prevalent industries, population density and economic opportunity. Many of the nearly 2,000 U.S. non-metropolitan counties are adjacent to a metro area and benefit from relatively easy access to services. Others are hours away from the same services.

Four industries generate 70 percent of the economic activity in rural America *(See Exhibit 9)*.[2] But those industries vary drastically by region, and many rural areas are dominated by one industry that leaves its residents much more exposed to labor market shocks than in urban areas. Agriculture and mining (includes drilling) directly account for only 5 percent of rural America's jobs and earnings. However, many of the other vital industries in rural communities are intricately connected to, and supported by, agriculture.

This connection between the farm economy and the rural economy has been felt in painful ways in the

EXHIBIT 9: Rural America – Employment by Industry



Source: USDA-ERS

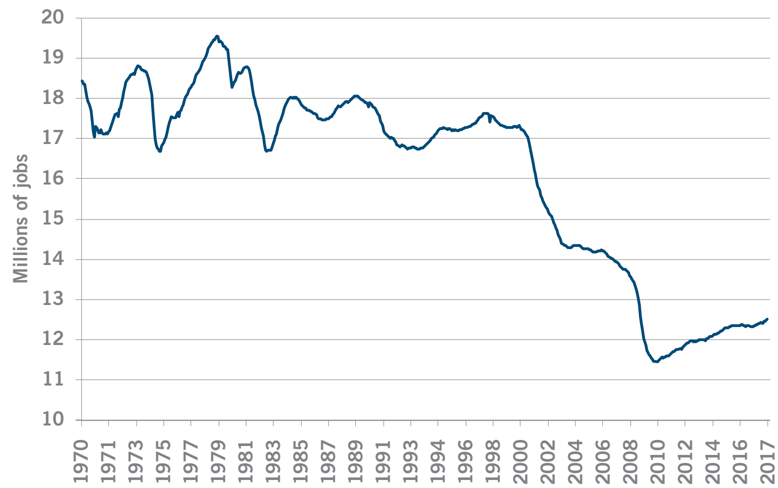
past year, particularly in the Great Plains and Corn Belt states. Recently, the U.S. Bureau of Economic Analysis stated that farm earnings had declined in every state during Q2-2017, and were "the leading contributor to slow earnings growth in many states."[3] In another example, in Iowa, agriculture accounts for only 10 percent of the state economy. However, when supporting industries such as equipment manufacturing and agricultural lending are included, that figure jumps to nearly half of Iowa's economy.[4] Because of this outsized indirect impact, lawmakers in states like Iowa and Nebraska have become concerned that the slow agricultural economy will severely strain state budgets.

Manufacturing also weighs heavily in rural America, and contributes twice as much to the rural economy in terms of jobs and wages, as it does in the urban economy. So as manufacturing jobs steadily declined from their peak in the 1970s until they bottomed in 2010, rural America bore the greatest impact. However, American manufacturing has staged a quiet comeback. U.S. manufacturing jobs are up nearly 10 percent from the 2010 trough, and real manufacturing output is nearly back to the pre-recession all-time high *(See Exhibit 10)*.

Total rural employment is also rebounding from the Great Recession, albeit at a slower rate than employment in urban areas. As of 2016, jobs in non-metro counties were still about 5 percent below the pre-recession peak while metro county jobs were 5 percent above the pre-recession level *(See Exhibit 11)*. Household income for rural dwellers has also consistently trailed that of urban households by about 25 percent.

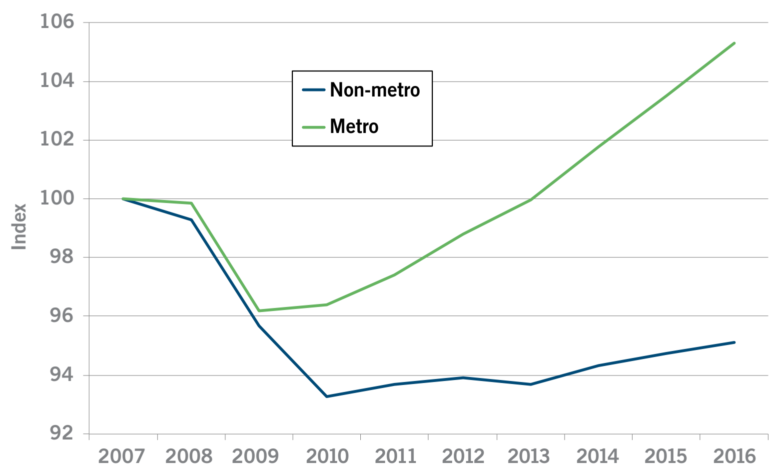
Rural America has also been challenged by out-migration for decades, as younger residents leave to pursue job opportunities in urban areas. In 2011, that challenge became acute when the rural population began to shrink for the

EXHIBIT 10: U.S. Manufacturing Jobs



Source: Federal Reserve Bank of St. Louis

EXHIBIT 11: U.S. Metro vs. Non-metro Employment



Sources: USDA-ERS, BLS, CoBank

first time ever. Population estimates started to bounce back in 2012 and the rural population is now roughly holding steady.

The variation in rural communities is also apparent in upward mobility data, provided in a recent study.[5] Rural counties, on average, offer as much opportunity to improve one's livelihood as urban counties. However, the variation is much wider for rural areas – some exhibit the highest rates while others come in at the bottom of the pack. According to the study, geography is one of the leading determinants of mobility. Rural counties in the Southeast have much lower intergenerational mobility scores than in the Great Plains. This divergence can also be seen in data that highlights education and family structure.

