OPEN SQUARE CAPITAL

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January 2, 2019

Dear Limited Partners,

Market sentiment is a mercurial thing. It flits around fundamentals and sprinkles pixie dust that propels prices higher, or black powder that combusts and burns. With the right circumstances in the final quarter, it became the latter as the market scorched itself and created a wildfire that raged uncontained.

Fear replaced greed as macroeconomic concerns, quantitative tightening and US/China trade tensions collided to deflate the market. A correction that began in October took hold by November and accelerated into the year-end as computerized trading algorithms ("CTA") took the baton and drove the market and oil prices lower.

Make no mistake, the oil sell-off had little to do with fundamentals, this was largely about momentum and correlation as oil shed 40% in less than three months. Expressed in computer codes, momentum distills down to price action, and when looking at prices, fundamental arguments no matter how convincing fall by the wayside. In truth, the size and liquidity of the oil market makes the commodity a good vehicle for CTAs to wager on a slowing global economy. So by December, when many funds were risk off, the humans behind the screens ceded to the CTAs. Left on their own, CTAs collectively turned our financial system into a circular firing squad as investors looked on and commented breathlessly while the markets fell. We simply watched it burn.

Our decision stems not from unfounded defiance or a cavalier attitude towards managing your assets. It comes from the basic notion that our portfolio is largely tied to a physical commodity. Despite what happens to sentiment, the world continues to consume 100M barrels of oil per day, and with lower inventory levels, the recent price declines will only serve as an accelerant for further inventory declines by spurring demand and constricting supplies.

So . . . let it burn. Watch now as lower oil prices melt 2019 producer capital budgets. Watch as decline rates take their toll and supplies tighten further. Watch as the market wonders in short order why prices are rising again. The factors that forced oil prices to nearly double on the back of falling inventories remain. It's delusional to think that lower prices today won't have severe repercussions as half of the world's suppliers now plan to over-tighten the market, and the other half falter at growing production enough to stem declines. In the real world, fundamentals matter, and in the real world, the physical market will discipline the financial one. The CTAs may have lit the fire, but we're left surrounded by the embers of unintended consequences. As the world opens the door to 2019, watch for the backdraft that's to come.

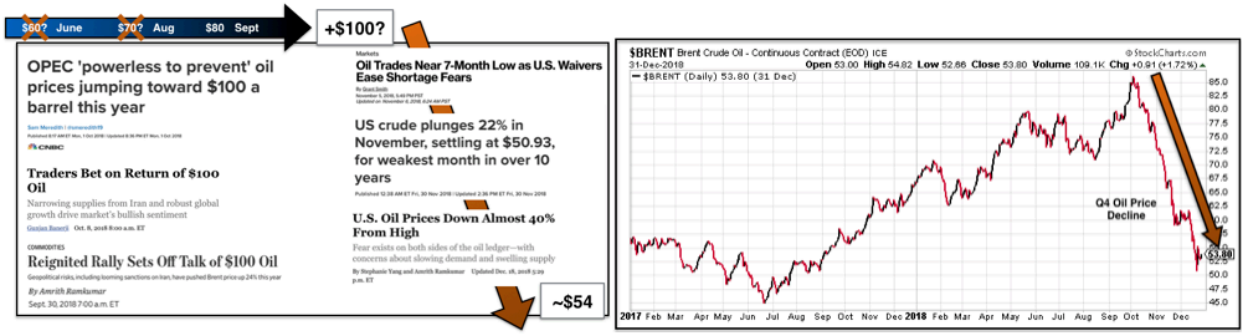
Our Quarter

There's no word to describe our Q4 other than horrendous. As oil prices fell, so did our portfolio as we underperformed the S&P by a wide margin.

Date	Open Square Fund I Performance (2018)*	S&P 500 Performance (2018)	Outperformance / (Underperformance)
January 1 – December 31	(22.52%)	(4.38%)	(18.14%)

* Net of Management Fees.

What went up dramatically in 2018, fell just as dramatically in the last three months as two of our stocks declined by more than 60%. Such is the nature of being invested in highly levered oil companies, but again our goal is to asymmetrically outperform on the upside when oil rises. Even with the volatility, we've added to our positions as inflows came in during the quarter. When oil prices fall 40%, however, there's little cover to be found in the energy space. As investors abandoned the sector and CTAs began actively shorting it; the narrative turned completely. Articles expecting $100/barrel oil in October quickly morphed into "plunging price" articles by November.



