GUINNESS ATKINSON FUNDS

Energy Brief
July 2017

REPORT HIGHLIGHTS

FUND NEWS • Fund size $34.6 million at end of June 2017

OIL

Brent and WTI weaker as market still awaits confirmation of rebalancing

The West Texas Intermediate (WTI) oil price started the quarter at $50.6/bl and weakened over the quarter until reaching a low on June 21 of $42.5/bl and then rebounding to $46/bl (source: Bloomberg). OPEC extended its production quota cuts to the end of March 2018 but increased production from Libya and Nigeria offset the effect of OPEC quota cuts in the quarter. The US onshore system returned to delivering month on month production growth meaning that US oil inventories fell at a lower than desired rate.

NATURAL GAS

US gas price holds around $3 as the structurally undersupplied market starts to normalise

The US natural gas price traded in a tight range around $3/mcf as US onshore natural gas production started to grow, bringing the previously undersupplied market back towards balance (source: Bloomberg). We estimate that the market is now around 1.5 bcf/day undersupplied.

EQUITIES

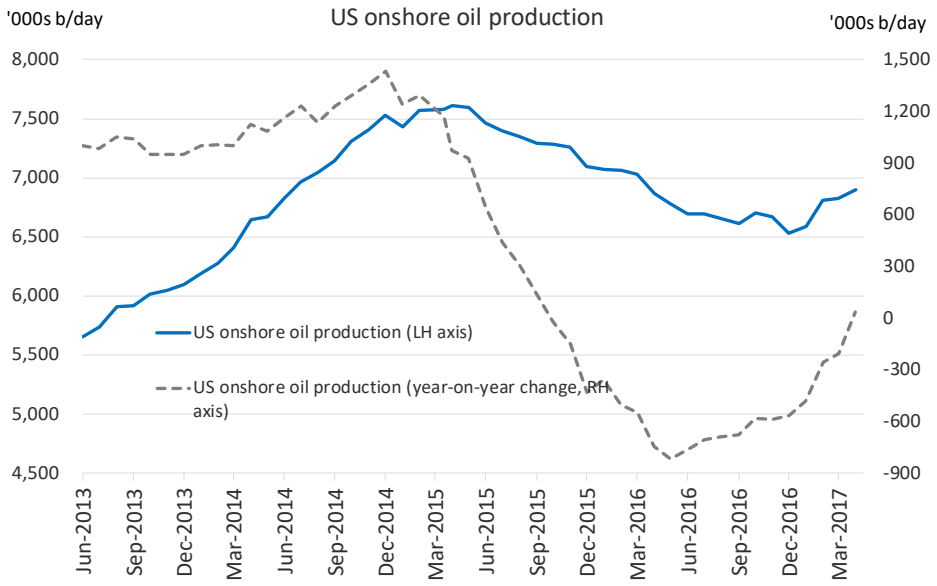
Energy underperforms the broad market

The main index of oil and gas equities, the MSCI World Energy Index, was down by 4.73% in the second quarter of 2017. The S&P 500 Index was up by 3.09% over the same period. The Guinness Atkinson fund was down by 8.18% over this period (all in US dollar terms).

Performance data quoted represent past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. For most recent month-end and quarter-end performance, visit https://www.gafunds.com/our-funds/#fund_performance or call (800) 915-6566.

CHART OF THE QUARTER – US onshore oil production returns to year-on-year growth

The most recent release from the EIA showed that US onshore production increased by 78k b/day in April 2017. Since the recent low for production in December 2016, production has increased by around 360k b/day. The April increase also implies that the US onshore oil system has returned to year-on-year growth for the first time since late 2015. We expect further robust growth for the next few months, but with WTI hovering around $45/bl, the drilling rig count is likely to stall, causing the rate of production growth then to slow.

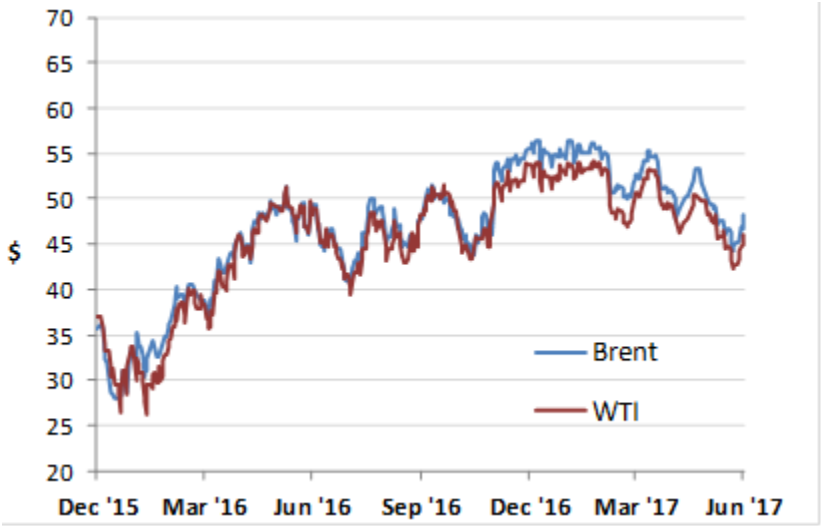


Souce: EIA (Energy Information Administration)

1. Second quarter 2017 in review

i) Oil market

Figure 1: Oil price (West Texas Intermediate (WTI) and Brent $/barrel) 18 months December 31 2015 to June 30 2017



Source: Bloomberg LP

The West Texas Intermediate (WTI) oil price started the quarter at $50.6/bl and weakened over the quarter until reaching a low on June 21 of $42.5/bl. The price then rallied but closed slightly weaker $46.0/bl. WTI has averaged $50/bl so far in 2017, having averaged $43.4 in 2016, $48.7 in 2015 and $93.1 in 2014.

Brent oil traded in a similar way, opening April at $52.8/bl before trading down to $44.8/bl and then recovering to $47.9/bl. The gap between the WTI and Brent benchmark oil prices was broadly unchanged at the end of the quarter, at around $2. The WTI-Brent spread averaged $1.7/bl during 2016, having been well over $10/bl at times since 2011.

Factors which weakened WTI and Brent oil prices over the quarter:

- **Libyan and Nigerian production rebounding**
  Libyan oil supply rebounded all the way through the quarter and, having averaged just over 0.7m b/day in May (source: IEA), production appears to have risen to around 0.9m b/day at the end of June. A key recent development has been the agreement reached between Libya's National Oil Company and German oil producer, Wintershall, to enable Wintershall to resume around 160,000 b/day of production in the eastern Sirte basin. Libya, which produced 1.5m b/day of oil before the start of the current turmoil in 2011, is exempt from the OPEC quota cut deal. We believe that Saudi are monitoring the Libya supply situation, and may well cut further to accommodate Libyan growth, should it sustain. Nigerian production appears to have increased

from around 1.55m barrels/day at the end of March to around 1.75m barrels per day at the end of the quarter.

