GUINNESS ATKINSON FUNDS

Trump, Iran, & Oil

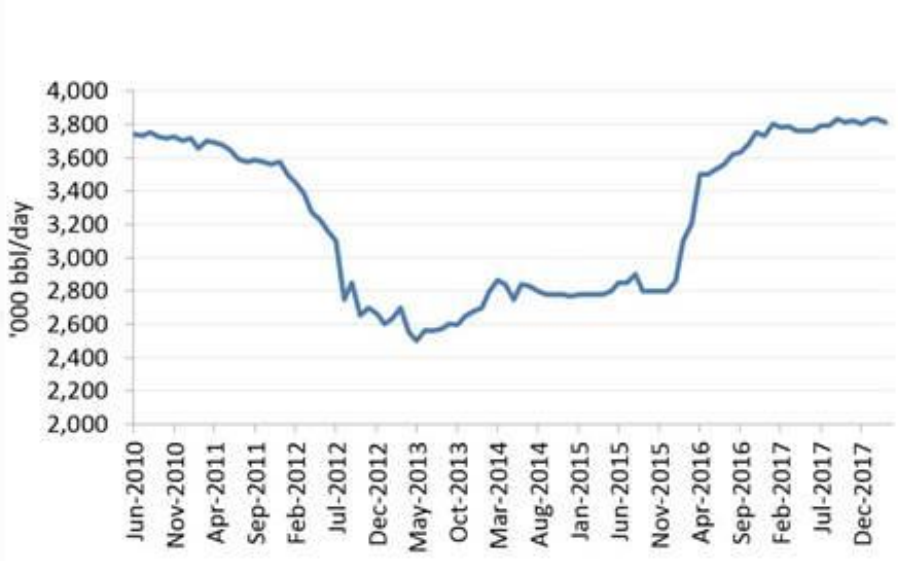
On Wednesday, May 8th, President Trump announced his decision to cease the United States' participation in the Joint Comprehensive Plan of Action (JCPOA). The JCPOA is an international agreement adopted in January 2016 that waived US/UN/EU sanctions against Iran in exchange for the country accepting limits on its nuclear program and allowing inspections of its nuclear facilities. President Trump described the existing nuclear deal as a "decaying and rotten structure", and declared that the US would reimpose nuclear sanctions and "the highest level of economic sanctions" on Iran.

U.S. law requires a waiver to be issued every 120 days in order to suspend the sanctions – Trump has now announced that the US will not be issuing a new waiver.

Some background to the Iranian oil industry and the previous effect of sanctions

Iran currently produces around 3.8m b/day (c.3.8% of world oil & liquids supply), of which around 2m b/day is exported into global markets.

Iranian crude oil production (000s b/day)

