MERCER CAPITAL
BUSINESS VALUATION & FINANCIAL ADVISORY SERVICES

VALUE FOCUS

Exploration & Production

First Quarter 2018 // Region Focus: Eagle Ford

Executive Summary

The oil and gas market has been steadily improving. Both production and prices have increased, and oil and gas exploration and production companies are becoming more efficient allowing them to cut costs.

This quarter we take a look at the Eagle Ford Shale. While the Permian has been receiving the most attention, given its low-cost economics and large well potential, the Eagle Ford (particularly its oil window) has increased well production while dropping its costs. In this newsletter, we consider why companies are moving out of the Eagle Ford region and are reducing the number of wells drilled despite the region's untapped potential.

2018

Q1: Eagle Ford

Q2: Permian Basin

Q3: Bakken Shale

Q4: Marcellus and Utica

Oil and Gas Industry Services

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

Services Provided

- Valuation of energy 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

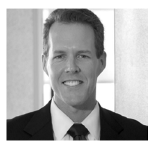
Industry Segments

Mercer Capital serves the following industry segments:

- Exploration & Production
- Oil Field Services
- Midstream Operations
- Alternative Energy

Contact Us

Bryce Erickson, ASA, MRICS
214.468.8400
ericksonb@mercercapital.com



Grant M. Farrell, ASA, CPA, ABV, CFF
214.468.8400
farrellg@mercercapital.com

Don Erickson, ASA
214.468.8400
ericksond@mercercapital.com

Taryn E. Burgess
901.322.9757
burgesst@mercercapital.com

In This Issue

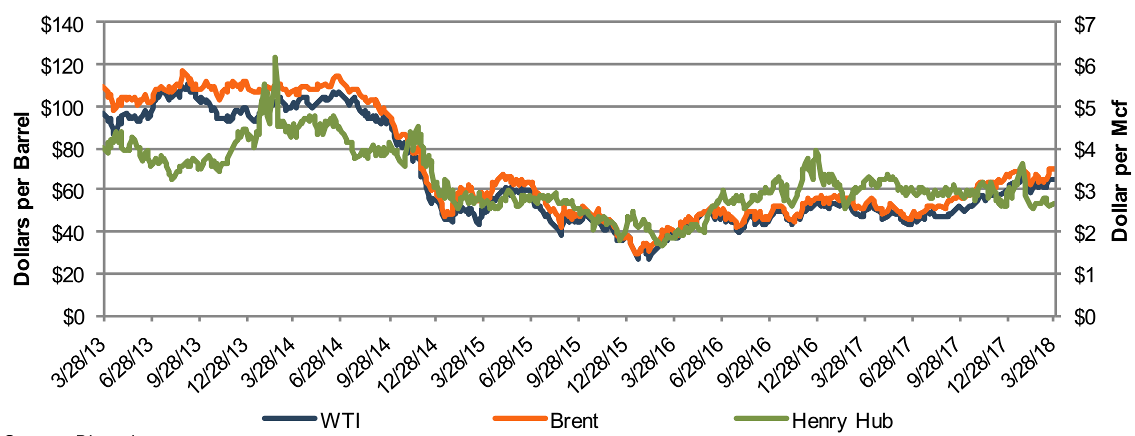
Learn More about Mercer Capital & our Oil and Gas Services at **mercercapital.com**

E&P Industry

Oil and Gas Commodity Prices

The oil and gas market continued to show improvement in the first quarter of 2018. Positive momentum continued in U.S. production growth, and prices increased from an average of $55 in Q4 2017 to an average of $63 in Q1 2018. At the beginning of the quarter, Mercer Capital's **Grant Farrell said**, "a repeat of 2017 would be a welcomed event," and it appears we are on track. Oil prices are ticking up, domestic production has increased to a 50-year high, and the U.S. is **exporting more crude oil than ever before**.

Crude Oil and Natural Gas Prices



Source: Bloomberg

E&P Industry

Too Good to Be True?

If you are like us, you can't ignore the wary feeling in your gut that makes you ask, "Is it too good to be true?" According to *Reuters*, **global inventories could increase** due to the rapid increase in production in the U.S. which "could well outweigh any pick-up in demand." Rig counts in 2018 were **expected to increase** to 945 active rigs. However, **Baker Hughes reports** that we have already met this target and currently have 993 active rigs compared to 824 a year ago.

Have we already forgotten the lesson we learned in 2014 – too much supply, too fast leads to a decline in prices? Additionally, what will happen to demand as transportation becomes more fuel efficient and we shift further away from oil in favor of renewable energy resources?

Easing Concerns

Thankfully, we are not the only one asking these questions. **A survey of oil and gas professionals** in the February 2018 Issue of the *Oil and Gas Journal* showed that 63% of oil and gas senior professionals are optimistic about 2018. However, this optimism does not stem from a forecasted favorable price environment. Rather, their confidence is supported by the knowledge that they can now operate profitably in a $55 per barrel price environment. Oil and gas exploration companies today are more cost efficient than ever. The collapse in prices in mid-2014 gave companies two options: adapt to the new price environment or go away. Today we are left with a more cost-aware sector that has used technology to reduce risks and cut costs. Even though the market moved into backwardation, oil and gas professionals are still optimistic about the future.

