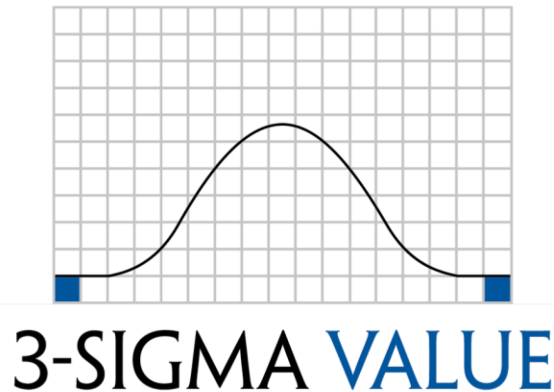


# Energy Investing in 2016 –
# Offshore Drilling is Moribund

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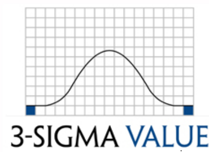


# Energy Investing in 2016 – Offshore Drilling is Moribund

For three years, between 2012 and 2014, 3-Sigma Value had little exposure to the energy business. On the long side, exposure approached zero. On the short side, exposure revolved around 10% with a focus on *alternative* energy companies, namely those in the solar, wind, biofuel, LED, and fuel cell industries. The nexus of technology and natural resources is a fulcrum of our research.

Our reluctance to invest in energy during this time period is simple and straightforward – valuations were full at oil priced above $100 per bbl and few companies met our requirements for risk versus reward and total return. Then, in 2014, oil cracked, and the entire commodities spectrum followed. Since then, we have re-focused on the energy supply chain and discovered excellent alpha-generating ideas on both sides of the portfolio ledger – low cost survivors that are deeply undervalued and high cost producers that are terminally over-leveraged.

3-Sigma Value is invested 12.3% long and 15.8% short in natural resources as of July 31, 2016.

The primary economic principle that underlies our analysis is the fact that, over the medium-term, the price of any commodity, in this case oil, will approach its marginal cost of production at equilibrium (marginal revenue = marginal cost). When the marginal cost of production was $90+ per bbl, high cost sources of production, such as offshore drilling in harsh environments, became economical. Now that the cost of production has been slashed due primarily to technological advancements (e.g. horizontal drilling, hydraulic fracturing, data mining) those high cost sources are under water (pun intended).

The most surprising aspect of the recent correction in the price of oil is the degree to which operators have been able to lower their cost of production. The global cost curve has shifted down with marginal production in the $50 to $60 range. This is crippling the offshore drilling industry as smaller, less-diversified operators go out of business with a surfeit of assets for sale on the secondary market. Asset prices have collapsed across the offshore supply spectrum – from drilling rigs to helicopters – with no sign of a turnaround. It's important to note that the offshore drilling industry is not going away entirely, for security reasons and because many NOCs and IOCs have the majority of their reserves offshore. Nevertheless, the offshore drilling industry is massively over-capacitated with years of scrapping ahead.



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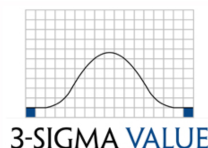


We split the offshore drilling industry into 5 segments: (1) Helicopters, (2) Marine Construction Services, (3) Offshore Transportation & Support Vessels, (4) Capital Equipment Manufacturing, (5) Contract Drilling Services. For the purpose of this letter, we focus on one segment – Contract Drilling Services.

In January 2015, 3-Sigma Value published an analysis of offshore drilling that anticipated bankruptcy for much of the industry[1]. Since then, 3 of the 20 publicly-traded offshore contract drillers have filed Chapter 11 – Hercules Offshore in August 2015, Vantage Drilling in December 2015, and Paragon Offshore in February 2016 – and one driller, Northern Offshore, was acquired in August 2015 in a distressed sale to Shandong Offshore Company. That leaves the market with 16 drillers of various sizes and capital structures.