- **US onshore oil production growing**
  At the start of July, the EIA reported that US onshore oil production rose by 78,000 b/day during April 2017. This increase was in line with expectations but demonstrates that the US oil system is returning to better health. US onshore oil production has now increased by around 0.35m b/day from its low of 6.53m b/day in December 2016. We expect the US onshore production in 2017 to average around 300,000-400,000 b/day higher than 2016.

Factors which were neutral to WTI and Brent oil prices in the quarter:

- **US oil and product inventories rose in June**
  After declining in April and May by 15m and 18m barrels respectively, US crude oil and product inventories built in June by 9.5m barrels more than the five year average (source: EIA). Therefore, over the period inventories drew by 23m barrels more than the five year average, implying that the US system was undersupplied by around 250k barrels per day. We expect US inventories to fall relative to average levels in the coming months as a result of lower OPEC oil imports.

- **OECD oil inventories falling only slightly more than seasonal average**
  OECD oil and oil product inventories are falling relative to seasonal averages. Over March, April and May, it appears that OECD oil and oil product inventories drew by around 0.6m barrel per day relative to seasonal average. The rate of decline was less than what would have been expected given that OPEC cut production by 1.2m barrels/day over the period.

Factors which strengthened WTI and Brent oil prices in the quarter:

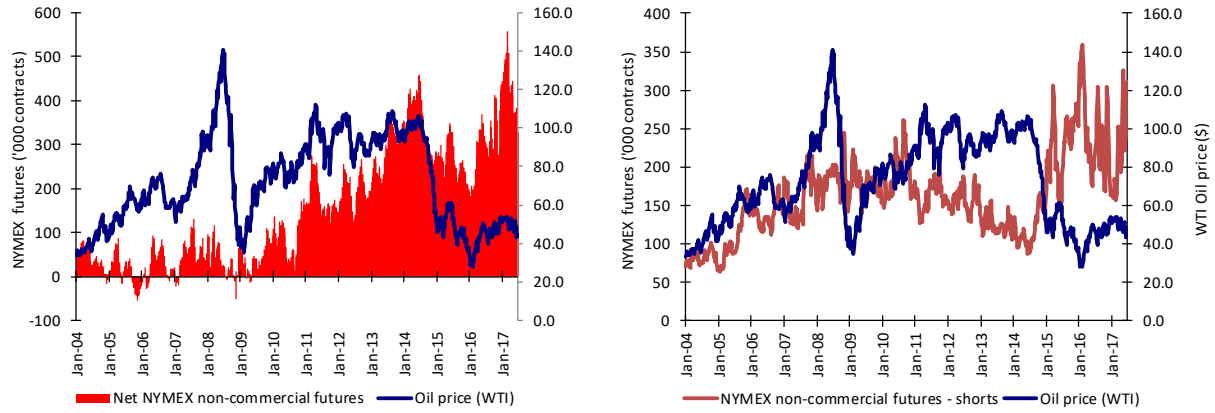
- **Strong growth in Chinese oil demand**
  Demand for oil in China is reaching new peaks, with May (the latest data point) running at 13.4m b/day, 10% higher than May 2016 (source: NDRC). Diesel demand, which had been in decline, returned to small growth, while gasoline demand continues to look strong. The IEA are forecasting Chinese oil demand growth of 3-4% for 2017 – if recent strength is sustained, we believe this forecast will be revised higher.

- **OPEC agreed to extend production quota cuts for a further nine months**
  Broadly as expected, OPEC announced plans to extend its current production quota cuts for a further nine months (until end March 2018) and non-OPEC has agreed to extend its own cuts as well. Mathematically, on our estimates, a further 1.2m b/day of OPEC cuts for a further 9 months (270 days) should 'remove' around 330mn bls of oil that would otherwise have entered the global oil supply/demand balance.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position (WTI) shrunk in the quarter, ending June at 327,000 contracts long versus 398,000 contracts long at the end of March (figure 2). Typically there is a positive correlation between the movement in net position and movement in the oil price. The gross short position grew from 250,000 contracts to 312,000 contracts. We regard this gross short position as extreme, close to the record short position reported in early 2016.

Figure 2: NYMEX (New York Mercantile Exchange) Non-commercial net and short futures contracts: WTI January 2004 – June 2017

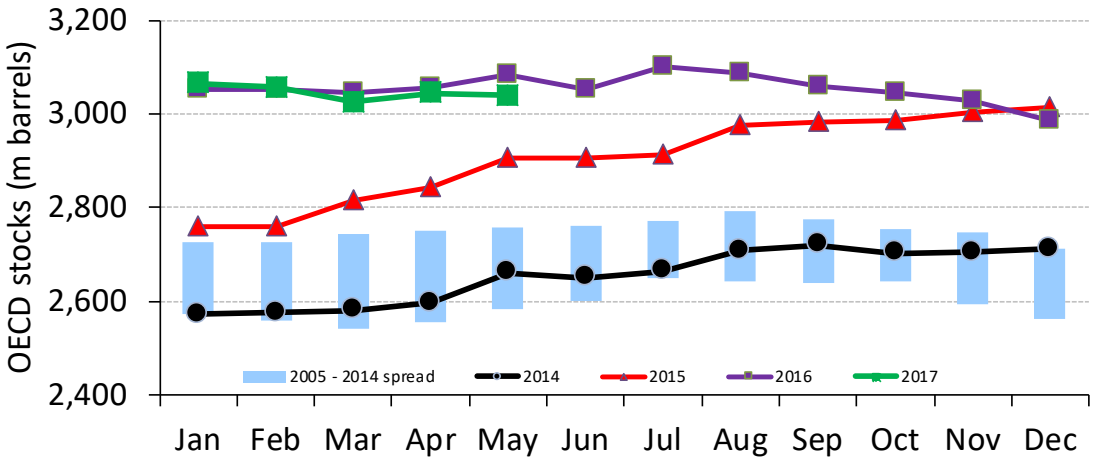


Source: Bloomberg LP/NYMEX/ICE (2017)

OECD (Organization for Economic Co-operation and Development) stocks

OECD total product and crude inventories at the end of May (the latest data point available) were estimated by the IEA to be 3,040m barrels, down by 15m barrels versus the end of March. Having been in decline over the second half of 2016, inventories loosened at the start of 2017, as a flush of pre-OPEC cut production reached the market, but are now tightening again, albeit slowly. Inventories are still considerably above the top of the 10 year historic range, and we expect them to continue to tighten over the next few months.

