

The Economic Cost of the Opioid Crisis

The human toll of the opioid crisis is unquestioned and devastating. Nationwide, more than 130 people overdose on opioids each day, according to the National Institute on Drug Abuse. All told, the U.S. Centers for Disease Control and Prevention (CDC) estimates that around 400,000 lives have been lost since the crisis began, including nearly 48,000 in 2018 alone.

The nation’s opioid epidemic has been especially devastating for rural communities. According to the CDC, drug overdose deaths have been more common by population size in rural areas than in urban ones. Rural doctors prescribe opioids more often by far, despite a nationwide decline in prescribing rates since 2012. Meanwhile, rural Americans have fewer alternatives to treat their very real pain, and they disproportionately lack access to effective addiction medication such as buprenorphine, according to a December 2019 *Health Affairs* journal article.

The crisis also exacts significant economic costs on the United States, through everything from taxpayer dollars supporting local and federal treatment programs to rising health care costs. Businesses, too, pay a heavy price, according to Stoddard Davenport, co-author of “Economic Impact of Non-Medical Opioid Use in the United States,” a comprehensive 2019 study by the Society of Actuaries. Opioid use has caused billions of dollars in lost worker productivity, higher disability claims, and other problems.

Against that backdrop, OUTLOOK turned to Davenport for a closer look at the costs that businesses and the economy bear, what companies are doing to counter the challenge, and where the crisis may be headed next.

OUTLOOK: When did the U.S. opioid crisis begin?

Davenport: Drug overdose deaths have been on the rise in the United States since as far back as the 1980s. But many consider the current crisis to have begun around 1999. Early in that decade, there was a movement to address concerns about undertreatment of pain, and then the number of opioids prescribed in the United States increased steadily through 2011, when opioid prescriptions peaked. Yet while the number of opioids prescribed since then has been falling, the crisis has continued, thanks largely to heroin and fentanyl.

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This Month's Expert



Stoddard Davenport is a Denver-based healthcare management consultant with Milliman, the international actuarial and consulting firm. As a

leader of the firm's behavioral health and population health teams, he leads research into the opioid crisis and other behavioral health problems. Davenport specializes in using data to inform decision-making in areas such as policy analysis, public health strategies and quantifying the economic impact of major public health issues.

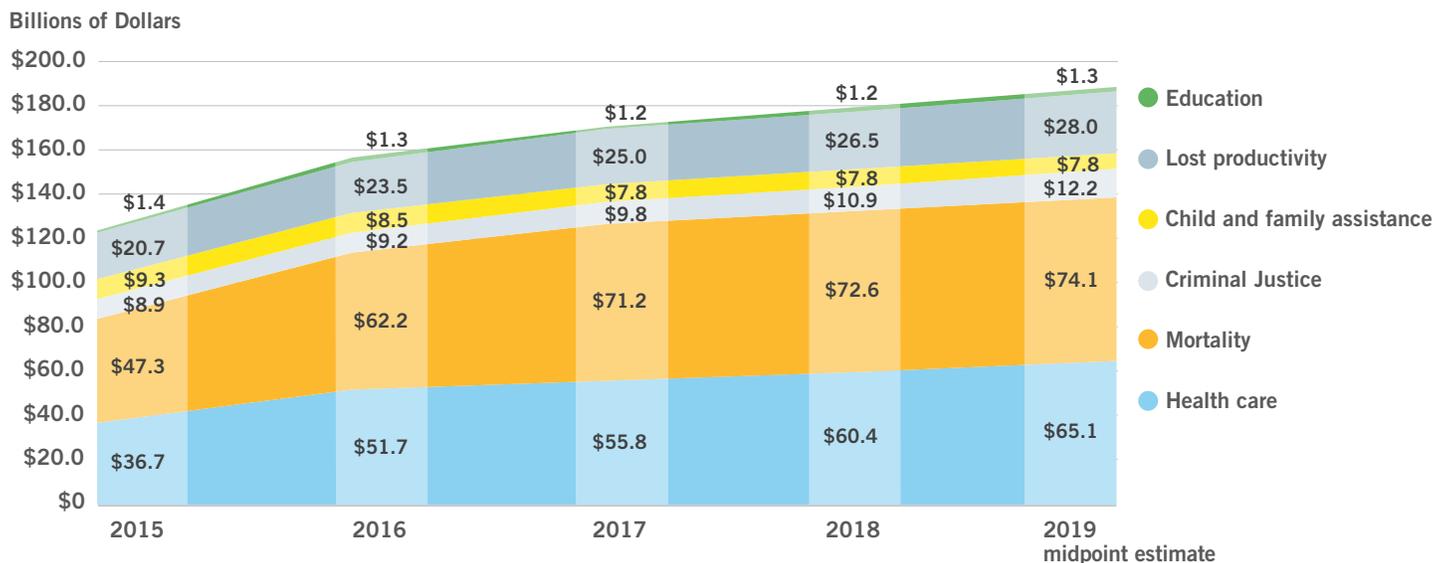
His research papers include investigations into addiction and mental health, and the cost of community violence on hospitals and health systems. Davenport graduated summa cum laude from Boise State University with a bachelor's degree in economics, and from Dartmouth College with a master's degree in public health.

