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CONCLUSION
Broadly speaking, coming out of this conference we are:
1) Increasingly bullish about the supply outlook as the rate of non-OPEC production degradation is accelerating.
2) Witnessing greater evidence and industry cognition of an increasingly impaired upstream value chain resulting in diminished flexibility and extending industry lead times.
3) Admiring of ongoing L-48 well productivity improvements but are increasingly skeptical about the continued rate of realization of drilling/completion cycle-time compression gains based upon the damage to the upstream value chain.
4) Increasingly concerned that energy industry protagonists as well as the buyside are too complacent about demand.
5) Cautious and respectful about the epic volatility unfolding in the energy sector – dislocations to energy long/short buyside have been profound.

The following are the top-10 key takeaways from this year’s Simmons/Piper Las Vegas Energy Conference.

1. Global Supply Outlook More Bullish #1 – L-48 Production Declines are Inflecting
2. Global Supply Outlook More Bullish #2 – Globally, Resource Holders Are Essentially Producing at Full Capacity
3. Global Supply Outlook More Bullish #3 – Will Take Longer to Climb Out this Downturn Due to the Impairment to the Upstream Value Chain and Labor Pool, Resulting in Extending Industry Lead Times
4. Efficiency and Productivity Gains Continue to Unfold – But for How Long?
5. Bending of the Long-Cycle Project Cost Curve #1 – Flexibility of Downward Cost Progression from Majors Oils
6. Bending of the Long-Cycle Cost Curve #2 – Royal Dutch Shell’s Biggest 2016 Surprise will be the Extent to which Big Oil Attacks its Cost Structure
7. Bending of the Long-Cycle Cost Curve #3 – Deepwater and Oil Sands Remain Important Contributors to Long-term Oil Supply Mix
8. An Incomplete Narrative – While Gasoline Demand Remains Quite Strong, Weakness in Other Products is a Conspicuous Reality
9. Large Scale E&P Consolidation is Unlikely, For Now
10. Epic Energy Stock Volatility Leading to Non-Trivial Energy Long/Short Dislocations

Extended commentary is provided in the body of the note.
CONCLUSION

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Related Companies: Share Price:
- APA 48.04
- CXO 98.16
- EOG 71.41
- FTI 25.68
- HAL 34.88
- OIS 29.48
- PXD 128.80
- SU 25.32
- TSO 84.80
- VLO 63.89
- WFT 6.58

RISKS TO ACHIEVEMENT OF PRICE TARGET

The primary risk to energy stocks is lower for longer oil prices. In addition, risks also include higher than expected oil production, particularly in Iran, economic destabilization in China and weaker than expected global oil demand.
GLOBAL SUPPLY OUTLOOK MORE BULLISH #1 – L-48 PRODUCTION DECLINES ARE INFLECTING

U.S. oil production peaked at ~9.7MBD in April 2015 and has subsequently contracted by ~430KBD as of the latest DOE monthly revelations (December ‘15). Total US output declined in six of the preceding eight months through December. Total US production contracted on a y/y basis for the first time during this down-cycle in December. December’s y/y contraction contrasts with 17% y/y growth realized in 01 ‘15. The GOM, however, is obfuscating the underlying accelerating production declines due to the contribution from major project startups. For example, GOM production was up 12.5% y/y in December, and has been up ~10-19% for each month over the July-December time frame. The major GOM project start-up contributions will abate, however, over the coming years. US onshore production has declined by 600KBD since the March peak of 7.7MBD, and has contracted each and every month through December. While the average monthly decline has been 66KBD since the March peak, the rate of decline shelled-out to an average of 28KBD/month over the July-November period. However, December’s m/m contraction of 157KBD was the largest m/m decline in decades. Meanwhile, the onshore rig count has imploded this year, declining by ~25 rigs/week and continued unrelenting declines are envisioned given the fear and paralysis afflicting the industry.

Simmons/Piper Perspective: Based on the confluence of 1) Seasonal headwinds and record levels of inventory illitating against a cathartic recovery in oil prices, and 2) industry/fear and paralysis afflicting resource holders, we believe production declines will likely continue to be outsized. Our US production outlook (Peak-to Dec’17 – Total US= down 840KBD, L-48 = down 1.0MBD) will be adjusting (lower) accordingly.

