MERCER CAPITAL
BUSINESS VALUATION & FINANCIAL ADVISORY SERVICES

VALUE FOCUS

Exploration & Production

Second Quarter 2019 // Region Focus: Permian Basin

EXECUTIVE SUMMARY

WTI crude prices began and ended the second quarter around $60 per barrel, while natural gas prices continued to slide as the calendar turns to summer. The supply of crude oil will be impacted by OPEC+'s upcoming decision to extend or discontinue its production cuts that are set to expire June 30. At quarter end, the expectation was for these cuts to continue as Saudi Arabia and Russia had productive talks. Concerns about economic slowdowns have resurfaced as uncertainty remains in U.S.-China trade relations and interest rate cuts are being contemplated.

MERCER CAPITAL

Oil and Gas Industry Services

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

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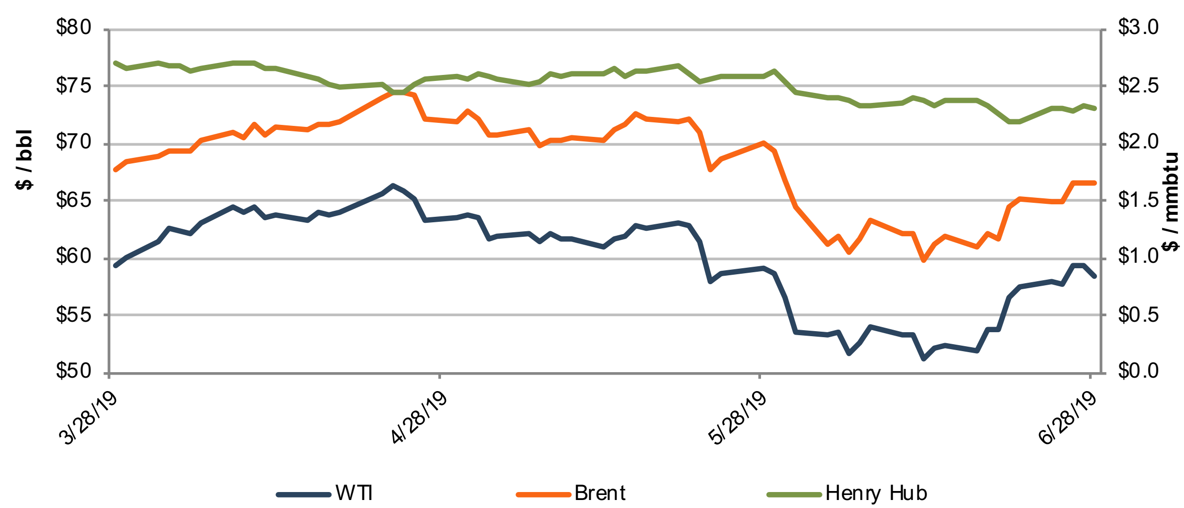
Oil and Gas Commodity Prices

After increasing from $53 to $68 in the first quarter of 2019, Brent crude prices reached a second quarter peak of nearly $75 in late-April before declining to just below $60 on June 12th, 2019. Brent prices have since increased to about $66, with WTI trailing by an average of about $8.50 per barrel for the quarter as seen in the chart below. Natural gas prices slid further in the second quarter of 2019. After averaging $2.87 per mmbtu in Q1, natural gas prices averaged $2.51 in Q2, with a high of just $2.71 and closing the quarter at $2.31 after dropping to a recent low of $2.19 in late June.

Crude Oil and Natural Gas Prices



Source: Bloomberg

Global Supply

OPEC+

Originally founded by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela in 1960, OPEC now stands at **14 members**, after Qatar terminated its membership at the beginning of the year. OPEC is still a significant organization when assessing global supply, but it has undergone considerable changes. While OPEC only has 14 statutory members, an alliance known as OPEC+ has added 10 non-OPEC member countries headlined by Russia and including Mexico and Kazakhstan. This group agreed in December 2018 to a production decline with the goal of balancing global inventories and stabilizing the oil market.

OPEC+ has thus far been successful in reducing output, though for countries like Iran and Venezuela, decreased output hasn't necessarily been intentional. In May, OPEC members produced 29.9 million barrels per day (b/d), the lowest for any month since July 2014. It remains to be seen if these production cuts set to expire this month will remain intact, and if so, for how long. Saudi Arabia's energy minister Khalid al-Falih expressed absolute confidence that an agreement would be reached to extend the oil production cuts after **"very constructive discussions"** with Russian energy minister Alexander Novak. Falih also said,

"Our intent is to make sure that we continue to work together closely, not just bilaterally, but with all other members of the OPEC+ coalition and that the good work we have done over the last two and a half years continues to the second half of 2019, maintaining supply constraints to bring balance to the global inventories of oil."

The bilateral comment is telling. In April, the planned meeting was canceled to reportedly have more time to analyze market data. However, the second delay, has shown heightened tensions, as decisions have increasingly been driven by Saudi Arabia and Russia, who combine for over 40% of OPEC+ oil production. Falih said all but one OPEC member nation has agreed to delay the group's meeting until after the G20 summit, and **the holdup figures to be Iran**, who has been **increasingly perturbed** by its diminishing influence. Production cuts rely on all members to stick to their word, as each individual country would be economically incentivized to increase production to reap the benefits sown by those who withhold production.

OPEC and OPEC+ meetings are expected to extend the production cuts that are set to expire, but the length of time and potential for even stricter cuts remains to be seen at quarter end. Even with an announcement at the beginning of the quarter, it will take more time to determine how this production will be further impacted by individual country circumstances, particularly from Iran.

Global Supply

Iran

Alongside voluntary declines from Saudi Arabia and Russia, Iran has been one of the key reasons for lower production recently. In April, the U.S. reinstated its sanctions on importers of Iranian oil. The sanctions were initially implemented to ramp up "maximum pressure" on Iran as oil is a significant revenue source for the Iranian government. The U.S. is pressuring Iran to **curtail its nuclear program** and return to the negotiating table on a nuclear deal.

