E&P

3Q19 E&P Costs Review – Trade Ideas and Margin Calculator Spreadsheet

CORE

Please click the attachment icon in the report to access our margin calculator spreadsheet. On an LQA basis, we calculate that upstream gross debt/LQA unhedged EBITDA(X) was 2.6x (1.8x median) in the third quarter, up from 2.1x in 2Q19.

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Investment Summary

Due to weak natural gas and liquids prices and higher production costs, median upstream unit margins decreased from 2Q19, bringing median E&P EBITDAX down to $19.79/boe, while median debt/LQA EBITDAX held flat at 1.8x. Unhedged interest coverage and annualized leverage at strip pricing remained correlated with spreads. We recommend a trade idea in long E&P cash.

Relative Value

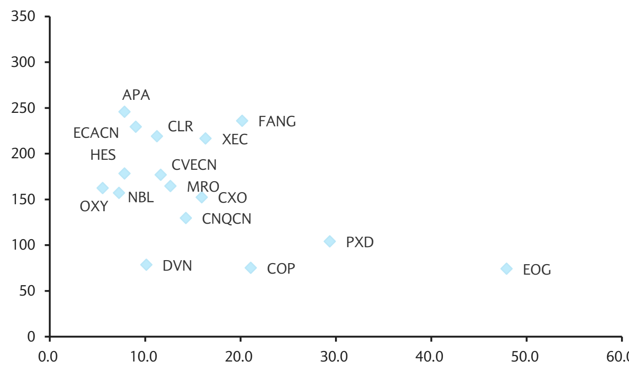
3Q19 EP Margin Calculator

Margins weakened along with increased costs in 3Q19.

Across the various metrics that we include in our quarterly calculator, unhedged interest coverage and 3Q19 annualized unhedged leverage at strip pricing continue to screen as reasonably correlated to current spread levels. Our study is backward looking, but we do adjust 3Q19 reported debt for subsequent gross debt reduction, and our attached spreadsheet allows investors to toggle for different commodity prices. Given that the analysis includes only E&P assets, our metrics understate interest coverage and overstate leverage for companies with integrated midstream, downstream, and/or chemicals businesses. For companies with public midstream entities that are consolidated for reporting purposes, we include only E&P-level debt (and parent-level unit margins, excluding distributions from midstream entities). In light of very weak natural gas and liquids pricing during the quarter, the numbers from the high yield producers in our sample skew the averages; we suggest focusing on median metrics for a better sense of the overall group. Owing to a very noisy third quarter because of the intra-period acquisition of Anadarko (APC), we exclude Occidental (OXY) from our relative value leverage scatter plots.

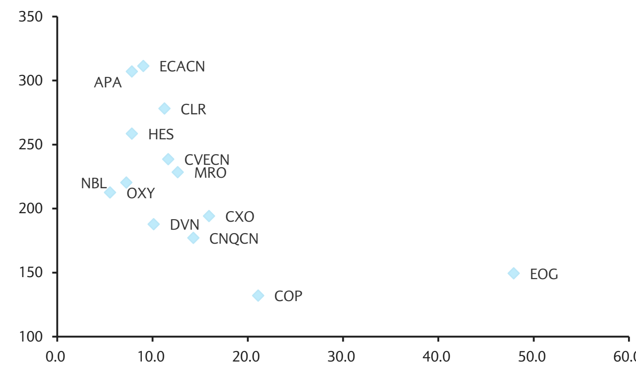
In our view, Diamondback Energy's (FANG) pending migration into the investment grade index and potential new issue requirements (see *We Of Too Little Faith*, November 13, 2019) could weigh on spreads of Concho (CXO), which is another Permian-focused producer that we expect to be viewed as the primary comp for Diamondback; our initial fair value target for FANG is 20-30bp wide of CXO, with potential for spread compression between the two over time. Although we are comfortable with the Concho credit story, we think that investors should swap from CXO into wider-trading credits that have positive catalysts and/or wider spreads that we think will be relatively less affected by a potential FANG new deal. **We recommend selling CXO 2047s and/or 2048s to buy Noble (NBL) 2043s, 2044s, 2047s and/or 2049s**, picking from 25bp to 50bp and taking out from 3pts to 15pts. Although NBL does not screen well in our quarterly analysis because of elevated current leverage, we expect improvement into 2020 as the company's Leviathan project ramps and management's strategic review of the midstream business (guided to be concluded by the end of 2019) potentially frees up some liquidity to strengthen Noble's balance sheet. We also think that NBL's asset base, comprising shale and conventional offshore resources, provides the company with a less capital-intensive production profile.