GLOBAL SUPPLY OUTLOOK MORE BULLISH #2 – GLOBALLY, RESOURCE HOLDERS ARE ESSENTIALLY PRODUCING AT FULL CAPACITY

We’ll credit WFT’s CEO with crystallizing an existential reality that receives insufficient scrutiny relative to the fixation on US shale. The growing affliction of global supply isn’t merely confined to the US, as it has become a global reality. First, with the exception of Libya, Saudi Arabia and, to an unknown extent, Iran, there is limited if not non-existent spare production capacity. Second, in light of the evisceration of cash flows and balance sheets globally, maintenance cap ex is in the process of meaningfully declining. Managed production declines are capital intensive and thus global decline rates are accelerating. CLB updated its worldwide decline curve from 2.5% last year to 3.1 % as of its 04 earnings call and 3.3% net as of today. Global production in 04’15 was ~89MBD – thus applying CLB’s projected decline rate yields a production replacement challenge of 3MBD. While major project start-ups will partially fill this gap, there is diminishing wherewithal to address the forward supply replacement challenge.
Simmons/Piper Perspective: An additional item to consider is the implosion in exploration spending. According to SLB, 2014 yielded the worst exploration results in ~25 years. 2015 was worse and 2016 will be even worse. Thus the industry will have realized abysmal exploration yield for three consecutive years. We expect this will have grievous consequences for forward supply over the next five years as the major oil project backlog evaporates. Lastly, drilling activity has simply imploded on a global basis. Consider the following international markets in contrasting recent peak (since 2014) with current activity (recent peak/current): Colombia= 44/8, Argentina= 113/72, Australia= 24/13, China= 40/27, Brazil = 50/34, India= 130/97, Indonesia= 40/20, Iraq = 96/40, Libya = 17 /1, Malaysia = 16/5, Mexico = 98/43, Nigeria = 19/9, UK 20/8 and VZ 83/67. Saudi is one of the very few outliers, currently running at recent peak levels of 124 rigs.

GLOBAL SUPPLY OUTLOOK MORE BULLISH #3 – WILL TAKE LONGER TO CLIMB OUT THIS DOWNTURN DUE TO THE IMPAIRMENT TO THE UPSTREAM VALUE CHAIN AND LABOR POOL, RESULTING IN EXTENDING INDUSTRY LEAD TIMES

An increasing abundance of oil service companies have reported field level headcount reductions in excess of ~50%. Capital budgets for the bedrock of the domestic oil service industry (SMID/Land Drillers) will be down over ~60% y/y in ‘16, resulting in increased evidence/reports of equipment cannibalization. Current oil service pricing is universally acknowledged as unsustainable as less than a handful of companies are generating positive EBIT. There is growing evidence of company bankruptcies, including increased oil service auction activity. Right-sizing is increasingly draconian as manifested by facility closures, resulting in companies permanently exiting regional/basin locations. The duress will persist this year (and likely intensify) as oil service companies continue to report (i) additional pricing concessions; (ii) diminished access to capital due to banks tightening availability; (iii) diminished liquidity as the major working capital reductions have largely unfolded; and (iv) for some, heavy debt levels that will increasingly be more difficult to manage given lower cash flow attendant to unsustainable pricing and declining utilization (for service companies) as well as lower commodity prices and less robust hedging profiles (for E&Ps). Meanwhile, a consequence of the massive

industry headcount reduction (which also includes lower wages, reduced benefits, etc.) coupled with the duration of the current downturn and an otherwise relatively healthy domestic job market will make the ramping process more challenging as attracting labor back to a volatile oil service business will be both difficult and expensive as wages will need to move higher. Moreover, while the oil service industry is structurally oversupplied with equipment today (rigs, frac horsepower, etc.), it is increasingly clear that the maintenance of this equipment is being deferred as many industry participants report the need to harvest component parts from idle equipment and/or defer major repairs. There is, of course, some equipment on the sidelines that remains in good condition. Both SPN and FTSI, for example, report essentially like-new equipment remains parked and ready to be deployed when attractive opportunities develop. We submit others are in the same situation, thus the initial ramp in activity may appear seamless, but a more consequential ramp (i.e., adding ~250+ rigs) will take more time and be more challenged. Notably, headwinds will come in the form of (i) increased labor costs (wage increases, overtime, hiring costs, etc.); (ii) higher R&M costs – essentially equipment reactivation expenses; (iii) costs associated with greater travel (i.e., a function of yard closures, more accommodations expense, etc.); and (iv) gaining access to consumables/component parts as equipment inventories have been depleted.

From the resource holder’s perspective, the impairment of the oil service value chain is becoming a source of material concern. EOG expressed that it would take 18 months to generate 500KBD of production growth assuming threshold prices (~$65/bbl) and it would take “several years” to generate 1 MBD of growth. APA, OXY and NBL expressed similar concerns.