Despite this, or perhaps because of it, we think prices will recover in 2019, and we continue to remain bullish on energy stocks. We've carried this thesis for a few years now and because of that history, we can see the fundamental drivers. We can look past the rampant downtrodden sentiment today and understand the real world implications of what's occurring and what's to come. Eventually the fundamental supply shortage relative to growing demand will again force oil prices higher. If so, our portfolio will not only fully recover, but add to the gains we previously saw. Let's give you an update on what we're seeing.

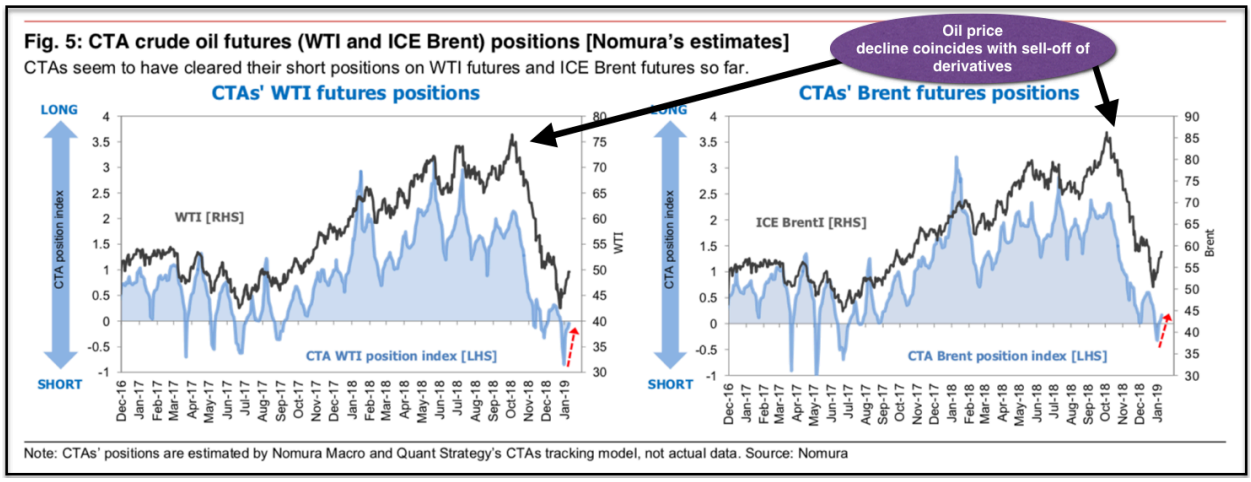
Narrative Shifts

As we closed 2018, a slowing macroeconomic backdrop caused partly by the US/China trade war began affecting market sentiment. The uncertainty over whether the US would ratchet tariffs higher on $200B of Chinese goods from 10% to 25% caused companies to pull-back from China, slowing purchases and in turn the Chinese economy. The decelerating Chinese economy also impacted growth in the emerging markets, and analysts began lowering global growth rates and earnings estimates of multinational companies. With Europe already experiencing tepid growth, the US had become one of the last countries to mark strong growth, but by Q4, the market reassessed the risks and began repricing assets.

Concurrently, the Federal Reserve ("Fed") continued its push to tighten monetary supplies, withdrawing liquidity just as the economy was parched for growth by increasing interest rates and shrinking its balance sheet. If this were a bathtub filled with water and rubber ducks, then the Fed was draining the water just as they were struggling to stay afloat. So combine lower economic growth with the potential for

declining sales, lower earnings, higher borrowing costs and lower overall liquidity, and we had the right mix of ingredients to induce a market sell-off. Once the nudge proved sufficient, the downhill momentum accelerated as CTAs piled on. At the December lows, the market had shed 20% from its highs and entered "bear territory."

Oil was similarly mauled as investors sold off oil futures wholesale. The reasoning was simple, if global growth slows, then global oil demand should slow. Moreover, in the short-run the market's a casino, so when the dices are hot, keep rolling . . . downhill. The technical sell-off by the CTAs fed upon itself, and as long positions were abandoned the selling begat more selling. Gamma hedging also helped drive prices lower.[1] By the end-of-Q4, oil prices had plummeted over 40%, falling ~$32 from $86 to ~$54/barrel.