Further, domestic E&P companies today have the ability to quickly adjust their operations in response to price changes. Jude Clemente, a recent contributor for *Forbes* **recently wrote**, "The U.S. has now become the world's swing oil producer and is the main factor that will limit how high prices can go."

BP Chief Economist Spencer Dale recently responded to similar questions asked across the energy industry: "will oil and gas lose dominance to renewable fuels in the future?" BP argues that crude oil demand will continue to increase into the foreseeable future but will begin to reach a plateau in the next twenty years. While renewable energy is the fastest growing energy source, developing nations across the world will drive energy demand in the future. The mix of crude oil and renewable energy will shift, and crude oil will likely meet 85% of oil demand in 2040 instead of 94% of demand today. This does not, however, mean demand for crude oil will disappear.

E&P Industry

Overview

The forecast for the oil and gas industry in 2018 was positive, and we seem to be meeting or even exceeding investor expectations. The U.S. is **expected to give up its title** of the largest crude oil importer, and exports are expected to continue growing as new pipelines and export terminals allow for increased capacity.

The positive momentum in the industry is being reflected in private company valuations both as a result of improved earnings forecasts and reductions in risk. Growth in production and increases in price are increasing revenue, and more of the top line is flowing down to net income as companies have cut costs. Earnings improvement is being magnified by the recent tax cuts, which have significantly increased net income. Further, the risk profiles of E&P companies have improved as companies are better equipped to handle price volatility and E&P companies are generally taking on projects with shorter payback periods.

Eagle Ford

Overview

The economics of oil and gas production varies by region. Mercer Capital focuses on trends in the Eagle Ford, Permian, Bakken, and Marcellus and Utica 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 Eagle Ford Shale.

The economics of the Eagle Ford Shale has been steadily improving for the past year. While the Permian has been receiving the most attention, given its low-cost economics and large well potential, the Eagle Ford (particularly its oil window) has increased well production while dropping its costs. However, based on recent announcements, many companies are reducing the number of wells drilled in 2018 as compared to 2017.

Breakeven Prices

As recently as a year ago, several companies and outlets reported breakeven oil price estimates in the low- to mid-$40s. Recently, several operators in the Eagle Ford are estimating breakeven as low as $28 and many around $35. This significant drop points to anticipated efficiencies in drilling and completion costs.

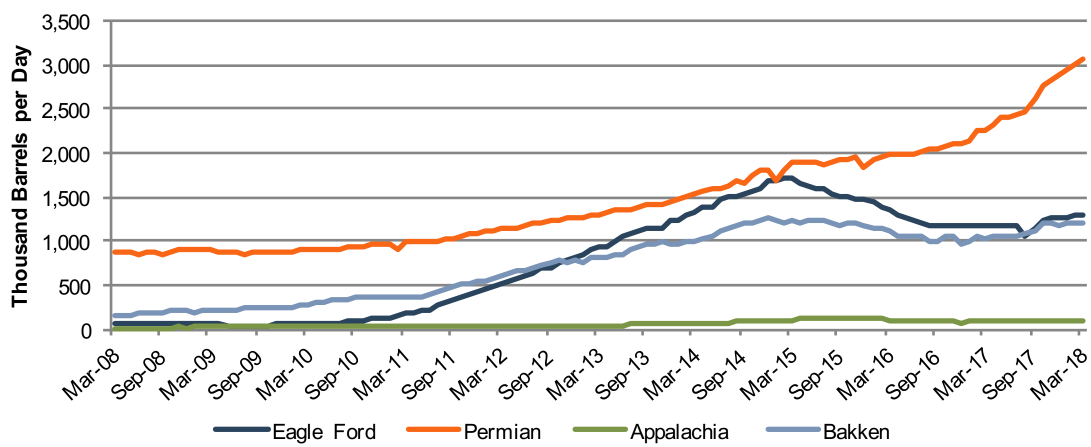
While positive, the trend is generally moving away from the Eagle Ford relative to other plays. **IHS Markit**, reported that a key reason for the decline in activity in the Eagle Ford is due to the rising interest in the Permian Basin and STACK/SCOOP plays, which have attracted the interest of key Eagle Ford players, including Pioneer Resources, Devon Energy, and Marathon Oil. They said, "Only 1,415 new wells were brought online in 2016 compared to 2,717 in 2015 and 4,040 in 2014."

Eagle Ford

Production

Even though operators are moving away from the region, production started increasing in September 2017 for the first time since the fall in oil prices in mid-2014. Production in the Eagle Ford increased year-over-year from 1.25 mmboe/d in March 2017 to 1.31 mmboe/d in March 2018. Additionally, operators are becoming more efficient and more oil is being produced per rig than before.