Simmons/Piper Perspective: We are now into the 7th quarter of the current downturn and the industry is in unvarnished survival mode. The hallmark of the US shale industry coming into this downturn was responsiveness and short lead times. This is in the process of changing markedly – while the resource base will yield significant growth (>500KBD) with improved oil prices, it will do so over years and not quarters in our view. Front-lines of energy, WORLDWIDE, are exceedingly grim as the industry endures the worst slump since the 1980s – 1) the industry is hip-deep in blood from headcount reductions, 2) cash flow has evaporated, 3) balance sheets are under extreme duress, and 4) the industry cost of capital has risen exponentially.
All of the E&P panelists stated that there remains plenty of runway for additional drilling and completion efficiency gains as well as for further improvement in well economics. The net result is a continued bending of the oil and gas cost of supply curve lower (assuming current service costs). OXY believes 75% of efficiency gains are structural rather than cyclical. While this may be on the high side of the industry, every resource holder at the conference talked about doing considerably more with considerably less. Accordingly, the call on commoditized L48 oilfield service capacity to generate an incremental barrel of production growth will be less through the next investment cycle. EOG CEO Bill Thomas stated that he sees more opportunity for further industry improvements than at any time in his 35+ years at the company. EOG is leading the industry with advanced integrated completions and well targeting (collectively, building petrophysical models, use of gee-steering in targeting the wellbore and high density fracs connecting as many of the fractures to the wellbore as possible). As an example of moving the cost of supply curve lower, EOG’s premium drilling inventory generates a 100% wellhead ATROR at $60 WTI. A few years ago, the same well would have required $90-$100/bbl to deliver a 100% wellhead ATROR. APA exclaimed that $45/bbl oil prices would stimulate increased activity (+20 rigs) and flatten the production profile, while all of the resource holders agreed that significant production growth (~500KBD) would unfold with $50-60/bbl pricing. Moreover, all of the resource holders agreed that production growth in excess of 500KBD would require considerably stronger oil prices (pricing range extolled was $65-80/bbl)

Simmons/Piper Perspective: A prominent unknown is the industry’s efficiency with higher levels of activity. While we believe the well performance gains are structural, continued drilling and completion cycle time compression likely has limited runway based on the damage being inflicted on the upstream value chain.

BENDING OF THE LONG-CYCLE PROJECT COST CURVE #1 – FLEXIBILITY OF DOWNWARD COST PROGRESSION FROM MAJORS OILS

A consistent theme emanating from large resource holders, including deepwater bellwethers Royal Dutch Shell (RDS-A) and Statoil (STO), as well as Canadian Oil Sands focused Suncor (SU), was the resolute manner in which they are all aggressively attacking their cost structures. Panelists were a bit more optimistic in their ability to further reduce the cost of supply of their portfolios relative to the prevailing consensus view. More specifically, Shell highlighted that they have reduced their offshore cost structure by 20% over the last year, and while the extent of incremental reductions remains a prominent unknown, Shell is optimistic and expects further gains to be material. Both RDS-A and STO highlighted that 1) they are testing more efficient concepts to exploit offshore reserves, 2) logistical costs are falling, 3) they are pursuing standardization efforts, and 4) they will continue to aggressively drive cost reductions throughout their entire supply chains. STO again emphasized the progress they have made in their major project portfolio, having reduced their average break-even price from $70/bbl to $41/bbl, while also noting that US unconventional drilling and completion costs are down 30% to 40% since 2014 and will fall another 25%.
BENDING OF THE LONG – CYCLE PROJECT COST CURVE #1 – FLEXIBILITY OF DOWNWARD COST PROGRESSION FROM MAJORS OILS (CONTINUED)

Simmons/Piper Perspective: FTI’s CEO made one of the more perceptive observations on this topic. While the current downturn has amplified the sense of urgency confronting the industry, the deepwater vanguard were cognizant that they were confronting an existential threat in the form inflexible business models and rampant cost inflation well before this downturn. STO’s progression (above) is a profound manifestation of the industry’s sense of urgency as is RDS-A’s (below). Based on the dramatic bending of the cost curve (SLB’s CEO expressed that this evolution was in the very early innings), the supposition that deepwater is dead is premature, in our view.