Waivers were granted last November to allow countries time to find other sources of supply and three of these countries (Greece, Italy, and Taiwan) have done so as they no longer import any oil from Iran. China and India are the **largest importers of Iranian oil** whose waivers have been rescinded, which should ramp up pressure on Iran and could have spill-over effects on trade discussions as China expressed displeasure with the decision by the U.S. to reinstate sanctions.

These sanctions are not the only concerns related to Iran. The recent crude price rebound following its 5-month low is due in part to Iran shooting down a U.S. drone, raising already heightened tensions. This comes after attacks in May on two tankers near the Strait of Hormuz, which the U.S. blames on Iran. The Strait of Hormuz, described by the EIA as the world's **most important oil choke point,** separates UAE, Oman, and Iran and a significant amount of world oil supply passes through this relatively narrow shipping route.

The White House has put out two statements in the past few days, **seeking to set the record straight** and with Saudi Arabia, UAE, and the UK **jointly condemn these attacks.** The situation remains fluid and volatile and continues to threaten the flow of oil, as President Trump began the week by **announcing new sanctions on Iran**.

Rising U.S. Production

Production cuts from OPEC+ (intentional or not) have been able to raise prices since the lows seen at the end of 2018, and the U.S. has been one of the prime benefactors. The US has been able to increase its global market share, **increasing production to fill the void left by OPEC+ production**. Additionally, any elevated prices caused by these production cuts have also increased top line revenues for American producers, a fact not lost on OPEC.

According to the EIA's latest Short Term Energy Outlook ("**STEO**"), U.S. crude oil production increased 17% in 2018, peaking at an all-time rate of 10.96 million b/d. This was capped by a December that saw 11.96 million b/d, the highest monthly level on record, despite crude prices sliding considerably in the fourth quarter. The EIA expects this growth to continue with production reaching 13.3 million b/d on average by 2020.

Slowing Global Demand

Trade and Tariffs

According to the STEO, the EIA is projecting lower crude prices for 2019 due to uncertainty about global oil demand growth. In late May, President Trump announced the **potential for tariffs on Mexico,** which would have particularly negative impacts on the energy industry as the U.S. exports more fuels to Mexico than any other country. Easing continental trade concerns, Mexico became the first country to ratify the USMCA (new NAFTA) though approval has yet to come from Canada or the U.S., and there is no timetable for its passage.

Concerns about the U.S.-China trade relations have also picked up in the second quarter as increased tariffs have been threatened by both sides. Expected industrial activity, as measured by the manufacturing Purchasing Managers' Index (PMI) declined across several countries in May, and the US PMI fell to its lowest level since 2009. These contribute to concerns that future economic growth could be lower than expected, which would in turn curb oil demand. However, there was optimism on June 20th, related in part to **hopes that U.S.-Chinese relations would improve** when President Trump meets with President Xi at the G20 Summit. While no meaningful progress was achieved, Presidents Trump and Xi did agree to restart trade talks.

Slowing Global Demand

Interest Rates

Optimism on June 20th wasn't restricted to trade with China as the Federal Reserve also met the prior day. The Fed Funds rate has been increased nine times since December 2015 to a target range of 2.25%-2.50%. However, it has become increasingly clear that the next change is more likely to be down than up. For the first time in Jerome Powell's tenure as Fed Chairman, a **dissent was cast**, which advocated for a rate cut. James Bullard, President of the Federal Reserve Bank of St. Louis, said cutting rates now "would provide insurance against further declines in expected inflation and a slowing economy subject to elevated downside risks. Even if a sharper-than-expected slowdown does not materialize, a rate cut would help promote a more rapid return of inflation and inflation expectations to target."

In theory, interest rate hikes tend to be negative for risk assets such as equities and commodities such as energy. Conversely, a rate decrease should make holding these products more attractive and raise the price. More important, however, is the overall message it sends to the economy. If the Fed were to cut rates, even if it cited its inflation target as the reason (and not a global economic slowdown), this would be viewed by the market as a bearish signal, likely sending equities and crude oil prices downward.

Q2 Price Change Timeline of Notable Events

Date	Brent Price % Change	Notes
April 22	2.9%	Iran Sanctions Reinstated
May 23	-4.6%	Tanker Attacks
May 30 - June 3	-12.6%	Mexico Tariffs
June 12	-3.7%	Bearish STEO Demand Outlook
June 13	2.2%	U.S. Drone Struck Down by Iran
June 20	4.3%	Interest Rates, China Trade

The economics of oil and gas production varies by region. Mercer Capital focuses on trends in the Eagle Ford, Permian, Bakken, and Appalachia plays. The cost of producing oil and gas depends on the geological makeup of the reserve, depth of reserve, and cost to transport the raw crude to market. We can observe different costs in different regions depending on these factors. This quarter we take a closer look at the Permian Basin.

