



The Big Oil Short: This Time is Different

Jan-Hein Jesse

Founder, JOSCO Energy Finance and Strategy Consultancy (Amsterdam); and Editorial Advisory Board Member, *Global Commodities Applied Research Digest*

Introduction

As of the writing of this article, the Saudi-Russian oil supply dispute and the global health crisis had both thrown the oil market into crisis. Clearly, the U.S. president stepped in to end a price war which put a floor to a devastating oversupply and pushed OPEC+ back from a self-initiated volume strategy back to a “traditional” price strategy. While oil markets should recover from the extreme price lows that have been due to these supply-and-demand shocks, we argue that difficult structural changes will remain for the global oil industry. In this article, we review the history of Investment and Exploitation phases in the oil markets, and then note how this time may be different because of pressures to substitute away from oil, especially in Europe.

A Review of Oil’s Investment and Exploitation Phases

Commodity supply cycles can be divided into Investment and Exploitation phases, sometimes also called an Oil Supply-constrained World and an Oil Demand-led World. These phases coincide with times that oil prices find support in times of (fear of) shortages or fall in times of (belief in) abundancy. At the start of this new decade, investors face two important questions. Will we eventually enter a new phase of tighter markets, and thus higher oil prices, due to a lack of investment with the current Exploitation phase coming to an end at some point? That is, is today comparable with 1998/1999 when oil prices dived to the low tens, and from there rose steadily to \$50 a barrel in 2005? Or will a decline in the demand for oil lead to a continuation of ample supply and thus lower prices while we enter what we call a final “Oil Substitution phase”? But perhaps even a more pressing question would be the decisions the industry will take when higher prices signal to invest more in oil, while societal and investor demands ask them not to do so, particularly in Europe.

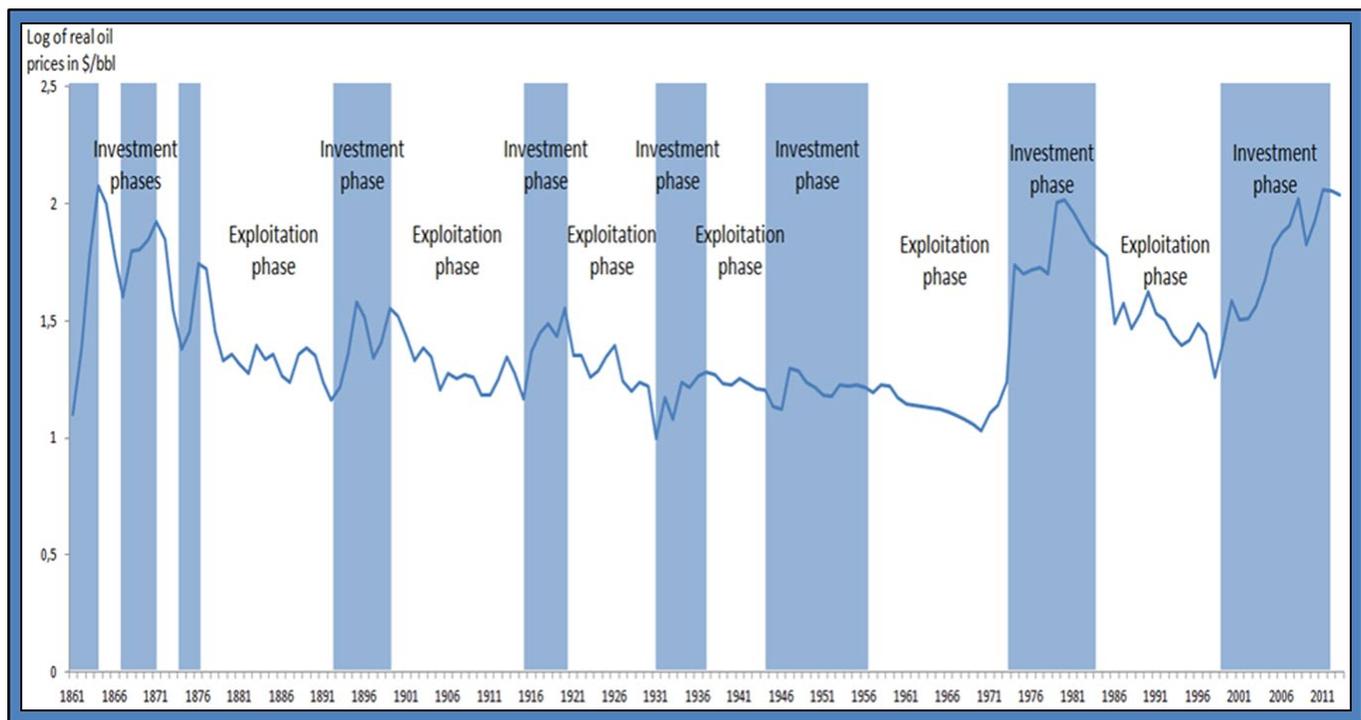
The Investment and Exploitation phases historically created on average a full 22- to 27-year supply cycle; see Figure 1 on the next page. Excluding the first short boom-bust cycles at the start of the modern oil industry, we are currently in an Exploitation phase, which started in 2012, the 7th since 1859. In this article the focus is on the last two cycles. The second-last investment cycle started in 1974 and ended in 1984. It was characterized by rapidly rising oil prices and, more importantly, attractive returns for producers that induced investment in new capacity, during this period notably in Alaska, the Gulf of Mexico, Mexico and the North Sea. All those regions required high oil prices and the unconditional belief that they would stay high long enough to persuade oil companies to develop those high-cost reserves. However, the investments in new supply eventually overwhelmed demand growth and created the next Exploitation phase, where the market “exploits” the existing capacity built up during the preceding

