

# Crude Awakening

"IT'S A GOOD TIME TO LOOK AT THE INDUSTRY AGAIN," SAYS JENS ZIMMERMANN, CFA

By Nathan Jaye, CFA

How well do you know the oil and gas industry? Jens Zimmermann, CFA, is an equity analyst at VP Bank and author of CFA Institute Industry Guide *The Oil and Gas Industry*. In this interview, Zimmermann identifies the industry's many players and subsectors and describes the correlation between each subsector and the price of oil.

The entire in-depth guide is available free to CFA Institute members at [www.cfapubs.org/doi/suppl/10.2469/ind.v2016.n1.1](http://www.cfapubs.org/doi/suppl/10.2469/ind.v2016.n1.1).

## KEY POINTS

Although the energy sector underperformed in recent years, it has outperformed the MSCI World Index by 11% since the start of 2016.

The oil price is not a simple proxy for industry health; each industry subsector correlates differently with the price of oil.

Despite attempts to push shale oil producers out of the market, shale oil will continue to be a force in the future.

### How is the oil sector performing?

It's a good time to look at the sector again. Since the oil price decline began in June 2014, the energy sector has underperformed the MSCI World Index by more than 30% from June 2014 until the end of August 2016. However, if you look at the performance from the start of 2016 (when oil prices made their low) until August 2016 then the MSCI World Energy Index has outperformed the MSCI World Index by 11%.

### What are the relevant subsectors?

One is the exploration and production (E&P) companies, which only focus on the so-called upstream business of finding and producing hydrocarbons (oil and gas). You also have the refining and marketing (R&M) subsector, which is focused on the so-called downstream business. After oil is explored and produced, it's refined into different product types—gasoline, heating oil, jet fuel, kerosene, and so on.

The third subsector—the big integrated oils (IOs)—are a mixture of E&P and R&M companies because they have both upstream and downstream operations. These companies are always in the news: Chevron, ExxonMobil, BP, Royal Dutch Shell, Total, and Eni. They own the oil fields, they produce oil with the help of oil services companies, and they refine oil in their own refineries and market them in their own gas stations.

The fourth subsector is the oil services companies, which we further separate into oil field services, engineering and construction companies, and pure drillers (the contract drilling companies). Each subcategory correlates a bit differently with the oil price.

### Who are the players in oil services?

Schlumberger and Halliburton are probably names most investors are familiar with. The big distinction here is between oil field services and drilling versus engineering and construction companies.

Oil field services is everything that's below the mud line, where drilling into the ground is involved. In comparison, engineering and construction companies are doing all the work that is above the earth or seabed. They're building refineries, liquefied natural gas (LNG) plants, and subsea pipelines. The engineering space is dominated by big European names, such as Technip and Saipem.



Jens Zimmermann, CFA

### Different companies handle onshore and offshore drilling?

Exactly. Those are two subcategories within drillers. It's a different technological expertise to drill 5,000 or 10,000 feet below water versus onshore. Onshore wells are also that deep, but it's not comparable to the technical challenges you're facing offshore. Therefore, we also distinguish between offshore drillers based on different water depths.

### What about refining and marketing?

Usually, R&M is lumped together. Companies like Valero, for example, refine oil and then sell it in their own gas stations. That's why the refining and marketing portions are often mentioned in the same breath. Crude oil in itself has no value. To generate income from it, you have to refine it into marketable products such as gasoline, heating oil, and diesel.

Gasoline is the highest-value product. You get the highest price for it. Distillates (diesel and heating oil) are the middle section, and the lowest-value product in the value chain is heavy fuel oil. A simple refinery has a specific product mix—how much gasoline, distillates, and heavy fuel oil that they can produce out of one barrel of oil. It's an advantage if you have a more complex refinery that can influence the product mix you can produce from one barrel of oil.

### What differentiates crude oil types?

I distinguish between sweet and sour crudes. Sweet crude oil has much less sulfur content. The more sulfur it has, the more sour it is considered. If the sulfur content is less than 0.7%, it's considered sweet. For example, West Texas

Intermediate (WTI) would be a typical sweet crude oil. That means you need less technology, you need fewer refining steps, to produce a barrel of gasoline out of it.

Sweet and sour have nothing to do with taste. If it has very little sulfur, it's easy to process into gasoline—it's sweet. We like it. If it has lots of sulfur, we need to do a lot of refining—we don't like that, and we call it sour.