OUTLOOK: What's the economic toll on the country?

Davenport: Just within the range of economic costs that we considered, the economic toll has been at least \$631 billion over the past four years, with as much as \$214 billion coming in 2019 alone. The biggest costs involve mortality and health care, as well as those related to loss of productivity and criminal justice activities, various forms of governmental assistance and education costs.

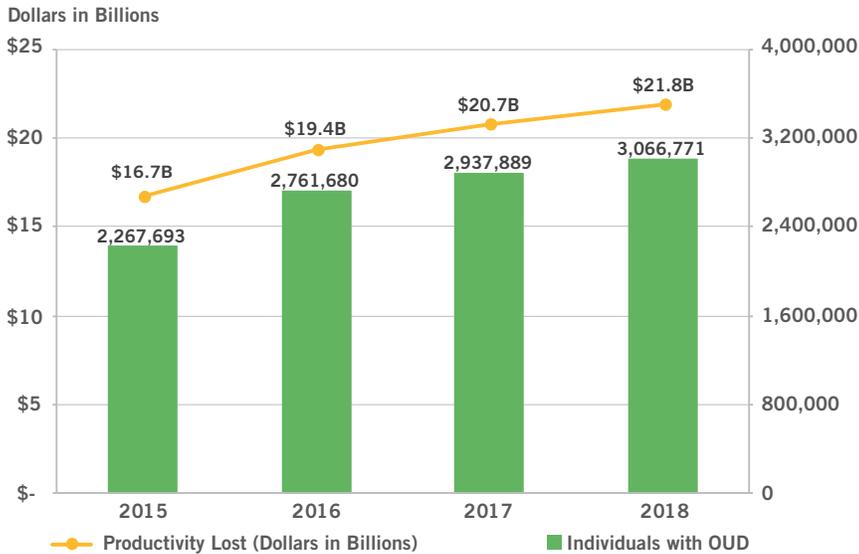
But the full costs of the opioid epidemic actually go much higher. There are a great many difficult-to-quantify factors. To name just a few: The cost to families due to lost household work, the cost to victims of crimes, the hidden cost of undiagnosed addiction and even the money that people spend on drugs instead of saving or spending on other things. None of these generates economic activity that's readily measurable, so they fell outside the scope of our analysis. But they are very real costs. Another is lost tax revenue. We've seen estimates that the opioid crisis cost states nearly \$12 billion in lost taxes from 2000 to 2016.

TRENDS IN TOTAL COSTS OF OPIOID USE DISORDER (OUD) BY CATEGORY, 2015-19



Source: "Economic Impact of Non-Medical Opioid Use in the United States," Society of Actuaries, 2019

U.S. LOST PRODUCTIVITY COSTS DUE TO NON-MEDICAL OPIOID USE, 2015-18



Source: "Economic Impact of Non-Medical Opioid Use in the United States," Society of Actuaries, 2019

OUTLOOK: How does the opioid crisis affect businesses?

Davenport: Businesses experience lost productivity in a variety of ways. We estimate that absenteeism, reduced labor force participation, incarceration and disability and worker’s compensation claims added up to about \$96 billion in lost productivity costs from 2015 through 2018. Of those, reduced labor force participation and absenteeism were the biggest costs.

But that’s just a portion of the overall toll. Companies also lose productivity through “presenteeism” – people who still go to work while not feeling well and are much less productive than they otherwise would have been. There’s the expense of finding and

hiring qualified candidates to replace those lost to the crisis or who fail drug screens. This comes at a time of a very low unemployment, when companies already struggle to fill all of their positions and meet production demands. Another cost is unemployment compensation for employees who have been terminated for opioid-related offenses.