Figure 3: OECD total product and crude inventories, monthly, 2004 to 2017



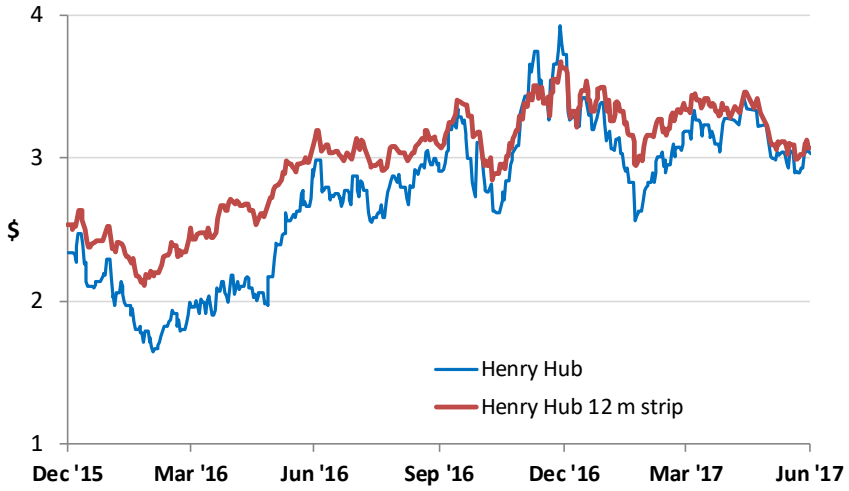
Source: IEA Oil Market Reports (June 2017 and older)

ii) Natural gas market

As shown in figure 4, the US natural gas price (Henry Hub front month) opened April at $3.19 per Mcf (1,000 cubic feet). The price traded in a relatively tight range over the quarter and closed out at $3.04/mcf. The spot gas price has averaged $3.10/mcf so far in 2017, which compares to an average gas price of $2.55/mcf in 2016, $2.61/mcf in 2015 and $4.26/mcf in 2014 (assisted by a very cold 2013/14 US winter). The price averaged $3.72/mcf over the preceding four years (2010-2013).

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) also traded lower over the period, down from $3.33 to $3.07. The strip price averaged $2.84 in 2016, having averaged $2.86 in 2015, $4.18 in 2014 and $3.92 in 2013.

Figure 4: Henry Hub Gas spot price and 12m strip ($/Mcf) December 31 2016 to June 30 2017

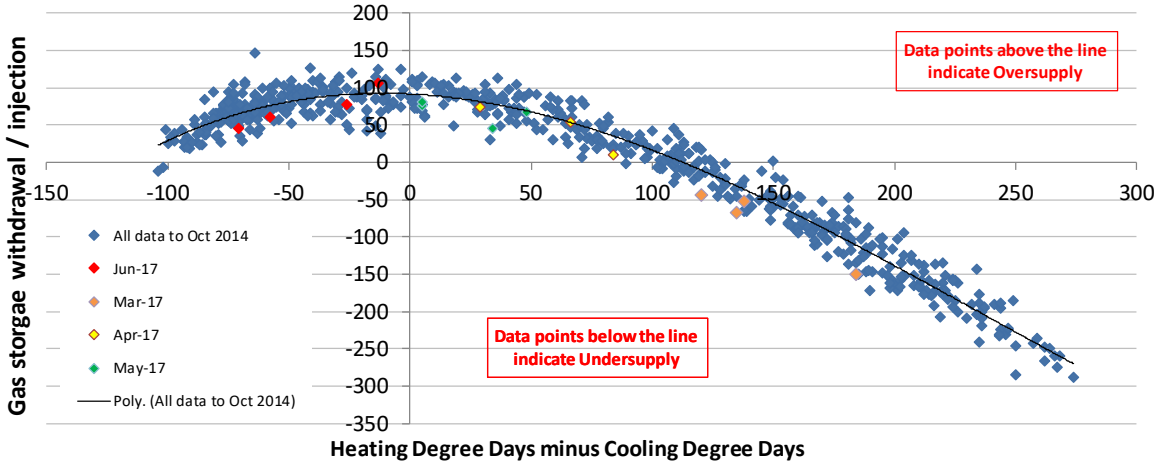


Source: Bloomberg LP

Factors which strengthened the US gas price in June included:

- **Structurally undersupplied market**
  Adjusting for the impact of weather over the quarter, injections of gas into storage suggest that the market has been, on average, around 2.5 bcf/day undersupplied and the most recent data for June indicates an undersupply of around 1.5 bcf/day (as indicated by the red dots on the graph below). The gas market shifted into structural undersupply in late 2015, but that has been trumped over the last 18 months by two successive warm winters which have lowered demand.

Figure 5: Weather adjusted US natural gas inventory injections and withdrawals



Source: Bloomberg LP; Guinness Atkinson Asset Management

Factors which weakened the US gas price in June included:

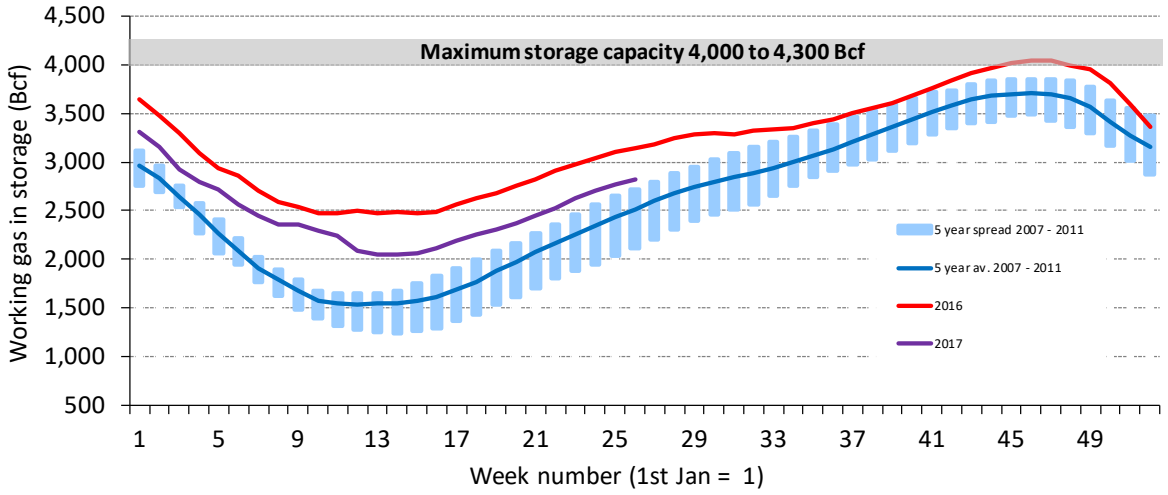
- **Stronger US onshore natural gas production**
  Having averaged 74.9 bcf/day in January, Onshore US natural gas production grew to average 76.6 Bcf/day in April 2017 (EIA). We expect US onshore natural gas production to be up on average by around 2 Bcf/day in 2017 versus 2016.

- **US shale oil production returning to growth, bringing associated gas**
  US onshore oil production grew in April (latest data point) and is expected to continue to grow throughout the year, heralding the return of associated gas production. If US onshore oil supply is up, on average, by 0.3-0.4m b/day this year versus 2016, we would expect around 1 Bcf/day of associated gas growth.