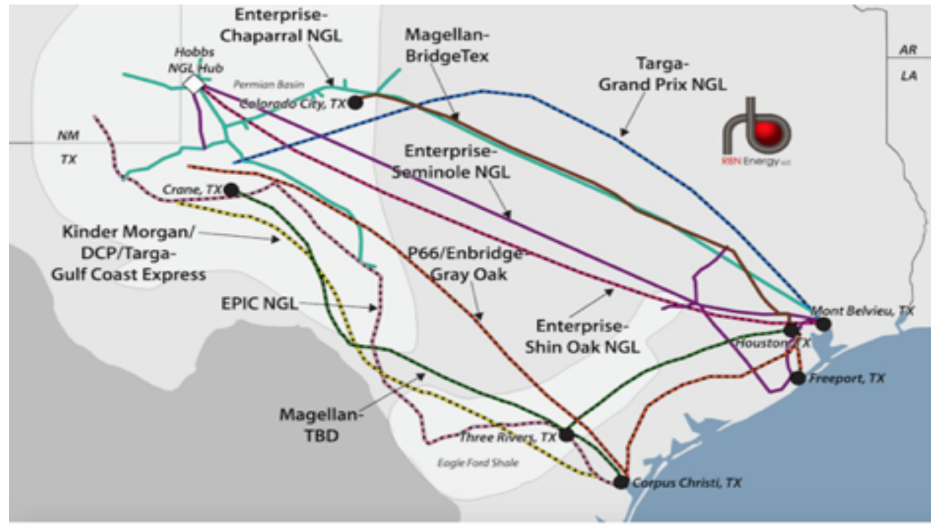
When it comes to the oil patch, the word "growth" can be a vague term, particularly in an industry whose principal resources are constantly in a state of decline. When it comes to the Permian Basin these days, growth applies to resources, drilling locations and production. Unfortunately, the same can't be said for profits, free cash flow, or new IPO's. The Permian is the king of U.S. oil plays and by some measures could be taking the crown as biggest oil field in the world. However, various economic forces are keeping profits and valuations in check.

Permian Reserves: A Behemoth and Getting Bigger

From a **macro perspective**, the Permian Basin is and will continue to be a record setting engine of hydrocarbon extraction. The Permian **has been** and will continue to make new production records in the U.S. and globally. In 2018, the U.S. accounted for **98% of global production** growth. Despite alternative energy sources and climate change policies being in vogue, global oil demand has increased for nine straight years. The Permian has led the way to fill this demand. In May 2019, with a mix of productivity gains and drilled but uncompleted (DUC) well drawdowns, Texas' crude oil production topped 5 million barrels per day **for the first time**. Shale output, the leading force for this production is **continuing to rise**. This will not stop for decades to come. In fact, a USGS survey covering the Wolfcamp and Bone Spring formations that estimates on an additional 46 billion barrels of oil (enough to supply the world for half a year) and 280 trillion cubic feet of gas (enough to supply the world for two years) are technically recoverable. For context, total U.S. proved oil reserves (which must be technically and economically recoverable) totaled 39.2 billion barrels at year-end 2017, according to the EIA. It's an amazing growth story.

Pipeline Capacity (Finally) Arriving

One of the biggest constraints for the Permian over the past 15 months or so has been a lack of pipeline capacity. For months on end local prices in the Permian suffered huge differentials to NYMEX prices due to the **bottleneck issues** that plagued the area. Transportation came at a premium and so did costs. However, that is in the process of changing.



Source: RBN Energy

According to the **American Petroleum Institute** the Permian basin is expected to get 1.5 million barrels a day of new crude transport capacity. This includes expansions of the Grey Oak, Cactus II, and Seminole Red pipelines, taking crude to the Gulf of Mexico for refining or export.

Much of the infrastructure build-out designed to service surging hydrocarbon production in the Permian Basin was focused on higher-value crude, with a significant amount of associated **natural gas production simply flared**. However, with increasing scrutiny on flaring and Waha natural gas prices falling as low as negative $8.50/mmbtu, midstream companies are finally starting to build meaningful takeaway capacity out of the basin. Almost 5.0 bcf per day of new gas capacity additions are expected to come in place by the end of 2019. See the map above from **RBN Energy**.

These capacity additions should cut transportation costs for many producers, and none too soon because every dollar and penny count when it comes to profitability in the Permian these days.

Tight Breakeven Spreads and Negative Cash Flow

Amid all of these positive big picture developments in the Permian, most shale producers are struggling to keep up cash balances. According to **one analysis** for Q1 2019, only 10% of shale companies had a positive cash flow from operating activities. **Other studies** have shown similar results. Shale producers are spending more than they are making. How can this be with such a plethora of resources and the means to transport it? The answer lies in two conundrums: (i) expensive fracking and completion costs; and (ii) steep production decline curves. Getting to the oil is expensive and once a producer finds it, the tight well formations drain quickly. The only way to get more production and associated revenues is to drill more. Investing skeptics describe this as a treadmill effect.

This wouldn't be too much of a problem in a $65 or $70 oil environment, but when oil is in the mid $50's, there's not much profitability cushion and it shows. The April issue of **Oil and Gas Investor** includes a table showing median breakeven prices in the Permian. In the Delaware Basin median breakevens range between $42.50 and $45. In the Midland Basin median breakevens range between $44.30 and $53.00. Keep in mind – these are medians. Half of producers can produce it cheaper, but half are more expensive.

Median Breakeven Prices in the Permian Basin

Basin	Median Basin-wide WTI Breakeven Price	Lowest Breakeven	Lowest Breakeven Operator
Delaware NM	$42.50	$29.00	Mewbourne Oil Co.
Delaware TX	$45.00	$18.90	Chevron
Midland North	$44.30	$30.80	Chevron
Midland South	$53.00	$38.60	Apache

Source: Oil & Gas Investor

This kind of narrow profit cushion has soured many investors and made financing new drilling more **expensive** for producers. Investors have demanded austerity and are either charging bigger financing premiums or are cutting off financing altogether. IPO's for producers have been anemic in the past several quarters. Cost control and economies of scale are becoming increasingly important, and thus the answer has been in the form of consolidation.

Market Valuations & Transaction History

M&A in the Permian has been **consistently healthy** amid the aforementioned challenges. Values from an acreage and production perspective are generally the highest of any major U.S. basin. With **Oxy's acquisition of Anadarko** as the most recent flagship example, producers are scrambling to amass contiguous acreage and drilling synergies, coupled with reduced overhead to create more consistent profitability. This kind of rationale is driving mergers, acquisitions and dispositions. It is also **attracting the majors** such as Exxon and Chevron to the region.