Great story. Yet does it make sense? While we understand the concerns about a slowing global economy, when did slower growth equate to a contraction? Apart from the recent technical sell-off, the fundamental reasons for why oil prices have doubled since 2017 remain. For 2019 we continue to see demand increasing and supplies shrinking. Momentum trading works both ways and we believe oil prices can and will recover faster than many anticipate as inventories begin declining again and fundamentals reassert themselves to catalyze technical buying. Let's walk through what we're seeing in demand and supply.

Demand

Worldwide oil demand growth continues to be robust, and the IEA forecasts oil demand to grow by 1.4M bpd on the back of a 3.5% global GDP growth in 2019. It's notable that the IEA has historically underestimated demand, thus even a lower GDP growth rate should garner the same increase in oil demand. Much of this growth is driven by the emerging market (+1M bpd), and more specifically two countries, China (+450K bpd) and India (+200K bpd).

[1] Gamma hedging occurs when financial houses and swap dealers sell contracts to oil producers who want to hedge their exposure to falling oil prices (i.e., selling the promise to buy oil at a predetermined price). As oil prices fall closer or below the target price, the financial houses and dealers will begin to suffer financial losses (as the contract they hold loses value). To offset that financial exposure, the participants will need to sell crude oil futures themselves, hence spiking oil prices even lower.

In 2019, China's oil demand will largely be driven by whether China and the US can come to a trade deal. Talks are currently ongoing under a 90 day deadline set to expire on March 1. We believe the recent market sell-offs in both countries, slowing economic outlooks, and increasing political pressures incentivizes the two trade partners to soften hardline positions and come to a palatable agreement.

While the economic trade issues are more easily solved (i.e., broader market access, increased purchase of US goods, and halt to increasing tariffs), the thornier intellectual property issues (i.e., increased protection, theft, and forced transfers) will take longer. It's likely the two countries will set-up a framework to discuss these issues and address/monitor them going forward. This would effectively side-step the landmines and allow both leaders to "save face," step-back from an economic precipice and claim victory domestically. Overall, we think there's a high likelihood that the parties will agree. In addition, China has recently introduced aggressive fiscal and monetary stimulus to its economy to mitigate any slowdown. The impact of those measures are still working their way through the system, and if a trade deal is achieved, we could see trade deal benefits and the effects of the stimulus coincide to lift China's growth in H2 2019. The emerging markets in Asia would likely benefit as growth in the Chinese economy would create spillover effects.

As for the US, Fed Chairman Jerome Powell recently stated that the Fed may "be willing to adjust policy and flexibility . . . to support the economy," and would remain patient to see "how the economy evolves." The change in rhetoric indicates that the Fed could pause from hiking interest rates in 2019 after raising them four times in 2018. Those increases have strengthened the US dollar, which have made oil, which is denominated in US dollars, more expensive for emerging markets to buy, thus dampening oil demand. A looser monetary policy and potentially weaker dollar would help reverse the headwinds slowing oil demand growth, lower the cost of capital for indebted oil producers, and support stock market multiples.

So to be clear, we are not saying that oil prices will rise independent of economic conditions. Clearly economic factors play an outsize role in guiding where oil demand goes. What we are saying is that the broader market and oil market sell-off has created the false impression that global economic growth is set to collapse and oil demand to fall. We think neither is the case. A decelerating global economy (i.e., slower growth) is still growth, and we see a high probability that oil demand could even exceed expectations if a US/China trade deal comes to fruition. Couple this with what we see on the supply side, and you'll begin to see why we question the veracity and longevity of the recent narrative shift.

Supply

On the supply side, a few non-technical reasons have been proffered to explain the recent price slide. First, the market is oversupplied as inventories swelled in H2 2018. Since crude inventories typically decline during the second half of the year, the inventory builds were bearish from a seasonal and sentiment standpoint as most analysts (including us) anticipated declining inventories. Second, US production data for August (released in October) indicated that US production was surging faster than anticipated, and rippling the latest figures through supply/demand models showed that inventories could swell in 2019. Finally, Iranian sanctions proved less than absolute as the Trump administration granted waivers to eight countries to continue importing Iranian crude.

