

Rising Oil Prices and the U.S. Economy: What's Ahead?

The price of a barrel of oil has a profound impact on the global economy. When the price moves steadily higher as it has during the past year, with about a 60 percent rise since June 2017, nations, industries and individual consumers take notice. The increase has hiked costs for airlines, farmers and summer travelers, and the United States, which buys four times more oil than it sells, has seen its trade imbalance rise. Analysts have predicted that prices, pushed above \$70 a barrel amid U.S. tensions with Iran, could ultimately surge to \$90 or more. That would add to already rising inflationary pressures and might even lead to slower U.S. economic growth.

Yet not everyone expects the past year's increase in oil prices to continue indefinitely. E. Russell (Rusty) Braziel, president and CEO of RBN Energy, believes the current uptrend in prices has to be considered in the context of major changes to the industry in recent years. Dramatic improvements in the technology for oil extraction have more than doubled U.S. production, and the further prices rise, the more incentive there is to drill new wells in West Texas, North Dakota and other oil-rich regions. Braziel foresees a repeating cycle in which higher prices lead to greater supply and then lower prices.

Braziel spoke to OUTLOOK about the many factors that can affect the price of oil, the economic impact of price fluctuations and why the usual view of U.S. energy independence may be flawed.

OUTLOOK: What are the key drivers of the past year's run-up in oil prices?

Rusty Braziel: The recovery in U.S. benchmark West Texas Intermediate (WTI) crude oil prices, from \$50 per barrel to the low-\$70s that started late last year, was driven primarily by developments in international markets. The late 2017 deal between OPEC and Russia to curtail production has had an effect, political tensions in the Middle East increased and the potential for renewed U.S. sanctions on Iran became likely. Add to that curtailed production from Venezuela because of the political crisis in that country and generally higher global demand and you have a recipe for a price rebound that has brought prices to where they've been recently.

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This Month's Expert



E. Russell (Rusty) Braziel is president and CEO of RBN Energy, a leading energy market consultancy and analytics company

based in Houston, Texas, and is the author of *The Domino Effect*, a bestselling book about energy markets. He was appointed to the National Petroleum Council by U.S. Secretary of Energy Rick Perry in 2018 and is a member of the North American Energy Standards Board.

Braziel spent 20 years with Texaco (Chevron), serving as vice president of Natural Gas Marketing and Trading and NGL Supply. Subsequently, he was VP of Business Development for The Williams Companies and was a co-owner and senior executive at Bentek Energy. Braziel holds BBA and MBA degrees in Business and Finance from Stephen F. Austin University. In 2014, he was named as SFA's Distinguished Alumnus.

OUTLOOK: *The Trump administration has been pushing allies to zero out their oil imports from Iran, and Iran has threatened retaliation. How much additional impact do you expect this conflict to have on crude oil prices?*

Braziel: The more Iranian oil taken off the market, the more upward pressure there will be on oil prices. However, during the previous sanction period, considerable volumes of Iranian oil continued to flow, both to countries not threatened by U.S. retaliation, and through back door arrangements. And of course, there is always the question of how effective the administration's threats will be. So while there will be an impact on prices, most likely that impact will be muted.

OUTLOOK: *The U.S. economy has continued to perform well despite the increase in oil prices. What risks do higher prices pose to the economy and the ongoing recovery?*

Braziel: There are risks, but it's a mixed bag. Higher energy prices are tough for transportation and other energy-reliant businesses. However, there are so many jobs dedicated to the production of oil and gas in Pennsylvania, North Dakota, New Mexico, West Virginia, Ohio, Oklahoma and Texas that higher energy prices can boost the economy in those regions—and lower prices will slow it down. Price extremes in either direction are bad for the U.S. economy. We want energy prices to stay in the “Goldilocks” zone, somewhere between the \$50s and \$70s per barrel.