Natural gas inventories

Swings in the balance for US natural gas should, in theory, show up in movements in gas storage data. Natural gas inventories supply/demand the end of June were reported by the EIA to be 2,816 Bcf. The 291 Bcf injection in inventories during June was smaller than the ten year average of 330 Bcf, meaning that inventories corrected back towards the top of the five year range.

Figure 6: Deviation from 5yr gas storage norm vs gas price 12 month strip (H. Hub $/Mcf)



Source: Bloomberg; EIA (July 2017)

1. MANAGER'S COMMENTS

Reviewing the first half and considering the potential for the rest of 2017

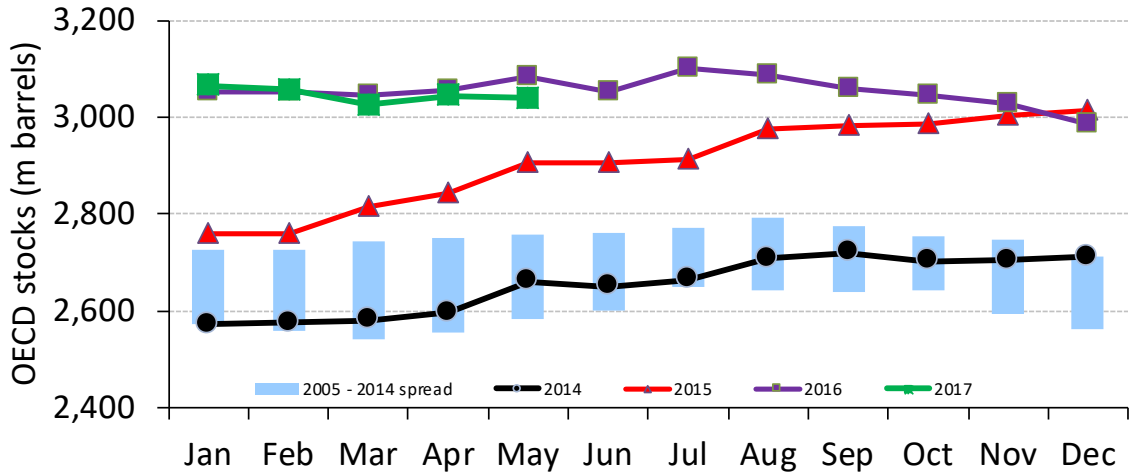
A rocky start to 2017 has taken sentiment towards crude oil and energy equities back to early 2016 levels and the near term outlook for both looks complex. Bloated global oil inventories remains the root cause of the problem and we see reasons for optimism that they will correct towards normal in the coming months. A ramp up in US activity will keep a lid on oil prices near term but steady oil demand growth, cost inflation in the US system and the prospect of non-OPEC ex-US declines will likely result in higher oil prices thereafter. Energy equities are likely to recover in this environment but the market will clearly want to see solid data before pricing in more hope.

2017 started with high hopes that the 1.2m b/day OPEC quota cut (and associated 0.6m b/day non-OPEC production cut) would cause OECD oil and oil product inventories to tighten. The expectation was that higher oil prices would then be required to justify sufficient investment in the US onshore to bring enough oil production growth to keep global supply and demand in balance.

The first half of the year has not met those expectations, with OECD oil and oil product inventories tightening only just more than 10-year average move between end-December and end-May, driven by:

- Non-OPEC oil production (including the US) down by only 0.2m b/day, from 58.0m b/day in December 2016 to 57.8m b/day in May 2017
- OPEC production down only 0.6m b/day in June 2017 relative to December 2016, as a recovery in Libyan and Nigerian production offsets good quota compliance from other OPEC members
- US onshore oil production up from 6.5m b/day in December 2016 to 6.9m b/day in April 2017 (the latest data point available)

OECD oil and oil product inventories (2005-17)



Source: IEA; Guinness Atkinson Asset Management

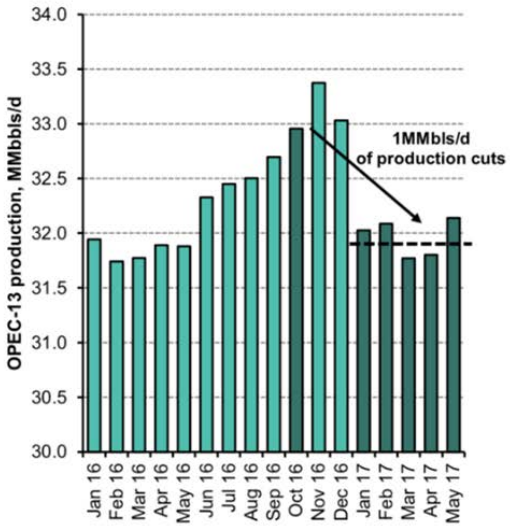
In response to continued high OECD inventories, OPEC chose at the end of May to extend its 1.2m b/day quota cut buy a further 9 months to the end of March 2018.
Brent and WTI oil prices responded negatively to the supply picture described, with Brent down by 16% from $57/bl to $48/bl and WTI down by 14% from $54/bl to $46/bl. Accordingly, the MSCI World Energy Index was down 9.3% over the period, with the E&P and oil service sectors hit hardest.

We sit here at the turn of the half year, considering whether these events are structural in nature or short term timing effects that will be overcome in the second half of 2017.

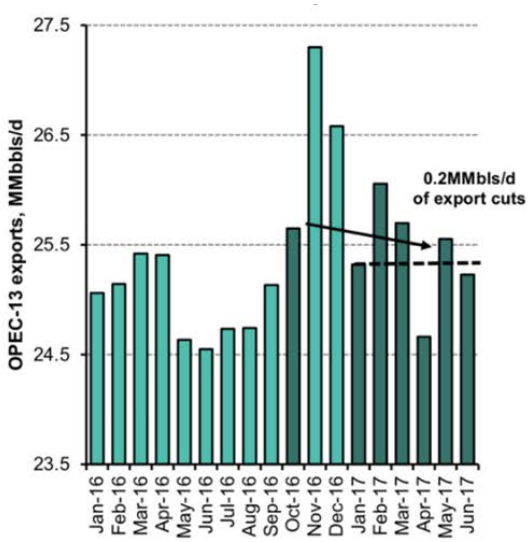
Why did inventories not draw as expected? Will they draw?

With both OPEC and non-OPEC production down over the period and global oil demand relatively well behaved, it seems surprising that OECD oil and oil product inventories grew by only a little less than ten-year average levels. We believe that reasons for this are mostly temporary in nature.
The temporary factors are:

- **OPEC 'surged' production ahead of the January 2017 quota cuts** and it took some months for the market to digest this extra production. OPEC production in September-December 2016 averaged 33.8m b/day, almost 1m b/day higher than the 32.9m b/day delivered to that point in 2016.
- **Many OPEC countries also exported more oil than they produced in 1H 2017** by reducing above-ground inventories. On average, OPEC-13 oil exports were around 1.5mn b/d higher in 4Q 2016 than they had been earlier in the year and this flush of exports too time to arrive into OECD inventories. Complete data for OPEC inventories is difficult to come by, but as an example, we do know that Saudi has cut its inventories from 329m barrels in October 2015 to 268m barrels in March 2017.