The opinions expressed in the *GCARD* are those of the individual authors and not of the JPMCC, its sponsors, or donors.



Investment phase. This build-up was huge and unprecedented: OPEC spare capacity peaked at an all-time high of 13.5 million b/d in 1985, or about 22.5% of global oil demand. Started by the price collapse of 1986, the Exploitation phase extended over the rest of the 1980s and the 1990s and cumulated into a further price collapse in 1998 with an average oil price of \$12.50 per barrel in that year. At the time there was a widespread belief that oil prices would continuously stay low (the *Ten Dollar Oil World*). The ink of a very comprehensive study on oil prices for the board of Royal Dutch/Shell, where company analysts were mandated to “proof up” that prices would stay low (in line with Shell’s New Game scenario of 1998), was not yet dry when oil prices started to recover. In 2000 the annual average price was already \$28.50 per barrel. By the turn of the century, all excess oil was eventually absorbed by a growing market and slowing investments during the long Exploitation phase. OPEC cuts through quotas became less fashionable and could eventually be reduced from 2000 onwards. New oil was needed. The start of a new Investment phase became reality.

Figure 1
Investment and Exploitation Phases Since 1861



Source: Goldman Sachs.

Note: From 2012 onwards the oil industry moved to the 7th Exploitation phase.

It is important to emphasize that when the market outlook starts to deteriorate and the oil market moves into surplus and thereby transitions into the Exploitation phase, oil prices collapse and margins compress, as happened in 1986 and again in 2014. Many of the market dynamics of the previous Investment phase are inverted during the Exploitation phase (and vice versa.) Producers are forced to shift their focus away from investing and towards improved operating performance and capital discipline - with a strong focus



on ROACE improvements and diversification, and to deliver shareholder value. ROACE stands for the Return on Average Capital Employed, which is a useful ratio when analyzing businesses in capital-intensive industries such as oil. In this context the publication of a grand strategy study, “The Atomization of Big Oil” by McKinsey in 1997 spoke volumes about their view of the industry (Bleakley *et al.*, 2007). Their advice was embraced by many Oil Majors, who moved into electricity, renewables, capital solutions services, in combination with super-mergers. Improved operating performance (of the core oil & gas upstream business) through restructuring was the way to substantially improve capital and labor productivity, creating strong downward cost pressure, the benefits of which could be returned to shareholders to maintain investor returns.

During the Investment phase the behavior is basically moving in the opposite direction. A combination of strong demand growth against the backdrop of supply constraints pushes oil prices rapidly higher. Fast rising oil prices, in turn, give a strong signal to the industry to invest more. A strong preference develops to think big and spend fast. Allocation of labor and capital resources moves away from operations into growth projects. A “Valhalla”¹ is created for engineers and developers who get a free hand to build the largest and most complex projects ever. Oil price moves in 2004 to 2007 from \$38 to \$72 per barrel led to a doubling of oil & gas investments, ultimately leading to higher non-OPEC supply half a decade later. In the meantime, rich cash flows drove rapid international expansion, while market perception of long-term supply shortages incentivized much smaller Exploration and Production (E&P) companies to step up their ambitions and to become operators of major developments across the globe. However, the Investment phase of the cycle also reinforces higher inflationary costs through excessive spending and the urgent need of new oil services equipment. At the same time, operational cost performance tends to deteriorate severely during this phase with serious cost overruns and project delivery delays, but high and rising oil prices more than offset the resulting increase in production costs and cost inflation of the projects under construction.