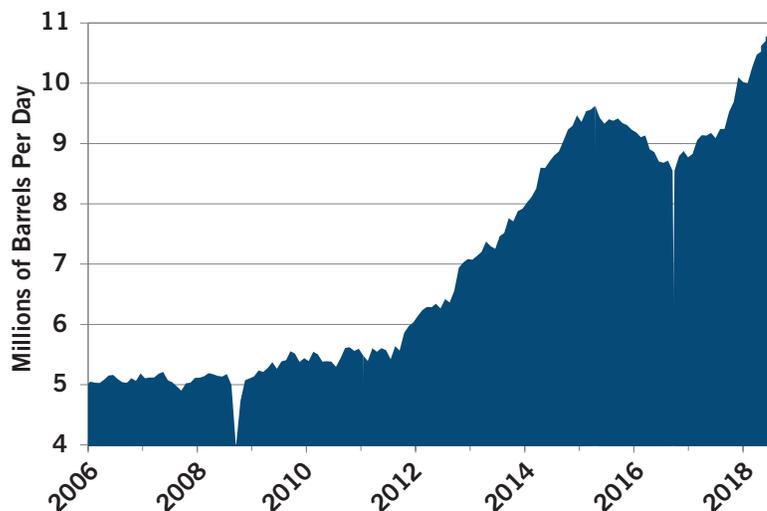
OUTLOOK: *What about in rural economies?*

Braziel: It's a complex question, but generally the same thing applies. For example, if the rural economy is in the shale oil-rich parts of Oklahoma, higher energy prices will lift the economy. If the rural economy is based on agriculture, then lower energy prices generally help. The exception would be areas that produce corn used for ethanol, where low prices could be a problem.

OUTLOOK: *How does the price of oil influence inflation and interest rates?*

Braziel: Because the price of oil is a major factor in our economy, it certainly has a big impact on inflation and interest rates. However, the modeling process necessary to determine exactly what that impact may be is extremely complex and fraught with the need for a lot of judgment calls. We don't put much faith in those kind of models.

U.S. CRUDE OIL PRODUCTION



Source: RBN Energy

OUTLOOK: What role has Saudi Arabia, the traditional oil superpower, played in moving prices so much higher in the past year?

Braziel: By taking an aggressive position in cutting production, and by developing an alliance with Russia to do the same, Saudi Arabia through OPEC has returned to the role it has had for most of the past 40 years as the most important arbiter of oil prices. However, increasing U.S. shale production has significantly diminished Saudi Arabia's power and influence over the oil market, meaning that Saudi Arabia can only increase prices so far without unleashing an onslaught of U.S. production growth that would essentially offset any cutbacks the Saudis make.

OUTLOOK: Where do you foresee oil prices heading for the balance of 2018 and beyond?

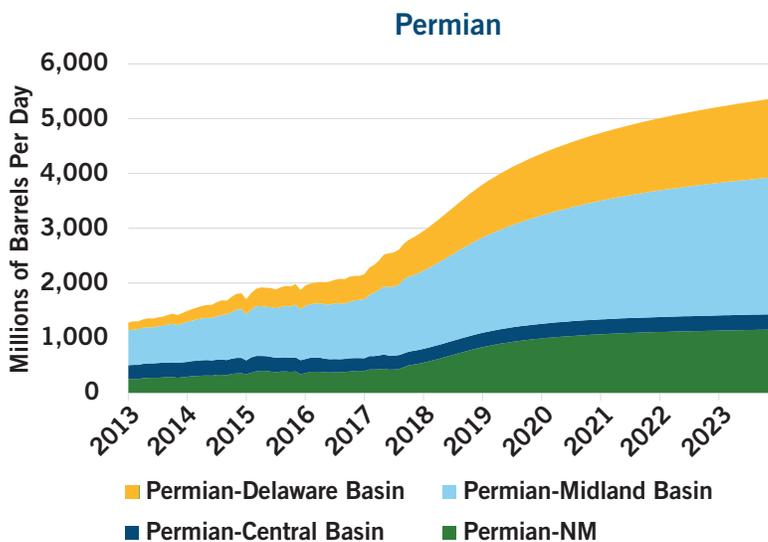
Braziel: The price for benchmark WTI will be driven by a combination of domestic and international developments, including the ongoing status of the OPEC-Russia production cutback agreements, increases in U.S. production as infrastructure problems are resolved and global demand. Assuming the current status quo for these factors, we think crude prices will cycle between the mid-\$50s to the mid-\$70s for the foreseeable future. There will be short-term spikes, such as we saw this spring and summer, that will take prices above that range. But chances are good that's where prices will be most of the time.