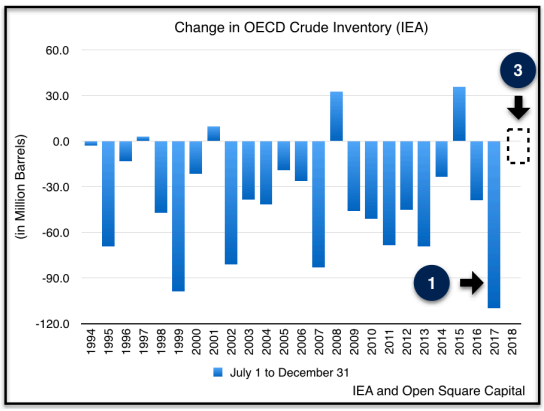
Fundamentally though, none of the bearish narratives hold sway for us. With such a severe sell-off, you'd expect the oil market to be oversupplied. Surely, inventories would have to balloon to warrant such a sell-off? Not so much. Let's give you some perspective, and it's something that's easier to see if we break

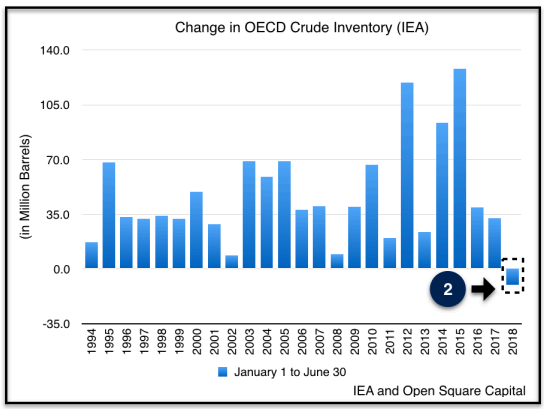
down the past year-and-a-half into six month increments. What happened to crude inventories during this time?

1. Inventories **declined** in H2 2017 by the largest amount in 24 years: Brent prices rose from ~$45 to ~$66;

2. Inventories **declined** in H1 2018 for the first time in 25 years: Brent prices rose from ~$66 to ~$79, touching $86 by October 3rd;

3. Inventories **will likely end flat** in H2 2018: Brent prices collapse from ~$79 to ~$54. In two of the four other times inventories inventories increased in the past 24 years, either the US was in a recession ('01) or the world was ('08), and despite the recent economic slowdown, we are still growing.





Let's overlay the inventory results over the oil price chart for Brent.

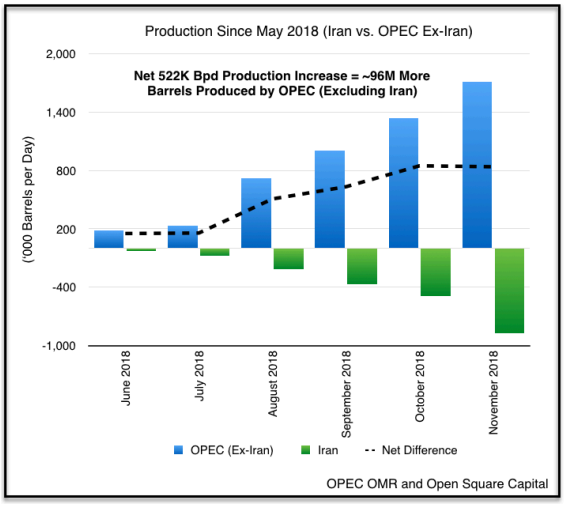
In short, the severity of the oil sell-off is unjustified from a supply standpoint. Furthermore, what makes us bullish heading into 2019 isn't that inventories stayed flat in 2018, it's how they were able to do so. If we peel back the onion, we'll see that the largest contributing factor to an oversupplied H2 2018 is

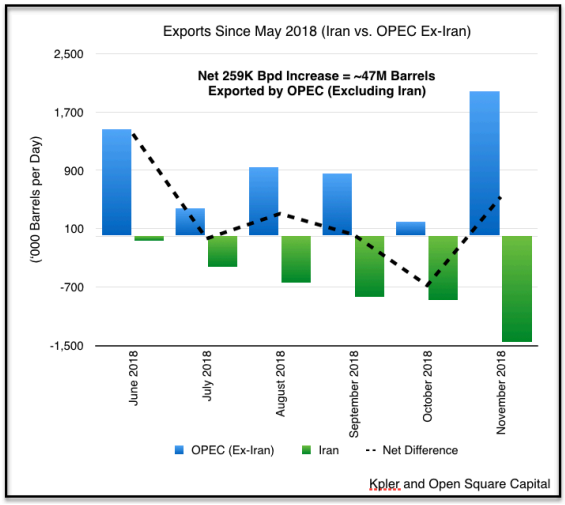
temporary, and once reversed, the undersupply we saw in H2 2017 and H1 2018 will reemerge. Here's why . . . .