Daily Production of Natural Gas



Source: EIA

Eagle Ford

2018 Plans

Several companies (Sanchez, Chesapeake, and Carrizo) are decreasing their estimates for new wells compared to last year but are increasing their capex budgets. Overall, EOG and Sanchez have increased their rig presence, but those figures fluctuate even week-to-week. EOG is leading the way in its activity from well count to acreage. In terms of new activity planned in 2018, it is the most aggressive of the four companies we follow (see table below). It's also notable that EOG continues to test its position in the Austin Chalk formation – completing four wells in Q4 2017.

Bill Thomas, EOG's chairman and CEO, said, "EOG emerged from the industry downturn in 2017 with unprecedented levels of efficiency and productivity, driving oil production volumes to record levels with capital expenditures approximately one half the prior peak."

Carrizo's strategy revolves around "multipads" wherever possible in the Eagle Ford. In 2018, Carrizo plans to complete a 16-well multipad utilizing three completion crews. In addition, Carrizo sees more than 700 remaining PUDs in the core of its Eagle Ford position at a 330-500 foot spacing profile (depending on the geology of the project area).

Chesapeake, meanwhile, continues to manage its balance sheet with asset sales and tempered activity which makes its activity profile a little harder to discern.

Trends in the Eagle Ford

Trend Metrics	EOG	Sanchez	Chesapeake	Carrizo
2018 Total Capex Budget *(Includes Eagle Ford)*	$5.4-5.8 Billion	$1.27 Billion	$2.0-2.4 Billion	$750-800 Million
Change from 2017	*+44%*	*+45%*	*-12%*	*+27%*
Eagle Ford 2018 Well Program Estimate (Net)	260 Wells	87 Wells	140 Wells	73 Wells
Change from 2017 Wells Completed	*+19.8%*	*-38.3%*	*-15.7%*	*-11.0%*
Eagle Ford Rigs as of 3/23/18	12	7	4	1
Change from 2017	*+6*	*+3*	*-1*	*-1*
Breakeven Prices in Eagle Ford per barrel $	NA	$35	$30-40	$32
Net Acreage in Eagle Ford *(Most Recent Estimate)*	590,000	360,000	245,000	103,000

Source: Company Reports & ShaleExperts.com

Eagle Ford

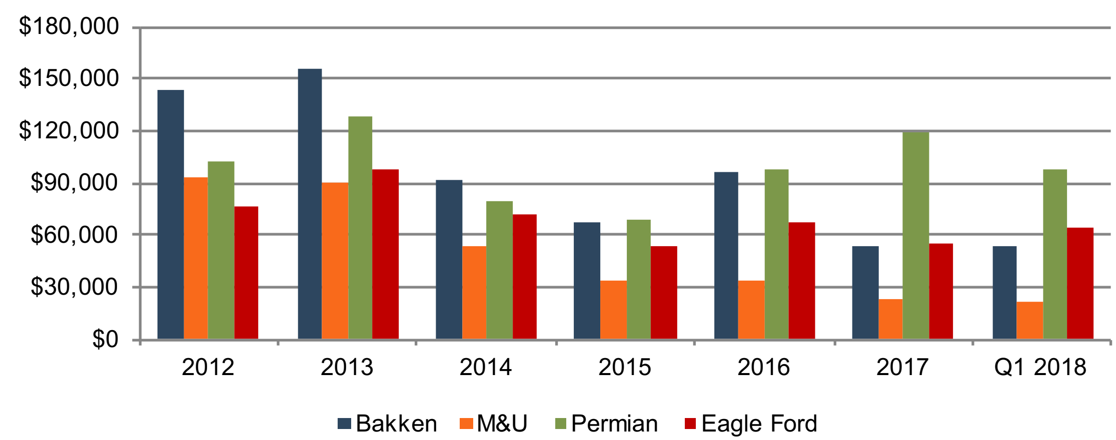
Valuation Implications

Stock price performance over the last quarter seemed subpar for companies operating in the Eagle Ford, excluding EOG. Over the past few years, valuation multiples fluctuated the region as enterprise values fell for the guideline companies excluding EOG, and oil and natural gas production in the region decreased until the fourth quarter of 2017.

The price of public E&P companies, which generally tracks oil prices relatively closely, diverged from the upward trend seen in oil prices as the market moved into backwardation. Oil future prices tell investors that the increase in oil prices is short lived, which means that investors are not willing to pay more for oil companies stock in the short run.

In the chart below, we analyze the price per flowing barrel over the last five years. Production in the Eagle Ford slowed as oil production fell until September 2017, and natural gas production is still declining. Multiples are lower than those seen in the Permian Basin but higher than those observed in the Marcellus and Utica which has been affected by low natural gas prices and a lack of transportation.

