The Oil Market's Massive Repricing

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"There is so much uncertainty. It's increasingly difficult to get [energy company] boards to sign off on projects that have a 20-25 year life."
–ANDREW GOULD, former CEO of the world's largest oil service company, Schlumberger

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Life is full of ironies and there may be no more vivid example of that today than in the oil patch. Wouldn't it be the height of irony if the radical shift by the automotive industry toward electric vehicles (EVs), and away from internal combustion engines (ICEs), created the next oil price surge into triple digits? Sound crazy? Please allow me to explain…with a lot of help from a kindred spirit, the keen minds at the investment research firm Macro Ops.

Because of our long-time interest in the mid-stream energy sector (MLPs), we have had a ring-side seat to view the remarkable success of the American shale oil and natural gas industry. To put some data behind the "remarkable" assertion, according to the International Energy Agency, by 2025 the US shale industry will have discovered the most hydrocarbons, and at the fastest rate, in history. This includes Saudi Arabia during its boom years of 1966 to 1981 (source: *The Economist*). Please realize the shale industry barely existed pre-2008.

Unquestionably, America's most prolific region over the past decade has been, and still is, the Permian Basin. This geological formation extends from West Texas into Southern New Mexico and is about the size of South Dakota. It is also known as the "layer cake" due to its multi-stack "plays", i.e., multiple layers containing oil and gas. The efficiency gains in the Permian have been astounding and a great tribute to the ingenuity of America's independent oil producers. For example, the number of drilling rigs working in the Permian is roughly the same as in 2011, yet the region has tripled its output.

Another irony for those who grew up feeling the rope burns of the OPEC noose around our necks, the US is now a leading exporter of oil (though we still import on a net basis, that deficit is quickly heading to zero). Moreover, America is now the world's largest oil producer and also its main hope for avoiding a looming supply crunch.

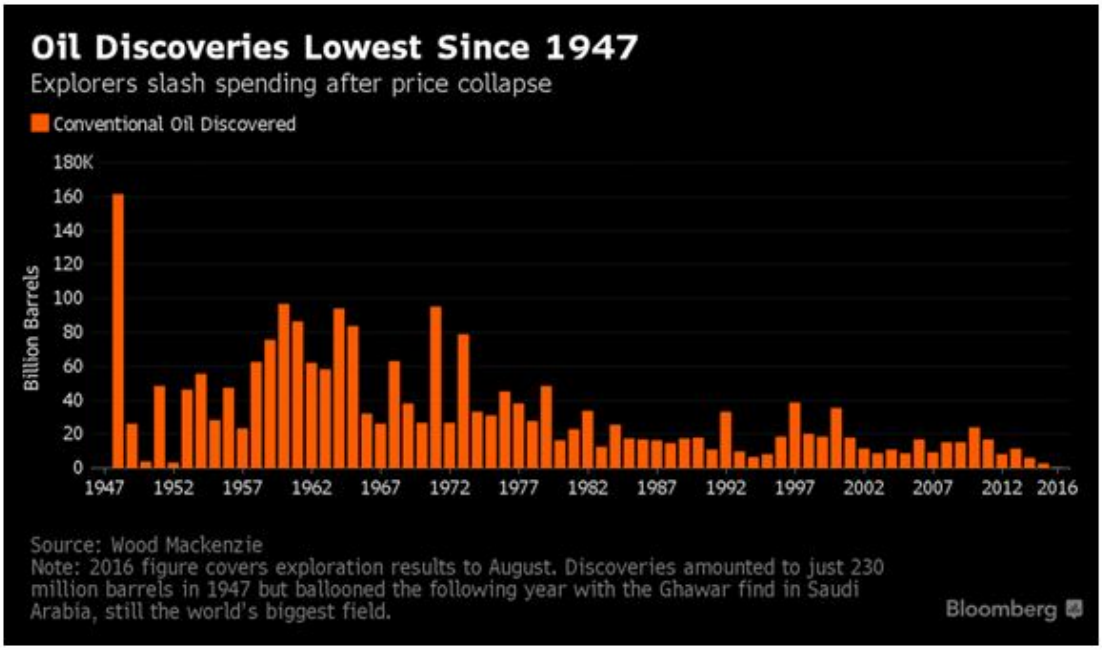
In this month's *Guest EVA*, we are doing something we rarely do: running a somewhat dated piece. As you will see, the Macro Ops article below was published last December. However, the passage of time underscores the accuracy of most of what they wrote back then.

Although crude prices were already in recovery mode last winter—after a severe correction in the summer of 2017—they were still somewhat depressed. Brent and West Texas Intermediate (WTI) were trading at $64 and $58, respectively, and energy in general remained very much "behind the moon". Thus, their call for oil to hit $80 sometime during 2018, and possibly even $100, was an extremely maverick view at the time. Validating their outlook, and despite 2018 having been a very tough year for most commodities, Brent is now at roughly $80 a barrel while WTI is at $70.