Iran

Recall that in June 2018, the the US announced that it would reimpose economic sanctions on Iran beginning November 5, with the goal of reducing Iranian oil exports from 2.5M bpd to zero. As we noted in our prior letters, oil prices were sure to climb past triple digits if the sanctions were fully implemented.

To temper the oncoming supply decline and price increase, Saudi Arabia, UAE and Russia began increasing supplies to the market (production and exports) at the behest of the US. Most of the oil producers were only too happy to do so as they'd be taking market share from Iran as sanctions crimped exports. Moreover, keeping oil prices low would help curry favor with the Trump administration as the Iranian sanctions were set to begin near the time of US mid-term elections. From June to November (i.e., when the sanctions were announced to when they began), OPEC increased production by about ~96M barrels, half of which (i.e., ~47M barrels) found its way overseas via exports. Most of the supply surge occurred in June and October, and were driven by higher Saudi exports, although by October, the surge in exports essentially offset the fall in Iranian exports. Interestingly, during this time Saudi inventories declined by ~30M barrels, which means about 2/3rds of the increased exports can be attributed to the Saudi's transferring inventories to customers. OPEC didn't just produce more, it supplied more by bringing down inventories, and did so before Iranian production and exports began to materially decline.





Much of the "channel stuffing" meant that global inventories became temporarily bloated, especially in the US. The producers weren't terribly concerned by this because they'd been convinced that the US sanctions would be absolute, and zeroing out Iranian exports would eventually offset the higher exports.

Pulling the Persian Rug

On November 1st, the Trump administration backpedaled on its goal of cutting Iranian oil exports to zero and issued six month waivers to eight countries that imported Iranian oil. President Trump explained:

> *"I don't want to drive oil prices up to $100 a barrel or $150 a barrel," "You have a monopoly called OPEC and I don't like — wait — I don't like that monopoly, I don't like it."*

Well . . . yeah. There's so little spare capacity in the system that reducing supplies by just 1M bpd (let alone Iran's 2.5M bpd of exports) meant oil prices were set to spike. With the waivers, Iranian exports will likely average 1.3M bpd for the next six months, resulting in "only" a 1.2M bpd decline. Since Saudi Arabia, UAE and Russia had expected zero and pre-supplied more in the interim, the inventory overhang became a concern. As analysts updated their models following the announcement, they began assuming OPEC would maintain its higher production into 2019, resulting in exceedingly bearish balances.

What's often missing for analysts who drag an Excel formula in the guise of forecasts are incentives. Clearly Saudi Arabia, the UAE and Russia wouldn't have increased production without US exhortations and promises of strict Iranian sanctions. Once US actions fell short of their promises, the jilted partners began reacting with more sense than sensibilities. Unsurprisingly, on December 3rd OPEC+ agreed to cut production by 1.2M bpd beginning in January 1, 2019.[2]

Note that these are headline cuts to production numbers, and we believe the "real" cuts will likely be more. Remember supplies can come from two forms, higher production and inventory transfers, and for Saudi Arabia, some of the extra supplies shipped to the market came from its inventories. Immediately reducing exports and letting elevated production taper off means supplies to the market will fall faster and slightly higher than the headline numbers suggest. For example, Saudi Arabia recently decreased its own exports by 870K bpd in December compared to November levels, even though it's only cut production by 450K since then. So if the Saudi's taper off on the inventory transfers, the market could see higher underlying cuts than those announced.