**Offshore Drilling**

| **Red conotes high probability of bankruptcy** | | Price as of | | Balance Sheet Data as of 12/31/15 | | | | **Enterprise** | EBITDA | | | | EPS / P/E | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Company** | Ticker | 4/27/2016 | Shares Out | Equity Value | Debt | Min Int | Cash | **Value** | 2015 | 2016 | 2017 | 2018 | 2015 | 2016 | 2017 | 2018 |
| 1 **Seadrill Limited** | SDRL | 4.45 | 493 | 2,193 | 11,133 | 604 | 1,044 | **12,886** | 2,361 | 1,600 | 1,000 | 700 | 2.04 | 1.00 | neg | neg |
| Aggressive and over-leveraged newbuild program. | | | | Debt/Equity | 508% | | | Debt/EBITDA | 4.7x | 7.0x | 11.1x | 15.9x | 2.2x | 4.5x | NM | NM |
| 2 **Seadrill Partners LLC** | SDLP | 5.49 | 92 | 504 | 3,983 | 1,133 | 319 | **5,301** | 1,081 | 1,000 | 1,000 | 1,000 | 2.77 | 3.50 | 1.50 | 1.00 |
| 11 newbuild rigs built between 2008-2013. | | | | Debt/Equity | 790% | | | Debt/EBITDA | 3.7x | 4.0x | 4.0x | 4.0x | 2.0x | 1.6x | 3.7x | 5.5x |
| 3 **Transocean** | RIG | 11.16 | 364 | 4,062 | 8,490 | 310 | 2,339 | **10,523** | 3,117 | 1,500 | 1,000 | 900 | 3.71 | 0.76 | neg | neg |
| Long-time market leader is the product of acqusitions and dangerously leveraged. | | | | Debt/Equity | 209% | | | Debt/EBITDA | 2.7x | 5.7x | 8.5x | 9.4x | 3.0x | 14.7x | NM | NM |
| 4 **Transocean Partners LLC** | RIGP | 11.85 | 69 | 818 | 0 | 883 | 159 | **1,542** | 310 | 350 | 260 | 230 | 1.61 | 1.95 | 1.32 | 1.11 |
| 7/14 IPO of drop-down MLP formed by RIG owns 51% of 3 deepwater rigs in GOM. | | | | Net Cash | 19% | | | EV / EBITDA | 5.0x | 4.4x | 5.9x | 6.7x | 7.4x | 6.1x | 9.0x | 10.7x |
| 5 **Diamond Offshore** | DO | 24.63 | 137 | 3,378 | 2,281 | 0 | 131 | **5,529** | 1,067 | 750 | 700 | 550 | 2.86 | 1.60 | 0.88 | neg |
| 50.4% owned by Loews Corp; 6 jack-ups, 5 drillships, and 27 semis. | | | | Debt/Equity | 68% | | | Debt/EBITDA | 2.1x | 3.0x | 3.3x | 4.1x | 8.6x | 15.4x | 28.0x | NM |
| 6 **Noble Corporation** | NE | 11.98 | 242 | 2,899 | 4,489 | 723 | 512 | **7,598** | 1,686 | 1,000 | 600 | 500 | 2.60 | 0.16 | neg | neg |
| 15 high-spec jack-ups and 20 semis/drillships. | | | | Debt/Equity | 155% | | | Debt/EBITDA | 2.7x | 4.5x | 7.5x | 9.0x | 4.6x | 74.9x | NM | NM |
| 7 **ENSCO plc** | ESV | 11.94 | 233 | 2,776 | 5,895 | 11 | 1,301 | **7,381** | 2,053 | 1,400 | 1,000 | 600 | 4.55 | 2.00 | 0.80 | neg |
| 42 jack-ups, 10 drillships, and 18 semis. | | | | Debt/Equity | 212% | | | Debt/EBITDA | 2.9x | 4.2x | 5.9x | 9.8x | 2.6x | 6.0x | 14.9x | NM |
| 8 **Rowan Companies plc** | RDC | 18.63 | 125 | 2,320 | 2,808 | 0.0 | 707.7 | **4,420** | 1,028 | 1,000 | 700 | 400 | 3.43 | 2.70 | 0.80 | neg |
| Balanced fleet mix of jackups and drillships. | | | | Debt/Equity | 121% | | | Debt/EBITDA | 2.7x | 2.8x | 4.0x | 7.0x | 5.4x | 6.9x | 23.3x | NM |
| 9 **Fred Olsen Energy ASA** | FOE.OL | 33.90 | 66 | 2,248 | 1,505 | 0.6 | 174.5 | **3,579** | 637 | 500 | 300 | 200 | 3.88 | 2.00 | neg | neg |
| Drilling Business is called Dolphin Drilling. | | | | Debt/Equity | 67% | | | Debt/EBITDA | 2.4x | 3.0x | 5.0x | 7.5x | 8.7x | 17.0x | NM | NM |
| 10 **Odfjell Drilling** | ODL.OL | 5.45 | 200 | 1,090 | 1,201 | 0.0 | 148.6 | **2,143** | 323 | 300 | 300 | 300 | 0.43 | 0.32 | 0.32 | 0.32 |
| Owns 100% of 4 deepwater rigs, 40% of 1 rig, and 0% of 2 rigs that it operates. | | | | Debt/Equity | 110% | | | Debt/EBITDA | 3.7x | 4.0x | 4.0x | 4.0x | 12.7x | 17.0x | 17.0x | 17.0x |
| 11 **North Atlantic Drilling Ltd** | NADL | 3.77 | 241 | 909 | 2,645 | 5.6 | 100.0 | **3,460** | 600 | 485 | 300 | 300 | 0.88 | 0.57 | neg | neg |
| Specialist in complex Arctic operations. Controlled by John Fredriksen of Seadrill. | | | | Debt/Equity | 291% | | | Debt/EBITDA | 4.4x | 5.5x | 8.8x | 8.8x | 4.3x | 6.6x | NM | NM |
| 12 **Atwood Oceanics** | ATW | 9.42 | 65 | 612 | 1,608 | 0.0 | 115.7 | **2,104** | 779 | 600 | 200 | 190 | 7.65 | 4.00 | neg | neg |
| 6 deepwater rigs, 2 newbuilds, and 5 jackups. | | | | Debt/Equity | 263% | | | Debt/EBITDA | 2.1x | 2.7x | 8.0x | 8.5x | 1.2x | 2.4x | NM | NM |
| 13 **Ocean Rig UDW** | ORIG | 2.28 | 139 | 316 | 4,372 | 0.0 | 531.5 | **4,157** | 1,066 | 1,000 | 800 | 500 | 2.18 | 2.50 | neg | neg |
| Young fleet of 8 high spec floaters, 3 newbuilds, and 2 old semis. | | | | Debt/Equity | 1383% | | | Debt/EBITDA | 4.1x | 4.4x | 5.5x | 8.7x | 1.0x | 0.9x | NM | NM |
| 14 **Songa Offshore** | SONG.OL | 0.33 | 874 | 288 | 992 | 0.0 | 425.7 | **855** | 281 | | | | neg | | | |
| 3 old midwater rigs and 4 newbuilds. | | | | Debt/Equity | 344% | | | Debt/EBITDA | 3.5x | | | | NM | | | |
| 15 **Pacific Drilling S.A.** | PACD | 0.71 | 211 | 150 | 3,065 | 0.0 | 116.0 | **3,099** | 598 | 300 | 100 | 200 | 0.60 | neg | neg | neg |
| November 2011 IPO of pure-play deepwater with newbuild rigs. | | | | Debt/Equity | 2048% | | | Debt/EBITDA | 5.1x | 10.2x | 30.7x | 15.3x | 1.2x | NM | NM | NM |
| 16 **Awilco Drilling plc** | AWLCF | 3.51 | 30.0 | 105 | 115 | 0.0 | 151.5 | **69** | 180.2 | 81.3 | 103.3 | NM | 4.31 | 1.66 | 2.23 | NM |
| January 2013 IPO of 2 rigs acquired from Transocean. | | | | Net Cash | 35% | | | EV / EBITDA | 0.4x | 0.8x | 0.7x | NM | 0.8x | 2.1x | 1.6x | NM |
| 17 **Hercules Offshore - 8/15 filed Ch 11** | | | | | | | | | | | | | | | | |
| 33 jack-ups and 24 liftboats. | | | | | | | | | | | | | | | | |
| 18 **Vantage Drilling (VTG) - 12/15 filed Ch 11** | | | | | | | | | | | | | | | | |
| Highly capable, recently constructed fleet of 4 high spec jack-ups and 3 drillships. | | | | | | | | | | | | | | | | |
| 19 **Paragon Offshore plc - 2/16 filed Ch 11** | | | | | | | | | | | | | | | | |
| August 2014 spin-off from Noble Corp of 39 standard spec rigs. | | | | | | | | | | | | | | | | |
| 20 **Northern Offshore Ltd (NOF.OL) - 8/15 acquired by Shandong Offshore Company, LTD. (SDOC)** | | | | | | | | | | | | | | | | |
| 1 floating production vessel, 1 semisubmersible, 1 drillship, and 2 jackups. | | | | | | | | | | | | | | | | |
| **Average ex. Awilco** | | | | | | | | | **3.5x** | **4.7x** | **8.0x** | **8.5x** | **4.6x** | **13.4x** | **16.0x** | **11.1x** |