One of the key drivers behind the last Investment phase of the 2000s was the urgent need to develop a whole new set of highly expensive equipment. This was needed for the drilling of the most complex wells in ever deeper waters and in ever more hostile environments, as well as for construction of new production units to be installed in these Deepwater and frontier regions. Only high oil prices, and the expectation that they could go higher still - at the top companies such as Gazprom quoted \$200 oil - would allow the oil companies to grant long-term charter rates, which enabled the service industry to order new equipment. In other words, the day rates rose above the full cost of a single investment, promising fantastic returns. Similar to the 1974-1984 Investment phase, the Investment phase of 1998-2012 delivered far more than anticipated new oil ready for development and extraction, including in Iraq, Brazil, Canada, and in Russia, and most importantly through shale oil in the U.S. And similarly, as in the early 1980s, it again created a sustained period of overinvestment, notably during the first half of the last decade and, due to U.S. shale, continued even longer. This eventually led to a new Exploitation phase around 2012 and the collapse of oil prices in 2014.

Shale Oil Led to a Different Type of Exploitation Phase

The current Exploitation phase where we “exploit” the discoveries and newly available and economically recoverable resources unlocked in the preceding Investment phase is different than earlier periods



because of a new oil & gas revolution led by U.S. E&P companies. They unlocked 100+ billion barrels of U.S. shale oil resources. The U.S. shale revolution was different than prior cycles due to the fact that the planning for development (PFD) was shortened to less than a year, followed by smaller investment decisions that led to a production profile with a short plateau and steep decline requiring additional investment. This was significantly different from projects sanctioned during the prior investment phase. While the incentive to continue investment disappeared everywhere outside the U.S. well before the 2014 price collapse, supply growth continued. This growth continued because of the aggressive drilling and completion of new shale oil wells in combination with the completion of new conventional oil projects elsewhere around the globe that had already been approved before 2014. This new reality put even more pressure on costs than ever before and has triggered a long period of cost deflation.

Exploitation Phase to End Soon? What's Next?

Under normal circumstances the current Exploitation phase would eventually come to an end and would be succeeded by a next Investment phase, continuing the cycles of the last 150 years. However, this expectation is partly “neutralized” by the massive reserve-life of U.S. shale oil, which is still running its course. That said, the current extremely long reserve-life has already come down materially, driven by rapidly growing production, likely making U.S. shale oil a mature business in the coming years. Additionally, while there are vast shale resources outside of the U.S., other countries have not been able to replicate the U.S.’s success. At the same time, capital markets finally had enough of the wealth destruction due to U.S. shale companies continuing to outspend their cash flows. Since 2019, Wall Street has basically been closed for the marginal, underperforming and overleveraged producers, especially in the U.S. shale oil & gas space. Without access to investment capital and large debts coming closer to their final maturity date, there is no alternative than to shift focus from aggressive volume growth to a focus on (a) capital discipline, (b) strengthening balance sheets and (c) providing a competitive return to investors. The coronavirus has turned this process instantly into a very serious problem with oil prices dropping to below cash cost levels as demand crashed by 20 million b/d.

Hence, annual shale oil production growth is slowing down now faster than already projected before corona; year-on-year it should decelerate materially in the next four quarters, from more than 800 thousand b/d in the 4th quarter of 2019 to about 400 thousand b/d in the 4th quarter of 2020. This would result in less than 1 mln b/d yoy total U.S. liquids growth in 2020 compared with 2.2 mln b/d in 2018 and close to 1.6 mln b/d in 2019. But today, this decline in U.S. supply is tentatively estimated at -2 million b/d a year from now from 1st quarter 2020 levels. Meanwhile non-OPEC ex-U.S. shale production is now in its final year of growth as the last wave of long-cycle projects sanctioned in 2013 and 2014 are now coming onstream and reach their production plateau soon. Underinvestment and the abrupt slowdown in the pace of sanctioning new oil projects since 2015 will thus start to impact production growth beyond 2021. Again, the COVID-19 virus has caused a deferral of circa 75 percent of all projects ready to be sanctioned for development this year. Several might be postponed indefinitely. We will therefore see a much thinner pipeline of big long-cycle conventional oil developments, leading to overall declining production early in the 2020s, and a deceleration in U.S. shale growth owing to higher declines from a larger overall production base, a reduction in profitable drilling locations, and slowing productivity improvements not much later. Together, this will ultimately have an impact on the supply side of the oil supply-demand equation. On top of these “natural” industry pressures also comes the increased pressure