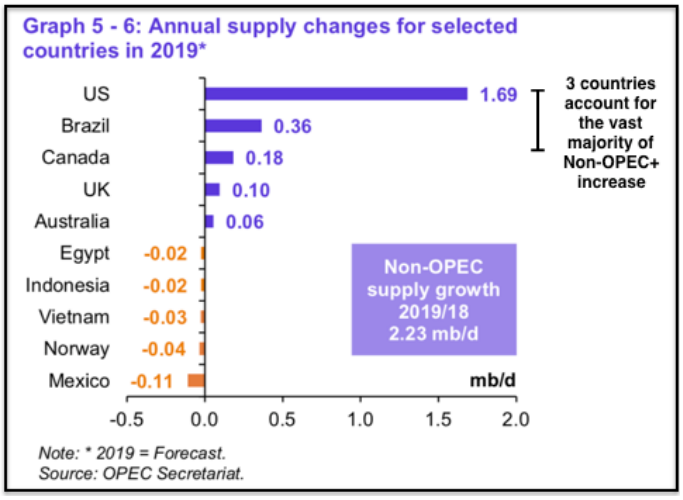
If you still have any lingering doubt as to Saudi Arabia, and in turn, OPEC's intentions, the government recently released its budget for 2019. The new plan calls for increased spending by 7% in 2019, and oil prices to average >$80/barrel. The key word there is average. When the budget was announced in mid-December, Brent prices touched $56/barrel. So yes, we're expecting Saudi and company to move prices higher by constraining supplies, raising official selling prices, and targeting supply cuts to price sensitive delivery points (i.e., the US gulf coast). Accordingly, when OPEC+ implements its agreement in early-2019, we expect to see supplies fall, effectively creating a market that feels the weight of the Iranian sanctions.

Repercussions

So who else is left? If half of the world's producers are now deliberately constraining the market, where will new production come from to stem the declines and meet new demand? Who knows. The recent price plunge only exacerbates the shortage. Why? Because we're finishing 2018 with flat inventories after historic 2017/18 draws, and prices are now below 2017 levels, which disincentives production. That makes little sense and something the physical market will correct when buyers of crude (i.e., refiners) bid up oil prices as suppliers slow production and inventories decline.

As we peer into 2019, the supply situation becomes even more tenuous. Let's use OPEC's own chart.

[2] OPEC agreed to shoulder 800K bpd of the cut and non-OPEC participants (mainly Russia) agreed to cut 400K bpd.



Excluding OPEC+, which again accounts for 1/2 of global supplies, the other half of global crude production comes from Non-OPEC producers. Yet, only three countries are forecasted to increase production in 2019, Brazil, Canada and the US (UK/Australia are largely rounding errors).

Getting Rio About Brazil

Brazil was forecasted to increase production by 300K and 200K in 2017 and 2018, respectively, but instead achieved 200K bpd and zero growth for those years. Call us skeptical of the +360K bpd 2018 forecast. We'll even double-down on that skepticism because the projects that may come online in 2019 have production targets that are collectively lower than those which began in 2018, and if 2018 achieved zero growth, then 2019 could even be south of that mark.

Brazil Production

	2015	2016	2017	2018	2019
Brazil (mb/d)	3.1	3.1	3.3	3.3	?

After initiating 800K of new projects in 2018 (300K in Q4), no growth

Only ~500K of new projects scheduled to come online in 2019

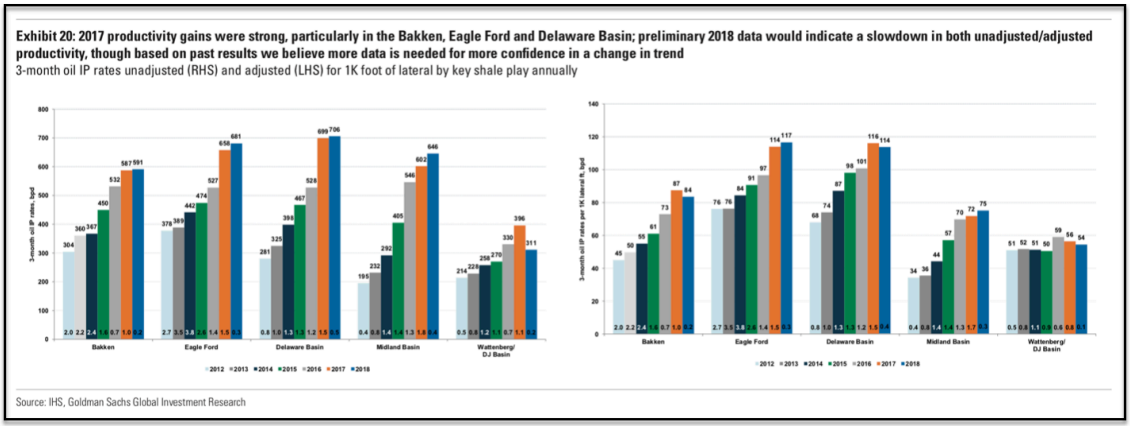
IEA and Open Square Capital

O' Canada

Turning to Canada, the Government of Alberta recently mandated production cuts to deal with crushing differentials. The cuts begin January 1 and removes 325K bpd in the first quarter (tapering off for the remaining three quarters, for an average reduction of ~150K bpd). Although regional oil prices (specifically WCS) have lifted off their lows, overall Canadian production growth is constrained by transportation constraints. Even if the government lifted the mandated cuts and Canadian producers could grow, most of the increased production will remain trapped in Canada, refilling inventory tanks and again lowering regional prices. Until additional rail capacity is introduced and/or the L3R pipeline is completed in late-2019, production growth will realistically stay muted in 2019. We expect Canadian production to stay flat for the year.