FIGURE 1. **Strip Price Unhedged 3Q19 Pre-interest Cash Margin/Interest (x, x-axis) versus Intermediate Cash Spread (bp)**



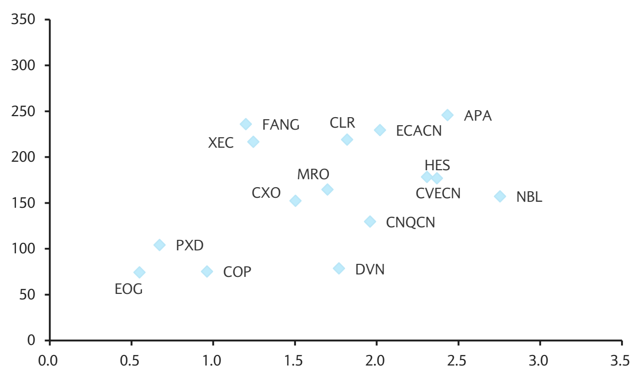
Note: For integrated companies with downstream/other assets, metrics are weakened because they exclude downstream/other cash flow.
Source: Company reports, Barclays Research

FIGURE 2. **Strip Price Unhedged 3Q19 Pre-interest Cash Margin/Interest (x, x-axis) versus Long Cash Spread (bp)**



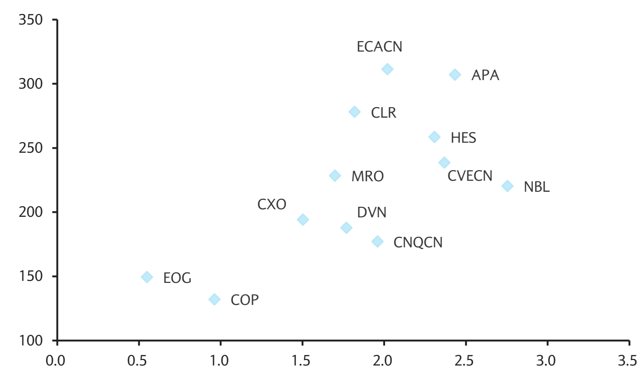
Note: For integrated companies with downstream/other assets, metrics are weakened because they exclude downstream/other cash flow.
Source: Company reports, Barclays Research

FIGURE 3. **Strip Price Unhedged 3Q19 LQA Leverage (x, x-axis) versus Intermediate Cash Spread (bp)**



Note: For integrated companies with downstream/other assets, metrics are weakened because they exclude downstream/other cash flow. OXY is excluded.
Source: Company reports, Barclays Research

FIGURE 4. **Strip Price Unhedged 3Q19 LQA Leverage (x, x-axis) versus Long Cash Spread (bp)**



Note: For integrated companies with downstream/other assets, metrics are weakened because they exclude downstream/other cash flow. OXY is excluded.
Source: Company reports, Barclays Research

Highlights from Cost Study

With the 3Q19 investment grade E&P reporting season having concluded, we provide a snapshot of realized pricing and costs (both cash and DD&A; we include stock-based compensation) for some of the largest independent producers in the US.

We like to consider the underlying cost structure of an E&P company and compare that with its price realizations for various commodities on an unhedged basis. If oil, natural gas, and natural gas liquid (NGL) prices stay at given levels for an extended period, we think that a company's cost structure is much more important in terms of determining the viability of an issuer's balance sheet.

We attach a spreadsheet that shows 3Q19 realized pricing and costs for investment grade and select high yield E&P companies, along with functionality that allows investors to flex realized pricing. One drawback to this model, although it can easily be adjusted by investors in the spreadsheet, is that it holds constant both pricing differentials and costs. A key caveat is that costs are in fact not static, but can be fluid during times of falling commodity prices as E&P companies push back on their suppliers and focus on efficiency. Conversely, as prices increase, our expectation is that at least a portion of the cost improvements will yield to inflation as oil field service providers look to recapture lost margin. Following the 1Q18 adoption of ASC 606, which changed how revenue is recognized with respect to certain contracts, we think that cost comparisons with prior-year periods are less relevant, as ASC 606 caused some reallocation from revenue to operating costs. We suggest focusing instead on unit EBITDA(X).

For an integrated producer such as Cenovus (CVECN), or a company with non-E&P businesses such as Occidental (OXY), some of the corporate expense items (SG&A, interest and debt) can skew the results because we are allocating all of the corporate items and debt to upstream production, when in fact the other businesses share in those costs.

One challenge with comparing unit production costs across E&P companies is that costs (on a boe basis) can vary significantly, along with production mix. All else equal, a gas-leveraged producer will show much lower production costs than an oil-leveraged company on a boe basis. To adjust for this, we think that focusing on margins, rather than costs or unhedged revenues in isolation, is a better way to compare different E&P issuers. Ultimately, an E&P company needs to be able to cover its well-level costs for its assets to be viable, its corporate-level costs (interest and G&A) for the company to be viable, and its maintenance capital for the company to avoid shrinking. Therefore, we look at unhedged revenue on a boe basis minus cash costs and DD&A (our quarterly proxy for maintenance capital). In our spreadsheet's sensitivity tab, we provide the five-year average drill-bit F&D cost as an alternative proxy for maintenance capital requirements.