Source: OPEC Monthly Oil Market Report, Bernstein Analysis
Note: OPEC-13 countries include Algeria, Angola, Ecuador, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, UAE, and Venezuela



Source: Kpler, Bernstein analysis

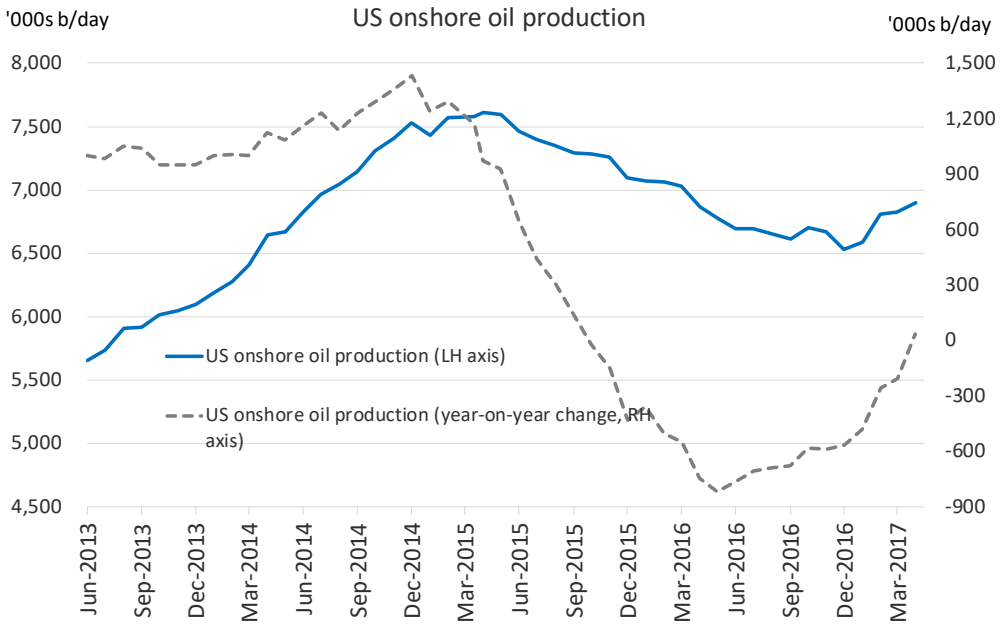
- Over the period, **Libya and Nigeria** (outside the OPEC quota system due to unrest) increased production by over 0.2m b/day each. Indications are that both countries were still continuing to ramp production further, something which OPEC is watching closely.
- **Global oil demand looked a little weak** (seasonally) in the first quarter with 1Q global oil demand of 96.5m b/day, only 1m b/day higher than 1Q 2016. This seems to have been driven mostly by unseasonably warm weather, with expectations for the rest of the year on a stronger footing. Global oil demand growth expectations for 2017 are steady at around 1.2m b/day.
- **Decline in floating storage**. As oil prices fell, the oil futures curve flattened, removing the incentive to hold crude oil in floating storage (which is not captured in OECD inventories). While difficult to quantify, we estimate around 50 million barrels of oil that was stored offshore has entered OECD oil and oil product inventories so far during 2017.

The US shale oil system has reacted with a large pick-up in activity

OPEC's quota cut catalysed a strong response from the US exploration and production sector, who termed it as the 'OPEC put' and started a large increase in drilling and completions activity to bring new onshore US wells into production.

Between May 2016 and June 2017, the US oil oriented drilling rig count increased by 440 rigs to 756 rigs, marking the fastest ever post crisis recovery in drilling rig activity. Given that there is a time lag between oil price movement, drilling rig activity and production we know that this activity will result in substantially higher levels of US onshore oil production. As of April 2017, the US onshore oil system is now delivering year over year production growth and monthly growth of around 75k b/day.

US onshore production



Source: EIA; Guinness Atkinson Asset Management

The fact that the US system has returned to growth or that it will continue to deliver growth is not a surprise to us, but we must admit at being surprised at the pace of the recovery. OPEC will have to manage the oil market (and their oil price expectations) in the knowledge that US shale oil growth is here to stay. The question still remains what oil prices are required to allow the US onshore system to deliver the oil production growth that will ultimately be required over the next few years. *We have noted the following issues:*

- **The US onshore system continues to get more efficient**, particularly in the Permian basin. Oil recovered 'per lateral foot of well' has continued to increase and the signs are that it will increase again in 2017 and probably 2018. This is partly driven by structural improvements and partly as a result of high grading (drilling the best wells first) and is dominated by the new high activity levels in the Permian basin (which has the most prolific resources).

- Drilling and completion activity has ramped sharply and there are now **infrastructure, sand and labor shortages** which are causing cost inflation. Cost inflation will eat into the economics of the E&P companies and their ability to deliver growth at lower oil prices.
- **The capital markets remain open for E&P activity**. There have been limited signs of distress in the high yield debt markets and E&P companies are back to outspending their cash flows in the pursuit of production growth.
- We note recent comments from Pioneer Resources CEO Scott Sheffield indicating that his company can drill wells at $25/bl oil prices. Pioneer has the best of the best acreage in the Permian and while his company will clearly continue its activity at lower oil prices, we do not believe that this representative of the overall US system.
- **The ability for the US system to deliver growth will get tougher**. At the moment, the base decline of total US oil production is low (as a result of the 18 month drilling hiatus) therefore new wells can deliver absolute production growth rather than just offsetting underlying decline. As production builds up, the underlying decline rate will increase and more wells will be required to deliver a required amount of absolute production growth.

We await 2Q 2017 company financial results over the next few weeks to give an indication as to the likely direction of these longer term trends and we would expect to see higher capex rather than lower production expectations since the DNA of the US system is oriented towards growth. Near term, we could well see a fall in the rig count as we do not believe that underlying corporate economics justify this high level of activity.

OPEC needs to find a way to live with US shale

In the background, the non-OPEC ex-US sector has remained resilient as projects sanctioned in a $100 oil price environment continue to come into production. This will not last; we would expect to see the effects of lower capital expenditure be reflected in lower production from mid-2018. Typical non-OPEC ex-US project economics are improving and starting to compete for capital allocation decisions with the US onshore again. However, limited new projects are being sanctioned today and those that are being sanctioned will not deliver new production until 2021 at the earliest.

