MERCER CAPITAL
BUSINESS VALUATION & FINANCIAL ADVISORY SERVICES

VALUE FOCUS
Refining

2017 Issue II

Refining Overview

Over the last six months of fiscal 2017, changes in the oil & gas market led to increasing refinery revenues and the expansion of margins. Earnings in the refining industry increased in fiscal 2017 as refined product prices increased, the crack spread widened, and volumes sold increased as demand rose. With recent gains in the industry and the effect of the Tax Cuts and Jobs Act of 2017, refiners should sail **steadily** through 2018. However, the future impact of many regulations surrounding the oil & gas industry is still uncertain.

The data presented in this newsletter includes the most recently available information as of February 28, 2018. This includes public company earnings metrics as of December 31, 2017 and information from the EIA as was available.

MERCER CAPITAL

Oil and Gas Industry Services

Mercer Capital provides business valuation and financial advisory services to companies in the energy industry.

Services Provided

- Valuation of oil and gas companies
- Transaction advisory for acquisitions and divestitures
- Valuations for purchase accounting and impairment testing
- Fairness and solvency opinions
- Litigation support for economic damages and valuation and shareholder disputes

Industry Segments

Mercer Capital serves the following industry segments:

- Exploration & Production
- Refining and Marketing
- Oil Field Services
- Midstream Operations
- Alternative Energy

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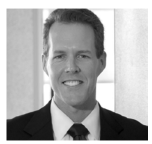

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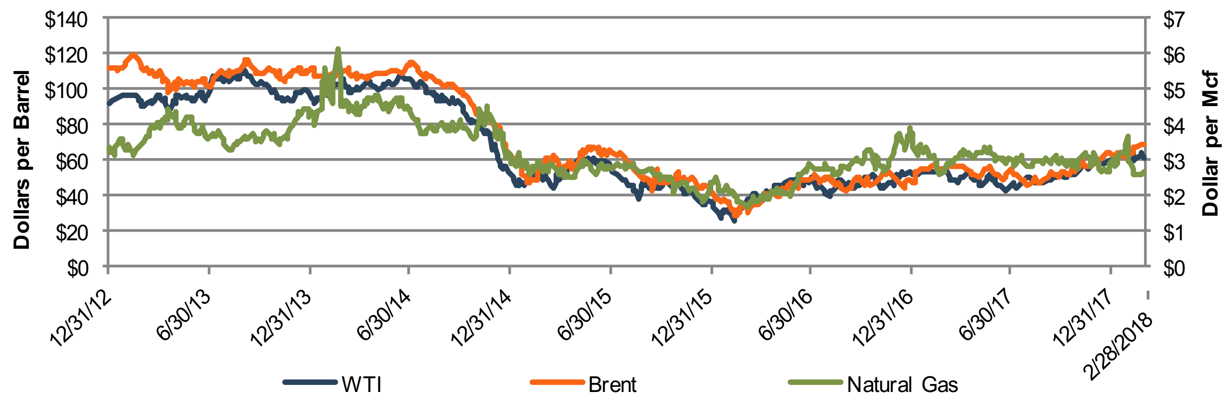
Oil & Gas Prices

Oil prices reached $61 per barrel as of February 28, 2018, which represented a 14% increase since the prior year. In 2017 WTI futures prices returned to backwardation, and oil price volatility was relatively calm as the price stayed within an $18 band all year ($42 – $60). Because refined product price changes generally lag crude prices, the stability of oil prices was a welcomed event.

Oil and Gas Prices

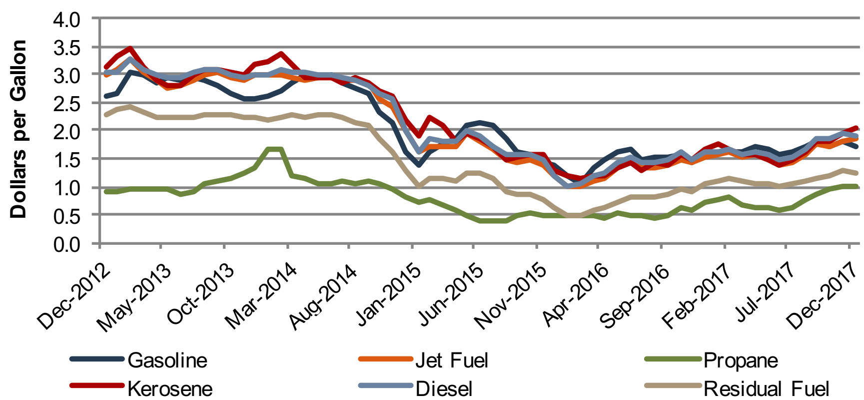


Source: Bloomberg

Refined Product Prices

Although crude prices rose, so did refined product prices. As shown in the chart on the next page, the price of gasoline fell to a low of $1.05/ gallon in February 2016, but has since increased by almost 65% to $1.72/ gallon as of December 2017, which is the most recent data available. Although the price of gasoline only recovered by 4% over the last year, the price of other refined products such as propane and jet fuel increased by 19% and 11% respectively.