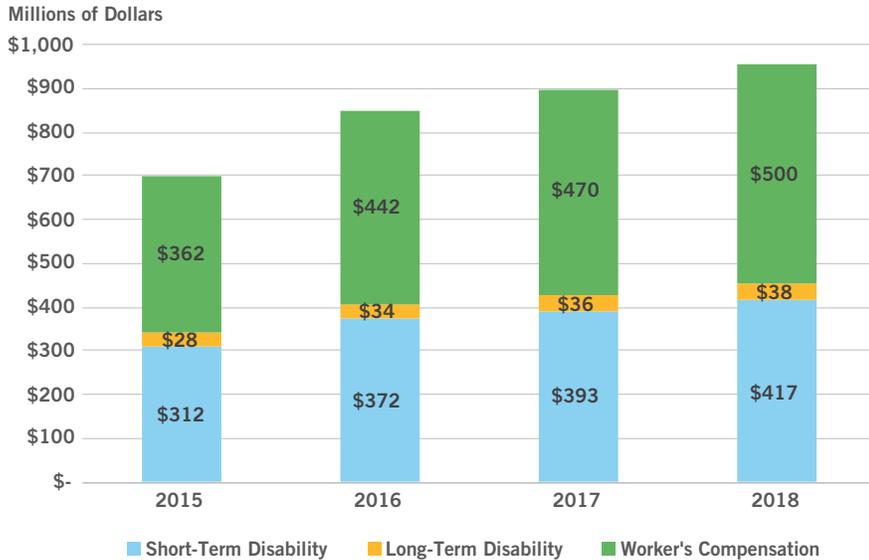
OUTLOOK: Are particular industries suffering disproportionately?

Davenport: Evidence suggests that physically demanding industries such as construction, resource extraction and manufacturing have been particularly hard hit. Some of that might be related to a higher incidence of work-related injuries in those fields, which can lead to pain reliever prescriptions or self-medication with non-prescription drugs. Agriculture may also be affected because of the physical nature of much of that work.

OUTLOOK: What are companies doing to combat the problem?

Davenport: What we’re hearing from a lot of companies is that they’re focusing on supporting and maintaining the workforce they already have, to get those who are dealing with substance abuse problems back to being able to work well and to prevent those who may be at risk from starting. One thing they can do is use the influence they may have with insurance providers to make sure the company health plans include access to good, robust benefits for the treatment of substance use disorders and other behavioral and mental health problems.

EMPLOYER COSTS RELATED TO OUD, 2015-18



Source: "Economic Impact of Non-Medical Opioid Use in the United States," Society of Actuaries, 2019

Other companies are trying to help people even before they become part of part of the workforce. I know of one manufacturer that's providing free treatment to help candidates who are in their employment pipeline, but are being held back by opioid addiction. If candidates are otherwise qualified but have failed a drug screening during the interview process, they're referred into a treatment program paid for by the employer. Candidates have the promise of a job once they successfully complete the program. In the meantime, they might be given light-duty jobs around the shop while they get on their feet.

OUTLOOK: What costs of the crisis have been rising most quickly?

Davenport: The biggest increases have come in mortality costs and health care. Mortality costs went up from \$47.3 billion in 2015 to an estimated \$74.1 billion in 2019. Health care costs jumped from \$36.7 billion a year to \$65.1 billion a year during that same period.

OUTLOOK: What do mortality costs include?

Davenport: Some are related to end-of-life medical expenses, such as emergency services and coroner medical exams. But the primary component is lost lifetime earnings for those who die prematurely because of opioid overdoses. Folks in their early working years, ages 25 to 34, have been particularly hard hit, with a loss in earnings they would have had over a normal, healthy life expectancy. In that age group alone, lost earnings for those who died from 2015 through 2018 totaled \$93 billion. Lost earnings for all age groups during that period were more than \$250 billion.

That affects others, too. For example, there are the people who might have been supported by that lost income. And when you remove from the economy the people who have died, there's an impact on GDP overall, because of lower economic participation and productivity.



The risk of overdose is much higher in areas with more fentanyl activity. I think that's what finally pushed this problem into the public eye.”

OUTLOOK: How do these deaths break down demographically?

Davenport: In 2017, when there were just shy of 48,000 opioid overdose deaths, 13,000 were 25- to 34-year-olds. There were more than 11,000 35- to 44-year-olds who died and more than 10,000 45- to 54-year-olds, with another 7,000 deaths of 54- to 65-year-olds. These are mostly folks in their working years, which is why the total for lost lifetime income is so high.