Rural America faces a unique set of economic challenges, but it has demonstrated resilience during the past eight years of recovery. The rural population, jobs and incomes are all trending in the right direction. And current efforts to improve rural broadband access offer the greatest opportunity to make a significant dent in the rural/urban economic divide. As broadband becomes more widely available in rural communities, enhanced access to education, healthcare and business opportunities can markedly improve the quality of life and the economic vitality in these communities. Rolling out broadband to rural communities will take several more years in some areas. But as access increases, so will rural America's economic potential. ■

5

FEDERAL POLICY:

An active election year

Rural America awaits further regulatory reform and a new Farm Bill

By **BRIAN CAVEY**

Senior Vice President, Government Affairs, CoBank

"The Trump administration's commitment to reducing regulation continues unabated."

THE LEGISLATIVE AND REGULATORY LANDSCAPE for 2018 contains equal measure of risk and reward opportunity for CoBank and our customers. As Washington has settled in to its new normal with the Trump administration, one certainty has emerged: The administration's commitment to reducing regulation continues unabated and the executive pen is striking more regulation than it is writing. When it comes to legislating, however, the hard fought battles of 2017 might indicate that troubles lie ahead.

Congress ended 2017 on a high note, delivering on two key priorities for the President. Tax Reform and Healthcare Reform were both addressed through the enactment of the Tax Cuts and Jobs Act. On January 1, 2018, the corporate tax rate permanently dropped from a high of 35 percent to 21 percent, individual tax rates dropped through 2025 and the individual mandate to purchase health insurance was repealed.

For CoBank customers, an effort to replace the Domestic Production Activities Deduction, the so called Section 199 deduction, led to the inclusion of a new deduction, available to both co-ops and their members for 2018 and years thereafter. Supporters are optimistic that this will work well for co-ops and their members. However, the 199A deduction has led to controversy over its unintended impact on private agricultural businesses, and is being reviewed by the Senate. Any revisions appear to require legislative approval, which would make the path for altering the provision increasingly complex.

The operating majority in the Senate narrowed on January 3rd when Doug Jones (D-AL) was sworn in, reducing the GOP margin to 51-49. The election of Jones, the first Democrat sent to the Senate by Alabama in a quarter century, rang the opening bell for the 2018 race for Senate control. Every 2018 vote must be viewed through the political lens. The Senate relied on budget reconciliation, a process that needs just a majority vote to prevail in passing the tax bill. Now, every GOP vote will be needed to pass legislation without bipartisan agreement.

The first test of the new environment will be the incomplete effort to fund discretionary spending for fiscal 2018. By January 19th, the Congress will again try to pass the Fiscal Year 2018 appropriations measures. The effort has been complicated by the Freedom Caucus's desire for additional cuts and the Democrats' expectation that the treatment of the so called Dreamers – undocumented immigrants who arrived as children – will be addressed in that measure through a longer term continuing resolution or an omnibus spending bill. Either way, Congress will need to act quickly because by mid-February the Trump administration will kick off the 2019 cycle with the submission of their budget proposal.

The administration is expected to next turn its efforts towards an infrastructure package. The principles of this proposal are expected in early 2018. A reported rural set aside of 25 percent holds promise for rural communities and the infrastructure on which they depend. While additional federal resources are not expected, the administration is suggesting that permit streamlining, additional regulatory coordination and relief, and incentives for infrastructure owners to generate new revenue sources should help current resources go farther to meet the pent up demand for investment in our crumbling infrastructure.

The leaders of the Congressional Agriculture Committees are working toward reauthorizing the Farm Bill. House Ag Chairman Mike Conaway (R-TX) is aiming to markup legislation in the Committee as soon as mid-February, with floor action as soon as possible thereafter. His Senate counterpart Chairman Pat Roberts (R-KS) is also working on drafting legislation but is not expected to act until after the House has done so. Roberts has said he expects this bill to be "evolutionary, not revolutionary" with dairy and cotton the only two commodities seeking significant changes to current law and other bill titles seeing modest reforms. The tight budget, combined with a call for welfare reform and spending reductions (including the nutrition programs), and the expiring authority for nearly 40 programs will pose a challenging environment for Farm Bill reauthorization, but the bill is expected to pass before the November mid-term elections. ■

6

RURAL INFRASTRUCTURE:

Brave new world

Rural utilities hope for an infrastructure spending bill – while grappling with disruptive change

By **TAYLOR GUNN**

Lead Industry Analyst, Knowledge Exchange Division, CoBank

and **MICHAEL IVIE**

Vice President, Credit, Infrastructure Banking Group, CoBank

"Revenue stability is crucial in an environment defined by growing uncertainty and rising costs."

NOW THAT TAX REFORM HAS BEEN PASSED, the Trump administration is turning its attention to infrastructure. In early January, USDA Secretary Sonny Perdue issued a game plan on how to boost the rural economy, in which he highlighted access to broadband. Whether the broadband plan and broader infrastructure policies will target public-private partnerships is unclear, but the White House has made clear its priorities by including rural electric cooperatives, rural water providers and the rural telecom industry in its report on rural prosperity.

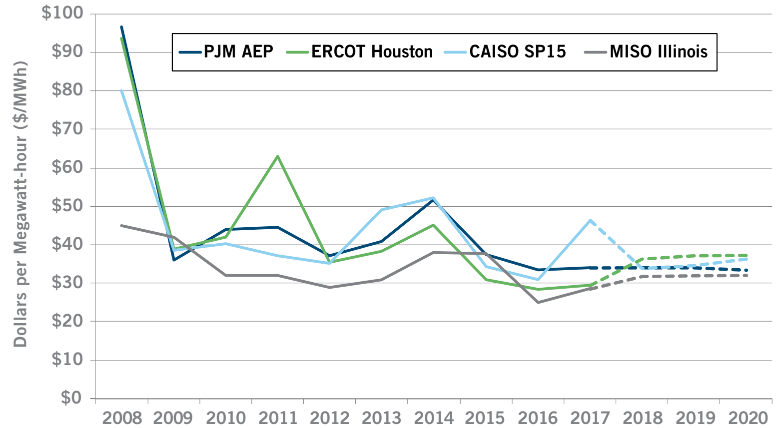
Power & Energy

The power and energy industry enters 2018 in an environment of significant uncertainty. Tax reform and possible import tariffs on solar equipment could derail solar and wind pipeline projections. Broad market trends indicate that new power-generating capacity will likely outpace retirements through 2018, while electricity markets across the country ratchet down growth projections for peak energy demand. Ample power supply will maintain downward pressure on wholesale electricity prices, while the federal push to ensure regulated returns for coal and nuclear could pressure power prices further as inefficient plants stay in operation *(See Exhibit 12)*.