In the interest of saving space and time, I'll summarize a few of their key points:

- The shale industry would have a hard time maintaining the same level of productivity gains seen in the post-bust (after 2015) timeframe due to running down their best prospects.
- Crude inventories would be drawn down much faster than the consensus expected in 2018.
- World demand growth for oil would remain robust despite the growth in EVs.
- The planet has recently only been finding one-tenth as much reserves as it was 20 years ago.
- Oil companies would be reluctant to open their wallets for long-term projects despite the price recovery.

That last bullet relates to the aforementioned irony of the current situation. Because the energy industry has poor visibility into what oil demand will be in 10 or 20 years, due to projections of EVs obsoleting ICEs, capital spending is exceedingly subdued, as you can see below (though, as the Macro Ops article points out, this threat may well be overblown).



In fact, last year the global oil industry replaced a mere four billion barrels while consuming 35 billion! This dangerous situation is compounded by the fact that outside of the US, exploration efforts are nearly nil. The world is relying almost totally on the US to off-set the natural decline rates of existing output and also cover demand growth. The combination amounts to about 7 million barrels per day, or about 7% of the planet's total supply (and demand, with the latter now exceeding the former). Further, the US is heavily dependent on one area: the once-given-up-for-dead Permian Basin.

Lately, there has been more attention focused on Macro Ops' contention that even the mighty Permian could soon hit the output wall. The CEO of oil service behemoth Schlumberger recently suggested that the laws of diminishing returns are on display in the Permian as new wells cannibalize existing production. However, since last December four "Super Majors"—BP, Chevron, Exxon and Shell—have all announced plans to greatly increase their Permian activities. Between this and my personal knowledge of some of the folks who have created the "Permian Miracle", I'd bet on another production surge coming next year, especially once much-need new pipelines come on-stream in late 2019 and early 2020.

But Macro Ops is right; the math is daunting. Shale wells decline at about 40% per year versus roughly 5% to 10% for conventional oil. With the Permian now producing 3 million barrels per day (about 30% of all US crude output), 1.2 million barrels per day need to be found, drilled, and completed just to remain steady-state. To meet the demand growth needs, this means the number rises to around 2 million barrels per day. Meanwhile, per the Department of Energy, total US crude stockpiles have shrunk by 15% year over year after another greater-than-expected draw-down last week.

There's another kicker Macro Ops didn't mention last December, possibly because it was too far out at the time. In less than 18 months, there will be a new environmental regulation for the marine shipping industry, IMO 2020. The net effect will be to remove about 1 million barrels per day of supply. With Iranian oil coming under severe sanctions in less than two months and Venezuelan production continuing to melt like an ice-cream cone on a Caracas sidewalk in July, the supply deficit could hit emergency conditions next year.

The one forecast Macro Ops got wrong was an extrapolation of the "synchronized global expansion" that seemed to have legs nine months ago. Should the escalating liquidity crisis now spreading around the world trigger a serious recession, that will no doubt postpone the supply crunch. But that would certainly be a painful way to defer the next oil crisis.

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THE OIL MARKET'S MASSIVE REPRICING
By Macro Ops

**Editor's Note: The following article has been shortened, as marked by ellipses. To read the full-length version of Macro Ops' publication, click here.*

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The popular story over the last three years of the oil bear market rested on two things: (1) that the world is awash in oil thanks to the introduction of fracking and (2) the adoption of electric vehicles was going to soon kill the internal combustion engine, thus clipping off a big source of demand for oil.

But the data doesn't support this narrative. Like most popular stories, this one was born in some

truth.

But that truth, or rather its supporting facts, have evolved. And the popular narrative of the oil market has not yet fully awoken to the new reality.

Once it does we're likely to see $80, even $100/bbl oil in the coming year. Here's why.

The consensus in oil is predicated on the belief that fracking and the introduction of shale oil has led to a new paradigm of sustainable drilling productivity growth, making the US a major swing producer in the global market.

But recent data isn't backing this up.

Supply forecasts have been predicated on the belief that improvements in fracking technology will continue to increase well productivity at the growth rates we've seen over the last few years. The expectations are that this rate will compound, bringing ever more supply growth online.

The problem is that these forecasters have mistaken the source of that "well productivity growth".

For example, output in the Bakken shale (one of the most productive shale regions in the US) more than tripled from 2012 to 2015. Recent research done by MIT suggests this rise in well productivity was not actually due to improved fracking technology and efficiency gains… but rather because shale companies abandoned their less productive fields following the market slump and instead pumped from their prime acreage.

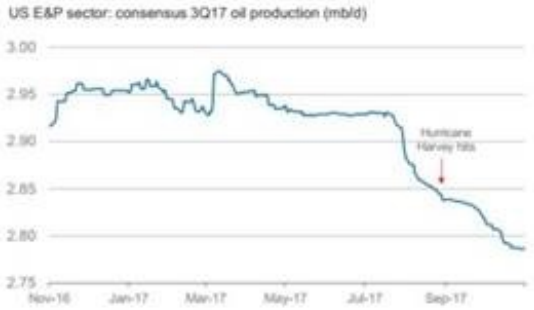
In addition, the E&Ps have been tapping their drilled but uncompleted (DUCs) wells.