[1] *Energy Investing After the Price of Oil Drops – Part I.*



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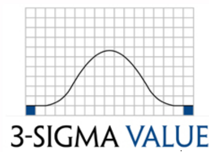


The average P/E across the drilling industry increases from 4.6x in 2015 (representing peak earnings) to 14.3x in 2016 to negative for most of the industry in 2017. As contracts roll-off and earnings spiral downward, those drillers with over-leveraged capital structures, such as **Seadrill (SDRL)**, **Transocean (RIG)**, **Atwood Oceanics (ATW)**, and **Ocean Rig (ORIG)**, will run out of cash.

Most offshore drillers are bankrupt in a prolonged era of sub-$60 per bbl oil. While the marginal cost of production has declined to sub-$50 in some areas, only the drillers with solid balance sheets will survive. For example, Seadrill Ltd. (SDRL) estimates its cost of deepwater drilling at $52 per bbl, and ultra-deepwater at $56 per bbl, but even if oil reverts back above $60 per bbl, rendering many offshore drilling sites economical, Seadrill's $11.1 billion of debt (versus ~$1.0 billion of EBITDA in 2017) overwhelms the value of its assets.

Offshore asset values have plummeted, causing operators to reevaluate the fair value of rigs. Historically, banks have eagerly loaned against drillships and semisubmersible assets without rigorous covenant support because the assets are hard assets that are technical marvels with potential value in a secondary market. However, in the current environment bids in the secondary market are between 10% and 25% of replacement cost. Recent transactions indicate widespread asset impairment to come[2].

- In April 2016, **Ocean Rig UDW (ORIG)** purchased a 6th generation drillship at auction for $65 million. The rig, to be renamed Ocean Rig Paros, was built in 2011 and previously owned by Brazilian contractor Schahin Drilling, which had all of its contracts with **Petrobras (PBR)** terminated in the aftermath of the car wash scandal. $65 million represents ~10% of replacement cost.

- In March 2016, **Odfjel Drilling (ODL.OL)** and its partner Metro Exploration sold a 6th generation drillship, Deepsea Metro II, built in 2011 for $210 million. This compares to $860 million paid – equal to a loss of 75%.

[2] According to Marc Edwards, CEO of Diamond Offshore (DO), "The two assets that have come to auction so far are not what I would call high-spec when lined up against other drillships. And whether it's the hook load, the BOP capability, the draw-work compensator, and even the historical uptime for an asset…so, you have to look at the desirability of the vessels that come available and how they will stack against other vessels vying for contracts in the future that will be coming off contract hot as well as vessels that, for example, will be better equipped that also have been stacked." In other words, the two 6th generation drillships sold are not necessarily representative of the average 6th generation drillship but nevertheless represent a substantial write-down in value."



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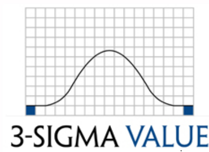


The destruction of value is real-time as newbuild floaters are being delivered to operators at the same time equivalent floaters are being offered in the secondary market at a fraction of cost. The glut of offshore drilling assets coupled with widespread financial distress will lead to massive write-downs, credit defaults, and equity extinguishment. At the end of this cycle, after the reckoning, there will be few survivors – drillers with solid balance sheets and new entrants created to acquire distressed assets – and many bankruptcies.

3-Sigma Value identifies 2 longs and 4 shorts that together constitute a hedged strategy for investing in offshore drilling at a disruptive time when there is substantial alpha to be generated.

1. **Buy Awilco Drilling plc (AWLCF) and Transocean Partners LLC (RIGP)**

**Awilco Drilling plc (AWLCF)** and **Transocean Partners LLC (RIGP)** are the only two offshore drillers with no debt, and that is what makes their equity investable. Both have contracts that expire in the next few years and we assume the worst. We establish price targets based on valuations derived from known cash flows and consider any potential contracts or extensions as upside optionality.