Refined Product Prices



Source: EIA

YOY Change	
Gasoline	4.17%
Jet Fuel	10.56%
Propane	18.73%
Kerosene	9.87%
Diesel	9.22%
Residual	10.12%

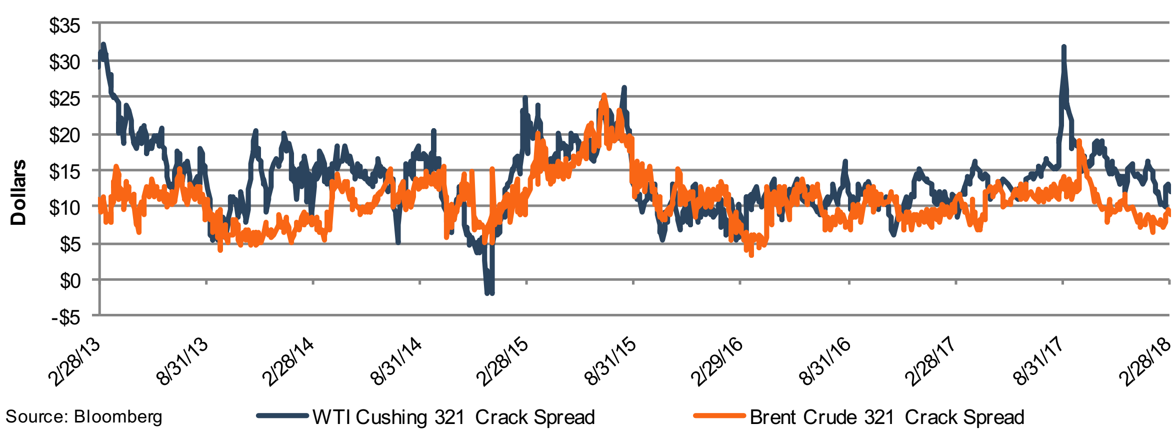
Crack Spread

The crack spread is the price differential between crude oil and its refined oil products. The 3-2-1 crack spread approximates refinery yield using the industry average for refinery production. For every three barrels of crude oil the refinery processes, it makes two barrels of gasoline and one barrel of distillate fuel.

Historically, the WTI Cushing 3-2-1 crack spread was higher than the Brent Crude 3-2-1 Crack Spread because U.S. producers were not allowed to export crude except to Canada and the price of WTI crude was depressed. However, as the cost of crude fell around the world and the export ban was lifted, crack spreads converged.

Crack spreads **demonstrate some seasonality**, increasing in the summer months as the amount of miles driven increases and decreasing in the winter which is a period of lower demand for gasoline. The crack spread peaked at the end of August as many refiners were forced to shut down due to **damage caused by Hurricane Harvey** and the price of refined products spiked due to product shortages. The spread has since fallen back to approximately $6 per barrel. Overall, lower inventory and higher demand led to increase crack spread which helped margins in 2017.