Tax reform will also have widespread effects on the electric utility industry. Reducing the corporate tax rate to 21 percent will free up capital for investor owned utilities, potentially spurring capex growth. However, early indications suggest regulators will require utilities to pass the majority of tax benefits on to consumers through lower rates. Furthermore, a lower corporate tax rate will reduce corporations' tax appetite, shrinking the supply of tax equity. These new provisions could temporarily slow project financing between renewable developers and their offtakers, including electric cooperatives. However, renewable energy developers will adjust to the new tax structure in 2018 and will keep most projects moving forward, even if at a slower pace.

Clean energy could be further pressured by import tariffs on solar equipment. The U.S. International Trade Commission (ITC) in October 2017 recommended that tariffs be imposed on imported solar panels on the grounds that they are being

EXHIBIT 12: Historical and Forecasted Power Prices



Note: Dashed lines indicate NYMEX power forwards as of December 2017
Source: SNL Energy

dumped below market price. President Trump has until January 26 to provide a decision on the recommendations proposed by the ITC. Individual ITC commissions proposed multiple tariff-rate quotas that would allow a limited number of panels to come in at a 0-10 percent tariff, but all imports over and above the quota would be tagged with a 30-35 percent tariff. Many solar projects are on hold during the negotiation phase, which could have a measurable slowing effect on the U.S. solar industry. However, even the most stringent ITC recommendations are not expected to have a material impact on project economics in 2018.

Electricity markets across the country are likely to experience low prices given persistently weak demand growth, and expanding power supply capacity. Low prices will continue to put pressure on unregulated baseload power plants, likely accelerating retirements. These retirements will support current wholesale electricity price levels and provide an opportunity for more efficient gas, wind, and solar plants to fill the void.

Uncertainty driven by tax reform, import tariffs and oversupply in power markets has temporarily stalled investment decisions across the electric utility industry. Ultimately, the rapidly expanding renewables sector will catch its breath in the first half of 2018, and recommence on its growth trajectory.

Water Utilities

The health of the U.S. water industry is at its lowest level in over a decade, according to the American Water Works Association's (AWWA) annual State of the Water Industry survey.

This trend is concerning and it highlights the immense challenges rural water utilities face in 2018. Operators face an increasingly difficult task each year as they attempt to earn enough revenue to maintain infrastructure, keep water affordable for the lowest income earners and do so while selling less of their product.

Weak sales and rising costs contribute to financial strain across the industry. Roughly one-third of water utilities struggle to cover the full-cost of providing service. Additionally, 12 percent of utilities are unable to cover the full cost of providing service. This is up from 9 percent just two years ago. Rising debt service costs and operation and maintenance expenses make it difficult to maintain adequate working capital and reserve requirements.

Struggling utilities, though, are finding ways to adapt. A growing number of water utilities are recovering more costs by shifting toward fixed fees and relying less on consumption-based fees, to alleviate the effect of lower volumetric sales on revenues. Greater reliance on fixed fees enhances revenue stability.

Revenue stability is crucial in an environment defined by growing uncertainty and rising costs, and will play a large role in reversing the trend that suggests the health of the U.S. water industry is in decline.

Communications

The fight for data pipes will be center stage for the telecom sector in 2018. Consumers are demanding higher volumes of information at faster speeds while enterprises (businesses, government, and other organizations) outsource, collocate, and automate to gain economies of scale. As rural telecoms, other broadband providers and cable companies battle for broadband subscribers to offset legacy revenue declines stemming from wireless replacement, cord-cutting/shaving, and regulatory reform, there will be greater competition for broadband service resulting in potentially lower rates and faster speeds available to rural subscribers. Cable M&A will likely cool in 2018 and cable multiples will come under pressure, but remain healthy.

Rural investment will increase in the form of broadband and towers related to AT&T's partnership with FirstNet, which will be the first nationwide public safety broadband network in the US. Concurrently, AT&T and other major wireless providers will be increasing investments in towers, small cells, distributed antenna systems and significant fiber backhaul in order to provide additional network densification in preparation for 5G and the higher capacity lower latency requirements needed to support the exploding demand for data. The proliferation of smart devices and sensors within the Internet of Things (IoT) will become more commonplace in rural communities as more farmers adopt real-time monitoring of the entire farming business. Exponential amounts of data will need to be transported, interpreted and distributed over rural networks to complex computing environments. Many rural backhaul and tower providers will be well positioned for increased network investments in 2018, while many rural wireless providers are bracing for renegotiations of roaming contracts with major wireless carriers.

The best growth opportunities remain in the data center sector as IoT demand and general outsourcing continue to expand across rural communities. The development of "Edge" data centers is becoming a larger trend as companies find that in order to provide the service their customers require, they need to keep more data as close to the end user as possible. Additionally, rural communities will see opportunities for positive disruption where telemedicine, online education and outsourcing of business and government infrastructure can help address multiple challenges facing many communities. Constant change is expected, but those organizations that can pivot and embrace the evolution to a data centric model, and seek new revenue sources driven by IoT demand, will continue to thrive. ■

7

THE U.S. FARM ECONOMY:

Tightening belts

U.S. producers face another year of low commodity prices

By **TANNER EHMKE**

Manager, Knowledge Exchange Division, CoBank

> "Commodity surpluses around the globe continue to depress prices and sap farmers of working capital."