OUTLOOK: What does this crisis cost taxpayers in the form of law enforcement, criminal justice and government assistance?

Davenport: We found that about 30% of the economic burden, or about \$186 billion in 2015 through 2018, was borne by federal, state and local governments. During that period, total criminal justice costs, which include the cost of police protection, property lost to crime and incarceration and other expenses, were almost \$39 billion; the cost of child and family assistance was \$33.4 billion; and additional health care costs for people with opioid use disorder that are covered by Medicare, Medicaid and other public insurance added up to almost \$106 billion. There's also government support for food and nutritional assistance, income assistance, housing or homeless assistance and education.

OUTLOOK: What are the costs to the education system?

Davenport: We estimated that the opioid crisis has cost the education system around \$5.2 billion over the past four years. But that reflects only federal expenditures on special programs in elementary and secondary education. It doesn't include spending on higher education or state and local expenditures, which generally make up about 90% of the day-to-day funding for public schools.

Most federal spending is on special programs, either for special needs students, low-income students or others. That relates to the opioid crisis because many of those students now have greater needs. In some cases, federal education money is directly focused on grappling with substance use problems.



A (fentanyl) bust in California recently involved 18 pounds, which could probably fit in a couple of shoe boxes. But that was enough for a lethal dose for four million people.”

OUTLOOK: How did non-medical use of opioids become such a major problem so quickly?

Davenport: The opioid crisis has been developing since the 1990s. But the significant increase in public visibility over the past two years is likely tied to the dramatic increase in deaths occurring when the crisis entered its second and third waves, marked by significant increases in overdoses from heroin and illicitly manufactured fentanyl. Fentanyl, in particular, really just sort of took off beginning in 2013. It's far more potent than other common opioids, and the risk of overdose is much higher in areas with more fentanyl activity. I think that's what finally pushed this problem that had been developing for a long time into the public eye.

OUTLOOK: What makes fentanyl so dangerous?

Davenport: Primarily its potency. Just two milligrams or so can be a lethal dose. And because it's so potent, it's easy to transport. A bust in California recently involved 18 pounds, which could probably fit in a couple of shoe boxes. But that was enough for a lethal dose for four million people.

OUTLOOK: Are there specific parts of the country or demographic groups that have been particularly affected by this crisis?

Davenport: The effects have really been pretty widespread. But in general it seems that men – particularly young men in their 20s and 30s – have been at higher risk than women. A number of studies have found that socioeconomic circumstances also play a role. People who are uninsured or on Medicaid or who are disabled are also at higher risk. And then areas where fentanyl activity is high have been particularly hard hit. In parts of the Northeast, fentanyl really has become a major problem.

If you map out the prevalence of opioid use disorder, the incidence of opioid-involved emergency room visits and overdose death rates, you get three somewhat different looking maps. That highlights some of the differences across the country in the prevalence and the severity of the crisis. There are certain places where the prevalence of opioid use disorder isn't notably high, but because of the types of drugs that are being used, those are hotspots for overdose deaths, for example. In other areas, the prevalence is relatively high but there aren't as many deaths, because there's not as much fentanyl or other illicit drugs showing up in the mix.



Death rates may have plateaued in 2018 or may even be declining now. It's not clear yet whether this is just a statistical anomaly or whether we've finally begun to turn the corner on this crisis."

OUTLOOK: What kinds of solutions have proved the most effective in countering the crisis?

Davenport: We obviously haven't found a silver bullet yet. But I suspect that the best solutions will have to be complex and multifaceted in order to address all of the different risk elements of the crisis. We need approaches that address the drug environment to make the drugs that are out there less risky. We need responsible prescribing practices. And we also need to work on improving access to treatment, and of course to help prevent problems for those with health conditions or socioeconomic circumstances that place them at higher risk.

A leading clinical intervention is called medication-assisted treatment, which involves administering certain drugs – methadone, buprenorphine and naltrexone – that can help patients in recovery manage their withdrawal symptoms. In a heroin epidemic in France in the 1990s, buprenorphine was widely credited with reducing France's fatality rate by almost 80% after it was made more widely available. So there are things like that to keep folks alive while we work on addressing some of the deeper determinants that put people at risk.

OUTLOOK: What do your projections show happening in this crisis in the years ahead?