The combination of only pulling from Tier 1 fields, along with draining pre-drilled wells, led to forecasters greatly overestimating future supply growth by misattributing the excess supply to technology driven productivity gains.

So, while forecasters have been modeling out continuous well productivity growth of roughly 10%, the real number is likely closer to 6% or less. And while that difference may not seem like a lot, when you think about the compounding effect that 40% less growth has over time… it's huge.

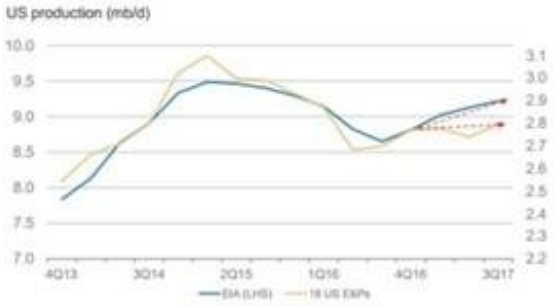
This has led to forecasters continuously overestimating US production over the last year.

Exhibit 10: Production estimates for US E&Ps were downgraded 5% during the quarter, at least half already before Harvey



Note: charts based on the 18 oil-focussed US E&PS that have reported 3Q results so far, i.e. EOG, Oxy, Anadarko, Pioneer, Concho, Devon, Apache, Hess, Noble, Marathon, Newfield, Murphy, Chesapeake, Laredo, SM Energy, Whiting Petroleum, QEP and EP Energy.
Source: Bloomberg, Morgan Stanley Research

Exhibit 11: Since 4Q16, actual production has started to diverge from the EIA's estimate for total US production



Source: EIA, Company data, Morgan Stanley Research

Commodity Hedge Fund, Goehring & Rozencwajg Associates (GRA), wrote the following in their latest quarterly letter (emphasis added by Macro Ops):

Most oil analysts at the start of 2017 believed US crude production would grow by approximately one million barrels per day between January 1st and December 31st. That level of growth would imply full-year 2017 oil production of 9.3 million barrels per day or 450,000 b/d above 2016 levels… ***Many analysts felt these estimates would ultimately be revised higher.***

Even with substantial OPEC production cuts, **the energy analytic community has vigorously argued that because of strong US shale oil growth, global oil markets would remain in long-term structural surplus…**

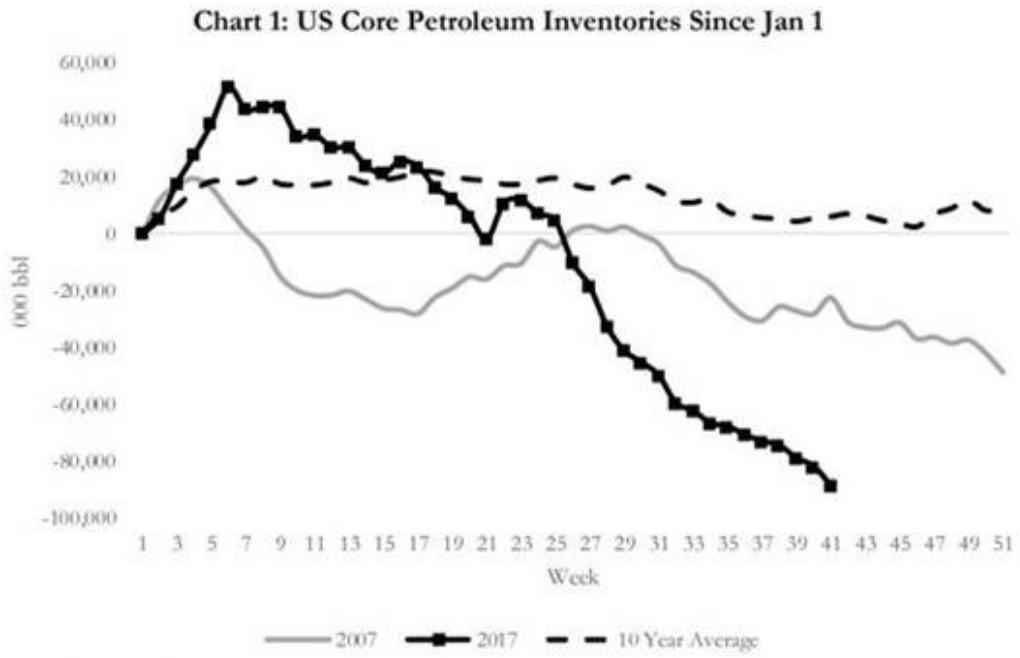
However, **data has now emerged suggesting that US crude production growth is rapidly slowing…**

Between September 2016 and February 2017, US crude production grew by 100,000 barrels per day per month, but since then US production **has ground to a near standstill**. Between February and July, US production has only grown by 33,000 barrels per day per month – **a slowdown of 67%**. Moreover, preliminary weekly data for August and September (adjusted for the impact of Hurricanes Harvey and Irma) suggest that **production growth has slowed even more**.