FARMERS ARE BRACING for another year of belt tightening as commodity surpluses around the globe continue to depress prices and sap farmers of working capital. While net farm income improved slightly in 2017 thanks to the livestock sector, farm financial stress will remain a common theme across the countryside. Debt loads among farmers continue to climb as they struggle to cover relatively high production costs amid anemic commodity prices. Ag retailers and cooperatives are also feeling the strain, keeping the topic of mergers and acquisitions on the table in co-op board rooms.

Farmer solvency is an increasing concern in some regions. Wheat and dairy producers are among the hardest hit in this down cycle, as evidenced by an increase in Chapter 12 bankruptcy filings in Kansas and Wisconsin. Chapter 12 bankruptcies, which last year reached the highest level since 2012, are expected to accelerate in 2018 in the absence of a major upward correction in farmgate prices *(See Exhibit 13)*.

Fortunately, the ag sector's balance sheet is well positioned for a multiyear adjustment process. Farm asset values, primarily farm land, have remained firm despite persistently weak underlying crop prices. Many producers still have strong equity positions that enable them to bid aggressively for the limited land that becomes available at relatively low interest rates. The historically low interest rates have also kept institutional investors in the game. Until enough producers lose the financial capacity to expand or investors shy away from low capitalization rates, land prices will remain stubbornly elevated relative to farm income. Any further deterioration in farm prices, or a surprise acceleration in Federal Reserve tightening, would add a new level of risk to land values and farmer solvency in 2018. The continuous rise hints that more financial stress looms in the year ahead.

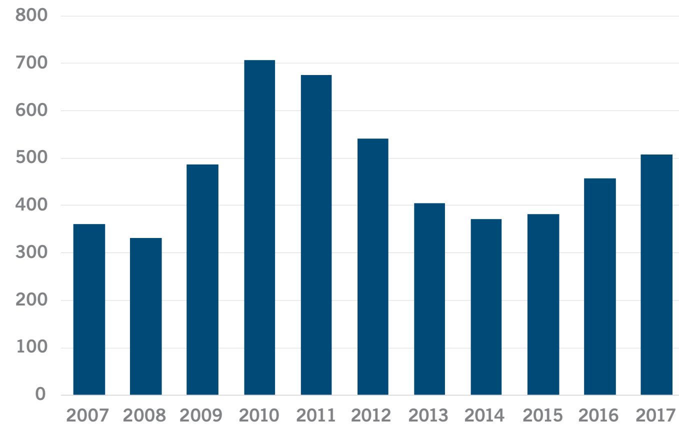
Still, there is room for optimism. While inventories for most commodities are abundant and global competition remains intense, the level of grain and oilseed inventories would be substantively impacted by one poor U.S. harvest. Animal protein and dairy prices could also improve modestly if the forecasted production increases come up short or global demand growth outperforms. Producers will be aggressively seeking cost control options to maintain profitability and will be putting increased pressure on their input suppliers. Farmer cooperatives will benefit from larger product movement as producers seek to maintain cash flow, but they will be under increasing pressure to provide inputs, productivity enhancements, speed and space and risk management options at lower costs while assuming greater inventory risk.

While concern over financial stress in agriculture grows, comparisons to the 1980s farm crisis abound. However, the industry's balance sheet is still much stronger than during the prior correction. During that period, producers were more highly leveraged, interest rates were in the double digits, and commodity prices suffered a faster and deeper correction as foreign demand for U.S. grains cratered. In comparison, producers and lenders in recent years have been more disciplined. The debt-to-asset ratio is currently just over 12 percent compared to the 20 percent level that prevailed in the 1980s *(See Exhibit 14)*. However, farm debt relative to income is creeping closer to the concerning levels of the 1980s *(See Exhibit 15)*.

This cautious optimism must be tempered by the harsh reality that market conditions could change rapidly and many structural adjustments will be underway in 2018. The sector will experience increasing pressure in terms of cash flow and asset valuations. Market conditions have resulted in a sharp, unsustainable divergence between farm income and farm asset values. The timing and extent of the market's correction will be determined by much more than commodity prices and cash flow, however. The prevailing economic environment, interest rate levels, investor appetite, trade, changes to the tax code, the 2018 farm bill, and the changing regulatory environment will all play a role. ■

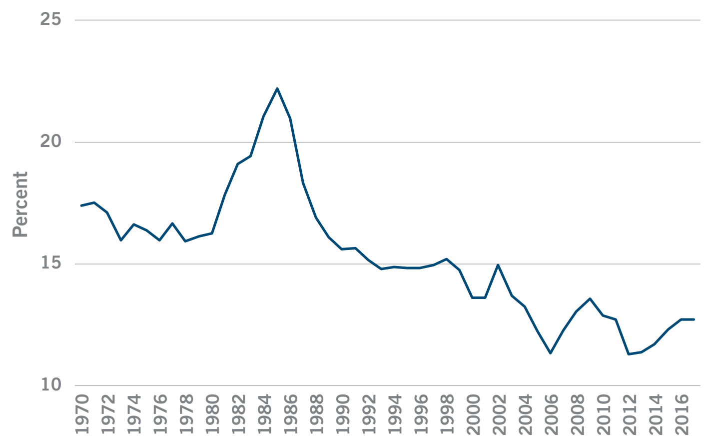
EXHIBIT 13: U.S. Farm Chapter 12 Bankruptcies