OPEC is well aware of the production environment in the US and elsewhere in the non-OPEC world, and likely has three approaches it can take:

- **Cut deeper** as per previous down-cycles where OPEC has cut by 3m or 4m b/day. Deepening the cuts would deliver a much faster rebalancing and would probably increase net revenues in the process. Supply chain constraints in the US mean that any increase in shale activity would likely be met with cost inflation and dis-efficiencies, meaning that the supply response could actually be more muted than feared.
- **Extend the existing level of cuts even longer** as US growth increasingly means that the rebalance will not be achieved by end March 2018, OPEC could extend the cuts through 2018 and 2019 and return to the market once non-OPEC ex-US oil production starts to decline.
- **Walk away** as happened in November 2014 when OPEC moved to a market share strategy. With US shale oil now 'out of the box', we do not believe that a period of sharply lower oil prices is likely to benefit either OPEC or non-OPEC. Nonetheless, we cannot discount the risk that OPEC decides to reiterate that they are the market leader.

We must remember that the successful IPO of Saudi Aramco in 2018 is a material requirement of the de facto OPEC leader, Saudi, and will affect its choice of strategy for OPEC.

Oil demand growth intact

If oil were to average $50/bl, the world will spend around 2.3% of GDP on oil in 2017. This is considerably lower than the average world 'oil bill' from 1970 to 2015 of 3.4% and keeps the spend on oil comparable to the 'cheap' 1986-2003 range (averaging 1.9% GDP).

Despite a small blip at the start of 2017, the low oil price is keeping global oil demand on course for a third successive year of strong growth, currently estimated at 1.2m b/day. At the heart of this is the non-OECD, with Chinese demand expected to grow but over 4% (up from an IEA forecast of 3% at the start of 2017), backed by a similar growth rate in other parts of Asia. The global middle class' love affair with larger passenger vehicles continues; Chinese SUV sales were up by 21% in the first quarter of 2017 (versus electric car sales up by 5%), while US SUV/crossover sales were up by 7% to June 2017, despite total vehicle sales in the US being down slightly.

With global GDP forecasts having been revised higher for 2017, we also expect non-transportation demand for oil to be stronger than first thought, and overall expect the IEA's expectation of 1.2m b/day growth for 2017 to be revised higher.

Pulling all this together

The next 12 months will remain volatile as US oil production grows, non-OPEC ex-US oil production remains relatively resilient and OPEC are required to take ownership of the market to control their interests. Given the growth in oil demand expected over this period, the quota cut to end March 2018 should be sufficient to bring inventories back to normal levels, although US production will still remain a key variable in defining this. Moreover, there is the increasing risk of production outages ahead since Libya and Nigeria have now essentially returned to the market and there is limited spare capacity elsewhere. Also, it does not appear that increasing political risks (Venezuela, North Korea and Qatar as examples) are being discounted in the current crude oil price.

It is likely that oil prices remain range bound during the next 18 months and we see a $45-60 range as plausible. If oil prices are too low, capex will fall and US growth will stagnate (leading to rising prices) while if prices are too high we will see capex increases and the US will grow too fast (leading to lower prices). We are at the bottom of this price range currently and sentiment towards energy equities is currently very low.

With such contradictory events and with weaker oil prices, it is not surprising that energy equities have suffered in the first half of 2017. Sentiment remains very poor and, while oil prices may not be back at the low seen in Feb 2016, the relative valuation and sentiment towards energy equities appears to be back at those levels.

We analyse our universe of energy equities at $40, $50, $60 and $70 oil prices and calculate that an oil price of around $50/bl is baked into the valuation of our energy portfolio. With long dated oil prices around $56, we see room for some optimism but are still wary of near term price movements. If deflationary trends continue without OPEC guardianship and oil prices average $40/bl then there is further downside in energy equities. However, should long dated oil prices recover to the top of our near term range ($60/bl) and the market reflect that in energy equities than there is over 30% upside in the portfolio.

From the perspective of energy companies operating in this market, for all the 'success' of US shale in its return to growth at current oil prices, there are virtually no producing companies generating a return that is above cost of capital, even in the prolific Permian basin. This gives us optimism that economic

logic will eventually prevail in oil market, as it has done in previous cycles, leading to an oil price that does allow an economic return for participants. We see this closer to the long-run marginal cost of supply ($60-70/bl).

2. Performance – Guinness Atkinson Global Energy Fund

The main index of oil and gas equities, the MSCI World Energy Index, was down by 4.73% in the second quarter of 2017. The S&P 500 Index was up by 3.09% over the same period. The Guinness Atkinson fund was down by 8.18% over this period (all in US dollar terms).

Higher cost and higher financial leverage North American oriented companies were generally the poorer performers over the quarter. Devon Energy, Newfield and Carrizo Energy were examples of Exploration & Production companies that suffered while Unit Corp and Helix Energy Solutions were examples of Service companies that also suffered.

At the positive end of the portfolio, stand out strong performance came from SunPower and OMV. Solar stocks in general were strong performers, and SunPower benefitted from this theme, while OMV benefitted from market appreciation for an asset trade with Gazprom and recognition of its low valuation multiples. European integrated oils were generally stronger than their peers with RD/Shell and BP delivering positive, albeit small, returns over the quarter.

Performance as of June 30, 2017 (inception date is June 30, 2004)

Inception date 6/30/04	Full Year 2010	Full Year 2011	Full Year 2012	Full Year 2013	Full Year 2014	Full Year 2015	Full Year 2016	YTD 2017	1 year (annualized)	Last 5 years (annualized)	Since Inception (annualized)
Global Energy Fund	16.63%	-13.16%	3.45%	24.58%	-19.62%	-26.99%	27.04%	-15.20%	-6.32%	-2.86%	5.83%
MSCI World Energy Index	12.73%	0.71%	2.54%	18.98%	-10.93%	-22.02%	26.96%	-9.28%	-0.84%	0.40%	5.76%
S&P 500 Index	15.06%	2.09%	15.99%	32.36%	13.66%	1.38%	11.76%	9.34%	17.89%	14.60%	8.19%

Source: Bloomberg
Expense ratio: 1.53% (gross) 1.45% (net)

Performance data quoted represent past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. For most recent month-end and quarter-end performance, visit https://www.gafunds.com/our-funds/#fund_performance or call (800) 915-6566.

4. Portfolio – Guinness Atkinson Global Energy Fund

In June we sold our holding in Carrizo Oil & Gas and switched into a holding in Oasis Petroleum. Both Carrizo and Oasis are US oil shale-focused companies, Carrizo operating primarily in the Eagleford basin and Oasis Petroleum operating primarily in the Bakken basin. Both companies have executed on production growth plans relatively well over the last twelve months, but we perceived a better opportunity in Oasis in terms of the depth of its inventory and improving cost base, relative to the current valuation of each stock. We expect Oasis to perform a little better than Carrizo, therefore, at lower oil prices, while maintaining as good leverage to a recovering oil price.

Sector Breakdown

The following table shows the asset allocation of the Fund at **June 30, 2017**.