The Permian Basin is one of most prolific oil basins in the world and is the engine driving the resurgence of U.S. energy output. According to the **latest EIA Drilling Productivity Report**, anticipated oil production for June 2019 in the United States is almost 8.5 million barrels per day with the Permian alone accounting for nearly 4.2 million. The importance and impact of this basin to U.S. energy cannot be overstated.

Operators in the play have had to pay a premium to access the black gold mine, and companies are still lining up for a chance to get in on the action. While the industry as a whole has been moving into a period of rapid consolidation, a substantial portion of this acquisitive activity has been in the Permian, far more than any of the other major basins.

Targets with highly contiguous holdings and acreage have been of particular note to acquirers in the Permian. While acreage continuity has not always been the most important aspect of a potential deal, it has certainly become more of a focal point recently. Details of recent transactions in the Permian Basin, including some comparative valuation metrics are shown on the following page.

Transactions in the Permian Basin

Announced Date	Buyer	Seller	Deal Value ($MM)	$ / Acre	$ / Boepd
5/14/19	Spur Energy Partners LLC	Percussion Petroleum LLC	---	nm	nm
5/14/19	Sabinal Energy LLC	Diamondback Energy, Inc.	$322	$3,113	$49,538
5/10/19	Occidental Petroleum Corp	Anadarko Petroleum Corp	$38,000	nm	nm
5/5/19	WPX Energy, Inc.	Undisclosed Seller	$100	$7,143	nm
4/8/19	Sequitur Energy Resources, LLC	Callon Petroleum Co.	$260	$26,396	$65,000
3/19/19	Contango Oil & Gas Co.	Undisclosed Seller	---	nm	nm
3/14/19	Undisclosed Buyer	Noble Energy, Inc.	$132	$10,154	$132,000
2/26/19	Ring Energy Inc.	Wishbone Energy Partners	$300	$8,063	$50,000
2/7/19	Kimbell Royalty Partners LP	Encap Investments	$151	$12,402	$94,563
2/4/19	Undisclosed Buyer	WPX Energy, Inc.	$200	$35,714	$133,333
1/14/19	PEDEVCO Corp.	Manzano Energy Partners I & II	$1	$32	nm
12/24/18	Ring Energy Inc.	Tessara Petroleum Resources LLC	$15	$3,191	nm
11/21/18	Kimbell Royalty Partners LP	Undisclosed Seller	$108	$6,455	$90,588
11/19/18	Cimarex Energy Co.	Resolute Energy Corp	$1,600	$75,829	$45,977
11/6/18	Diamondback Energy, Inc.	EXL Petroleum LP	$313	$85,848	$89,429
11/5/18	Centennial Resources Development	Undisclosed Seller	$26	$31,707	nm
11/5/18	Undisclosed Buyer	Sandridge Energy, Inc.	$15	nm	$9,667
11/1/18	Undisclosed Buyer	Parsley Energy Inc.	$170	$14,346	$141,667

Source: Shale Experts

**Does not include every transaction in each region for 2018-2019*

Transactions in the Permian Basin

Announced Date	Buyer	Seller	Deal Value ($MM)	$ / Acre	$ / Boepd
10/24/18	Nostra Terra Oil & Gas Company Plc	Tall City Exploration III LLC	---	nm	nm
10/18/18	Birch Permian Holdings	Breitburn Energy Partners L.P.	$775	$44,281	$135,965
10/8/18	Undisclosed Buyer	Earthstone Energy Inc.	$28	$22,750	nm
9/26/18	Franklin Mountain Energy, LLC	Undisclosed Seller	---	nm	nm
9/25/18	Undisclosed Buyer	W&T Offshore Inc.	$57	nm	nm
9/12/18	Matador Resources Company	Undisclosed Seller	$387	$46,071	nm
9/11/18	The Carlyle Group Lp	Diamondback Energy, Inc.	$620	nm	nm
9/6/18	Franklin Mountain Energy, LLC	OneEnergy Partners, LLC	---	nm	nm
8/22/18	Undisclosed Buyer	Abraxas Petroleum Corp.	$3	nm	$26,549
8/14/18	Diamondback Energy, Inc.	Energen Corp.	$9,200	$51,397	$101,770
8/14/18	Carrizo Oil & Gas Inc.	Devon Energy Corp	$215	$22,396	$86,000
8/8/18	Diamondback Energy, Inc.	Ajax Resources LLC	$1,200	$47,070	$98,928
7/27/18	BP Plc	BHP Billiton Limited	$10,500	$22,340	$55,263
7/19/18	Panhandle Oil and Gas Inc.	Undisclosed Seller	$9	$1,992	$169,811
Median			**$200**	**$22,368**	**$90,008**
Average			**$2,397**	**$26,304**	**$87,558**

Source: Shale Experts
**Does not include every transaction in each region for 2018-2019*

Market Valuations & Transaction History

Oxy to Acquire Anadarko in $38 Billion Deal

On May 10, 2019, **Anadarko Petroleum signed a deal to be acquired by Occidental Petroleum ("Oxy")** in a cash/stock deal worth $38 billion. This deal was by far the largest and most newsworthy to come out of the Permian Basin, or any other region, for the year.

The agreement concludes one of the most closely-watched bidding wars in recent history with Oxy battling with Chevron to acquire the Permian assets of Anadarko. A month earlier, Chevron announced an agreement to purchase Anadarko for $33 billion in a cash/stock deal. Oxy soon joined the fray with a deal that was more accretive to Anadarko shareholders. The price ultimately became too much for Chevron, who received a $1 billion termination fee as part of the initial deal struck with Anadarko. Some of lauded Chevron for not raising their offer and potentially overpay for the assets, but as it stands, Oxy is the big winner of the prized Permian assets which present plenty of synergies with its existing acreage portfolio.