Filings in the 12-month period ending September 30, 2017



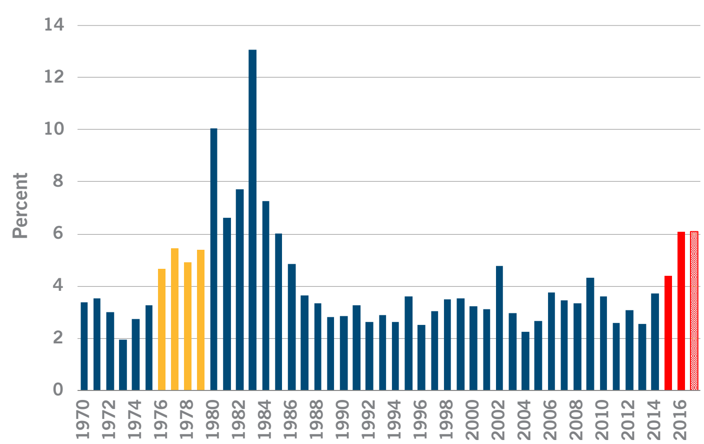
Source: U.S. Courts

EXHIBIT 14: U.S. Farm Debt-to-Asset Ratio



Source: USDA-ERS

EXHIBIT 15: U.S. Farm Debt-to-Income Ratio



Sources: USDA-ERS, CoBank, ACB

8

AGRICULTURAL TRADE:

Mission critical

The Trump Administration's efforts to revise NAFTA have huge implications for America's ag exporters

By **DAN KOWALSKI**

Vice President, Knowledge Exchange Division, CoBank

"Trade has become such a concern for U.S. agriculture that it has stolen center stage during a farm bill year."

POLITICAL RHETORIC AROUND free trade agreements (FTAs) has been heating up since the 2016 U.S. presidential campaign. Now that discussions are underway to revise or abandon some of these FTAs, U.S. agriculture is out to protect its very valuable turf. Trade has become such a concern for U.S. agriculture that it has stolen center stage during a farm bill year. The North American Free Trade Agreement (NAFTA) receives the most attention for good reason, but several other trade-related issues are in play that could have far-reaching impacts for agriculture.

Roughly 20 percent of U.S. agricultural goods are exported, valued at $135 billion. Both the value and the share have marched higher over the years as the farm sector has become increasingly dependent on foreign markets for demand growth.

NAFTA will be the primary focus for agriculture in the first half of 2018. The deal between the three North American nations was ratified in 1994 and amended over the next several years. Since that time, Canada and Mexico have both tripled their ag exports to the U.S., and the U.S. has more than tripled its farm-related exports to both Canada and Mexico *(See Exhibit 16)*. Canada is the leading buyer of U.S. ag goods, and Mexico holds the third position after China. Combined, the two NAFTA partners buy $43 billion worth of U.S. agricultural goods annually.

Discussions to modernize NAFTA commenced in August 2017, but Mexico and Canada both walked away over a U.S. demand to have all cars sold through the pact be made with at least 50 percent American-made auto parts. The hard deadline for finalizing a deal is July 2018, when Mexicans go to the polls to elect their next president. The leading contender, Andrés Manuel López Obrador, is a nationalist, with a style similar to President Trump. If he were to become president, he would be unlikely to make the type of concessions the Trump administration is pressing for.

In 2017, Mexico threatened to pre-empt the discussion and make arrangements to import its food needs from South America. Mexico did buy grains from South America, but the purchases were relatively small, and imports of most U.S. agricultural products were up year-over-year in 2017 *(See Exhibit 17)*.

If the three nations cannot come to an agreement, the trade pact would be cancelled six months after any of the three presidents were to announce its annulment. Wide-ranging tariffs would likely be imposed on U.S. goods, including agricultural exports. Mexico and Canada have already signed a FTA with the EU, and it is widely expected that Mexico would quickly pursue more FTAs with U.S. competitors. Mexico and Canada are also in discussions to strike a deal with nine other members to resurrect the Trans-Pacific Partnership (TPP). If that were to happen, both nations would have access to valuable Asian markets. The scenario is possible and would be disastrous for U.S. agriculture.

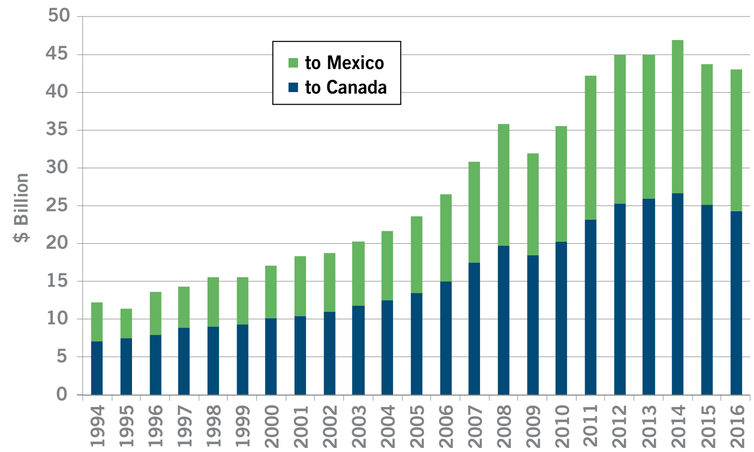
The Comprehensive and Progressive Agreement for the Trans-Pacific Partnership (CPTPP) is a reboot of the TPP, comprising all of the original members, with the exception of the U.S. The members nearly came to an agreement in November 2017 before Canada backed away and delayed further talks into 2018. As it stands, the agreement is very similar to the original TPP, and it is expected to pass in Q1 2018.

The Trump administration has also threatened to abandon the bilateral FTA between the U.S. and South Korea (KORUS). The South Korean market is sizable for U.S. ag exports, at roughly $7 billion annually. But it is debatable whether the FTA is benefitting U.S. exports, given that U.S. ag and food-related exports to South Korea have trended flat-to-down since it was ratified in 2011.

Finally, a trade dispute with China is likely to escalate in Q1 as well. Commerce Secretary Wilbur Ross has already taken aim at China's attempt to avoid tariffs by selling steel through Vietnam, and has stated that it will revisit potential trade actions against China after tax reform is complete.