WTI and Brent (from the North Sea) are the most widely produced crude oils, and both are sweet crude oils. From a refinery perspective, using WTI or Brent wouldn't make a big difference. In contrast, the sour crudes are quoted in terms of price differential to WTI and Brent oils.

### **Who are the pure E&P companies?**

E&P companies sell the produced oil via pipeline or via trucks to the refining companies. Here you have Apache, a well-known company in the United States. You have ConocoPhillips, now a pure E&P company because in 2011 it spun off its downstream R&M business into a separate listed company called Phillips 66.

Another way to distinguish E&P companies is by exposure. Are they producing mostly oil or natural gas? When you produce oil, you automatically produce natural gas. How much oil and how much natural gas depends on the depth and geology. Chesapeake Energy focuses on natural gas production. Cabot Oil & Gas is more of a natural gas producer. Apache falls more into the oil category.

### **How do subsectors correlate with oil price?**

Pure E&P companies are very highly geared to the oil price in a positive way. The EPS (earnings per share) of pure E&P companies are directly related to the natural gas or oil price. So when oil prices go up, their earnings go up.

Oil field services companies have a more indirect relationship to oil prices. Their revenues are the capital expenditures of E&P and IO companies—how much these firms are willing to spend on drilling. Whenever oil prices go up, the E&P companies have an incentive to drill more because they want to generate more revenue. That translates into more capital expenditures and more revenues for the oil services companies.

In contrast, for R&M companies, oil is an input in their refining operations. When oil is more expensive, it cuts into their margins because they have to buy the oil and then convert it into these refined products.

If the oil price is only marginally increasing, they can pass on higher oil costs by raising gasoline prices. But above, say, \$4 a gallon, consumers will begin driving less and refiners can no longer pass on higher oil to their customers. If oil prices continue to increase, this eats into the margins of the refining companies. If the oil price drops, it's beneficial for a refining company because often they won't pass on their cost savings by lowering gasoline prices right away. So, you could say that earnings and share prices of refining companies have a negative correlation to the oil price, while E&P companies have a positive correlation.

### **What are the correlations of big oil companies?**

They are correlated to the oil price but to a much lesser degree than pure E&P companies or oil services companies. For big oil, the E&P side of their business benefits when the oil price goes up, but the R&M division suffers. On the other hand, when oil prices collapse, then the E&P division suffers but the R&M division tends to benefit because the cost of producing gasoline goes down. That's why their integrated business mix makes them a more defensive investment.

They're called "big oil" for a good reason. They're big in terms of market cap and production capacity. They produce 2 million barrels per day versus the typical E&P company, which may only produce 300,000–400,000 barrels per day. Big oil companies can absorb oil price fluctuations much more easily than a smaller, pure E&P company. That's why you tend to shift—when oil prices become volatile or even decline—toward integrated oil companies.

### **What effect are clean fuels having on the industry?**

The energy demand from clean fuels is projected to grow at 7.2% per year until 2035, compared with approximately 0.5% for oil, which has the slowest annual growth rate of any fuel. The big catch is clean fuels are growing from a very small base. So even by 2035, only 4% of the global energy demand will be met by renewables. It's growing at a much faster rate, but it isn't gaining much market share and remains very small compared to oil and gas. This could change, obviously, if technology changes.

### **What about shale oil and fracking?**

US shale oil explains why oil prices collapsed from more than US\$100 per barrel in 2014 to US\$26 per barrel in January 2016. The oil price collapse was not a demand problem. It was just too much oil coming from US shale into the market. They started producing in 2010, and nobody expected them to have such strong production growth. That's one component.

The second component was that OPEC did not cut their production. Their rationale was that if oil fell to \$30 or \$40 per barrel, then US shale oil producers, which can produce profitably at \$50 or \$60 per barrel, would be wiped out. They would have to leave the market, and then the supply side would rebalance itself.

What we've actually seen is that shale oil production has declined but not to the level the Saudis or international analysts were expecting. The US shale oil producers are becoming more technologically advanced. They have been able to lower their break-even costs. The original intention of the Saudis—to push shale oil completely out of the market—clearly failed. Shale oil is going to be a force going forward.

Nathan Jaye, CFA, is a keynote speaker and member of CFA Society San Francisco.

#### **KEEP GOING**

*The Oil and Gas Industry*, CFA Institute Industry Guides [[www.cfainstitute.org](http://www.cfainstitute.org)]