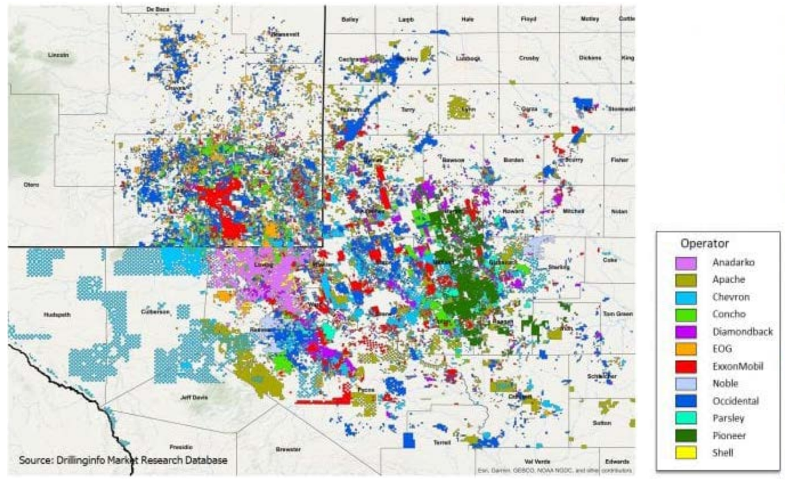
According to Occidental, the transaction creates a $100+ billion "global energy leader" with 1.3 million barrels of oil equivalent per day of production. The company also said the deal provides a "compelling strategic and financial rationale for all stakeholders".

Oxy is expected to fund the cash portion of the consideration through a combination of cash and fully committed debt and equity financing, which also includes a $10 billion equity investment by Berkshire Hathaway, Inc in the form of 100,000 shares of cumulative perpetual preferred stock at $100,000 per share. The investment from Berkshire comes at a steep cost though with a warrant to purchase up to 80 million common shares at $62.50 per share as well as a preferred stock dividend of 8% annually.

Market Valuations & Transaction History

Potential Takeover

Although the Permian is far and away the most covered oil patch in the U.S. by analysts and journalists alike, the Occidental and Anadarko deal has brought some increased scrutiny to the basin particularly in assessing what other potential big deals could be out there. And the analysis seems to point to quite a few.



DrillingInfo produced the map to the right (**as of April 30, 2019**) of acreage by major operators within the Permian. An interesting observation here is that several of these operators have assets and land that is largely connected.

Concentrated assets and contiguous acreage make several of these companies very attractive targets for takeover. Pioneer Natural Resources, for instance, has been hard at work becoming a pure-play Permian Basin operator. **With the April 26 announcement** that it is to sell off the remaining assets in the Eagle Ford, the company has made itself a more attractive takeover target because of its concentrated asset base in the Delaware Basin within the Permian.

There are several benefits in owning such contiguous acreage. First, operators can take advantage of economies of scale, as contiguous acreage provides access to subsurface minerals with fewer well pads required, reducing costs. Logistically, mineral rights considerations are also simplified by consolidation. Contiguous acreage also potentially allows operators to drill longer lateral lengths, which are more productive and cost effective given recent advancements in drilling technology.

Costs are further streamlined as the oilfields are less encumbered my multiple operators each bringing in their own drilling crews. Additionally armies of tanker trucks for hauling away waste water for various operators in a crowded field are replaced with efficient networks of surface pipes for waste water disposal. Companies such as those with adjoining acreage to Pioneer could consider the advantages and synergies of such networks and efficiencies, especially if the infrastructure is already in place.

Market Valuations & Transaction History

Potential Takeover (continued)

EOG Resources, one of the largest independent operators, owns acreage that borders against Chevron and Occidental in multiple areas. Given the recent loss in the bidding war with Occidental for Anadarko's assets, Chevron has additional cash (set aside for the prior merger attempt as well as the break-up fee) that could be used for another takeover attempt, and EOG would be an attractive target for the reasons described above.

Other pure-play companies such as Diamondback or Concho Resources also have highly contiguous acreage adjacent to large companies who could take advantage of these economies of scale and efficiencies. These companies have been active consolidators in the basin, with Diamondback's 2018 acquisition of Energen and Concho's takeover of RSP Permian earlier in that year.

Appendix A

Selected Public Company Information

Mercer Capital tracks the performance of Exploration and Production companies across different mineral reserves in order to understand how the current pricing environment affects operators in each region. We created an index of seven groups to better understand performance trends across reserves and the industry. The current pricing multiples of each company in the index are summarized below.

					as of 6/30/2019		
Company Name	**Ticker**	**6/30/2019 Enterprise Value**	**YOY % Change in EV**	**EBITDAX Margin**	**EV/ EBITDAX**	**Daily Production (mboe/d)**	**Price per Flowing Barrel***
Global Integrated							
Exxon Mobil Corp	XOM	$370,744	-5.78%	15.4%	8.7x	3,932	$94,286
Royal Dutch Shell PLC	RDS/A	$339,515	10.14%	14.8%	6.0x	3,711	$91,480
Chevron Corp	CVX	$266,560	-3.44%	23.4%	7.2x	3,096	$86,102
Occidental Petroleum Corp	OXY	$46,882	-35.59%	53.7%	4.8x	744	$63,013
BP PLC	BP	$198,381	2.46%	11.7%	5.7x	3,926	$50,537
Group Median			**-3.44%**	**15.4%**	**6.0x**	**3,711**	**$86,102**
Global E&P							
Marathon Oil Corp	MRO	$16,359	-24.54%	75.1%	3.8x	417	$39,194
Hess Corp	HES	$25,851	4.14%	52.2%	7.6x	286	$90,368
ConocoPhillips	COP	$78,508	-15.95%	43.4%	4.9x	1,329	$59,060
Anadarko Petroleum Corp	APC	$53,484	-0.57%	57.1%	7.2x	731	$73,204
Noble Energy Inc	NBL	$18,635	-22.69%	35.0%	11.5x	353	$52,743
Apache Corp	APA	$21,003	-20.72%	72.9%	4.0x	490	$42,838
Murphy Oil Corp	MUR	$8,106	3.62%	72.0%	4.5x	180	$45,118
Group Median			**-15.95%**	**57.1%**	**4.9x**	**417**	**$52,743**