It's important to note that there are still gluts in inventory and supply in some areas, and not all regions have enjoyed the same level of price growth. For example, Canadian crude prices have been stuck in the mid \$50s per barrel, mostly because of infrastructure constraints. There is simply not enough pipeline capacity available to get that crude to market. Some U.S. oil producing regions are experiencing similar problems.

OUTLOOK: Can you elaborate about the infrastructure problems?

Braziel: There's a pipeline capacity shortage, not just for oil but for natural gas and natural gas liquids and other things. In certain regions of the country, overall production in recent years has grown much faster than most producers and most midstream companies—those that transport fuel—expected. Effectively, production in some areas has outrun the ability to be able to take that production to market.

PERMIAN OIL PRODUCTION FORECAST



Source: RBN Energy

The Permian Basin in western Texas and southeastern New Mexico is a good example. It's the most prolific oil-producing region in the United States, but transportation problems have kept prices there \$10 to \$15 per barrel lower than the U.S. benchmark WTI crude oil in Cushing, Oklahoma. You can drill a well in the Permian in less than a month; it takes at least two years to build a pipeline. So pipeline construction has lagged oil production, and now all available pipelines out of the Permian are essentially full. Trucks could take some of the pressure off, except that the strong economy means trucks are in demand for transporting other goods. Oil companies haven't been able to find enough drivers to move all of their oil. That's why prices in the Permian are well below those on the Gulf Coast, even though it's only 450 miles away.

OUTLOOK: By what magnitude has oil production in the U.S. increased?

Braziel: In the past five years, the U.S. has gone from producing five million barrels a day to 10.9 million barrels a day. No one predicted production would increase at that rate. But it happened. Thanks to improvements in fracking and other production technologies, one rig can now produce from five to 12 times as much oil and gas as it could five or six years ago. If I get five times more productive in producing a barrel of crude oil, my break-even price for that oil drops by a factor of five, which means that the break-even price is now just 20 percent of what it was before that productivity improvement started. That's an enormous change.

OUTLOOK: What is the current break-even price for U.S. oil production, and where do we stand relative to that benchmark?

Braziel: There is a wide range of break-even prices, depending on location. It all depends on the rock—the geology. Some parts of the Permian have break-even prices below \$25 per barrel. Up in the Bakken in North Dakota, the most prolific counties such as Mountrail and McKenzie have break-even prices in the low \$40s, while 25 miles north of those the break-even is up in the \$65 range. As a general statement, crude production in the U.S. will continue to grow, even if overall crude prices fall back into the low \$50 per barrel range.



U.S. production capability has helped create a cyclical oil market that we expect will continue as far as the eye can see.”

OUTLOOK: Why has fracking made such a difference?

Brazil: Fracking is a technique that’s been used for the past 70 years to enhance flows of hydrocarbons through rock so they can be economically recovered. Over the past 20 years, producers have become much more skilled at using this technique to produce oil and gas out of tight formations—the otherwise impermeable rock that we call shale. It is this increase in production that was primarily responsible for the decline in crude prices from more than \$100 per barrel 10 years ago to less than \$40 per barrel in 2015, and it’s the key factor that is keeping prices below \$100 per barrel today.

OUTLOOK: What does all of this mean for long-term oil prices?

Brazil: It means that OPEC and Saudi Arabia have a problem. They can affect prices, but only over the short-term. For example, on June 22 they agreed to allow only a modest increase in production. When that hit the news, the price of a barrel of crude rose by \$1.50 within 12 hours. So they still can make changes that influence the market. But if prices were to go back up to \$100 per barrel due to OPEC actions, a flood of new production in the U.S. would eventually crush those prices.