The slowdown in US onshore production growth is even more puzzling given the huge increase in drilling that took place over that time. The Baker Hughes oil rig count is up 130% since bottoming in May of last year. In spite of a surging rig-count, **onshore production growth is now showing signs of significant deceleration**.

Although it is still early in the production history of the shales, it now appears the growth in US shale production may not be nearly as robust as originally expected. If our observations and analysis are correct, **then the oil market will be even more under-supplied that we expected in the 4th Q of the year and incredibly undersupplied into 2018. The ramifications are going to be huge.**

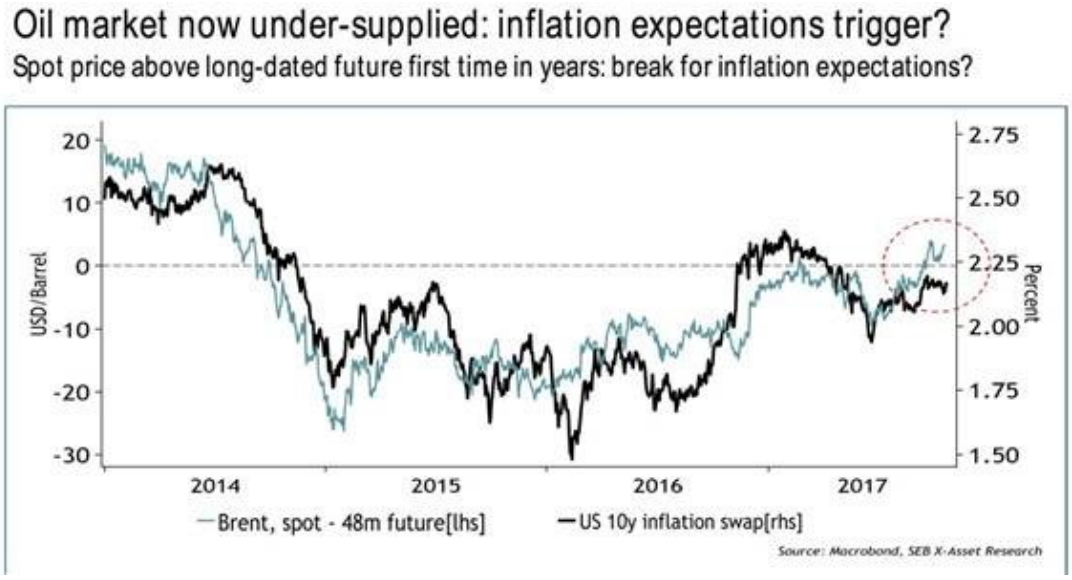
The deceleration in production growth has led to a large comparative drawdown in inventories.



Source: Energy Information Agency.

GRA notes that “inventories have now drawn down to critical points where further inventory reductions will result in **severe upward price pressure**” and, “If our inventory extrapolation is correct and inventories reach these levels (and they should — our modeling has been correct over the past nine months), **then prices have historically surpassed $100 per barrel.**”

Signs of a tightening supplies are beginning to show in the futures market where the spot price has recently pushed above long dated futures for the first time in years.

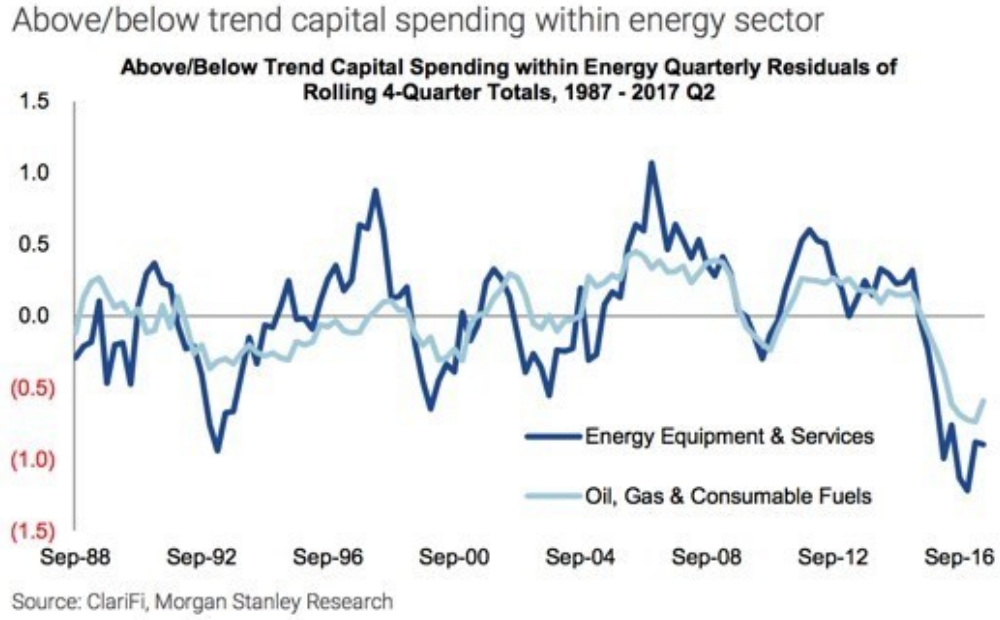


Despite this new data indicating a market moving closer to a supply deficit, the market continues to operate under the old narrative and faulty assumptions.