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production ($/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

Appendix A

Selected Public Company Information

Company Name	Ticker	6/30/2019 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
					as of 6/30/2019		
North American E&P							
Ultra Petroleum Corp	UPL	$2,298	-10.02%	69.4%	4.3x	112	$20,549
Encana Corp	ECA	$15,098	-7.90%	46.1%	5.6x	565	$26,711
Devon Energy Corp	DVN	$16,659	-54.22%	31.4%	5.3x	484	$34,441
Enerplus Corp	ERF	$2,084	-37.09%	57.6%	3.7x	99	$21,025
QEP Resources Inc	QEP	$3,779	-29.66%	-35.5%	nm	82	$46,223
WPX Energy Inc	WPX	$7,423	-20.46%	63.3%	5.4x	160	$46,532
EQT Corp	EQT	$9,123	-66.27%	33.1%	5.8x	694	$13,143
Chesapeake Energy Corp	CHK	$14,467	-9.27%	24.2%	6.1x	492	$29,388
Group Median			**-25.06%**	**39.6%**	**5.4x**	**322**	**$28,049**
Bakken							
Continental Resources Inc/OK	CLR	$21,693	-28.69%	72.9%	6.3x	335	$64,748
Whiting Petroleum Corp	WLL	$4,587	-39.83%	64.9%	3.9x	131	$35,119
Oasis Petroleum Inc	OAS	$4,829	-30.33%	31.3%	7.5x	90	$53,711
Crescent Point Energy Corp	CPG	$5,025	-32.54%	-58.3%	nm	172	$29,260
Group Median			**-31.44%**	**48.1%**	**6.3x**	**151**	**$44,415**

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production ($/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

Appendix A

Selected Public Company Information

					as of 6/30/2019		
Company Name	Ticker	6/30/2019 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
Appalachia							
Range Resources Corp	RRC	$5,600	-32.13%	-30.0%	nm	390	$14,353
Cabot Oil & Gas Corp	COG	$10,665	-5.64%	63.3%	7.2x	405	$26,318
Antero Resources Corp	AR	$8,623	-30.25%	23.8%	8.0x	530	$16,268
Gulfport Energy Corp	GPOR	$2,882	-33.03%	65.7%	3.2x	230	$12,529
Southwestern Energy Co	SWN	$3,763	-42.51%	32.1%	3.1x	353	$10,655
Group Median			**-32.13%**	**32.1%**	**5.2x**	**390**	**$14,353**
Permian Basin							
Concho Resources Inc	CXO	$25,405	10.14%	68.7%	8.8x	333	$76,339
Parsley Energy Inc	PE	$8,356	-25.90%	77.5%	6.4x	132	$63,158
Diamondback Energy Inc	FANG	$23,255	55.85%	73.6%	12.7x	283	$82,240
Halcon Resources Corp	HK	$752	-19.49%	-31.9%	nm	20	$37,759
Laredo Petroleum Inc	LPI	$1,728	-43.42%	55.4%	3.0x	75	$23,191
Pioneer Natural Resources Co	PXD	$27,605	-17.02%	37.3%	8.4x	335	$82,342
Cimarex Energy Co	XEC	$8,322	-22.46%	93.0%	3.8x	268	$31,096
Group Median			**-19.49%**	**68.7%**	**7.4x**	**268**	**$63,158**

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production ($/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

Appendix A

Selected Public Company Information

					as of 6/30/2019		
Company Name	**Ticker**	**6/30/2019 Enterprise Value**	**YOY % Change in EV**	**EBITDAX Margin**	**EV/ EBITDAX**	**Daily Production (mboe/d)**	**Price per Flowing Barrel***
Eagle Ford							
Carrizo Oil & Gas Inc	CRZO	$2,925	-24.92%	70.3%	4.2x	67	$43,520
SM Energy Co	SM	$4,106	-20.09%	103.7%	2.5x	130	$31,526
EOG Resources Inc	EOG	$59,933	-22.81%	50.7%	6.8x	812	$73,813
Group Median			**-22.81%**	**70.3%**	**4.2x**	**130**	**$43,520**
OVERALL MEDIAN			**-22.46%**	**52.2%**	**5.7x**	**335**	**$43,520**

Source: Bloomberg L.P.

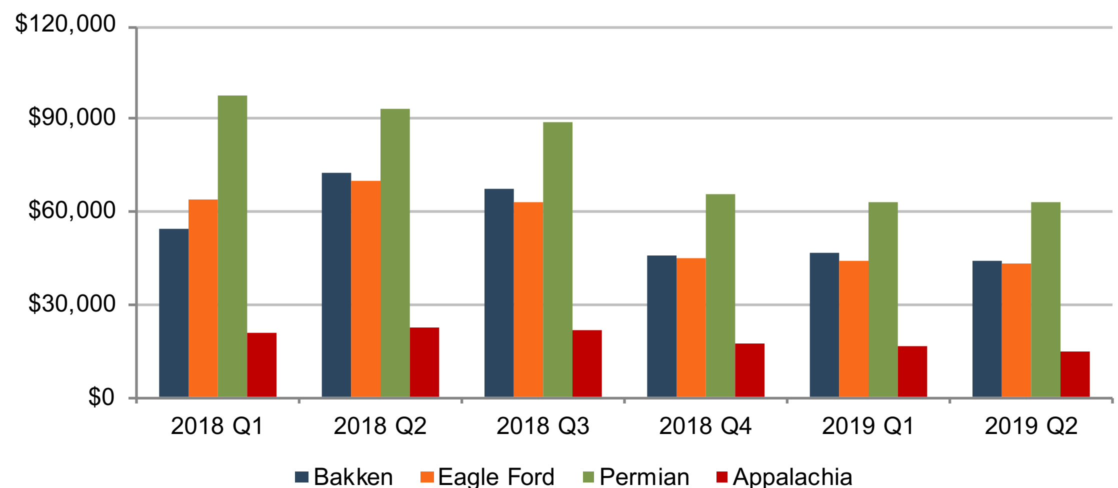
- Price per Flowing Barrel is EV/ daily production ($/boe/d)
- Companies included in the Guideline Group are not meant to be an exhaustive list. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.
- We review 10-K's and annual reports from guideline companies to ensure companies continue to operate in the regions and groups we have identified.