Crack Spread



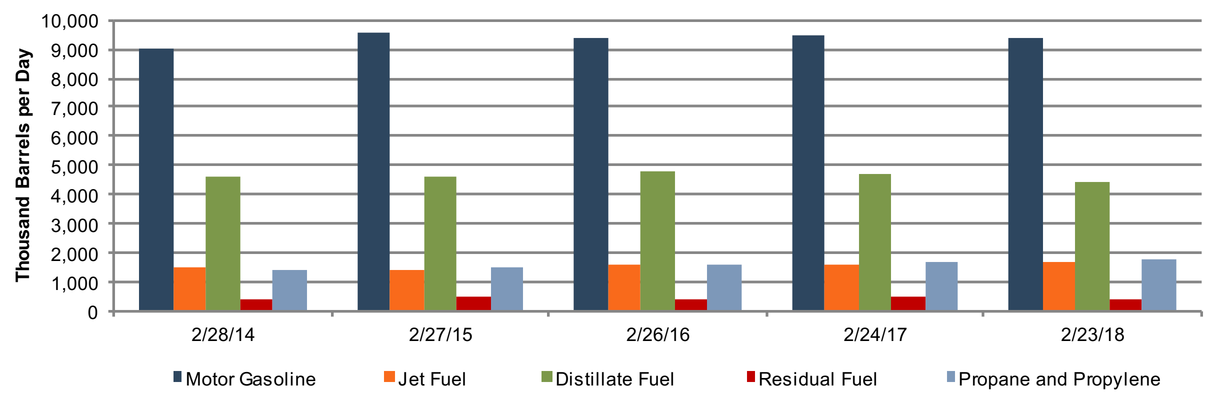
Source: Bloomberg

Refined Product Volumes

Refined product production varied by product type over the last year. The production of jet fuel and propane increased by 6.6% and 6.5% respectively and production of distillate and residual fuel fell by 6% and 9% in that order. Propane production has increased as the U.S. became a net exporter of propane. Production of residual fuel has declined over the last few years due decreases in both demand and supply. Refiners have prioritized the production of lighter, more profitable products over residual fuel decreasing the supply. And the power sector has shifted from relying residual fuel to natural gas, decreasing demand.

Although the EIA predicts that the fuel economy of light duty vehicles will lead to a decline in consumption of travel fuels, the recent increase in exports has encouraged refiners to continue increasing production.

Refined Product Volumes

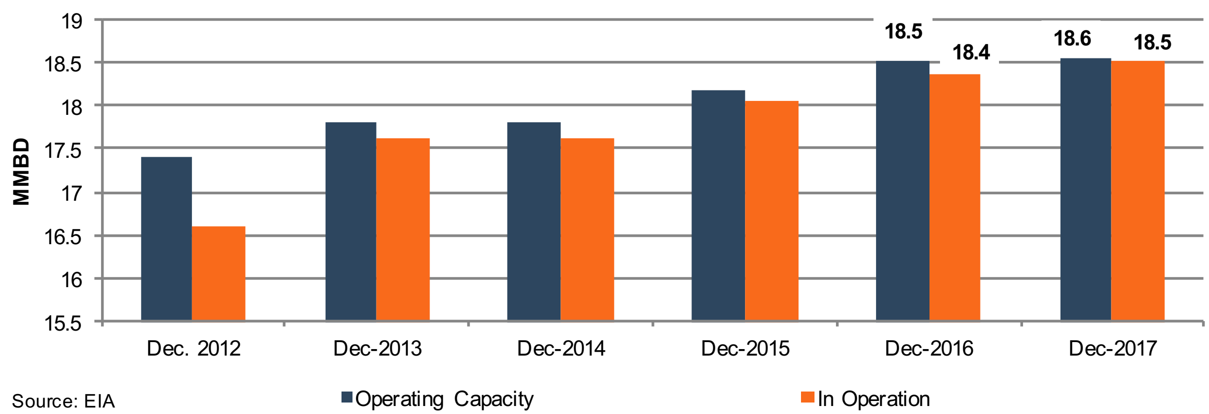


Source: EIA

Capacity of Operating and Idle Refineries

Refinery utilization rates increased to 99.8% in December 2017, up from 99.2% in the previous year. Utilization has increased even as the amount of operating capacity increased year-over-year.

Total Number of Operating and Idle Refineries as of January 1, 2017



Source: EIA

Industry Conditions

Factors Providing Positive Momentum in 2018

Tax Cuts and Jobs Act of 2017

We start with the obvious. The Tax Cuts and Jobs Act of 2017 will increase net earnings. Many clients have called to ask, "What is the impact of the tax cuts on my company? If taxes decrease, will the value of my company increase?"

As **Travis Harms**, Senior VP at Mercer Capital, said in his **recent presentation on the tax reform**.

"Simply put, we can say, **yes** a lower corporate tax rate will make corporations more valuable, all else equal. Will all else always be equal? **No**. Appraisers will need to carefully consider the effect of the new tax law not just on rates, but on growth expectations, reinvestment decisions, use of leverage, operating margins, and the like for individual companies."

As noted by **George Damiris**, CEO and President of **Holly Frontier**, on HFC's fourth quarter earnings call, "The reforms to the U.S. tax code encourage capital investments and lower the corporate rate to better enable manufacturers to compete in the global market."

Price of Crude Oil

Even if OPEC maintains production cuts, rising U.S. shale oil output is thought to temper the results of OPEC's reduction in supply. This will likely result in falling or stable oil prices. Because refined product prices often lag crude oil, the crack spread should widen or at least remain steady in 2018.