3-Sigma Value, LP's biggest loser in 2015 was **Awilco Drilling plc (AWLCF)**, based in Norway. Awilco was incorporated on December 30, 2009 for the purpose of acquiring two semisubmersible drilling rigs – GSF Arctic II built in 1982 (renamed WilPhoenix) and GSF Arctic IV built in 1983 (renamed WilHunter) – from subsidiaries of Transocean (RIG). The background for Transocean's sale of the rigs relates to the merger of Transocean and GlobalSantaFe in 2007. In connection with the merger, the combined company was deemed by the UK Office of Fair Trading ("OFT") to have too large a share of the UK drilling market. As a consequence, Transocean was required to divest two rigs.

The rigs were acquired from Transocean in January 2010 at an aggregate price of US$205 million plus working capital of US$10 million. At the time of the acquisition, WilPhoenix had been idle since 2008, while WilHunter was operative. As part of the effort to bring WilPhoenix back into operation and become a marketable unit, the rig required a significant upgrading. WilHunter did not require a similar upgrading but was due for classification renewal in May 2011. The rigs were brought to the Remontowa yard in Poland in April 2010 and November 2010, respectively. In December 2010, an accommodation upgrade was added to the scope of the WilPhoenix project. Both rigs were redelivered from the yard in May 2011. The aggregate



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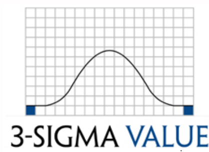


upgrading, maintenance and classification amounted to approximately US$97 million for both rigs.

Awilco Drilling (AWLCF) was organized by and is 43.3% owned by Arne Wilhelmsen (and family), a billionaire sometimes referred to as the Warren Buffett of Norway. Mr. Wil earned the bulk of his fortune co-founding Royal Caribbean (RCL), the world's second-largest cruise company after Carnival Cruises (CCL). His hand-picked CEO, Jon Oliver Bryce, was most recently General Manager for Odfjell Drilling (UK) Ltd. In sum, this is a first rate ownership/management team.

The North Sea is generally a high cost area in which to develop and operate projects. It carries a high tax burden, and the largest opportunities are in deepwater discoveries under harsh conditions. With a marginal cost of production around $60 per bbl, there should be no new drilling in the current pricing environment.

The Awilco rigs originally entered a North Sea market generally characterized by short-term contracts, mainly with smaller oil companies. WilHunter's contract expired in 2015 while WilPhoenix is contracted with Apache through 2017 (plus 27-month option) at a $387,500 day rate. Including 2 months of yard time in 2016, the amount of revenue remaining on the (take-or-pay) contract is approximately $258 million. After subtracting (1) rig operating expenses ~$80k per day, 5% inflation in the Base Case Operating Scenarios, (2) G&A ~$2 million per quarter, largely fixed, and (3) D&A ~ $19 million, total operating expenses over the remainder of the contact ~$114 million, resulting in cumulative EBIT and EBITDA of approximately $148 million and $185 million respectively. With no net debt, EBIT is roughly equivalent to pre-tax income. Applying a 20% tax rate, cumulative net income ~ $117 million. Since D&A ~ capex, and there is little stock compensation, net income approximates free cash flow ~ $112 million.



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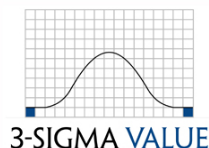

| AWLCF Capitalization as of 12/31/15 | | | |
|---|---|---|---|
| Share Price as of 4/27/16 | | | $3.51 |
| x FD Shares Out. | | | 30,039 |
| = Market Capitalization | | | 105,435 |
| - Cash & Equivalents | | | 151,549 |
| + Total Debt (7% senior secured bonds due 4/2019) | | | 115,000 |
| = Enterprise Value (EV) | | | 68,886 |
| **Downside Case: Scenario 1** | | | |
| | 2015A | 2016E | 2017E |
| Revenue | 247,054 | 119,059 | 142,510 |
| EBITDA | 180,199 | 81,343 | 103,320 |
| Free Cash Flow | 157,181 | 42,147 | 69,882 |
| 2016-2017 Cumulative FCF | | | 112,029 |
| Net Cash at YE 2017 | | | 148,578 |
| 10% Retention for Cold-Stacking ($5-$10k per day per rig) | | | 14,858 |
| Cash Available for Distribution | | | 133,721 |
| per share | | | $4.45 |

At the current stock price of $3.51, Awilco's market capitalization is $105 million, its enterprise value only $69 million. Yet Awilco will generate ~$112 million of free cash flow based on its contract with Apache. This is the downside case. If oil does not rebound and the Awilco rigs are cold-stacked, left for scrap, then shareholders will receive the majority of the residual cash in a distribution as promulgated by management.

More likely, one or both of the Awilco rigs will be contracted for decommissioning work – the plugging and abandonment of wells required by environmental regulations. There is no difference between day rates for rigs that drill and rigs that do abandonment work. A single contract at $250,000 per day generates $91 million of revenue per year, and approximately $64 million of EBITDA, an amount roughly equal to Awilco's current enterprise value; ergo, any contract announcement will double the stock price.

**Transocean Partners LLC (RIGP)** was conceived as a funding vehicle in 2014, at a time when financial engineering was conflated with value creation. **Transocean (RIG)** contributed a 51% stake in each of 3 modern 6th generation rigs operating in the Gulf of Mexico (GOM) in return for $417 million of net proceeds from the IPO and retained a 70.8% stake (the public float is only 29.2% of shares outstanding). RIGP targets a 1.1x distribution coverage ratio[3] and currently pays an annual dividend of $1.45 per unit (14.6% yield). If RIGP doesn't re-contract

[3] Distributable cash flow (DCF) as a % of the dividend. A ratio > 1 means there is enough DCF to pay the dividend.