The irony is that these faulty assumptions (wrongly extrapolating shale productivity growth into the future) has driven OPEC to extend their output cuts — where compliance has been strong

— for another year.

On top of this, oil companies are beginning to focus more on cash flows and less on production which means even less CAPEX (investing into future production). And this is all following the largest reductions to CAPEX in the history of the oil and gas market over the time for which we have data.



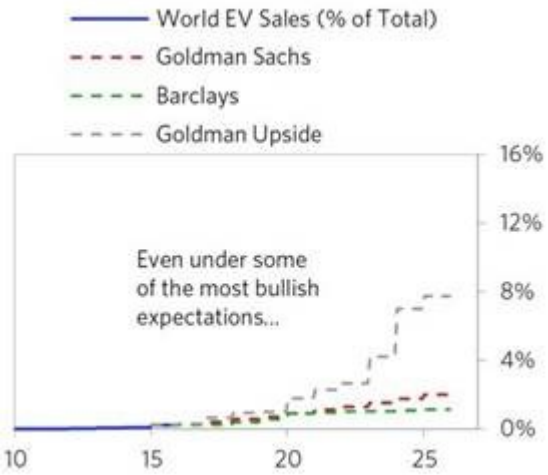
This is setting the market up for a massive repricing sometime in the coming year(s). None of this is priced in.

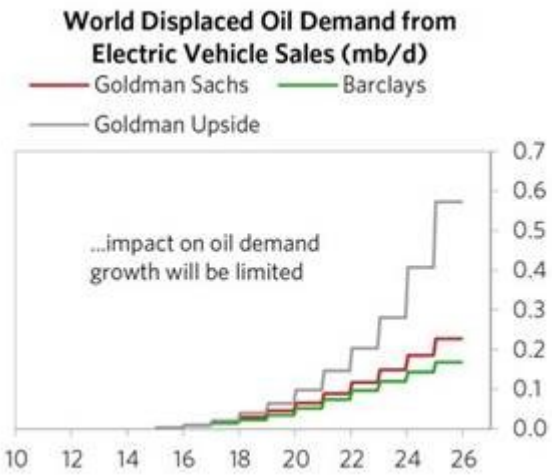
Despite crude's recent rally, the most bullish piece put out by the Street has come from Goldman Sachs which went out on a caveat filled limb saying they expected WTI to finish the year at a whopping $57.50 (it's trading at $56 right now).

…

While the "Death of the Combustion Engine" narrative sounds compelling, the data again doesn't support it.

Even under the most bullish adoption estimates, EV's impact is expected to be limited in the coming decade. Bridgewater notes that "in even the most bullish scenarios, only 0.2-0.3 mb/d of oil are expected to be displaced over the next five years." (charts below *via* Bridgewater)

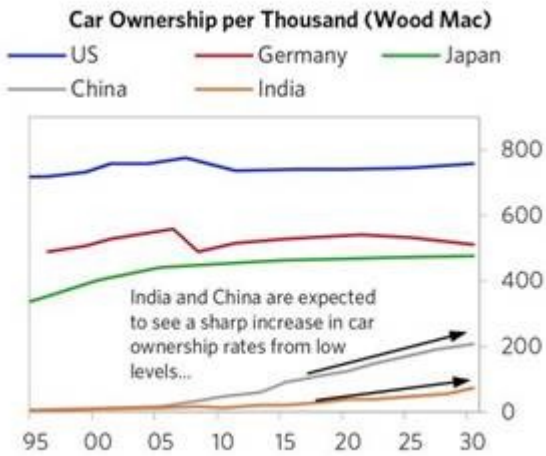


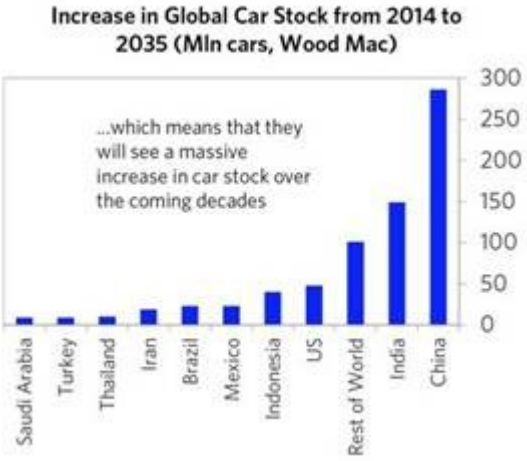


That's a drop in the bucket.

While EV's will undoubtedly change the energy landscape in the distant future, it's not going to have a material impact within the next decade, which is the timeframe we're investing in.

In any case, EV's impact pales into comparison to the growth in the global car stock that we'll see over the next decade. Charts below again *via* Bridgewater.