from investors through new Environmental, Social and Governance (ESG) demands. This new pressure will reduce the ability of the Majors to accelerate oil field developments and will contribute to the future supply-demand dynamics of oil. With fast growing debt levels rising to (or beyond) the top of their target ranges, money will become a scarce commodity for them as well.

To Invest, or Not to Invest? That's the Question

It is very well possible that within a few years, apart from a deep and long structural economic recession, we will see the current Exploitation phase coming to its natural end, and the beginning of a new price boom. This might come as a surprise to many though, as the broader public sees low oil prices as an enduring phenomenon like they did in 1998. But oil prices will find a new upward trajectory once the worst part of the corona impact is behind us, supported by the long-term signals OPEC+ has given about the duration of their production cuts. With shale oil starting to show fatigue, after the immense oil inventories currently building up have been drawn, there will be a moment that allows OPEC+ to start unwinding its production quotas. The big question then is if oil companies will respond to higher prices and embark on a new Investment phase. An even more pressing question is how strong such an Investment phase will be, and hence how far oil prices will rise. Some argue that it will be weak and relatively immaterial as the world will quickly move into the ultimate "Oil Substitution phase," which will "neutralize" the demand for higher oil investments. In such a case, temporarily higher oil prices will not lead to more upstream oil supply investments but to more renewable investments (as they become more competitive vs. oil and gas). Longer-term, the expectation of oil prices going lower will not help either. The big National Oil Companies (NOCs) and the International Oil Companies (IOCs) might thus decide to "underinvest" in their upstream businesses and let their oil production levels be stable at best, or more likely to gradually and naturally decline over time.

The bigger free cash flows from higher oil prices will then be used by the IOCs - notably the European ones - to transform their companies from oil & gas companies into truly energy companies in the next decade. The NOCs will also need to restrain their investments and utilize their excess rents from higher oil prices to restructure their "old" economies into "new" ones and become less dependent on oil revenues instead, while finding new ways to monetize their oil reserves. Hence, the industry shows growing characteristics of a constrained rentier state, while investors – only those who are still willing and allowed to invest in Big Oil – demand increasingly higher returns. Meanwhile those big oil companies which decide to embrace the transition from "Big Oil" to "Big Energy," and thus make bigger investments in renewables will have to find ways to keep their Return on Equity and ROACE at levels comparable with those they have historically made in oil & gas. So far, the Majors have struggled with this as they need big businesses in renewables comparable to the size of their oil & gas businesses to be relevant, and those big businesses have had utility types of returns. Moreover, the Majors' corporate capital structure with low leverage is too expensive to compete in the renewables business and hence to successfully grow, as long as their Weighted Average Cost of Capital (WACC) is around 10 percent and rising and their leverage is about 25%. In other words, as long as their "Oil" required capital structure and cost of funding is also applied to acquiring renewables businesses at a large scale, it will not be surprising if they lose in their acquisition endeavors from companies who have access to cheaper funding and can accept lower returns than the oil industry's WACC. Hence, overall profitability could come under immense pressure, only kept up by higher oil, gas and energy prices, while their renewable energy ambitions reduce their ability to accelerate oil



field developments when needed. The current impact from COVID-19, forcing the Majors to borrow heavily for dividend purposes, will only further constrain them in investing in lower-return projects. In the meantime, they will maximize value and longevity of their core production basins and reengineer their upstream portfolios for resilience. Compensation by investing in large-scale expensive carbon capture, utilization and storage (CCUS) will be part of their solution. Moreover, this pressure on the IOCs is directed mainly at publicly traded (Western European) companies and impacting Chinese and other Asian state companies less. This could lead to a change in ownership of new oil field developments. In addition, a more concentrated and constrained industry could lead to lower volume growth.