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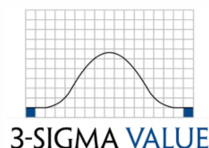


its rigs then distributable cash flow (DCF) will decline to zero by 2020. In this scenario, the present value (PV) of free cash flows from existing contracts is approximately $11 per share. Given the current oil price environment, it is uncertain whether these rigs will ever work again after their contracts expire. Assuming they never find work again then the costs associated with hot/warm/cold stacking will offset the residual asset value. Downside Case = $13.54.

| Transocean Partners (RIGP) - Downside Case: Scenario 1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | |
| **Revenue** | | | | | | | |
| **Discoverer Inspiration:** | | | | | | | |
| Daily Rate | 585 | 585 | 585 | 585 | 585 | 585 | |
| Days in backlog | 1,468 | 1,104 | 740 | 376 | 12 | 0 | |
| Sequential change | 364 | 364 | 364 | 364 | 364 | 12 | |
| Revenue in backlog | 859 | 646 | 433 | 220 | 7 | 0 | |
| Revenue | 213 | 213 | 213 | 213 | 213 | 7 | |
| **Discoverer Clear Leader:** | | | | | | | |
| Daily Rate | 581 | 581 | 581 | 581 | | | |
| Days in backlog | 993 | 629 | 265 | 0 | 0 | 0 | |
| Sequential change | 364 | 364 | 364 | 265 | 0 | 0 | |
| Revenue in backlog | 577 | 366 | 154 | 0 | 0 | 0 | |
| Revenue | 211 | 211 | 211 | 154 | 0 | 0 | |
| **Development Driller III:** | | | | | | | |
| Daily Rate | 422 | 422 | | | | | |
| Days in backlog | 287 | 0 | 0 | 0 | 0 | 0 | |
| Sequential change | 364 | 287 | 0 | 0 | 0 | 0 | |
| Revenue in backlog | 121 | 0 | 0 | 0 | 0 | 0 | |
| Revenue | 154 | 121 | 0 | 0 | 0 | 0 | |
| **Total contract backlog** | 1,557 | 1,012 | 587 | 220 | 7 | 0 | |
| Contract Revenue | 564 | 545 | 424 | 367 | 213 | 7 | |
| Other Revenue | 16 | 10 | 10 | 10 | 10 | 0 | |
| **Total Revenue** | 580 | 555 | 434 | 377 | 223 | 7 | |
| Rig operating expenses | 245 | 200 | 133 | 115 | 66 | 2 | 2016 guidance = 190-210 |
| *Opex per rig per day(in '000s)* | *224* | *183* | *183* | *183* | *183* | *183* | |
| G&A | 24 | 23 | 18 | 15 | 9 | 0 | 2016 guidance = 20-25 |
| *as a % of revenue* | *4%* | *4%* | *4%* | *4%* | *4%* | *4%* | |
| Depreciation | 68 | 68 | 68 | 68 | 68 | 68 | 2016 guidance = 65-70 |
| Total operating expenses | 337 | 290 | 218 | 198 | 143 | 70 | |
| **Operating Profit (EBIT)** | **243** | **265** | **216** | **179** | **80** | **-63** | |
| **EBITDA** | **311** | **333** | **284** | **247** | **147** | **5** | |
| **% Margin** | **54%** | **60%** | **65%** | **65%** | **66%** | **65%** | |
| Interest income | 2 | 0 | 0 | 0 | 0 | 0 | |
| Interest expense | -1 | 0 | 0 | 0 | 0 | 0 | |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | |
| Pre-tax Profit | 244 | 265 | 216 | 179 | 80 | -63 | |
| Taxes | 14 | 15 | 12 | 10 | | | |
| Rate | 6% | 6% | 6% | 6% | 6% | 6% | |
| Net Profit | 230 | 250 | 204 | 169 | 80 | -63 | |
| Minority Interest | -118 | -123 | -100 | -83 | -39 | 31 | |
| % of Net | 49% | 49% | 49% | 49% | 49% | 49% | |
| **Net Income to Common** | 112 | 128 | 104 | 86 | 41 | -32 | |
| **FD Shares Out** | 69 | 69 | 69 | 69 | 69 | 69 | |
| **EPS** | 1.62 | 1.85 | 1.51 | 1.25 | 0.59 | -0.47 | |
| **Dividend Coverage (target = 1.1x)** | 1.12x | 1.10x | 1.10x | 1.10x | 1.10x | 1.10x | |
| **Dividend** | 1.45 | 1.69 | 1.37 | 1.14 | 0.54 | 0.00 | |
| **PV of Cumulative Dividend (2016-2020)** | 3.89 | | | | | | |
| NOPAT | 229 | 250 | 204 | 169 | 75 | | |
| + Depreciation | 68 | 68 | 68 | 68 | 68 | | |
| +/- Change in Deferred Revenue | -16 | 0 | 0 | 0 | 0 | | |
| + Decrease (Inc) in receivables | 9 | 0 | 0 | 0 | 0 | | |
| + Decrease (Inc) in prepayments | 5 | 0 | 0 | 0 | 0 | | |
| + Increase (Dec) in payables | 1 | 0 | 0 | 0 | 0 | | |
| -Capex | -16 | -5 | -5 | -5 | -5 | | 2016 guidance = 1-5 |
| **= Unlevered free cash flow** | **280** | **313** | **266** | **232** | **138** | | |
| WACC, adjusted | 10% | | | | | | |
| PV of FCF | 773 | | | | | | |
| Plus: Net Cash | 159 | | | | | | |
| Equity Value | 932 | | | | | | |
| **Per share** | **$13.54** | | | | | | |



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Similar to Awilco, it is more likely than not that RIGP will secure a new contract for one of its rigs, in spite of a price of oil that is below its marginal cost of offshore production, because: (1) the major energy companies will continue to maintain diverse sources of oil and gas, one of which will be the vast resources found offshore; and (2) decommissioning work – the plugging and abandonment of wells – will be needed for the next decade or more. Since there is no difference between day rates for rigs that drill and rigs that do abandonment work, we are equally happy with either. From a risk/reward standpoint, RIGP and Awilco are attractive investments because their downside is limited while the upside is an option tied to the price of oil. From a portfolio construction standpoint, RIGP and Awilco also serve as a hedge to the negative oil beta on the short side of the portfolio.