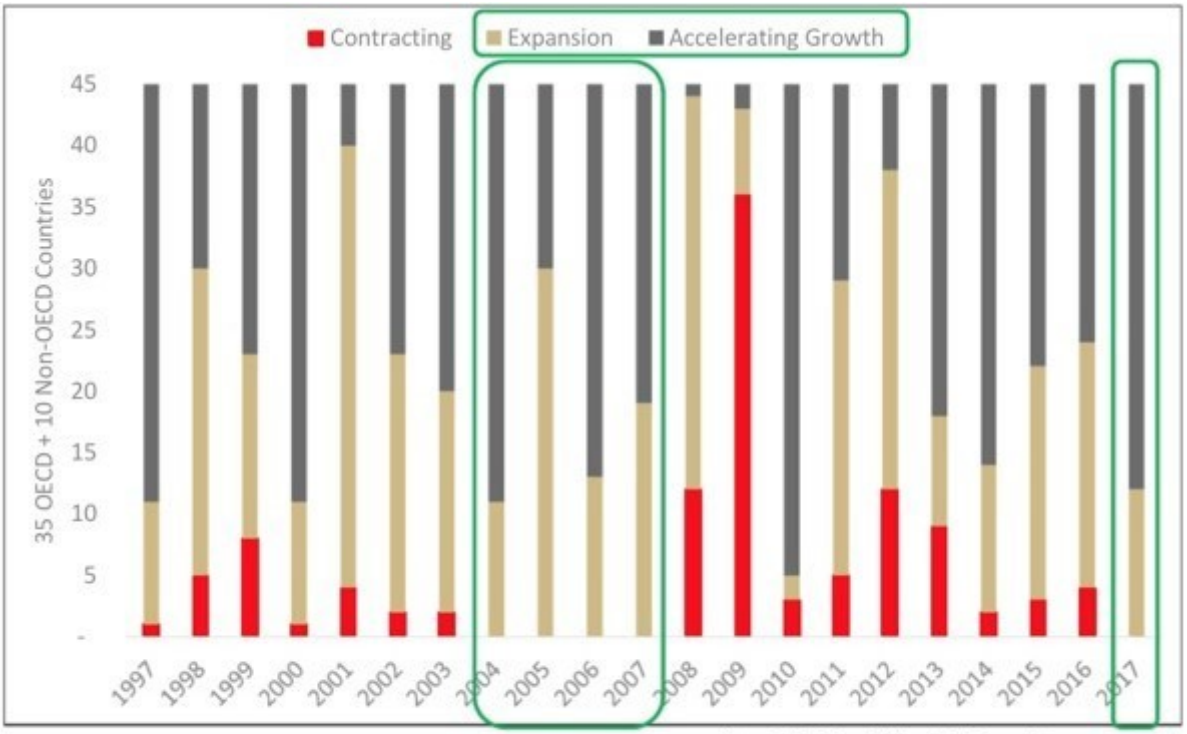
This goes back to the powerful impact of Asia, which led by India, is hitting the wealth S-curve.

We're going to see the global middle-class balloon to over 4 billion people in the coming years. This means EXPONENTIAL growth in commodity consumption… and a lot more gas guzzling cars on the road.

Which brings us to our current cycle.

We are hitting that sweet spot in the global business cycle where the world economic engine is firing on all cylinders.

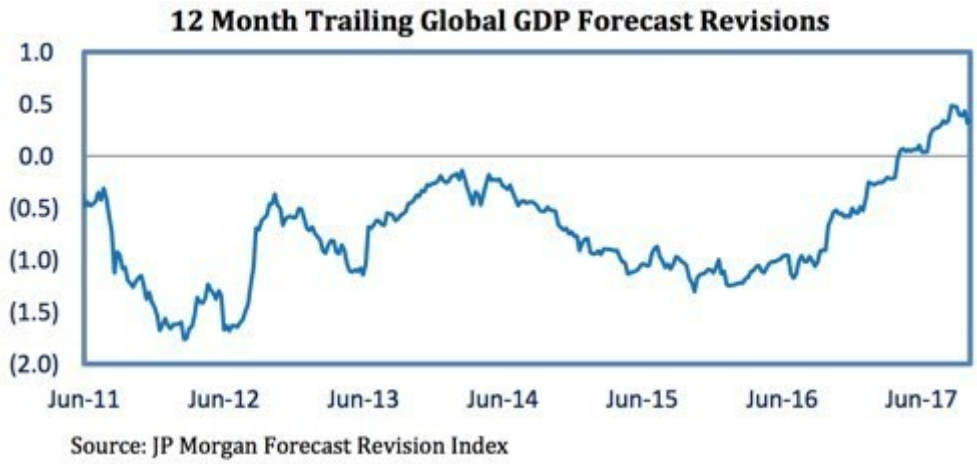
The OECD Growth Indicator below shows all 35 OECD countries are in growth and/or accelerating expansion mode for the first time since 2007.