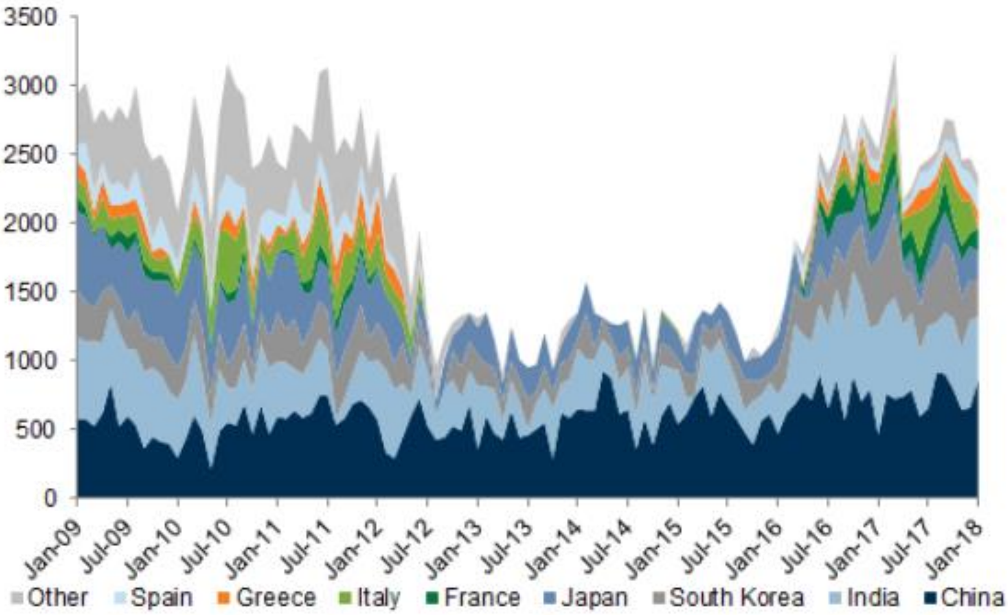


Source: IEA; Guinness Atkinson Asset Management

The US does not purchase crude directly from Iran. Currently, the major buyers of Iranian crude are the EU (c.0.6m b/day), China (c.0.5m b/day), India (0.4m b/day). Collectively, Korea, Japan, and other countries also purchase a few hundred thousand barrels per day.

International sanctions imposed on Iran between 2010 and 2016 caused Iranian oil production to fall from about 3.6m b/day to 2.7m b/day and for oil exports to fall by around 1m b/day. It is estimated that Europe alone accounted for about 70% (or around 700k b/day) of the total Iranian oil production/export reduction. When the JCPOA came into force in 2016, Iranian oil production increased by around 1mn b/day back to the current level of around 3.8m b/day over a period of about 6 months.

Iranian crude and product exports by destination (000s b/day)



Source: Goldman Sachs; Kpler

The current sanctions, which up until now were waived, effectively block Iranian exports with countries that do business with the US. The non-renewal of the waiver will mean that petroleum-related transactions must cease within 180 days.

Implications and some key considerations

A unilateral exit by the US from the JCPOA will not lead to a reintroduction of UN and European sanctions - this would require evidence of violation by Iran to be presented to the UN Security Council. Using the last sanctions as a guide, a US exit might impact around 0.3-0.5m b/day, in our view. The effect is unlikely to be immediate, given the 'wind-down' period and the fact that Iran will have already sold forward around two months of its oil production.

In parallel with the lifting of sanctions waivers, it is incumbent on the US's executive branch to determine whether cessation of petroleum transactions would significantly impact US interests. In relation to the oil market, it becomes a question of whether reduced Iranian oil exports would over-tighten the market and cause excessively high oil prices, which might damage the US economy.

In response, there has been some talk from US Treasury officials of US producers increasing production to offset any shortfall. In practice, the US oil system is already working full-tilt, but we could see a release of oil from the US's Strategic Petroleum Reserve, if a short-term dampener is desired. More likely though, any shortfall could comfortably be offset by other OPEC countries that are currently withholding production under the existing quotas. Indeed, Saudi has already indicated its commitment to supporting the stability of oil markets after the U.S. decision to withdraw from the Iran nuclear deal, with Saudi's energy ministry making the following statement after President Trump's announcement: "The kingdom will work with major producers and consumers within and outside OPEC to curb the effects of any supply shortages". While OPEC can step in to fill Iran's shoes, it is worth noting that there is already limited spare capacity in OPEC (we estimate 2-3m b/day). The loss of Iranian barrels will make it even harder for the oil industry to compensate for any future oil supply or demand shocks. OPEC meet again on June 22 in Vienna.

Iran has been positioning itself as an attractive new investment region for international oil companies. A US exit from the JCPOA effectively rules out large scale investment in the country by most western oil and oil services companies and would leave the future development of the country in the hands of Asian (predominantly Chinese and Indian) oil companies. The rate of development and subsequent production growth will suffer as a result.

Oil market already fundamentally tighter, equities have lagged

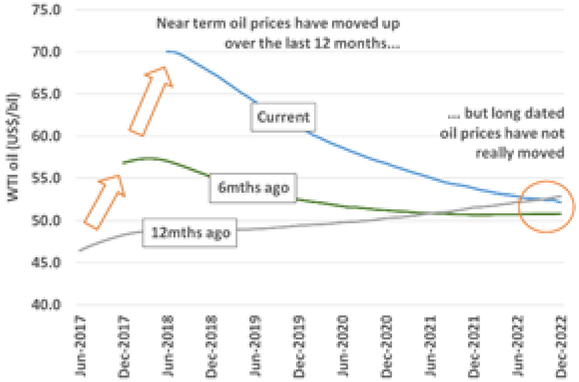
Over the last twelve months, WTI has rallied from under $50/bl to over $70/bl. Heightened political risk arising from tensions between Iran and the US has played a part in this, but the key fundamental drivers have been:

- **Strong global oil demand**. Demand is expected to rise by 1.5m b/day in 2018 to a new high of 99.3m b/day
- **OPEC supply discipline.** OPEC reduced production by 1.2m b/day at the start of 2016 and have held the cuts consistently
- **Venezuelan supply decline.** Venezuelan production has fallen by around 0.5m b/day since the start of the year, thanks to chronic underinvestment and poor reservoir management
- **Controlled US supply growth.** The US oil system is growing year-on-year by around 1.2m b/day, a level of growth well anticipated by the market given where oil prices have been
- **Non-OPEC (ex US) supply concerns.** The largest slump in capex for over 20 years has caused a deterioration in the long term outlook for non-OPEC production outside the US

While spot oil prices have risen sharply on strong demand and OPEC-led supply constraint, longer dated oil prices have hardly moved (five year forward WTI is still around $52/bl). The downward sloping shape of the oil futures curve (i.e. in backwardation) reflects OPEC's supply cuts being only short term in nature and the market's apparent belief that global oil supply will be able to match demand at a price of around $50/bl in the longer term. This may be the current market view, but it is worth noting that longer dated oil prices are often volatile and have a low correlation to where prices eventually end up. In recent months, we believe that forward selling (hedging) of crude oil by US exploration & production companies has also exacerbated the scale of the backwardation. We expect the longer dated end of the forward curve to rise from here.

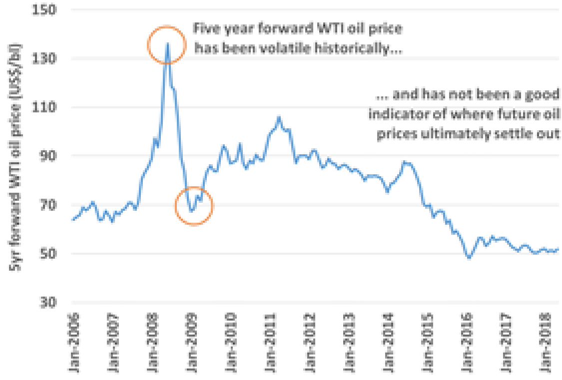
Front month WTI now exceeds $70/bl but long dated oil prices have not really moved

Source: Bloomberg (June 1, 2017 to December 1, 2022)



The five year forward oil price has not been a good indicator of future oil prices

Source: Bloomberg (January 1, 2006 to January 31, 2018)



Forecasts are inherently limited and cannot be relied upon.

We believe that long run oil prices will return to a $60-70/bl range. This is a price which is fundamentally justified: sufficient for world oil demand and US shale oil to grow while also providing acceptable economics for OPEC countries and sufficient profitability for investment in new oil projects around the world. This would be a 'reasonable' oil price level for all constituents of the global oil market.

Today, we calculate that our portfolio of energy equities currently offers fair value assuming a long term WTI oil price in the mid to low $50s (i.e. broadly in line with where long dated oil prices currently are). Looking out two years, while we see downside risk of about 10% if energy equities were to factor in $50/bl long-term, we see around 30% upside at a $60 WTI oil price and more like 60% upside at a $70/bl WTI oil price.

The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

The Fund's holdings, industry sector weightings and geographic weightings may change at any time due to ongoing portfolio management. References to specific investments and weightings should not be construed as a recommendation by the Fund or Guinness Atkinson Asset Management, Inc. to buy or sell the securities. Current and future portfolio holdings are subject to risk.

Mutual fund investing involves risk and loss of principal is possible. The Fund invests in foreign securities which will involve greater volatility, political, economic and currency risks and differences in accounting methods. The Fund is non-diversified meaning it concentrates its assets in fewer individual holdings than a diversified fund. Therefore, the Fund is more exposed to individual stock volatility than a diversified fund. The Fund also invests in smaller companies, which involve

additional risks such as limited liquidity and greater volatility. The Fund's focus on the energy sector to the exclusion of other sectors exposes the Fund to greater market risk and potential monetary losses than if the Fund's assets were diversified among various sectors. The decline in the prices of energy (oil, gas, electricity) or alternative energy supplies would likely have a negative effect on the fund's holdings.

Opinions expressed are subject to change, are not guaranteed and should not be considered investment advice.

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