Davenport: The estimates in our report go only through 2019. But we're at an interesting juncture now where it's not really clear where things may go from here. The provisional estimates from the CDC suggest that overdose death rates may have plateaued in 2018 or may even be declining now. It's not clear yet whether this is just a statistical anomaly or whether we've finally begun to turn the corner on the crisis.

One thing to keep an eye on is overdose deaths involving fentanyl, because those are still on the rise. And if fentanyl activity expands westward, things could take another turn for the worse. ■

Interest Rates and Economic Indicators

The interest rate and economic data on this page were updated as of 12/31/19. They are intended to provide rate or cost indications only and are for notional amounts in excess of \$5 million except for forward fixed rates.

KEY ECONOMIC INDICATORS

Gross Domestic Product (GDP) measures the change in total output of the U.S. economy. The Consumer Price Index (CPI) is a measure of consumer inflation. The federal funds rate is the rate charged by banks to one another on overnight funds. The target federal funds rate is set by the Federal Reserve as one of the tools of monetary policy. The interest rate on the 10-year U.S. Treasury Note is considered a reflection of the market's view of longer-term macroeconomic performance; the 2-year projection provides a view of more near-term economic performance.

ECONOMIC AND INTEREST RATE PROJECTIONS

Forecasts courtesy of Bloomberg and Blue Chip Economic Indicators

U.S. Treasury Securities

2019	GDP	CPI	Funds	2-year	10-year
Q4	2.00%	2.40%	1.55%	1.57%	1.92%
2020	GDP	CPI	Funds	2-year	10-year
Q1	1.60%	2.20%	1.58%	1.60%	1.86%
Q2	1.90%	2.10%	1.53%	1.61%	1.89%
Q3	1.80%	2.00%	1.46%	1.62%	1.93%
Q4	1.90%	1.90%	1.37%	1.61%	1.95%

PROJECTIONS OF FUTURE INTEREST RATES

The table below reflects current market expectations about interest rates at given points in the future. Implied forward rates are the most commonly used measure of the outlook for interest rates. The forward rates listed are derived from the current interest rate curve using a mathematical formula to project future interest rate levels.

IMPLIED FORWARD SWAP RATES

Years Forward	3-month LIBOR	1-year Swap	3-year Swap	5-year Swap	7-year Swap	10-year Swap
Today	1.93%	1.78%	1.69%	1.73%	1.80%	1.90%
0.25	1.72%	1.69%	1.65%	1.71%	1.77%	1.88%
0.50	1.72%	1.66%	1.65%	1.70%	1.78%	1.91%
0.75	1.68%	1.63%	1.67%	1.75%	1.83%	1.93%
1.00	1.62%	1.63%	1.68%	1.75%	1.81%	1.94%
1.50	1.62%	1.65%	1.72%	1.80%	1.88%	1.98%
2.00	1.63%	1.66%	1.75%	1.81%	1.89%	1.98%
2.50	1.65%	1.69%	1.78%	1.86%	1.92%	2.01%
3.00	1.68%	1.72%	1.81%	1.90%	1.95%	2.04%
4.00	1.76%	1.84%	1.90%	1.97%	2.02%	2.09%
5.00	1.86%	1.94%	1.98%	2.08%	2.10%	2.13%

HEDGING THE COST OF FUTURE LOANS

A forward fixed rate is a fixed loan rate on a specified balance that can be drawn on or before a predetermined future date. The table below lists the additional cost incurred today to fix a loan at a future date.

FORWARD FIXED RATES

Cost of Forward Funds

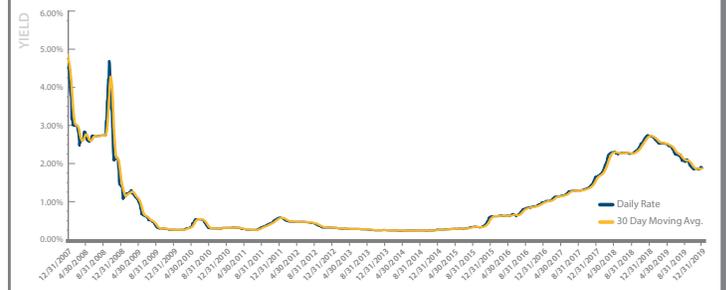
Forward Period (Days)	Average Life of Loan			
	2-yr	3-yr	5-yr	10-yr
30	5	5	5	5
90	5	5	5	5
180	5	5	7	7
365	5	5	15	12

Costs are stated in basis points per year.

SHORT-TERM INTEREST RATES

This graph depicts the recent history of the cost to fund floating rate loans. Three-month LIBOR is the most commonly used index for short-term financing.