2. **Sell short Transocean Ltd (RIG), Seadrill Ltd (SDRL), Atwood Oceanics (ATW), and Ocean Rig (UDW)[4].**

**Transocean Ltd (RIG)** is the parent company of **Transocean Partners LLC (RIGP)** and thus a subset of our portfolio strategy is a pair trade of *Long RIGP / Short RIG*. When RIG is ultimately forced to restructure its $8.5 billion of debt, RIGP will emerge relatively unscathed since its balance sheet is unencumbered and there are no cross-default provisions. EBITDA at RIG is spiraling downward as its rigs roll-off their current contracts – from $3.1 billion in 2015 to $1.4 billion in 2016 to maybe $1.0 billion in 2017 (8.5x leverage). Given the continual contract turnover, RIG's operations are effectively a rolling accounting of the market. In other words, an investment in Transocean is an investment in the offshore drilling market as a whole – it is a bellwether, which means it is beta.

RIG has 51 floaters (and 10 jack-ups), 18 of which are already cold-stacked, 5 idle, and 13 going off contract in 2016. By the end of 2016, RIG will have only 15 floaters operating (29% utilization) in a massively over-supplied market. We estimate that 2/3 of the estimated 2017 marketed supply of 300 floaters will be uncontracted, a glut that will pressure pricing even if demand rises along with the oil price.

Making matters more complicated is the fact that RIG has $3 billion in newbuild commitments (6 ultra-deepwater floaters and 5 high-specification jack ups), which management is desperately trying to postpone. Meanwhile, liquidity is tightening. By 2017, EBITDA will approach $1 billion (down from $3.5 billion in 2015). Without a dramatic rebound in oil prices to a level at

[4] Pacific Drilling (PACD) and Songa Offshore (SONG.OL) are both zeroes; however, because their stock prices are below $1 per share we exclude them from this analysis.



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which operators will return to deepwater exploration, RIG will not be able to generate enough cash to pay for its newbuilds and pay down its $8.5 billion of debt accumulated though acquisitions (e.g. $17 billion acquisition of Global SanteFe for 11.75x TTM EBITDA). In terms of covenant risk, there is a 60% debt-to-tangible capitalization covenant that will be at risk when RIG is forced to write-down a majority of the $20.8 billion of rigs (net property and equipment) on its balance sheet. Given the relatively old age of the fleet, massive impairments are inevitable.

Applying impairments that are extrapolated from recent transactions, a 70% impairment[5] of RIG's $20.8 billion of rigs on its balance sheet translates into a $14.6 billion write-down, which wipes out book equity of $14.5 billion and causes the Company to trip its bank covenant. A key reason why offshore drillers have been stacking rather than scrapping rigs is because scrapping requires an asset write-down. Eventually, most stacked rigs will be scrapped, and consequently, most balance sheets will be slashed. Target price ranges from zero to $3.44.

**Transocean Ltd (RIG) - Valuation Summary**

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Cash, beginning of period | 2,339 | 2,101 | 2,076 | 1,951 | 1,501 |
| EBITDA | 1,500 | 1,000 | 900 | 900 | 900 |
| Less: Interest on Debt | 400 | 400 | 400 | 400 | 400 |
| Less: Taxes | 120 | 0 | 0 | 0 | 0 |
| Less: Maintenance Capex | 250 | 250 | 250 | 250 | 250 |
| Less: Newbuild Obligations | 968 | 375 | 375 | 700 | 700 |
| Cash, end of period | 2,101 | 2,076 | 1,951 | 1,501 | 1,051 |
| Debt | | | | | 8,490 |
| Minority Interest | | | | | 310 |
| Net Debt | | | | | 7,749 |
| Multiple Range | | | 5.0x | 7.5x | 10.0x |
| Enterprise Value | | | 4,500 | 6,750 | 9,000 |
| Equity Value | | | 0 | 0 | 1,251 |
| Per Share | | | 0.00 | 0.00 | 3.44 |
| Probability | | | 20% | 60% | 20% |
| Probability-Weighted Target Price | | | | | 0.69 |
| | | | | | |
| Capitalization | | | | | 26,329 |
| Debt-to-Cap | | | | | 32% |
| PP&E, net | | | | | 20,818 |
| Impairment | | | | | -14,573 |
| Pro Forma Capitalization | | | | | 11,756 |
| Pro Forma Debt-to-Cap | | | | | 72% |
| Debt-to-Cap TEST | | | | | 60% |

[5] 70% is the blended impairment across the fleet – 5th generation and older rigs that are stacked are worthless; 6th/7th generation rigs might be worth 50% of book value.



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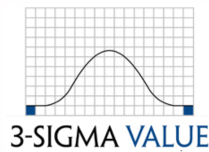


**Seadrill Ltd (SDRL),** controlled by Norwegian shipping magnate John Fredriksen, was the most aggressive builder of offshore rigs before the turn, borrowing $11.1 billion to finance direct and indirect interests in 27 floaters and 24 jack-ups. On top of that, SDRL has $4.1 billion in newbuild commitments including 3 semisubmersibles, 4 drillships, and 9 jackups in construction at Dalian Shipyard in China. According to CEO Per Wulff on the Q4 2015 results conference call, "*We continue to believe that the majority of rigs with contracts expiring in 2016 will be unable to find suitable follow-on work. Many are likely to be idle for a prolonged period and consequently cold-stacking and scrapping activity will accelerate.*" As contracts roll-over, EBITDA will spiral down to $1 billion in 2017 (11x debt-to-EBITDA) and subsequently Seadrill will be forced to file bankruptcy.