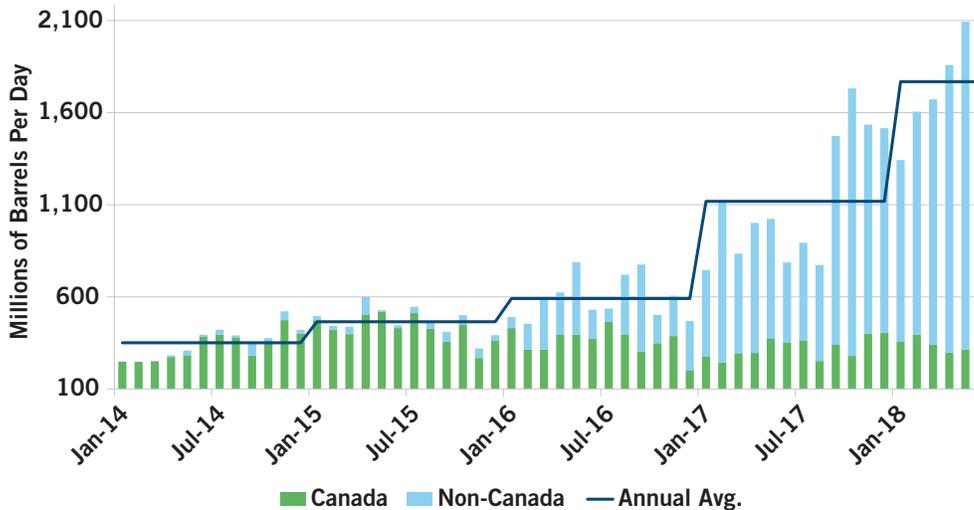
U.S. production capability has helped create a cyclical oil market that we expect will continue as far as the eye can see. When prices rise, U.S. production speeds up. When production speeds up, prices ultimately flatten. And when prices flatten, production slows. That cycle is going to repeat itself again and again.

OUTLOOK: To what extent do higher oil prices renew the focus on alternative energies?

Brazil: Growth in alternative energies is driven by consumer enthusiasm for greener energy, policy decisions at various levels of government and by the cost of energy from fossil fuel sources. It would be difficult to parse out which drivers are having the most impact on the wide range of renewable sources, such as solar, wind and biofuels.

That said, there is no doubt that the very low energy prices we saw in 2015-16 slowed the pace of renewables growth. Low natural gas prices have continued to constrain growth of solar and wind for power generation, except where government policy encourages growth in those resources. So while higher energy prices will generally encourage more renewables, it is only one factor—and not necessarily the most important one.

U.S. CRUDE OIL EXPORTS



Source: RBN Energy

OUTLOOK: Politicians and others often cite energy independence as a strategic goal for the United States. Where do we stand?

Braziel: There’s no generally accepted definition of what energy independence really means. People often mistakenly define it as no more imports of oil. That oversimplifies a complex system in which U.S. and global companies export and import according to a wide array of market forces and needs.

At the end of 2015, President Obama signed a law allowing the first global U.S. oil exports in 40 years. Prior to that, exports were limited mainly to Canada, as long as the oil would be used there, and to a few other places under special circumstances. Thanks to having those restrictions lifted, we now export about 2.2 million barrels of crude oil a day. That could easily rise by another million barrels over the next year. But because U.S. energy needs wouldn’t change, that increase in exports would have to be accompanied by a similar increase in imports—so that our refineries could maintain their same production of gasoline and diesel. Under this scenario, does that rise in imports make us less independent? I submit that it doesn’t.

If, on the other hand, we define independence as exporting more total energy than we import, we will probably be there in the next few years. By some measures it has already happened. While we still import much more crude oil than we export (imports of 7.9 million barrels a day versus 2.2 million of exports) when you include gasoline, diesel, natural gas liquids and coal, the balance looks much different—we are already exporting at or near what we import. But even by that definition, though, “independence” is a problematic term. We’re never going to produce 100 percent of the energy we use. Each component of the energy complex is different. You can’t use coal to run your car, and you would not use gasoline to generate electricity. It will always make economic sense to export some of the energy products we produce and import some energy products produced by others. ■

Interest Rates and Economic Indicators

The interest rate and economic data on this page were updated as of 6/30/18. 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

	GDP	CPI	Funds	2-year	10-year
2018					
Q3	3.00%	2.50%	1.96%	2.68%	3.07%
Q4	2.80%	2.10%	2.17%	2.80%	3.17%
2019					
Q1	2.40%	2.20%	2.32%	2.92%	3.26%
Q2	2.50%	2.20%	2.45%	2.99%	3.30%
Q3	2.30%	2.30%	2.53%	3.07%	3.37%