(%)	31 Dec 2008	31 Dec 2009	31 Dec 2010	31 Dec 2011	31 Dec 2012	31 Dec 2013	31 Dec 2014	31 Dec 2015	31 Dec 2016	30 Jun 2017	*Change YTD*
Oil & Gas	**96.4**	**96.1**	**93.2**	**98.5**	**98.6**	**95.6**	**95.3**	**94.4**	**97.9**	**96.6**	***-1.3***
Integrated	53.7	47.2	41.2	39.6	39.1	39.6	37.5	40.5	45.8	43.5	*-2.3*
Exploration and production	28.7	32.0	36.9	41.5	41.6	36.8	38.1	37.0	37.3	35.9	*-1.4*
Drilling	5.2	8.4	6.3	6.0	7.4	6.8	3.1	1.7	2.3	1.6	*-0.7*
Equipment and services	6.4	5.4	5.3	6.6	7.1	9.0	13.1	11.1	8.9	8.1	*-0.8*
Storage & transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	*3.5*
Refining and marketing	2.4	3.1	3.5	4.8	3.4	3.4	3.5	4.1	3.6	3.9	*0.3*
Coal and consumables	**2.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solar	**0.0**	**0.0**	**3.2**	**1.2**	**1.2**	**2.8**	**3.5**	**4.9**	**1.0**	**1.8**	**0.8**
Construction and engineering	**0.4**	**0.4**	**0.4**	**0.4**	**0.6**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Cash	**0.9**	**3.5**	**3.2**	**-0.1**	**-0.4**	**0.7**	**1.2**	**0.7**	**1.1**	**1.6**	**0.5**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**0.0**

Source: Guinness Atkinson Asset Management
Basis: Global Industry Classification Standard (GICS
Holdings are subject to change at any time

Guinness Atkinson Global Energy Fund Portfolio

Based on the information shown previously, the table below shows the fund valuation in terms of historical and forward (analyst consensus estimates from Bloomberg) price/earnings (P/E) ratios versus the S&P500 Index.

	2009	2010	2011	2012	2013	2014	2015	2016	2017E
Fund P/E	14.1	9.3	8.0	8.2	9.2	10.0	20.5	33.5	21.3
S&P 500 P/E	41.6	28.2	24.5	24.4	22.0	20.7	23.5	22.2	18.1
Premium (+) / Discount (-)	-66%	-67%	-67%	-66%	-58%	-52%	-13%	51%	18%
Average oil price (WTI $)	$62/bbl	$80/bbl	$95/bbl	$94/bbl	$98/bbl	$93/bbl	$48/bbl	$43/bbl	$55/bbl

Source: Standard and Poor's; Guinness Atkinson Asset Management Ltd
Forecasts are inherently limited and cannot be relied upon. Holdings are subject to change.

Portfolio Holdings

Our integrated and similar stock exposure (c.29%) is comprised of a mix of mid cap, mid/large cap and large cap stocks. Our four large caps are Chevron, BP, Royal Dutch Shell and Total. Mid/large and mid-caps are ENI, Statoil, Hess and OMV. At June 30 2017, the median P/E ratios of this group were 16.1x/13.9x 2017/2018 earnings. We also have two Canadian integrated holdings, Suncor and Imperial Oil. Both companies have significant exposure to oil sands in addition to downstream assets.

Our exploration and production holdings (c.36%) give us exposure most directly to rising oil and natural gas prices. We include in this category non-integrated oil sands companies, as this is the GICS approach. The stock here with oil sands exposure is Canadian Natural Resources. The pure E&P (exploration & production) stocks have a bias towards the US (Newfield, Devon, Oasis Petroleum and QEP Resources), with four other names (Apache, Occidental, ConocoPhillips, Noble) having significant international production and one (Tullow) which is African focused. One of the key metrics behind a number of the E&P stocks held is low enterprise value / proven reserves. Almost all of the US E&P stocks held also provide some exposure to North American natural gas.

We have exposure to four (pure) emerging market stocks in the main portfolio, though one is a half-position, and in total represent 11% of the portfolio. Two are classified as integrateds (Gazprom and PetroChina) and two as E&P companies (CNOOC and SOCO International). Gazprom is the Russian national oil and gas company which produces approximately a quarter of the European Union gas demand and trades on 4.2x 2017 earnings. PetroChina is one of the world's largest integrated oil and gas companies and has significant growth potential and, alongside CNOOC, enjoys advantages as a Chinese national champion. SOCO International is an E&P company with production in Vietnam.

The portfolio contains one midstream holding, Enbridge, North America's largest pipeline company. With the growth of onshore oil and gas production expected in the US and Canada over the next five years, we believe Enbridge is well placed to execute its pipeline expansion plans.

We have useful exposure to oil service stocks, which comprise around 9.7% of the portfolio. The stocks we own are split between those which focus their activities in North America (land driller Unit Corp) and those which operate in the US and internationally (Helix, Halliburton and Schlumberger).

Our independent refining exposure is currently in the US in Valero, the largest of the US refiners. Valero has a reasonably large presence on the US Gulf Coast and has benefited from the rise in US exports of refined products seen in recent times.

Our alternative energy exposure is currently split between two companies: JA Solar and Sunpower. JA Solar is a Chinese solar cell and module manufacturer while Sunpower is a more diversified US solar developer. We see them as well placed to benefit from the expansion in the solar market we expect to continue for a number of years.