FIGURE 5. Aggregated Upstream Margin Statistics

3Q19 Actual	Simple Average	Median
Costs ($/boe)		
LOE/Opex + Transportation/Blending	9.28	8.81
Royalties	3.33	2.99
Production taxes	1.50	1.54
SG&A	1.72	1.59
Interest	1.74	1.59
DD&A	12.24	13.02
Aggregated costs ($/boe)		
LOE/Opex + Transportation/Blending	9.28	8.81
Unlevered well costs	11.18	10.32
Unlevered corporate costs	12.90	12.08
Total operating costs	14.64	13.82
Total costs (incl. DD&A)	26.87	28.20
Unhedged upstream EBITDAX	18.42	19.79
Unhedged margins ($/boe)		
Unlevered well	20.14	22.06
Unlevered corporate	18.43	19.79
Total operating	16.69	17.09
Total	4.45	2.98
Debt/LQA unhedged EBITDAX (x)	2.6	1.8

Note: We include stock-based compensation expense.
Source: Company reports, Barclays Research

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We, Harry Mateer and Sarah Du, hereby certify (1) that the views expressed in this research report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this research report and (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report.

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Materially Mentioned Issuers/Bonds
CONCHO RESOURCES INC, Market Weight, CD/CE/J/K/M

Valuation Methodology: We consider CXO to be a strong operator with a pure-play presence in the Permian and a track record of conservative financial policies. Spreads are roughly in line with the LTM average and the credit trading at what we think is fair value relative to our forward leverage estimates and versus other producers with narrow basin focuses.

Risks that May Impede Achievement of the Rating: Single-basin focus exposes Concho to regional pricing and/or operating risk. Commodity prices will be a driving factor.

Representative Bond: CXO 3 3/4 10/01/27 (USD 102.88, 13-Nov-2019)

CXO 4 7/8 10/01/47 (USD 110.13, 13-Nov-2019)

CXO 4.85 08/15/48 (USD 109.88, 13-Nov-2019)

DIAMONDBACK ENERGY INC, Market Weight, A/CD/CE/D/J/L

Valuation Methodology: A possible S&P upgrade will depend on the company’s ability to generate positive free cash flow for a couple of quarters and pay down some of its secured revolver with a combination of asset sale proceeds and cash raised from the recent IPO of its midstream subsidiary, Rattler. We also think that refinancing the company’s credit facility into an unsecured line would be part of an investment grade process, particularly as the revolver does not contain collateral fallaway provisions related to investment grade ratings.

Risks that May Impede Achievement of the Rating: Potential commodity volatility and delayed rating upgrade from S&P may put FANG in HY bucket in a longer term

Representative Bond: FANG 5 3/8 05/31/25 (USD 103.75, 13-Nov-2019)

NOBLE ENERGY INC, Overweight, A/CD/CE/D/J/K/L/M/N

Valuation Methodology: We think that NBL can actually generate positive free cash flow in 2020, with the Leviathan project adding Brent-linked gas production at the same time that capital spending declines.

Risks that May Impede Achievement of the Rating: Management elects to deploy or pay down more debt than is currently expected; production grows more or less quickly than expected. Given elevated leverage and the current cash flow outspend, we think it is early to get even more constructive on the credit, but we think that investors should have at least a neutral weighting to NBL versus the benchmark.

Representative Bond: NBL 3.9 11/15/24 (USD 104.94, 13-Nov-2019)

NBL 4.2 10/15/49 (USD 95.08, 13-Nov-2019)

NBL 4.95 08/15/47 (USD 104.81, 13-Nov-2019)

NBL 5 1/4 11/15/43 (USD 106.89, 13-Nov-2019)

NBL 5.05 11/15/44 (USD 104.89, 13-Nov-2019)

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For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia

USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to exceed the six-month total return of the relevant index.

Market Weight (MW):
For sectors rated against the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or the Bloomberg Barclays EM USD Corporate and Quasi-Sovereign Index, the analyst expects the six-month excess return of the sector to be in line with the six-month excess return of the relevant index.

For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to be in line with the six-month total return of the relevant index.

Underweight (UW):
For sectors rated against the Bloomberg Barclays U.S. Credit Index, the Bloomberg Barclays Pan-European Credit Index, the Bloomberg Barclays EM Asia USD High Grade Credit Index or the Bloomberg Barclays EM USD Corporate and Quasi-Sovereign Index, the analyst expects the six-month excess return of the sector to be less than the six-month excess return of the relevant index.

For sectors rated against the Bloomberg Barclays U.S. High Yield 2% Issuer Capped Credit Index, the Bloomberg Barclays Pan-European High Yield 3% Issuer Capped Credit Index excluding Financials, the Bloomberg Barclays Pan-European High Yield Finance Index or the Bloomberg Barclays EM Asia USD High Yield Corporate Credit Index, the analyst expects the six-month total return of the sector to be less than the six-month total return of the relevant index.

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Overweight (OW): The analyst expects the six-month excess return of the issuer's index-eligible corporate debt securities to exceed the six-month expected excess return of the relevant sector.

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Market Weight (MW): The analyst expects the six-month total return of the debt security subject to this rating to be in line with the six-month expected total return of the relevant sector.

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Market Weight (MW):
The analyst expects the six-month excess return of the country's index eligible bonds to be in line with the six-month excess return of the Bloomberg Barclays EM USD Sovereign Index.

Underweight (UW):
The analyst expects the six-month excess return of the country's index eligible bonds to be less than the six-month excess return of the Bloomberg Barclays EM USD Sovereign Index.

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