Appendix A

Selected Public Company Information

The following graph depicts the median of EV/production multiples, also known as price per flowing barrel, at the end of the past six quarters. As has been the case for some time now, operators in the Permian continue to lead the other regions in terms of valuation, with Appalachia lagging and the Bakken and Eagle Ford about even in the middle. Multiples largely remained the same as they have over the past two quarters.

Price per Flowing Barrel



Source: Bloomberg

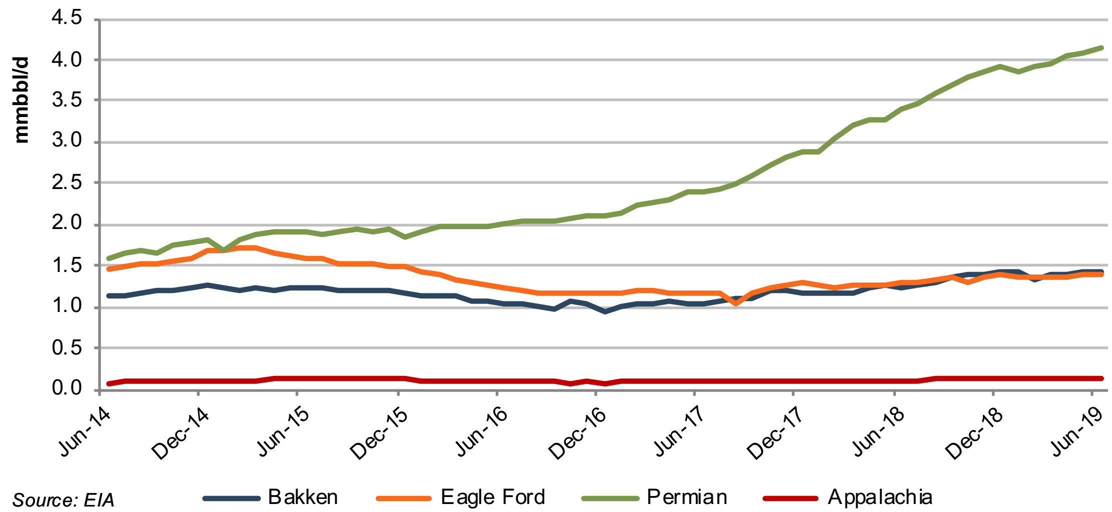
- Price per Flowing Barrel is EV/ daily production ($/boe/d)
- This is simply a graphic depiction of median figures of our selected public companies for each region. This should be interpreted solely in the context of relative valuation between the various basins over time. Bloomberg aggregates this raw data, and Mercer Capital does not represent or warrant these figures as indicative of valuation multiples attributable to E&P companies or other interests.

Appendix B

Crude Oil Production

Permian crude oil production continues to dominate other basins, and its production has increased 21.7% over the past year. However, with companies preaching capital discipline, production growth has largely slowed, with only 5.4% growth in crude oil production over the past six months in the Permian. Crude production in Appalachia was higher, though with significantly less production, and the Bakken and Eagle Ford were stagnant to down in production in the first half of 2019.

Daily Production of Crude Oil



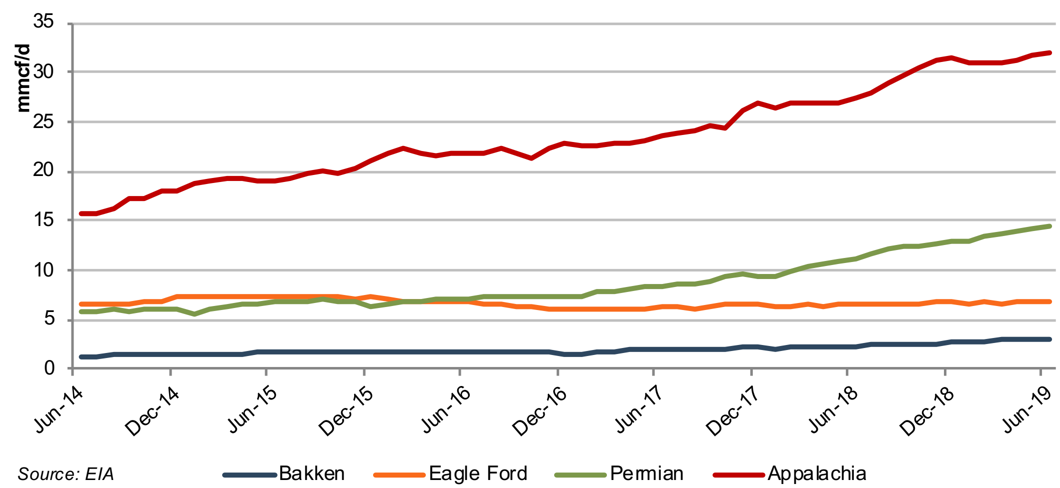
Source: EIA

Appendix B

Natural Gas Production

A similar trend has occurred in natural gas with Permian production growth slowing a bit to 10.4% over the past 6 months compared to 28.0% over the past year. Meanwhile, Appalachia significantly increased its production heading into the winter months, but production has only increased 2.0% in 2019. Growth in the Bakken has followed the Permian's trend, despite significantly less production, and the Eagle Ford has grown natural gas production just 1.4% since December.