Price per Flowing Barrel



Source: Bloomberg

Eagle Ford

Market Valuations & Transaction Activity

Transaction activity in the Eagle Ford Shale has been fairly steady over the past 12 months, with the majority of transactions in the $100-300 million range. The seller's rationale has most often been about balance sheet management and re-allocation to other plays, usually the Permian Basin. However, the Eagle Ford area has some quality economics of its own, which has been attractive to buyers. Many argue it has the best shale production economics in the U.S. next to the Permian Basin. These differing strategy based swaps have been at the heart of transaction flow. This has also led to consideration that Devon may sell its Eagle Ford division in search of returns elsewhere. The table below provides transaction details including some comparative valuation metrics.

Transactions in the Eagle Ford

Announced Date	Buyer	Seller	Deal Value ($MM)	$ / Acre	$ / Boepd	$ / Boe
3/20/18	TPG Pace Energy Holding Corp	Enervest Ltd.	$2,660	$7,389	$66,500	na
3/16/18	Sundance Energy Australia Limited	Reliance Industries Limited, Pioneer Natural Resources Co.	222	10,114	123,056	na
2/13/18	WildHorse Resource Development	*Not Disclosed*	19	1,106	327,119	na
1/2/18	Penn Virginia Corp	Hunt Oil Company	86	8,866	45,989	22.6
12/20/17	Venado Oil & Gas LLC	Cabot Oil & Gas Corp	765	10,268	48,863	na
12/12/17	EP Energy Corp	Carrizo Oil & Gas Inc.	246	10,041	72,353	na
8/18/17	Vitruvian Exploration IV, LLC	Sanchez Energy Corp	105	1,500	na	na
7/31/17	Penn Virginia Corp	Devon Energy Corp	205	10,459	68,333	na
6/16/17	Lonestar Resources Ltd.	Sanchez Energy Corp	50	2,381	28,571	18.5
5/30/17	Lonestar Resources Ltd.	*Not Disclosed*	117	na	56,823	3.7
Median			**$161**	**$8,866**	**$66,500**	**$19**
Average			**$447**	**$6,903**	**$93,067**	**$15**

Source: Shale Experts

* Does not include every transaction in the Eagle Ford Shale for the last twelve months ended 3/31/2018

Eagle Ford

Magnolia – Blank Check Company Forms a New South Texas Producer

The largest transaction in the past year was the recent announcement of a **special purpose acquisition entity ("SPAC")** coming to an agreement with certain Enervest controlled funds. The result of the merger is the creation of a pure play Eagle Ford and Austin Chalk company with 360,000 net acres in South Texas. The majority of that acreage is in what is known as the Giddings field, which is an oil play in the Austin Chalk (mostly **held by production**).

Breakevens are claimed to be in the low $30s per barrel with one year (or less) paybacks in Karnes and Giddings field. Magnolia is led by a former Occidental Petroleum executive, Steve Chazen, who has both short- and long-term optimism for the opportunity. Estimated EBITDA for 2018 is projected at $513 million including approximately $240 million of cash flow after capital expenditures.

Highest and Best Economics

Denver-based **Sundance Energy Australia Ltd.** struck a deal with **Pioneer Natural Resource Co.** to buy almost 22,000 acres and 1,800 boe/d of production in the Eagle Ford Shale, bolting on to an existing leasehold in South Texas.

The pure-play Eagle Ford player agreed to pay $221.5 million for the leasehold, which runs through McMullen, Atascosa, LaSalle and Live Oak counties. The transaction would give Sundance 56,600 total acres in the play, with an inventory of 716 gross undrilled locations.

Meanwhile, Pioneer announced in February that going forward it would put most of its resources into the Permian and planned to sell nearly all "non-Permian" projects, including in the Eagle Ford, Raton Basin and West Texas Panhandle. While margins are higher in the Permian, it is important to note that purchasing acreage in the Permian is much more expensive than the Eagle Ford, so drilling most likely needs to be based on existing acreage positions.

Overall, the Eagle Ford's economics are improving (Venado, a KKR-backed Austin firm, made a $765 million purchase from Cabot that was based on this optimism). About 61,500 net acres of the Venado position, which is located primarily in Frio and Atascosa counties in South Texas, is operated and about 9,400 net acres are nonoperated. Production from the properties during third-quarter 2017 was 15,656 barrels of oil equivalent per day.

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 across the industry. The current pricing multiples of each company in the index is summarized below.