Gregory Goff, CEO of **Andeavor** explains, "Last year, primarily because of rising crude prices throughout the year, we didn't have any periods of time where the market was impacted by having a declining crude price and the lag effect of that. So, organically, the growth was muted a little bit by the weaker margin environment."

Analysts polled by *Reuters* believe that **oil prices will not continue to rise** past the first quarter of 2019, because U.S. production will offset production declines by OPEC. We believe that oil price decreases could lead to higher margins in the refining industry over 2018. Holly Frontier, in their fourth quarter earnings call, provides an outlook of crude spread and product crack improvements in 2018.

Industry Conditions

Friendly Environment for Oil & Gas Companies

President Trump is positioning the U.S. to offer a more energy-friendly environment. The deregulation of the oil & gas industry was generally applauded on earnings calls at the beginning of 2018 and industry executives believe it will provide a more efficient marketplace for refiners.

Factors Providing Headwinds in 2018

The Future of the RFS is Still Uncertain

The final Renewable Fuel Standards (RFS) for 2018 were released on November 30, 2017 and contained a slight reduction in volume requirements. This will provide some relief for refiners. However, refiners have made it clear that a long-term solution regarding the RFS is needed. While large integrated refiners have the capability to blend their own petroleum products with renewable fuels, small and medium-sized merchant refiners do not have this capability and are required to purchase RINS, which have significantly increased in price. The cost of RINs has hurt the profits of merchant refiners over the last few years and will continue to do so unless the standards are reworked or repealed.

Potential Tariffs Could Hamper Exports and Increase Costs

As noted in the **EIA's Annual Energy Outlook 2018**, domestic consumption of petroleum products is expected to decline due to increases in fuel efficiency. However, refinery utilization is expected to remain stable due to expected increases in petroleum product exports in the future. The imposition of tariffs on steel and aluminum imports does not directly affect U.S. oil refineries. However, **steel is one of the most wildly used metals** in the oil & gas industry. If the impacts of tariffs are passed onto the consumer, then the oil & gas industry could realize higher costs of steel.

Further, there is concern of **retaliation and trade wars** which could hamper growth in the industry if tariffs on U.S. products are imposed by retaliating countries. Over **33% of U.S. exports** of refined products are sent to Mexico and Canada, who are currently except from the tariffs. However, growth in demand from other countries could be dampened by the soon-to-be enforced tariff.

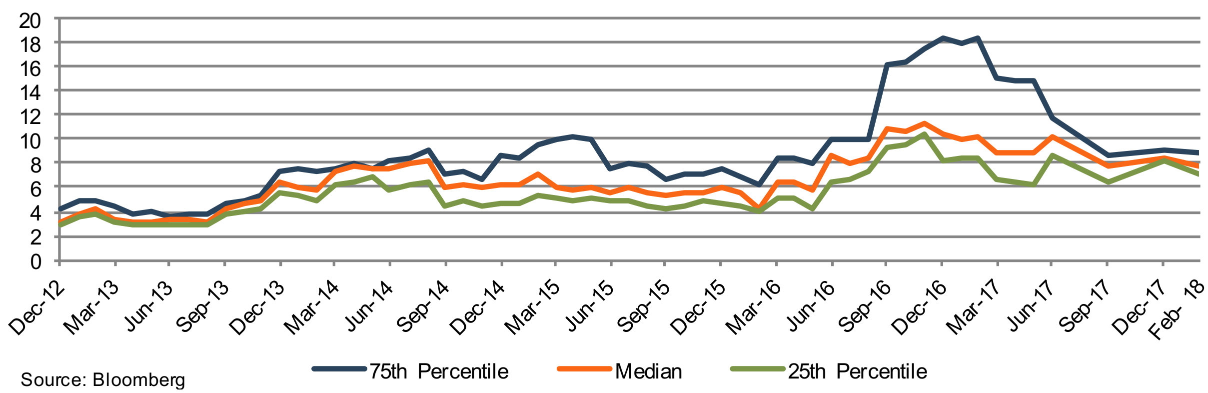
Valuation Implications Overview

Consistent with the view that markets are generally efficient, the new lower corporate tax rates seem to have been priced into the market shortly after election day. Thus, when the tax plan passed, the expected increase in after-tax earnings did not come as a surprise to the market. Additionally, there has been talk of crude price decreases since U.S. production broke a production record 10 million bpd in November 2017. This was the first time the U.S. **broke this record** in 48 years. Since then it has been thought that the U.S. is on track to surpass Saudi Arabia and Russia in crude oil production, making OPEC's production cuts less impactful.