On April 29, 2016, SDRL announced amendments to its credit agreements that included waivers for certain debt covenants. Specifically, (1) the minimum equity ratio (total equity divided by total equity) was reset at 30.0%; (2) the maximum leverage ratio (defined as net debt divided by LTM EBITDA) was raised to 6.0x in 2016 and 6.5x during the first half of 2017; and (3) minimum liquidity was raised to $250 million. With net debt of $10.1 billion ($4.85 billion due in 2017-2018), EBITDA must be at least $1.5 billion, a threshold that Seadrill may or may not reach in 2016. In 2017 however, EBITDA will fall to ~$1 billion and SDRL will either restructure in bankruptcy or its equity will be massively diluted by a debt-for-equity exchange.

Similar to Transocean, Seadrill has $16 billion of rigs on its balance sheet worth nowhere near that amount. Pro forma impairments, SDRL's equity is worthless. Target price is zero in all cases.

**Atwood Oceanics (ATW)** owns and operates 6 deepwater rigs plus 2 newbuilds in construction in South Korea. Of the 6 rigs in operation, 4 are going off contract in 2016, 1 in 2017, and 1 in 2018. ATW also has 5 jack-ups, 2 of which are idled and being actively marketed. The other 3 go off contract in 2016. In summary, near term contract expirations will cause ATW to breach its debt covenants and ultimately run out of cash.

2 of ATW's deepwater rigs (Atwood Eagle and Atwood Falcon) are old semisubmersibles built in the 1980s with rated water depth of only 5,000 (compared to 12,000 for 6th/7th generation rigs). Given the glut of newer models, these rigs will be retired upon contract expiration. With a depression in scrap prices, they have zero residual value.



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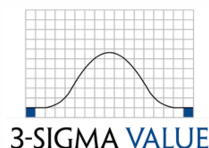


Akin to both RIG and SDRL, ATW is terminally over-leveraged with $1.6 billion of debt[6] comprised of $960 million of revolver outstanding ($1.5 billion total commitments) due in May 2019 and $650 million of 6.5% senior notes due in 2020[7]. In addition, ATW has newbuild commitments totaling $400 million due in 2017/2018 – $94 million left for Atwood Admiral (delivery by 9/30/17) and $305 million for Atwood Archer (by 6/30/18). Liquidity is tight (ex. revolver) with only $116 million of cash and EBITDA collapsing from $779 million in 2015 to ~$600 million in 2016 and ~$200 million by the end of 2017 (8x debt-to-EBITDA). Cumulative EBITDA (2016-2018) of approximately $1.0 billion less $180 million of maintenance capex[8] leaves $820 million to cover $1.4 billion (revolver + newbuild installments) due by 2019, meaning ATW will face a liquidity crunch when the revolver comes due. Target price ranges from zero to $0.52.

| Atwood Oceanics (ATW) - Valuation Summary | | | | |
|---|---|---|---|---|
| FYE 9/30 | 2016 | 2017 | 2018 | 2019 |
| Cash, beginning of period | 114 | 406 | 365 | 102 |
| EBITDA | 600 | 200 | 190 | 180 |
| Less: Cash Interest (guidance) | 87 | 87 | 87 | 87 |
| Less: Taxes | 0 | 0 | 0 | 0 |
| Less: Maintenance Capex (guidance) | 60 | 60 | 60 | 60 |
| Less: Newbuild Obligations | 161 | 94 | 306 | 0 |
| Cash, end of period | 406 | 365 | 102 | 135 |
| Debt | | | | 1,608 |
| Minority Interest | | | | 0 |
| Net Debt | | | | 1,743 |
| Multiple Range | | 5.0x | 7.5x | 10.0x |
| Enterprise Value | | 1,000 | 1,500 | 2,000 |
| Equity Value | | 0 | 0 | 257 |
| Per Share | | 0.00 | 0.00 | 0.52 |

[6] Regarding covenants: on March 29, 2016, ATW announced an amendment to its credit facility removing the maximum leverage ratio covenant and delaying the implementation of an interest coverage ratio covenant until July 2018. In exchange, the amendment adds a new $150 million minimum liquidity covenant and reduces the aggregate principal amount of commitments by $152 million. With this amendment, Atwood has limited the possibility of breaching its covenants until liquidity runs out in 2018.

[7] **ATW's 6.5% Senior Notes due February 2020 are priced ~60% of face value. Even though these bonds rank junior to the revolver, they should recover a substantial amount under all, except for Downside, operating scenarios. Buying the bonds and shorting the stock is an attractive capital structure arbitrage.**

[8] $60 million per year of maintenance capex, per guidance.



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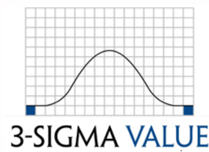


**Ocean Rig (ORIG)** owns and operates 8 6th generation ultra-deepwater drillships (plus 3 newbuilds under construction) and 2 5th generation semi-submersibles built in 2001/2002. In April 2016, ORIG purchased another 6th generation drillship at auction for a bargain basement price of $65 million. The rig, to be renamed Ocean Rig Paros, was built in 2011 and previously owned by Brazilian contractor Schahin Drilling, which had all of its contracts with Petrobras (PBR) terminated in the aftermath of the car wash scandal. $65 million represents ~10% of the replacement cost, an incredible discount that ORIG hopes to exploit in spite of the fact that its fleet is underutilized and contracts are rolling over.

ORIG has $531 million of cash and is expected to generate ~$1.0 billion of EBITDA in 2016 followed by ~$800 million in 2017 and ~$500 million in 2018 as contracts roll-off. The total amount of EBITDA ~$2.3 billion (2016-2018), less cumulative maintenance capex of ~$195 million[9], leaves ~$2.1 billion to cover newbuild commitments totaling $1.5 billion and the repayment of debt. Total debt is $4.4 billion, consisting of 2 Term Loan facilities due 2020/2021 with no availability, and Notes due in 2017 and 2019. The $800 million of 6.5% Secured Notes due in Q4 2017[10] is the first hurdle. Even if ORIG is able to postpone delivery of the newbuilds and use the cash to paydown the Notes, the Company will still violate its debt covenants, run out of cash, and be forced to restructure. With $6.8 billion of asset value attributed to drilling units that are bound to be impaired/written down in excess of 50%, ORIG's $3.2 billion of shareholders' equity is effectively negative.