					as of 3/31/2018		
Company Name	**Ticker**	**3/31/2018 Enterprise Value**	**YOY % Change in EV**	**EBITDAX Margin**	**EV/ EBITDAX**	**Daily Production (mboe/d)**	**Price per Flowing Barrel***
Global Integrated							
Exxon Mobil Corp	XOM	$362,128	-6.03%	14.7%	10.5x	4,103	$88,252
Statoil ASA	STO	$93,189	37.55%	38.3%	4.0x	2,162	$43,113
Royal Dutch Shell PLC	RDS/A	$335,452	na	14.3%	7.7x	na	na
Chevron Corp	CVX	$252,981	4.23%	17.8%	11.1x	2,841	$89,036
Occidental Petroleum Corp	OXY	$57,894	1.98%	42.4%	10.9x	600	$96,461
BP PLC	BP	$173,831	13.92%	10.6%	6.8x	3,743	$46,442
Group Median			**4.23%**	**16.2%**	**9.1x**	**2,841**	**$88,252**
Global E&P							
Marathon Oil Corp	MRO	$18,638	2.63%	53.7%	7.8x	393	$47,417
Hess Corp	HES	$19,956	-5.06%	-37.8%	-9.5x	235	$85,084
ConocoPhillips	COP	$81,340	-4.25%	18.9%	14.8x	1,222	$66,582
Anadarko Petroleum Corp	APC	$45,361	-4.22%	51.8%	7.3x	633	$71,714
Noble Energy Inc	NBL	$21,808	1.22%	6.3%	85.2x	362	$60,259
Apache Corp	APA	$22,869	-18.15%	71.5%	5.5x	437	$52,336
Murphy Oil Corp	MUR	$6,433	-5.99%	67.7%	4.6x	167	$38,427
Group Median			**-4.25%**	**51.8%**	**7.3x**	**393**	**$60,259**

Source: Bloomberg L.P.
* Price per Flowing Barrel is EV/ daily production ($/boe/d)
** Companies included in the Guideline Group were selected from a broader guideline group, detailed **here**. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.

Appendix A

Selected Public Company Information

Company Name	Ticker	3/31/2018 Enterprise Value	YOY % Change in EV	EBITDAX Margin	as of 3/31/2018 EV/ EBITDAX	as of 3/31/2018 Daily Production (mboe/d)	as of 3/31/2018 Price per Flowing Barrel*
North American E&P							
Ultra Petroleum Corp	UPL	$3,116	na	63.3%	5.5x	136	$22,967
Encana Corp	ECA	$14,238	-5.79%	43.3%	7.5x	346	$41,182
Devon Energy Corp	DVN	$29,308	-15.31%	28.1%	7.6x	546	$53,664
Enerplus Corp	ERF	$3,016	21.01%	61.4%	6.9x	86	$35,235
QEP Resources Inc	QEP	$4,520	-4.42%	53.7%	5.2x	126	$35,731
WPX Energy Inc	WPX	$8,530	6.81%	60.3%	10.4x	111	$77,146
EQT Corp	EQT	$24,844	52.67%	69.2%	12.1x	663	$37,492
Chesapeake Energy Corp	CHK	$14,509	-12.57%	19.5%	8.2x	556	$26,087
Newfield Exploration Co	NFX	$6,986	-24.74%	56.5%	6.9x	174	$40,108
Group Median			**-5.11%**	**56.5%**	**7.5x**	**174**	**$37,492**
Bakken							
Continental Resources Inc/OK	CLR	$28,429	20.96%	69.7%	13.3x	289	$98,536
Whiting Petroleum Corp	WLL	$5,968	-9.44%	29.9%	13.4x	126	$47,244
Oasis Petroleum Inc	OAS	$4,654	-18.04%	54.7%	6.9x	76	$61,012
Crescent Point Energy Corp	CPG	$6,943	-22.62%	61.4%	5.0x	179	$38,783
Group Median			**-13.74%**	**58.0%**	**10.1x**	**153**	**$54,128**

Source: Bloomberg L.P.
* Price per Flowing Barrel is EV/ daily production ($/boe/d)
** Companies included in the Guideline Group were selected from a broader guideline group, detailed **here**. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.

Appendix A

Selected Public Company Information

Company Name	Ticker	3/31/2018 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
				as of 3/31/2018			
Marcellus & Utica							
Range Resources Corp	RRC	$7,722	-29.42%	42.3%	7.6x	365	$21,178
Cabot Oil & Gas Corp	COG	$12,100	-0.11%	25.0%	27.6x	309	$39,108
Antero Resources Corp	AR	$11,782	-6.32%	48.7%	7.5x	394	$29,896
Gulfport Energy Corp	GPOR	$3,706	-13.00%	80.7%	4.1x	209	$17,717
Southwestern Energy Co	SWN	$7,742	-14.37%	38.0%	6.4x	412	$18,776
Group Median			**-13.00%**	**42.3%**	**7.5x**	**365**	**$21,178**
Permian Basin							
Concho Resources Inc	CXO	$25,216	20.16%	93.2%	10.2x	218	$115,911
Parsley Energy Inc	PE	$10,662	25.44%	67.5%	16.7x	86	$124,243
Diamondback Energy Inc	FANG	$14,112	31.09%	77.4%	15.0x	100	$140,891
RSP Permian Inc	RSPP	$8,946	17.38%	65.1%	16.9x	67	$133,917
Halcon Resources Corp	HK	$757	-52.49%	218.2%	0.9x	11	$69,628
Laredo Petroleum Inc	LPI	$2,780	-42.81%	50.6%	6.6x	62	$44,488
Pioneer Natural Resources Co	PXD	$29,877	-7.06%	32.1%	15.5x	307	$97,380
Cimarex Energy Co	XEC	$10,010	-18.45%	63.2%	8.3x	202	$49,485
Energen Corp	EGN	$6,905	20.16%	64.7%	11.0x	92	$75,445
Group Median			**17.38%**	**65.1%**	**11.0x**	**92**	**$97,380**

Source: Bloomberg L.P.
* Price per Flowing Barrel is EV/ daily production ($/boe/d)
** Companies included in the Guideline Group were selected from a broader guideline group, detailed **here**. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.