Oil Substitution Goals Lead to Shifts in Investments

Oil substitution goals are reshaping the traditional oil and gas industry fast and in an unprecedented way. COVID-19 will contribute to this shift in an uncertain way. The above-mentioned pressures on the Majors are increasingly coming from capital markets, both equity and credit, and also from institutional investors. Likewise, banks and bondholders are tightening financing for oil (and to a certain extent natural gas) assets, as well as for the oil services industry. This may not be a temporary phenomenon: it could be a structural event and increase in pace as demonstrated by the shift in sentiment and buying patterns of Millennials. Western European banks are mostly looking to discontinue financing new oil projects over the longer term. The JOSCO Energy Finance and Strategy Consultancy expectation is that those banks, historically the world's largest arranging banks for syndicated loans to the oil industry, will steadily decrease their total one-obligor exposure and will become increasingly unwilling to finance new oil field developments and renew corporate loans to the industry. Tightening financial conditions on new oil and natural gas developments would lead to a consolidation and higher barriers to entry in the traditional oil and gas industry. While demand for good returns on investments (i.e., oil companies' dividends) remains equally important, younger and more ESG conscientious investors are increasingly less interested in buying old-economy "oil and natural gas" shares. They have a growing negative perception of the oil & gas industry. Instead, they show a high willingness to invest in renewable companies. Today, there is still a material difference between location and age, where Northwest European investors, banks and capital markets in general are most outspoken against oil & gas while emerging markets are far less so. But it may be just a matter of time before the push from new ESG regulations will further accelerate and negatively impact traditional hydrocarbon activities. Nevertheless, post-corona oil demand is likely to stay robust for the foreseeable future, fueled by rising prosperity and population growth in developing countries, notably in Asia. Demand changes and oil substitution is only taking place slowly in the coming decade. Post 2030, a more radical change is possible but is still a monumental task. While not (yet) forecasted, global oil demand might not bounce back straight to the 100 million b/d we had in 2019. This might take longer than currently projected due to structural socioeconomic changes in the global economy post-corona. But at the same time, the current demand crash will likely result in a permanent loss of oil production. The question is how the balance will pan out.

Temporarily higher oil prices will not trigger higher investments next time as long as oil companies foresee a bleaker picture with lower demand and oil prices in the first ten years of production. Given that it still takes five years on average to develop big long-cycle conventional oil fields, it only makes sense to sanction those new developments if they have truly low and competitive break-even prices. In addition, markets may become increasingly focused on a transition away from hydrocarbon resources. Moreover,



having reengineered their upstream portfolios for resilience towards natural gas and left with a more concentrated oil portfolio, there are not many new oil basins available to support a next Investment phase. Arguably, there is now no new oil region waiting to be developed, other than in the Oil sands, Arctic, or in war zones. This is different than in the past when (a) new discoveries were made in the North Sea, Alaska and Mexico in the 2nd half of the 1970s and the first half of the 1980s and higher oil prices triggered an investment spree, and when (b) further projects were developed in Iraq, Brazil, Canada, Russia and in U.S. shale oil during the investment boom of the 2000s and first years of the 2010s. For future growth we may have to do with known oil basins, and most of that is in the Middle East, and to a lesser extent in the “Golden Triangle” Atlantic deepwater basins. It is very well possible that as a result, each continent will move in its most favorable direction: the U.S. counting on domestic shale oil; Europe accelerating an energy transition away from oil; and Asia looking increasingly to the Middle East, Russia and other oil producing countries in the developing world. In the meantime, central banks and other global financial institutions have to manage any upheaval, especially at a time when oil prices and inflationary pressures start to increase, recognizing that there is a risk of crisis if the “ultra-low interest rate era” ends. There is a danger then that the debt levels in emerging markets and in parts of the developed world, fueled by the era of very low interest rates, become a serious concern if and when we enter into the next Investment phase, at a time when the forecasted Substitution phase is not yet strong enough to take over the helm. The massive increase of fiscal and monetary stimulus - valued at over \$5 trillion - to help neutralize the devastating socioeconomic impact of the coronavirus will only worsen world debt levels for which new solutions will have to be found.

Big Energy Facing Crossroads. How Explicit Will They Communicate Their Strategies?