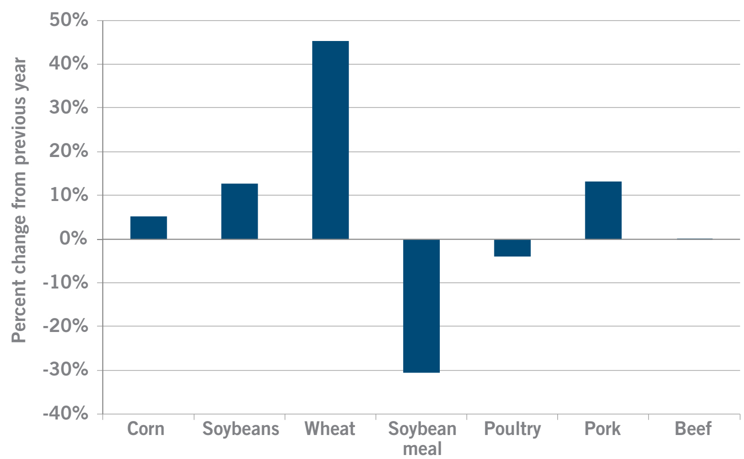
U.S. agriculture has a lot at stake as these negotiations unfold, and the rhetoric is likely to get worse before it gets better. There is an outside risk that NAFTA will be totally annulled. But we expect a compromise to be struck that protects the interests of American agriculture. ■

EXHIBIT 16: Value of Agricultural Exports



Source: USDA-FAS

EXHIBIT 17: Change in U.S. Exports to Mexico, 2017 (Jan-Oct)



Source: USDA-FAS

9

GRAIN, FARM SUPPLY AND BIOFUELS:

Full bins, lean margins

Abundant global supplies will keep the lid on profitability

By WILL SECOR

Industry Analyst, Knowledge Exchange Division, CoBank

and TANNER EHMKE

Manager, Knowledge Exchange Division, CoBank

"Market disruptors that have shaken up other industries are now gaining a foothold in the farm supply and grain marketing sectors."

THE GRAIN, FARM SUPPLY AND BIOFUELS SECTORS FACE a turbulent year ahead, as the industry further adjusts to the protracted cyclical downturn. Huge global crop supplies, low commodity prices, low market volatility and rising interest rates will constrain farmers financially and accelerate the forces of consolidation across the supply chain *(See Exhibit 18)*.

This environment will reward farmers for scale, and therefore incentivize well positioned producers to keep growing. A new generation is also starting to take over as principal farm operators. Younger operators on larger farms are likely to have needs and buying preferences that are significantly different from the traditional core customer of agricultural retailers.

Market disruptors that have shaken up other industries are now gaining a foothold in the farm supply and grain marketing sectors. Small, yet rapidly expanding technology-based firms will make further gains in 2017, and apply additional pressure to an already challenged industry. These relatively new competitors seek to meet the needs of farmers who are willing to compromise on service to gain a better price, and are also open to using an e-commerce platform. These rising competitive pressures will cause agricultural retailers to seek new ways to stay relevant and better serve larger, more diverse farmer-customers.

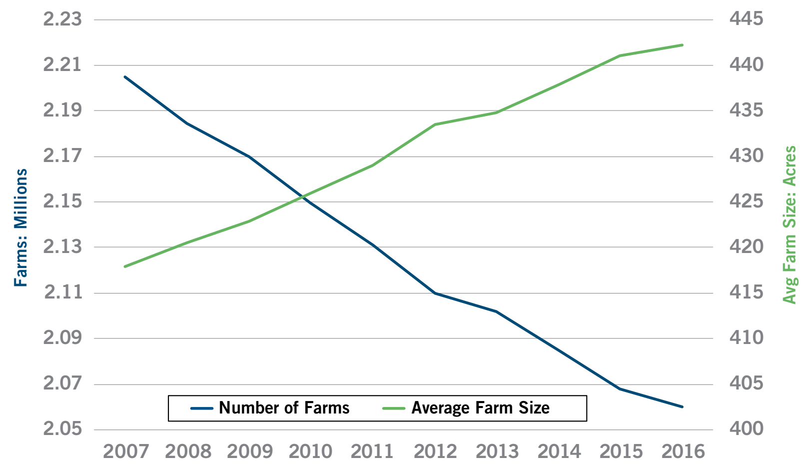
The crop input supply chain also faces upheaval in 2018, as the most recent wave of manufacturer consolidation wraps up. This consolidation of seed, crop protectant and fertilizer companies tilts market leverage toward manufacturers, and when coupled with farm consolidation, it also paves the way for manufacturers to more easily bypass retailers and sell directly to farmers. Meanwhile, grain elevators face increasing competition for the origination of grain and oilseeds. End-users are originating more grain directly from farmers as on-farm storage grows and more farmers improve their trucking capabilities. These market trends will advance in 2018 and challenge the sector to innovate.

The transformation occurring in the industry is partially the result of low grain prices that are likely to remain under pressure through 2018. Prices across both grain and ethanol sectors have been limited by supplies that have outpaced record or near-record demand. For both sectors, export growth will be critical to reducing surpluses. Domestic users offer limited upside for demand growth despite the current expansion in the U.S. livestock and biodiesel sectors.

Exporters face a wall of abundant grains and oilseeds held by competitors *(See Exhibit 19)*. And, in particular, Brazil, Russia and Argentina have benefitted from relatively weaker currencies against the U.S. dollar. Ethanol exporters also face significant headwinds from adverse import policies in China and Brazil, and from NAFTA uncertainty that threatens market access to Canada, a top U.S. ethanol export destination.