Appendix A

Selected Public Company Information

Company Name	Ticker	3/31/2018 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX (as of 3/31/2018)	Daily Production (mboe/d) (as of 3/31/2018)	Price per Flowing Barrel* (as of 3/31/2018)
Eagle Ford							
Carrizo Oil & Gas Inc	CRZO	$3,173	-1.66%	67.4%	6.2x	50	$63,839
SM Energy Co	SM	$4,609	-6.18%	35.3%	10.4x	110	$41,776
EOG Resources Inc	EOG	$66,466	7.65%	42.9%	13.7x	658	$101,014
Group Median			**-1.66%**	**42.9%**	**10.4x**	**110**	**$63,839**
Overall Median			**-4.42%**	**0.5x**	**7.7x**	**262**	**$50,911**

Source: Bloomberg L.P.
* Price per Flowing Barrel is EV/ daily production ($/boe/d)
** Companies included in the Guideline Group were selected from a broader guideline group, detailed **here**. The selected companies' market caps exceed $1 billion and revenues exceed $500 million.

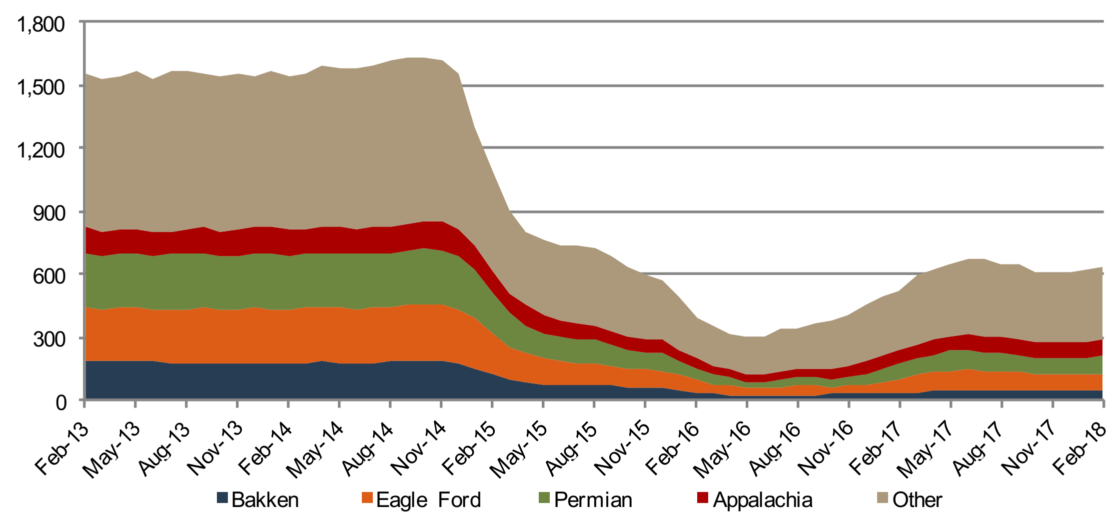
Appendix B

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 March 31, 2018, stood at 993, a 20% increase from March 2017. The increase reflects a pickup in drilling activity from the increase of oil prices over $50/bbl, enabling companies to increase drilling activities. Activity increased more slowly in the Eagle Ford than the Permian Basin with the number of active rigs increasing by 5% to 84 rigs in March 2018. It is important to remember that rig counts are only half the picture. Although rig counts are still down compared to pre-2014, production per rig has increased, which means total production as compared to pre-2014 is up.