BENDING OF THE LONG-CYCLE PROJECT COST CURVE #2 – ROYAL DUTCH SHELL’S BIGGEST 2016 SURPRISE WILL BE THE EXTENT TO WHICH BIG OIL ATTACKS ITS COST STRUCTURE

When asked what would be the biggest surprise to energy investors in 2016, Royal Dutch Shell noted that it would be how aggressively large resource holders will attack their cost structures. We believe the sense of urgency driving the cost reduction efforts is, in large part, borne out of empirical threats confronting Big Oil. Cost structures for Big Oil remain well out of balance with current oil price realities, bringing into question Big Oil’s ultimate ability to sustainably grow cash flows and dividends over time – the key source of value these companies provide investors. Large resources holders are therefore focused on what they can control – and that is not only aggressively attacking costs in the form of right-sizing and supply chain concessions but, more importantly, reforming business models.

Simmons/Piper Perspective: Don’t confuse the bending of the cost curve with simply supply chain cost deflation or right-sizing. While cost deflation and right-sizing are important components, the more all-encompassing contributor is reforming obdurately inflexible business models. TOT first expressed this with its “just-good-enough” epiphany following what now appear to be prosaic remedies in meaningfully reducing the Block 32 development costs. As FTI’s CEO observed, standardization, vendor based solutions, more assertive embrace of leading-edge technologies, project phasing and modularity, and improving reliability are all a part of this evolution.
Major Oil panelists conceded that deepwater and oil sands cost structures cannot respond as quickly to lower oil prices as US Unconventional due to their relative inflexibility. However, panelists dismissed the view that deepwater and oil sands resources have been marginalized as key contributors to the long-term global oil supply mix. Both resource types will be needed to meet long-term oil demand growth. More specifically, RDS-A highlighted that deepwater supply costs are very project and resource specific, noting that certain projects have an economic break-even below $40/bbl - competitive with attractive US unconventional plays. Further, the cost of supply is declining. Suncor noted that while initial oil sands major project construction costs may be elevated, once production is on-line, sustaining capex requirements and declines are minimal compared to other resources. Further, SU has made significant progress in reducing cash operating costs, driving them below $20/bbl USO in 2015. SU noted that at $30/bbl WTI, the company is still generating free cash flow, a testament to the resiliency of their business model.

Simmons/Piper Perspective: Paraphrasing Alexis de Tocqueville, revolutions before they happen appear to be impossible and after they occur they appear to have been inevitable. Threshold oil prices required to realize meaningful production growth for US shale were once $90-100/bbl. They are now ~$65/bbl. To presume that a similar order of magnitude won’t unfold for the better deepwater projects is, we believe, being excessively captive to history.
Gasoline demand continues to benefit from price elasticity and healthy consumer spending. Domestic gasoline demand expanded by 2.7% y/y in 2015. The rate of expansion, however, decelerated over the course of 2015 – 1H demand grew by 3%, while 2H decelerated to ~2.4%. The refining panel exuded optimism about buoyant gasoline demand growth in 2016, although they acknowledged that the rate of expansion would likely slow from the torrid pace witnessed last year. Department of Transportation vehicle miles traveled were up 3.5% in FY’15 y/y, with the strongest regional growth focused in the Western U.S. (+6.9% y/y in Dec), especially California (+11.3% y/y in Dec). Cheap gasoline has reinvigorated sales of SUVs (up > 10% y/y) and shifted demand growth toward high octane premium grades (premium grade gasoline demand was up over 10% y/y in 2015). Alternatively, a weak industrial economy (U.S. and globally) and reduced energy activity has aggrieved distillate demand (down 7% y/y in 04’15 and down near 20% YTD ’16 based on considerably lower quality weekly statistics). “Other” product demand as defined by the DOE (significant > 2mb/d) is reasonably correlated with industrial activity and was flat y/y in 40’15. Total U.S. product demand YTD appears to be experiencing only modest growth after adjusting for typical revisions forthcoming in the DOE monthly statistics.