Nobody ever said that an energy transition would be smooth and easy, and corona will not help either. The above-mentioned picture stands diametrically opposed to a shift into the next Investment phase. It suggests that we might move directly from today’s Exploitation phase into the final Oil Substitution phase. In the latter case, oil companies will likely be faced with a rapidly deteriorating share price as the value from their traditional upstream business faces both a gradual decline in production volumes and possibly lower oil prices in the next decade. Current investors, expecting cash returns (dividends and buybacks), would become insecure about whether the oil industry will be able to successfully transform into big energy companies. They may start questioning whether their non-oil businesses (i.e., natural gas/LNG and renewables) and trading businesses will deliver enough cashflow. If this substitution does not materialize and the oil world starts showing all the characteristics of a new Investment phase, the question is whether the short-term gains would be higher than the long-term pain. Short-term higher oil prices would result in excess cash ready for accelerated investments in renewables, but long-term pain could come from lower oil production and lower prices further out when, indeed, the Oil Substitution phase could develop in earnest. This means that any investor in oil today must decide if it is better to short Big Oil, or enter long positions anticipating that the world will find itself short of oil in say five years’ time.

Endnotes

1 “Valhalla” refers to the storied, Viking heaven and metaphorically evokes a glorious time.

For further coverage of the crude oil markets, one can read [past GCARD articles](#) on these markets.



References

- Barclays, 2019, "Rewarding Low Carbon," Barclays Global Energy, November 7.
- Bleakley, T., Gee, D. and R. Hulme, 1997, "The Atomization of Big Oil," *McKinsey Quarterly*, No. 2, Spring.
- BP, 2019, "BP Statistical Review of World Energy 2019: An Unsustainable Path," June.
- Citi, 2019, "Annual Commodities Market Outlook 2020, Risky Business Ahead," December 9.
- Goldman Sachs, 2019, "Global ESG Regulations, Preparing Capital Markets for 21st Century Business Risk," December 3.
- Goldman Sachs, 2019, "Carbonomics, the Future of Energy in the Age of Climate Change," Goldman Sachs Research, December 11.
- J.P. Morgan Cazenove, 2019, "Energy Transition v 2.0: Reality Check Needed on 'Black Gold,'" September.
- Lewis, M., 2019, "Wells, Wires, and Wheels ..., EROCI and the Tough Road Ahead for Oil," BNP Paribas Asset Management, August.
- Royal Dutch/Shell, 1998, "Group Scenarios 1998-2020."
- Royal Dutch/Shell, 2001, "Long-Term Energy Scenarios 2000-2050," March.
- Wood Mackenzie, 2019, "The Majors' Upstream Transformation, Portfolio Re-Engineering for an Uncertain Future," September.

Author Biography

JAN-HEIN JESSE

Founder, JOSCO Energy Finance and Strategy Consultancy (Amsterdam); and Editorial Advisory Board Member, *Global Commodities Applied Research Digest*

[Mr. Jan-Hein Jesse](#) is the founder of JOSCO Energy Finance and Strategy Consultancy in Amsterdam, the Netherlands, and has been active in the oil and gas industry since 1980. Mr. Jesse is a board member of Oceanteam ASA, a Norwegian-listed offshore oil & gas and offshore wind renewables services company; a commercial advisor to the management board of oneUp company, a digital technology innovation provider based in Amsterdam; and an independent director and advisor of Centerbridge Partners (USA, UK). He is the former CFO of Heerema Marine Contractors; a former senior manager in mergers & acquisitions at Royal Dutch/Shell; and is the former head of Energy Finance at ING Bank. He is an expert for the International Energy Agency (IEA, Paris); a visiting fellow of Clingendael International Energy Programme (CIEP, The Netherlands); and is a member of the Chief Economic Roundtable Group at the Ministry of Economic Affairs of The Netherlands.

Mr. Jesse previously provided four expert analyses for the *GCARD*. He contributed to the [Spring 2016](#) issue of the *GCARD* on [crude oil price benchmarks](#); he co-authored an article with the *GCARD*'s Contributing Editor, [Hilary Till](#), for the [Fall 2016](#) issue on ["swing oil production and the role of credit"](#); and he provided a history of the 2014-onwards supply-driven bear market in Parts [1](#) and [2](#) of the [Winter 2017](#) and [Summer 2018](#) issues. In addition, Mr. Jesse presented at the JPMCC at the University of Colorado Denver Business School on April 27, 2016 on ["The Strategic Impact of Shale and Renewables and Gaining Confidence in Higher Oil Prices: A European Perspective."](#)