Note: 35 OECD + 10 Non-OECD Countries
Contracting = Negative Growth YoY
Expansion = Positive Growth YoY
Accelerating Growth – Increasing YoY Growth

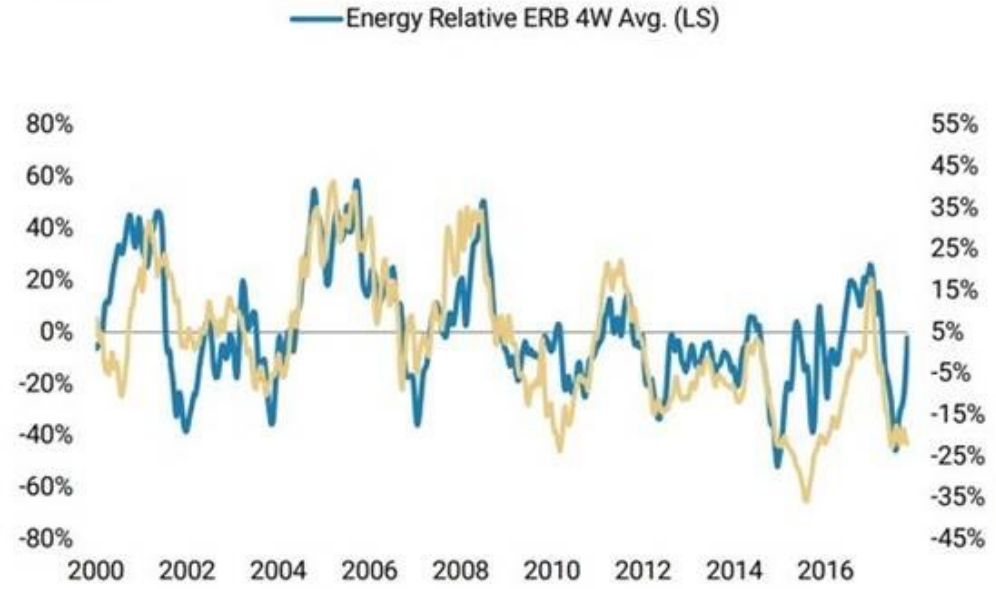
Source: Organization of Economic Development (OECD), DoubleLine
As of 9/25/17
YoY = year-over-year

And this has led to GDP forecasts being continuously revised upward.



The demand forecast for oil is also being continuously revised higher.

Exhibit 11: A Rebound Off of Extreme Low Revisions Breadth is Positive for Energy's Relative Performance

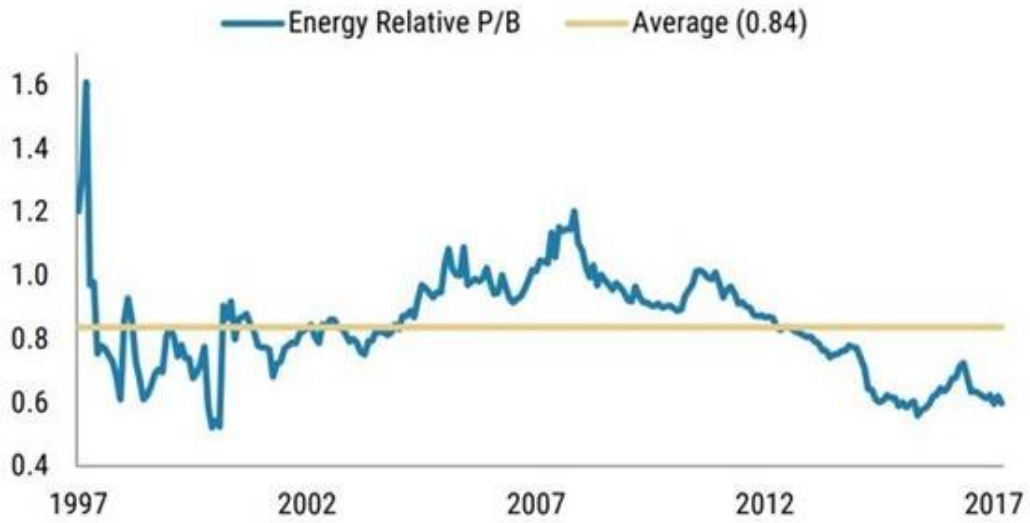


Source: Factset, Morgan Stanley Research.

It's frequent data surprises like these that eventually force new narrative adoption and drive new trends.

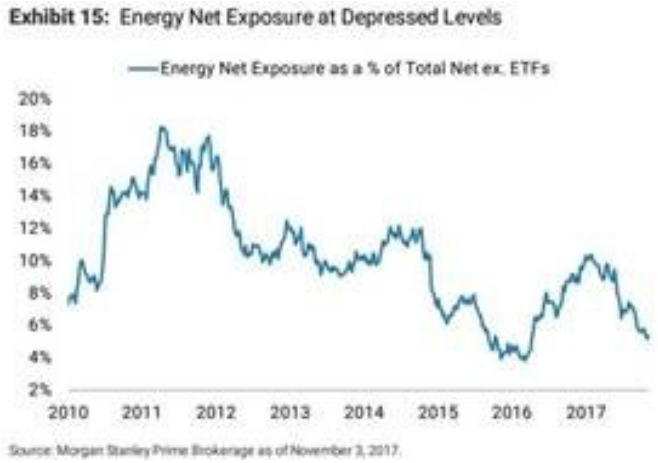
Under this backdrop of greater than expected rising demand and significantly lower than expected supplies, we have oil and gas equities priced near secular lows, and completely out of favor with the market.