Rig Count by Region

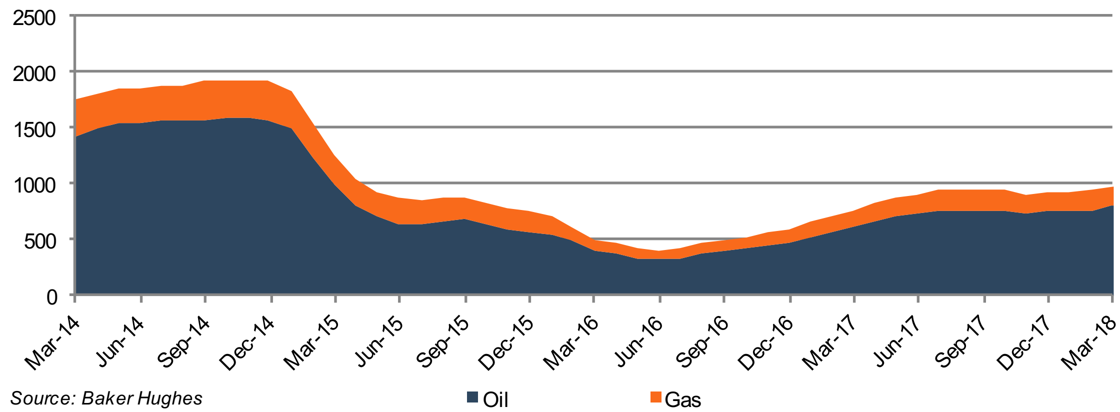


Source: Baker Hughes

Appendix B

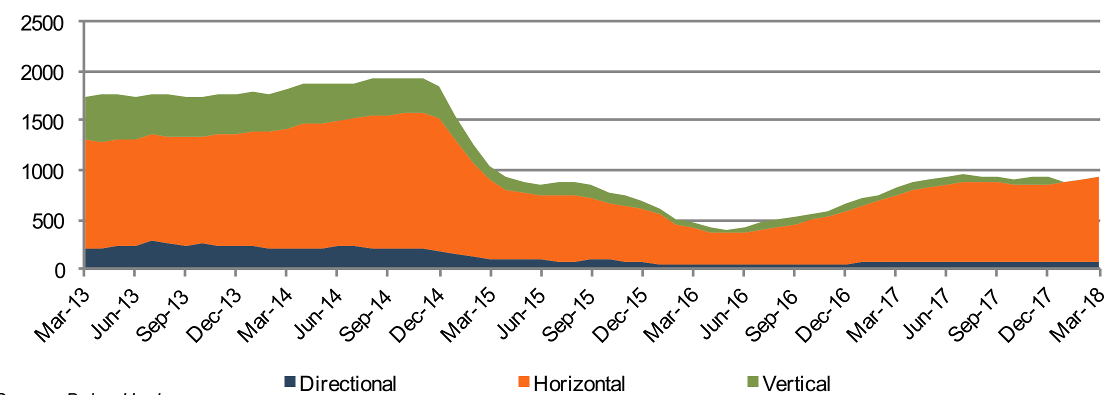
Rig Count

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



Source: Baker Hughes

U.S. Rig Count by Trajectory

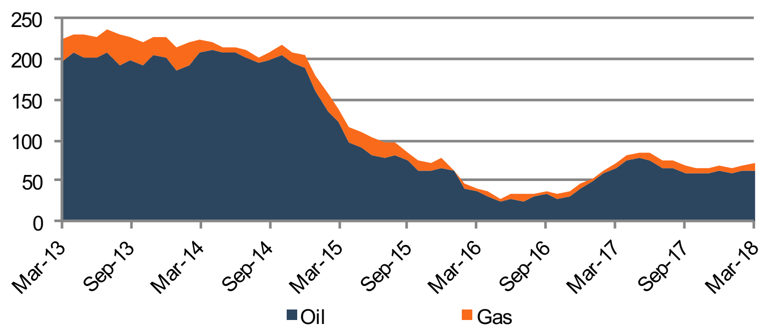


Source: Baker Hughes

Appendix B

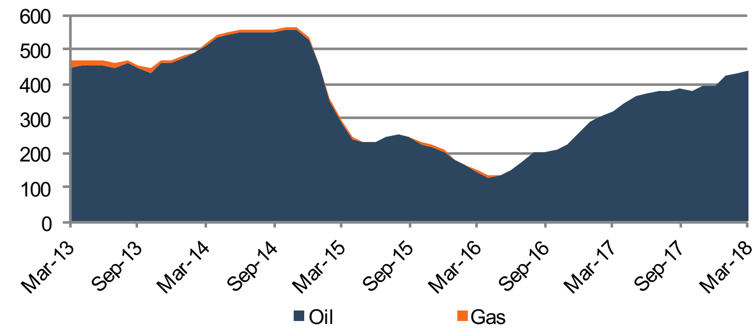
Rig Count // Oil vs. Natural Gas

Eagle Ford Rig Count by Oil vs. Natural Gas



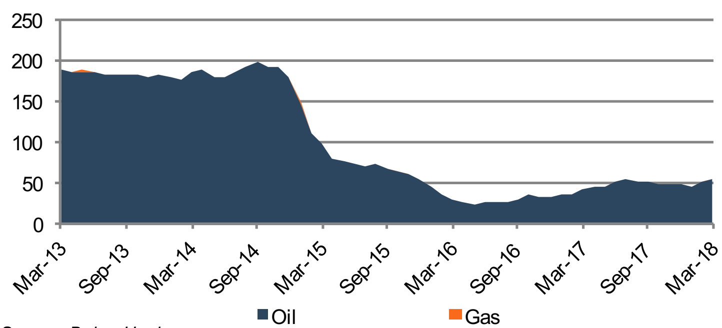
Source: Baker Hughes

Permian Rig Count by Oil vs. Natural Gas



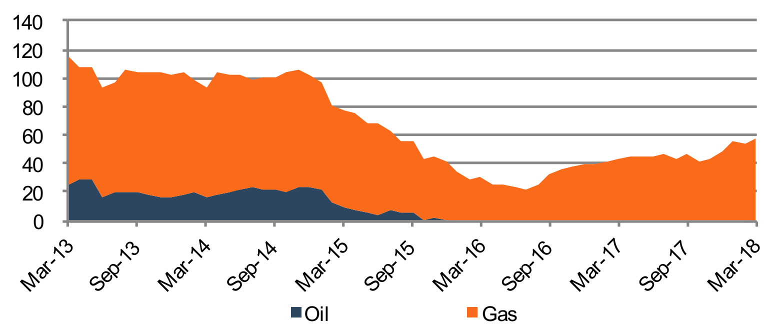
Source: Baker Hughes

Bakken Rig Count by Oil vs. Natural Gas



Source: Baker Hughes

Marcellus & Utica Rig Count by Oil vs. Natural Gas