Portfolio at June 30 2017

Guinness Atkinson Global Energy Fund 30 June 2017					2010	2011	2012	2013	2014	2015	2016	2017	2018
Stock	ID_ISIN	Curr.	Country	% of NAV	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER	B'berg mean PER
Integrated Oil & Gas													
Chevron	US1667641005	USD	US	3.83	11.2	7.8	8.5	9.4	10.9	28.7	75.2	23.6	19.0
Royal Dutch Shell PLC	GB00B03MLX29	EUR	NL	3.40	8.6	6.4	6.3	8.3	7.3	15.5	25.5	15.0	12.7
BP PLC	GB0007980591	GBP	GB	3.70	5.1	5.1	6.3	7.8	9.3	16.4	31.3	17.6	13.9
Total SA	FR0000120271	EUR	FR	3.88	9.4	8.4	8.0	9.0	9.2	11.7	13.8	12.2	10.9
ENI SpA	IT0003132476	EUR	IT	3.72	7.0	6.7	6.6	10.5	12.2	57.0	nm	21.7	15.7
Statoil ASA	NO0010096985	NOK	NO	3.77	7.2	6.2	5.5	6.8	9.5	23.1	117.2	16.1	13.9
Hess Corp	US42809H1077	USD	US	3.49	8.5	7.3	7.4	7.7	10.5	nm	nm	nm	nm
OMV AG	AT0000743059	EUR	AT	3.29	11.4	14.3	9.9	12.2	15.0	13.4	13.8	10.7	12.8
				29.07									
Integrated Oil & Gas - Canada													
Suncor Energy Inc	CA8672241079	CAD	CA	3.79	23.9	10.6	11.8	11.9	11.8	33.7	nm	20.8	18.7
Canadian Natural Resources Ltd	CA1363851017	CAD	CA	3.48	15.4	16.2	23.5	16.7	10.9	269.2	nm	26.9	16.1
Imperial Oil	CA4530384086	CAD	CA	3.77	16.5	10.3	9.1	11.8	9.9	21.2	62.8	20.3	18.2
				11.04									
Integrated Oil & Gas - Emerging market													
PetroChina Co Ltd	CNE1000003W8	HKD	HK	3.55	5.6	5.5	6.4	7.1	7.0	21.7	84.9	21.1	15.0
Gazprom OAO	US3682872078	USD	RU	3.13	3.3	2.3	2.4	2.2	3.4	2.4	3.2	4.2	3.6
				6.68									
Oil & Gas E&P													
Apache Corp	US0374111054	USD	US	3.86	5.2	4.0	5.0	5.9	8.6	nm	nm	58.2	35.8
Occidental Petroleum Corp	US6745991058	USD	US	3.65	10.6	7.2	8.6	8.6	10.3	360.7	nm	62.8	37.0
ConocoPhillips	US20825C1045	USD	US	3.75	7.4	5.2	7.7	7.8	8.3	nm	nm	96.0	24.9
QEP Resources Inc	US74733V1008	USD	US	1.47	7.3	6.2	8.1	7.2	7.2	nm	nm	nm	nm
Devon Energy Corp	US25179M1036	USD	US	3.10	5.4	5.3	9.9	7.5	6.2	13.0	nm	17.1	13.0
Noble Energy Inc	US6550441058	USD	US	3.36	13.7	10.8	12.4	9.1	12.1	496.5	nm	nm	74.3
Newfield Exploration Co	US6512901082	USD	US	3.07	6.2	7.0	11.7	15.8	15.4	39.3	26.5	12.4	10.5
Oasis Petroleum Inc	US6742151086	USD	US	1.63	62.1	12.6	7.1	3.8	4.3	13.1	nm	nm	57.6
				23.89									
International E&P													
CNOOC Ltd	HK0883013259	HKD	HK	3.47	6.4	4.8	5.1	5.2	6.3	18.7	nm	14.0	11.0
Tullow Oil PLC	GB0001500809	GBP	GB	1.43	14.6	3.3	3.0	22.4	nm	nm	nm	14.3	10.9
Soco International PLC	GB00B572ZV91	GBP	GB	1.10	12.2	7.9	2.2	2.3	3.6	nm	nm	252.1	25.6
				5.99									
Midstream													
Enbridge Inc	CA29250N1050	USD	CA	3.52	49.6	44.7	41.2	38.0	34.8	31.5	29.1	30.5	25.1
				3.52									
Drilling													
Unit Corp	US9092181091	USD	US	1.64	6.2	4.6	4.5	5.1	4.4	nm	nm	25.2	11.7
				1.64									
Equipment & Services													
Halliburton Co	US4062161017	USD	US	3.28	21.2	12.8	14.4	13.8	10.9	28.9	nm	43.9	16.8
Helix Energy Solutions Group Inc	US42330P1075	USD	US	1.53	10.7	3.8	3.0	5.2	2.9	33.4	nm	nm	44.1
Schlumberger	AN8068571086	USD	US	3.25	23.9	18.2	15.7	13.8	11.9	19.7	57.0	45.5	24.0
				8.06									
Solar													
JA Solar Holdings Co Ltd	US4660902069	USD	US	1.16	0.9	nm	nm	nm	7.4	3.7	8.7	25.3	13.0
SunPower Corp	US8676524064	USD	US	0.68	6.5	113.9	62.3	6.6	7.1	4.7	nm	nm	106.1
				1.84									
Oil & Gas Refining & Marketing													
Valero Energy Corp	US91913Y1001	USD	US	3.91	42.5	17.0	13.8	16.4	11.1	7.7	18.4	14.7	11.4
				3.91									
Research portfolio													
Cluff Natural Resources PLC	GB00B6SYKF01	GBP	GB	0.41	nm	nm	nm	nm	nm	nm	nm	nm	nm
EnQuest PLC	GB00B635TG28	GBP	GB	1.18	4.7	5.3	1.6	1.8	3.3	31.6	2.1	nm	3.0
JKX Oil & Gas PLC	GB0004697420	GBP	GB	0.42	0.6	0.7	1.0	1.8	5.1	nm	nm	nm	nm
Ophir Energy PLC	GB00B24CT194	GBP	GB	0.15	nm	nm	nm	nm	2.0	nm	nm	nm	nm
Shandong Molong Petroleum Machinery Co	CNE1000001N1	HKD	HK	0.08	2.3	3.1	nm	nm	nm	nm	nm	nm	nm
Sino Gas & Energy Holdings Ltd	AU000000SEH2	AUD	AU	0.36	nm	nm	86.0	nm	86.0	nm	nm	17.2	4.8
WesternZagros Resources Ltd	CA9600081009	CAD	CA	0.16	nm	nm	nm	nm	nm	nm	nm	nm	nm
				2.76									
			Cash	1.61									
			Total	100									
			PER		7.7	6.8	7.0	7.7	8.5	18.9	31.4	21.3	15.1
			Med. PER		8.5	6.8	7.9	7.8	9.2	21.5	26.5	20.8	15.3
			Ex-gas PER		8.0	7.1	6.9	7.9	8.7	18.0	28.3	20.7	14.6

Research holding

The Fund's portfolio may change significantly over a short period of time; no recommendation is made for the purchase or sale of any particular stock.

Forecasts are inherently limited and cannot be relied upon. Holdings are subject to change.

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.

MSCI World Energy Index is the energy sector of the MSCI World Index (an unmanaged index composed of more than 1400 stocks listed in the US, Europe, Canada, Australia, New Zealand, and the Far East) and as such can be used as a broad measurement of the performance of energy stocks.

MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

The S&P 500 Index is a broad based unmanaged index of 500 stocks, which is widely recognized as representative of the equity market in general.

One cannot invest directly in an index.

The Henry Hub pipeline is the pricing point for natural gas futures on the New York Mercantile Exchange.

Price to earnings (P/E) ratio (PER) reflects the multiple of earnings at which a stock sells and is calculated by dividing current price of the stock by the company's trailing 12 months' earnings per share

The New York Mercantile Exchange is the world's largest physical commodity futures exchange.

Enterprise Value, or EV for short, is a measure of a company's total value, often used as a more comprehensive alternative to equity market capitalization

Standard Deviation (SD) is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

Debt/EBITDA is a measure of a company's ability to pay off its incurred debt. This ratio gives the investor the approximate amount of time that would be needed to pay off all debt, ignoring the factors of interest, taxes, depreciation and amortization.

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

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