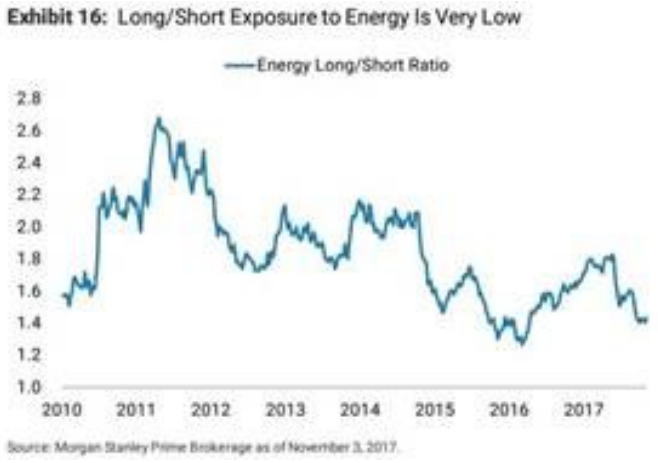
Exhibit 13: Energy P/B Relative to the S&P 500



Source: Factset, Morgan Stanley Research. As of Oct. 31, 2017.

Do you think there may be some asymmetry here?





Now of course, there's potential downsides that may delay our bullish oil thesis.

The big unknown is China. With President Xi having consolidated power there's now talk he's going to make some moves to deleverage the economy. And there's evidence in the data of this effort (look at the recent selloff in metals).

It's unclear how aggressive the communist party will be in cleaning up China's balance sheet. Since the CCP's number one priority is maintaining social order, it's unlikely they'll move too swiftly and risk blowing up the system.

But China remains a black box. All we can do is look at the data available and adjust fire as we go.

Besides, there are numerous potential geopolitical shocks that could light a fire under our bull case.

There's potential war brewing between Saudi Arabia and Iran using Lebanon and Hezbollah as proxies. Not to mention the new Saudi crown prince seriously shaking things up at home. Then there's North Korea always on the brink of war and Venezuela which is quickly becoming a failed state. And the list goes on…

Arguably none of this is priced into the market at the moment.

But there are signs that the popular story is changing… albeit slowly.

This change is being led by the rise in price (as always). And we can bet that sometime next year, a reflexive loop will form where the rise in prices spurs adoption of our bullish oil thesis which further drives prices.

John Percival's quip, "Listen to what the market is saying about others, not what others are saying about the market" perfectly applies here.

…

OUR CURRENT LIKES AND DISLIKES

Changes highlighted in **bold**.

LIKE *

- Large-cap growth (during a correction)
- Some international developed markets
- Cash
- Publicly-traded pipeline partnerships (MLPs) yielding 6%-12% (buy carefully after the recent rally; long-term, however, future returns look highly attractive)
- Gold-mining stocks
- Gold
- Select blue chip oil stocks
- Investment-grade floating rate corporate bonds
- One- to two-year Treasury notes
- Canadian dollar-denominated short-term bonds
- Select European banks
- Short-term investment grade corporate bonds (1-2 year maturities)
- Emerging market bonds in local currency (start a dollar-cost-averaging process and be prepared to buy more on further weakness)

**** Some EVA readers have questioned why Evergreen has as many 'Likes' as it does in light of our concerns about severe overvaluation in most US stocks and growing evidence that Bubble 3.0 is deflating. Consequently, it's important to point out that Evergreen has most of its clients at about one-half of their equity target.***

NEUTRAL

- Most cyclical resource-based stocks
- Mid-cap growth
- Emerging stock markets; however, a number of Asian developing markets appear undervalued
- Solar Yield Cos
- Large-cap value
- Canadian REITs
- Intermediate-term investment-grade corporate bonds, yielding approximately 4%
- Intermediate municipal bonds with strong credit ratings
- US-based Real Estate Investment Trusts (REITs)
- Long-term Treasury bonds
- Long-term investment grade corporate bonds
- Intermediate-term Treasury bonds
- Long-term municipal bonds
- Short euro ETF
- **Mexican stocks (our exposure has mainly been via Mexican REITs; due to a significant rally, we have begun taking partial profits)**

DISLIKE

- Small-cap value
- Mid-cap value

- Small-cap growth
- Lower-rated junk bonds
- Floating-rate bank debt (junk)
- US industrial machinery stocks (such as one that runs like a certain forest animal, and another famous for its yellow-colored equipment)
- Preferred stocks
- BB-rated corporate bonds (i.e., high-quality, high yield; in addition to rising rates, credit spreads look to be widening) * **
- Short yen ETF
- Dim sum bond ETF; individual issues, such as blue-chip multi-nationals, are attractive if your broker/custodian is able to buy them

** Credit spreads are the difference between non-government bond interest rates and treasury yields.*
*** Due to recent weakness, certain BB issues look attractive.*