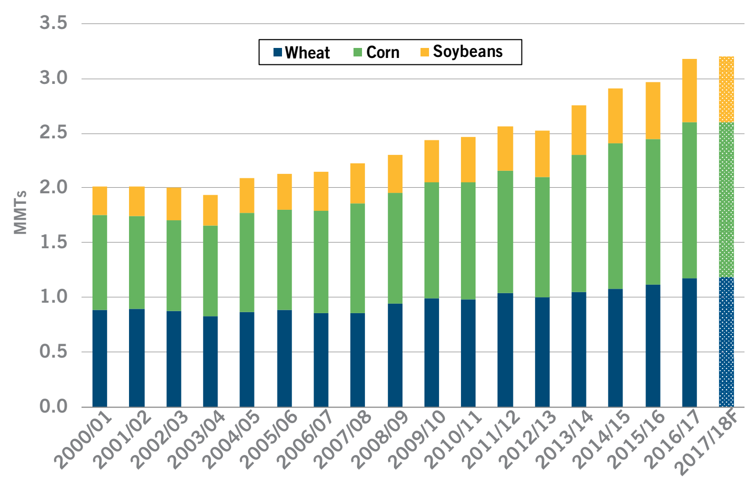
The industry will be keen to influence the evolving U.S. trade policy in 2018, and will aim to shore up support to maintain the current farm safety net in the new farm bill. Resolving preferential trade agreement uncertainty (e.g., NAFTA and KORUS) is fundamental to maintaining access to major export markets. Domestic policy related to rural infrastructure and renewable fuels will also play a central role in the year ahead. River infrastructure, in particular, is in the spotlight after barge rates skyrocketed last year from delays at locks and dams related to unexpected repairs, bad weather and outdated facilities. Workforce dynamics have also become an acute problem for many in the grain and farm supply sector.

EXHIBIT 18: U.S. Farm Count and Average Farm Size



Source: USDA-NASS

EXHIBIT 19: Global Grain Supply



Source: USDA-FAS

Positions have become more difficult to fill, from applicators to senior managers, as the tightening labor market and aging workforce compound issues from the net migration from Rural America.

Grain end-users will continue to benefit from abundant low-cost inputs. Grain elevators will also remain largely successful handling substantial grain volume and capturing strong returns to storage, even as rising interest rates raise the cost of carry. Grain merchandiser struggles are likely to persist as low price volatility limits opportunities to profitably buy, sell, and move grain.

While the entire supply chain will face challenges in 2018, farmers will encounter many of the greatest risks in this environment. Years of declining income and stubborn production costs have whittled away farmers' working capital and taken a toll on farm balance sheets. In 2018, farmers who cut production costs, switch to higher-profiting crops and rotations, find premiums for unique crop attributes, or find off-farm income have the greatest chance of surviving the downturn. Others will exit, as evidenced by rising farm bankruptcies. These exits will lead to fewer and larger farms, fueling the structural changes that are already underway. ■

10

DAIRY AND ANIMAL PROTEIN:

Trade dependency in changing times

Processors are expanding, and trusting that exports will keep rising

By **TREVOR AMEN**

Industry Analyst, Knowledge Exchange Division, CoBank

and **BEN LAINE**

Senior Industry Analyst, Knowledge Exchange Division, CoBank

"The rapid demand growth overseas delivers great benefit, but also invariably elevates the industry's risk profile."

THE SAME ABUNDANT GRAIN SUPPLIES that have harmed crop farmers have boosted profitability and spurred expansion in the U.S. dairy, livestock and poultry sectors. And more good news is expected in 2018. The domestic economy is gaining steam, and the global middle class, which drives growth for protein and dairy products, is adding 160 million people per year to its ranks. The rapid demand growth overseas delivers great benefit, but also invariably elevates the industry's risk profile. The trend of increasing dependency on exports coincides with mounting uncertainty about the future of trade access in key markets *(See Exhibit 20)*.

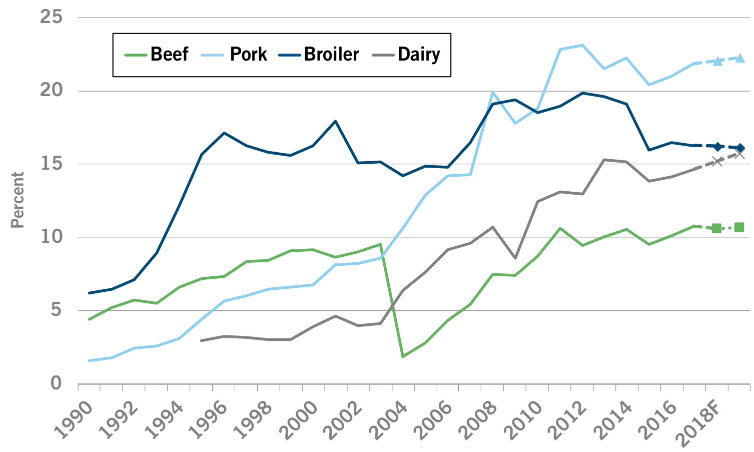
As with any expansion, dairy and protein producers also face the risk of overplaying their hand and boosting output too much, too fast. Price pressure will be an issue as the expansion continues. Both the dairy and protein sectors have maintained modest margins on a revenue-minus-feed cost basis. While insightful, this simplified margin calculation fails to account for other rising costs such as labor and interest rates.

The modest profits being earned are just enough of a carrot to keep producers expanding in search of scale and lower per-unit costs. In line with the rest of agriculture, the largest and most efficient producers are able to capture positive margins. And this market reality will continue to drive consolidation. Operators that remain small face an uphill battle and narrowing or potentially negative margins.

Protein and dairy processors find themselves trying to keep up with the increasing supply. To do so, significant capital investments are being made, especially in the dairy and hog sectors. Capacity expansion is a costly part of doing business, but modern plants have additional benefits beyond increasing throughput. Installation of new robotics and automation are increasing plant efficiencies. And modernized plants that meet the demands of international buyers open the door to more export opportunities. Increased use of blockchain technology is also allowing the food supply chain to efficiently collect and manage data to improve food safety and product traceability.