On ORIG's Q4 2015 results conference call (March 9, 2016), management announced the allocation of $180 million to a newly-created subsidiary called Ocean Rig Investments to pursue "distressed asset opportunities." Given ORIG's massive debt burden, it was a curious announcement but one that was not entirely unexpected given the dealing and self-dealing of ORIG's Founder, Chairman and CEO George Economou.

On April 6, 2016, not even a month later, the true purpose of the new subsidiary was unveiled when ORIG announced it was buying Dryships'[11] (DRYS) 40% stake in the Company for $49.9 million, equal to $0.89 per share. On the March 9, 2016 conference call, management unequivocally denied that it had an investment in mind, which was clearly a lie. Meanwhile, $50

[9] Maintenance capex is approx. $5 million per floater, totaling $65 million per year.

[10] ~$530 million remain outstanding.

[11] Dryships (DRYS) is a bankrupt dry bulk carrier founded and controlled by George Economou that on March 11, 2016 effected a 1:25 reverse stock split, increasing the stock price from $0.11 to $2.15.



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million of cash left the company with no benefit to the shareholders. Instead of retiring the shares, which would cut the number of shares outstanding and accrete value per share by 40%, the shares sit in the Ocean Rig Investments subsidiary, controlled by management. A total of 48% of ORIG issuance is now controlled by management (George Economou) and, therefore, by selling a few more of his privately-held assets to Ocean Rig Investments, George Economou can take control of ORIG without using any cash.

According to the Dryships press release announcing the sale of its stake in ORIG, "*The sale proceeds will be used to partly reduce the outstanding amount under the Revolving Credit Facility (Revolver) provided to us by a company controlled by our Chairman and CEO Mr. Economou.*"

In sum, George Economou used Ocean Rig's cash to reduce the amount due to him at a different company while at the same time setting in motion a plan to regain control of ORIG when it runs out of cash. Target price is zero in all cases.



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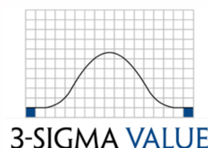


## Portfolio Construction

**Offshore Drilling Portfolio - 2Q 2016**

| | | Price as of | Price as of | Balance Sheet Data as of 12/31/15 | | | | | Enterprise | EBITDA | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Long** | | 12/31/15 | 4/27/2016 | Shares Out | Equity Value | Debt | Min Int | Cash | **Value** | 2015 | 2016 | 2017 | 2018 |
| **Transocean Partners LLC** | **RIGP** | 8.83 | 11.85 | 69 | 818 | 0 | 883 | 159 | **1,542** | 310 | 350 | 260 | 230 |
| Allocation | 4.7% | | 34% | | | | | | EV / EBITDA | 5.0x | 4.4x | **5.9x** | **6.7x** |
| **Awilco Drilling plc** | **AWLCF** | 3.56 | 3.51 | 30 | 105 | 115 | 0 | 152 | **69** | 180 | 81 | 103 | NM |
| Allocation | 0.3% | | -1% | | | | | | EV / EBITDA | 0.4x | 0.8x | **0.7x** | **NM** |
| **Short** | | | | | | | | | | | | | |
| **Transocean** | **RIG** | 12.38 | 11.16 | 364 | 4,062 | **8,490** | 310 | 2,339 | **10,523** | 3,117 | 1,500 | 1,000 | 900 |
| Allocation | 1.0% | | -10% | | | | | | Debt/EBITDA | 2.7x | 5.7x | **8.5x** | **9.4x** |
| **Seadrill Limited** | **SDRL** | 3.39 | 4.45 | 493 | 2,193 | **11,133** | 604 | 1,044 | **12,886** | 2,361 | 1,600 | 1,000 | 700 |
| Allocation | 0.0% | | 31% | | | | | | Debt/EBITDA | 4.7x | 7.0x | **11.1x** | **15.9x** |
| **Atwood Oceanics** | **ATW** | 10.23 | 9.42 | 65 | 612 | **1,608** | 0 | 116 | **2,104** | 779 | 600 | 200 | 190 |
| Allocation | 1.0% | | -8% | | | | | | Debt/EBITDA | 2.1x | 2.7x | **8.0x** | **8.5x** |
| **Ocean Rig UDW** | **ORIG** | 1.63 | 2.28 | 139 | 316 | **4,372** | 0 | 531 | **4,157** | 1,066 | 1,000 | 800 | 500 |
| Allocation | 1.0% | | 40% | | | | | | Debt/EBITDA | 4.1x | 4.4x | **5.5x** | **8.7x** |

Awilco Drilling (AWLCF) is small, and relatively illiquid, trading only ~10,000 shares per day on average and on peak days ~40,000 shares. 100,000 shares is the most we can allocate. Transocean Partners (RIPG), on the other hand trades ~$2 million of stock per day and therefore we can build a larger position. All of the shorts are highly liquid, and therefore the limiting factor is the long side of the portfolio. To hedge negative oil beta, we buy the SPDR S&P Oil & Gas Exploration and Production ETF (XOP).

**August 1, 2016 Update** – RIG announces acquisition of RIGP. 3-Sigma Value sold its RIGP and covered RIG, both at a profit.

**August 12, 2016 Update** – ORIG plummets from $2.16 to $0.83 after warning of bankruptcy. 3-Sigma Value closed its short position in ORIG on August 15, 2016 at $0.80.



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