Refining EV/EBITDA Multiples

Much of the positive momentum in the refining industry was expected by industry analysts. Valuation multiples have remained relatively stable over the last six months. EV multiples are trending between 7.5x to 8.5x EBITDA. According to Moody's, "Outlook for the refining and marketing sector is stable, with earnings likely to **increase 5-7%** in 2018." As earnings increase, company valuations will likely stabilize. However, refiners' profit margins are highly dependent on management decisions. The degree of the effects of the new tax plan on businesses depends on many company-specific decisions, such as the use of operating leverage. Further, management decisions regarding inventory management and price hedging can be the "make or break" in unexpected downturns.

Refining EV/EBITDA Multiples



Source: Bloomberg

Guideline Public Company Valuation Multiples

Refining and Marketing valuation multiples over the past two years were somewhat inflated due to compressed profit margins. But as margins have stabilized, EV/ EBITDA multiples are normalizing as investor expectations of improved profitability are realized. As shown in the table Phillips 66 still has an inflated EV/EBITDA multiple due to its currently low profitability from which it is expected to recover.

Company Name	Ticker	LTM Revenues	LTM EBITDA	EBITDA Margin	Enterprise Value @ 2/28/2018	YOY Change in Enterprise Value	EV/EBITDA Multiple
CVR Refining	CVRR	5,664	337	5.9%	2,256	21.9%	6.7x
Delek	DK	na	na	na	3,720	na	na
Holly Frontier	HFC	14,251	1,314	9.2%	9,991	44.5%	7.6x
Marathon Oil Corp	MPC	66,974	5,891	8.8%	48,226	10.8%	8.2x
Andeavor	PBF	21,787	1,030	4.7%	5,429	18.4%	5.3x
Phillips 66	PSX	89,300	3,058	3.4%	54,631	10.9%	17.9x
Average		**$39,595**	**$2,326**	**6.4%**	**$20,709**	**21.3%**	**9.1x**
Median		**$21,787**	**$1,314**	**5.9%**	**$7,710**	**18.4%**	**7.6x**

Presented in $000,000s
Source: Bloomberg

* Tesero changed its name to Andeavor following its acquisition of Western Refining
* Delek acquired Alon

Market Valuations & Transaction Activity

There has been little M&A activity over the last few years due to uncertainty in the industry. Recently, Wester Refining and Tesoro Corporation merged to form Andeavor. Tesoro bought Western Refining for 10.6x EBITDA and 80% of revenues. The new company is now the fourth largest independent refiner in the U.S. NASDAQ reported that the acquisition is expected to deliver "**cost synergies of $350 million to $425 million** within the first two years, generating substantial stockholders value."

Additionally, Delek US Holdings bought the remainder of Alon USA Partners, LP in the fourth quarter of 2017 in an all-stock transaction. Delek already owned 47% of Alon's common stock. According to *Rigzone*, "Based on Delek's closing price of $24.07, the offer works out to $12.13 per share, a **6.6 percent premium** to Alon USA's Friday close." The combination of Delek and Alon created a company that is well positioned near the Permian Basin.

							Enterprise Value to:	
Announced Date	**Target**	**Buyer**	**Total Consideration to Shareholders**	**Implied Enterprise Value**	**LTM Revenue**	**LTM EBITDA**	**LTM Revenue**	**LTM EBITDA**
11/8/17	Alon USA Partners, LP	Delek US Holdings, Inc.	$161	$1,050	$2,071	$179	0.5x	5.9x
11/17/16	Western Refining, Inc.	Tesoro Corporation	$3,761	$6,209	$7,698	$586	0.8x	10.6x
10/14/16	Alon US Energy, Inc.	Delek US Holdings, Inc.	$273	$935	$3,604	$85	0.3x	11.0x
10/26/15	Northern Tier Energy LP	Western Refining, Inc.	$1,491	$2,665	$3,303	$502	0.8x	5.3x
3/31/15	Alon US Energy, Inc.	Delek US Holdings, Inc.	$584	$1,602	$6,124	$359	0.3x	4.5x
Average			**$1,527**	**$2,853**	**$5,182**	**$383**	**0.5x**	**7.8x**
Median			**$1,038**	**$2,134**	**$4,864**	**$431**	**0.5x**	**7.9x**

Source: S&P Capital IQ
Presented in ($000,000s)

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