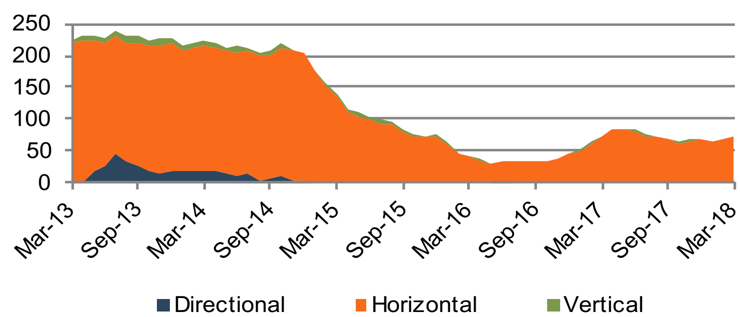


Source: Baker Hughes

Appendix B

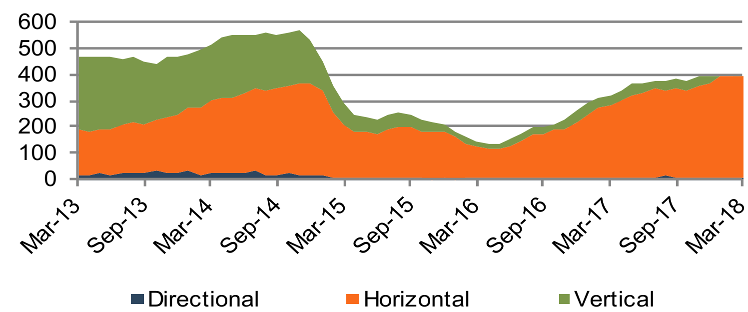
Rig Count // Trajectory

Eagle Ford Rig Count by Trajectory



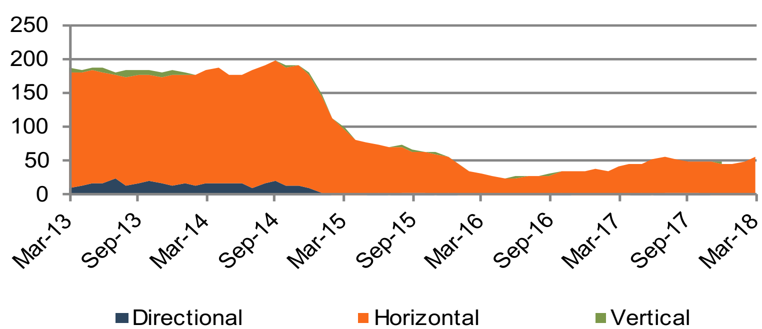
Source: Baker Hughes

Permian Rig Count by Trajectory



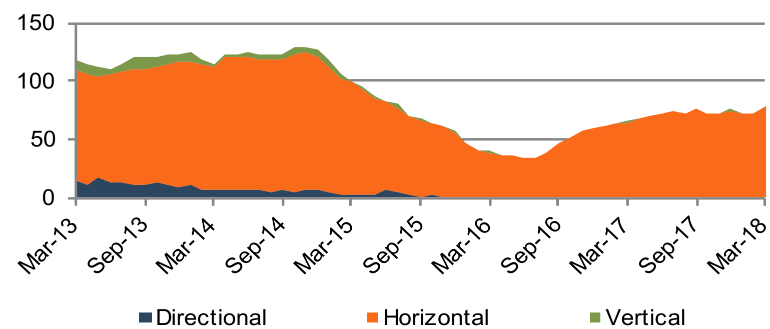
Source: Baker Hughes

Bakken Rig Count by Trajectory



Source: Baker Hughes

Marcellus & Utica Rig Count by Trajectory



Source: Baker Hughes

MERCER CAPITAL

Memphis

5100 Poplar Avenue, Suite 2600
Memphis, Tennessee 38137
901.685.2120

Dallas

12201 Merit Drive, Suite 480
Dallas, Texas 75251
214.468.8400

Nashville

102 Woodmont Blvd., Suite 231
Nashville, Tennessee 37205
615.345.0350

www.mercercapital.com