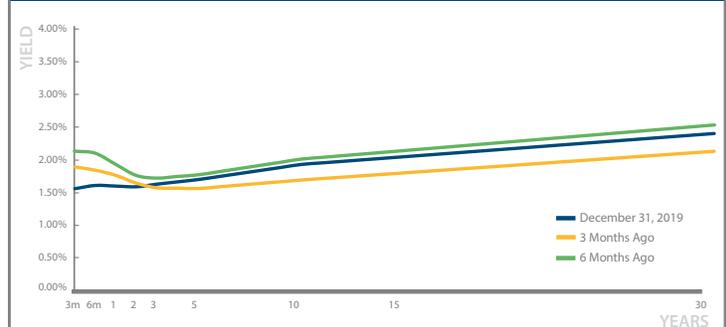
3-MONTH LIBOR



RELATION OF INTEREST RATE TO MATURITY

The yield curve depicts the relation between the cost of borrowing and the time to maturity of debt for a given borrower in a given currency. Typically, interest rates on long-term securities are higher than rates on short-term securities. Long-term securities generally require a risk premium for inflation uncertainty, for liquidity and for potential default risk.

TREASURY YIELD CURVE



COBANK UPDATE



CoBank Board Approves Special All-Cash Patronage Distribution, Elects Officers

In December, CoBank’s board of directors unanimously approved a special, all-cash patronage distribution for eligible customer-owners. The distribution, totaling approximately \$40 million, will be made in March 2020. The distribution will be incremental to the standard patronage payments the bank typically makes to member-borrowers in the spring of each year under its various patronage plans.

“We are in a position to make this special distribution due to CoBank’s continuing strong financial performance and robust capital levels,” said Kevin Riel, chair of the CoBank board of directors. “Patronage is a core element of the CoBank value proposition, and our board remains committed to delivering strong patronage returns to our customer-owners.”

This special patronage distribution to eligible customer-owners will be based on average daily loan balances held by the bank during the year. It will also vary by patronage pool, as detailed in the following table:

Type of borrower	Standard patronage rate*	Special patronage rate*
Agribusiness, communications and project finance	95 bps	12 bps
Electric, power and water	80 bps	10 bps
Purchased participations patrons	95 bps	12 bps

**Based on average daily balance of qualifying outstanding loan volume during 2019.*

Final patronage amounts, including the standard and special patronage distributions, will be released in February as part of CoBank’s year-end earnings announcement.

CoBank also announced board officers for 2020. The CoBank board elects its officers to serve a one-year term commencing Jan. 1 and expiring Dec. 31 each year.

About CoBank

CoBank is a \$136 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.

For more information about CoBank, visit www.cobank.com.

Kevin Riel will continue to serve as board chair. Riel has been a director since 2014, and board chair since 2018, and served as first vice chair in 2017. He is the president of Double 'R' Hop Ranches, Inc., a diversified farming operation primarily growing hops, in Harrah, Washington. He is a former director of Northwest Farm Credit Services, one of CoBank's affiliated Farm Credit associations, where he served as vice chair and chair.



Kevin Riel

Jon Marthedal will continue to serve as first vice chair. Marthedal has been a director since 2013, and has served as the first vice chair since 2018 and served as second vice chair in 2017. Marthedal is the owner and operator of Marthedal Farms in Fresno, California, a grape, raisin and blueberry farming operation, and serves as vice chair of the Farm Credit Council. Marthedal also serves as a director of several agricultural cooperatives and trade associations.



John Marthedal

Kevin Still will continue to serve as the second vice chair. Still has been a director since 2002, served as the Risk Committee chair from 2008 through 2017 and served as the second vice chair in 2015, 2016, 2018 and 2019. He is the president and chief executive officer of Co-Alliance, LLP, a partnership of five cooperatives supplying energy, agronomy and animal nutrition, producing swine and marketing grain in Avon, Indiana. He is also the owner and president of Still Farms, LLC, a grain farm, and serves as an executive or director of various agricultural retail and energy cooperatives.



Kevin Still

"I look forward to working closely with Jon, Kevin and the rest of our directors in the coming year," Riel said. "Our board and executive management team are fully committed to preserving and building the long-term financial strength of the bank so it can continue fulfilling its mission and delivering dependable credit and financial services to our customers."

CoBank's 2020 board consists of 14 directors elected by customer-owners from six voting districts across the country, as well as two outside directors and two appointed directors. ■