Simmons/Piper Perspective: We believe the energy industry as well as Wall Street is excessively complacent about demand. Yes, demand was ascendant last year in large part due to an elasticity of demand response to imploded refined product pricing. While gasoline demand is the most important component of oil demand, the contribution from industrial demand is nontrivial. And given the global recession unfolding in the industrial sector as well as the broadening affliction being endured in emerging markets, demand growth is decelerating. While U.S. gasoline demand grew by 2.7% last year (2014 = +0.9%), total U.S. oil demand expanded by 1.5%. Further, while U.S. oil demand grew by 3% last summer, total demand contracted for each of September, October and November and was only flat-to-up in December. Lastly, while global demand grew by 1.9MBD for the first three quarters last year, it decelerated to 890KBD in 04. Yes, the 04 deceleration was partly due to weather but we think the weakness was far more systemic than seasonally inconvenient mild winter weather.
Large cap E&P panelists APA, NBL and OXY were unanimous in their view that upstream corporate acquisitions will continue to be very difficult to consummate this down-cycle. First, panelists highlighted that prodigious debt levels encumbering too many E&Ps are a continued disincentive for M&A, echoing comments from ExxonMobil at their recent Analyst Day. Notwithstanding the strategic imperative on the part of the Super Majors to increase their exposure to U.S. unconventional resources, they are reluctant to make E&P debt holders whole given the magnitude of the debt as well as the fact that a broad swath of energy debt is trading well below par. Moreover, panelists highlighted that cost synergies will be difficult to extract from lean E&Ps. Further, technology improvements have driven meaningful increases to drilling inventory for the logical consolidators within the E&P industry, leading to less incentive for many to pursue corporate acquisitions. Additionally, an acquisition would need to compete immediately with low-cost, undeveloped assets in existing portfolios – a high hurdle for many. The universe of savory strategic acquisition targets is small and is currently richly priced (Permian, Permian, Permian). Lastly, asset specific acquisitions appear more likely than any potential wave of corporate acquisitions.

**Simmons/Piper Perspective:** While there are legitimate constraints to large scale E&P consolidation, we believe consolidation will become inevitable in the event of extended duration of the current purgatory.

**EPIC ENERGY STOCK VOLATILITY LEADING TO NON–TRIVIAL ENERGY LONG/SHORT DISLOCATIONS**

Last week during our conference the stocks of heavily indebted enterprises witnessed exceedingly sharp rallies while the rest of the energy complex witnessed relatively benign rallies in comparison. For example, while SLB witnessed a relatively respectable gain of 3-4% over the course of last week, SDRL doubled, FMCSA doubled, Cajes was up 73%, PACO was up 55%, PES was up 50%, BAS was up 40% etc. The OSX, by comparison, was up 12.5% and the SPX was up 3.5%. While EOG was up 9%, CHK was up 90%. The EPX, by comparison, was up 35%. The combination of forced portfolio liquidations and hedge funds frantically realigning and grossingdown only compounded the volatility in our view and led to what has been characterized as the most challenging week in the history of the energy long/short industry.

**Simmons/Piper Perspective:** The investable sweet-spot for stocks is the convergence between safety and value. Currently there is no such convergence in energy. Last week’s moves were so exceptionally distorted that it’s difficult to distinguish between fluid macro (monetary policy aggression, prospect of China stimulus) and technical catalysts (realignment from safety to the most extreme call options on volatility) vs. fundamental drivers (huge inventory build vs increasingly intermediate to longer term bullish supply outlook). The spike in the stocks of the paragons of distress was hardly confined to energy as it permeated across the risk complex. Further, while oil has received a bid (up 35-40% over the preceding three weeks), so has copper (+13%), iron ore (+22%). EM stock markets have also attracted a bid= Brazil’s ETF (EWZ) is up 50% since late–January, Russia is up 30%, South Africa is up 32%. And there are numerous additional examples apart from energy where money is flowing into the outer limits of the risk curve. The following is a blend of reason and opportunity (reasonably cheap stocks, sensible capital structures, plenty of upside and, in some cases, 1-2 steps removed from defensive bunkers): E&Ps = CXX, PXD, Majors = SU, Large Cap Service/Cap Equipment = HAL, FTI, SMID Service = OIS, Refiners = TSO, VLO.
1. EOG – Threshold oil prices and timeline required to drive 500KBD of production growth: $65/ bbl, 18 months.

2. EOG – Drivers of future global oil production growth: US tight oil and GCC states.

3. EOG – Severity of L-48 December m/m production decline: 157KBD, steepest in 29 years.

4. PXD – Expected progression of oil price recovery: A march to $60/bbl, a spike to $80/bbl.


6. PXD – Threshold oil prices and timeline required to drive 1 MBD of production growth: $80, several years.


8. CXO – Rig reactivation progression: Permian currently running 158 rigs and adding 50 rigs should be relatively quick and easy. Beyond 50 rigs, lead times extend and in the event oil prices improve sufficiently, the call for increased activity in the Bakken and the Eagle Ford would increase which would lead to conditions tightening considerably in the event the oil price recovery is sharp and quick.

9. FTI – % of Deepwater Cost Competitive with US Tight Oil: 2/3 as a result of the dramatic bending of the cost curve.

10. WFT – Reason for the recent equity offering= fear – one of the more naked expressions of candor we have heard. We wish more management teams were as revealing.
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IMPORTANT RESEARCH DISCLOSURES

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APPENDIX (CONTINUED)

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