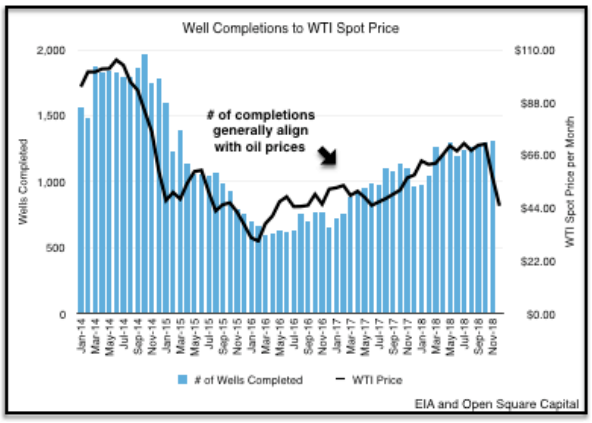
US Shale

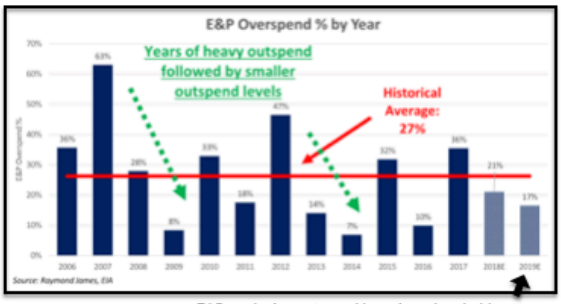
Which leaves the US as the producer of last resort. More accurately, US shale. Think of US shale growth as a rocket powered by two engines: 1) productivity and 2) sheer volume. First, enhanced well productivity. This is the technological marvel that is fracking, where previously inaccessible oil/gas reserves are released after fracturing the surrounding rock. Per well production has increased significantly as horizontal rigs drill longer wells (now up to 2.5 miles) and completion crews refined their use of proppants. There's a limit, however, to well productivity gains as drilling and completion techniques become standardized. Even as we've drilled more wells, per well productivity is now plateauing (overall and adjusted to a per 1,000 feet metric to allow comparisons between wells of different lengths).



It's also not surprising considering producers are also beginning to drill more parent/child wells and wells in less fertile Tier 2 areas. Anecdotally from Mark Papa at Centennial Development, child wells drilled are yielding ~20% less than parent wells as there are inevitability some interferences between wells drilled within the same acreage of land.

So to actually increase overall US production, we're having to complete more wells; that's the second, more powerful, engine propelling shale growth. Yet in reality US shale productivity has always been a capital intensive mirage. Well completions increased significantly in 2018 largely because of higher oil prices. More well completions requires more money, and if we overlay oil prices to well completions, we can to see the link.





E&Ps reducing outspend based on shareholder pressure will coincide with lower capital budgets in current oil price environment

As investors have pressured companies to stay closer to cash flow, E&Ps are now tied more than ever to oil prices. Thus, if lower oil prices persist, crimped operating cash flows will force shale producers to dial-back 2019 capital budgets to preserve cash, which will slow growth.

Moreover, in 2018 we had a goldilocks period where service costs were only beginning to increase, but as activity has risen, the surviving leaner service providers have regained some pricing power. While we anticipate that oil service providers will be forced to pare service costs to offset some of the capital cuts (i.e., make wells cheaper to drill and complete), there's little fat to cut in that sector. Consequently, the cost to drill and complete a well in 2019 will likely be higher than 2018. Diamondback Energy recently shared that service costs have increased 36% since 2016 lows, and that figure is corroborated by analyst reports that indicate a 45-55% increase.[3]

The world's entering 2019 riding a US production rocket ship, counting on it to escape the pull of global declines and supply shortages. We're saying that's unlikely because as the industry becomes capital constrained in this lower environment, its main engines will lose some power. Sure we'll exit the year with momentum as the newly completed wells in 2018 help boost us into the new year, but as that inertia fades in H1 2019, we anticipate well completions will decline because of what's happened to oil prices in the quarter. If so, we may end 2019 with US growth lower than the projected 1.7M bpd.