While the U.S. is chasing opportunities abroad, the rest of the world is eyeing the U.S. as an opportunity for value-added branded dairy products. In recent years, a number of joint ventures and partnerships in the industry have featured international companies as partners. Compared to emerging economies, the U.S. is a fairly stable and affluent market. While large-scale growth in commodity consumption is unlikely in the U.S., many foreign dairy producers still see opportunity for higher-margin specialty product growth here.

EXHIBIT 20: Annual U.S. Meat and Dairy Exports as a Percent of Production



Source: USDA-ERS; Livestock Marketing Information Center (Meat Forecasts); CoBank ACB (Dairy Forecast)

But the long-term driver for growth in all of animal agriculture is the ever-expanding global middle class. Consumers' desire and ability to trade up in food options, especially in Asia, will fuel higher output in the U.S. for years to come.

Meat and dairy products are nonetheless still considered luxury options in emerging markets, so export sales can be far more responsive to economic fluctuations than in the developed world. Animal agriculture faces risks related to consumer acceptance of technology. As fewer people grow up with personal connections to production agriculture, it becomes all the more critical for dairy and protein businesses to educate consumers and respond to consumer perception of the industry.

No issue will be more critical to these industries in 2018 than trade. Exports have grown from a source of marginal demand in the 1990s to an indispensable share of overall sales in recent years. Exports are now a sustaining force for these industries.

In late 2017, several competing countries successfully negotiated trade deals that put the U.S. at a price disadvantage. These developments make the renegotiation of NAFTA and KORUS all the more important to the future of the industry. ■

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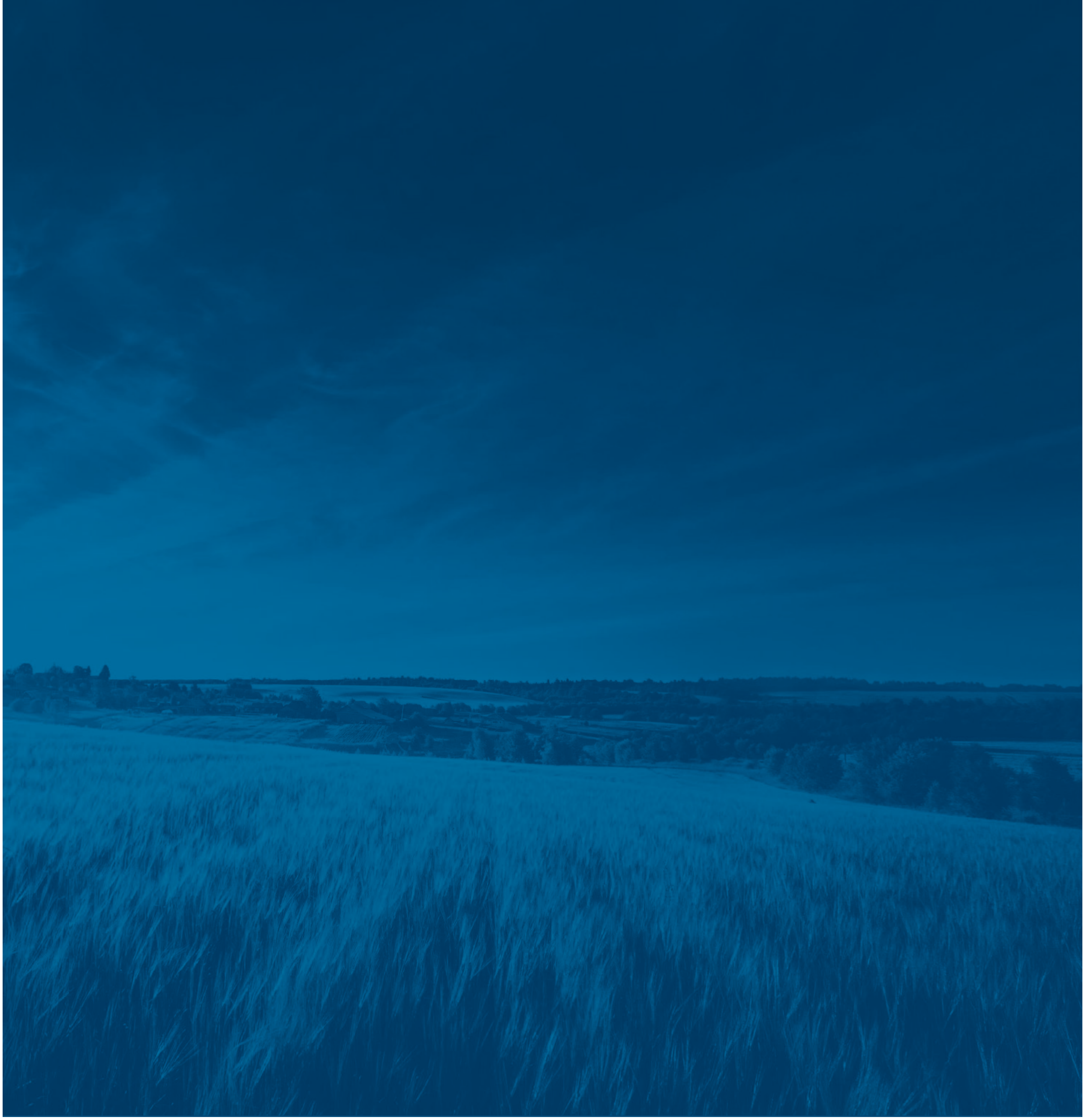
ABOUT COBANK

CoBank is a cooperative bank with over $125 billion in assets 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 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 and the nation's rural economy. 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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