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	2.39%	2.61%	2.86%	2.89%	2.90%	2.93%
0.25	2.55%	2.75%	2.89%	2.90%	2.90%	2.94%
0.50	2.66%	2.86%	2.95%	2.92%	2.92%	2.95%
0.75	2.80%	2.94%	2.97%	2.96%	2.96%	2.99%
1.00	2.87%	2.99%	2.96%	2.93%	2.94%	2.96%
1.50	3.00%	3.00%	2.98%	2.97%	2.97%	3.00%
2.00	2.96%	2.99%	2.94%	2.93%	2.94%	2.97%
2.50	2.94%	2.97%	2.93%	2.93%	2.96%	2.98%
3.00	2.92%	2.94%	2.91%	2.93%	2.97%	3.00%
4.00	2.88%	2.90%	2.91%	2.94%	2.96%	3.00%
5.00	2.87%	2.90%	2.92%	2.99%	3.01%	3.01%

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

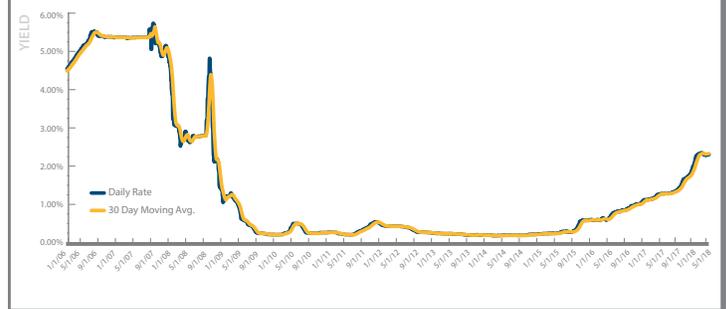
Forward Period (Days)	Average Life of Loan			
	2-yr	3-yr	5-yr	10-yr
30	5	5	5	5
90	9	8	6	6
180	15	14	11	9
365	27	26	22	17

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.

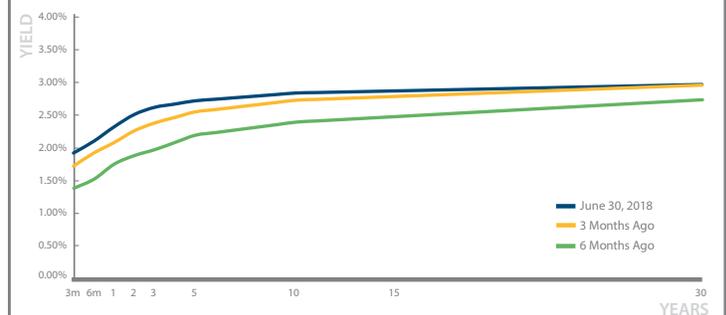
3-MONTH LIBOR



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



About CoBank

CoBank is a \$133 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.

COBANK UPDATE

Citigroup's Eric Itambo Appointed as CoBank Chief Banking Officer



Eric Itambo

CoBank is pleased to welcome Citigroup's Eric Itambo as the bank's new Chief Banking Officer, with responsibility for all lending operations and banking services.

Itambo, 48, spent more than 20 years at Citi in a variety of positions in the United Kingdom, Asia, the Middle East, New York and Chicago. He most recently served as Managing Director and Citi's head of U.S. commercial

lending, leading a team that included industry specialists, credit analysts and other credit professionals. He was responsible for a loan portfolio that spanned a wide variety of industry sectors, including food and agriculture; energy; industrials; consumer/retail; technology; and health care. Originally from Kenya, Itambo is a Rhodes Scholar and holds an MBA from Oxford University and a bachelor's degree from Egerton University.

"We're extremely fortunate that Eric has joined CoBank and will be overseeing the business relationships we have with our customers across all the industries we serve," said Thomas Halverson, CoBank's president and chief executive officer. "Eric is a talented banker with deep expertise in commercial lending and the delivery of credit to business enterprises. In addition, he has developed extensive experience over the course of his career in commercial banking, capital markets, infrastructure finance, public-private partnerships and other areas of significant value to CoBank. We look forward to his contributions as a member of the bank's executive team."

"I'm delighted to join CoBank," Itambo said. "CoBank has a uniquely strong business franchise driven by the depth and longevity of its customer relationships in rural industries. I look forward to helping the bank continue to grow, deliver outstanding service to its customers, and fulfill its mission in rural America."

Itambo reports to Halverson and serves as a member of CoBank's Management Executive Committee. ■