Would It Matter?

Let's be conservative though. Let's just assume that we're wrong and that US production is able to maintain its velocity despite the recent price declines. It certainly surprised to the upside this year as production finished close to 12M bpd at year-end, above what we anticipated at the beginning of 2018.

Even if we assume unabated growth, we've said it before and we'll say it again, as energy supplies tighten, we'll need every single barrel of US crude because we anticipate the supply/demand balance to widen as other producers underdeliver.

What's interesting about our supply/demand forecast (to the right) is that US production doesn't have to fall for global supplies to fall short. Assuming that the global economy holds, **we still project a supply deficit of 700K bpd**.[4] If the US falters in any way, that will only exacerbate the deficit and accelerate inventory declines.

Global Supply / Demand Balances

	YoY (kbd)
2018 Supply / Demand	0
Demand Increase	(1,400)
Supply Changes	
US	1,700
Canada	0
Brazil	100
Others	(200)
Russia	100
Iran	(800)
Venezuela	(300)
Saudi Arabia	100
2019 Supply /Demand	(700)

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So you see that's the crux of this issue. Whether there will be enough oil depends on whether producers can escape the reality of economics. Can you produce enough oil to meet rising demand and offset increasing decline rates in a challenging price environment? Can you accomplish that task after the financial markets cratered oil prices in the past 12 weeks by 40%?

[3] Evercore ISI 2019 Global E&P Spending Outlook (December 10, 2018).
[4] We're using IEA's 1.4M bpd demand growth for 2019 all the while knowing that the IEA has consistently underestimated demand growth historically. Given the recent price action, we'll leave the figure conservative for now.

The world currently consumes 100M barrels of oil per day. Those barrels are produced by roughly 85 countries. Half of the supplies are produced by OPEC+, whose goal for 2019 is to raise oil prices. The other half is supplied by ~60 countries, but only three of which are projected to grow production meaningfully, and they may even fall short. It sure doesn't seem like the world is swimming in oil, and given the odds and the unforgiving nature of economics, we'll take our chances.

Parting Thoughts

We remain steadfast. **We do not believe our gains for 2018 are gone, and we believe we'll emerge again and recapture our highs when oil prices rebound.**

We know that despite OPEC+ oversupplying the market in H2 2018, oil inventories have stayed flat.

We know that new projects in 2019 are set to drop to one of the lowest levels in years as the underinvestment in the past catches-up, leaving fewer new barrels to replace the declining production from older fields.

We know that OPEC+ has agreed to remove 1.2M bpd of oil from the global market, and Saudi Arabia, the largest factor in that equation, has not only begun to cut supplies drastically, but also published a 2019 budget where they "assume" oil prices will average >$80/barrel.

We know almost everyone's supply/demand model has only three countries forecasted to increase production next year, and it's very likely these figures are too high, but even if they aren't, we'll still have a global deficit.

In a quarter where nothing materially changed (underlying global supply/demand factors), but everything did (price action and our performance), we're reminded that it's easy to lose sight of fundamentals and stare at the price action. Here's an exchange I had with my two younger analysts on Christmas Eve as the Dow index fell 653 points in a shortened session:

> **Addy**: Daddy what're you doing?
> **Me**: Watching the market fall.
> **Addy**: How come everything's red?
> **Me**: The market is crazy.
> **Mason**: I like red.
> **Addy**: Hmmm . . . wait there's one green . . . oh no it's red now.
> **Mason**: More red.
> **Me**: We want green Mason.
> **Mason**: Red's pretty.
> **Addy**: I kinda like the red too, it's like Christmas.
> **Me**: Daddy's turning off the computer . . .

So if the market stares at the price action that's fine, we'll focus on the physical barrel. We can't burn a derivative instrument in our cars, or momentum trade or gamma hedge our way to more oil. We need the physical kind and not the paper one. So despite the price action and volatility, we're still here. In 2018, the market momentarily recognized the developing shortage we've been seeing for years, but then promptly forgot. It will remember again. Here's to seeing green on our screens in the New Year.

As always thank you for investing and please let us know if we can explain any of our ideas above in more detail.

Sincerely,

Nelson Wu
Managing Director