Daily Production of Natural Gas



Source: EIA

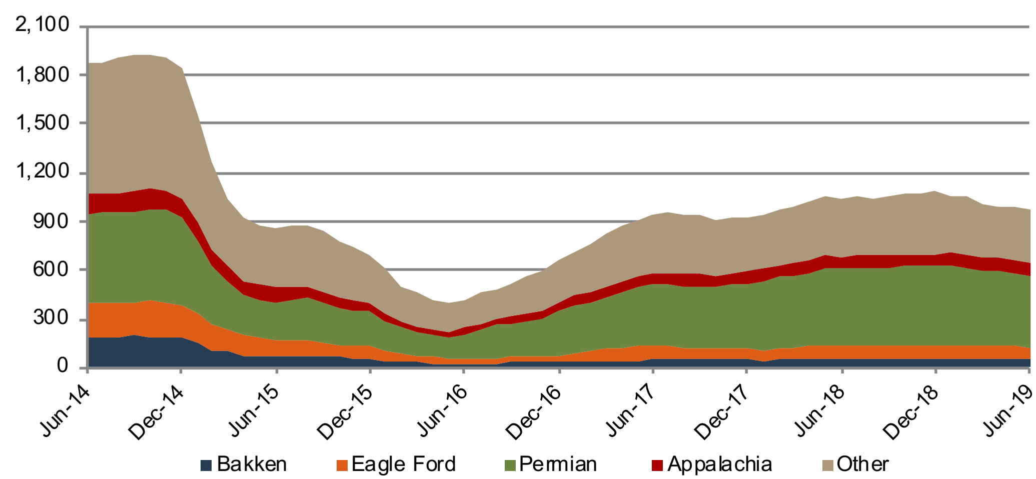
Appendix B

Rig Count

Baker Hughes collects and publishes information regarding active drilling rigs in the United States and internationally. The number of active rigs is a key indicator of demand for oilfield services & equipment. Factors influencing rig counts include energy prices, investment climate, technological changes, regulatory activity, weather, and seasonality.

The number of active rigs in the United States as of June 30, 2019 stood at 966, a 4.0% decrease from March 31, and a 10.8% decline from a near 4-year peak at year-end 2018. Activity was down across the board with the Eagle Ford slowing the most and the Permian declining the least. Relative activity declines in these regions makes sense as the Eagle Ford is a much more mature play, requiring fewer rigs to access the already drilled out acreage. In contrast, many operators are clamoring to work in the Permian, increasing demand for rigs. Activity dropping across the board is also a function of oil prices which tend to be correlated, but not necessarily predictive. Prices were largely unchanged in the second quarter, but rigs declined as companies work through their backlog of wells and seek to give investors more returns and capital discipline as well counts and DUC's continue to play a more prominent role as a measure of activity over purely looking at rig counts.

Rig Count by Region



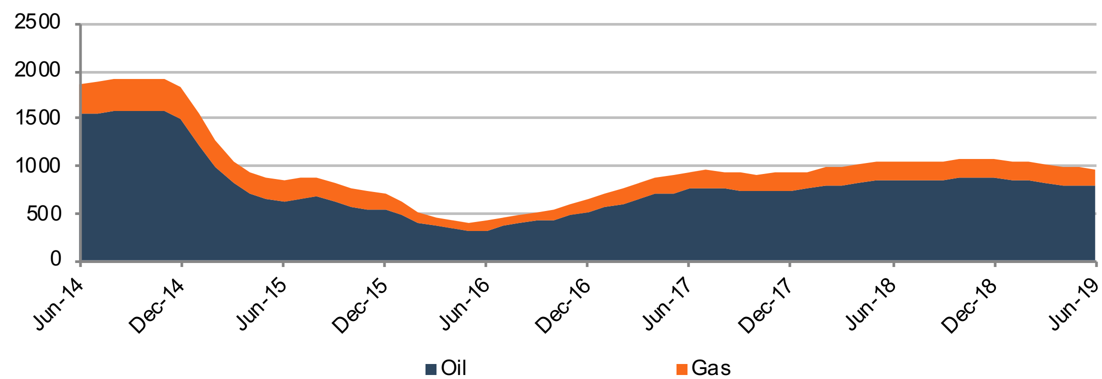
Source: Baker Hughes

[1] Calculations based on monthly crude oil and gas production and EIA drilling report by region.

Appendix B

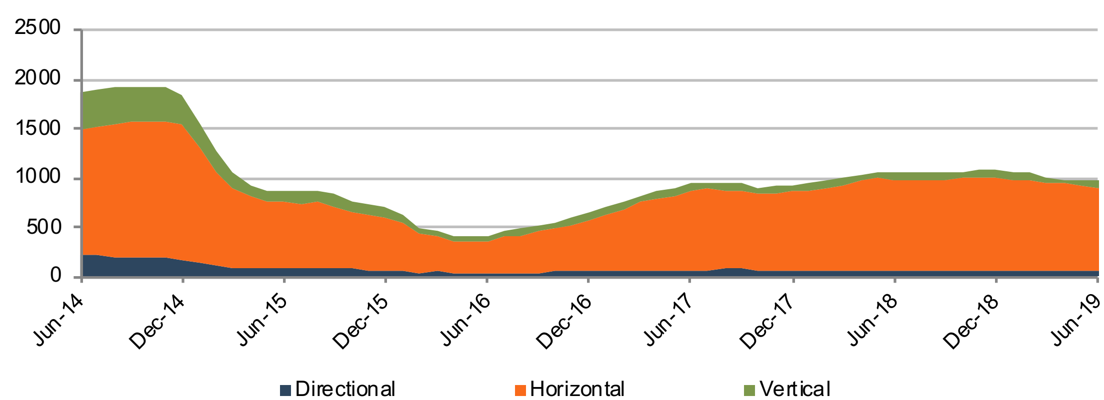
Rig Count

U.S. Rig Count by Oil vs. Natural Gas



Source: Baker Hughes

U.S. Rig Count by Trajectory



Source: Baker Hughes

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